PROPOSED RULE MAKING

CR-102 (June 2012)
(Implements RCW 34.05.320)
Do **NOT** use for expedited rule making

Agency: State Board of Health

☒ **Preproposal Statement of Inquiry was filed as WSR** 14-06-036 **; or**
☐ **Expedited Rule Making--Proposed notice was filed as WSR _ ; or**
☐ **Proposal is exempt under RCW 34.05.310(4) or 34.05.330(1).**

☒ **Original Notice**
☐ **Supplemental Notice to WSR**
☐ **Continuance of WSR**

Title of rule and other identifying information: (Describe Subject)

Chapter 246-290 WAC, Group A public water supplies. The proposed rule adopts the federal Revised Total Coliform Rule (RTCR), revises the water system planning submittal timeframe, establishes requirements for emergency sources and supplies, revises the triggers for requiring continuous disinfection and monitoring, and technical changes to clarify existing requirements.

Hearing location(s): SeaTac Red Lion Hotel
Rainier Room
18220 International Boulevard
Seattle, Washington 98188

Date: October 12, 2016 Time: 1:30 p.m.

Date of intended adoption: 10/12/2016
(Note: This is **NOT** the **effective** date)

Submit written comments to:
Name: Theresa Phillips
Address: Department of Health
PO Box 47820
Olympia Washington 98504-7820
e-mail: https://fortress.wa.gov/doh/policyreview
fax N/A by (date) 09/28/2016

Assistance for persons with disabilities: Contact
Melanie Hisaw by 10/07/2016
TTY (800) 833-6388 or () 711

Purpose of the proposal and its anticipated effects, including any changes in existing rules:

The public health objective of the RTCR is to strengthen protection against microbial contamination in Group A public water systems as required by the U. S. Environmental Protection Agency (EPA). The proposal amends water system planning requirements to lengthen the planning timeframe from six to ten years to reduce costs without jeopardizing public health. The proposal sets new requirements for water systems that choose to use an emergency source or truck water during an emergency to ensure drinking water is safe. Clarifies disinfection requirements to improve public health protection. The proposal makes technical changes to existing requirements to make the rule easier to understand and use.

Reasons supporting proposal:

The Department of Health has a primacy agreement with EPA to assume lead responsibilities for implementation of the Safe Drinking Water Act which requires adopting federal rules into state rules. The proposal will reduce costs to water systems that are required to submit a water system plan to the department by lengthening the planning timeframe and streamlining planning criteria. It clarifies which sources are vulnerable to contamination and requires disinfection, and setting new emergency source and supply requirements for those systems that respond to drinking water emergencies.

Statutory authority for adoption:
RCW 43.20.050

Statute being implemented:
RCW 70.119A.080

Is rule necessary because of a:

Federal Law?	☐ Yes	☒ No
Federal Court Decision?	☐ Yes	☒ No
State Court Decision?	☐ Yes	☒ No

If yes, CITATION:

DATE 08/23/2016

NAME (type or print)
Michelle A Davis

SIGNATURE
Michelle A Davis

TITLE
Executive Director

CODE REVISER USE ONLY

OFFICE OF THE CODE REVISER
STATE OF WASHINGTON
FILED

DATE: August 23, 2016
TIME: 4:08 PM

WSR 16-17-139

(COMPLETE REVERSE SIDE)

Agency comments or recommendations, if any, as to statutory language, implementation, enforcement, and fiscal matters:

None

Name of proponent: (person or organization) Washington State Board of Health

☐ Private
☐ Public
☒ Governmental

Name of agency personnel responsible for:

	Name	Office Location	Phone
Drafting.....	Theresa Phillips	111 Israel Rd SE, Tumwater, WA 98501	360-236-3147
Implementation....	Garin Schrieve	243 Israel Rd SE, Tumwater, WA 98501	360-236-3100
Enforcement.....	Garin Schrieve	243 Israel Road SE, Tumwater, WA 98501	360-236-3100

Has a small business economic impact statement been prepared under chapter 19.85 RCW or has a school district fiscal impact statement been prepared under section 1, chapter 210, Laws of 2012?

☒ Yes. Attach copy of small business economic impact statement.

A copy of the statement may be obtained by contacting:
Name: Theresa Phillips
Address: Department of Health
PO Box 47820
Olympia Washington 98504-7820

phone 360-236-3147
fax N/A
e-mail theresa.phillips@doh.wa.gov

☐ No. Explain why no statement was prepared.

Is a cost-benefit analysis required under RCW 34.05.328?

☒ Yes A preliminary cost-benefit analysis may be obtained by contacting:
Name: Theresa Phillips
Address: Department of Health
PO Box 47820
Olympia Washington 98504-7820

phone 360-236-3147
fax N/A
e-mail theresa.phillips@doh.wa.gov

☐ No: Please explain:

Small Business Economic Impact Statement

Chapter 246-290 WAC
Group A Public Water Supplies
July 2016

SECTON 1:

Describe the proposed rule, including: a brief history of the issue; an explanation of why the proposed rule is needed; and a brief description of the probable compliance requirements and the kinds of professional services that a small business is likely to need in order to comply with the proposed rule.

The department conducted a review of chapter 246-290 WAC, Group A public water supplies (Group A rule). After analyzing feedback from both staff and stakeholders, the department identified water system planning, emergency sources and supplies, and disinfection as three parts of the Group A rule that could be improved In addition, the EPA adopted the Revised Total Coliform Rule (RTCR), which must be adopted by the State Board of Health (Board) to maintain primacy. The board is proposing to revise the Group A rules to improve public health protection, streamline regulations, provide clarity, and improve consistency between state and federal regulations by:

- Adopting EPA's RTCR into state rules;
- Amending requirements for water system planning to provide greater flexibility;
- Adding a new rule section on emergency sources and supplies to set requirements for systems that have an emergency source and converts long-standing guidance concerning supplies (trucked water) into rule; and
- Amending requirements for disinfection to strengthen public health protection.

In addition to these changes, the Board is proposing technical corrections and clarifications to existing requirements throughout the chapter to make the rule easier to understand and use.

<u>Rule Revision Background</u>

Revised Total Coliform Rule (RTCR)
As part of the primacy agreement, states must adopt and administer rules that are no less stringent than the federal rules. In order to maintain our primacy agreement, the RTCR must be adopted into state rules. The RTCR provides greater public health protection by improving the original Total Coliform Rule of 1989. The RTCR requires systems that are vulnerable to microbial contamination to identify and fix problems, makes adjustments to existing monitoring requirements based on system type and size and compliance history, sets new requirements for seasonal systems, and strengthens public notice requirements when systems incur violations such as failing to conduct an assessment or fix identified problems.

Water System Planning
Some systems must submit water system plan updates to the department every six years. For many of these water systems, the public health benefit may not justify the cost of the requirements. In order to streamline regulations, provide clarity, improve consistency, and reduce costs for stakeholders without jeopardizing public health, the proposal:

- Revises the timeframe for water system plan updates from six years to ten years with the option to choose a shorter timeframe.
- Revises the planning elements and forecasting requirements to align with the new timeframe for water system plan approvals.
- Revises the triggers for expanding systems to submit a water system plan.

- Removes requirements that prevent extending service beyond the retail service area without redefining the retail service area in a plan amendment, and broadens local government consistency determination requirements.
- Clarifies conditions and options for water system plan amendments.
- Simplifies service area definitions.

Emergency Sources and Supplies
To improve public health protection, the proposal sets requirements for systems that have an emergency source of supply, and converts long-standing guidance for the use of trucked water into rule.

- Requires systems with an emergency source to include information in its emergency response program such as engineering design, a monitoring schedule, emergency activation, and operational procedures.
- Sets conditions under which an emergency source can be physically connected to the distribution system when not in service, and if conditions are not met, requires systems to physically disconnect the emergency source when not in use.
- Requires systems to receive permission prior to using trucked water during an emergency event, and sets disinfection, storage, and recordkeeping requirements.

Disinfection
The Group A rule includes varying disinfection methods and requirements that were adopted to meet the needs of water systems with specific water quality issues, and other requirements were adopted to align with federal rules. The department identified areas that could be improved, including:

- Revisions to the triggers for continuous disinfection.
- Revisions to monitoring and reporting requirements to provide flexibility.
- New requirements for systems that desalinate seawater using reverse osmosis.
- Clarifies criteria for treatment techniques and reporting violations.

In analyzing the potential impact of the proposed rule on investor owned water utilities (IOWU), there are several requirements that may apply to IOWU, depending on their specific circumstances. For example, some IOWUs may have to contract with professional engineer to design a disinfection unit as a result of the changes in the proposed rule. These “applicable” costs are addressed in Section 3 of this document.

SECTION 2:

Identify which businesses are required to comply with the proposed rule using the North American Industry Classification System (NAICS) codes and what the minor cost thresholds are.

Table A:

NAICS Code (4, 5 or 6 digit)	NAICS Business Description	# of businesses in WA	Minor Cost Threshold = 1% of Average Annual Payroll	Minor Cost Threshold = .3% of Average Annual Receipts
221310	Water Supply and Irrigation Systems	141	$1418	Not Available

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SECTION 3:

Analyze the probable cost of compliance. Identify the probable costs to comply with the proposed rule, including: cost of equipment, supplies, labor, professional services and increased administrative costs; and whether compliance with the proposed rule will cause businesses to lose sales or revenue.

The following sections create "situational" requirements, that is, depending on the circumstances for an individual IOWU, they may have to complete required tasks and function. If an IOWU does not to take action to satisfy a proposed regulatory requirement, cost estimates are provided below.

Section 246-290-131 Emergency Sources and Supplies
This section establishes requirement for water systems that want to maintain an emergency source that is either physically connected or not physically connected to their system. It is unknown how many IOWU will elect to have an emergency source. If an IOWU elects to physically disconnect their emergency source, they must document in their emergency response program: 1) that the source is approved; 2) that the source has satisfactory water quality; 3) that they have procedures/operational steps when activating source; and 4) how they will inform the department and their customers when they use the source. The department's assumption is that systems that elect to maintain an emergency source or an emergency supply (trucked water option) will incur nominal costs to create required documentation. Based on input received from stakeholders, the department assumes systems will spend one to two days of additional staff time (system operator time, $30.59 hourly wage[1]) to arrange, collect and document required information to include in the required content of the emergency response program.

If an IOWU elects to maintain an emergency source that is physically connected to the distribution system, they must have an isolation valve and would have to lock-out and tag out the well pump motor starter. System specific details (size of pipe, length, location, access, etc.) will impact the cost of maintaining a physically connected emergency source. For illustrative purposes, if a system had to purchase and install a 4" isolation gate valve and lockout and tag the

[1] Bureau of Labor Statistics, Annual Mean Wage of Water and Wastewater Treatment Plant and Water System Operators by State, May 2015. http://www.bls.gov/oes/current/oes518031.htm

pump motor above ground, it could cost from $1500 to $2500[2]. There is a similar requirement for IOWUs that elect to maintain an emergency source that is physically disconnected from their distribution system to put in safeguards. For these IOWUs, the department assumes the most affordable way is to cut the well discharge pipe in two places, install a pipe flange on both ends of the removed pipe piece and on the pipe that was cut (four flanges total) (cost range of $2,000 and $3,000 per source). If the discharge pipe already has flanged sections, then the cost to remove a flanged section of pipe is only the labor and equipment cost, which will be less than creating a flanged section of pipe. Thus, the estimated costs of complying with the proposed requirements is dependent on how the IOWU connects their emergency source and could cost between $1,000 and $3,000 for one emergency source.

If an IOWU elects to truck water to address an emergency, the propose rules establishes requirements for this function. IOWU will incur costs for the required functions and generally all of these have nominal costs (typically taking a few hours of staff time). The department contacted several firms that offer trucking services for water. These firms charge clients different ways, including flat daily rates, hourly rates, hourly rates with designated maximum travel distances, and typical "time and materials" contracts (e.g., hourly rate or mileage rate plus cost of water). Given each case is unique; it is not possible to identify a cost for this service and therefore is indeterminate.

Section 246-290-451, Disinfection of drinking waters

It is unknown how many IOWU will have to install disinfection because of this proposed rule. IOWU required to disinfect because of the proposed changes will incur costs for the treatment design and review, the disinfection equipment, and ongoing costs for chemicals, operation, maintenance, testing equipment, and staff time. The department assumes that most IOWU that will have to disinfect because of the proposed changes will install "simple disinfection", which entails installing a chlorine tank, connecting pipes and measuring equipment. The department's professional engineers identified estimated costs of disinfection and shared our assumptions with several consulting professionals. The consulting professionals, in turn, provided the department with their cost estimates, which in some cases includes cost ranges (low and high cost estimates). Table 1 identifies cost estimates for simple disinfection with a capacity that ranges from 10,000 gallons per day (gpd) up to 500,000 gpd. The costs provided have large ranges, with one explanation of the differences in system capacities and are for illustrative purposes only. The actual cost of installing disinfection ultimately depends on the specific water system design, physical layout, and water quality characteristics.

[2] 4" Flanged gate valve costs approximately $1200, lock out devices and tags range from $40-$120 with labor the total cost range between $1500 and $2000. Source Grainger.com Class 300 300# Flanged Gate Valve, Inlet to Outlet Length: 12", Pipe Size: 4", Max. Fluid Temp.: 800

Table 1 Simple disinfection

Disinfection components for simple disinfection using chlorine	Costs Estimates for a system with a capacity of 10,000 to 500,000 gpd		
	Low	High	Average
Engineering design	$1,000	$12,000	$4111
Equipment (chlorine pump, solution tank, injection nozzle, etc.)	$1,000	$2,500	$1644
Flow Control if needed (controller, pulse meter)	$1000	$3,000	$2556
Instrumentation (unit measuring chlorine levels)	$75	$500	$350
Department project review costs for simple disinfection	$205	$994	$874[3]
Labor and Industries (L&I) Permit	$150	$400	$372
Installing disinfection unit including piping equipment setup and testing	$1000	$9000	$3772
Total Estimated Cost of Unit (One Time Costs)	$7794	$28194	$13629

Operation and Maintenance- taking daily reading of chlorination levels and completing monthly reports (annual costs)	$100	$6000	$1672
Operation and maintenance- Completing (semi-annual) equipment maintenance	$200	$200	$200
Annual cost of chlorine (for a 500,000 gpd unit)	$200	$3000	$1889
Total Annualized Operation and Maintenance	$840	$9400	$3916

The existing regulation requires free chlorine residual measurement by an EPA-approved method and disallows the use of test strips for chlorine residual measurements. The department does not know how many IOWUs are currently using a color wheel to measure free chlorine residual for CT6 compliance (Hach color wheels cost $52-89[4]). The proposed rules also allow IOWUs to use a digital colorimeter, which is a common device that is an EPA-approved method, to measure chlorine residual that costs approximately $415[5].

As described in this analysis, there are selected sections that could result in increased costs for select water systems (e.g., disinfection section, and the emergency source and supply section). Although select IOWU may incur these costs, the proposed rule enhances public health protection by requiring disinfection for sources vulnerable to contamination, requiring accurate measuring devices, and requiring safeguards for water systems that elect to truck water to address an emergency source). Furthermore, the rule making also makes changes that will result in cost savings to water systems (e.g., water system planning section).

[3] Per Fee WAC 246-290-990
[4] Internet search of cost color wheels http://www.hach.com/free-chlorine-color-disc-test-kit-model-cn-66f/product
[5] Internet search of cost of pocket colorimeter http://www.hach.com/pocket-colorimeter-ii-chlorine-free-and-total/product

The department's assumption is that collectively some IOWU may incur costs due to the proposed rule but the rule will not result in IOWU losing sales or revenue.

SECTION 4:

Analyze whether the proposed rule may impose more than minor costs on businesses in the industry.

Based on the preceding analysis of potential costs of the proposed rule, the department is unable to determine whether the rule will result in costs that impose more than minor cost on IOWUs. Because of this uncertainty, the department is taking the conservative position that they rule may impose more than minor costs and thus are completing this analysis.

SECTION 5:

Determine whether the proposed rule may have a disproportionate impact on small businesses as compared to the 10 percent of businesses that are the largest businesses required to comply with the proposed rule.

Given the uncertainty of costs and size of IOWU that may incur compliance costs associated with the proposed rule, the department is assuming that the rule may have a disproportionate cost on small businesses.

SECTION 6:

If the proposed rule has a disproportionate impact on small businesses, identify the steps taken to reduce the costs of the rule on small businesses. If the costs can not be reduced provide a clear explanation of why.

The department considered the mitigation methods identified in RCW 19.85.030. The department was not able to lower the cost of the proposed rule for small business. The rule could have costs for IOWU given their situation. The department was not able to reduce, modify, or eliminate substantive regulatory requirements; simplify, reduce, or eliminate record keeping and reporting requirements; delay compliance timetables; or create or implement any other mitigation techniques. Adopting these mitigation techniques was not possible because they would have undermined the intent of the rule, which is to establish regulatory requirements to protect the health of consumers using public drinking water supplies.

SECTION 7:

Describe how small businesses were involved in the development of the proposed rule.

The department completes rulemaking in a transparent collaborate process. The department maintains a list of interested parties, which includes IOWUs. The department has shared draft versions of the proposed rule with stakeholders, including IOWU, and provided them an opportunity to provide input, comments, and suggested changes to the draft rules during the rulemaking process.

SECTION 8:

Identify the estimated number of jobs that will be created or lost as the result of compliance with the proposed rule.

Based on the Legislative Significant Analysis created for the proposed rule, the department's assumption is that IOWU will not have to create (add) or remove (fire) employees because of the proposed rule.

AMENDATORY SECTION (Amending WSR 99-07-021, filed 3/9/99, effective 4/9/99)

WAC 246-290-001 Purpose and scope. (1) The purpose of this chapter is to define basic regulatory requirements and to protect the health of consumers using public drinking water supplies.

(2) The rules of this chapter are specifically designed to ensure:

(a) Adequate design, construction, sampling, management, maintenance, and operation practices; and

(b) Provision of safe and high quality drinking water in a reliable manner and in a quantity suitable for intended use.

(3) Purveyors shall be responsible for complying with the regulatory requirements of this chapter.

(4) These rules are intended to conform with Public Law 93-523, the Federal Safe Drinking Water Act of 1974, and Public Law 99-339, the Safe Drinking Water Act Amendments of 1986, and certain provisions of Public Law 104-182, the Safe Drinking Water Act Amendments of 1996.

(5) The rules set forth are adopted under chapter 43.20 RCW. Other statutes relating to this chapter are:

(a) RCW 43.20B.020, Fees for services—Department of health and department of social and health services;

(b) Chapter 43.70 RCW, Department of health;

(c) Chapter 70.05 RCW, Local health department, boards, officers—Regulations;

(d) Chapter 70.116 RCW, Public Water System Coordination Act of 1977;

(e) Chapter 70.119 RCW, Public water supply systems—((~~Certification and regulation of~~)) Operators;

(f) Chapter 70.119A RCW, Public water systems—Penalties and compliance; and

(g) Chapter 70.142 RCW, Chemical contaminants and water quality.

AMENDATORY SECTION (Amending WSR 10-20-068, filed 9/29/10, effective 11/1/10)

WAC 246-290-002 Guidance. (1) The department has numerous guidance documents available to help purveyors comply with state and federal rules regarding drinking water. These include documents on the following subjects:

(a) Compliance;
(b) Consumer and public education;
(c) Contaminants;
(d) Cross-connection control and backflow prevention;
(e) Emergency response and drinking water security;
(f) Engineering design and water treatment;
(g) Financial assistance and state revolving fund (SRF);
(h) General information;
(i) Groundwater protection;
(j) Growth management;
(k) Operations and maintenance;
(l) Operator certification;

(m) Planning and financial viability;
(n) Regulations;
(o) Small water systems;
(p) System approval;
(q) Water quality monitoring and source protection;
(r) Water system planning; and
(s) Water use efficiency.

(2) The department's guidance documents are available ((~~at minimal or no cost by contacting the office of drinking water's publication service at 360-236-3100 or 800-521-0323. Individuals can also request the documents via the internet at http://www.doh.wa.gov/ehp/dw or through conventional~~)) online at https://fortress.wa.gov/doh/eh/dw/publications/publications.cfm or through U.S. mail at P.O. Box 47822, Olympia, Washington 98504-7822.

(3) Federal guidance documents are available from the Environmental Protection Agency (EPA) for a wide range of topics. These are available from the EPA Office of Ground Water and Drinking Water web site at ((~~www.epa.gov/drink.index.cfm~~)) http://water.epa.gov/drink.index.cfm.

AMENDATORY SECTION (Amending WSR 10-20-068, filed 9/29/10, effective 11/1/10)

WAC 246-290-010 Definitions, abbreviations, and acronyms. The definitions in this section apply throughout this chapter unless the context clearly indicates otherwise.

(1) **"Acute"** means posing an immediate risk to human health.

(2) **"ADD"** means an average day demand.

(3) **"AG"** means an air gap.

(4) **"Alternative filtration technology"** means a filtration process for substantial removal of particulates (generally > 2-log *Giardia lamblia* cysts and ≥ 2-log removal of *Cryptosporidium* oocysts) by other than conventional, direct, diatomaceous earth, or slow sand filtration processes.

(5) **"Analogous treatment system"** means an existing water treatment system that has unit processes and source water quality characteristics that are similar to a proposed treatment system.

(6) **"ANSI"** means the American National Standards Institute.

(7) **"Approved air gap"** means a physical separation between the free-flowing end of a potable water supply pipeline and the overflow rim of an open or nonpressurized receiving vessel.

To be an air gap approved by the department, the separation must be at least:

(a) Twice the diameter of the supply piping measured vertically from the overflow rim of the receiving vessel, and in no case be less than one inch, when unaffected by vertical surfaces (sidewalls); and

(b) Three times the diameter of the supply piping, if the horizontal distance between the supply pipe and a vertical surface (sidewall) is less than or equal to three times the diameter of the supply pipe, or if the horizontal distance between the supply pipe and intersecting vertical surfaces (sidewalls) is less than or equal to four times the diameter of the supply pipe and in no case less than one and one-half inches.

(8) **"Approved atmospheric vacuum breaker (AVB)"** means an AVB of make, model, and size that is approved by the department. AVBs that appear on the current approved backflow prevention assemblies list developed by the University of Southern California Foundation for Cross-Connection Control and Hydraulic Research or that are listed or approved by other nationally recognized testing agencies (such as IAPMO, ANSI, or UL) acceptable to the authority having jurisdiction are considered approved by the department.

(9) **"Approved backflow preventer"** means an approved air gap, an approved backflow prevention assembly, or an approved AVB. The terms "approved backflow preventer," "approved air gap," or "approved backflow prevention assembly" refer only to those approved backflow preventers relied upon by the purveyor for the protection of the public water system. The requirements of WAC 246-290-490 do not apply to backflow preventers installed for other purposes.

(10) **"Approved backflow prevention assembly"** means an RPBA, RPDA, DCVA, DCDA, PVBA, or SVBA of make, model, and size that is approved by the department. Assemblies that appear on the current approved backflow prevention assemblies list developed by the University of Southern California Foundation for Cross-Connection Control and Hydraulic Research or other entity acceptable to the department are considered approved by the department.

(11) **"As-built drawing"** means the drawing created by an engineer from the collection of the original design plans, including changes made to the design or to the system, that reflects the actual constructed condition of the water system.

(12) **"Assessment source water monitoring"** means an evaluation of groundwater sources that may be at risk for fecal contamination. Assessment source water monitoring involves the collection of source water samples at regular intervals and analysis of those samples for fecal indicators as directed by the department.

(13) **"Authority having jurisdiction"** (formerly known as local administrative authority) means the local official, board, department, or agency authorized to administer and enforce the provisions of the Uniform Plumbing Code as adopted under chapter 19.27 RCW.

(14) **"Authorized agent"** means any person who:

(a) Makes decisions regarding the operation and management of a public water system whether or not he or she is engaged in the physical operation of the system;

(b) Makes decisions whether to improve, expand, purchase, or sell the system; or

(c) Has discretion over the finances of the system.

(15) **"Authorized consumption"** means the volume of metered and unmetered water used for municipal water supply purposes by consumers, the purveyor, and others authorized to do so by the purveyor, including, but not limited to, fire fighting and training, flushing of mains and sewers, street cleaning, and watering of parks and landscapes. These volumes may be billed or unbilled.

(16) **"AVB"** means an atmospheric vacuum breaker.

(17) **"Average day demand (ADD)"** means the total quantity of water use from all sources of supply as measured or estimated over a calendar year divided by three hundred sixty-five. ADD is typically expressed as gallons per day (gpd) per equivalent residential unit (ERU).

(18) **"AWWA"** means the American Water Works Association.

(19) **"Backflow"** means the undesirable reversal of flow of water or other substances through a cross-connection into the public water system or consumer's potable water system.

(20) **"Backflow assembly tester"** means a person holding a valid BAT certificate issued under chapter 246-292 WAC.

(21) **"Backpressure"** means a pressure (caused by a pump, elevated tank or piping, boiler, or other means) on the consumer's side of the service connection that is greater than the pressure provided by the public water system and which may cause backflow.

(22) **"Backsiphonage"** means backflow due to a reduction in system pressure in the purveyor's distribution system and/or consumer's water system.

(23) **"Bag filter"** means a pressure-driven separation device that removes particulate matter larger than 1 micrometer using an engineered porous filtration media. They are typically constructed of a nonrigid, fabric filtration media housed in a pressure vessel in which the direction of flow is from the inside of the bag to outside.

(24) **"Bank filtration"** means a water treatment process that uses a well to recover surface water that has naturally infiltrated into groundwater through a river bed or bank(s). Infiltration is typically enhanced by the hydraulic gradient imposed by a nearby pumping water supply or other well(s).

(25) **"BAT"** means a backflow assembly tester.

(26) **"Best available technology"** means the best technology, treatment techniques, or other means that EPA finds, after examination for efficacy under field conditions, are available, taking cost into consideration.

(27) **"Blended sample"** means a sample collected from two or more individual sources at a point downstream of the confluence of the individual sources and prior to the first connection.

(28) **"C"** means the residual disinfectant concentration in mg/L at a point before or at the first consumer.

(29) **"Cartridge filter"** means a pressure-driven separation device that removes particulate matter larger than 1 micrometer using an engineered porous filtration media. They are typically constructed as rigid or semi-rigid, self-supporting filter elements housed in pressure vessels in which flow is from the outside of the cartridge to the inside.

(30) **"Category red operating permit"** means an operating permit identified under chapter 246-294 WAC. Placement in this category results in permit issuance with conditions and a determination that the system is inadequate.

(31) **"CCP"** means composite correction program.

(32) **"CCS"** means a cross-connection control specialist.

(33) **"C.F.R."** means the Code of Federal Regulations.

(34) **"Chemical contaminant treatment facility"** means a treatment facility specifically used for the purpose of removing chemical contaminants.

(35) **"Clarification"** means a treatment process that uses gravity (sedimentation) or dissolved air (flotation) to remove flocculated particles.

(36) **"Clean compliance history"** means a record of:

(a) No *E. coli* MCL violations;

(b) No monitoring violations under WAC 246-290-300(3); and

(c) No coliform treatment technique trigger exceedances or treatment technique violations under WAC 246-290-320(2) or 246-290-415.

(37) **"Closed system"** means any water system or portion of a water system in which water is transferred to a higher pressure zone closed to the atmosphere, such as when no gravity storage is present.

((~~(37)~~)) (38) **"Coagulant"** means a chemical used in water treatment to destabilize particulates and accelerate the rate at which they aggregate into larger particles.

((~~(38)~~)) (39) **"Coagulation"** means a process using coagulant chemicals and rapid mixing to destabilize colloidal and suspended particles and agglomerate them into flocs.

((~~(39)~~)) (40) **"Combination fire protection system"** means a fire sprinkler system that:

(a) Is supplied only by the purveyor's water;

(b) Does not have a fire department pumper connection; and

(c) Is constructed of approved potable water piping and materials that serve both the fire sprinkler system and the consumer's potable water system.

((~~(40)~~)) (41) **"Combined distribution system"** means the interconnected distribution system consisting of the distribution systems of wholesale systems and of the consecutive systems that receive finished water.

((~~(41)~~)) (42) **"Completely treated water"** means water from a surface water source, or a groundwater source under the direct influence of surface water (GWI) source that receives filtration or disinfection treatment that fully complies with the treatment technique requirements of Part 6 of this chapter as determined by the department.

((~~(42)~~)) (43) **"Composite correction program (CCP)"** means a program that consists of two elements - a comprehensive performance evaluation (CPE) and comprehensive technical assistance (CTA).

((~~(43)~~)) (44) **"Composite sample"** means a sample in which more than one source is sampled individually by the water system and then composited by a certified laboratory by mixing equal parts of water from each source (up to five different sources) and then analyzed as a single sample.

((~~(44)~~)) (45) **"Comprehensive monitoring plan"** means a schedule that describes both the frequency and appropriate locations for sampling of drinking water contaminants as required by state and federal rules.

((~~(45)~~)) (46) **"Comprehensive performance evaluation (CPE)"** means a thorough review and analysis of a treatment plant's performance-based capabilities and associated administrative, operation and maintenance practices. It is conducted to identify factors that may be adversely impacting a plant's capability to achieve compliance and emphasizes approaches that can be implemented without significant capital improvements.

The comprehensive performance evaluation must consist of at least the following components:

(a) Assessment of plant performance;

(b) Evaluation of major unit processes;

(c) Identification and prioritization of performance limiting factors;

(d) Assessment of the applicability of comprehensive technical assistance; and

(e) Preparation of a CPE report.

((~~(46)~~)) (47) **"Comprehensive technical assistance (CTA)"** means the performance improvement phase that is implemented if the CPE results indicate improved performance potential. The system must identify and systematically address plant-specific factors. The CTA is a

combination of using CPE results as a basis for follow-up, implementing process control priority-setting techniques, and maintaining long-term involvement to systematically train staff and administrators.

((~~(47)~~)) (48) **"Confirmation"** means to demonstrate the accuracy of results of a sample by analyzing another sample from the same location within a reasonable period of time, generally not to exceed two weeks. Confirmation is when analysis results fall within plus or minus thirty percent of the original sample results.

((~~(48)~~)) (49) **"Confluent growth"** means a continuous bacterial growth covering a portion or the entire filtration area of a membrane filter in which bacterial colonies are not discrete.

((~~(49)~~)) (50) **"Consecutive system"** means a public water system that receives some or all of its finished water from one or more wholesale systems. Delivery may be through a direct connection or through the distribution system of one or more consecutive systems.

((~~(50)~~)) (51) **"Construction completion report"** means a form provided by the department and completed for each specific construction project to document:

(a) Project construction in accordance with this chapter and general standards of engineering practice;

(b) Physical capacity changes; and

(c) Satisfactory test results.

The completed form must be stamped with an engineer's seal, and signed and dated by a professional engineer.

((~~(51)~~)) (52) **"Consumer"** means any person receiving water from a public water system from either the meter, or the point where the service line connects with the distribution system if no meter is present. For purposes of cross-connection control, "consumer" means the owner or operator of a water system connected to a public water system through a service connection.

((~~(52)~~)) (53) **"Consumer's water system,"** as used in WAC 246-290-490, means any potable or industrial water system that begins at the point of delivery from the public water system and is located on the consumer's premises. The consumer's water system includes all auxiliary sources of supply, storage, treatment, and distribution facilities, piping, plumbing, and fixtures under the control of the consumer.

((~~(53)~~)) (54) **"Contaminant"** means a substance present in drinking water that may adversely affect the health of the consumer or the aesthetic qualities of the water.

((~~(54)~~)) (55) **"Contingency plan"** means that portion of the wellhead protection program section of the water system plan or small water system management program that addresses the replacement of the major well(s) or wellfield in the event of loss due to groundwater contamination.

((~~(55)~~)) (56) **"Continuous monitoring"** means determining water quality with automatic recording analyzers that operate without interruption twenty-four hours per day.

((~~(56)~~)) (57) **"Conventional filtration treatment"** means a series of processes including coagulation, flocculation, clarification, and filtration that together result in substantial particulate removal in compliance with Part 6 of this chapter.

((~~(57)~~)) (58) **"Corrective action plan"** means specific written actions and deadlines developed by the water system or the department that the system must follow as a result of either the identification of significant deficiencies during a sanitary survey or the determination of a fecal indicator-positive sample in source water monitoring.

((~~(58)~~)) (59) **"Cost-effective"** means the benefits exceed the costs.

((~~(59)~~)) (60) **"Council"** means the Washington state building code council under WAC 51-04-015(2).

((~~(60)~~)) (61) **"CPE"** means a comprehensive performance evaluation.

((~~(61)~~)) (62) **"Critical water supply service area (CWSSA)"** means a geographical area which is characterized by a proliferation of small, inadequate water systems, or by water supply problems which threaten the present or future water quality or reliability of service in a manner that efficient and orderly development may best be achieved through coordinated planning by the water utilities in the area as set forth by the Public Water System Coordination Act, chapter 70.116 RCW and chapter 246-293 WAC.

((~~(62)~~)) (63) **"Cross-connection"** means any actual or potential physical connection between a public water system or the consumer's water system and any source of nonpotable liquid, solid, or gas that could contaminate the potable water supply by backflow.

((~~(63)~~)) (64) **"Cross-connection control program"** means the administrative and technical procedures the purveyor implements to protect the public water system from contamination via cross-connections as required in WAC 246-290-490.

((~~(64)~~)) (65) **"Cross-connection control specialist"** means a person holding a valid CCS certificate issued under chapter 246-292 WAC.

((~~(65)~~)) (66) **"Cross-connection control summary report"** means the annual report that describes the status of the purveyor's cross-connection control program.

((~~(66)~~)) (67) **"CT"** or **"CTcalc"** means the product of "residual disinfectant concentration" (C) and the corresponding "disinfectant contact time" (T) i.e., "C" x "T."

((~~(67)~~)) (68) **"$CT_{99.9}$"** means the CT value required for 99.9 percent (3-log) inactivation of *Giardia lamblia* cysts.

((~~(68)~~)) (69) **"CTA"** means comprehensive technical assistance.

((~~(69)~~)) (70) **"CTreq"** means the CT value a system shall provide to achieve a specific percent inactivation of *Giardia lamblia* cysts or other pathogenic organisms of health concern as directed by the department.

((~~(70)~~)) (71) **"Curtailment"** means short-term, infrequent actions by a purveyor and its consumers to reduce their water use during or in anticipation of a water shortage.

((~~(71)~~)) (72) **"CWSSA"** means a critical water supply service area.

((~~(72)~~)) (73) **"DBPs"** means disinfection byproducts.

((~~(73)~~)) (74) **"DCDA"** means a double check detector assembly.

((~~(74)~~)) (75) **"DCVA"** means a double check valve assembly.

((~~(75)~~)) (76) **"Dead storage"** means the volume of stored water not available to all consumers at the minimum design pressure under WAC 246-290-230 (5) and (6).

((~~(76)~~)) (77) **"Demand forecast"** means an estimate of future water system water supply needs assuming historically normal weather conditions and calculated using numerous parameters, including population, historic water use, local land use plans, water rates and their impacts on consumption, employment, projected water use efficiency savings from implementation of a water use efficiency program, and other appropriate factors.

((~~(77)~~)) (78) **"Department"** means the Washington state department of health or health officer as identified in a joint plan of ((~~operation~~)) responsibility under WAC 246-290-030(1).

((~~(78)~~)) (79) **"Design and construction standards"** means department design guidance and other peer reviewed documents generally accepted by the engineering profession as containing fundamental criteria for design and construction of water facility projects. Design and construction standards are comprised of performance and sizing criteria and reference general construction materials and methods.

((~~(79)~~)) (80) **"Detectable residual disinfectant concentration"** means 0.2 mg/L free chlorine, total chlorine, combined chlorine, or chlorine dioxide.

(81) **"Diatomaceous earth filtration"** means a filtration process for substantial removal of particulates (> 2-log *Giardia lamblia* cysts) in which:

(a) A precoat cake of graded diatomaceous earth filter media is deposited on a support membrane (septum); and

(b) Water is passed through the cake on the septum while additional filter media, known as body feed, is continuously added to the feed water to maintain the permeability of the filter cake.

((~~(80)~~)) (82) **"Direct filtration"** means a series of processes including coagulation, flocculation, and filtration (but excluding sedimentation) that together result in substantial particulate removal in compliance with Part 6 of this chapter.

((~~(81)~~)) (83) **"Direct service connection"** means a service hookup to a property that is contiguous to a water distribution main and where additional distribution mains or extensions are not needed to provide service.

((~~(82)~~)) (84) **"Disinfectant contact time (T in CT)"** means:

(a) When measuring the first or only C, the time in minutes it takes water to move from the point of disinfectant application to a point where the C is measured; and

(b) For subsequent measurements of C, the time in minutes it takes water to move from one C measurement point to the C measurement point for which the particular T is being calculated.

((~~(83)~~)) (85) **"Disinfection"** means the use of chlorine or other agent or process the department approves for killing or inactivating microbiological organisms, including pathogenic and indicator organisms.

((~~(84)~~)) (86) **"Disinfection profile"** means a summary of *Giardia lamblia* inactivation through a surface water treatment plant.

((~~(85)~~)) (87) **"Distribution coliform sample"** means a sample of water collected from a representative location in the distribution system at or after the first service and analyzed for coliform presence in compliance with this chapter.

((~~(86)~~)) (88) **"Distribution-related projects"** means distribution projects such as storage tanks, booster pump facilities, transmission mains, pipe linings, and tank coating. It does not mean source of supply (including interties) or water quality treatment projects.

((~~(87)~~)) (89) **"Distribution system"** means all piping components of a public water system that serve to convey water from transmission mains linked to source, storage and treatment facilities to the consumer excluding individual services.

((~~(88)~~)) (90) **"Domestic or other nondistribution system plumbing problem((~~,~~))"** means contamination of a system having more than one service connection with the contamination limited to the specific service connection from which the sample was taken.

((~~(89)~~)) (91) **"Dual sample set"** means a set of two samples collected at the same time and same location, with one sample analyzed for TTHM and the other sample analyzed for HAA5. Dual sample sets are

collected for the purposes of conducting an IDSE under WAC 246-290-300 (6)(b)(i)(F) and determining compliance with the TTHM and HAA5 MCLs under WAC 246-290-310(4).

((~~(90)~~)) (92) **"Duplicate (verification) sample"** means a second sample collected at the same time and location as the first sample and used for verification.

((~~(91)~~)) (93) **"DVGW"** means Deutsche Vereinigung des Gas und Wasserfaches.

((~~(92)~~)) (94) **"Elected governing board"** means the elected officers with ultimate legal responsibility for operational, technical, managerial, and financial decisions for a public water system.

((~~(93)~~)) (95) **"Emergency"** means an unforeseen event that causes damage or disrupts normal operations and requires immediate action to protect public health and safety.

((~~(94)~~)) (96) **"Emergency source"** means any source that ((~~is approved by the department~~)) a purveyor intends to use for emergency purposes only((~~, is~~)) and not used for routine or seasonal water demands((~~, is physically disconnected, and is identified in the purveyor's emergency response plan~~)).

((~~(95)~~)) (97) **"Engineering design review report"** means a form provided by the department and completed for a specific distribution-related project to document:

(a) Engineering review of a project report and/or construction documents under the submittal exception process in WAC 246-290-125(3); and

(b) Design in accordance with this chapter and general standards of engineering practice.

(c) The completed form must be stamped with engineer's seal, and signed and dated by a professional engineer.

((~~(96)~~)) (98) **"EPA"** means the U.S. Environmental Protection Agency.

((~~(97)~~)) (99) **"Equalizing storage"** means the volume of storage needed to supplement supply to consumers when the peak hourly demand exceeds the total source pumping capacity.

((~~(98)~~)) (100) **"Equivalent residential unit (ERU)"** means a system-specific unit of measure used to express the amount of water consumed by a typical full-time single family residence.

((~~(99)~~)) (101) **"ERU"** means an equivalent residential unit.

((~~(100) **"Existing service area"** means a specific area within which direct service or retail service connections to customers of a public water system are currently available.~~

~~(101)~~)) (102) **"Expanding public water system"** means a public water system ((~~installing additions, extensions, changes, or alterations to their existing source, transmission, storage, or distribution facilities that will enable the system to increase in size its existing service area and/or its~~)) that increases the geographical area where direct service connections are available or increases the approved number of ((~~approved~~)) service connections. ((~~Exceptions:~~

~~(a) A system that connects new approved individual retail or direct service connections onto an existing distribution system within an existing service area; or~~

~~(b) A distribution system extension in an existing service area identified in a current and approved water system plan or project report.~~

~~(102)~~)) (103) **"Filter profile"** means a graphical representation of individual filter performance in a direct or conventional surface water filtration plant, based on continuous turbidity measurements or

total particle counts versus time for an entire filter run, from startup to backwash inclusively, that includes an assessment of filter performance while another filter is being backwashed.

((~~(103)~~)) (104) **"Filtration"** means a process for removal of particulate matter from water by passage through porous media.

((~~(104)~~)) (105) **"Financial viability"** means the capability of a water system to obtain sufficient funds to construct, operate, maintain, and manage a public water system, on a continuing basis, in full compliance with federal, state, and local requirements.

((~~(105)~~)) (106) **"Finished water"** means water introduced into a public water system's distribution system and is intended for distribution and consumption without further treatment, except as treatment necessary to maintain water quality in the distribution system (e.g., booster disinfection, addition of corrosion control chemicals).

((~~(106)~~)) (107) **"Finished water storage facility"** means a water storage structure that is integrated with a water system's distribution network to provide for variable system demands including, but not limited to, daily equalizing storage, standby storage, or fire reserves, or to provide for disinfectant contact time.

((~~(107)~~)) (108) **"Fire flow"** means the maximum rate and duration of water flow needed to suppress a fire under WAC 246-293-640 or as required under local fire protection authority standards.

((~~(108)~~)) (109) **"Fire suppression storage"** means the volume of stored water available during fire suppression activities to satisfy minimum pressure requirements per WAC 246-290-230.

((~~(109)~~)) (110) **"First consumer"** means the first service connection associated with any source (i.e., the point where water is first withdrawn for human consumption, excluding connections where water is delivered to another water system covered by these regulations).

((~~(110)~~)) (111) **"Flocculation"** means a process enhancing agglomeration and collection of colloidal and suspended particles into larger, more easily settleable or filterable particles by gentle stirring.

((~~(111)~~)) (112) **"Flowing stream"** means a course of running water flowing in a definite channel.

((~~(112)~~)) (113) **"Flow-through fire protection system"** means a fire sprinkler system that:

(a) Is supplied only by the purveyor's water;

(b) Does not have a fire department pumper connection;

(c) Is constructed of approved potable water piping and materials to which sprinkler heads are attached; and

(d) Terminates at a connection to a toilet or other plumbing fixture to prevent stagnant water.

((~~(113)~~)) (114) **"Forecasted demand characteristics"** means the factors that may affect a public water system's projected water needs.

((~~(114)~~)) (115) **"Future service area"** means a specific area a ((~~public~~)) water system in a CWSSA plans to provide water service((~~. This is~~)) as determined by a written agreement between purveyors under ((~~WAC 246-293-250 or by the purveyor's elected governing board or governing body if not required under WAC 246-293-250~~)) chapter 70.116 RCW and chapter 246-293 WAC.

((~~(115)~~)) (116) **"GAC"** means granular activated carbon.

((~~(116)~~)) (117) **"GAC10"** means granular activated carbon filter beds with an empty-bed contact time of ten minutes based on average daily flow and a carbon reactivation frequency of every one hundred eighty days, except that the reactivation frequency for GAC10 used as a best available technology for compliance with MCLs under WAC 246-290-310(4) shall be one hundred twenty days.

((~~(117)~~)) (118) **"GAC20"** means granular activated carbon filter beds with an empty-bed contact time of twenty minutes based on average daily flow and a carbon reactivation frequency of every two hundred forty days.

((~~(118)~~)) (119) **"Governing body"** means the individual or group of individuals with ultimate legal responsibility for operational, technical, managerial, and financial decisions for a public water system.

((~~(119)~~)) (120) **"gph"** means gallons per hour.

((~~(120)~~)) (121) **"gpm"** means gallons per minute.

((~~(121)~~)) (122) **"Grab sample"** means a water quality sample collected at a specific instant in time and analyzed as an individual sample.

((~~(122)~~)) (123) **"Groundwater system"** means all public water systems that use groundwater including:

(a) Consecutive systems receiving finished groundwater; or

(b) Surface water systems with groundwater sources except those systems that combine all sources prior to treatment.

((~~(123)~~)) (124) **"Groundwater under the direct influence of surface water (GWI)"** means any water beneath the surface of the ground that the department determines has the following characteristics:

(a) Significant occurrence of insects or other macroorganisms, algae, or large-diameter pathogens such as *Giardia lamblia* or, *Cryptosporidium*; or

(b) Significant and relatively rapid shifts in water characteristics such as turbidity, temperature, conductivity, or pH closely correlating to climatological or surface water conditions where natural conditions cannot prevent the introduction of surface water pathogens into the source at the system's point of withdrawal.

((~~(124)~~)) (125) **"Guideline"** means a department document assisting the purveyor in meeting a rule requirement.

((~~(125)~~)) (126) **"GWI"** means groundwater under the direct influence of surface water.

((~~(126)~~)) (127) **"GWR"** means groundwater rule.

((~~(127)~~)) (128) **"HAA5"** means haloacetic acids (five).

((~~(128)~~)) (129) **"Health officer"** means the health officer of the city, county, city-county health department or district, or an authorized representative.

((~~(129)~~)) (130) **"Heterotrophic Plate Count (HPC)"** means a procedure to measure a class of bacteria that use organic nutrients for growth. The density of these bacteria in drinking water is measured as colony forming units per milliliter and is referred to as the HPC.

((~~(130)~~)) (131) **"High health cross-connection hazard"** means a cross-connection involving any substance that could impair the quality of potable water and create an actual public health hazard through injury, poisoning, or spread of disease.

((~~(131)~~)) (132) **"HPC"** means heterotrophic plate count.

((~~(132)~~)) (133) **"Human consumption"** means the use of water for drinking, bathing or showering, hand washing, food preparation, cooking, or oral hygiene.

((~~(133)~~)) (134) **"Hydraulic analysis"** means the study of a water system's distribution main and storage network to determine present or future adequacy for provision of service to consumers within the established design parameters for the system under peak flow conditions, including fire flow. The analysis is used to establish any need for improvements to existing systems or to substantiate adequacy of design for distribution system components such as piping, elevated storage,

booster stations or similar facilities used to pump and convey water to consumers.

((~~(134)~~)) (135) **"IAPMO"** means the International Association of Plumbing and Mechanical Officials.

((~~(135)~~)) (136) **"IDSE"** means an initial distribution system evaluation.

((~~(136)~~)) (137) **"Inactivation"** means a process which renders pathogenic microorganisms incapable of producing disease.

((~~(137)~~)) (138) **"Inactivation ratio"** means the ratio obtained by dividing CTcalc by CTreq.

((~~(138)~~)) (139) **"Incompletely treated water"** means water from a surface or GWI source that receives filtration and/or disinfection treatment that does not fully comply with the treatment technique requirements of Part 6 of this chapter as determined by the department.

((~~(139)~~)) (140) **"In-line filtration"** means a series of processes, including coagulation and filtration (but excluding flocculation and sedimentation) that together result in particulate removal.

((~~(140)~~)) (141) **"In-premises protection"** means a method of protecting the health of consumers served by the consumer's potable water system, located within the property lines of the consumer's premises by the installation of an approved air gap or backflow prevention assembly at the point of hazard, which is generally a plumbing fixture.

((~~(141)~~)) (142) **"Intertie"** means an interconnection between public water systems permitting the exchange or delivery of water between those systems.

((~~(142)~~)) (143) **"kPa"** means kilo pascal (SI units of pressure).

((~~(143)~~)) (144) **"Lake or 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.

((~~(144)~~)) (145) **"Legionella"** means a genus of bacteria containing species which cause a type of pneumonia called Legionnaires' Disease.

((~~(145)~~)) (146) **"Level 1 assessment"** means an evaluation to identify the possible presence of sanitary defects, defects in distribution system coliform monitoring practices, and when possible, the likely reason that the system triggered the assessment. The assessment is conducted by the system operator or the purveyor.

(147) **"Level 2 assessment"** means an evaluation to identify the possible presence of sanitary defects, defects in distribution system coliform monitoring practices, and when possible, the likely reason that the system triggered the assessment. A level 2 assessment is a more detailed examination of the system (including the system's monitoring and operational practices) than is a level 1 assessment through the use of a more comprehensive investigation and review of available information, additional internal and external resources, and other relevant practices. The level 2 assessment is conducted by a party approved by the department.

(148) **"Limited alternative to filtration"** means a process that ensures greater removal and/or inactivation efficiencies of pathogenic organisms than would be achieved by the combination of filtration and chlorine disinfection.

((~~(146)~~)) (149) **"Local plans and regulations"** means any comprehensive plan or development regulation adopted under chapter 36.70A RCW or any other applicable comprehensive plan, land use plan, or development regulation adopted by a city, town, or county for the applicable service area.

((~~(147)~~)) (150) **"Locational running annual average (LRAA)"** means the average of sample analytical results for samples taken at a par-

ticular monitoring location during the previous four calendar quarters.

((~~(148)~~)) (151) **"Low cross-connection hazard"** means a cross-connection that could impair the quality of potable water to a degree that does not create a hazard to the public health, but does adversely and unreasonably affect the aesthetic qualities of potable waters for domestic use.

((~~(149)~~)) (152) **"LRAA"** means the locational running annual average.

((~~(150)~~)) (153) **"Major project"** means all construction projects subject to the State Environmental Policy Act (SEPA) under chapter 43.21C RCW, and meeting the requirements of WAC 246-03-030 (3)(a) ((~~and include all surface water source development, all water system storage facilities greater than one-half million gallons, new transmission lines longer than one thousand feet and larger than eight inches in diameter located in new rights of way and major extensions to existing water distribution systems involving use of pipes greater than eight inches in diameter, that are designed to increase the existing service area by more than one square mile~~)).

((~~(151)~~)) (154) **"Mandatory curtailment"** means curtailment required by a public water system of specified water uses and consumer classes for a specified period of time.

((~~(152)~~)) (155) **"Marginal costs"** means the costs incurred by producing the next increment of supply.

((~~(153)~~)) (156) **"Maximum contaminant level (MCL)"** means the maximum permissible level of a contaminant in water the purveyor delivers to any public water system user, measured at the locations identified under WAC ((~~246-290-300~~)) 246-290-310, Table ((~~3~~)) 5.

((~~(154)~~)) (157) **"Maximum contaminant level violation"** means a confirmed measurement above the MCL and for a duration of time, where applicable, as outlined under WAC 246-290-310.

((~~(155)~~)) (158) **"Maximum day demand (MDD)"** means the highest actual or estimated quantity of water that is, or is expected to be, used over a twenty-four hour period, excluding unusual events or emergencies. MDD is typically expressed as gallons per day per ERU (gpd/ERU).

((~~(156)~~)) (159) **"MCL"** means the maximum contaminant level.

((~~(157)~~)) (160) **"MDD"** means the maximum day demand.

((~~(158)~~)) (161) **"Membrane filtration"** means a pressure or vacuum driven separation process in which particulate matter larger than 1 micrometer is rejected by an engineered barrier, primarily through a size-exclusion mechanism, and which has a measurable removal efficiency of a target organism that can be verified through the application of a direct integrity test. This definition includes the common membrane technologies of microfiltration, ultrafiltration, nanofiltration, and reverse osmosis.

((~~(159)~~)) (162) **"mg/L"** means milligrams per liter (1 mg/L = 1 ppm).

((~~(160)~~)) (163) **"mL"** means a milliliter.

((~~(161)~~)) (164) **"mm"** means a millimeter.

((~~(162)~~)) (165) **"Monitoring waiver"** means an action taken by the department under WAC 246-290-300 (4)(g) or ((~~(8)~~)) (7)(f) to allow a water system to reduce specific monitoring requirements based on a determination of low source vulnerability to contamination.

((~~(163)~~)) (166) **"MRDL"** means the maximum residual disinfectant level.

((~~(164)~~)) (167) **"MRDLG"** means the maximum residual disinfectant level goal.

((~~(165)~~)) (168) **"MTTP"** means maximum total trihalomethane potential.

((~~(166)~~)) (169) **"Municipal water supplier"** means an entity that supplies water for municipal water supply purposes.

((~~(167)~~)) (170) **"Municipal water supply purposes"** means a beneficial use of water:

(a) For residential purposes through fifteen or more residential service connections or for providing residential use of water for a nonresidential population that is, on average, at least twenty-five people for at least sixty days a year;

(b) For governmental or governmental proprietary purposes by a city, town, public utility((~~,~~)) district, county, sewer district, or water district; or

(c) Indirectly for the purposes in (a) or (b) of this definition through the delivery of treated or raw water to a public water system for such use.

(i) If water is beneficially used under a water right for the purposes listed in (a), (b), or (c) of this definition, any other beneficial use of water under the right generally associated with the use of water within a municipality is also for "municipal water supply purposes," including, but not limited to, beneficial use for commercial, industrial, irrigation of parks and open spaces, institutional, landscaping, fire flow, water system maintenance and repair, or related purposes.

(ii) If a governmental entity holds a water right that is for the purposes listed in (a), (b), or (c) of this definition, its use of water or its delivery of water for any other beneficial use generally associated with the use of water within a municipality is also for "municipal water supply purposes," including, but not limited to, beneficial use for commercial, industrial, irrigation of parks and open spaces, institutional, landscaping, fire flow, water system maintenance and repair, or related purposes.

((~~(168)~~)) (171) **"Nested storage"** means one component of storage is contained within the component of another.

((~~(169)~~)) (172) **"Nonacute"** means posing a possible or less than immediate risk to human health.

((~~(170)~~)) (173) **"Nonresident"** means a person having access to drinking water from a public water system((~~, but~~)) who lives elsewhere. Examples include travelers, transients, employees, students, etc.

((~~(171)~~)) (174) **"Normal operating conditions"** means those conditions associated with the designed, day-to-day provision of potable drinking water that meets regulatory water quality standards and the routine service expectations of the system's consumers at all times, including meeting fire flow demands. Operation under conditions such as power outages, floods, or unscheduled transmission or distribution disruptions, even if considered in the system design, are considered abnormal.

((~~(172)~~)) (175) **"NSF"** means NSF International (formerly known as the National Sanitation Foundation (NSF)).

((~~(173)~~)) (176) **"NTNC"** means nontransient noncommunity.

((~~(174)~~)) (177) **"NTU"** means a nephelometric turbidity unit.

((~~(175)~~)) (178) **"ONORM"** means Osterreichisches Normungsinstitut.

((~~(176)~~)) (179) **"Operational storage"** means the volume of distribution storage associated with source or booster pump normal cycling

times under normal operating conditions and is additive to the equalizing and standby storage components, and to fire flow storage if this storage component exists for any given tank.

((~~(177)~~)) (180) **"PAA"** means a project approval application.

((~~(178)~~)) (181) **"pCi/L"** means picocuries per liter.

((~~(179)~~)) (182) **"Peak hourly demand (PHD)"** means the maximum rate of water use, excluding fire flow, that can be expected to occur within a defined service area over a continuous sixty minute time period. PHD is typically expressed in gallons per minute (gpm).

((~~(180)~~)) (183) **"Peak hourly flow"** means, for the purpose of CT calculations, the greatest volume of water passing through the system during any one hour in a day.

((~~(181)~~)) (184) **"Performance criteria"** means the level at which a system shall operate in order to maintain system reliability compliance, in accordance with WAC 246-290-420, and to meet consumers' reasonable expectations.

((~~(182)~~)) (185) **"Permanent residence"** means any dwelling that is, or could reasonably be expected to be, occupied on a continuous basis.

((~~(183)~~)) (186) **"Permanent source"** means a public water system supply source that is used regularly each year, and based on expected operational requirements of the system, will be used more than three consecutive months in any twelve-month period. For seasonal water systems that are in operation for less than three consecutive months per year, their sources shall also be considered to be permanent.

((~~(184)~~)) (187) **"PHD"** means peak hourly demand.

((~~(185)~~)) (188) **"Plant intake"** means the works or structures at the head of a conduit through which water is diverted from a source (e.g., river or lake) into the treatment plant.

((~~(186)~~)) (189) **"Point of disinfectant application"** means the point where the disinfectant is added, and where water downstream of that point is not subject to contamination by untreated surface water.

((~~(187)~~)) (190) **"Population served"** means the number of persons, resident and nonresident, having immediate access to drinking water from a public water system, whether or not persons have actually consumed water from that system. The number of nonresidents shall be the average number of persons having immediate access to drinking water on days access was provided during that month. In the absence of specific population data, the number of residents shall be computed by multiplying the number of active services by two and one-half.

((~~(188)~~)) (191) **"Potable"** means water suitable for drinking by the public.

((~~(189)~~)) (192) **"Potential GWI"** means a source identified by the department as possibly under the influence of surface water, and includes, but is not limited to, all wells with a screened interval fifty feet or less from the ground surface at the wellhead and located within two hundred feet of a surface water, and all Ranney wells, infiltration galleries, and springs.

((~~(190)~~)) (193) **"ppm"** means parts per million (1 ppm = 1 mg/L).

((~~(191)~~)) (194) **"Premises isolation"** means a method of protecting a public water system by installation of approved air gaps or approved backflow prevention assemblies at or near the service connection or alternative location acceptable to the purveyor to isolate the consumer's water system from the purveyor's distribution system.

((~~(192)~~)) (195) **"Presedimentation"** means a preliminary treatment process used to remove gravel, sand, and other particulate material from the source water through settling before the water enters the primary clarification and filtration processes in a treatment plant.

((~~(193)~~)) (196) **"Pressure filter"** means an enclosed vessel containing properly sized and graded granular media through which water is forced under greater than atmospheric pressure.

((~~(194)~~)) (197) **"Primary disinfection"** means a treatment process for achieving inactivation of *Giardia lamblia* cysts, viruses, or other pathogenic organisms of public health concern to comply with the treatment technique requirements of Part 6 of this chapter.

((~~(195)~~)) (198) **"Primary standards"** means standards based on chronic, nonacute, or acute human health effects.

((~~(196)~~)) (199) **"Primary turbidity standard"** means an accurately prepared formazin solution or commercially prepared polymer solution of known turbidity (prepared in accordance with "standard methods") that is used to calibrate bench model and continuous turbidimeters (instruments used to measure turbidity).

((~~(197)~~)) (200) **"Project approval application (PAA)"** means a department form documenting ownership of water system, design engineer for the project, and type of project.

((~~(198)~~)) (201) **"Protected groundwater source"** means a groundwater source the purveyor shows to the department's satisfaction as protected from potential sources of contamination on the basis of hydrogeologic data and/or satisfactory water quality history.

((~~(199)~~)) (202) **"psi"** means pounds per square inch.

((~~(200)~~)) (203) **"Public forum"** means a meeting open to the general public that allows for their participation.

((~~(201)~~)) (204) **"Public water system"** is defined and referenced under WAC 246-290-020.

((~~(202)~~)) (205) **"Purchased source"** means water a purveyor purchases from a public water system not under the control of the purveyor for distribution to the purveyor's consumers.

((~~(203)~~)) (206) **"Purveyor"** means an agency, subdivision of the state, municipal corporation, firm, company, mutual or cooperative association, institution, partnership, or person or other entity owning or operating a public water system. Purveyor also means the authorized agents of these entities.

((~~(204)~~)) (207) **"PVBA"** means a pressure vacuum breaker assembly.

((~~(205)~~)) (208) **"RAA"** means the running annual average.

((~~(206)~~)) (209) **"Reclaimed water"** means effluent derived in any part from sewage from a wastewater treatment system that has been adequately and reliably treated, so that as a result of that treatment, it is suitable for beneficial use or a controlled use that would not otherwise occur, and it is no longer considered wastewater.

((~~(207)~~)) (210) **"Record drawings"** means the drawings bearing the seal and signature of a professional engineer that reflect the modifications made to construction documents, documenting actual constructed conditions of the water system facilities.

((~~(208)~~)) (211) **"Recreational tract"** means an area that is clearly defined for each occupant, but has no permanent structures with internal plumbing, and the area has been declared in the covenants or on the recorded plat in order to be eligible for reduced design considerations.

((~~(209)~~)) (212) **"Regional public water supplier"** means a water system that provides drinking water to one, or more, other public water systems.

((~~(210)~~)) (213) **"Regularly"** means four hours or more per day for four days or more per week.

((~~(211)~~)) (214) **"Removal credit"** means the level (expressed as a percent or log) of *Giardia* and virus removal the department grants a system's filtration process.

((~~(212)~~)) (215) **"Repeat sample"** means a sample collected to confirm the results of a previous analysis.

((~~(213)~~)) (216) **"Resident"** means an individual living in a dwelling unit served by a public water system.

((~~(214)~~)) (217) **"Residual disinfectant concentration"** means the analytical level of a disinfectant, measured in milligrams per liter, that remains in water following the application (dosing) of the disinfectant after some period of contact time.

((~~(215)~~)) (218) **"Retail service area"** means the specific area defined by the municipal water supplier where the municipal water supplier has a duty to provide service to all new service connections((~~. This area must include the municipal water supplier's existing service area and may also include areas where future water service is planned if the requirements of RCW 43.20.260 are met~~)) as set forth in RCW 43.20.260.

((~~(216)~~)) (219) **"RPBA"** means reduced pressure backflow assembly.

((~~(217)~~)) (220) **"RPDA"** means reduced pressure detector assembly.

((~~(218)~~)) (221) **"SAL"** means state advisory level.

((~~(219)~~)) (222) **"Same farm"** means a parcel of land or series of parcels that are connected by covenants and devoted to the production of livestock or agricultural commodities for commercial purposes and does not qualify as a **Group A** public water system.

((~~(220)~~)) (223) **"Sanitary defect"** means a defect that could provide a pathway of entry for microbial contamination into the distribution system or that is indicative of a failure or imminent failure in a barrier that is already in place.

(224) **"Sanitary survey"** means a review, inspection, and assessment of a public water system, by the department or department designee, to determine the adequacy of the system and its operation for producing and distributing safe and reliable drinking water. Each survey includes, but is not limited to, an evaluation of the following components:

(a) Source;
(b) Treatment;
(c) Distribution system;
(d) Finished water storage;
(e) Pump, pump facilities, and controls;
(f) Monitoring, reporting, and data verification;
(g) System management and operation; and
(h) Operator compliance.

((~~(221)~~)) (225) **"Satellite system management agency (SMA)"** means a person or entity that is approved by the department to own or operate public water systems on a regional or county-wide basis without the necessity for a physical connection between the systems.

((~~(222)~~)) (226) **"SCA"** means a sanitary control area.

((~~(223)~~)) (227) **"SDWA"** means the Safe Drinking Water Act.

((~~(224)~~)) (228) **"Seasonal source"** means a public water system source used on a regular basis, that is not a permanent or emergency source.

((~~(225)~~)) (229) **"Seasonal system"** means a noncommunity water system defined and referenced under WAC 246-290-020 that is not operated as a public water system on a year-round basis and starts up and shuts down at the beginning and end of each operating season.

(230) **"Secondary standards"** means standards based on factors other than health effects.

((~~(226)~~)) (231) **"SEPA"** means the State Environmental Policy Act.

((~~(227)~~)) (232) **"Service area"** means the specific area ((~~or areas~~)) a water system currently serves ((~~or plans to provide~~)) and areas where future water service is planned. This may ((~~be comprised of the existing service area, retail service area, future service area, and~~)) include areas where wholesale water is provided to other public water systems. A water system in a CWSSA includes its future service area in its service area as "future service area" as defined under chapters 70.116 RCW and 246-293 WAC.

((~~(228)~~)) (233) **"Service connection"** means a connection to a public water system designed to provide potable water to a single family residence, or other residential or nonresidential population. When the connection provides water to a residential population without clearly defined single family residences, the following formulas shall be used in determining the number of services to be included as residential connections on the WFI form:

(a) Divide the average population served each day by two and one-half; or

(b) Using actual water use data, calculate the total ERUs represented by the service connection in accordance with department design guidance.

(c) In no case shall the calculated number of services be less than one.

((~~(229)~~)) (234) **"Severe health cross-connection hazard"** means a cross-connection which could impair the quality of potable water and create an immediate, severe public health hazard through poisoning or spread of disease by contaminants from radioactive material processing plants, nuclear reactors, or wastewater treatment plants.

((~~(230)~~)) (235) **"Simple disinfection"** means any form of disinfection that requires minimal operational control in order to maintain the disinfection at proper functional levels, and that does not pose safety concerns that would require special care, equipment, or expertise. Examples include hypochlorination, UV-light, contactor chlorination, or any other form of disinfection practice that is safe to use and easy to routinely operate and maintain.

((~~(231)~~)) (236) **"Slow sand filtration"** means a process involving passage of source water through a bed of sand at low velocity (generally less than 0.10 gpm/ft^2) that results in substantial particulate removal (> 2-log *Giardia lamblia* cysts) by physical and biological mechanisms.

((~~(232)~~)) (237) **"SMA"** means a satellite system management agency.

((~~(233)~~)) (238) **"SOC"** means a synthetic organic chemical.

((~~(234)~~)) (239) **"Societal perspective"** means:

A point of view that includes a broad spectrum of public benefits((~~,~~)) including, but not limited to:

(a) Enhanced system reliability;

(b) Savings that result from delaying, deferring, or minimizing capital costs; and

(c) Environmental benefits such as increased water in streams, improvements in aquifer recharge and other environmental factors.

((~~(235)~~)) (240) **"Source meter"** means a meter that measures total output of a water source over specific time periods.

((~~(236)~~)) (241) **"Source water"** means untreated water that is not subject to recontamination by surface runoff and:

(a) For unfiltered systems, enters the system immediately before the first point of disinfectant application; and

(b) For filtered systems, enters immediately before the first treatment unit of a water treatment facility.

((~~(237)~~)) (242) **"SPI"** means a special purpose investigation.

((~~(238)~~)) (243) **"Special purpose investigation (SPI)"** means on-site inspection of a public water system by the department or designee to address a potential public health concern, regulatory violation, or consumer complaint.

((~~(239)~~)) (244) **"Special purpose sample"** means a sample collected for reasons other than the monitoring compliance specified in this chapter.

((~~(240)~~)) (245) **"Spring"** means a source of water where an aquifer comes in contact with the ground surface.

((~~(241)~~)) (246) **"SRF"** means the state revolving fund.

((~~(242)~~)) (247) **"SSNC"** means state significant noncomplier.

((~~(243)~~)) (248) **"Standard methods"** means the book, titled *Standard Methods for the Examination of Water and Waste Water,* jointly published by the American Public Health Association, American Water Works Association (AWWA), and Water Pollution Control Federation. This book is available through public libraries or may be ordered from AWWA, 6666 West Quincy Avenue, Denver, Colorado 80235. The edition to be used is that specified by EPA for the relevant drinking water parameter in 40 C.F.R. Part 141.

((~~(244)~~)) (249) **"Standby storage"** means the volume of stored water available for use during a loss of source capacity, power, or similar short-term emergency.

((~~(245)~~)) (250) **"State advisory level (SAL)"** means a level established by the department and state board of health for a contaminant without an existing MCL. The SAL represents a level that when exceeded, indicates the need for further assessment to determine if the chemical is an actual or potential threat to human health.

((~~(246)~~)) (251) **"State board of health"** and **"board"** means the board created by RCW 43.20.030.

((~~(247)~~)) (252) **"State building code"** means the codes adopted by and referenced in chapter 19.27 RCW; the state energy code; and any other codes so designated by the Washington state legislature as adopted and amended by the council.

((~~(248)~~)) (253) **"State revolving fund (SRF)"** means the revolving loan program financed by the state and federal governments and managed by the state for the purpose of assisting water systems to meet their capital needs associated with complying with the federal Safe Drinking Water Act under chapter 246-296 WAC.

((~~(249)~~)) (254) **"State significant noncomplier (SSNC)"** means a system that is violating or has violated department rules, and the violations may create, or have created an imminent or a significant risk to human health.

The violations include, but are not limited to:

(a) Repeated violations of monitoring requirements;

(b) Failure to address an exceedance of permissible levels of regulated contaminants;

(c) Failure to comply with treatment technique standards or requirements;

(d) Failure to comply with waterworks operator certification requirements; or

(e) Failure to submit to a sanitary survey.

((~~(250)~~)) (255) **"Subpart H System"** see definition for **"surface water system."**

((~~(251)~~)) (256) **"Surface water"** means a body of water open to the atmosphere and subject to surface runoff.

((~~(252)~~)) (257) **"Surface water system"** means a public water system that uses in whole, or in part, source water from a surface supply, or GWI supply. This includes systems that operate surface water treatment facilities, and systems that purchase "completely treated water" ((~~(as defined in this subsection)~~)). A "surface water system" is also referred to as a "Subpart H System" in some federal regulatory language adopted by reference and the two terms are considered equivalent for the purposes of this chapter.

((~~(253)~~)) (258) **"Susceptibility assessment"** means the completed Susceptibility Assessment Survey Form developed by the department to evaluate the hydrologic setting of the water source and assess its contribution to the source's overall susceptibility to contamination from surface activities.

((~~(254)~~)) (259) **"SUVA"** means specific ultraviolet absorption.

((~~(255)~~)) (260) **"SVBA"** means spill resistant vacuum breaker assembly.

((~~(256)~~)) (261) **"SWTR"** means the surface water treatment rule.

((~~(257)~~)) (262) **"Synthetic organic chemical (SOC)"** means a manufactured carbon-based chemical.

((~~(258)~~)) (263) **"System capacity"** means the system's operational, technical, managerial, and financial capability to achieve and maintain compliance with all relevant local, state, and federal plans and regulations.

((~~(259)~~)) (264) **"System physical capacity"** means the maximum number of service connections or equivalent residential units (ERUs) that the system can serve when considering the limitation of each system component such as source, treatment, storage, transmission, or distribution, individually and in combination with each other.

((~~(260)~~)) (265) **"T"** means disinfectant contact time in minutes.

((~~(261)~~)) (266) **"Time-of-travel"** means the time required for groundwater to move through the water bearing zone from a specific point to a well.

((~~(262)~~)) (267) **"TNC"** means transient noncommunity.

((~~(263)~~)) (268) **"TNTC"** means too numerous to count.

((~~(264)~~)) (269) **"TOC"** means total organic carbon.

((~~(265)~~)) (270) **"Too numerous to count (TNTC)"** means the total number of bacterial colonies exceeds 200 on a 47-mm diameter membrane filter used for coliform detection.

((~~(266)~~)) (271) **"Tracer study"** means a field study conducted to determine the disinfectant contact time, T, provided by a water system component, such as a clearwell or storage reservoir, used for *Giardia lamblia* cyst and virus inactivation. The study involves introducing a tracer chemical at the inlet of the contact basin and measuring the resulting outlet tracer concentration as a function of time.

((~~(267)~~)) (272) **"Transmission line"** means pipes used to convey water from source, storage, or treatment facilities to points of distribution or distribution mains, and from source facilities to treatment or storage facilities. This also can include transmission mains connecting one section of distribution system to another section of distribution system as long as this transmission main is clearly defined on the plans and no service connections are allowed along the transmission main.

((~~(268)~~)) (273) **"Treatment technique requirement"** means a department-established requirement for a public water system to provide treatment, such as filtration or disinfection, as defined by specific design, operating, and monitoring requirements. A "treatment technique requirement" is established in lieu of a primary MCL when monitoring for the contaminant is not economically or technologically feasible.

((~~(269)~~)) (274) **"Triggered source water monitoring"** means collection of groundwater source samples as a result of a total coliform-positive routine sample in the distribution system under WAC 246-290-300(3).

((~~(270)~~)) (275) **"Trihalomethane (THM)"** means one of a family of organic compounds, named as derivatives of methane, where three of the four hydrogen atoms in methane are each substituted by a halogen atom in the molecular structure. THMs may occur when chlorine, a halogen, is added to water containing organic material and are generally found in water samples as disinfection byproducts.

((~~(271)~~)) (276) **"TTHM"** means total trihalomethane.

((~~(272)~~)) (277) **"Turbidity event"** means a single day or series of consecutive days, not to exceed fourteen, when one or more turbidity measurement each day exceeds 5 NTU.

((~~(273)~~)) (278) **"Two-stage lime softening"** means a process in which chemical addition and hardness precipitation occur in each of two distinct unit clarification processes in series prior to filtration.

((~~(274)~~)) (279) **"T10"** means the time it takes ten percent of the water passing through a system contact tank intended for use in the inactivation of *Giardia lamblia* cysts, viruses, and other microorganisms of public health concern, as determined from a tracer study conducted at peak hourly flow or from published engineering reports or guidance documents for similarly configured tanks.

((~~(275)~~)) (280) **"ug/L"** means micrograms per liter.

((~~(276)~~)) (281) **"UL"** means the Underwriters Laboratories, Inc.

((~~(277)~~)) (282) **"umhos/cm"** means micromhos per centimeter.

((~~(278)~~)) (283) **"Unapproved auxiliary water supply"** means a water supply (other than the purveyor's water supply) on or available to the consumer's premises that is either not approved for human consumption by the health agency having jurisdiction or is not otherwise acceptable to the purveyor.

((~~(279)~~)) (284) **"Uncovered finished water storage facility"** means a tank, reservoir, or other facility used to store water, which will undergo no further treatment to reduce microbial pathogens except residual disinfection and is directly open to the atmosphere without a suitable water-tight roof or cover.

((~~(280)~~)) (285) **"Uniform Plumbing Code (UPC)"** means the code adopted under RCW 19.27.031(4) and implemented under chapter 51-56 WAC. This code establishes statewide minimum plumbing standards applicable within the property lines of the consumer's premises.

((~~(281)~~)) (286) **"UPC"** means the Uniform Plumbing Code.

((~~(282)~~)) (287) **"Used water"** means water which has left the control of the purveyor.

((~~(283)~~)) (288) **"UTC"** means the utilities and transportation commission.

((~~(284)~~)) (289) **"Verification"** means to demonstrate the results of a sample to be precise by analyzing a duplicate sample. Verification occurs when analysis results fall within plus or minus thirty percent of the original sample.

((~~(285)~~)) (290) **"Virus"** means a virus of fecal origin which is infectious to humans and transmitted through water.

((~~(286)~~)) (291) **"VOC"** means a volatile organic chemical.

((~~(287)~~)) (292) **"Volatile organic chemical (VOC)"** means a manufactured carbon-based chemical that vaporizes quickly at standard pressure and temperature.

((~~(288)~~)) (293) **"Voluntary curtailment"** means a curtailment of water use requested, but not required of consumers.

((~~(289)~~)) (294) **"WAC"** means the Washington Administrative Code.

((~~(290)~~)) (295) **"Waterborne disease outbreak"** means the significant occurrence of acute infectious illness, epidemiologically associated with drinking water from a public water system, as determined by the appropriate local health agency or the department.

((~~(291)~~)) (296) **"Water demand efficiency"** means minimizing water use by the public water system's consumers through purveyor sponsored activities that may include, but are not limited to, distributing water saving devices, providing rebates or incentives to promote water efficient technologies or by providing water audits to homes, businesses, or landscapes.

((~~(292)~~)) (297) **"Water facilities inventory (WFI) form"** means the department form summarizing each public water system's characteristics.

((~~(293)~~)) (298) **"Water right"** means a certificated water right, water right permit, valid claim, or other authorization, on record with or accepted by the department of ecology, authorizing the beneficial use of water in accordance with all applicable state laws.

((~~(294)~~)) (299) **"Water right self-assessment"** means an evaluation of the legal ability of a water system to use water for existing or proposed usages in conformance with state water right laws. The assessment may be done by a water system, a purveyor, the department of ecology, or any combination thereof.

((~~(295)~~)) (300) **"Watershed"** means the region or area that:

(a) Ultimately drains into a surface water source diverted for drinking water supply; and

(b) Affects the physical, chemical, microbiological, and radiological quality of the source.

((~~(296)~~)) (301) **"Water shortage"** means a situation during which the water supplies of a system cannot meet normal water demands for the system, including peak periods.

((~~(297)~~)) (302) **"Water shortage response plan"** means a plan outlining policies and activities to be implemented to reduce water use on a short-term basis during or in anticipation of a water shortage.

((~~(298)~~)) (303) **"Water supply characteristics"** means the factors related to a public water system's source of water supply that may affect its availability and suitability to provide for both short-term and long-term needs.

Factors include, but are not limited to:

(a) Source location;

(b) Name of any body of water and water resource inventory area from which water is diverted or withdrawn;

(c) Production capacity;

(d) The source's natural variability;

(e) The system's water rights for the source;

(f) Other legal demands on the source such as water rights for other uses;

(g) Conditions established to protect species listed under the Endangered Species Act in 50 C.F.R. 17.11;

(h) Instream flow restrictions established under Title 173 WAC; and

(i) Any conditions established by watershed plans approved under chapter 90.82 RCW and RCW 90.54.040(1) or salmon recovery plans under chapter 77.85 RCW.

((~~(299)~~)) (304) **"Water supply efficiency"** means increasing a public water system's transmission, storage and delivery potential through activities that may include, but are not limited to:

(a) System-wide water audits;

(b) Documenting authorized uses;

(c) Conducting leak surveys; and

(d) Repairs on:

(i) Meters;

(ii) Lines;

(iii) Storage facilities; and

(iv) Valves.

((~~(300)~~)) (305) **"Water use efficiency (WUE)"** means increasing water supply efficiency and water demand efficiency to minimize water withdrawals and water use.

((~~(301)~~)) (306) **"Water use efficiency program"** means policies and activities focusing on increasing water supply efficiency and water demand efficiency to minimize water withdrawals and water use.

((~~(302)~~)) (307) **"Well field"** means a group of wells one purveyor owns or controls that:

(a) Draw from the same aquifer or aquifers as determined by comparable inorganic chemical analysis and comparable static water level and top of the open interval elevations; and

(b) Discharge water through a common pipe and the common pipe shall allow for collection of a single sample before the first distribution system connection.

((~~(303)~~)) (308) **"Wellhead protection area (WHPA)"** means the portion of a well's, wellfield's or spring's zone of contribution defined using WHPA criteria established by the department.

((~~(304)~~)) (309) **"WFI"** means a water facilities inventory form.

((~~(305)~~)) (310) **"Wholesale system"** means a public water system that treats source water as necessary to produce finished water and then delivers some or all of that finished water to another public water system. Delivery may be through a direct connection or through the distribution system of one or more consecutive systems.

((~~(306)~~)) (311) **"WHPA"** means a wellhead protection area.

((~~(307)~~)) (312) **"WUE"** means water use efficiency.

((~~(308)~~)) (313) **"Zone of contribution"** means the area surrounding a pumping well or spring that encompasses all areas or features that supply groundwater recharge to the well or spring.

AMENDATORY SECTION (Amending WSR 11-17-062, filed 8/15/11, effective 10/1/11)

WAC 246-290-025 Adoption by reference. The following sections and subsections of Title 40 Code of Federal Regulations (C.F.R.) Part 141 National Primary Drinking Water Regulations and Part 143 National Secondary Drinking Water Regulations revised as of July 1, ((~~2009~~)) 2016, ((~~and including all amendments and modifications thereto effec-~~

~~tive as of the date of adoption of this chapter~~)) are adopted by reference:

141.2 Definitions. Only those definitions listed as follows:

Action level;

Corrosion inhibitor;

Effective corrosion inhibitor residual;

Enhanced coagulation;

Enhanced softening;

First draw sample;

Haloacetic acids (five) (HAA5);

((~~First draw sample;~~))

Large water system;

Lead service line;

Maximum residual disinfectant level (MRDL);

Maximum residual disinfectant level goal (MRDLG);

Medium-size water system;

Optimal corrosion control treatment;

Service line sample;

Single family structure;

Small water system;

Specific ultraviolet absorption (SUVA); and

Total Organic Carbon (TOC).

((~~141.12~~ ~~Maximum contaminant levels for organic chemicals.~~))

141.13 Maximum contaminant levels for turbidity.

((~~141.21~~ ~~Coliform monitoring.~~))

141.22 Turbidity sampling and analytical requirements.

141.23(a) - 141.23(j), Inorganic chemical sampling. excluding (i)(2)

141.23(m) - 141.23(o)

141.24(a) - 141.24(d), Organic chemicals ((~~other than total trihalomethanes~~)), sampling and analytical requirements.

141.24 (f)(1) - 141.24 (f)(15),

141.24 (f)(18), 141.24 (f)(19),

141.24 (f)(21), 141.24 (f)(22)

141.24 (g)(1) - 141.24 (g)(9),

141.24 (g)(12) - 141.24 (g)(14),

141.24 (h)(1) - 141.24 (h)(11),

141.24 (h)(14) - 141.24 (h)(17)

141.24 (h)(20)

141.25(a), 141.25 (c) - (d), Analytical methods for radioactivity.

141.26 Monitoring frequency and compliance for ((~~radioactivity~~)) radionuclides in community water systems.

141.31(d) Reporting ((~~of public notices and compliance certifications~~)) requirements.

141.33(e) Record maintenance ((~~of public notices and certifications~~)).

141.40	Monitoring requirements for unregulated contaminants.
141.61	Maximum contaminant levels for organic contaminants.
141.62, excluding (b)	Maximum contaminant levels for inorganic ((~~chemical and physical~~)) contaminants.
141.63(e)	Maximum contaminant levels (MCLs) for microbiological contaminants.
141.64	Maximum contaminant levels ((~~and Best Available Technologies (BATs)~~)) for disinfection byproducts.
141.65(c)	((~~Best Available Technologies (BATs) for~~)) Maximum Residual Disinfectant Levels.
141.66	Maximum contaminant levels for radionuclides.
Control of Lead and Copper	
141.80, excluding (c)(3)(v)	General requirements.
141.81	Applicability of corrosion control treatment steps to small, medium-size and large water systems.
141.82(a) -	141.82(h) Description of corrosion control treatment requirements.
141.83	Source water treatment requirements.
141.84	Lead service line replacement requirements.
141.85	Public education and supplemental monitoring requirements.
141.86 (a) - (f)	Monitoring requirements for lead and copper in tap water.
141.87	Monitoring requirements for water quality parameters.
141.88	Monitoring requirements for lead and copper in source water.
141.89	Analytical methods ((~~for lead and copper testing~~)).
141.90, excluding (a)(4)	Reporting requirements.
141.91	Recordkeeping requirements.
Disinfectants and Disinfection Byproducts (D/DBP)	
141.130	General requirements.
141.131	Analytical requirements.
141.132, excluding (c)(1)(i)	Monitoring requirements.
141.133	Compliance requirements.
141.134	Reporting and recordkeeping requirements.
141.135	Treatment technique for control of disinfection byproduct precursors.
Subpart O - Consumer Confidence Reports	
141.153 (h)(6) and (7)	Contents of the reports.
Enhanced Filtration ((~~- Reporting and Recordkeeping~~)) and Disinfection - Systems Serving 10,000 or More People	

141.175(b)	((~~Individual filter reporting and follow-up action requirements for systems treating surface water with conventional, direct, or in-line filtration and serving at least 10,000 people.~~)) Reporting and recordkeeping requirements.

Subpart Q - Public Notification of Drinking Water Violations

141.201, excluding (3)(ii) of Table 1	General public notification requirements.
141.202, excluding (3) of Table 1	Tier 1 Public Notice - Form, manner, and frequency of notice.
141.203	Tier 2 Public Notice - Form, manner, and frequency of notice.
141.204	Tier 3 Public Notice - Form, manner, and frequency of notice.
141.205	Content of the public notice.
141.206	Notice to new billing units or new customers.
141.207	Special notice of the availability of unregulated contaminant monitoring results.
141.208	Special notice for exceedances of the SMCL for fluoride.
141.211	Special notice for repeated failure to conduct monitoring of the source water for *Cryptosporidium* ((~~monitoring~~)) and for failure to determine bin classification or mean *Cryptosporidium* level.

Appendix A to Subpart Q of Part 141 - NPDWR violations and other situations requiring ((~~PN~~)) public notice

Appendix B to Subpart Q of Part 141 - Standard health effects language for ((~~PN~~)) public notification

Appendix C to Subpart Q of Part 141- List of acronyms used in ((~~PN~~)) public notification regulation

141.400	General requirements and applicability.
141.402(c)	Groundwater source microbial monitoring and analytical methods.
141.403 (b)(3)(i) through (iii)	Treatment technique requirements for groundwater systems.

Subpart T - Enhanced Filtration and Disinfection - Systems Serving Fewer Than 10,000 People

141.530 - 141.544	Disinfection profile and benchmark.
141.563	((~~Follow-up actions required.~~)) What follow-up action is my system required to take based on continuous turbidity monitoring?
141.570, excluding (c)	((~~Reporting requirements.~~)) What does Subpart T require that my system report to the state?

Subpart U ((~~and V~~)) - Initial Distribution System Evaluations ((~~and Stage 2 Disinfection Byproducts Requirements.~~))

141.600 - 141.605	Initial distribution system evaluations.

Subpart V - Stage 2 Disinfection Byproducts Requirements

141.620 - 141.629, excluding 624	Stage 2 Disinfection Byproducts Requirements.
Subpart W - Enhanced Treatment for *Cryptosporidium*	
141.700-722 Enhanced Treatment for *Cryptosporidium*	
Subpart Y - Revised Total Coliform Rule	
141.852	Analytical methods and laboratory certification.
141.860 (c) - (d)	Violations
Part 143 - National Secondary Drinking Water Regulations	
143.1	Purpose.
143.2	Definitions.
143.3	Secondary maximum contaminant levels.
143.4	Monitoring.

Copies of the incorporated sections and subsections of Title 40 C.F.R. are available from the Department of Health((,)) online at: http://www/doh.wa.gov/CommunityandEnvironment/DrinkingWater/RegulationandCompliance/Rules, or P.O. Box 47822, Olympia, Washington 98504-7822, or by calling the department's drinking water hotline at 800-521-0323.

AMENDATORY SECTION (Amending WSR 99-07-021, filed 3/9/99, effective 4/9/99)

WAC 246-290-030 General administration. (1) The department and the health officer for each local health jurisdiction may develop a joint plan of ((~~operation~~)) responsibility. Wherever in this chapter the term "department" is used, the term "health officer" may be substituted based on the terms of this joint plan of responsibility. This plan shall:

(a) List the roles and responsibilities of each agency;

(b) Specifically designate those **Group A** systems for which the department and local health officer have primary responsibility;

(c) Provide for an agreed-to level of public water system oversight;

(d) Be signed by the department and the local health department or district; and

(e) Be reviewed at least once every five years and updated as needed.

((~~Wherever in this chapter the term "department" is used, the term "health officer" may be substituted based on the terms of this plan of operation.~~))

(2) The department shall, upon request, review and report on the adequacy of water supply supervision to both the state and local boards of health.

(3) The local board of health may adopt rules governing **Group A** water systems within its jurisdiction for which the health officer has assumed primary responsibility. Adopted local board of health rules shall be:

(a) No less stringent than this chapter; and

(b) Revised, if necessary, within twelve months after the effective date of revised state board of health rules. During this time period, existing local rules shall remain in effect, except provisions of the revised state board of health rules that are more stringent than the local board of health rules shall apply.

(4) For those **Group A** water systems where the health officer has assumed primary responsibility, the health officer may approve project reports and construction documents in accordance with engineering criteria approved by the department and listed under Part 3 of this chapter and water system plans in accordance with planning criteria listed under WAC 246-290-100.

(5) ((~~An advisory committee shall be established to provide advice to the department on the organization, functions, service delivery methods, and funding of the drinking water program. Members shall be appointed by the department for fixed terms of no less than two years, and may be reappointed. The committee shall reflect a broad range of interests in the regulation of public water supplies, including water utilities of all sizes, local governments, business groups, special purpose districts, local health jurisdictions, other state and federal agencies, financial institutions, environmental organizations, the legislature, professional engineers engaged in water system design, and other groups substantially affected by the department's role in implementing state and federal requirements for public water systems.~~

~~(6)~~)) The department may develop guidance to clarify sections of the rules as needed and make these available for distribution. ((~~Copies of the~~)) Guidance may be obtained by contacting the ((~~division~~)) office of drinking water.

((~~(7)~~)) (6) Fees may be charged and collected by the department as authorized in chapter 43.20B RCW and by local health ((~~agencies~~)) jurisdictions as authorized in RCW 70.05.060 to recover all or a portion of the costs incurred in administering this chapter or that are required to be paid under WAC 246-290-990.

((~~(8)~~)) (7) All state and local agencies involved in review, approval, surveillance, testing, ((~~and/or~~)) or operation of public water systems, or issuance of permits for buildings or sewage systems shall be governed by these rules and any decisions of the department.

AMENDATORY SECTION (Amending WSR 99-07-021, filed 3/9/99, effective 4/9/99)

WAC 246-290-035 Water system ownership. (1) The following requirements apply to all newly developed public water systems:

(a) Except for systems proposed within an ((~~individual~~)) existing water system's approved service area in a ((~~critical water supply service area as governed by the Public Water System Coordination Act, chapter 70.116 RCW and chapter 246-293 WAC,~~)) CWSSA and offered service by that existing system, any proposed new public water system must be owned or operated by a department approved satellite management agency (SMA) if one is available;

(b) The approval of any proposed new public water system shall be conditioned upon the periodic review of the system's operational history to determine its ability to meet the department's financial viability and other operating requirements. If, upon periodic review, the

department determines the system is in violation of financial viability or other operating requirements, the system shall transfer ownership to an approved SMA or obtain operation and management by an approved SMA, if such ownership or operation and management can be made with reasonable economy and efficiency.

(2) An owner of a public water system who is proposing to transfer or has transferred ownership shall:

(a) Provide written notice to the department and all consumers at least one year prior to the transfer, unless the new owner agrees to an earlier date. Notification shall include a time schedule for transferring responsibilities, identification of the new owner, and under what authority the new ownership will operate. If the system is a corporation, identification of the registered agent shall also be provided;

(b) Ensure all health-related standards pursuant to this chapter are met during transfer of the utility. It shall also be the responsibility of the utility transferring ownership to inform and train the new owner regarding operation of the utility; and

(c) Comply with the operating permit requirements pursuant to chapter 246-294 WAC.

(3) The purveyor may be required to document compliance with other relevant ownership requirements, such as those pursuant to UTC jurisdiction under Title 80 RCW.

(4) No purveyor may end utility operations without providing written notice to all customers and to the department at least one year prior to termination of service. A purveyor that fails to provide such notice remains subject to the provisions of this chapter.

AMENDATORY SECTION (Amending WSR 03-08-037, filed 3/27/03, effective 4/27/03)

WAC 246-290-060 Variances, exemptions, and waivers. (1) General.

(a) The state board of health may grant variances, exemptions, and waivers of the requirements of this chapter according to the procedures outlined in subsection (5) of this section. See WAC 246-290-300 (4)(g) and ((~~(8)~~)) (7)(f) for monitoring waivers.

(b) Consideration by the board of requests for variances, exemptions, and waivers shall not be considered adjudicative proceedings as that term is defined in chapter 34.05 RCW.

(c) Statements and written material regarding the request may be presented to the board at or before the public hearing where the application will be considered. Allowing cross-examination of witnesses shall be within the discretion of the board.

(d) The board may grant a variance, exemption, or waiver if it finds:

(i) Due to compelling factors, the public water system is unable to comply with the requirements; and

(ii) The granting of the variance, exemption, or waiver will not result in an unreasonable risk to the health of consumers.

(2) Variances.

(a) MCL.

(i) The board may grant a MCL variance to a public water system that cannot meet the MCL requirements because of characteristics of the source water that is reasonably available to the system.

(ii) A MCL variance may only be granted in accordance with 40 C.F.R. 141.4.

(iii) A variance shall not be granted from the MCL for presence of ((~~total coliform~~)) *E. coli* under WAC 246-290-310(2).

(b) Treatment techniques.

(i) The board may grant a treatment technique variance to a public water system if the system demonstrates that the treatment technique is not necessary to protect the health of consumers because of the nature of the system's source water.

(ii) A treatment technique variance granted in accordance with 40 C.F.R. 141.4.

(iii) A variance shall not be granted from any treatment technique requirement under Part 6 of chapter 246-290 WAC.

(c) The board shall condition the granting of a variance upon a compliance schedule as described in subsection (6) of this section.

(3) Exemptions.

(a) The board may grant a MCL or treatment technique exemption to a public water system that cannot meet an MCL standard or provide the required treatment in a timely manner, or both, in accordance with 40 C.F.R. 141.4.

(b) No exemption shall be granted from:

(i) The requirement to provide a residual disinfectant concentration in the water entering the distribution system under WAC 246-290-662 or 246-290-692; or

(ii) The MCL for presence of ((~~total coliform~~)) *E. coli* under WAC 246-290-310(2).

(c) The board shall condition the granting of an exemption upon a compliance schedule as described in subsection (6) of this section.

(4) Waivers. The board may grant a waiver to a public water system if the system cannot meet the requirements of these regulations pertaining to any subject not covered by EPA variance and/or exemption regulations.

(5) Procedures.

(a) For variances and exemptions. The board shall consider granting a variance or exemption to a public water system in accordance with 40 C.F.R. 141.4.

(b) For waivers. The board shall consider granting a waiver upon completion of the following actions:

(i) The purveyor applies to the department in writing. The application, which may be in the form of a letter, shall clearly state the reason for the request;

(ii) The purveyor provides notice of the purveyor's application to consumers and provides proof of the notice to the department;

(iii) The department prepares a recommendation to the board; and

(iv) The board provides notice for and conducts a public hearing on the purveyor's request.

(6) Compliance schedule.

(a) The board shall condition the granting of a variance or exemption based on a compliance schedule. The compliance schedule shall include:

(i) Actions the purveyor shall undertake to comply with a MCL or treatment technique requirement within a specified time period; and

(ii) A description and time-table for implementation of interim control measures the department may require while the purveyor completes the actions required in (a)(i) of this subsection.

(b) The purveyor shall complete the required actions in the compliance schedule within the stated time frame.

(7) Extensions to variances and exemptions.

((~~(a)~~)) The board may extend the final date of compliance prescribed in the compliance schedule for a variance and/or exemption in accordance with 40 C.F.R. 141.4.

AMENDATORY SECTION (Amending WSR 10-20-068, filed 9/29/10, effective 11/1/10)

WAC 246-290-100 Water system plan. (1) The purpose of this section is to establish a uniform process for purveyors to:

(a) Demonstrate ((~~the system's operational, technical, managerial, and financial capability to achieve and maintain compliance with relevant local, state, and federal plans and regulations~~)) system capacity as defined in WAC 246-290-010;

(b) Demonstrate how the system will address present and future needs in a manner consistent with other relevant plans and local, state, and federal laws, including applicable land use plans;

(c) Establish eligibility for funding under chapter 246-296 WAC.

(2) Purveyors of the following categories of community public water systems shall submit a water system plan for review and approval by the department:

(a) Systems ((~~having~~)) serving one thousand or more service((~~s~~)) connections;

(b) Systems required to develop water system plans under the Public Water System Coordination Act of 1977 (chapter 70.116 RCW);

(c) Any system experiencing problems related to ((~~planning, operation, and/or management~~)) system capacity, as determined by the department;

(d) All new systems;

(e) Any ((~~expanding~~)) system((~~; and~~)) proposing to:

(i) Increase or otherwise modify the service area identified in a previously approved planning document; or

(ii) Increase the geographical area where direct service is provided if a planning or engineering document has not been previously approved; or

(iii) Install additions, extensions, or changes to existing source, storage, or transmission facilities and increase the approved number of service connections.

(f) Any system proposing to use the document submittal exception process in WAC 246-290-125; or

(g) Any system operating under or proposing to operate under an unspecified number of service connections.

(3) The purveyor shall work with the department to establish the relative priority and level of detail for ((~~a~~)) each element of the water system plan. ((~~In general,~~)) The ((~~scope~~)) priority and level of detail ((~~of the plan will~~)) must be related to size, complexity, water supply characteristics, forecasted demand characteristics, past performance, planning history, and use of the water system. Project reports may be combined with a water system plan.

(4) ((~~In order to demonstrate system capacity, the water system plan~~)) The purveyor shall, at a minimum, address the following elements((~~, as a minimum, for a period of at least twenty years into the future~~)) in the water system plan:

(a) Description of the water system, including:

(i) Ownership and management, including the current names, addresses, and telephone numbers of the owners, operators, and emergency contact persons for the system;

(ii) System history and background;

(iii) Related plans, such as coordinated water system plans, abbreviated coordinated water system plans, local land use plans, groundwater management plans, and basin plans;

(iv) Service area maps, ((~~characteristics, agreements, and policies. Water systems must include their existing service area and future service area. Municipal water suppliers must define their retail service area and meet the requirements under WAC 246-290-106. Municipal water suppliers must identify where their water rights place of use will be expanded to their service area if the requirements under WAC 246-290-107 have been met; and~~

~~(v)~~)) including retail service area and future service area, if applicable, and areas where wholesale water is provided to other public water systems. Municipal water suppliers shall identify the area that will expand their water rights' place of use if the requirements under WAC 246-290-107 have been met;

(v) Service area characteristics, agreements, and policies;

(vi) Satellite management, if applicable.

(b) Basic planning data, including:

(i) Current population, service connections, water use, and equivalent residential units; and

(ii) Sufficient water production and consumption data to identify trends including the following elements:

(A) Monthly and annual production totals for each source, including water purchased from another public water system;

(B) Annual usage totals for each customer class as determined by the purveyor;

(C) Annual usage totals for water supplied to other public water systems; and

(D) For systems serving one thousand or more total connections, a description of the seasonal variations in consumption patterns of each customer class defined by the purveyor.

(iii) Designated land use, zoning, ((~~future~~)) population, and water demand ((~~for a consecutive six-year~~)) within the water system's service area for the plan approval period, and at least a twenty-year planning period ((~~within the water system's service area~~)).

(c) Demand forecasts, developed under WAC 246-290-221, for ((~~a consecutive six-year and~~)) the plan approval period, and at least a twenty-year planning period. These shall show future use with and without savings expected from the system's water use efficiency program.

(d) For systems serving one thousand or more total connections, a demand forecast ((~~projecting~~)) for the plan approval period and at least a twenty-year planning period that projects demand if the measures deemed cost-effective per WAC 246-290-810 were implemented.

(e) System analysis, including:

(i) System design standards;

(ii) Water quality analysis;

(iii) ((~~System~~)) Inventory ((~~description~~)) and analysis of water system facilities; and

(iv) Summary of system deficiencies.

(f) Water resource analysis for the plan approval period and at least a twenty-year planning period, including:

(i) A water use efficiency program. Municipal water suppliers must meet the requirements in WAC 246-290-810;

(ii) Source of supply analysis, which includes:

(A) An evaluation of water supply alternatives if additional water rights will be pursued within twenty years; and

(B) A narrative description of the system's water supply characteristics and the foreseeable effect from current and future use on the water quantity and quality of any body of water from which its water is diverted or withdrawn based on existing data and studies;

(iii) A water shortage response plan as a component of the reliability and emergency response requirements under WAC 246-290-420;

(iv) Water right self-assessment;

(v) Water supply reliability analysis;

(vi) Interties; and

(vii) For systems serving one thousand or more total connections, an evaluation of opportunities for the use of reclaimed water, where they exist, as defined in RCW ((~~90.46.010(4)~~)) 90.46.120.

(g) Source water protection program under WAC 246-290-135.

(h) Operation and maintenance program under WAC 246-290-415 and 246-290-654(5), as applicable.

(i) Improvement program, including a ((~~six-year~~)) capital improvement schedule that identifies all capital improvements scheduled within the plan approval period and any major projects or other capital improvements planned within at least a twenty-year planning period.

(j) Financial program, including demonstration of financial viability by providing:

(i) A summary of past income and expenses;

(ii) A ((~~one-year~~)) balanced operational budget for ((~~systems serving one thousand or more connections or a six-year balanced operational budget for systems serving less than one thousand connections~~)) the plan approval period;

(iii) A plan for collecting the revenue necessary to maintain cash flow stability and to fund the capital improvement program and emergency improvements; and

(iv) An evaluation that has considered:

(A) The affordability of water rates; and

(B) The feasibility of adopting and implementing a rate structure that encourages water demand efficiency.

(k) Other documents, such as:

(i) Documentation of SEPA compliance;

(ii) Agreements; and

(iii) Comments from each local government with jurisdiction and adjacent utilities.

(5) Purveyors intending to implement the project report and construction document submittal exceptions authorized under WAC 246-290-125 must include:

(a) Standard construction specifications for distribution mains; and/or

(b) Design and construction standards for distribution-related projects, including:

(i) Description of project report and construction document internal review procedures, including engineering design review and construction completion reporting requirements;

(ii) Construction-related policies and requirements for external parties, including consumers and developers;

(iii) Performance and sizing criteria; and

(iv) General reference to construction materials and methods.

(6) ((~~The department, at its discretion, may require reports from purveyors identifying the progress in developing their water system plans.~~)) Purveyors shall submit reports identifying the progress in developing their water system plans if required by the department.

(7) Purveyors shall transmit water system plans to adjacent utilities and each local government with jurisdiction, to assess consistency with ongoing and adopted planning efforts.

(8) Prior to department approval of a water system plan or a water system plan update, the purveyor shall:

(a) Hold an informational meeting for the water system consumers and notify consumers in a way that is appropriate to the size of the water system; and

(b) Obtain ((~~the~~)) approval of the water system plan from the purveyor's governing body or elected governing board.

(9) Department approval of a water system plan ((~~shall be in effect for six~~)) is effective for ten years from the date of written approval unless:

(a) ((~~Major projects subject to SEPA as defined in WAC 246-03-030 (3)(a) are proposed that are not addressed in the plan;~~

~~(b) Changes occur in the basic planning data significantly affecting system improvements identified~~)) The purveyor requests and receives a plan approval period of less than ten years; or

((~~(c)~~)) (b) The department requests an updated plan ((~~or plan amendment~~)).

(10) The purveyor shall update the water system plan and obtain department approval at ((~~least every six years.~~)) or before the expiration of the current plan approval if the system ((~~no longer~~)) meets any of the conditions of subsection (2) of this section((~~, the purveyor shall as directed by the department, either:~~

~~(a) Submit a water system plan amendment for review and approval with the scope to be determined by the department; or~~

~~(b) Meet the requirements under WAC 246-290-105~~)).

(11) Water system plan amendments. A purveyor may submit an amendment to its current approved water system plan for department approval at any time during the plan approval period. Project reports may be included in a water system plan amendment to meet the requirements under WAC 246-290-110(3). Department approval of a water system plan amendment does not alter the current plan approval period in accordance with subsection (9) of this section and does not satisfy the requirement of subsection (2) of this section to update the water system plan.

AMENDATORY SECTION (Amending WSR 08-03-061, filed 1/14/08, effective 2/14/08)

WAC 246-290-105 Small water system management program. (1) The purpose of a small water system management program is to:

(a) Demonstrate the system's operational, technical, managerial, and financial capability to achieve and maintain compliance with all relevant local, state, and federal plans and regulations; and

(b) Establish eligibility for funding under chapter 246-296 WAC.

(2) All noncommunity systems and ((~~all~~)) community systems not required to complete a water system plan ((~~as described~~)) under WAC 246-290-100(2) shall develop and implement a small water system management program.

(3) The purveyor shall submit this program for department review and approval ((~~to the department~~)) when:

(a) A new NTNC public water system is created;

(b) An existing system has operational, technical, managerial, or financial problems, as determined by the department; or

(c) An existing system without approved construction documents is seeking as-built system approval under WAC 246-290-140; or

(d) A system applies for funding under chapter 246-296 WAC.

(4) Content and detail shall be consistent with the size, complexity, past performance, and use of the public water system. General content topics shall include, but not be limited to, the following elements:

(a) System management;

(b) Annual operating permit;

(c) Water facilities inventory form;

(d) Service area and facility map. Municipal water suppliers ((~~must~~)) shall identify ((~~where~~)) the area that will expand their water rights' place of use ((~~will be expanded to their service area~~)) if the requirements under WAC 246-290-107 have been met;

(e) Water right self-assessment;

(f) Description of the system's source(s) including the name and location of any body of water from which its water is diverted or withdrawn;

(g) A water use efficiency program. Municipal water suppliers must meet the requirements in WAC 246-290-810;

(h) Water production and consumption data including each of the following:

(i) Monthly and annual production for each source, including water purchased from another public water system;

(ii) Annual consumption totals for residential and nonresidential connections;

(iii) Total annual volume of water supplied to other public water systems;

(i) Average daily demand;

(j) Current population served;

(k) The forecast of average daily demand based on the system's approved number of connections that considers:

(i) Water use trends based on actual water use records; and

(ii) Applicable land use plans;

(l) An evaluation that has considered the feasibility of adopting and implementing a rate structure that encourages water demand efficiency;

(m) Source water protection program;

(n) Component inventory and assessment;

(o) List of planned system improvements;

(p) Water quality monitoring program;

(q) Operation and maintenance program under WAC 246-290-415(2) and 246-290-654(5) as applicable;

(r) Cross-connection control program;

(s) Emergency response plan; and

(t) Budget.

(5) The department may require changes be made to a small water system management program if necessary to effectively accomplish the program's purpose.

AMENDATORY SECTION (Amending WSR 08-03-061, filed 1/14/08, effective 2/14/08)

WAC 246-290-106 Duty to provide service. Municipal water suppliers required to submit a water system plan for department approval under WAC 246-290-100(2) must also include in the water system plan the provisions of this section as required under RCW 43.20.260. In approving a water system plan, the department shall ensure that water service to be provided by the water system for any new industrial, commercial, or residential use is consistent with local plans and regulations.

(1) A municipal water supplier has a duty to provide retail water service to all new service connections within its retail service area if:

(a) It can be available in a timely and reasonable manner;

(b) There is sufficient water rights to provide water service;

(c) There is sufficient capacity to serve the water in a safe and reliable manner as determined by the department; and

(d) It is consistent with the requirements of local plans and regulations and, for water service by the water utility of a city or town, with the utility service extension ordinances of the city or town.

(2) Municipal water suppliers ((~~must provide~~)) shall include a retail service area map in the water system plan.

(3) Municipal water suppliers must meet the requirements of WAC 246-290-108 ((~~for their retail service area~~)).

(4) Municipal water suppliers ((~~must provide~~)) shall include their service policies and conditions of service including how new service will be provided in the water system plan.

((~~(5) Municipal water suppliers may provide temporary water service to another water system if a written agreement with the water system is in place.~~

~~(6) To resolve a significant public health and safety concern, the department may allow water service to be extended prior to meeting the requirements of this section.~~))

AMENDATORY SECTION (Amending WSR 10-20-068, filed 9/29/10, effective 11/1/10)

WAC 246-290-107 Place of use expansion. The place of use of a surface or groundwater right may be expanded to include any portion of the approved service area that was not previously within the place of use for the water right when documented in an approved planning or engineering document under chapter 43.20 RCW or in accordance with procedures adopted under chapter 70.116 RCW. This occurs as an effect of

the department's approval of a service area identified in a water system plan, water system plan amendment, small water system management program, engineering document, or as an effect of the local legislative authority's approval of a service area as part of a coordinated water system plan.

(1) The following conditions must be met:

(a) The municipal water supplier is in compliance with the terms of the water system plan or small water system management program, including those regarding water use efficiency.

(b) The alteration of the place of use is not inconsistent regarding an area added to the place of use with any local plans and regulations.

(c) The alteration of the place of use is not inconsistent regarding an area added to the place of use with any watershed plan approved under chapter 90.82 RCW or a comprehensive watershed plan approved under RCW 90.54.040(1) after September 3, 2003, if such a watershed plan has been approved for the area.

(2) As part of the planning or engineering document, municipal water suppliers must:

(a) Identify the ((~~portions of the service~~)) area where the place of use will be expanded.

(b) Document that subsection (1)(a) and (c) of this section are met.

(c) Meet the requirements of WAC 246-290-108 for the ((~~portions of the service~~)) area where the place of use will be expanded.

AMENDATORY SECTION (Amending WSR 08-03-061, filed 1/14/08, effective 2/14/08)

WAC 246-290-108 Consistency with local plans and regulations. Consistency with local plans and regulations applies to planning and engineering documents under WAC 246-290-106, 246-290-107, and 246-290-110.

(1) Municipal water suppliers must include a consistency review and supporting documentation in its planning or engineering document describing how it has considered consistency with local plans and regulations. This review must include elements of local plans and regulations, as they reasonably relate to water service to be provided by a municipal water supplier for any new connection, including:

(a) Land use and zoning within the ((~~applicable~~)) service area;

(b) ((~~Six-year~~)) Growth projections used in the demand forecast;

(c) Utility service extension ordinances of a city or town when water service is provided by the water utility of the city or town;

(d) Provisions of water service for new service connections; and

(e) Other relevant elements related to water supply planning as determined by the department.

(2) Municipal water suppliers must request each local government with jurisdiction over the ((~~applicable~~)) service area to provide a consistency review.

(a) Municipal water suppliers shall provide each local government with jurisdiction sixty days to review the planning or engineering document unless another state statute or state regulation requires a different time frame. The municipal water supplier must provide the

local government with jurisdiction an additional thirty days for review if requested.

(b) If an inconsistency is documented by the local government with jurisdiction within the time frame outlined in (a) of this subsection, the municipal water supplier must provide the inconsistency information to the department.

(c) If the local government with jurisdiction documents in writing an inconsistency exists with local plans and regulations, the municipal water supplier shall address the inconsistency. The local government with jurisdiction shall be provided sixty days to review any revisions or responses that address the inconsistency.

(3) If the local government with jurisdiction does not provide a consistency review, the municipal water supplier shall complete the consistency review as described in subsection (1) of this section. The municipal water supplier must also document:

(a) The amount of time provided to each local government with jurisdiction to review the planning and engineering documents as defined in subsection (2) of this section; and

(b) The efforts taken to request a consistency review from the local government with jurisdiction.

AMENDATORY SECTION (Amending WSR 08-03-061, filed 1/14/08, effective 2/14/08)

WAC 246-290-125 Project report and construction document submittal exceptions. (1) The following projects do not require project reports under WAC 246-290-110 and construction documents under WAC 246-290-120 to be submitted to the department for review and approval prior to installation:

(a) Installation of valves, fittings, ((~~and~~)) meters, ((~~including~~)) and approved backflow prevention assemblies;

(b) Installation of hydrants under WAC 246-290-230 (3) and (6);

(c) Repair of a system component or replacement with a component of a similar capacity and material in accordance with the original construction specifications of the approved design. For the purposes of replacing existing pipe, similar capacity includes one standard pipe size larger((~~.~~)); or

(d) Maintenance or painting of surfaces not contacting potable water.

(2) Purveyors may elect to not submit to the department for review and approval project reports under WAC 246-290-110 and construction documents under WAC 246-290-120 for new distribution mains if:

(a) The purveyor has on file with the department a current department-approved water system plan that includes standard construction specifications for distribution mains; and

(b) The purveyor maintains on file a completed construction completion report (department form) in accordance with WAC 246-290-120(5) and makes it available for review upon request by the department.

(3) Purveyors may elect to not submit to the department for review and approval project reports under WAC 246-290-110 and construction documents under WAC 246-290-120 for review and approval of other distribution-related projects as defined in WAC 246-290-010 providing:

(a) The purveyor has on file with the department a current department-approved water system plan, in accordance with WAC 246-290-100(5);

(b) The purveyor submits a written request with a new water system plan or an amendment to a water system plan, and updates the request with each water system plan update. The written request should specifically identify the types of projects or facilities for which the submittal exception procedure is requested;

(c) The purveyor has documented that they have employed or hired under contract the services of a professional engineer licensed in the state of Washington to review distribution-related projects not submitted to the department for review and approval. The review engineer and design engineer shall not be the same individual. The purveyor shall provide written notification to the department whenever they propose to change their designated review engineer;

(d) If the project is a new transmission main, storage tank, or booster pump station, it must be identified in the capital improvement program of the utility's water system plan. If not, either the project report must be submitted to the department for review and approval, or the water system plan must be amended;

(e) A project summary file is maintained by the purveyor for each project and made available for review upon request by the department, and includes:

(i) Descriptive project summary;

(ii) Anticipated completion schedule;

(iii) Consistency with utility's water system plan;

(iv) Water right self-assessment, where applicable;

(v) Change in system physical capacity;

(vi) Copies of original design and record drawings;

(vii) Engineering design review report (department form). The form shall:

(A) Bear the seal, date, and signature of a professional engineer licensed in the state of Washington prior to the start of construction;

(B) Provide a descriptive reference to completed project report and/or construction documents reviewed, including date of design engineer's seal and signature; and

(C) State the project report and/or construction documents have been reviewed, and the design is in accordance with department regulations and principles of standard engineering practice;

(f) The construction completion report is submitted to the department in accordance with WAC 246-290-120(5) for new storage tanks and booster pump stations, and maintained on file with the water system for all other distribution-related projects;

(g) A WFI is completed in accordance with WAC 246-290-120(6); and

(h) The purveyor meets the requirements of chapter 246-294 WAC to have a category "green" operating permit.

(4) Source of supply (including interties) and water quality treatment-related projects shall not be eligible for the submittal exception procedure.

(5) Purveyors not required to prepare a water system plan under WAC 246-290-100 shall be eligible for the submittal exception procedure if the purveyor:

(a) Has a department-approved water system plan meeting the requirements of WAC 246-290-100;

(b) Complies with all other requirements in this section; and

(c) Ensures that all work required to be prepared under the direction of a professional engineer be accomplished per WAC 246-290-040 and chapter 18.43 RCW.

AMENDATORY SECTION (Amending WSR 10-20-068, filed 9/29/10, effective 11/1/10)

WAC 246-290-130 Source approval. (1) Every purveyor shall obtain drinking water from the highest quality source feasible. No new source, previously unapproved source, or modification of an existing source shall be used as a public water supply without department approval. No intake or other connection shall be maintained between a public water system and a source of water not approved by the department.

(2) Before initiating source development or modification, the purveyor shall contact the department to identify submittal requirements.

(3) Any party seeking source approval shall provide the department sufficient documentation, in a project report, construction documents, or in supplemental documents, that the source:

(a) Is reasonable and feasible for the type and size of the system;

(b) May legally be used in conformance with state water rights laws;

(c) Supplies water that is physically and reliably available in the necessary quantities, as shown in:

(i) A hydrogeologic assessment of the proposed source;

(ii) A general description of the watershed, spring, and/or aquifer recharge area affecting the quantity or quality of flow, which includes seasonal variation and upstream water uses that may significantly affect the proposed source;

(iii) For groundwater and spring sources, well source development data that are available from a pump test at the maximum design rate and duration, or are available from other sources of information, that establish pump settings (depth) in the well and demonstrate adequacy of water quantity to meet design criteria while not leading to water quality problems;

(iv) For groundwater and spring sources, installation of a source meter or other equivalent device that reliably measures volume of flow into the system;

(d) Is, or is not, a GWI under WAC 246-290-640, and meets or can meet the applicable requirements for GWI sources as described in that section including treatment;

(e) Adequately provides for source protection, as shown in:

(i) For surface water and GWI sources, the watershed control program identified under WAC 246-290-135 and Part 6 of this chapter;

(ii) For wells, a preliminary department susceptibility assessment or equivalent information, and preliminary WHPA delineation and contaminant inventory, under the requirements for sanitary control and wellhead protection under WAC 246-290-135;

(f) Is designed and constructed in conformance with this chapter, and relevant requirements of chapter 173-160 WAC (department of ecology well construction standards);

(g) Meets water quality standards under WAC 246-290-310, as shown in an initial water quality analysis that includes, at a minimum, the following:

(i) Bacteriological;

(ii) Complete inorganic chemical and physical except that the MCL for arsenic under WAC 246-290-310 does not apply to TNC systems;

(iii) Complete VOC;

(iv) Radionuclides, if source approval is requested for a community system;

(v) SOC, except where waived or not required under WAC ((~~246-290-310~~)) 246-290-300; and

(vi) Any other information required by the department relevant to the circumstances of the particular source.

Sources that otherwise would not meet water quality standards may be approved if treatment is provided.

(4) The required documentation under subsection (3) of this section shall include, at a minimum:

(a) A water right self-assessment;

(b) A map showing the project location and vicinity;

(c) A map depicting topography, distances to the surface water intake, well or spring from existing property lines, buildings, potential sources of contamination, ditches, drainage patterns, and any other natural or man-made features affecting the quality or quantity of water;

(d) The dimensions, location, and legal documentation of the SCA under WAC 246-290-135;

(e) A copy of the on-site inspection form completed by the department or local health department representative;

(f) A copy of the water well report including the unique well identification tag number, depth to open interval or top of screened interval, overall depth of well from the top of the casing, vertical elevation, and location (both plat location and latitude/longitude); and

(g) Documentation of source meter installation. The purveyor may utilize other documents, such as a water system plan, susceptibility assessment, wellhead protection program, project report, or construction documents, to provide the documentation and information to the department, provided that the documents are current, and the purveyor indicates the location in the document of the relevant information.

(5) If treatment of a source is necessary to meet water quality standards, the purveyor may be required to meet the provisions of WAC 246-290-250 and Part 6 of this chapter, if applicable, prior to or as a condition of approval.

(6) An intertie must be adequately described in a written agreement between the purveyor and the supplier of the water, and otherwise meet the requirements of WAC 246-290-132.

(7) The purveyor shall not construct facilities for source development and use without prior approval of the department pursuant to the provisions of WAC 246-290-120.

(8) The purveyor may request a conditional source approval, such as one that sets limits on use or requires interim treatment, if further analysis of the quality of the source is required before final approval.

(9) For sources or supplies of water used by bottled water or ice plants to produce bottled water or ice:

(a) If the bottled water or ice plant is a Group A community water system and the plant uses the system's source for the water that

is bottled or made into ice, the source and supply used for the bottled water and ice shall meet the applicable Group A requirements;

(b) If the bottled water or ice plant uses its own source for the water that is bottled or made into ice, and the plant is not a Group A community water system, the owner or operator shall obtain source approval from the department, and the source water shall meet the ongoing source water quality monitoring requirements for a Group A community system;

(c) If the bottled water or ice plant purchases the water for bottling or making ice from another source or supply, the water shall meet the minimum requirements for a Group A community water system, and the owner or operator of the plant shall ensure that the water meets the requirements;

(d) The source or supply for the water that is bottled or made into ice shall be protected from contamination prior to the bottling or ice making process; and

(e) In addition to the requirements imposed under this subsection, the processing of bottled water shall be subject to regulation by the state department of agriculture and the United States Food and Drug Administration.

NEW SECTION

WAC 246-290-131 Emergency sources and supplies. (1) A purveyor with an emergency source shall provide, at a minimum, the following information in its department-approved emergency response program required under WAC 246-290-415 (2)(d):

(a) Source name, department identification number, capacity, and location;

(b) Engineering design department approval status;

(c) Routine water quality emergency source monitoring schedule, if applicable; and

(d) Procedures to activate the emergency source for the purpose of supplying the distribution system, including:

(i) Persons authorized to activate the source;

(ii) Conditions in which the emergency source will be activated;

(iii) Operational steps that will be taken before the source is activated;

(iv) Water quality sampling performed immediately before activating the source and while the emergency source is in operation; and

(v) Steps that will be taken to inform the public and the department before activating the source.

(2) A purveyor may maintain a physical connection between an emergency source and the distribution system if:

(a) The emergency source is an emergency intertie with another Group A water system, approved under WAC 246-290-132; or

(b) The emergency source is a drilled and cased well which:

(i) Is identified in the purveyor's department-approved emergency response program in accordance with WAC 246-290-420;

(ii) Has an isolation valve between the emergency source and the distribution system that is secured in the fully closed position when not in use; and

(iii) Has the motor starter locked-out and tagged-out in the off position so that the pump is isolated from the power supply when not in use.

(3) A purveyor with an emergency source that does not meet the requirements of subsection (2) of this section shall:

(a) Physically disconnect the emergency source from the distribution system by the removal of a pipe segment or by an alternate means as determined by the department; and

(b) Receive permission from the department or health officer before physically connecting and activating the emergency source for the purpose of supplying the distribution system.

(4) Unless otherwise directed by the department, a purveyor using trucked water as an emergency drinking water supply shall only use water that:

(a) Originates from a Group A public water system that is in compliance with the requirements of this chapter;

(b) Is treated with chlorine when the truck is filled by adding one-half cup of six to eight and twenty-five one hundredths of one percent regular unscented household bleach per one thousand gallons of water, or equivalent;

(c) Has a free chlorine residual equal to or greater than 0.5 mg/L at the time of delivery; and

(d) Is collected, temporarily stored, and delivered by tanks, bladders, pumps, pipes and other equipment that:

(i) Are contaminant-free and constructed and maintained to prevent contamination; and

(ii) Have not previously been used to carry nonfood products, toxic substances, or petroleum products.

(5) Purveyors using trucked water as an emergency drinking water supply shall:

(a) Receive permission from the department, health officer, or local or state emergency management agency prior to use;

(b) Measure the free chlorine residual of the delivered water and only accept water that has a free chlorine residual that is equal to or greater than 0.5 mg/L at the time of delivery;

(c) Store trucked water in the delivery truck or in an approved component of the purveyor's water system; and

(d) Maintain records of trucked water deliveries, including the hauler, water source, chlorine test results, and delivery date, time, and volume. Records must be available for review upon request by the department or health officer.

AMENDATORY SECTION (Amending WSR 10-20-068, filed 9/29/10, effective 11/1/10)

WAC 246-290-135 Source water protection. (1) The department may require monitoring and controls in addition to those specified in this section if the department determines a potential risk exists to the water quality of a source.

(2) SCA.

(a) The purveyor shall maintain an SCA around all sources for the purpose of protecting them from existing and potential sources of contamination.

(b) For wells and springs, the minimum SCA shall have a radius of one hundred feet (thirty meters) and two hundred feet (sixty meters) respectively, unless engineering justification demonstrates that a smaller area can provide an adequate level of source water protection. The justification shall address geological and hydrological data, well construction details, mitigation measures, and other relevant factors necessary to assure adequate sanitary control.

(c) The department may require a larger SCA than specified in (b) of this subsection, or additional mitigation measures if land use, geological, or hydrological data support the decision. It shall be the purveyor's responsibility to obtain the protection needed.

(d) The purveyor shall prohibit the construction, storage, disposal, or application of any source of contamination within the SCA without the permission of the purveyor.

(e) The SCA shall be owned by the purveyor in fee simple, or the purveyor shall have the right to exercise complete sanitary control of the land through other legal provisions.

(f) A purveyor, owning all or part of the SCA in fee simple or having possession and control, shall send to the department copies of legal documentation, such as a duly recorded declaration of covenant, restricting the use of the land. This legal documentation shall state:

(i) Constructing, storing, disposing, or applying any source of contamination is prohibited without the permission of the purveyor; and

(ii) If any change in ownership of the system or SCA is considered, all affected parties shall be informed of these requirements.

(g) Where portions of the control area are in the possession and control of another, the purveyor shall obtain a duly recorded restrictive covenant which shall run with the land, restricting the use of the land in accordance with this chapter and provide the department with copies of the appropriate documentation.

(3) Wellhead protection.

(a) Purveyors of water systems using groundwater or spring sources shall develop and implement a wellhead protection program.

(b) The wellhead protection program shall be part of the water system plan required under WAC 246-290-100 or the small water system management program required under WAC 246-290-105.

(c) The purveyor's wellhead protection program shall contain, at a minimum, the following elements:

(i) A completed susceptibility assessment or equivalent information;

(ii) WHPA delineation for each well, wellfield, or spring with the six month, one, five and ten year time of travel boundaries marked, or boundaries established using alternate criteria approved by the department in those settings where groundwater time of travel is not a reasonable delineation criteria. WHPA delineations shall be done in accordance with recognized methods such as those described in the following sources:

(A) Department guidance on wellhead protection; or

(B) EPA guidance for delineation of wellhead protection areas;

(iii) An inventory, including identification of site locations and owners/operators, of all known and potential groundwater contamination sources located within the defined WHPA(s) having the potential to contaminate the source water of the well(s) or spring(s). This list shall be updated every two years;

(iv) Documentation of purveyor's notification to all owners/operators of known or potential sources of groundwater contamination

((~~listed in (c)(B)(iii)~~)) identified under (c)(iii) of this subsection;

(v) Documentation of purveyor's notification to regulatory agencies and local governments of the boundaries of the WHPA(s) and the findings of the WHPA inventory;

(vi) A contingency plan to ensure consumers have an adequate supply of potable water in the event that contamination results in the temporary or permanent loss of the principal source of supply (major well(s) or wellfield); and

(vii) Documentation of coordination with local emergency incident responders (including police, fire and health departments), including notification of WHPA boundaries, results of susceptibility assessment, inventory findings, and contingency plan.

(4) Watershed control program.

(a) Purveyors of water systems using surface water or GWI sources shall develop and implement a watershed control program under Part 6 of chapter 246-290 WAC as applicable.

(b) The watershed control program shall be part of the water system plan required ((~~in~~)) under WAC 246-290-100 or the small water system management program required ((~~in~~)) under WAC 246-290-105.

(c) The purveyor's watershed control program shall contain, at a minimum, the following elements:

(i) Watershed description and inventory, including location, hydrology, land ownership and activities that may adversely affect source water quality;

(ii) An inventory of all potential surface water contamination sources and activities, including identification of site locations and owner/operators, located within the watershed and having the significant potential to contaminate the source water quality;

(iii) Watershed control measures, including documentation of ownership and relevant written agreements, and monitoring of activities and water quality;

(iv) System operation, including emergency provisions; and

(v) Documentation of water quality trends.

(d) ((~~The purveyor shall submit the~~)) Purveyors who have not received previous department approval of a watershed control program shall submit a watershed control program to the department for approval. Following department approval, the purveyor shall implement the watershed control program as approved.

(e) Purveyors of systems using unfiltered surface or GWI sources and meeting the criteria to remain unfiltered as specified in WAC 246-290-690 shall submit an annual report to the department that summarizes the effectiveness of the watershed control program. Refer to WAC 246-290-690 for further information about this report.

(f) ((~~The~~)) Purveyors required to develop a small water system management program under WAC 246-290-105 shall update the watershed control program at least every six years((~~, or more frequently if required by the department~~)).

(g) Purveyors required to submit a water system plan under WAC 246-290-100 shall update the watershed control program when the water system plan is updated.

(h) The department may require purveyors to update the watershed control program more frequently if the department determines that a potential risk exists to the water quality of a source.

AMENDATORY SECTION (Amending WSR 08-03-061, filed 1/14/08, effective 2/14/08)

WAC 246-290-200 Design standards. (1) Purveyors shall ensure that good engineering criteria and practices are used in the design and construction of all public water systems, such as those set out in:

(a) Department guidance on design for Group A public water systems;

(b) The most recent published edition of the International Building Code (IBC), the Uniform Plumbing Code (UPC), and other national model codes adopted in Washington state;

(c) The most recent published edition of *Recommended Standards for Water Works, A Committee Report of the Great Lakes - Upper Mississippi River Board of State Public Health and Environmental Managers*;

(d) Standard specifications of the American Public Works Association, the American Society of Civil Engineers, AWWA, or the American Society for Testing and Materials;

(e) Design criteria, such as contained in current college texts and professional journal articles, acceptable to the department;

(f) Chapter 173-160 WAC *Minimum Standards for Construction and Maintenance of ((~~Water~~)) Wells*;

(g) The latest edition of the PNWS-AWWA Cross-Connection Control Manual, or the University of Southern California (USC) Manual of Cross-Connection Control.

(2) In addition, purveyors of new or expanding public water systems shall consider and use, as appropriate, the following design factors:

(a) Historical water use;

(b) Community versus recreational uses of water;

(c) Local conditions and/or regulations;

(d) Community expectations;

(e) Public Water System Coordination Act considerations where appropriate;

(f) Provisions for systems and component reliability in accordance with WAC 246-290-420;

(g) Wind pressures, seismic risk, snow loads, and flooding;

(h) Other risks from potential disasters, as feasible; and

(i) Other information as required by the department.

AMENDATORY SECTION (Amending WSR 03-08-037, filed 3/27/03, effective 4/27/03)

WAC 246-290-220 Drinking water materials and additives. (1) All materials shall conform to the ANSI/NSF Standard 61 if in substantial contact with potable water supplies. For the purposes of this section, "substantial contact" means the elevated degree that a material in contact with water may release leachable contaminants into the water such that levels of these contaminants may be unacceptable with respect to either public health or aesthetic concerns. It should take into consideration the total material/water interface area of exposure, volume of water exposed, length of time water is in contact with the material, and level of public health risk. Examples of water sys-

tem components that would be considered to be in "substantial contact" with drinking water are filter media, storage tank interiors or liners, distribution piping, membranes, exchange or adsorption media, or other similar components that would have high potential for contacting the water. Materials associated with components such as valves, pipe fittings, debris screens, gaskets, or similar appurtenances would not be considered to be in substantial contact.

(2) Materials or additives in use prior to the effective date of these regulations that have not been listed under ANSI/NSF Standard 60 or 61 may be used for their current applications until the materials are scheduled for replacement, or that stocks of existing additives are depleted and scheduled for reorder.

(3) Any treatment chemicals, with the exception of commercially retailed hypochlorite compounds such as unscented Clorox, Purex, etc., added to water intended for potable use must comply with ANSI/NSF Standard 60. The maximum application dosage recommendation for the product certified by the ANSI/NSF Standard 60 shall not be exceeded in practice.

(4) Any products used to coat, line, seal, patch water contact surfaces or that have substantial water contact within the collection, treatment, or distribution systems must comply with the appropriate ANSI/NSF Standard 60 or 61. Application of these products must comply with recommendations contained in the product certification.

(5) The department may accept continued use of, and proposals involving, certain noncertified chemicals or materials on a case-by-case basis, if all of the following criteria are met:

(a) The chemical or material has an acknowledged and demonstrable history of use in the state for drinking water applications;

(b) There exists no substantial evidence that the use of the chemical or material has caused consumers to register complaints about aesthetic issues, or health related concerns, that could be associated with leachable residues from the material; and

(c) The chemical or material has undergone testing through a protocol acceptable to the department and has been found to not contribute leachable compounds into drinking water at levels that would be of public health concern.

(6) Any pipe, pipe fittings, plumbing fittings, fixtures, solder, or flux used in the installation or repair of a public water system shall be lead-free:

(a) This prohibition shall not apply to leaded joints necessary for the repair of cast iron pipes; and

(b) Within the context of this section, lead-free shall mean:

(i) No more than ((~~eight~~)) a weighted average of twenty-five one-hundredths of one percent lead, calculated in ((~~pipes and pipe fittings;~~)) accordance with 42 U.S.C. 300g-6(d)(2); and

(ii) No more than two-tenths of one percent lead in solder and flux((~~; and~~

~~(iii) Fittings and fixtures that are in compliance with standards established in accordance with 42 U.S.C. 300g-6(e)~~)).

(7) Exceptions to the lead-free requirements of subsection (6) of this section include:

(a) Pipes, pipe fittings, plumbing fittings, or fixtures, including backflow preventers, that are used exclusively for nonpotable services such as manufacturing, industrial processing, irrigation, outdoor watering, or any other uses where the water is not anticipated to be used for human consumption; or

(b) Toilets, bidets, urinals, fill valves, flushometer valves, tub fillers, fire hydrants, shower valves, service saddles, or water distribution main gate valves that are two inches in diameter or larger.

AMENDATORY SECTION (Amending WSR 11-17-062, filed 8/15/11, effective 10/1/11)

WAC 246-290-300 Monitoring requirements. (1) General.

(a) The monitoring requirements specified in this section are minimums. The department may require additional monitoring when:

(i) Contamination is present or suspected in the water system;

(ii) A groundwater source is determined to be a potential GWI;

(iii) The degree of source protection is not satisfactory;

(iv) Additional monitoring is needed to verify source vulnerability for a requested monitoring waiver;

(v) Under other circumstances as identified in a department order; or

(vi) Additional monitoring is needed to evaluate continuing effectiveness of a treatment process where problems with the treatment process may exist.

(b) Special purpose samples collected by the purveyor shall not count toward fulfillment of the monitoring requirements of this chapter unless the quality of data and method of sampling and analysis are acceptable to the department.

(c) The purveyor shall ensure samples required by this chapter are collected, transported, and submitted for analysis according to EPA-approved methods. The analyses shall be performed by a laboratory accredited by the state. Qualified water utility, accredited laboratory, health department personnel, and other parties approved by the department may conduct measurements for pH, temperature, residual disinfectant concentration, alkalinity, bromide, chlorite, TOC, SUVA, turbidity, calcium, conductivity, orthophosphate, and silica as required by this chapter, provided, these measurements are made according to EPA approved methods.

(d) Compliance samples required by this chapter shall be taken at locations listed in Table ((~~3~~)) 4 of this section.

(e) Purveyors failing to comply with a monitoring requirement shall notify:

(i) The department under WAC 246-290-480; and

(ii) The owner or operator of any consecutive system served and the appropriate water system users under 40 C.F.R. 141.201 and Part 7, Subpart A of this chapter.

(2) Selling and receiving water.

(a) Source monitoring. Purveyors, with the exception of those that "wheel" water to their consumers (i.e., sell water that has passed through another purchasing purveyor's distribution system), shall conduct source monitoring under this chapter for the sources under their control. The level of monitoring shall satisfy the monitoring requirements associated with the total population served by the source.

(b) Distribution system monitoring. The purveyor of a system that receives and distributes water shall perform distribution-related mon-

itoring requirements. Monitoring shall include, but not be limited to, the following:

(i) Collect coliform samples under subsection (3) of this section;

(ii) Collect disinfection byproduct samples as required by subsection (6) of this section;

(iii) Perform the distribution system residual disinfectant concentration monitoring under subsection (6) of this section, and as required under WAC 246-290-451, 246-290-664, or 246-290-694. Systems with fewer than one hundred connections shall measure residual disinfectant concentration at the same time and location that a routine or repeat coliform sample is collected, unless the department determines that more frequent monitoring is necessary to protect public health;

(iv) Perform lead and copper monitoring required under 40 C.F.R. 141.86, 141.87, and 141.88;

(v) Perform the distribution system monitoring under 40 C.F.R. 141.23(b) for asbestos if applicable;

(vi) Other monitoring as required by the department.

(c) Reduced monitoring for regional programs. The receiving purveyor may receive reductions in the coliform, lead and copper, disinfection byproduct (including THMs and HAA5) and distribution system disinfectant residual concentration monitoring requirements, provided the receiving system:

(i) Purchases water from a purveyor that has a department-approved regional monitoring program;

(ii) Has a written agreement with the supplying system or regional water supplier that is acceptable to the department, and which identifies the responsibilities of both the supplying and receiving system(s) with regards to monitoring, reporting and maintenance of the distribution system; and

(iii) Has at least one compliance monitoring location for disinfection byproducts, if applicable.

(d) Periodic review of regional programs. The department may periodically review the sampling records of public water systems participating in a department-approved monitoring program to determine if continued reduced monitoring is appropriate. If the department determines a change in the monitoring requirements of the receiving system is appropriate:

(i) The department shall notify the purveyor of the change in monitoring requirements; and

(ii) The purveyor shall conduct monitoring as directed by the department.

(3) Bacteriological.

(a) The purveyor shall be responsible for collection and submittal of coliform samples from representative points throughout the distribution system. Samples shall be collected after the first service and at regular time intervals each month the system provides water to consumers. Samples shall be collected that represent normal system operating conditions.

(i) Systems providing disinfection treatment shall measure the residual disinfectant concentration within the distribution system at the same time and location of routine and repeat samples.

(ii) Systems providing disinfection treatment shall assure that disinfectant residual concentrations are measured and recorded on all coliform sample report forms submitted for compliance purposes.

(b) Coliform monitoring plan.

(i) ((~~The purveyor shall prepare a written coliform monitoring plan and base routine monitoring upon the plan. The plan shall include coliform sample collection sites and a sampling schedule.~~

~~(ii)~~)) Systems shall develop a written coliform monitoring plan that identifies sampling sites and a sample collection schedule that are representative of water throughout the distribution system. The plan is subject to department review and approval. Systems shall collect total coliform samples according to the plan. Monitoring may take place at a customer's premises, dedicated sampling station, or other designated compliance sampling location. Routine and repeat sample sites and any sampling points necessary to meet the requirements of Part 6 of this chapter and WAC 246-290-300 (3)(h) must be identified in the plan.

(ii) Systems shall collect samples at regular time intervals throughout the month, except for systems that use groundwater and serve four thousand nine hundred or fewer people may collect all required samples on a single day if the samples are taken from different sites.

(iii) Systems shall take at least the minimum number of required samples even if the system has had an *E. coli* MCL violation or has exceeded the coliform treatment technique triggers in WAC 246-290-320(2).

(iv) Systems may conduct more compliance monitoring than is required under subsection (3)(b) of this section to investigate potential problems in the distribution system and use monitoring as a tool to assist in identifying problems. Systems may take more than the minimum number of required routine samples and must include the results in calculating whether or not the coliform treatment technique triggers in WAC 246-290-320(2) have been exceeded only if the samples are taken in accordance with the plan and are representative of water throughout the distribution system.

(v) Systems shall identify repeat monitoring locations in the plan. Unless the provisions of subsection (3)(b)(i) through (iv) of this section are met, the system shall collect at least one repeat sample from the sample tap where the original total coliform-positive sample was taken, and at least one repeat sample at a tap within five service connections upstream and at least one repeat sample at a tap within five service connections downstream of the original sample site. 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 system shall still take all required repeat samples. The department 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. Systems may propose repeat monitoring locations to the department that the system believes to be representative of a pathway for contamination of the distribution system. A system 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 plan. The system shall 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 department may modify the SOP or require alternative monitoring locations as needed.

(vi) The purveyor shall:

(A) Keep the coliform monitoring plan on file with the system and make it available to the department for inspection upon request;

(B) Revise or expand the plan at any time the plan no longer ensures representative monitoring of the system, or as directed by the department; and

(C) Submit the plan to the department for review and approval when requested and as part of the water system plan required under WAC 246-290-100.

(c) Special purpose coliform samples. Special purpose coliform samples, such as those taken to determine whether disinfection practices are sufficient following pipe placement, replacement, or repair, must not be used to determine whether or not the coliform treatment technique trigger has been exceeded. Repeat samples taken in accordance with subsection (3) of this section are not considered special purpose coliform samples, and must be used to determine whether or not the coliform treatment technique trigger has been exceeded.

(d) Invalidation of total coliform samples. A total coliform-positive sample invalidated under subsection (3) of this section does not count toward meeting the minimum monitoring requirements of this section.

(i) The department may invalidate a total coliform-positive sample if one or more of the following conditions are met:

(A) The laboratory establishes that improper sample analysis caused the total coliform-positive result;

(B) The department, on the basis of the results of repeat samples collected as required under subsection (3) of this section, determines that the total coliform-positive samples resulted from a domestic or other nondistribution system plumbing problem. The department may not invalidate a sample on the basis of repeat sample results unless all repeat samples 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 department may not invalidate a total coliform-positive sample on the basis of repeat samples if all the repeat samples are total coliform-negative, or if the system has only one service connection; or

(C) The department 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 system shall still collect all repeat samples required under subsection (3) of this section, and use the samples to determine whether a coliform treatment technique trigger under WAC 246-290-320(2) has been exceeded.

(ii) Unless total coliforms are detected, a laboratory shall invalidate a total coliform sample if the sample produces a turbid culture in the absence of gas production using an analytical method where gas formation is examined such as the multiple-tube fermentation technique, produces a turbid culture in the absence of an acid reaction in the presence-absence coliform test, or exhibits confluent growth or produces colonies TNTC with an analytical method using a membrane filter such as a membrane filter technique. If a laboratory invalidates a sample because of such interference, the system shall collect another sample from the same location as the original sample within twenty-four hours of notification of the interference problem, and have it analyzed for the presence of total coliforms. The system shall continue to resample within twenty-four hours and have the samples analyzed until it obtains a valid result. The department may waive the twenty-four hour time limit on a case-by-case basis.

(e) Monitoring frequency. The number of required routine coliform samples is based on total population served.

(i) Purveyors of **community** systems shall collect and submit for analysis no less than the number of routine samples listed in Table ((~~1~~)) 2 during each calendar month of operation;

(ii) Unless directed otherwise by the department, purveyors of **noncommunity** systems shall collect and submit for analysis no less than the number of samples required in Table ((~~1, and no less than required under 40 C.F.R. 141.21~~)) 2. Each month's population shall be based on the average daily population and shall include all residents and nonresidents served during that month. During months when the average daily population served is less than twenty-five, routine sample collection is not required when:

(A) Using only protected groundwater sources;

(B) ((~~No coliform were detected in samples during~~)) The system has a clean compliance history for a minimum of twelve months;

(C) The system has no sanitary defects or significant deficiencies;

(D) The system has detected no total coliform-positive routine or repeat samples in the previous month; and

((~~(C) One~~)) (E) The system has collected and submitted for analysis one routine sample ((~~has been collected and submitted for analysis~~)) during one of the previous two months.

(iii) Purveyors of NTNC and TNC systems are not required to collect routine samples in months when the population served is zero.

(iv) Purveyors of systems serving both a resident and a nonresident population shall base their minimum sampling requirement on the total of monthly populations served, both resident and nonresident as determined by the department, but no less than the minimum required in Table ((~~1; and~~

~~(iv) Purveyors of systems with a nonresident population lasting two weeks or less during a month shall sample as directed by the department. Sampling shall be initiated at least two weeks prior to the time service is provided to consumers.~~

~~(v) Purveyors of TNC systems shall not be required to collect routine samples in months where the population served is zero or the system has notified the department of an unscheduled closure.~~

~~(d) Invalid samples. When a routine or repeat coliform sample is determined invalid under WAC 246-290-320 (2)(d), the purveyor shall:~~

~~(i) Not include the sample in the determination of monitoring compliance; and~~

~~(ii) Take follow-up action as defined in WAC 246-290-320 (2)(d).~~

~~(e) Assessment source water monitoring. If directed by the department, a groundwater system must conduct assessment source water monitoring which may include, but is not limited to, collection of at least one representative groundwater source sample each month the source provides groundwater to the public, for a minimum of twelve months.~~

~~(i) Sampling must be conducted as follows:~~

~~(A) Source samples must be collected at a location prior to any treatment. If the water system's configuration does not allow sampling at the source itself, the department may approve an alternative source sampling location representative of the source water quality.~~

~~(B) Source samples must be at least 100 mL in size and must be analyzed for *E. coli* using one of the analytical methods under 40 C.F.R. 141.402(c).~~

~~(ii) A groundwater system may use a triggered source water sample collected under WAC 246-290-320 (2)(g) to meet the requirements for assessment source water monitoring.~~

~~(iii) Groundwater systems with an *E. coli* positive assessment source water sample that is not invalidated under WAC 246-290-320 (2)(g)(vii), and consecutive systems receiving water from this source must:~~

~~(A) Provide Tier 1 public notice under Part 7, Subpart A of this chapter and special notification under WAC 246-290-71005 (4) and (5); and~~

~~(B) Take corrective action as required under WAC 246-290-453(1).~~

~~(iv) The purveyor of a groundwater system that fails to conduct assessment source water monitoring as directed by the department shall provide Tier 2 public notice under Part 7, Subpart A of this chapter.~~

~~(f) The purveyor using a surface water or GWI source shall collect representative source water samples for bacteriological density analysis under WAC 246-290-664 and 246-290-694 as applicable.~~

~~TABLE 1~~
~~MINIMUM MONTHLY ROUTINE COLIFORM~~
~~SAMPLING REQUIREMENTS~~

~~Population Served~~ [1]	~~Minimum Number of Routine Samples/Calendar Month~~	
~~During Month~~	~~When NO samples with a coliform presence were collected during the previous month~~	~~When ANY samples with a coliform presence were collected during the previous month~~
~~1 - 1,000~~	~~1*~~	~~5~~
~~1,001 - 2,500~~	~~2*~~	~~5~~
~~2,501 - 3,300~~	~~3*~~	~~5~~
~~3,301 - 4,100~~	~~4*~~	~~5~~
~~4,101 - 4,900~~	~~5~~	~~5~~
~~4,901 - 5,800~~	~~6~~	~~6~~
~~5,801 - 6,700~~	~~7~~	~~7~~
~~6,701 - 7,600~~	~~8~~	~~8~~
~~7,601 - 8,500~~	~~9~~	~~9~~
~~8,501 - 12,900~~	~~10~~	~~10~~
~~12,901 - 17,200~~	~~15~~	~~15~~
~~17,201 - 21,500~~	~~20~~	~~20~~
~~21,501 - 25,000~~	~~25~~	~~25~~
~~25,001 - 33,000~~	~~30~~	~~30~~
~~33,001 - 41,000~~	~~40~~	~~40~~
~~41,001 - 50,000~~	~~50~~	~~50~~
~~50,001 - 59,000~~	~~60~~	~~60~~
~~59,001 - 70,000~~	~~70~~	~~70~~
~~70,001 - 83,000~~	~~80~~	~~80~~
~~83,001 - 96,000~~	~~90~~	~~90~~
~~96,001 - 130,000~~	~~100~~	~~100~~
~~130,001 - 220,000~~	~~120~~	~~120~~
~~220,001 - 320,000~~	~~150~~	~~150~~

~~Population Served~~ [1] ~~During Month~~	~~Minimum Number of Routine Samples/Calendar Month~~ ~~When NO samples with a coliform presence were collected during the previous month~~	~~When ANY samples with a coliform presence were collected during the previous month~~
~~320,001 - 450,000~~	~~180~~	~~180~~
~~450,001 - 600,000~~	~~210~~	~~210~~
~~600,001 - 780,000~~	~~240~~	~~240~~
~~780,001 - 970,000~~	~~270~~	~~270~~
~~970,001 - 1,230,000~~[3]	~~300~~	~~300~~

~~1 Does not include the population of a consecutive system that purchases water. The sampling requirement for consecutive systems is a separate determination based upon the population of that system.~~

~~2 Noncommunity systems using only protected groundwater sources and serving less than 25 individuals, may collect and submit for analysis, one sample every three months.~~

~~3 Systems serving populations larger than 1,230,000 shall contact the department for the minimum number of samples required per month.~~

~~* In addition to the provisions of subsection (1)(a) of this section, if a system of this size cannot show evidence of having been subject to a sanitary survey on file with the department, or has been determined to be at risk to bacteriological concerns following a survey, the minimum number of samples required per month may be increased by the department after additional consideration of factors such as monitoring history, compliance record, operational problems, and water quality concerns for the system.~~))

2.

(v) Seasonal systems.

(A) In accordance with WAC 246-290-480 (2)(f)(ii), seasonal systems shall certify that a department-approved start-up procedure, which may include a requirement for start-up sampling, was completed prior to serving water to the public.

(B) Seasonal systems shall monitor every month that it is in operation unless it meets the criteria in subsection (3)(e)(ii) of this section.

(C) The department may exempt a seasonal system from some or all of the requirements in subsection (3)(e)(v)(A) of this section if the entire distribution system remains pressurized during the entire period that the system is not operating, except that systems that monitor less frequently than monthly shall still monitor during the vulnerable period designated by the department.

Table 2
Total Coliform Monitoring Frequency

Population served	Minimum number of samples per month
1 to 1,000*	1
1,001 to 2,500	2
2,501 to 3,300	3
3,301 to 4,100	4
4,101 to 4,900	5
4,901 to 5,800	6
5,801 to 6,700	7

Population served	Minimum number of samples per month
6,701 to 7,600	8
7,601 to 8,500	9
8,501 to 12,900	10
12,901 to 17,200	15
17,201 to 21,500	20
21,501 to 25,000	25
25,001 to 33,000	30
33,001 to 41,000	40
41,001 to 50,000	50
50,001 to 59,000	60
59,001 to 70,000	70
70,001 to 83,000	80
83,001 to 96,000	90
96,001 to 130,000	100
130,001 to 220,000	120
220,001 to 320,000	150
320,001 to 450,000	180
450,001 to 600,000	210
600,001 to 780,000	240
780,001 to 970,000	270
970,001 to 1,230,000	300
1,230,001 to 1,520,000	330
1,520,001 to 1,850,000	360
1,850,001 to 2,270,000	390
2,270,001 to 3,020,000	420
3,020,001 to 3,960,000	450
3,960,001 or more	480

*Noncommunity systems using only protected groundwater sources and serving less than twenty-five individuals, may collect and submit for analysis, one sample every three months per WAC 246-290-300 (3)(e)(ii).

(f) Repeat monitoring.

(i) If a routine sample taken under subsection (3) of this section is total coliform-positive, the system shall collect a set of repeat samples within twenty-four hours of being notified of the positive result. Additional treatment, such as batch or shock chlorination must not be started prior to the collection of repeat samples unless the department gives prior authorization. The purveyor shall contact the department to determine the best interim approach in this situation. The system shall collect no fewer than three repeat samples for each total coliform-positive sample found. The department may extend the twenty-four hour limit on a case-by-case basis if the system has a logistical problem in collecting the repeat samples within twenty-four hours that is beyond its control. Following the collection of repeat samples, and before the analytical results are known, the system may provide interim precautionary treatment or other means to protect public health.

(ii) The system shall collect all repeat samples on the same day, except the department may allow a system with a single connection to collect the required set of repeat samples over a three-day period or to collect a larger volume of repeat samples in one or more sample containers of any size, as long as the total volume collected is at least 300 ml.

(iii) The system shall collect an additional set of repeat samples in the manner specified in subsection (3)(f)(i) through (iii) of this section if one or more repeat samples in the current set of repeat samples is total coliform-positive. The system shall collect the additional set of repeat samples within twenty-four hours of being notified of the positive result, unless the department extends the time limit as provided in subsection (3)(f)(i) of this section. The system shall continue to collect additional sets of repeat samples until either total coliforms are not detected in one complete set of repeat samples or the system determines that a coliform treatment technique trigger specified in WAC 246-290-320 (2)(a) has been exceeded as a result of a repeat sample being total coliform-positive and notifies the department. If a treatment technique trigger identified in WAC 246-290-320 (2)(a) is exceeded as a result of a routine sample being total coliform-positive, the system is required to conduct only one round of repeat monitoring for each total coliform-positive routine sample.

(iv) After a system collects a routine sample and before it gets the results of the analysis of that sample, if it collects subsequent routine samples from within five adjacent service connections of the initial sample, and the initial sample, after analysis, is found to contain total coliforms, then the system may count the subsequent samples as a repeat sample instead of as a routine sample.

(v) Results of all routine and repeat samples taken under subsection (3)(e) and (f) of this section not invalidated by the department under subsection (3)(d) of this section must be used to determine whether a coliform treatment technique trigger specified in WAC 246-290-320 (2)(a) has been exceeded.

(g) *E. coli* testing.

(i) If any routine or repeat sample is total coliform-positive, the system shall analyze that total coliform-positive culture medium to determine if *E. coli* are present. If *E. coli* are present, the system shall notify the department by the end of the day when the system is notified of the test result.

(ii) The department may allow a system, on a case-by-case basis, to forgo *E. coli* testing on a total coliform-positive sample if the system assumes that the total coliform-positive sample is *E. coli*-positive. Accordingly, the system shall notify the department as specified in WAC 246-290-320 (1)(a).

(h) Triggered source water monitoring.

(i) All groundwater systems with their own groundwater sources must conduct triggered source water monitoring unless the following conditions exist:

(A) The system has submitted a project report and received department approval that it provides at least 4-log treatment of viruses using inactivation, removal, or a department-approved combination of 4-log virus inactivation and removal before or at the first customer for each groundwater source; and

(B) The system is conducting compliance monitoring under WAC 246-290-453(2).

(ii) Any groundwater source sample required under this subsection (3) must be collected at the source prior to any treatment unless otherwise approved by the department.

(iii) Any groundwater source sample collected under this subsection (3) must be at least 100 mL in size and must be analyzed for *E. coli* using one of the analytical methods under 40 C.F.R. 141.402(c).

(iv) Groundwater systems shall collect at least one sample from each groundwater source in use at the time a routine sample collected under subsection (3) of this section is total coliform-positive and not invalidated under subsection (3)(d) of this section. These source samples must be collected within twenty-four hours of notification of the total coliform-positive sample. The following exceptions apply:

(A) The twenty-four hour time limit may be extended if granted by the department and will be determined on a case-by-case basis. If an extension is granted, the system shall sample by the deadline set by the department.

(B) Systems with more than one groundwater source may meet the requirements of subsection (3)(h)(iv) of this section by sampling a representative groundwater source or sources. The system shall have a department-approved triggered source water monitoring plan that identifies one or more groundwater sources that are representative of each monitoring site in the system's coliform monitoring plan under subsection (3)(b) of this section. The plan must be approved by the department before representative sampling will be allowed.

(v) Groundwater systems with an *E. coli* positive source water sample that is not invalidated under subsection (3)(h)(vii) of this section, shall:

(A) Notify the department by the end of the day when the system is notified of the test result.

(B) Provide Tier 1 public notice as required under Part 7, Subpart A of this chapter and special notification under WAC 246-290-71005 (4) and (5);

(C) If directed by the department, take corrective action as required under WAC 246-290-453(1); and

(D) Systems that are not directed by the department to take corrective action shall collect five additional samples from the same source within twenty-four hours of being notified of the *E. coli* positive source water sample. If any of the five additional samples are *E. coli* positive, the system shall take corrective action under WAC 246-290-453(1).

(vi) Any consecutive groundwater system that has a total coliform-positive routine sample collected under this subsection and not invalidated under subsection (3)(d) of this section shall notify each wholesale system it receives water from within twenty-four hours of being notified of the total coliform-positive sample and comply with subsection (3)(h) of this section.

(A) A wholesale groundwater system that receives notice from a consecutive system under subsection (3)(h)(vi) of this section shall conduct triggered source water monitoring under subsection (3)(h) of this section unless the department determines and documents in writing that the total coliform-positive sample collected was caused by a distribution system deficiency in the consecutive system.

(B) If the wholesale groundwater system source sample is *E. coli* positive, the wholesale system shall notify all consecutive systems served by that groundwater source within twenty-four hours of being notified of the results and shall meet the requirements of subsection (3)(h)(v) of this section.

(C) Any consecutive groundwater system receiving water from a source with an *E. coli* positive sample shall notify water system users as required under subsection (3)(h)(v)(B) of this section.

(vii) An *E. coli* positive groundwater source sample may be invalidated only if one of the following conditions apply:

(A) The system provides the department with written notice from the laboratory that improper sample analysis occurred; or

(B) The department determines and documents in writing that there is substantial evidence that the *E. coli* positive groundwater sample is not related to source water quality.

(viii) If the department invalidates an *E. coli* positive groundwater source sample, the system shall collect another source water sample within twenty-four hours of being notified by the department of its invalidation decision and have the sample analyzed using the same analytical method. The department may extend the twenty-four hour time limit as allowed under subsection (3)(h)(iv)(A) of this section.

(ix) Groundwater systems that fail to meet any of the monitoring requirements of subsection (3)(h) of this section shall conduct Tier 2 public notification under Part 7, Subpart A of this chapter.

(i) Assessment source water monitoring. If directed by the department, a groundwater system shall conduct assessment source water monitoring which may include, but is not limited to, the collection of at least one representative groundwater source sample each month the source provides groundwater to the public, for a minimum of twelve months.

(i) Sampling must be conducted as follows:

(A) Source samples must be collected at a location prior to any treatment. If the water system's configuration does not allow sampling at the source itself, the department may approve an alternative source sampling location representative of the source water quality.

(B) Source samples must be at least 100 mL in size and must be analyzed for *E. coli* using one of the analytical methods under 40 C.F.R. 141.402(c).

(ii) A groundwater system may use a triggered source water sample collected under subsection (3)(h) of this section to meet the requirements for assessment source water monitoring.

(iii) A groundwater system with an *E. coli* positive assessment source water sample that is not invalidated under subsection (3)(h)(vii) of this section, and consecutive systems receiving water from this source shall:

(A) Provide Tier 1 public notice under Part 7, Subpart A of this chapter and special notification under WAC 246-290-71005 (4) and (5); and

(B) Take corrective action as required under WAC 246-290-453(1).

(iv) A groundwater system that fails to conduct assessment source water monitoring as directed by the department shall provide Tier 2 public notice under Part 7, Subpart A of this chapter.

(4) Inorganic chemical and physical.

(a) A complete inorganic chemical and physical analysis shall consist of the primary and secondary chemical and physical substances.

(i) Primary chemical and physical substances are antimony, arsenic, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nickel, nitrate (as N), nitrite (as N), selenium, sodium, thallium, and for unfiltered surface water, turbidity. (Except that the MCL for arsenic under WAC 246-290-310 does not apply to TNC systems.)

(ii) Secondary chemical and physical substances are chloride, color, hardness, iron, manganese, specific conductivity, silver, sulfate, total dissolved solids*, and zinc.

* Required only when specific conductivity exceeds seven hundred micromhos/centimeter.

(b) Purveyors shall monitor for all primary and secondary chemical and physical substances identified in Table ((4)) 5 and Table ((~~5~~)) 6. Samples shall be collected in accordance with the monitoring requirements referenced in 40 C.F.R. 141.23 introductory text, 141.23(a) through 141.23(j), ((~~excluding (i)(2),~~)) and 40 C.F.R. 143.4, except for composite samples for systems serving less than three thousand three hundred one persons. For these systems, compositing among different systems may be allowed if the systems are owned or operated by a department-approved satellite management agency.

(c) Samples required by this subsection shall be taken at designated locations under 40 C.F.R. 141.23(a) through 141.23(j), ((~~excluding (i)(2),~~)) and 40 C.F.R. 143.4, and Table ((~~3~~)) 4 herein.

(i) Wellfield samples shall be allowed from department designated wellfields; and

(ii) Under 40 C.F.R. 141.23 (a)(3), alternate sampling locations may be used if approved by the department. The process for determining these alternate sites is described in department guidance. Purveyors of community and NTNC systems may ask the department to approve an alternate sampling location for multiple sources within a single system that are blended prior to entry to the distribution system. Alternate sampling plans shall address the following:

(A) Source vulnerability;

(B) Individual source characteristics;

(C) Previous water quality information;

(D) Status of monitoring waiver applications; and

(E) Other information deemed necessary by the department.

(d) Composite samples:

(i) Under 40 C.F.R. 141.23 (a)(4), purveyors may ask the certified lab to composite samples representing as many as five individual samples from within one system. Sampling procedures and protocols are outlined in department guidance; and

(ii) For systems serving a population of less than three thousand three hundred one, the department may approve composite sampling between systems when those systems are part of an approved satellite management agency.

(e) When the purveyor provides treatment for one or more inorganic chemical or physical contaminants, the department may require the purveyor to sample before and after treatment. The department shall notify the purveyor if and when this additional source sampling is required.

(f) Inorganic monitoring plans.

(i) Purveyors of community and NTNC systems shall prepare an inorganic chemical monitoring plan and base routine monitoring on the plan.

(ii) The purveyor shall:

(A) Keep the monitoring plan on file with the system and make it available to the department for inspection upon request;

(B) Revise or expand the plan at any time the plan no longer reflects the monitoring requirements, procedures or sampling locations, or as directed by the department; and

(C) Submit the plan to the department for review and approval when requested and as part of the water system plan required under WAC 246-290-100.

(g) Monitoring waivers.

(i) Purveyors may request in writing, a monitoring waiver from the department for any nonnitrate/nitrite inorganic chemical and physical monitoring requirements identified in this chapter.

(ii) Purveyors requesting a monitoring waiver shall comply with applicable subsections of 40 C.F.R. 141.23 (b)(3), and 141.23 (c)(3).

(iii) Purveyors shall update and resubmit requests for waiver renewals as applicable during each compliance cycle or period or more frequently as directed by the department.

(iv) Failure to provide complete and accurate information in the waiver application shall be grounds for denial of the monitoring waiver.

(h) The department may require the purveyor to repeat sample for confirmation of results.

(i) Purveyors with emergency and seasonal sources shall monitor those sources when they are in use.

(5) Lead and copper. Monitoring for lead and copper shall be conducted in accordance with 40 C.F.R. 141.86 (a) - (f), 141.87, and 141.88. All systems that have fewer than five drinking water taps used for human consumption shall collect at least one sample from each tap and then collect additional samples from those taps on different days during the monitoring period to meet the required number of samples as described in 40 C.F.R. 141.86(c).

(6) Disinfection byproducts (DBP), disinfectant residuals, and disinfection byproduct precursors (DBPP). Purveyors of community and NTNC systems providing water treated with chemical disinfectants and TNC systems using chlorine dioxide shall monitor as follows:

(a) General requirements.

(i) Systems shall collect samples during normal operating conditions.

(ii) All monitoring shall be conducted in accordance with the analytical requirements in 40 C.F.R. 141.131.

(iii) Systems may consider multiple wells drawing from a single aquifer as one treatment plant for determining the minimum number of TTHM and HAA5 samples required, with department approval in accordance with department guidance.

(iv) Systems required to monitor under this subsection shall prepare and implement a monitoring plan in accordance with 40 C.F.R. 141.132(f) or 40 C.F.R. 141.622, as applicable.

(A) Community and NTNC surface water and GWI systems that deliver water that has been treated with a disinfectant other than ultraviolet light and serve more than three thousand three hundred people shall submit a monitoring plan to the department.

(B) The department may require submittal of a monitoring plan from systems not specified in subsection (6)(a)(iv)(A) of this section, and may require revision of any monitoring plan.

(C) Failure to monitor for TTHM, HAA5, or bromate will be treated as a violation for the entire period covered by the annual average where compliance is based on a running annual average of monthly or quarterly samples or averages.

(D) Failure to monitor for chlorine and chloramine residuals will be treated as a violation for the entire period covered by the annual average where compliance is based on a running annual average of

monthly or quarterly samples or averages and the systems' failure to monitor makes it impossible to determine compliance with the MRDLs.

(b) Disinfection byproducts - **Community** and **NTNC** systems only.

(i) TTHMs and HAA5.

(A) Systems shall monitor for TTHM and HAA5 in accordance with 40 C.F.R. 141.132 (b)(1)(i) until the dates set in Table ((~~2~~)) 3. On and after the dates set in Table ((~~2~~)) 3, the systems shall monitor in accordance with 40 C.F.R. 141.620, 141.621, and 141.622.

Table ((~~2~~)) 3

Population Served	Routine Monitoring Start Date[1]
100,000 or more	April 1, 2012
50,000 - 99,999	October 1, 2012
10,000 - 49,999	October 1, 2013
Less than 10,000	October 1, 2013[2]
	October 1, 2014[3]

[1]Systems that have nonemergency interties with other systems must comply with the dates associated with the largest system in their combined distribution system.
[2]Surface water and GWI systems that did not have to do *Cryptosporidium* monitoring under 40 C.F.R. 141.701 (a)(4).
[3]Surface water and GWI systems that also did *Cryptosporidium* monitoring under 40 C.F.R. 141.701 (a)(4).

(B) With department approval, systems may reduce monitoring in accordance with 40 C.F.R. 141.132 (b)(1)(ii) and (iii), or 40 C.F.R. 141.623, as applicable.

(C) Systems on department-approved reduced monitoring schedules may be required to return to routine monitoring, or initiate increased monitoring in accordance with 40 C.F.R. 141.132 (b)(1)(iv), 40 C.F.R. 141.625, or 40 C.F.R. 141.627, as applicable.

(D) The department may return systems on increased monitoring to routine monitoring if, after one year, annual average results for TTHMs and HAA5 are less than or equal to 0.060 mg/L and 0.045 mg/L, respectively, or monitoring results are consistently below the MCLs indicating that increased monitoring is no longer necessary. After the dates set in Table ((~~2~~)) 3, systems must meet requirements of 40 C.F.R. 141.628 and 40 C.F.R. 141.625(c) to return to routine monitoring.

(E) After the dates set in Table ((~~2~~)) 3, systems must calculate operational evaluation levels each calendar quarter and take action, as needed, in accordance with 40 C.F.R. 141.626.

(F) NTNC systems serving ten thousand or more people and community systems must comply with the provisions of 40 C.F.R. Subpart U - Initial Distribution System Evaluation ((~~at~~)) under:

40 C.F.R. 141.600	General requirements.
40 C.F.R. 141.601	Standard monitoring.
40 C.F.R. 141.602	System specific studies.
40 C.F.R. 141.603	40/30 certification.
40 C.F.R. 141.604	Very small system waivers.
40 C.F.R. 141.605	Subpart V compliance monitoring location recommendations.

(ii) Chlorite - Only systems that use **chlorine dioxide.**

(A) Systems using chlorine dioxide shall conduct daily and monthly monitoring in accordance with 40 C.F.R. 141.132 (b)(2)(i) and addi-

tional chlorite monitoring in accordance with 40 C.F.R. 141.132 (b)(2)(ii).

(B) With department approval, monthly monitoring may be reduced in accordance with 40 C.F.R. 141.132 (b)(2)(iii)(B). Daily monitoring at entry to distribution required by 40 C.F.R. 141.132 (b)(2)(i)(A) may not be reduced.

(iii) Bromate - Only systems that use **ozone.**

(A) Systems using ozone for disinfection or oxidation must conduct bromate monitoring in accordance with 40 C.F.R. 141.132 (b)(3)(i).

(B) With department approval, monthly bromate monitoring may be reduced to once per quarter in accordance with 40 C.F.R. 141.132 (b)(3)(ii)(B).

(c) Disinfectant residuals.

(i) Chlorine and chloramines. Systems that deliver water continuously treated with chlorine or chloramines, including consecutive systems, shall monitor and record the residual disinfectant level in the distribution system under WAC 246-290-300 (2)(b), 246-290-451((~~(7)~~)), 246-290-664(6), or 246-290-694(8)((~~, but in no case less than as required by 40 C.F.R. 141.74 (b)(6), 40 C.F.R. 141.74 (c)(3), 40 C.F.R. 141.132(c), or 40 C.F.R. 141.624~~)).

(ii) Chlorine dioxide. Community, NTNC, or TNC systems that use chlorine dioxide shall monitor in accordance with 40 C.F.R. 141.132 (c)(2) and record results.

(d) Disinfection byproducts precursors.

Community and NTNC surface water or GWI systems that use conventional filtration with sedimentation as defined in WAC 246-290-660(3) shall monitor under 40 C.F.R. 141.132(d), and meet the requirements of 40 C.F.R. 141.135.

(7) Organic chemicals.

(a) Purveyors of community and NTNC water systems shall comply with monitoring requirements under 40 C.F.R. 141.24 (a) - (d), 141.24 (f)(1) - (f)(15), 141.24 (f)(18) - (19), 141.24 (f)(21), 141.24 (g)(1) - (9), 141.24 (g)(12) - (14), 141.24 (h)(1) - (11), and 141.24 (h)(14) - (17).

(b) Sampling locations shall be as defined in 40 C.F.R. 141.24(f), 141.24(g), and 141.24(h).

(i) Wellfield samples shall be allowed from department designated wellfields; and

(ii) Under 40 C.F.R. 141.24 (f)(3) and 141.24 (h)(3), alternate sampling locations may be allowed if approved by the department. These alternate locations are described in department guidance. Purveyors may ask the department to approve an alternate sampling location for multiple sources within a single system that are blended prior to entry to the distribution system. The alternate sampling location shall consider the following:

(A) Source vulnerability;

(B) An updated organic monitoring plan showing location of all sources with current and proposed sampling locations;

(C) Individual source characteristics;

(D) Previous water quality information;

(E) Status of monitoring waiver applications; and

(F) Other information deemed necessary by the department.

(c) Composite samples:

(i) Purveyors may ask the certified lab to composite samples representing as many as five individual samples from within one system. Sampling procedures and protocols are outlined in department guidance;

(ii) For systems serving a population of less than three thousand three hundred one, the department may approve composite sampling between systems when those systems are part of an approved satellite management agency.

(d) The department may require the purveyor to sample both before and after treatment for one or more organic contaminants. The department shall notify the purveyor if and when this additional source sampling is required.

(e) Organic chemical monitoring plans.

(i) Purveyors of community and NTNC systems shall prepare an organic chemical monitoring plan and base routine monitoring on the plan.

(ii) The purveyor shall:

(A) Keep the monitoring plan on file with the system and make it available to the department for inspection upon request;

(B) Revise or expand the plan at any time the plan no longer reflects the monitoring requirements, procedures or sampling locations, or as directed by the department; and

(C) Submit the plan to the department for review and approval when requested and as part of the water system plan required under WAC 246-290-100.

(f) Monitoring waivers.

(i) Purveyors may request in writing, a monitoring waiver from the department for any organic monitoring requirement except those relating to unregulated VOCs;

(ii) Purveyors requesting a monitoring waiver shall comply with 40 C.F.R. 141.24 (f)(7), 141.24 (f)(10), 141.24 (h)(6), and 141.24 (h)(7);

(iii) Purveyors shall update and resubmit requests for waiver renewals as directed by the department; and

(iv) Failure to provide complete and accurate information in the waiver application shall be grounds for denial of the monitoring waiver.

(g) Purveyors with emergency and seasonal sources shall monitor those sources under the applicable requirements of this section when they are actively providing water to consumers.

(8) Radionuclides. Monitoring for radionuclides shall be conducted under 40 C.F.R. 141.26.

(9) *Cryptosporidium* and *E. coli* source monitoring. Purveyors with surface water or GWI sources shall monitor the sources in accordance with 40 C.F.R. 141.701 and 702.

(10) Other substances.

On the basis of public health concerns, the department may require the purveyor to monitor for additional substances.

TABLE ((~~3~~)) 4
MONITORING LOCATION

Sample Type	Sample Location
Asbestos	One sample from distribution system or if required by department, from the source.
Bacteriological	From representative points throughout distribution system.
Cryptosporidium and *E. coli* (Source Water) - WAC 246-290-630(16)	Under 40 C.F.R. 141.703.

Sample Type	Sample Location
Complete Inorganic Chemical & Physical	From a point representative of the source, after treatment, and prior to entry to the distribution system.
Lead/Copper	From the distribution system at targeted sample tap locations.
Nitrate/Nitrite	From a point representative of the source, after treatment, and prior to entry to the distribution system.
Disinfection Byproducts - TTHMs and HAA5 - WAC 246-290-300(6)	Under 40 C.F.R. 141.132 (b)(1) (Subpart L of the C.F.R.).
Disinfection Byproducts - TTHMs and HAA5 - WAC 246-290-300(6)	Under 40 C.F.R. 141.600 - 629 (IDSE and LRAA in Subparts U and V of the C.F.R.).
Disinfection Byproducts - Chlorite (Systems adding chlorine dioxide)	Under 40 C.F.R. 141.132 (b)(2).
Disinfection Byproducts - Bromate (Systems adding ozone)	Under 40 C.F.R. 141.132 (b)(3).
Disinfectant Residuals - Chlorine and Chloramines	Under 40 C.F.R. 141.132 (c)(1).
Disinfectant Residuals - Chlorine dioxide	Under 40 C.F.R. 141.132 (c)(2).
Disinfection Precursors - Total Organic Carbon (TOC)	Under 40 C.F.R. 141.132(d).
Disinfection Precursors - Bromide (Systems using ozone)	From the source before treatment.
Radionuclides	From a point representative of the source, after treatment and prior to entry to distribution system.
Organic Chemicals (VOCs & SOCs)	From a point representative of the source, after treatment and prior to entry to distribution system.
Other Substances (unregulated chemicals)	From a point representative of the source, after treatment, and prior to entry to the distribution system, or as directed by the department.

AMENDATORY SECTION (Amending WSR 09-21-045, filed 10/13/09, effective 1/4/10)

WAC 246-290-310 Maximum contaminant levels (MCLs) and maximum residual disinfectant levels (MRDLs). (1) General.

(a) The purveyor shall be responsible for complying with the standards of water quality identified in this section. If a substance exceeds its MCL or its maximum residual disinfectant level (MRDL), the purveyor shall take follow-up action under WAC 246-290-320.

(b) When enforcing the standards described under this section, the department shall enforce compliance with the primary standards as its first priority.

(2) Bacteriological.

(a) ((~~MCLs~~)) An *E. coli* MCL under this subsection ((~~shall be~~)) is considered a primary standard((~~s~~)).

(b) ((~~If coliform presence is detected in any sample, the purveyor shall take follow-up action under WAC 246-290-320(2).~~

~~(c) Acute~~)) *E. coli* MCL. An ((~~acute~~)) *E. coli* MCL ((~~for coliform bacteria~~)) violation occurs each month in which a system is required to monitor for total coliforms when there is:

(i) ((~~Fecal coliform presence in a repeat sample;~~

~~(ii)~~)) *E. coli* presence in a repeat sample following a total coliform presence routine sample; ((~~or~~

~~(iii)~~)) (ii) Total coliform presence in any repeat samples collected as a follow-up to a sample with ((~~fecal coliform or~~)) *E. coli* presence;

(iii) The system fails to take all required repeat samples following an *E. coli* presence routine sample; or

(iv) The system fails to test for *E. coli* when any repeat samples test positive for total coliform.

Note: For the purposes of the public notification requirements in Part 7, Subpart A of this chapter, an ((~~acute~~)) *E. coli* MCL is a violation that requires Tier 1 public notification.

((~~(d) Nonacute MCL. A nonacute MCL for coliform bacteria occurs when:~~

~~(i) Systems taking less than forty routine samples during the month have more than one sample with coliform presence; or~~

~~(ii) Systems taking forty or more routine samples during the month have more than 5.0 percent with coliform presence.~~

~~(e) MCL compliance. The purveyor shall determine compliance with the coliform MCL for each month the system provides drinking water to the public. In determining MCL compliance, the purveyor shall:~~

~~(i) Include:~~

~~(A) Routine samples; and~~

~~(B) Repeat samples.~~

~~(ii) Not include:~~

~~(A) Samples invalidated under WAC 246-290-320 (2)(d); and~~

~~(B) Special purpose samples.~~))

(3) Inorganic chemical and physical.

(a) The primary and secondary MCLs are listed in Table ((~~4~~)) 5 and ((~~5~~)) 6:

TABLE ((4)) 5
INORGANIC CHEMICAL CHARACTERISTICS

Substance	Primary MCLs (mg/L)
Antimony (Sb)	0.006
Arsenic (As)	0.010*
Asbestos	7 million fibers/liter (longer than 10 microns)
Barium (Ba)	2.0
Beryllium (Be)	0.004
Cadmium (Cd)	0.005
Chromium (Cr)	0.1
Copper (Cu)	**

Substance	Primary MCLs (mg/L)
Cyanide (HCN)	0.2
Fluoride (F)	4.0
Lead (Pb)	**
Mercury (Hg)	0.002
Nickel (Ni)	0.1
Nitrate (as N)	10.0
Nitrite (as N)	1.0
Selenium (Se)	0.05
Sodium (Na)	**
Thallium (Tl)	0.002
Substance	**Secondary MCLs (mg/L)**
Chloride (Cl)	250.0
Fluoride (F)	2.0
Iron (Fe)	0.3
Manganese (Mn)	0.05
Silver (Ag)	0.1
Sulfate (SO_4)	250.0
Zinc (Zn)	5.0

Note* Does not apply to TNC systems.

Note** Although the state board of health has not established MCLs for copper, lead, and sodium, there is sufficient public health significance connected with copper, lead, and sodium levels to require inclusion in inorganic chemical and physical source monitoring. For lead and copper, the EPA has established distribution system related levels at which a system is required to consider corrosion control. These levels, called "action levels," are 0.015 mg/L for lead and 1.3 mg/L for copper and are applied to the highest concentration in ten percent of all samples collected from the distribution system. The EPA has also established a recommended level of twenty mg/L for sodium as a level of concern for those consumers that may be restricted for daily sodium intake in their diets.

TABLE ((~~5~~)) 6
PHYSICAL CHARACTERISTICS

Substance	Secondary MCLs
Color	15 Color Units
Specific Conductivity	700 umhos/cm
Total Dissolved Solids (TDS)	500 mg/L

(b) Compliance with the MCLs, except for nitrate and nitrite, in this subsection is determined by a running annual average at each sampling point. The system will not be considered in violation of the MCL until it has completed one year of quarterly sampling and at least one sampling point is in violation of the MCL. If one sampling point is in violation of the MCL, the system is in violation of the MCL.

(i) If any sample will cause the running annual average to exceed the MCL at any sampling point, the system is out of compliance with the MCL immediately.

(ii) If a system fails to collect the required number of samples, compliance will be based on the total number of samples collected.

(iii) If a sample result is less than the detection limit, zero will be used to calculate the running annual average.

(c) Compliance with the MCLs for nitrate and nitrite is determined based on one sample if the levels of these contaminants are below the MCLs as determined under Table ((4)) 5 of this section. If the levels of nitrate or nitrite exceed the MCLs in the initial sample, a confirmation sample is required under 40 C.F.R. 141.23 (f)(2), and compliance shall be determined based on the average of the initial and confirmation samples.

(4) Disinfection byproducts.

(a) The department shall consider standards under this subsection as primary standards. The MCLs in this subsection apply to monitoring required by WAC 246-290-300(6) and 40 C.F.R. 141.620 - 629.

(b) The MCLs for disinfection byproducts are as follows:

Disinfection Byproduct	MCL (mg/L)
Total Trihalomethanes (TTHMs)	0.080
Haloacetic acids (five) (HAA5)	0.060
Bromate	0.010
Chlorite	1.0

(c) Whether a system has exceeded the disinfection byproduct MCLs shall be determined in accordance with 40 C.F.R. 141.133. Beginning on the dates specified for compliance in 40 C.F.R. 141.620(c), compliance with the TTHMs and HAA5 MCLs shall be based on the LRAAs as required by 40 C.F.R. 141.64 (b)(2) and 40 C.F.R. 141.620(d). Compliance with the Bromate and Chlorite MCL will continue to be determined in accordance with 40 C.F.R. 141.133.

(5) Disinfectant residuals.

(a) The department shall consider standards under this subsection primary standards. The MRDLs in this subsection apply to monitoring required by WAC 246-290-300(6).

(b) The MRDL for disinfectants is as follows:

Disinfectant Residual	MRDL (mg/L)
Chlorine	4.0 (as $C1_2$)
Chloramines	4.0 (as $C1_2$)
Chlorine Dioxide	0.8 (as $C1O_2$)

(c) Whether a system has exceeded MRDLs shall be determined in accordance with 40 C.F.R. 141.133.

(6) Radionuclides.

(a) The department shall consider standards under this subsection primary standards.

(b) The MCLs for radium-226 and radium-228, gross alpha particle activity, beta particle and photon radioactivity, and uranium shall be as listed in 40 C.F.R. 141.66.

(7) Organic chemicals.

(a) The department shall consider standards under this subsection primary standards.

(b) VOCs.

(i) The MCLs for VOCs shall be as listed in 40 C.F.R. 141.61(a).

(ii) The department shall determine compliance with this subsection based on compliance with 40 C.F.R. 141.24(f).

(c) SOCs.

(i) MCLs for SOCs shall be as listed in 40 C.F.R. 141.61(c).

(ii) The department shall determine compliance with this subsection based on compliance with 40 C.F.R. 141.24(h).

(8) Other chemicals.

(a) The state board of health shall determine maximum contaminant levels for any additional substances.

(b) Purveyors may be directed by the department to comply with state advisory levels (SALs) for contaminants that do not have a MCL established in chapter 246-290 WAC. SALs shall be:

(i) MCLs that have been promulgated by the EPA, but which have not yet been adopted by the state board of health; or

(ii) State board of health adopted levels for substances recommended by the department and not having an EPA established MCL. A listing of these may be found in the department document titled *Procedures and References for the Determination of State Advisory Levels for Drinking Water Contaminants* dated June 1996, that has been approved by the state board of health and is available.

AMENDATORY SECTION (Amending WSR 11-17-062, filed 8/15/11, effective 10/1/11)

WAC 246-290-320 Follow-up action. (1) General.

(a) When an MCL or MRDL violation or exceedance occurs, the purveyor shall take follow-up action as described in this section.

(b) When a primary standard violation occurs, the purveyor shall:

(i) Notify the department under WAC 246-290-480;

(ii) Notify the consumers served by the system and the owner or operator of any consecutive system served in accordance with 40 C.F.R. 141.201 through 208, and Part 7, Subpart A of this chapter;

(iii) Determine the cause of the contamination; and

(iv) Take action as directed by the department.

(c) When a secondary standard violation occurs, the purveyor shall notify the department and take action as directed by the department.

(d) The department may require additional sampling for confirmation of results.

(2) Bacteriological. Coliform treatment technique triggers and assessment requirements for protection against potential fecal contamination.

(a) ((~~When coliform bacteria are present in any sample and the sample is not invalidated under (d) of this subsection, the purveyor shall ensure the following actions are taken:~~

~~(i) The sample is analyzed for fecal coliform or *E. coli*. When a sample with a coliform presence is not analyzed for *E. coli* or fecal coliforms, the sample shall be considered as having a fecal coliform presence for MCL compliance purposes;~~

~~(ii) Repeat samples are collected in accordance with (b) of this subsection;~~

~~(iii) Triggered source water monitoring is conducted in accordance with (g) of this subsection unless the department determines and documents in writing that the total coliform positive sample collected was caused by a distribution system deficiency;~~

~~(iv) The department is notified in accordance with WAC 246-290-480; and~~

~~(v) The cause of the coliform presence is determined and corrected.~~

~~(b) Repeat samples.~~

~~(i) The purveyor shall collect repeat samples in order to confirm the original sample results and to determine the cause of the coliform presence. Additional treatment, such as batch or shock chlorination, shall not be instituted prior to the collection of repeat samples unless prior authorization by the department is given. Following collection of repeat samples, and before the analytical results are known, there may be a need to provide interim precautionary treatment or other means to insure public health protection. The purveyor shall contact the department to determine the best interim approach in this situation.~~

~~(ii) The purveyor shall collect and submit for analysis a set of repeat samples for every sample in which the presence of coliforms is detected. A set of repeat coliform samples consists of:~~

~~(A) Four repeat samples for systems collecting one routine coliform sample each month; or~~

~~(B) Three repeat samples for all systems collecting more than one routine coliform sample each month.~~

~~(iii) The purveyor shall collect repeat sample sets according to Table 7;~~

~~(iv) The purveyor shall collect one set of repeat samples for each sample with a coliform presence. All samples in a set of repeat samples shall be collected on the same day and submitted for analysis within twenty-four hours after notification by the laboratory of a coliform presence, or as directed by the department.~~

~~(v) When repeat samples have coliform presence, the purveyor shall:~~

~~(A) Contact the department and collect a minimum of one additional set of repeat samples as directed by the department; or~~

~~(B) Collect one additional set of repeat samples for each sample where coliform presence was detected.~~

~~(vi) The purveyor of a system providing water to consumers via a single service shall collect repeat samples from the same location as the sample with a coliform presence. The set of repeat samples shall be collected:~~

~~(A) On the same collection date;~~

~~(B) Over consecutive days with one sample collected each day until the required samples in the set of repeat samples are collected; or~~

~~(C) As directed by the department.~~

~~(vii) If a sample with a coliform presence was collected from the first two or last two active services, the purveyor shall monitor as directed by the department;~~

~~(viii) The purveyor may change a previously submitted routine sample to a sample in a set of repeat samples when the purveyor:~~

~~(A) Collects the sample within five active adjacent service connections of the location from which the initial sample with a coliform presence was collected;~~

~~(B) Collects the sample after the initial sample with a coliform presence was submitted for analysis;~~

~~(C) Collects the sample on the same day as other samples in the set of repeat samples, except under (b)(iv) of this subsection; and~~

~~(D) Requests and receives approval from the department for the change.~~

~~(ix) The department may determine that sets of repeat samples specified under this subsection are not necessary during a month when a nonacute coliform MCL violation is determined for the system.~~

~~Table 7~~

~~REPEAT SAMPLE REQUIREMENTS~~

~~# OF ROUTINE SAMPLES COLLECTED EACH MONTH~~	~~# OF SAMPLES IN A SET OF REPEAT SAMPLES~~	~~LOCATIONS FOR REPEAT SAMPLES (COLLECT AT LEAST ONE SAMPLE PER SITE)~~
~~1~~	~~4~~	~~♦ Site of previous sample with a coliform presence ♦ Within 5 active services upstream of site of sample with a coliform presence ♦ Within 5 active services downstream of site of sample with a coliform presence ♦ At any other active service or from a location most susceptible to contamination (i.e., well or reservoir)~~
~~more than 1~~	~~3~~	~~♦ Site of previous sample with a coliform presence ♦ Within 5 active services upstream of site of sample with a coliform presence ♦ Within 5 active services downstream of site of sample with a coliform presence~~

~~(c) Monitoring frequency following a coliform presence. Systems having one or more coliform presence samples that were not invalidated during the previous month shall collect and submit for analysis the minimum number of samples shown in the last column of Table 2.~~

~~(i) The purveyor may obtain a reduction in the monitoring frequency requirement when one or more samples with a coliform presence were collected during the previous month, if the purveyor proves to the satisfaction of the department;~~

~~(A) The cause of the sample with a coliform presence; and~~

~~(B) The problem is corrected before the end of the next month the system provides water to the public.~~

~~(ii) If the monitoring frequency requirement is reduced, the purveyor shall collect and submit at least the minimum number of samples required when no samples with a coliform presence were collected during the previous month.~~

~~(d) Invalid samples. Routine and repeat coliform samples may be determined to be invalid under any of the following conditions:~~

~~(i) A certified laboratory determines that the sample results show:~~

~~(A) Multiple tube technique cultures that are turbid without appropriate gas production;~~

~~(B) Presence-absence technique cultures that are turbid in the absence of an acid reaction;~~

~~(C) Occurrence of confluent growth patterns or growth of TNTC (too numerous to count) colonies without a surface sheen using a membrane filter analytic technique;~~

~~(ii) The analyzing laboratory determines there is excess debris in the sample.~~

~~(iii) The analyzing laboratory establishes that improper sample collection or analysis occurred;~~

~~(iv) The department determines that a nondistribution system problem has occurred as indicated by:~~

~~(A) All samples in the set of repeat samples collected at the same location, including households, as the original coliform presence sample also are coliform presence; and~~

~~(B) All other samples from different locations (households, etc.) in the set of repeat samples are free of coliform.~~

~~(v) The department determines a coliform presence result is due to a circumstance or condition that does not reflect water quality in the distribution system.~~

~~(e) Follow-up action when an invalid sample is determined. The purveyor shall take the following action when a coliform sample is determined to be invalid:~~

~~(i) Collect and submit for analysis an additional coliform sample from the same location as each invalid sample within twenty-four hours of notification of the invalid sample; or~~

~~(ii) In the event that it is determined that the invalid sample resulted from circumstances or conditions not reflective of distribution system water quality, collect a set of samples in accordance with Table 7; and~~

~~(iii) Collect and submit for analysis samples as directed by the department.~~

~~(f) Invalidated samples shall not be included in determination of the sample collection requirement for compliance with this chapter.~~

~~(g) Triggered source water monitoring.~~

~~(i) All groundwater systems with their own groundwater source(s) must conduct triggered source water monitoring unless the following conditions exist:~~

~~(A) The system has submitted a project report and received approval that it provides at least 4-log treatment of viruses (using inactivation, removal, or a department approved combination of 4-log virus inactivation and removal) before or at the first customer for each groundwater source; and~~

~~(B) The system is conducting compliance monitoring under WAC 246-290-453(2).~~

~~(ii) Any groundwater source sample required under this subsection must be collected at the source prior to any treatment unless otherwise approved by the department.~~

~~(iii) Any source sample collected under this subsection must be at least 100 mL in size and must be analyzed for *E. coli* using one of the analytical methods under 40 C.F.R. 141.402(c).~~

~~(iv) Groundwater systems must collect at least one sample from each groundwater source in use at the time a routine sample collected under WAC 246-290-300(3) is total coliform-positive and not invalidated under (d) of this subsection. These source samples must be collected within twenty-four hours of notification of the total coliform-positive sample. The following exceptions apply:~~

~~(A) The twenty-four hour time limit may be extended if granted by the department and will be determined on a case-by-case basis. If an extension is granted, the system must sample by the deadline set by the department.~~

~~(B) Systems with more than one groundwater source may meet the requirements of (g)(iv) of this subsection by sampling a representative groundwater source or sources. The system must have an approved triggered source water monitoring plan that identifies one or more groundwater sources that are representative of each monitoring site in the system's coliform monitoring plan under WAC 246-290-300 (3)(b). This plan must be approved by the department before representative sampling will be allowed.~~

~~(C) Groundwater systems serving one thousand people or fewer may use a repeat sample collected from a groundwater source to meet the requirements of (b) and (g)(iv) of this subsection. If the repeat sample collected from the groundwater source is *E. coli* positive, the system must comply with (g)(v) of this subsection.~~

~~(v) Groundwater systems with an *E. coli* positive source water sample that is not invalidated under (g)(vii) of this subsection, must:~~

~~(A) Provide Tier 1 public notice under Part 7, Subpart A of this chapter and special notification under WAC 246-290-71005 (4) and (5);~~

~~(B) If directed by the department, take corrective action as required under WAC 246-290-453(1); and~~

~~(C) Systems that are not directed by the department to take corrective action must collect five additional samples from the same source within twenty-four hours of being notified of the *E. coli* positive source water sample. If any of the five additional samples are *E. coli* positive, the system must take corrective action under WAC 246-290-453(1).~~

~~(vi) Any consecutive groundwater system that has a total coliform-positive routine sample collected under WAC 246-290-300(3) and not invalidated under (d) of this subsection, must notify each wholesale system it receives water from within twenty-four hours of being notified of the total coliform-positive sample and comply with (g) of this subsection.~~

~~(A) A wholesale groundwater system that receives notice from a consecutive system under (g)(vi) of this subsection must conduct triggered source water monitoring under (g) of this subsection unless the department determines and documents in writing that the total coliform-positive sample collected was caused by a distribution system deficiency in the consecutive system.~~

~~(B) If the wholesale groundwater system source sample is *E. coli* positive, the wholesale system must notify all consecutive systems served by that groundwater source within twenty-four hours of being notified of the results and must meet the requirements of (g)(v) of this subsection.~~

~~(C) Any consecutive groundwater system receiving water from a source with an *E. coli* positive sample must notify all their consumers as required under (g)(v)(A) of this subsection.~~

~~(vii) An *E. coli* positive groundwater source sample may be invalidated only if the following conditions apply:~~

~~(A) The system provides the department with written notice from the laboratory that improper sample analysis occurred; or~~

~~(B) The department determines and documents in writing that there is substantial evidence that the *E. coli* positive groundwater sample is not related to source water quality.~~

~~(viii) If the department invalidates an *E. coli* positive groundwater source sample, the system must collect another source water sample within twenty-four hours of being notified by the department of its invalidation decision and have it analyzed using the same analytical method. The department may extend the twenty-four hour time limit under (g)(iv)(A) of this subsection.~~

~~(ix) Groundwater systems that fail to meet any of the monitoring requirements of (g) of this subsection must conduct Tier 2 public notification under Part 7, Subpart A of this chapter.~~)) Treatment technique triggers. Systems shall conduct assessments in accordance with (b) of this subsection after exceeding treatment technique triggers as follows:

(i) Level 1 treatment technique triggers.

(A) For systems taking forty or more routine samples per month, the system exceeds 5.0 percent total coliform-positive samples for the month.

(B) For systems taking fewer than forty routine samples per month, the system has two or more total coliform-positive samples in the same month.

(C) The system fails to take every required repeat sample after any single total coliform-positive routine sample.

(ii) Level 2 treatment technique triggers.

(A) An *E. coli* MCL violation, as specified in WAC 246-290-310 (2)(b).

(B) A second level 1 treatment technique trigger as defined in (a)(i) of this subsection within a rolling twelve-month period, unless the department has determined a likely reason that the samples that caused the first level 1 treatment technique trigger were total coliform-positive and has established that the system has corrected the problem.

(b) Requirements for assessments.

(i) Systems shall conduct level 1 and 2 assessments to identify the possible presence of sanitary defects and defects in distribution system coliform monitoring practices. Level 1 assessments must be conducted by the system operator or purveyor. Level 2 assessments must be conducted by the department or a party approved by the department which may include the system operator.

(ii) When conducting assessments, systems shall direct the assessor to evaluate minimum elements that include:

(A) Review and identification of atypical events that could affect distributed water quality or indicate that distributed water quality was impaired;

(B) Changes in distribution operation and maintenance that could affect distributed water quality, including water storage;

(C) Source and treatment considerations that bear on distributed water quality, where appropriate. For example, whether or not a groundwater system is disinfected;

(D) Existing water quality monitoring data;

(E) Inadequacies in sample sites, sampling protocol, and sample processing; and

(F) The system shall conduct the assessment consistent with any department directives that tailor specific assessment elements with respect to the size and type of the system and the size, type, and characteristics of the distribution system.

(iii) Level 1 assessments. A system shall conduct a level 1 assessment consistent with the requirements in subsection (2)(b) of this

section if the system exceeds one of the treatment technique triggers in (a)(i) of this subsection.

(A) The system shall complete a level 1 assessment as soon as practical after any treatment technique trigger is met in (a)(i) of this subsection. The completed assessment must describe sanitary defects detected, corrective actions completed, and a proposed timetable for any corrective actions not already completed. The assessment may also note that no sanitary defects were identified. The system shall submit the completed level 1 assessment to the department within thirty days after the system learns that it has exceeded a treatment technique trigger.

(B) Upon completion and submission of the level 1 assessment by the system, the department shall determine if the system has identified a likely cause for the level 1 treatment technique trigger and has corrected the problem. If the system has not corrected the problem, the department shall determine if the proposed timetable for corrective action is sufficient.

(C) If after reviewing the completed level 1 assessment, the department determines the assessment is not sufficient, including any proposed timetable for any corrective actions not already completed, the department may require the system to submit a revised assessment to the department within thirty days from the date of department notification.

(iv) Level 2 assessments. A system shall conduct a level 2 assessment consistent with requirements in subsection (2)(b) of this section if the system exceeds one of the treatment technique triggers in (a)(ii) of this subsection. The system shall comply with any expedited actions or additional actions required by the department in the case of an *E. coli* MCL violation.

(A) A level 2 assessment must be conducted as soon as practical after any treatment technique trigger in (a)(ii) of this subsection and shall be conducted by either a water distribution manager 2, 3, or 4 certified in accordance with chapter 246-292 WAC, a licensed professional engineer that meets the requirements of WAC 246-290-040(1), a local health jurisdiction, or the department. The system shall submit a completed level 2 assessment to the department within thirty days after the system learns that it has exceeded a treatment technique trigger. The completed assessment must describe sanitary defects detected, corrective actions completed, and a proposed timetable for any corrective actions not already completed in accordance with (d) of this subsection. The assessment may also note that no sanitary defects were identified.

(B) Upon completion and submission of the level 2 assessment by the system, the department shall determine if the system has identified a likely cause for the level 2 treatment technique trigger and has corrected the problem. If the system has not corrected the problem, the department shall determine if the proposed timetable for corrective action is sufficient.

(C) If after reviewing the submitted level 2 assessment, the department determines the assessment is not sufficient, including any proposed timetable for any corrective actions not already completed in accordance with (d) of this subsection, the department may require the system to submit a revised assessment within thirty days from the date of department notification.

(c) To achieve compliance with the MCL for *E. coli* under WAC 246-290-310 (2)(b), the following are identified as the best technology, treatment techniques, or other means available:

(i) Protection of wells from fecal contamination by appropriate placement and construction;

(ii) Maintenance of a disinfectant residual throughout the distribution system;

(iii) Proper maintenance of the distribution system including appropriate pipe replacement and repair procedures, main flushing programs, proper operation and maintenance of storage tanks and reservoirs, cross-connection control, and continual maintenance of positive water pressure in all parts of the distribution system;

(iv) Filtration, disinfection, or both, of surface water, using the proper strength of oxidants such as chlorine, chlorine dioxide, or ozone; and

(v) For systems using groundwater, compliance with a wellhead protection program developed and implemented under WAC 246-290-135(3).

(d) Corrective action. Systems shall correct sanitary defects found through either a level 1 or level 2 assessment conducted under (b) of this subsection. For corrections not completed by the time of submission of the assessment to the department, the system shall complete the corrective actions in compliance with a timetable approved by the department in consultation with the system under (e) of this subsection. The system shall notify the department when each scheduled corrective action is completed.

(e) Consultation. At any time during the assessment or corrective action phase, the water system may request a consultation with the department to determine the appropriate actions to be taken. The system may consult with the department on all relevant information that may impact the system's ability to comply with the requirements of subsection (2) of this section, including the method of accomplishment, an appropriate time frame, and other relevant information.

(f) A treatment technique violation occurs when a system exceeds a treatment technique trigger specified in subsection (2)(a) of this section and then fails to conduct the required assessment or complete corrective actions within the time frame specified in subsection (2)(b) and (d) of this section.

(3) Inorganic chemical and physical follow-up monitoring shall be conducted in accordance with the following:

(a) For nonnitrate/nitrite primary inorganic chemicals, 40 C.F.R. 141.23 (a)(4), 141.23 (b)(8), 141.23 (c)(7), 141.23 (c)(9), 141.23 (f)(1), 141.23(g), 141.23(m) and 141.23(n);

(b) For nitrate, 40 C.F.R. 141.23 (a)(4), 141.23 (d)(2), 141.23 (d)(3), 141.23 (f)(2), 141.23(g), 141.23(m), 141.23(n), and 141.23(o);

(c) For nitrite, 40 C.F.R. 141.23 (a)(4), 141.23 (e)(3), 141.23 (f)(2), and 141.23(g); or

(d) The purveyor of any public water system providing service that has secondary inorganic MCL exceedances shall take follow-up action as required by the department. Follow-up action shall be commensurate with the degree of consumer acceptance of the water quality and their willingness to bear the costs of meeting the secondary standard. For new community water systems and new nontransient noncommunity water systems without active consumers, treatment for secondary contaminant MCL exceedances will be required.

(4) Lead and copper follow-up monitoring shall be conducted in accordance with 40 C.F.R. 141.85(c), 141.86 (d)(2), 141.86 (d)(3), 141.87(c), 141.87(d) and 141.88(b) through 141.88(d).

(5) Turbidity.

Purveyors monitoring turbidity in accordance with Part 6 of this chapter shall provide follow-up under WAC 246-290-634.

(6) Organic chemicals. Follow-up monitoring shall be conducted in accordance with the following:

(a) For VOCs, 40 C.F.R. 141.24 (f)(11) through 141.24 (f)(15), and 141.24 (f)(22); or

(b) For SOCs, 40 C.F.R. 141.24(b), 141.24(c) and 141.24 (h)(7) through 141.24 (h)(11), and 141.24 (h)(20).

(7) Radionuclide follow-up monitoring shall be conducted under 40 C.F.R. 141.26 (a)(2)(iv), 141.26 (a)(3)(ii) through (v), 141.26 (a)(4), 141.26 (b)(6), and 141.26 (c)(5).

(8) The department shall determine the purveyor's follow-up action when a substance not included in this chapter is detected.

AMENDATORY SECTION (Amending WSR 10-20-068, filed 9/29/10, effective 11/1/10)

WAC 246-290-415 Operations and maintenance. (1) The purveyor shall ensure that the system is operated in accordance with the operations and maintenance program as established in the approved water system plan required under WAC 246-290-100 or the small water system management program under WAC 246-290-105.

(2) The operations and maintenance program shall include the following elements as applicable:

(a) Water system management and personnel;

(b) Operator certification;

(c) Comprehensive monitoring plan for all contaminants under WAC 246-290-300;

(d) Emergency response program;

(e) Cross-connection control program; and

(f) Maintenance of service reliability in accordance with WAC 246-290-420.

(3) Seasonal system startup.

(a) Seasonal systems shall submit a start-up procedure to the department for review and approval.

(b) Seasonal systems shall certify in accordance with WAC 246-290-480 (2)(f)(ii) that a department–approved start-up procedure, which may include a requirement for start-up sampling, was completed prior to serving water to the public.

(c) A treatment technique violation occurs when a seasonal system fails to complete a department-approved start-up procedure prior to serving water to the public.

(4) The purveyor shall ensure that the system is operated in accordance with good operations procedures such as those available in texts, handbooks, and manuals available from the following sources:

(a) American Water Works Association (AWWA)((~~, 6666 West Quincy Avenue, Denver, Colorado 80235~~));

(b) American Society of Civil Engineers (ASCE)((~~, 345 East 47th Street, New York, New York 10017-2398~~));

(c) Ontario Ministry of the Environment((~~, 135 St. Clair Avenue West, Toronto, Ontario M4V1B5, Canada~~));

(d) The Chlorine Institute((~~, 2001 "L" Street NW, Washington, D.C. 20036~~));

(e) California State University((~~, 600 "J" Street, Sacramento, California 95819~~));

(f) Health Research Inc.((~~, Health Education Services Division, P.O. Box 7126, Albany, New York 12224~~)); and

(g) Any other standards acceptable to the department.

((~~(4)~~)) (5) The purveyor shall not establish or maintain a bypass to divert water around any feature of a treatment process, except by written approval from the department.

((~~(5)~~)) (6) The purveyor shall take preventive or corrective action as directed by the department when results of an inspection conducted by the department indicate conditions which are currently or may become a detriment to system operation.

((~~(6)~~)) (7) The purveyor of a system using surface water or GWI shall meet operational requirements specified in Part 6 of this chapter.

((~~(7)~~)) (8) The purveyor shall have a certified operator if required under chapter 70.119 RCW and chapter 246-292 WAC.

((~~(8)~~)) (9) The purveyor shall at all times employ reasonable security measures to assure the raw water intake facilities, water treatment processes, water storage facilities, and the distribution system are protected from possible damage or compromise by unauthorized persons, animals, vegetation, or similar intruding agents. Such measures include elements such as locks on hatches, fencing of facilities, screening of reservoir vents or openings, and other recommendations as may be found in the current edition of the *Recommended Standards for Water Works, A Committee Report of the Great Lakes - Upper Mississippi River Board of State Public Health and Environmental Managers.*

((~~(9)~~)) (10) All purveyors utilizing groundwater wells shall monitor well levels from ground level to the static water level on a seasonal basis, including low demand and high demand periods, to document the continuing availability of the source to meet projected, long-term demands. Purveyors shall maintain this data and provide it to the department upon request.

((~~(10)~~)) (11) All operation and maintenance practices shall conform to Part 5 of this chapter.

AMENDATORY SECTION (Amending WSR 10-20-068, filed 9/29/10, effective 11/1/10)

WAC 246-290-416 Sanitary surveys. (1) All public water systems shall submit to a sanitary survey conducted by the department, or the department's designee, based upon the following schedule:

(a) For community water systems, every three years. In accordance with 40 C.F.R. 141.21 (d)(3), community water systems may qualify to be surveyed every five years if the system meets the following criteria:

(i) Provides at least 4-log treatment of viruses (using inactivation, removal, or a department-approved combination of 4-log inactivation and removal) before or at the first customer for all its groundwater sources; or

(ii) Has no total coliform or *E. coli* MCL violations since the last sanitary survey;

(iii) Has no coliform treatment technique violations for failure to conduct the required assessment or complete corrective actions in

response to a treatment technique trigger since the last sanitary survey;

(iv) Has no more than one total coliform monitoring violation since the last sanitary survey; and

((~~(iv)~~)) (v) Has no unresolved significant deficiencies from the current sanitary survey.

(b) For transient noncommunity and nontransient noncommunity water systems, every five years.

(c) For community water systems that use a surface water or GWI source, every three years. Sanitary surveys may be reduced to every five years upon written approval from the department.

(d) The department may schedule a sanitary survey or increases the frequency of surveys if it determines a public health threat exists or is suspected.

(2) All public water system purveyors shall be responsible for:

(a) Ensuring cooperation in scheduling sanitary surveys with the department, or its designee;

(b) At the department's request, provide any existing information that will enable the department to conduct a sanitary survey;

(c) Ensuring the unrestricted availability of all facilities and records at the time of a sanitary survey or special purpose investigation; and

(d) Taking preventive or corrective action as directed by the department when results of a sanitary survey indicate conditions which are currently or may become a detriment to system operation or public health.

(3) All public water systems that use a surface water or GWI source shall, within forty-five days following receipt of a sanitary survey report that identifies significant deficiencies, identify in writing to the department how the system will correct the deficiencies and propose a schedule to complete the corrections. The department may modify the schedule if necessary to protect the health of water system users.

(4) A groundwater system with significant deficiencies must meet the treatment technique requirements of WAC 246-290-453(1) and the special notification requirements under WAC 246-290-71005 (4) and (5) except where the department determines that the significant deficiency is in a portion of the distribution system that is served solely by surface water or GWI.

AMENDATORY SECTION (Amending WSR 10-20-068, filed 9/29/10, effective 11/1/10)

WAC 246-290-451 Disinfection of drinking water. (1) No portion of a public water system containing potable water shall be put into service, nor shall service be resumed until the facility has been effectively disinfected.

(a) In cases of new construction, drinking water shall not be furnished to the consumer until satisfactory bacteriological samples have been analyzed by a laboratory certified by the state; ((~~and~~))

(b) In cases of existing water mains, when the integrity of the main is lost resulting in a significant loss of pressure that places the main at risk to ((~~cross-connection~~)) contamination, the purveyor shall use standard industry practices ((~~such as flushing, disinfec-~~

~~tion, and/or bacteriological sampling~~)) to ensure adequate and safe water quality prior to the return of the line to service((~~;~~)), including at least one of the following:

(i) Flushing;

(ii) Disinfection; or

(iii) Bacteriological sampling.

(c) If a cross-connection is confirmed, the purveyor shall satisfy the reporting requirements as described under WAC 246-290-490(8).

(2) The procedure used for disinfection shall conform to standards published by the American Water Works Association, or other industry standards acceptable to the department.

(3) The purveyor of a system using surface water or GWI shall meet disinfection requirements specified in Part 6 of this chapter.

(4) If the department determines that any of the following conditions apply, the purveyor ((~~of a system using groundwater~~)) shall provide continuous disinfection of the source and meet the requirements under subsection (6) of this section ((~~if required by the department to disinfect for any of the following reasons~~)):

(a) ((~~Determination that the~~)) A groundwater source is in hydraulic connection to surface water under WAC 246-290-640(4);

(b) A history of unsatisfactory ((~~source~~)) total coliform sampling results for a groundwater source; ((~~or~~))

(c) A ((~~microbiological~~)) microbial contaminant threat within ((~~the~~)) a groundwater source sanitary control area as defined in WAC 246-290-135;

(d) A microbial contaminant threat to a source, as documented in a susceptibility assessment, a sanitary survey, or a special purpose investigation which includes, but is not limited to, the following conditions:

(i) A poorly constructed source;

(ii) An inadequate surface seal;

(iii) High groundwater;

(iv) Lack of confining layers in the aquifer;

(v) A shallow source;

(vi) A drilled well in fractured bedrock; or

(vii) A source at risk of flooding.

(e) Desalination of a seawater water source by reverse osmosis.

(5) ((~~The purveyor of a groundwater system that is required to disinfect as a result of becoming a SSNC due to repeated total coliform MCL or major repeat violations shall meet the requirements under subsection (7) of this section.~~)) If the department determines that any of the following conditions apply, the purveyor shall provide continuous disinfection of the distribution system and meet the requirements under subsection (7) of this section:

(a) *E. coli* MCL violations;

(b) Level 1 or level 2 assessment treatment technique triggers;

(c) Failure to complete level 1 or level 2 assessments as required under WAC 246-290-320 (2)(b);

(d) Failure to complete corrective actions required under WAC 246-290-320 (2)(d); or

(e) Facility failures that threaten to degrade water quality in the distribution system.

(6) If disinfection is required under subsection (4) of this section, the following requirements must be met:

(a) Provide ((~~a minimum contact time at or before the first customer of:~~

~~(i) Thirty minutes if 0.2 mg/L free chlorine residual is maintained;~~

~~(ii) Ten minutes if 0.6 mg/L free chlorine residual is maintained; or~~

~~(iii)~~)) any combination of free chlorine residual concentration (C), measured in mg/L at or before the first customer and contact time (T), measured in minutes between the location of chlorine treatment and residual measurement, that result in a CT product (C x T) of greater than or equal to six((~~; and~~

~~(b) Maintain a detectable residual disinfectant concentration in all active parts of the distribution system, measured as total chlorine, free chlorine, combined chlorine, or chlorine dioxide.~~

~~(c)~~)) without exceeding the chlorine MRDL in WAC 246-290-310(5).

(b) The department may require the purveyor to provide longer contact times, higher chlorine residuals, or additional treatment to protect the health of consumers served by the water system.

((~~(d)~~)) (c) To demonstrate the required level of treatment is maintained, the purveyor shall:

(i) Monitor the residual disinfectant concentration at the point of entry to the distribution system, or at a department-approved location, at least once ((~~every Monday through Friday (except holidays)~~)) per day, five days per week or each day that water is supplied by the treatment plant if it operates less than daily;

(ii) ((~~Calculate the daily CT value at or before the first customer~~)) Identify the number of days each month that the treatment process failed to meet the disinfection treatment requirement in this subsection; and

(iii) Submit monthly ((~~groundwater~~)) water treatment reports to the department using a department-approved form by the tenth day of the following month.

((~~(e)~~)) (d) All analyses required in this subsection shall be conducted in accordance with an EPA ((~~standard methods~~)) approved method. A diethyl-p-phenylenediamine (DPD) colorimetric field test kit relying on a visual color comparison to a visual standard may not be used by a purveyor to comply with the requirements of this subsection.

((~~(f) The purveyor may be required~~)) (e) The department may require the purveyor to monitor the residual disinfectant concentration each calendar day water is supplied to the distribution system if the department considers source treatment operation ((~~is~~)) unreliable.

((~~(g)~~)) (f) The department may require the use of continuous residual analyzers and recorders to assure adequate monitoring of residual concentrations.

(7) ((~~If disinfection is required under subsection (5) of this section, or a chemical disinfectant is added to a groundwater source for any other reason, the following requirements must be met:~~)) A purveyor that adds free chlorine, total chlorine, combined chlorine, or chlorine dioxide to the distribution system on a continuous basis shall:

(a) Monitor residual disinfectant concentration at:

(i) Representative points ((~~throughout~~)) in the distribution system at least once ((~~each~~)) per day, ((~~excluding weekends and holidays, and at the same time and location of routine and repeat coliform sample collection. Frequency of disinfection residual monitoring may be reduced upon written request to the department if it can be shown that disinfection residuals can be maintained on a reliable basis without the provision of daily monitoring~~)) five days per week, unless upon written request, the department approves less frequent monitoring; and

(ii) The same time and location of routine and repeat coliform sample collection.

(b) Maintain a detectable residual disinfectant concentration in all active parts of the distribution system, ((~~measured as total chlorine, free chlorine, combined chlorine, or chlorine dioxide. Water in the distribution system with an HPC level less than or equal to 500 organisms/mL is considered to have a detectable residual disinfectant concentration.~~

~~(c) The department may require the purveyor to provide higher chlorine residuals, or additional treatment to protect the health of consumers served by the water system~~)) unless the department approves a written request to use a lower value. At a minimum, the request to use a lower value must identify the instrument used to measure the residual disinfectant concentration and include the manufacturer's documentation of the instrument's accuracy to measure the lower value.

(c) Submit monthly water treatment reports to the department using a department-approved form by the tenth day of the following month.

(d) Conduct all analyses required in this subsection ((~~shall be conducted~~)):

(i) In accordance with an EPA ((~~standard methods.~~

~~(e)~~)) approved method; or

(ii) Using a diethyl-p-phenylenediamine (DPD) colorimetric field test kit unless not allowed by the department.

(e) Colorimetric test strips may not be used by a purveyor to comply with the residual disinfectant concentration monitoring requirements of this subsection.

(f) The department may require the use of continuous residual analyzers and recorders to assure adequate monitoring of residual concentrations.

(g) The department may require the purveyor to provide higher disinfectant residuals, or additional treatment to protect the health of consumers served by the water system.

(h) If a chemical disinfectant is added to the distribution system for purposes other than continuous disinfection and the treatment purposes and procedures are identified in a treatment design approved under WAC 246-290-110 and 246-290-120, the system shall be exempt from the requirements of this section.

(8) Violations.

(a) Failure to provide treatment that meets the applicable requirements of subsection (6) or (7) of this section in two or more calendar days per month in which residual disinfectant concentration monitoring was conducted is a treatment technique violation;

(b) Failure to perform monitoring that meets the applicable requirements of subsection (6) or (7) of this section is a monitoring violation; or

(c) Failure to submit a monthly water treatment plant report to the department using a department-approved form by the tenth day of the following month in accordance with the requirements of subsection (6) or (7) of this section is a reporting violation.

(9) Purveyors that add free chlorine, total chlorine, combined chlorine, or chlorine dioxide to a source or the distribution system for any reason shall, in addition to any other applicable monitoring requirements of this section, measure residual disinfectant concentrations in samples collected at the same time and location that routine or repeat coliform samples are collected, unless the department deter-

mines that more frequent monitoring is necessary to protect public health.

AMENDATORY SECTION (Amending WSR 10-20-068, filed 9/29/10, effective 11/1/10)

WAC 246-290-453 ((~~Treatment techniques for groundwater systems.~~)) Corrective action under the GWR. (1) Groundwater systems with significant deficiencies identified under WAC 246-290-416, or source fecal contamination as determined under WAC 246-290-320 (2)(g)(v)(C) or 246-290-300 (3)(e), or as directed by the department under WAC 246-290-320 (2)(g)(v)(B) must:

(a) Take one or more of the following corrective actions:

(i) Correct all significant deficiencies;

(ii) Provide an alternate source of water;

(iii) Eliminate the source of contamination; or

(iv) Provide treatment that reliably achieves at least 4-log treatment of viruses (using inactivation, removal, or a department-approved combination of 4-log virus inactivation and removal) before or at the first customer for the groundwater source.

(b) Consult with the department regarding appropriate corrective action within thirty days unless otherwise directed by the department to implement a specific corrective action.

(c) Complete corrective action as directed by the department or be in compliance with an approved corrective action plan within one hundred twenty days (or earlier if directed by the department) of receiving written notice from the department of a significant deficiency or source fecal contamination under this subsection. Any modifications of a corrective action plan must be approved by the department.

(2) When treatment is installed to provide at least 4-log treatment of viruses under subsection (1)(a)(iv) of this section, compliance monitoring must be conducted and reported as follows:

(a) For chemical disinfection, conduct compliance monitoring under 40 C.F.R. 141.403 (b)(3)(i).

(i) For groundwater systems serving greater than three thousand three hundred people, conduct compliance monitoring under 40 C.F.R. 141.403 (b)(3)(i)(A).

(ii) For groundwater systems serving three thousand three hundred or fewer people, conduct compliance monitoring under 40 C.F.R. 141.403 (b)(3)(i)(B).

(b) For membrane filtration, conduct compliance monitoring under 40 C.F.R. 141.403 (b)(3)(ii).

(c) For alternative treatment, conduct compliance monitoring under 40 C.F.R. 141.403 (b)(3)(iii).

(d) For new sources, conduct compliance monitoring under 40 C.F.R. 141.403 (b)(2)(i) and (ii).

(e) Submit monthly groundwater treatment plant reports to the department using a department-approved form by the tenth day of the following month in accordance with 40 C.F.R. 141.31.

(3) A groundwater system may discontinue 4-log treatment of viruses installed under subsection (1)(a)(iv) of this section or WAC 246-290-451(4) if the department determines and documents in writing that 4-log treatment of viruses is no longer necessary for that groundwater source. A system that discontinues 4-log treatment of vi-

ruses is subject to the triggered source water monitoring requirements under WAC 246-290-320 (2)(g).

(4) Failure to meet the compliance monitoring requirements under subsection (2) of this section is a monitoring violation and requires Tier 3 public notification under Part 7, Subpart A of this chapter.

(5) Failure to submit a monthly groundwater treatment plant report to the department using a department-approved form by the tenth day of the following month is a reporting violation.

(6) Failure to provide 4-log treatment of viruses under subsection (1)(a)(iv) of this section is a treatment technique violation if the failure is not corrected within four hours of the time the purveyor determines that at least 4-log treatment of viruses is not maintained and requires Tier 2 public notification under Part 7, Subpart A of this chapter.

((~~(6)~~)) (7) Failure to complete corrective action as directed by the department or be in compliance with an approved corrective action plan within one hundred twenty days (or earlier if directed by the department) of receiving notice from the department of a significant deficiency or an *E. coli* positive groundwater sample that is not invalidated under WAC 246-290-320 (2)(g)(vii) is a treatment technique violation and requires Tier 2 public notification under Part 7, Subpart A of this chapter.

AMENDATORY SECTION (Amending WSR 10-20-068, filed 9/29/10, effective 11/1/10)

WAC 246-290-480 Recordkeeping and reporting. (1) Records. The purveyor shall keep the following records of operation and water quality analyses:

(a) Bacteriological and turbidity analysis results shall be kept for five years. Chemical analysis results shall be kept for as long as the system is in operation. Records of source meter readings shall be kept for ten years. Other records of operation and analyses required by the department shall be kept for three years. All records shall bear the signature of the operator in responsible charge of the water system or his or her representative. Systems shall keep these records available for inspection by the department and shall send the records to the department if requested. Actual laboratory reports may be kept or data may be transferred to tabular summaries, provided the following information is included:

(i) The date, place, and time of sampling, and the name of the person collecting the sample;

(ii) Identification of the sample type (routine distribution system sample, repeat sample, source or finished water sample, or other special purpose sample);

(iii) Date of analysis;

(iv) Laboratory and person responsible for performing analysis;

(v) The analytical method used; and

(vi) The results of the analysis.

(b) The purveyor shall maintain documentation of any level 1 or level 2 assessment regardless of who conducts the assessment, and documentation of corrective actions completed as a result of the assessments, or other summary documentation of the sanitary defects and corrective actions taken under WAC 246-290-320(2) for department review.

The documentation must be maintained by the purveyor for a period of not less than five years after completion of the assessment or corrective action.

(c) For consecutive systems, documentation of notification to the wholesale systems of total coliform-positive samples that are not invalidated under WAC 246-290-300 (3)(d) must be kept for a period of not less than five years.

(d) Records of action taken by the system to correct violations of primary drinking water standards. For each violation, records of actions taken to correct the violation, and copies of public notifications shall be kept for no less than ten years after the last corrective action taken.

((~~(c)~~)) (e) Copies of any written reports, summaries, or communications relating to sanitary surveys or SPIs of the system conducted by system personnel, by a consultant or by any local, state, or federal agency, shall be kept for ten years after completion of the sanitary survey or SPI involved.

((~~(d)~~)) (f) Copies of project reports, construction documents and related drawings, inspection reports and approvals shall be kept for the life of the facility.

((~~(e)~~)) (g) Where applicable, records of the following shall be kept for a minimum of three years:

(i) Chlorine residual;

(ii) Fluoride level;

(iii) Water treatment plant performance including, but not limited to:

(A) Type of chemicals used and quantity;

(B) Amount of water treated;

(C) Results of analyses; and

(iv) Other information as specified by the department.

((~~(f)~~)) (h) The purveyor shall retain copies of public notices made under Part 7, Subpart A of this chapter and certifications made to the department under 40 C.F.R. 141.33(e) for a period of at least three years after issuance.

((~~(g)~~)) (i) Purveyors using conventional, direct, or in-line filtration that recycle spent filter backwash water, thickener supernatant, or liquids from dewatering processes within their treatment plant shall, beginning no later than June 8, 2004, collect and retain on file the following information for review and evaluation by the department:

(i) A copy of the recycle notification and information submitted to the department under WAC 246-290-660 (4)(a)(i).

(ii) A list of all recycle flows and the frequency with which they are returned.

(iii) Average and maximum backwash flow rate through the filters and the average and maximum duration of the filter backwash process in minutes.

(iv) Typical filter run length and a written summary of how filter run length is determined.

(v) The type of treatment provided for the recycle flow.

(vi) Data on the physical dimensions of the equalization and/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.

((~~(h)~~)) (j) Purveyors required to conduct disinfection profiling and benchmarking under 40 C.F.R. 141.530 through 141.544 shall retain the results on file indefinitely.

((~~(i)~~)) (k) Copies of monitoring plans developed under this chapter shall be kept for the same period of time as the records of analyses taken under the plan are required to be kept under (a) of this subsection.

((~~(j)~~)) (l) Purveyors using surface water or GWI sources must keep the records required by 40 C.F.R. 141.722.

(2) Reporting.

(a) Unless otherwise specified in this chapter, the purveyor shall report to the department within forty-eight hours the failure to comply with any national primary drinking water regulation (including failure to comply with any monitoring requirements) as set forth in this chapter. For violations assigned to Tier 1 in WAC 246-290-71001, the department must be notified as soon as possible, but no later than twenty-four hours after the violation is known.

(b) The purveyor shall submit to the department reports required by this chapter, including tests, measurements, and analytic reports. Monthly reports are due before the tenth day of the following month, unless otherwise specified in this chapter.

(c) The purveyor shall submit to the department copies of any written summaries or communications relating to the status of monitoring waivers during each monitoring cycle or as directed by the department.

(d) Source meter readings shall be made available to the department.

(e) Water facilities inventory form (WFI).

(i) Purveyors of **community** and **NTNC** systems shall submit an annual WFI update to the department;

(ii) Purveyors of **TNC** systems shall submit an updated WFI to the department as requested;

(iii) Purveyors shall submit an updated WFI to the department within thirty days of any change in name, category, ownership, or responsibility for management of the water system, or addition of source or storage facilities; and

(iv) At a minimum the completed WFI shall provide the current names, addresses, and telephone numbers of the owners, operators, and emergency contact persons for the system.

(f) Bacteriological. ((~~The purveyor shall notify the department of the presence of:~~))

(i) The purveyor shall notify the department of the presence of total coliform in a sample((~~,~~)) within ten days of notification by the laboratory; ((~~and~~

~~(ii) Fecal coliform or *E. coli* in a sample, by the end of the business day in which the purveyor is notified by the laboratory. If the purveyor is notified of the results after normal close of business, then the purveyor shall notify the department before the end of the next business day.~~))

(ii) Prior to serving water to the public, a seasonal system shall submit a certification to the department demonstrating that the system has complied with the department-approved start-up procedure; and

(iii) The system shall report treatment technique violations identified under WAC 246-290-320 (2)(f) to the department no later than the end of the next business day after the violation is known.

(g) Systems monitoring for disinfection byproducts under WAC 246-290-300(6) shall report information to the department as specified in (a) and (b) of this subsection, and 40 C.F.R. 141.134(b).

(h) Systems monitoring for disinfectant residuals under WAC 246-290-300(6) shall report information to the department as specified in (a) and (b) of this subsection, and 40 C.F.R. 141.134(c).

(i) Systems required to monitor for disinfection byproduct precursor removal under WAC 246-290-300(6) shall report information to the department as specified in (a) and (b) of this subsection, and 40 C.F.R. 141.134(d).

(j) Systems required to monitor for disinfection byproducts under WAC 246-290-300(6) shall report information to the department as specified in (a) and (b) of this subsection, and 40 C.F.R. 141.600 - 629.

(k) Systems subject to the enhanced treatment requirements for *Cryptosporidium* under WAC 246-290-630(4) shall report information to the department as specified in 40 C.F.R. 141.706 and 141.721.

(l) Systems that use acrylamide and epichlorohydrin in the treatment of drinking water, must certify annually in writing to the department that the combination (or product) of dose and monomer level does not exceed the levels specified in (l)(i) and (ii) of this subsection. Certifications shall reference maximum use levels established by an ANSI-accredited listing organization approved by the department.

(i) Acrylamide = 0.05 percent dosed at 1 ppm (or equivalent); and

(ii) Epichlorohydrin = 0.01 percent dosed at 20 ppm (or equivalent).

(m) Use of products that exceed the specified levels constitutes a treatment technique violation and the public must be notified under the public notice requirements under Part 7, Subpart A of this chapter.

(n) Systems shall submit to the department, in accordance with 40 C.F.R. 141.31(d), a certification that the system has complied with the public notification regulations (Part 7, Subpart A of this chapter) when a public notification is required. Along with the certification, the system shall submit a representative copy of each type of notice.

AMENDATORY SECTION (Amending WSR 10-20-068, filed 9/29/10, effective 11/1/10)

WAC 246-290-630 General requirements. (1) The purveyor shall ensure that treatment is provided for surface and GWI sources consistent with the treatment technique requirements specified in Part 6 of chapter 246-290 WAC.

(2) The purveyor shall install and properly operate water treatment processes to ensure at least:

(a) 99.9 percent (3-log) removal and/or inactivation of *Giardia lamblia* cysts;

(b) 99.99 percent (4-log) removal and/or inactivation of viruses; and

(c) 99 percent (2-log) removal of *Cryptosporidium* oocysts if required to filter.

(3) The purveyor shall ensure that the requirements of subsection (2) of this section are met between a point where the source water is not subject to contamination by untreated surface water and a point at or before the first consumer.

(4) The department may require higher levels of removal and/or inactivation of *Giardia lamblia* cysts, *Cryptosporidium* oocysts, and viruses than specified in subsection (2) of this section if deemed necessary to protect the health of consumers served by the system.

(5) The purveyor shall ensure that personnel operating a system subject to Part 6 of chapter 246-290 WAC meet the requirements under chapter 70.119 RCW and chapter 246-292 WAC.

(6) The purveyor of a **Group A community** system serving water from a surface or GWI source to the public before January 1, 1991, shall comply with applicable minimum treatment requirements. The purveyor shall meet either:

(a) The filtration and disinfection requirements under WAC 246-290-660 and 246-290-662 respectively;

(b) The criteria to remain unfiltered under WAC 246-290-690 and the disinfection requirements under WAC 246-290-692; or

(c) The criteria to provide a limited alternative to filtration under WAC 246-290-691 and the disinfection requirements under WAC 246-290-692.

(7) The purveyor of a **Group A noncommunity** system serving water from a surface or GWI source, shall meet either:

(a) The filtration and disinfection requirements under WAC 246-290-660 and 246-290-662, respectively; or

(b) The criteria to provide a limited alternative to filtration under WAC 246-290-691 and the disinfection requirements under WAC 246-290-692.

(8) The purveyor of a **Group A** system first serving water from a surface or GWI source to the public after December 31, 1990, shall meet either:

(a) The filtration and disinfection requirements under WAC 246-290-660 and 246-290-662, respectively; or

(b) The criteria to provide a limited alternative to filtration under WAC 246-290-691 and the disinfection requirements under WAC 246-290-692.

(9) The purveyor of a system required to install filtration may choose to provide a limited alternative to filtration or abandon the surface or GWI source as a permanent or seasonal source and develop an alternate, department-approved source. Purveyors that develop alternate groundwater sources or purchase water from a department-approved public water system using a groundwater source shall no longer be subject to Part 6 of chapter 246-290 WAC, once the alternate source is approved by the department and is on line.

(10) A purveyor that chooses to provide a limited alternative to filtration shall submit an application to the department that contains the information necessary to determine whether the source can meet the criteria.

(11) If a limited alternative to filtration is provided, then the purveyor shall install and properly operate treatment processes to ensure greater removal and/or inactivation efficiencies of *Giardia lamblia* cysts, viruses, or other pathogenic organisms of public health concern (including *Cryptosporidium* oocysts) than would be achieved by the combination of filtration and chlorine disinfection.

(12) Systems that were required to develop a disinfection profile under 40 C.F.R. 141.172 shall provide that profile and a calculated disinfection benchmark, as described in 40 C.F.R. 141.172 (c)(2) and (3), along with other project information specified in WAC 246-290-110, when proposing any change to the disinfection treatment system. The proposal for change shall include an analysis of how the

proposed change will affect the current level of disinfection. The profile must also be available for inspection during routine sanitary surveys conducted under WAC 246-290-416.

(13) Community and nontransient noncommunity systems serving less than ten thousand persons must meet the disinfection profiling and benchmarking provisions required under 40 C.F.R. 141.530 through 141.544.

(14) Systems required to develop a disinfection profile under 40 C.F.R. 141.530 shall provide that profile and a calculated disinfection benchmark, as described in 40 C.F.R. 141.543 along with other project information specified in WAC 246-290-110, when proposing any change to the disinfection treatment system. The proposal for change shall include an analysis of how the proposed change will affect the current level of disinfection. The profile must also be available for inspection during routine sanitary surveys conducted under WAC 246-290-416.

(15) A system using conventional, direct, or in-line filtration that must arrange for the conduct of a CPE, under 40 C.F.R. 141.175 (b)(4) or 40 C.F.R. 141.563, may be required to arrange for CTA. The department will determine the need for CTA on a case-by-case basis.

(16) Water systems subject to the requirements of Part 6 of this chapter must also comply with the enhanced treatment requirements for *Cryptosporidium* under 40 C.F.R. Subpart W. The requirements are in addition to the requirements of Part 6 of this chapter and include:

(a) General requirements under 40 C.F.R. 141.700;

(b) Source monitoring requirements under 40 C.F.R. 141.701-707;

(c) Disinfection profiling and benchmarking requirements under 40 C.F.R. 141.708-709;

(d) Treatment technique requirements under 40 C.F.R. 141.710-714;

(e) Requirements for microbial toolbox components under 40 C.F.R. 141.715-720; and

(f) Reporting and recordkeeping requirements under 40 C.F.R. 141.721-722.

(17) Water systems using UV reactors to obtain treatment credit for *Cryptosporidium* ((~~removal~~)) inactivation must:

(a) Validate the reactors using the validation testing procedures specified under 40 C.F.R. 141.720 (d)(2); or

(b) Validate the reactor under Austrian ONORM Standards or German DVGW Standards.

AMENDATORY SECTION (Amending WSR 08-03-061, filed 1/14/08, effective 2/14/08)

WAC 246-290-638 Analytical requirements. (1) The purveyor shall ensure that only qualified persons conduct measurements for pH, temperature, turbidity, and residual disinfectant concentrations. In this section, qualified ((~~shall~~)) means:

(a) A person certified under chapter 246-292 WAC;

(b) An analyst, with experience conducting these measurements, from the state public health laboratory or another laboratory certified by the department; ((~~or~~))

(c) A state or local health ((~~agency~~)) jurisdiction professional experienced in conducting these measurements; or

(d) For the purpose of monitoring distribution system residual disinfectant concentration only, a person designated by and under the direct supervision of a waterworks operator certified under chapter 246-292 WAC.

(2) The purveyor shall ensure that measurements for temperature, turbidity, pH, and residual disinfectant concentration are made in accordance with "standard methods," or other EPA approved methods.

(3) The purveyor shall ensure that samples for coliform and HPC analysis are:

(a) Collected and transported in accordance with department-approved methods; and

(b) Submitted to the state public health laboratory or another laboratory certified by the department to conduct the analyses.

(4) Turbidity monitoring.

(a) The purveyor shall equip the system's water treatment facility laboratory with a:

(i) Bench model turbidimeter; and

(ii) Continuous turbidimeter and recorder if required under WAC 246-290-664 or 246-290-694.

(b) The purveyor shall ensure that bench model and continuous turbidimeters are:

(i) Designed to meet the criteria in "standard methods," EPA Method 180.1, Hach FilterTrak Method 10133, or Great Lakes Instruments Method 2; and

(ii) Properly operated, calibrated, and maintained at all times in accordance with the manufacturer's recommendations.

(c) The purveyor shall validate continuous turbidity measurements for accuracy as follows:

(i) Calibrate turbidity equipment based upon a primary standard in the expected range of measurements; and

(ii) Verify continuous turbidimeter performance on a weekly basis, not on consecutive days, with grab sample measurements made using a properly calibrated bench model turbidimeter.

(d) When continuous turbidity monitoring equipment fails, the purveyor shall measure turbidity on grab samples collected at least every four hours from the combined filter effluent and individual filters while the system serves water to the public and the equipment is being repaired or replaced. The purveyor shall have continuous monitoring equipment online within five working days of failure.

(5) Purveyors shall verify instruments used for continuous monitoring of free and total chlorine residual at least every five days with a grab sample measurement or with a protocol approved by the department as required under 40 C.F.R. 141.74(a)(2).

(6) Purveyors monitoring for *Cryptosporidium* or *E. coli* as required under 40 C.F.R. 141.701 shall collect samples and have them analyzed under 40 C.F.R. 141.704 and 141.705.

AMENDATORY SECTION (Amending WSR 08-03-061, filed 1/14/08, effective 2/14/08)

WAC 246-290-654 Treatment criteria for filtered systems. (1) The purveyor shall operate filters so that maximum flow rates do not exceed those specified in Table 10. The purveyor may operate filters at higher flow rates, if the purveyor demonstrates to the department's

satisfaction that filtration at the higher rate consistently achieves at least 99 percent (2-log) removal of *Giardia lamblia* cysts and 99 percent (2-log) removal of *Cryptosporidium* oocysts and meets the turbidity performance requirements of Table 11.

Table 10
FILTRATION OPERATION CRITERIA

FILTRATION TECHNOLOGY/ MEDIA	MAXIMUM FILTRATION RATE (gpm/ft^2)
Conventional, Direct and In-Line	
Gravity Filters with Single Media	3
Gravity Filters with Deep Bed, Dual or Mixed Media	6
Pressure Filters with Single Media	2
Pressure Filters with Deep Bed, Dual or Mixed Media	3
Slow Sand	0.1
Diatomaceous Earth	1.0

(2) The purveyor using conventional, direct or in-line filtration shall ensure that effective coagulation is in use at all times the water treatment facility produces water served to the public.

(3) The purveyor using conventional, direct, or in-line filtration shall demonstrate treatment effectiveness for *Giardia lamblia* cyst and *Cryptosporidium* oocyst removal by one of the following methods:

(a) Turbidity reduction method.

(i) The purveyor shall make source and filtered water turbidity measurements in accordance with WAC 246-290-664 (2) and (3) respectively.

(ii) The purveyor shall achieve:

(A) The turbidity performance requirements specified in WAC 246-290-660(1) and at least an eighty percent reduction in source turbidity based on an average of the daily turbidity reductions measured in a calendar month; or

(B) An average daily filtered water turbidity less than or equal to 0.1 NTU.

(b) Particle counting method. The purveyor shall:

(i) Use a particle counting protocol acceptable to the department; and

(ii) Demonstrate at a frequency acceptable to the department at least the following log reduction of particles in the size range of five to fifteen microns (*Giardia lamblia* cyst-sized particles) and three to five microns (*Cryptosporidium* oocyst-sized particles), as applicable:

(A) 2.5-log reduction in *Giardia lamblia* cyst-sized particles and a 2-log reduction in *Cryptosporidium* particles for systems using conventional filtration; or

(B) 2.0 log reduction for systems using direct or in-line filtration.

(c) Microscopic particulate analysis method. The purveyor shall:

(i) Use a protocol acceptable to the department; and

(ii) Demonstrate at a frequency acceptable to the department at least the following log reduction of *Giardia lamblia* cysts and *Crypto-*

sporidium oocysts or *Giardia lamblia* cyst and *Cryptosporidium* oocyst surrogate indicators as applicable:

(A) 2.5-log reduction in *Giardia lamblia* cysts or surrogates and a 2-log reduction in *Cryptosporidium* oocyst or surrogates for systems using conventional filtration; and

(B) 2.0 log reduction for systems using direct or in-line filtration.

(d) Other methods acceptable to the department.

(4) The purveyor shall ensure continuous disinfection of all water delivered to the public and shall:

(a) Maintain an adequate supply of disinfection chemicals and keep back-up system components and spare parts on hand;

(b) Develop, maintain, and post at the water treatment facility a plan detailing:

(i) How water delivered to the public will be continuously and adequately disinfected; and

(ii) The elements of an emergency notification plan to be implemented whenever the residual disinfectant concentration at entry to distribution falls below 0.2 mg/L for more than one hour.

(c) Implement the plan during an emergency affecting disinfection.

(5) Operations program.

(a) For each water treatment facility treating a surface or GWI source, the purveyor shall develop an operations program and make it available to the department for review upon request.

(b) The program shall be submitted to the department as an addendum to the purveyor's water system plan (WAC 246-290-100) or small water system management program (WAC 246-290-105).

(c) The program shall detail how the purveyor will produce optimal filtered water quality at all times the water treatment facility produces water to be served to the public.

(d) The purveyor shall operate the water treatment facility in accordance with the operations program.

(e) The operations program shall include, but not be limited to, a description of:

(i) For conventional, direct or in-line filtration, procedures used to determine and maintain optimized coagulation as demonstrated by meeting the requirements of WAC 246-290-654(3);

(ii) Procedures used to determine chemical dose rates;

(iii) How and when each unit process is operated;

(iv) Unit process equipment maintenance program;

(v) Treatment plant performance monitoring program;

(vi) Laboratory procedures;

(vii) Records;

(viii) Reliability features; and

(ix) Response plans for water treatment facility emergencies, including disinfection failure and watershed emergencies.

(f) The purveyor shall ensure the operations program is:

(i) Readily available at the water treatment facility for use by operators and for department inspection;

(ii) Consistent with department guidelines for operations procedures such as those described in department guidance on surface water treatment and water system planning; and

(iii) Updated as needed to reflect current water treatment facility operations.

(6) Pressure filters. Purveyors using pressure filters shall:

(a) Inspect and evaluate the filters, at least every six months, for conditions that would reduce their effectiveness in removing *Giardia lamblia* cysts;

(b) Maintain, and make available for department review, a written record of pressure filter inspections; and

(c) Be prepared to conduct filter inspections in the presence of a department representative, if requested.

AMENDATORY SECTION (Amending WSR 08-03-061, filed 1/14/08, effective 2/14/08)

WAC 246-290-660 Filtration. (1) Turbidity performance requirements.

(a) The purveyor shall ensure that the turbidity level of representative filtered water samples:

(i) Complies with the performance standards in Table 11;

(ii) Never exceeds 5.0 NTU for any system using slow sand, diatomaceous earth;

(iii) Never exceeds 1.0 NTU for any system using conventional, direct, or in-line filtration; and

(iv) Never exceeds the maximum allowable turbidity determined by the department on a case-by-case basis for any system using an alternative filtration technology approved under WAC 246-290-676 (2)(b).

Table 11

TURBIDITY PERFORMANCE STANDARDS

Filtration Technology	Filtered water turbidity (in NTUs) shall be less than or equal to this value in at least 95% of the measurements made each calendar month
Conventional, Direct and In-line	0.30
Slow Sand	1.0
Diatomaceous Earth	1.0
Alternative Technology	As determined by the department through case-by-case approval of technology, under WAC 246-290-676 (2)(b).

(b) The department may allow the turbidity of filtered water from a system using slow sand filtration to exceed 1.0 NTU, but never 5.0 NTU, if the system demonstrates to the department's satisfaction that the higher turbidity level will not endanger the health of consumers served by the system. As a condition of being allowed to produce filtered water with a turbidity exceeding 1.0 NTU, the purveyor may be required to monitor one or more parameters in addition to the parameters specified under WAC 246-290-664. The department shall notify the purveyor of the type and frequency of monitoring to be conducted.

(2) *Giardia lamblia, Cryptosporidium,* and virus removal credit.

(a) The department shall notify the purveyor of the removal credit granted for the system's filtration process. The department shall specify removal credit for:

(i) Existing filtration facilities based on periodic evaluations of performance and operation; and

(ii) New or modified filtration facilities based on results of pilot plant studies or full scale operation.

(b) Conventional, direct, and in-line filtration.

(i) The removal credit the department may grant to a system using conventional, direct, or in-line filtration and demonstrating effective treatment is as follows:

Filtration Technology	Percent Removal Credit (log)					
	Giardia		Virus		*Cryptosporidium*	
	Percent	log	Percent	log	Percent	log
Conventional	99.7	2.5	99	2.0	99	2.0
Direct and in-line	99	2.0	90	1.0	99	2.0

(ii) A system using conventional, direct, or in-line filtration shall be considered to provide effective treatment, if the purveyor demonstrates to the satisfaction of the department that the system meets the:

(A) Turbidity performance requirements under subsection (1) of this section; and

(B) Operations requirements of WAC 246-290-654.

(iii) The department shall not grant removal credit to a system using conventional, direct, or in-line filtration that:

(A) Fails to meet the minimum turbidity performance requirements under subsection (1) of this section; or

(B) Fails to meet the operating requirements under WAC 246-290-654.

(c) Slow sand filtration.

The department may grant a system using slow sand filtration 99 percent (2-log) *Giardia lamblia* cyst and *Cryptosporidium* oocyst removal credit and 99 percent (2-log) virus removal credit, if the system meets the department design requirements under WAC 246-290-676 and meets the minimum turbidity performance requirements in subsection (1) of this section.

(d) Diatomaceous earth filtration.

The department may grant a system using diatomaceous earth filtration 99 percent (2-log) *Giardia lamblia* cyst and *Cryptosporidium* oocyst removal credit and 90 percent (1 log) virus removal credit, if the system meets the department design requirements under WAC 246-290-676 and meets the minimum turbidity performance requirements in subsection (1) of this section.

(e) Alternative filtration technology.

The department shall grant, on a case-by-case basis, *Giardia lamblia* cyst, *Cryptosporidium* oocyst, and virus removal credit for systems using alternative filtration technology based on results of product testing acceptable to the department.

(f) The purveyor granted no *Giardia lamblia* cyst removal credit and no *Cryptosporidium* oocyst removal credit shall:

(i) Provide treatment under WAC 246-290-662 (2)(d); and

(ii) Within ninety days of department notification regarding removal credit, submit an action plan to the department for review and approval. The plan shall:

(A) Detail how the purveyor plans to comply with the turbidity performance requirements in subsection (1) of this section and operating requirements of WAC 246-290-654; and

(B) Identify the proposed schedule for implementation.

(iii) Be considered in violation of the treatment technique specified in WAC 246-290-632 (2)(a)(i) and shall take follow-up action specified in WAC 246-290-634.

(g) Higher level removal credit.

(i) The department may grant a higher level of *Giardia lamblia*, *Cryptosporidium*, and virus removal credit than listed under (b) through (e) of this subsection, if the purveyor demonstrates to the department's satisfaction that the higher level can be consistently achieved.

(ii) As a condition of maintaining the maximum removal credit, purveyors may be required to periodically monitor one or more parameters not routinely monitored under WAC 246-290-664. The department shall notify the purveyor of the type and frequency of monitoring to be conducted.

(3) Disinfection ((~~by-product~~)) byproduct precursor removal requirements.

(a) Conventional systems using sedimentation shall meet the treatment technique requirements for control of disinfection ((~~by-product~~)) byproduct precursors specified in 40 C.F.R. 141.135.

(i) Applicability of this requirement shall be determined in accordance with 40 C.F.R. 141.135(a).

(ii) Enhanced coagulation and enhanced softening shall be provided in accordance with 40 C.F.R. 141.135(b), if applicable.

(iii) Compliance with the treatment technique requirements for control of disinfection ((~~by-product~~)) byproduct precursors shall be determined in accordance with 40 C.F.R. 141.135(c).

(b) For the purposes of compliance with (a) of this subsection, sedimentation shall be considered applicable when:

(i) Surface overflow rates and other design parameters are in conformance with traditionally accepted industry standards and textbook values, such as those prescribed in nationally accepted standards, including the most recent version of the *Recommended Standards for Water Works, A Committee Report of the Great Lakes - Upper Mississippi River Board of State Public Health and Environmental Managers*; and

(ii) The system has received pathogen removal credit for the sedimentation basin.

(4) Filter backwash recycling requirements.

(a) ((~~By no later than December 8, 2003,~~)) Purveyors using conventional, direct, or in-line filtration must **report** to the department, in writing, whether they recycle spent filter backwash water, thickener supernatant, or liquids from dewatering processes within the treatment plant. ((~~(i)~~)) Purveyors that **do** recycle spent filter backwash water, thickener supernatant, or liquids from dewatering processes must also report the following information:

((~~(A)~~)) (i) A plant schematic showing the origin of all flows that are recycled (including, but not limited to, spent filter backwash water, thickener supernatant, and liquids from dewatering processes), the hydraulic conveyance (i.e., pipe, open channel) used to transport them, and the location where they are reintroduced back into the treatment plant.

((~~(B)~~)) (ii) Typical recycle flow in gallons per minute (gpm), the highest observed plant flow experienced in the previous year (gpm), design flow for the treatment plant (gpm), and the approved operating capacity for the plant.

(b) ((~~By no later than June 8, 2004,~~)) Purveyors using conventional, direct, or in-line filtration that recycle spent filter backwash water, thickener supernatant, or liquids from dewatering processes within the treatment plant shall:

(i) Return the recycled flow prior to, or concurrent with the location where primary coagulant is introduced into the flow stream.

(ii) By no later than June 8, 2006, complete any capital improvements (physical modifications requiring engineering planning, design, and construction) necessary to meet the requirements of (b)(i) of this subsection.

(iii) On a case-by-case basis, the department may approve an alternate location for the return of recycle flows.

AMENDATORY SECTION (Amending WSR 03-08-037, filed 3/27/03, effective 4/27/03)

WAC 246-290-662 Disinfection for filtered systems. (1) General requirements.

(a) The purveyor shall provide continuous disinfection to ensure that filtration and disinfection together achieve, at all times the system serves water to the public, at least the following:

(i) 99.9 percent (3-log) inactivation and removal of *Giardia lamblia* cysts; and

(ii) 99.99 percent (4-log) inactivation and/or removal of viruses.

(b) Where sources receive sewage discharges and/or agricultural runoff, purveyors may be required to provide greater levels of removal and inactivation of *Giardia lamblia* cysts and viruses to protect the health of consumers served by the system.

(c) Regardless of the removal credit granted for filtration, purveyors shall, at a minimum, provide continuous disinfection to achieve at least 68 percent (0.5-log) inactivation of *Giardia lamblia* cysts and 99 percent (2-log) inactivation of viruses.

(2) Establishing the level of inactivation.

(a) The department shall establish the level of disinfection (log inactivation) to be provided by the purveyor.

(b) The required level of inactivation shall be based on source quality and expected levels of *Giardia lamblia* cyst and virus removal achieved by the system's filtration process.

(c) Based on periodic reviews, the department may adjust, as necessary, the level of disinfection the purveyor shall provide to protect the health of consumers served by the system.

(d) Systems granted no *Giardia lamblia* cyst removal credit and no *Cryptosporidium* oocyst removal credit shall:

(i) Unless directed otherwise by the department, provide interim disinfection to:

(A) Ensure compliance with the monthly coliform MCL under WAC 246-290-310;

(B) Achieve at least 99.9 percent (3-log) inactivation of *Giardia lamblia* cysts; and

(C) Maintain a detectable residual disinfectant concentration, or an HPC level less than 500 organisms/ml, within the distribution system in accordance with subsection (6) of this section. The department may approve a written request to use a lower value. At a minimum, the request to use a lower value must identify the instrument used to measure the residual disinfectant concentration and include the manufacturer's documentation on the instrument's accuracy to measure the lower value.

(ii) Comply with the interim disinfection requirements until the system can demonstrate to the department's satisfaction that it com-

plies with the operating requirements and turbidity performance requirements under WAC 246-290-654 and 246-290-660(1), respectively.

(3) Determining the level of inactivation.

(a) Unless the department has approved a reduced CT monitoring schedule for the system, each day the system serves water to the public, the purveyor, using procedures and CT values acceptable to the department such as those presented in department guidance of surface water treatment, shall determine:

(i) CTcalc values using the system's treatment parameters and calculate the total inactivation ratio achieved by disinfection; and

(ii) Whether the system's disinfection process is achieving the minimum levels of inactivation of *Giardia lamblia* cysts and viruses required by the department.

(b) The department may allow a purveyor to determine the level of inactivation using lower CT values than those specified in (a) of this subsection, provided the purveyor demonstrates to the department's satisfaction that the required levels of inactivation of *Giardia lamblia* cysts and viruses can be achieved.

(4) Determining compliance with the required level of inactivation.

(a) A purveyor shall be considered in compliance with the inactivation requirement when a total inactivation ratio equal to or greater than 1.0 is achieved.

(b) Failure to provide the required level of inactivation on more than one day in any calendar month shall be considered a treatment technique violation.

(5) Residual disinfectant concentration entering the distribution system.

(a) The purveyor shall ensure that all water entering the distribution system contains a residual disinfectant concentration, measured as free or combined chlorine, of at least 0.2 mg/L at all times the system serves water to the public; and

(b) Failure to provide a 0.2 mg/L residual at entry to distribution for more than four hours on any day shall be considered a treatment technique violation.

(6) Residual disinfectant concentration within the distribution system.

(a) The purveyor shall ensure that the residual disinfectant concentration in the distribution system, measured as total chlorine, free chlorine, combined chlorine, or chlorine dioxide, is detectable in at least ninety-five percent of the samples taken each calendar month.

(b) Water in the distribution system with an HPC less than or equal to 500 organisms/ml is considered to have a detectable residual disinfectant concentration for the purposes of compliance with WAC 246-290-662 (6)(a).

AMENDATORY SECTION (Amending WSR 08-03-061, filed 1/14/08, effective 2/14/08)

WAC 246-290-664 Monitoring for filtered systems. (1) Source coliform monitoring.

(a) The purveyor shall ensure that source water samples of each surface or GWI source are:

(i) Collected before the first point of disinfectant application and before coagulant chemical addition; and

(ii) Analyzed for fecal coliform density in accordance with methods acceptable to the department.

(b) At a minimum, the purveyor shall ensure source samples are collected for fecal coliform analysis at a frequency equal to ten percent of the number of routine coliform samples collected within the distribution system each month under WAC 246-290-300, or once per calendar month, whichever is greater up to a maximum of one sample per day.

(c) With written approval from the department, purveyors of filtered water systems serving less than ten thousand people may collect twenty-six consecutive monthly fecal coliform samples instead of collecting *E. coli* samples every two weeks for twelve months as specified in 40 C.F.R. 141.701 (a)(3)(i). The fecal coliform levels that will trigger *Cryptosporidium* monitoring will be the same as the *E. coli* levels specified in 40 C.F.R. 141.701 (a)(4)(i), (ii), or (iv).

(2) Source turbidity monitoring.

(a) The purveyor using conventional, direct, or in-line filtration shall measure source turbidity at least once per day on a representative sample collected before disinfection and coagulant addition.

(b) Grab sampling or continuous turbidity monitoring and recording may be used to meet the requirement specified in (a) of this subsection.

(c) Purveyors using continuous turbidity monitoring shall record continuous turbidity measurements at equal intervals, at least every four hours, in accordance with a department-approved sampling schedule.

(d) Purveyors using an approved alternative filtration technology may be required to monitor source water turbidity at least once per day on a representative sample as determined by the department.

(3) Filtered water turbidity monitoring.

(a) The purveyor using direct, conventional, or in-line filtration shall:

(i) Continuously monitor turbidity on representative samples from each individual filter unit and from the system's combined filter effluent, prior to clearwell storage;

(ii) For systems serving at least ten thousand people, record continuous turbidity measurements from each individual filter unit at equal intervals of at least every fifteen minutes, and for all systems, from the combined filter effluent at equal intervals of at least every four hours, in accordance with a department-approved sampling schedule;

(iii) ((~~Beginning January 14, 2005,~~)) Systems serving less than ten thousand people shall record continuous turbidity measurements from each individual filter unit at equal intervals of at least every fifteen minutes;

(iv) Systems serving less than ten thousand people and consisting of two or fewer filters may record continuous turbidity measurements from the combined filter effluent at equal intervals of at least fifteen minutes in lieu of recording individual filter turbidity measurements; and

(v) Conduct monitoring in accordance with the analytical techniques under WAC 246-290-638.

(b) The purveyor using slow sand or diatomaceous earth filtration shall:

(i) Continuously monitor turbidity on representative samples from each individual filter unit and from the system's combined filter effluent, prior to clearwell storage;

(ii) Record continuous turbidity measurements from the combined filter effluent at equal intervals of at least every four hours in accordance with a department-approved sampling schedule; and

(iii) Conduct monitoring in accordance with the analytical techniques under WAC 246-290-638.

(c) Purveyors using an alternative filtration technology approved under WAC 246-290-676 shall provide monitoring in accordance with the technology-specific approval conditions determined by the department.

(d) Purveyors using slow sand filtration or an alternative filtration technology may reduce filtered water turbidity monitoring to one grab sample per day with department approval. Reduced turbidity monitoring shall be allowed only where the purveyor demonstrates to the department's satisfaction that a reduction in monitoring will not endanger the health of consumers served by the water system.

(4) Monitoring the level of inactivation and removal.

(a) Each day the system is in operation, the purveyor shall determine the total level of inactivation and removal of *Giardia lamblia* cysts, viruses, and *Cryptosporidium* oocysts achieved.

(b) The purveyor shall determine the total level of inactivation and removal based on:

(i) *Giardia lamblia* cyst, *Cryptosporidium* oocyst, and virus removal credit granted by the department for filtration; and

(ii) Level of inactivation of *Giardia lamblia* cysts and viruses achieved through disinfection.

(c) At least once per day, purveyors shall monitor the following to determine the level of inactivation achieved through disinfection:

(i) Temperature of the disinfected water at each residual disinfectant concentration sampling point used for CT calculations; and

(ii) If using chlorine, pH of the disinfected water at each chlorine residual disinfectant concentration sampling point used for CT calculations.

(d) Each day during peak hourly flow (based on historical information), the purveyor shall:

(i) Determine disinfectant contact time, T, to the point at which C is measured; and

(ii) Measure the residual disinfectant concentration, C, of the water at the point for which T is calculated. The C measurement point shall be located before or at the first consumer.

(e) The department may reduce CT monitoring requirements for purveyors that demonstrate to the department's satisfaction that the required levels of inactivation are consistently exceeded. Reduced CT monitoring shall only be allowed where the purveyor demonstrates to the department's satisfaction that a reduction in monitoring will not endanger the health of consumers.

(5) Monitoring the residual disinfectant concentration entering the distribution system.

(a) Systems serving more than thirty-three hundred people per month.

(i) The purveyor shall continuously monitor and record the residual disinfectant concentration of water entering the distribution system and report the lowest value each day.

(ii) If the continuous monitoring equipment fails, the purveyor shall measure the residual disinfectant concentration on grab samples collected at least every four hours at the entry to the distribution

system while the equipment is being repaired or replaced. The purveyor shall have continuous monitoring equipment back online within five working days following failure.

(b) Systems serving thirty-three hundred or less people per month.

(i) The purveyor shall collect grab samples or use continuous monitoring and recording to measure the residual disinfectant concentration entering the distribution system.

(ii) Purveyors of **community** systems choosing to take grab samples shall collect:

(A) Samples at the following minimum frequencies:

Population Served			Number/day
25	-	500	1
501	-	1,000	2
1,001	-	2,500	3
2,501	-	3,300	4

(B) At least one of the grab samples at peak hourly flow; and

(C) The remaining samples evenly spaced over the time the system is disinfecting water that will be delivered to the public.

(iii) Purveyors of **noncommunity** systems choosing to take grab samples shall collect samples for disinfectant residual concentration entering the distribution system as directed by the department.

(iv) When grab samples are collected and the residual disinfectant concentration at the entry to distribution falls below 0.2 mg/L, purveyors shall collect a grab sample every four hours until the residual disinfectant concentration is 0.2 mg/L or more.

(6) Monitoring residual disinfectant concentrations within the distribution system.

(a) The purveyor shall measure the residual disinfectant concentration at representative points within the distribution system on a daily basis or as otherwise approved by the department.

(b) At a minimum, the purveyor shall measure the residual disinfectant concentration within the distribution system at the same time and location that a routine or repeat coliform sample is collected under WAC 246-290-300((~~(3) or 246-290-320(2)~~)) (3)(e) through (g).

(c) The purveyor may measure HPC within the distribution system in lieu of measuring the residual disinfectant concentration under this subsection.

AMENDATORY SECTION (Amending WSR 99-07-021, filed 3/9/99, effective 4/9/99)

WAC 246-290-668 Watershed control. (1) The purveyor shall, to the extent possible, exercise surveillance over conditions and activities in the watershed affecting source water quality. The purveyor shall develop and implement a department-approved watershed control program.

(2) The purveyor shall ((~~ensure that an~~)) include a current evaluation of the watershed ((~~is completed at least every six years. Watershed evaluations shall be performed such that results of the survey are included in the purveyor's~~)) as part of the watershed control program within the water system plan ((~~in accordance with~~)) under WAC

246-290-100 or small water system management program ((~~in accordance with~~)) under WAC 246-290-105, whichever is applicable.

(3) ((~~A professional engineer registered in the state of Washington shall direct the conduct of the watershed evaluation and develop a watershed evaluation report.~~

~~(4) The purveyor shall submit the report to the department within sixty days of completion of the watershed evaluation.~~

~~(5) The report shall describe the watershed, characterize the watershed hydrology, and discuss the purveyor's watershed control program. The report shall also describe:~~)) The watershed evaluation must include a description of:

(a) Conditions/activities in the watershed that are adversely affecting source water quality;

(b) Changes in the watershed that could adversely affect source water quality that have occurred since the last watershed evaluation;

(c) Sample results from the monitoring program the purveyor uses to assess the adequacy of watershed protection ((~~including an evaluation of sampling results~~)); and

(d) Recommendations for improved watershed control.

AMENDATORY SECTION (Amending WSR 03-08-037, filed 3/27/03, effective 4/27/03)

WAC 246-290-672 Interim treatment requirements. (1) Purveyors of existing unfiltered systems installing filtration shall provide interim disinfection treatment to:

(a) Ensure compliance with the monthly coliform MCL under WAC 246-290-310;

(b) Achieve inactivation levels of *Giardia lamblia* cysts on a daily basis each month the system serves water to the public as directed by the department; and

(c) Maintain a detectable residual disinfectant concentration in the distribution system, measured as total chlorine, free chlorine, or combined chlorine in 95 percent or more of the samples taken each calendar month. The department may approve a written request to use a lower value. At a minimum, the request to use a lower value must identify the instrument used to measure the residual disinfectant concentration and include the manufacturer's documentation on the instrument's accuracy to measure the lower value.

(d) Water in the distribution system with an HPC level less than or equal to 500 organisms/ml is considered to have a detectable residual disinfectant concentration for the purposes of compliance with this subsection.

(2) Failure to provide the required level of inactivation in subsection (1)(b) of this section on more than one day in any calendar month shall be considered a treatment technique violation.

(3) The department may require the purveyor to provide higher levels of treatment than specified in subsection (1)(b) of this section when necessary to protect the health of consumers served by the public water system.

(4) Interim treatment requirements shall be met in accordance with a schedule acceptable to the department.

AMENDATORY SECTION (Amending WSR 08-03-061, filed 1/14/08, effective 2/14/08)

WAC 246-290-676 Filtration technology and design criteria. (1) General.

(a) The purveyor proposing to construct new water treatment facilities or to make additions to existing water treatment facilities for surface and GWI sources shall ensure that the facilities comply with the treatment, design, and reliability requirements of Part 6 of chapter 246-290 WAC.

(b) The purveyor shall submit an engineering report to the department describing how the treatment facilities will be designed to comply with the requirements specified in Subparts A, B, and C of Part 6 of chapter 246-290 WAC.

(2) Filtration technology.

(a) The purveyor shall select a filtration technology acceptable to the department using criteria such as those outlined in department guidance on surface water treatment. The following filtration technologies are considered acceptable:

(i) Conventional;

(ii) Direct;

(iii) Diatomaceous earth; and

(iv) Slow sand.

(b) In addition to the technologies specified in subsection (2)(a) of this section, alternative filtration technologies may be acceptable, if the purveyor demonstrates to the department's satisfaction all of the following:

(i) Through acceptable third party testing, that system components do not leach or otherwise add substances to the finished water that would violate drinking water standards, or otherwise pose a threat to public health;

(ii) The technology's effectiveness in achieving at least 99 percent (2-log) removal of *Giardia lamblia* cysts or cyst surrogate particles, and at least 99 percent (2-log) removal of *Cryptosporidium* oocysts or oocyst surrogate particles. The purveyor shall further demonstrate the technology's removal capability through research conducted:

(A) By a party acceptable to the department; and

(B) In accordance with protocol and standards acceptable to the department.

(iii) Through on-site pilot plant studies or other means, that the filtration technology:

(A) In combination with disinfection treatment consistently achieves 99.9 percent (3-log) removal and inactivation of *Giardia lamblia* cysts and 99.99 percent (4-log) removal and inactivation of viruses; and

(B) Meets the applicable turbidity performance requirements as determined by the department for the specific treatment process being considered, but in no case to exceed 1.0 NTU for the finished water.

(3) Pilot studies.

(a) The purveyor shall ensure pilot studies are conducted for all proposed filtration facilities, except where waived based on engineering justification acceptable to the department.

(b) The purveyor shall obtain department approval for the pilot study plan before the pilot filter is constructed and before the pilot study is undertaken.

(c) The pilot study plan shall identify at a minimum:

(i) Pilot filter design;

(ii) Water quality and operational parameters to be monitored;

(iii) Type of data to be collected, frequency of data collection, and length of pilot study; and

(iv) Pilot plant operator qualifications.

(d) The purveyor shall ensure that the pilot study is:

(i) Conducted to simulate proposed full-scale design conditions;

(ii) Conducted over a time period that will demonstrate the effectiveness and reliability of the proposed treatment system during changes in seasonal and climatic conditions; and

(iii) Designed and operated in accordance with good engineering practices and that ANSI/NSF standards 60 and 61 are considered.

(e) When the pilot study is complete, the purveyor shall submit a project report to the department for approval under WAC 246-290-110.

(4) Design criteria.

(a) The purveyor shall ensure that water treatment facilities for surface and GWI sources are designed and constructed in accordance with good engineering practices documented in references such as those identified in WAC 246-290-200.

(b) Filtration facilities.

(i) The purveyor shall ensure that all new filtration facilities and improvements to any existing filtration facilities (excluding disinfection) are designed to achieve at least 99 percent (2-log) removal of *Giardia lamblia* cysts, and 99 percent (2-log) removal of *Cryptosporidium* oocysts; and

(ii) The purveyor shall ensure that all new filtration facilities contain provisions for filtering to waste with appropriate measures for backflow prevention.

(c) The purveyor shall ensure that disinfection systems for new filtration facilities or improvements to existing disinfection facilities are designed to meet the requirements of WAC 246-290-662.

AMENDATORY SECTION (Amending WSR 08-03-061, filed 1/14/08, effective 2/14/08)

WAC 246-290-690 Criteria to remain unfiltered. (1) For a system not using the "limited alternative to filtration" option to remain unfiltered, the purveyor using a surface water or GWI source shall meet the source water quality and site-specific conditions under this section, as demonstrated through monitoring conducted in accordance with WAC 246-290-694.

(2) Source water quality conditions necessary to remain unfiltered.

(a) Coliform limits.

(i) The purveyor shall ensure that representative source water samples taken before the first point of disinfection have a fecal coliform density less than or equal to 20/100 ml in ninety percent or more of all samples taken during the six previous calendar months the system served water to the public. Samples collected on days when source water turbidity exceeds 1.0 NTU shall be included when determining compliance with this requirement.

(ii) The purveyor shall submit a written report to the department if no source fecal coliform data has been submitted for days when source turbidity exceeded 1.0 NTU. The report shall document why sam-

ple results are not available and shall be submitted with the routine monitoring reports for the month in which the sample results are not available.

(b) Turbidity limits.

(i) The purveyor shall ensure that the turbidity level in representative source water samples taken before primary disinfection does not exceed 5.0 NTU.

(ii) A system failing to meet the turbidity requirements in (b)(i) of this subsection may remain unfiltered, if:

(A) The purveyor demonstrates to the department's satisfaction that the most recent turbidity event was caused by unusual and unpredictable circumstances; and

(B) Including the most recent turbidity event, there have not been more than:

(I) Two turbidity events in the twelve previous calendar months the system served water to the public; or

(II) Five turbidity events in the one-hundred-twenty previous calendar months the system served water to the public.

(iii) The purveyor of a system experiencing a turbidity event shall submit a written report to the department documenting why the turbidity event(s) occurred. The purveyor shall submit the report with the routine monitoring reports for the month in which the turbidity event(s) occurred.

(iv) The purveyor of a system with alternate, department-approved sources or sufficient treated water storage may avoid a turbidity event by implementing operational adjustments to prevent water with a turbidity exceeding 5.0 NTU from being delivered to consumers.

(v) When an alternate source or treated water storage is used during periods when the turbidity of the surface or GWI source exceeds 5.0 NTU, the purveyor shall not put the surface or GWI source back online, until the source water turbidity is 5.0 NTU or less.

(3) Site-specific conditions to remain unfiltered.

(a) Level of inactivation.

(i) The purveyor shall ensure that the *Giardia lamblia* cyst and virus inactivation levels required under WAC 246-290-692(1) are met in at least eleven of the twelve previous calendar months that the system served water to the public.

(ii) A system failing to meet the inactivation requirements during two of the twelve previous calendar months that the system served water to the public may remain unfiltered, if the purveyor demonstrates to the department's satisfaction that at least one of the failures was caused by unusual and unpredictable circumstances.

(iii) To make a demonstration, the purveyor shall submit to the department a written report documenting the reasons for the failure. The purveyor shall submit the report with the routine monitoring reports for the month in which the failure occurred.

(b) Redundant disinfection components or automatic shutoff.

The purveyor shall ensure that the requirement for redundant disinfection system components or automatic shutoff of water to the distribution system under WAC 246-290-692(3) is met at all times the system serves water to the public.

(c) Disinfectant residual entering the distribution system.

(i) The purveyor shall ensure that the requirement for having a residual entering the distribution system under WAC 246-290-692(4) is met at all times the system serves water to the public.

(ii) A system failing to meet the disinfection requirement under (c)(i) of this subsection may remain unfiltered, if the purveyor dem-

onstrates to the department's satisfaction that the failure was caused by unusual and unpredictable circumstances.

(iii) To make a demonstration, the purveyor shall submit to the department a written report documenting the reasons for the failure. The purveyor shall submit the report with the routine monitoring reports for the month in which the failure occurred.

(d) Disinfectant residuals within the distribution system.

(i) The purveyor shall ensure that the requirement for maintaining a residual within the distribution system under WAC 246-290-692(5) is met on an ongoing basis.

(ii) A system failing to meet the disinfection requirements under (d)(i) of this subsection may remain unfiltered, if the purveyor demonstrates to the department's satisfaction that the failure was caused by something other than a deficiency in source water treatment.

(iii) To make a demonstration, the purveyor shall submit to the department a written report documenting the reasons for the failure. The purveyor shall submit the report with the routine monitoring reports for the month in which the failure occurred.

(e) Watershed control.

(i) The purveyor shall develop and implement a department-approved watershed control program.

(ii) The purveyor shall monitor, limit, and control all facilities and activities in the watershed affecting source quality to preclude degradation of the physical, chemical, microbiological (including viral contamination and contamination by *Cryptosporidium* oocysts), and radiological quality of the source. The purveyor shall demonstrate, through ownership and/or written agreements acceptable to the department, control of all human activities that may adversely impact source quality.

(iii) At a minimum, the purveyor's watershed control program shall:

(A) Characterize the watershed hydrology and land ownership;

(B) Identify watershed characteristics and activities that may adversely affect source water quality; and

(C) Monitor the occurrence of activities that may adversely affect source water quality.

(iv) If the department determines significant changes have occurred in the watershed, the purveyor shall submit, within ninety days of notification, an updated watershed control program to the department for review and approval.

(v) The department may require an unfiltered system to conduct additional monitoring to demonstrate the adequacy of the watershed control program.

(vi) A purveyor shall be considered out of compliance when failing to:

(A) Have a department-approved watershed control program;

(B) Implement the watershed control program to the satisfaction of the department; or

(C) Conduct additional monitoring as directed by the department.

(f) On-site inspections.

(i) The department shall conduct on-site inspections to assess watershed control and disinfection treatment.

(ii) The department shall conduct annual inspections unless more frequent inspections are deemed necessary to protect the health of consumers served by the system.

(iii) For a system to remain unfiltered, the on-site inspection shall indicate to the department's satisfaction that the watershed

control program and disinfection treatment comply with (e) of this subsection and WAC 246-290-692, respectively.

(iv) The purveyor with unsatisfactory on-site inspection results shall take action as directed by the department in accordance with a department-established schedule.

(g) Waterborne disease outbreak.

(i) To remain unfiltered, a system shall not have been identified by the department as the cause of a waterborne disease outbreak attributable to a failure in treatment of the surface or GWI source.

(ii) The purveyor of a system identified by the department as the cause of a waterborne disease outbreak may remain unfiltered, if the purveyor demonstrates to the department's satisfaction that system facilities and/or operations have been sufficiently modified to prevent another waterborne disease outbreak.

(h) ((~~Total coliform~~)) *E. coli* MCL.

(i) For a system to remain unfiltered, the purveyor shall ensure that the MCL for ((~~total coliform~~)) *E. coli* under WAC 246-290-310 is met in at least eleven of the twelve previous calendar months the system served water to the public.

(ii) A system failing to meet the criteria in (i) of this subsection, may remain unfiltered, if the purveyor demonstrates to the department's satisfaction that the ((~~total coliform~~)) *E. coli* MCL violations were not caused by a deficiency in source water treatment.

(iii) The department shall determine the adequacy of source water treatment based on results of total coliform monitoring at the entry to the distribution system in accordance with WAC 246-290-694(3).

(i) Disinfectant residuals MRDL and disinfection ((~~by-products~~)) byproducts MCLs - Monitoring and compliance.

For a system to remain unfiltered, the purveyor shall comply with the monitoring and MCL requirements under WAC 246-290-300(6) and 246-290-310 (5) and (6), respectively.

(j) Laboratory services.

(i) For a system to remain unfiltered, the purveyor shall retain the services of the public health laboratory or another laboratory certified by the department to analyze samples for total and fecal coliform. Laboratory services shall be available on an as needed basis, seven days a week, including holidays. The purveyor shall identify in the annual comprehensive report required under WAC 246-290-696 the certified laboratory providing these services.

(ii) The department may waive this requirement, if the purveyor demonstrates to the department's satisfaction that an alternate, department-approved source is used when the turbidity of the surface or GWI source exceeds 1.0 NTU.

AMENDATORY SECTION (Amending WSR 08-03-061, filed 1/14/08, effective 2/14/08)

WAC 246-290-692 Disinfection for unfiltered systems. (1) General requirements.

(a) The purveyor without a limited alternative to filtration shall:

(i) Provide continuous disinfection treatment to ensure at least 99.9 percent (3-log) inactivation of *Giardia lamblia* cysts and 99.99

percent (4-log) inactivation of viruses at all times the system serves water to the public.

(ii) Failure to provide the required inactivation level on more than one day in any calendar month shall be considered a treatment technique violation.

(b) The purveyor with a limited alternative to filtration shall meet the treatment requirements in WAC 246-290-630(11) at all times the system serves water to the public.

(c) The purveyor may be required to provide greater levels of inactivation of *Giardia lamblia* cysts, other pathogenic microorganisms of public health concern, and viruses to protect the health of consumers.

(2) Determining the level of inactivation.

(a) Each day the system without a limited alternative to filtration serves water to the public, the purveyor, using procedures and $CT_{99.9}$ values specified in 40 C.F.R. 141.74, Vol. 54, No. 124, (published June 29, 1989), shall determine:

(i) CT values using the system's treatment parameters and calculate the total inactivation ratio achieved by disinfection; and

(ii) Whether the system's disinfection treatment process is achieving the minimum levels of inactivation of *Giardia lamblia* cysts and viruses required by the department. For purposes of determining compliance with the inactivation requirements specified in subsection (1) of this section, no credit shall be granted for disinfection applied to a source water with a turbidity greater than 5.0 NTU.

(b) Each day the system with a limited alternative to filtration serves water to the public, the purveyor, using appropriate guidance, shall determine:

(i) CT values using the system's treatment parameters and calculate the total inactivation ratio achieved by disinfection; and

(ii) Whether the system's treatment process is achieving the minimum levels of inactivation of *Giardia lamblia* cysts, viruses, or other pathogenic organisms of health concern including *Cryptosporidium* oocysts that would be greater than what would be expected from the combination of filtration plus chlorine disinfection.

(c) The purveyor shall be considered in compliance with the daily inactivation requirement when a total inactivation ratio equal to or greater than 1.0 is achieved.

(d) The purveyor of a system using a disinfectant or combination of disinfectants may use CT values lower than those specified in (a) of this subsection, if the purveyor demonstrates to the department's satisfaction that the required levels of inactivation of *Giardia lamblia* cysts, viruses, and, if providing a limited alternative to filtration, any other pathogenic organisms of public health concern including *Cryptosporidium* oocysts, can be achieved using the lower CT values.

(e) The purveyor of a system using preformed chloramines or adding ammonia to the water before chlorine shall demonstrate to the department's satisfaction that the system achieves at least 99.99 percent (4-log) inactivation of viruses.

(3) The purveyor using either unfiltered or "limited alternative to filtration" treated sources shall ensure that disinfection facilities provide either:

(a) Redundant components, including an auxiliary power supply with automatic start up and alarm, to ensure continuous disinfection. Redundancy shall ensure that both the minimum inactivation require-

ments and the requirement for a 0.2 mg/L residual disinfectant concentration at entry to the distribution system are met at all times water is delivered to the distribution system; or

(b) Automatic shutoff of delivery of water to the distribution system when the residual disinfectant concentration in the water is less than 0.2 mg/L. Automatic shutoff shall be allowed only in systems where the purveyor demonstrates to the department's satisfaction that automatic shutoff will not endanger health or interfere with fire protection.

(4) Disinfectant residual entering the distribution system.

(a) The purveyor shall ensure that water entering the distribution system contains a residual disinfectant concentration, measured as free or combined chlorine, of at least 0.2 mg/L at all times the system serves water to the public; and

(b) Failure to provide a 0.2 mg/L residual at entry to distribution for more than four hours on any day shall be considered a treatment technique violation.

(5) Disinfectant residuals within the distribution system.

(a) The purveyor shall ensure that the residual disinfectant concentration in the distribution system, measured as total chlorine, free chlorine, combined chlorine, or chlorine dioxide, is detectable in at least ninety-five percent of the samples taken each calendar month. The department may approve a written request to use a lower value. At a minimum, the request to use a lower value must identify the instrument used to measure the residual disinfectant concentration and include the manufacturer's documentation on the instrument's accuracy to measure the lower value.

(b) The purveyor of a system that purchases completely treated surface or GWI water as determined by the department shall comply with the requirements specified in (a) of this subsection.

(c) Water in the distribution system with an HPC level less than or equal to 500 organisms/ml is considered to have a detectable residual disinfectant concentration.

AMENDATORY SECTION (Amending WSR 09-21-045, filed 10/13/09, effective 1/4/10)

WAC 246-290-694 Monitoring for unfiltered systems. (1) Source coliform monitoring for systems without a limited alternative to filtration.

(a) The purveyor shall ensure that source water samples of each surface or GWI source are representative and:

(i) Collected before the first point of disinfectant application; and

(ii) Analyzed for fecal coliform density in accordance with methods acceptable to the department.

(b) The purveyor shall ensure source samples are collected for fecal coliform analysis each week the system serves water to the public based on the following schedule:

Population Served	Minimum Number/week*
25 - 500	1
501 - 3,300	2

Population Served	Minimum Number/week*
3,301 - 10,000	3
10,001 - 25,000	4
>25,000	5

*Must be taken on separate days.

(c) Each day the system serves water to the public and the turbidity of the source water exceeds 1.0 NTU, the purveyor shall ensure one representative source water sample is collected before the first point of disinfectant application and analyzed for fecal coliform density. This sample shall count toward the weekly source coliform sampling requirement.

(d) The purveyor using a surface water or GWI source and that meets the criteria to remain unfiltered under WAC 246-290-690, shall collect at least one routine sample near the first service connection each day the turbidity level of the source water, measured as specified under WAC 246-290-694, exceeds 1 NTU. This sample must be analyzed for the presence of total coliform. When one or more turbidity measurements in any day exceed 1 NTU, the system must collect this coliform sample within twenty-four hours of the first exceedance, unless the department determines that the system, for logistical reasons outside the system's control, cannot have the sample analyzed within thirty hours of collection. Sample results from this coliform monitoring must be included in determining compliance with the *E. coli* MCL ((~~for total coliforms~~)) under WAC 246-290-310 (2)(b) and exceeding treatment technique triggers under WAC 246-290-320 (2)(a).

(e) A purveyor shall not be considered in violation of (c) of this subsection, if the purveyor demonstrates to the department's satisfaction that, for valid logistical reasons outside the purveyor's control, the additional fecal coliform sample could not be analyzed within a time frame acceptable to the department.

(2) Source coliform monitoring for systems with a limited alternative to filtration.

(a) The purveyor shall ensure that source water samples of each surface or GWI source are:

(i) Collected before the first point of primary disinfection; and

(ii) Analyzed for fecal coliform density in accordance with methods acceptable to the department.

(b) At a minimum, the purveyor shall ensure source samples are collected for fecal coliform analysis at a frequency equal to ten percent the number of routine coliform samples collected within the distribution system each month under WAC 246-290-300, or once per calendar month, whichever is greater, up to a maximum of one sample per day.

(3) Coliform monitoring at entry to distribution for systems without a limited alternative to filtration.

(a) The purveyor shall collect and have analyzed one coliform sample at the entry point to the distribution system each day that a routine or repeat coliform sample is collected within the distribution system under WAC ((~~246-290-300(3) or 246-290-320(2), respectively~~)) 246-290-300 (3)(e) through (g).

(b) The purveyor shall use the results of the coliform monitoring at entry to distribution along with inactivation ratio monitoring results to demonstrate the adequacy of source treatment.

(4) Source turbidity monitoring for systems without a limited alternative to filtration.

(a) The purveyor shall continuously monitor and record turbidity:

(i) On representative source water samples before the first point of primary disinfectant application; and

(ii) In accordance with the analytical techniques in WAC 246-290-638.

(b) If source water turbidity is not the same as the turbidity of water delivered to consumers, the purveyor shall continuously monitor and record turbidity of water delivered.

(5) Source turbidity monitoring for systems with a limited alternative to filtration. The purveyor shall:

(a) Continuously monitor turbidity on representative source samples before the first point of primary disinfection application;

(b) Record continuous turbidity measurements at equal intervals, of at least four hours, in accordance with a department-approved sampling schedule; and

(c) Conduct monitoring in accordance with the analytical techniques under WAC 246-290-638.

(6) Monitoring the level of inactivation.

(a) Each day the system is in operation, the purveyor shall determine the total level of inactivation of *Giardia lamblia* cysts, viruses, and, if providing a limited alternative to filtration, any other pathogenic organisms of health concern including *Cryptosporidium* oocysts, achieved through disinfection.

(b) At least once per day, the purveyor shall monitor the following parameters to determine the total inactivation ratio achieved through disinfection:

(i) Temperature of the disinfected water at each residual disinfectant concentration sampling point used for CT calculations; and

(ii) If using chlorine, pH of the disinfected water at each chlorine residual disinfectant concentration sampling point used for CT calculations.

(c) Each day during peak hourly flow, the purveyor shall:

(i) Determine disinfectant contact time, T, to the point at which C is measured; and

(ii) Measure the residual disinfectant concentration, C, of the water at the point for which T is calculated. The C measurement point must be before or at the first consumer.

(7) Monitoring the residual disinfectant concentration entering the distribution system for either unfiltered systems, or systems using a limited alternative to filtration.

(a) Systems serving more than thirty-three hundred people.

(i) The purveyor shall continuously monitor and record the residual disinfectant concentration of water entering the distribution system and report the lowest value each day.

(ii) If the continuous monitoring equipment fails, the purveyor shall measure the residual disinfectant concentration on grab samples collected at least every four hours at the entry to the distribution system while the equipment is being repaired or replaced. The purveyor shall have continuous monitoring equipment back online within five working days following failure.

(b) Systems serving thirty-three hundred or less people.

(i) The purveyor shall collect grab samples or use continuous monitoring and recording to measure the residual disinfectant concentration entering the distribution system.

(ii) A purveyor choosing to take grab samples shall collect:

(A) Samples at the following minimum frequencies:

Population Served	Number/day
25 - 500	1
501 - 1,000	2
1,001 - 2,500	3
2,501 - 3,300	4

(B) At least one of the grab samples at peak hourly flow based on historical flows for the system; and

(C) The remaining sample or samples at intervals evenly spaced over the time the system is disinfecting water that will be delivered to the public.

(iii) When grab samples are collected and the residual disinfectant concentration at the entry to distribution falls below 0.2 mg/L, the purveyor shall collect a grab sample every four hours until the residual disinfectant concentration is 0.2 mg/L or more.

(8) Monitoring residual disinfectant concentration within the distribution system for either unfiltered systems, or systems using a limited alternative to filtration.

(a) The purveyor shall measure the residual disinfectant concentration within the distribution system at the same time and location that a routine or repeat coliform sample is collected under WAC ((~~246-290-300(3) or 246-290-320(2)~~)) 246-290-300 (3)(e) through (g) or once per day, whichever is greater.

(b) The purveyor of a system that purchases completely treated surface or GWI water as determined by the department shall comply with the requirements of (a) of this subsection or as otherwise directed by the department under WAC 246-290-300(2). At a minimum, the purveyor shall measure the residual disinfectant concentration within the distribution system at the same time and location that a routine or repeat coliform sample is collected under WAC ((~~246-290-300(3) or 246-290-320(2)~~)) 246-290-300 (3)(e) through (g).

(c) The purveyor may measure HPC within the distribution system in lieu of measuring the residual disinfectant concentration under this subsection.

AMENDATORY SECTION (Amending WSR 08-03-061, filed 1/14/08, effective 2/14/08)

WAC 246-290-71001 Public notification. (1) The purveyor shall notify the water system users and the owner or operator of any consecutive water system served in accordance with 40 C.F.R. 141.201 through 208. Notice is to be provided when the system violates a National Primary Drinking Water Regulation and when any of the situations listed in Table 1 of 40 C.F.R. 141.201 occur, except for (a)(3)(ii). Public notifications for violations and other situations are categorized into the following Tiers:

(a) Tier 1 as described in Table 1 of 40 C.F.R. 141.202(a);

(b) Tier 2 as described in Table 1 of 40 C.F.R. 141.203(a); or

(c) Tier 3 as described in Table 1 of 40 C.F.R. 141.204(a).

(2) The purveyor shall initiate consultation with the department as soon as possible, but no later than twenty-four hours after they

learn their system has a Tier 1 violation or situation in order to determine if additional public notice is required. The purveyor shall comply with any additional public notification requirements established as a result of the consultation.

(3) The purveyor shall notify the water system users when the system:

(a) Is issued a department order;

(b) Fails to comply with a department order; or

(c) Is issued a category red operating permit.

AMENDATORY SECTION (Amending WSR 09-21-045, filed 10/13/09, effective 1/4/10)

WAC 246-290-72001 Purpose and applicability of the consumer confidence report requirements. WAC 246-290-72001 through 246-290-72012 establishes minimum requirements for the content of annual reports that community water systems must deliver to their customers. WAC 246-290-72013 establishes additional requirements for the content of annual reports that community water systems using groundwater 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.

(1) This section applies only to community water systems.

(2) For the purpose of WAC 246-290-72001 through ((~~246-290-72012~~)) 246-290-72013:

(a) "Customers" means billing units or service connections to which water is delivered by a community water system.

(b) "Detected" means at or above the levels prescribed by WAC 246-290-300(4) for inorganic contaminants, at or above the levels prescribed by WAC 246-290-300(7) for organic contaminants, at or above the levels prescribed by 40 C.F.R. 141.131 (b)(2)(iv) for disinfection byproducts, and at or above the levels prescribed by 40 C.F.R. 141.25(c) for radioactive contaminants.

AMENDATORY SECTION (Amending WSR 00-15-080, filed 7/19/00, effective 8/19/00)

WAC 246-290-72004 Report contents—Definitions. (1) Each report must include 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: 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.

(2) A report for a community water system operating under a variance or an exemption issued under WAC 246-290-060 must include the following definition: Variances and exemptions: State or EPA permis-

sion not to meet an MCL or a treatment technique under certain conditions.

(3) A report that contains data on contaminants that the Environmental Protection Agency regulates using any of the following terms must include the applicable definitions:

(a) Treatment technique: A required process intended to reduce the level of a contaminant in drinking water.

(b) Action level: The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

(c) 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.

(d) Maximum residual disinfectant level or MRDL: The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

(4) A report that contains level 1 or level 2 assessment information must include the applicable definitions:

(a) Level 1 assessment: A level 1 assessment is 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 assessment: A level 2 assessment is a very detailed study of the water system to identify potential problems and determine, if possible, why an *E. coli* MCL violation has occurred and, if applicable, why total coliform bacteria have been found in our water system on multiple occasions.

AMENDATORY SECTION (Amending WSR 09-21-045, filed 10/13/09, effective 1/4/10)

WAC 246-290-72005 Report contents—Information on detected contaminants. (1) This section specifies the requirements for information to be included in each report for contaminants subject to mandatory monitoring. It applies to:

(a) Contaminants subject to an MCL, action level, maximum residual disinfectant level or treatment technique (regulated contaminants);

(b) Detected unregulated contaminants for which monitoring is required under WAC 246-290-300(10) and 40 C.F.R. 140.40; and

(c) Disinfection byproducts for which monitoring is required by WAC 246-290-300(6) and 40 C.F.R. 141.142 or microbial contaminants for which monitoring is required by WAC 246-290-300(3) and 40 C.F.R. 141.143, except as provided under WAC 246-290-72006(1), and which are detected in the finished water.

(2) 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.

(3) The data must be derived from data collected to comply with EPA and state monitoring and analytical requirements during the previous calendar year except that:

(a) Where a system is allowed to monitor for regulated contaminants less 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 regulations. No data older than five years need be included.

(b) Results of monitoring in compliance with 40 C.F.R. 141.142 and 40 C.F.R. 141.143 need only be included for five years from the date of last sample or until any of the detected contaminants becomes regulated and subject to routine monitoring requirements, whichever comes first.

(4) For detected regulated contaminants listed in WAC 246-290-72012, the table(s) must contain:

(a) The MCL for that contaminant expressed as a number equal to or greater than 1.0 (as provided in WAC 246-290-72012);

(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 and/or action level, as appropriate, specified in WAC 246-290-72004;

(d) For contaminants subject to an MCL, except turbidity ((~~and~~)), total coliform((~~s~~)), and *E. coli*, the highest contaminant level used to determine compliance with a National Primary Drinking Water Regulation and the range of ((~~detected levels~~)) results, 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~~)) results 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 sampling point: The highest average of any of the sampling points and the range of all sampling points expressed in the same units as the MCL. For the TTHM and HAA5 MCLs determined on the basis of the LRAA, systems must include the highest LRAA for TTHM and HAA5 and the range of individual sample results for all monitoring locations expressed in the same units as the MCL. If more than one location exceeds the TTHM or HAA5 MCL, the system must include the LRAA 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 sampling points: The average and range of detection expressed in the same units as the MCL. The system is required to include individual sample results for the IDSE conducted under WAC 246-290-300 (6)(b)(i)(F) 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) Note to WAC 246-290-72005 (4)(d): 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 WAC 246-290-72012;

(e) For turbidity.

(i) When it is reported under chapter 246-290 WAC Part 6, Subpart C: The highest average monthly value.

(ii) When it is reported under the requirements of chapter 246-290 WAC Part 6, Subpart D: The highest monthly value. The report should include an explanation of the reasons for measuring turbidity.

(iii) When it is reported under chapter 246-290 WAC Part 6, Subpart B: The highest single measurement and the lowest monthly percentage of samples meeting the turbidity limits specified in chapter 246-290 WAC Part 6, Subpart B for the filtration technology being used. The report should include an explanation of the reasons for measuring turbidity;

(f) For lead and copper: The 90th percentile value of the most recent round of sampling and the number of sampling sites exceeding the action level;

(g) For ((~~total coliform:~~

~~(i) The highest monthly number of positive samples for systems collecting fewer than 40 samples per month; or~~

~~(ii) The highest monthly percentage of positive samples for systems collecting at least 40 samples per month;~~

~~(h) For fecal coliform~~)) *E. coli* analytical results under WAC 246-290-300 (3)(e) through (g): The total number of positive samples; and

((~~(i)~~)) (h) The likely source(s) of detected contaminants to the best of the purveyor's knowledge. Specific information regarding contaminants may be available in sanitary surveys and source water assessments, and should be used when available to the purveyor. If the purveyor lacks specific information on the likely source, the report must include one or more of the typical sources for that contaminant listed in WAC 246-290-72012 which are most applicable to the system.

(5) 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.

(6) 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 including: 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 of WAC 246-290-72012.

(7) For detected unregulated contaminants for which monitoring is required, 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.

AMENDATORY SECTION (Amending WSR 08-03-061, filed 1/14/08, effective 2/14/08)

WAC 246-290-72007 Report contents—Compliance with National Primary Drinking Water Regulations. In addition to the requirements of WAC 246-290-72005(6), 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 vio-

lation, any potential adverse health effects, and the steps the system has taken to correct the violation.

(1) Monitoring and reporting of compliance data;

(2) Filtration and disinfection prescribed by chapter 246-290 WAC, Part 6. For systems which have failed to install adequate filtration or disinfection equipment or processes, or have had a failure of the equipment or processes which constitutes 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.

(3) Lead and copper control requirements prescribed by WAC 246-290-025, specifically 40 C.F.R. 141.80 through 141.91: For systems which fail to take one or more actions prescribed by WAC 246-290-025, specifically 40 C.F.R. 141.80 through 141.84, the report must include the applicable language of WAC 246-290-72012 for lead, copper, or both.

(4) Treatment techniques for Acrylamide and Epichlorohydrin prescribed by WAC 246-290-480 (2)(k). For systems which violate the requirements of WAC 246-290-480 (2)(k), the report must include the relevant language from WAC 246-290-72012.

(5) Recordkeeping of compliance data.

(6) Special monitoring requirements prescribed under WAC 246-290-310(3); and

(7) Violation of the terms of a variance, an exemption, or an administrative or judicial order.

AMENDATORY SECTION (Amending WSR 10-20-068, filed 9/29/10, effective 11/1/10)

WAC 246-290-72012 Regulated contaminants.

Contaminant (units)	traditional MCL in mg/L	to convert for CCR, multiply by	MCL in CCR units	MCLG	Major Sources in Drinking Water	Health Effects Language
Microbiological Contaminants						
Total Coliform Bacteria	((~~MCL: (systems that collect ≥ 40 samples/ month) more than 5% of monthly samples are positive; (systems that collect < 40 samples/ month) 2 or more positive samples per monthly sampling period~~)) TT	-	((~~MCL: (systems that collect ≥ 40 samples/ month) more than 5% of monthly samples are positive; (systems that collect < 40 samples/ month) 2 or more positive samples per monthly sampling period~~)) TT	((θ)) 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, ((~~bacteria may be present. Coliforms were found in more samples than allowed and this was a warning of potential problems~~)) 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 assessment(s) to identify problems and to correct any problems that were found during these assessments.

Contaminant (units)	traditional MCL in mg/L	to convert for CCR, multiply by	MCL in CCR units	MCLG	Major Sources in Drinking Water	Health Effects Language
((~~Fecal coliform and~~)) *E. coli*	((θ)) 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*.	-	((θ)) 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	((~~Fecal coliforms and~~)) *E. coli* are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. ((~~Microbes~~)) Human pathogens in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a ((~~special~~)) greater health risk for infants, young children, ((~~some of~~)) the elderly, and people with severely-compromised immune systems.
Fecal indicators (*E. coli*)	TT	-	TT	N/A	Human and animal fecal waste	Fecal indicators are microbes whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short-term health effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, some of the elderly, and people with severely compromised immune systems.
Total organic carbon (ppm)	TT	-	TT	N/A	Naturally present in the environment	Total organic carbon (TOC) has no health effects. However, total organic carbon provides a medium for the formation of disinfection ((~~by-products~~)) byproducts. These ((~~by-products~~)) byproducts include trihalomethanes (THMs) and haloacetic acids (HAAs). Drinking water containing these ((~~by-products~~)) 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.
Turbidity (NTU)	TT	-	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 organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea and associated headaches.
Giardia lamblia Viruses *Cryptosporidium*	TT	-	TT	N/A	Human and animal fecal waste	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.
Heterotrophic plate count (HPC) bacteria	TT	-	TT	N/A	HPC measures a range of bacteria that are naturally present in the environment	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.

Contaminant (units)	traditional MCL in mg/L	to convert for CCR, multiply by	MCL in CCR units	MCLG	Major Sources in Drinking Water	Health Effects Language
Legionella	TT	-	TT	N/A	Found naturally in water; multiplies in heating systems	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.
Radioactive Contaminants						
Beta/photon emitters (mrem/yr)	4 mrem/yr	-	4	N/A 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 pCi/l	-	15	N/A 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 pCi/l	-	5	N/A 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 (pCi/l)	30 micro g/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 increased risk of getting cancer and kidney toxicity.
Inorganic Contaminants						
Antimony (ppb)	.006	1000	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) ((~~*Effective 1/23/06~~))	((~~.05~~)) 0.010 ((~~0.010~~))	1000 ((~~1000~~))	((~~50~~)) 10 ((~~10~~))	((~~N/A~~)) 0 ((~~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 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	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)	.004	1000	4	4	Discharge from metal refineries and coal-burning factories; Discharge from electrical, aerospace, and defense industries	Some people who drink water containing beryllium well in excess of the MCL over many years could develop intestinal lesions.

Contaminant (units)	traditional MCL in mg/L	to convert for CCR, multiply by	MCL in CCR units	MCLG	Major Sources in Drinking Water	Health Effects Language
Cadmium (ppb)	.005	1000	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)	.1	1000	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	-	AL = 1.3	1.3	Corrosion of household plumbing systems; Erosion of natural deposits	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)	.2	1000	200	200	Discharge from steel/metal factories; Discharge from plastic and fertilizer factories	Some people who drink water containing cyanide well in excess of the MCL over many years could experience nerve damage or problems with their thyroid.
Fluoride (ppm)	4	-	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 and/or pitting of the teeth, and occurs only in developing teeth before they erupt from the gums.
Lead (ppb)	AL = .015	1000	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)	.002	1000	2	2	Erosion of natural deposits; Discharge from refineries and factories; Runoff from landfills; Runoff from cropland	Some people who drink water containing inorganic mercury well in excess of the MCL over many years could experience kidney damage.
Nitrate (ppm)	10	-	10	10	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits	Infants below the age of six 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 (ppm)	1	-	1	1	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits	Infants below the age of six 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.

Contaminant (units)	traditional MCL in mg/L	to convert for CCR, multiply by	MCL in CCR units	MCLG	Major Sources in Drinking Water	Health Effects Language
Selenium (ppb)	.05	1000	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)	.002	1000	2	0.5	Leaching from ore-processing sites; Discharge from electronics, glass, and drug factories	Some people who drink water containing thallium in excess of the MCL over many years could experience hair loss, changes in their blood, or problems with their kidneys, intestines, or liver.
Synthetic Organic Contaminants including Pesticides and Herbicides						
2,4-D (ppb)	.07	1000	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)	.05	1000	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	-	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)	.002	1000	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)	.003	1000	3	3	Runoff from herbicide used on row crops	Some people who drink water containing atrazine well in excess of the MCL over many years could experience problems with their cardiovascular system or reproductive difficulties.
Benzo(a)pyrene [PAH] (nanograms/l)	.0002	1,000,000	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)	.04	1000	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)	.002	1000	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)	.2	1000	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)	.4	1000	400	400	Discharge from chemical factories	Some people who drink water containing di (2-ethylhexyl) adipate well in excess of the MCL over many years could experience toxic effects or reproductive difficulties.
Di(2-ethylhexyl) phthalate (ppb)	.006	1000	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.

Contaminant (units)	traditional MCL in mg/L	to convert for CCR, multiply by	MCL in CCR units	MCLG	Major Sources in Drinking Water	Health Effects Language
Dibromochloropropane (ppt)	.0002	1,000,000	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 problems and may have an increased risk of getting cancer.
Dinoseb (ppb)	.007	1000	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)	.02	1000	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)	.00000003	1,000,000,000	30	0	Emissions from waste incineration and other combustion; Discharge from chemical factories	Some people who drink water containing dioxin in excess of the MCL over many years could experience reproductive difficulties and may have an increased risk of getting cancer.
Endothall (ppb)	.1	1000	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)	.002	1000	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	-	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)	.00005	1,000,000	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)	.7	1000	700	700	Runoff from herbicide use	Some people who drink water containing glyphosate in excess of the MCL over many years could experience problems with their kidneys or reproductive difficulties.
Heptachlor (ppt)	.0004	1,000,000	400	0	Residue of banned pesticide	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)	.0002	1,000,000	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)	.001	1000	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.
Hexachlorocyclo-pentadiene (ppb)	.05	1000	50	50	Discharge from chemical factories	Some people who drink water containing hexachlorocyclopentadiene well in excess of the MCL over many years could experience problems with their kidneys or stomach.

Contaminant (units)	traditional MCL in mg/L	to convert for CCR, multiply by	MCL in CCR units	MCLG	Major Sources in Drinking Water	Health Effects Language
Lindane (ppt)	.0002	1,000,000	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)	.04	1000	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)	.2	1000	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)	.0005	1,000,000	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)	.001	1000	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 may have an increased risk of getting cancer.
Picloram (ppb)	.5	1000	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)	.004	1000	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)	.003	1000	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 kidneys, liver, or thyroid, and may have an increased risk of getting cancer.
Volatile Organic Contaminants						
Benzene (ppb)	.005	1000	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.
Bromate (ppb)	.010	1000	10	0	((~~By-product~~)) 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.
Carbon tetrachloride (ppb)	.005	1000	5	0	Discharge from chemical plants and other industrial activities	Some people who drink water containing carbon tetrachloride in excess of the MCL over many years could experience problems with their liver and may have an increased risk of getting cancer.
Chloramines (ppm)	MRDL = 4	-	MRDL = 4	MRDL G = 4	Water additive used to control microbes	Some people who use drinking water containing chloramines well in excess of the MRDL could experience irritating 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 (ppm)	MRDL = 4	-	MRDL = 4	MRDL G = 4	Water additive used to control microbes	Some people who use drinking 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.

Contaminant (units)	traditional MCL in mg/L	to convert for CCR, multiply by	MCL in CCR units	MCLG	Major Sources in Drinking Water	Health Effects Language
Chlorite (ppm)	1	-	1	0.8	((~~By-product~~)) 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 mothers who drink water containing chlorite in excess of the MCL. Some people may experience anemia.
Chlorine dioxide (ppb)	MRDL = .8	1000	MRDL = 800	MRDL G = 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 mothers who drink water containing chlorine dioxide in excess of the MRDL. Some people may experience anemia.
Chlorobenzene (ppb)	.1	1000	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 liver or kidneys.
o-Dichlorobenzene (ppb)	.6	1000	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)	.075	1000	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)	.005	1000	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)	.007	1000	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.
cis-1,2-Dichloroethylene (ppb)	.07	1000	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)	.1	1000	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)	.005	1000	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)	.005	1000	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)	.7	1000	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.
Haloacetic Acids (HAA) (ppb)	.060	1000	60	n/a	((~~By-product~~)) Byproduct of drinking water disinfection	Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer.

Contaminant (units)	traditional MCL in mg/L	to convert for CCR, multiply by	MCL in CCR units	MCLG	Major Sources in Drinking Water	Health Effects Language
Styrene (ppb)	.1	1000	100	100	Discharge from rubber and plastic factories; Leaching from landfills	Some people who drink water containing styrene well in excess of the MCL over many years could have problems with their liver, kidneys, or circulatory system.
Tetrachloroethylene (ppb)	.005	1000	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)	.07	1000	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)	.2	1000	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)	.005	1000	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)	.005	1000	5	0	Discharge from metal degreasing sites and other factories	Some people who drink water containing trichloroethylene in excess of the MCL over many years could experience problems with their liver and may have an increased risk of getting cancer.
TTHMs [Total trihalomethanes] (ppb)	.080	1000	80	N/A	((~~By-product~~)) 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 systems, and may have an increased risk of getting cancer.
Toluene (ppm)	1	-	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)	.002	1000	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	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.
Treatment Technique Violations						
Groundwater rule TT violations	TT	-	TT	N/A	-	Inadequately treated or inadequately protected water may contain disease-causing organisms. These organisms can cause symptoms such as diarrhea, nausea, cramps, and associated headaches.

Key

AL = Action Level

MCL = Maximum Contaminant Level

MCLG = Maximum Contaminant Level Goal

MFL = million fibers per liter

MRDL = Maximum Residual Disinfectant Level

MRDLG = Maximum Residual Disinfectant Level Goal

mrem/year = millirems per year (a measure of radiation absorbed by the body)

N/A = Not Applicable

Contaminant (units)	traditional MCL in mg/L	to convert for CCR, multiply by	MCL in CCR units	MCLG	Major Sources in Drinking Water	Health Effects Language
NTU = Nephelometric Turbidity Units (a measure of water clarity)						
pCi/1 = picocuries per liter (a measure of radioactivity)						
ppm = parts per million, or milligrams per liter (mg/1)						
ppb = parts per billion, or micrograms per liter ((~~(Φ g/1)~~)) (ug/L)						
ppt = parts per trillion, or nanograms per liter						
ppq = parts per quadrillion, or picograms per liter						
TT = Treatment Technique						

AMENDATORY SECTION (Amending WSR 07-02-025B, filed 12/22/06, effective 1/22/07)

WAC 246-290-810 Water use efficiency program. (1) Water system plans and small water system management programs submitted for approval for the first year after the effective date of this rule, must describe the municipal water supplier's existing water use efficiency program. The municipal water supplier must continue existing levels of water use efficiency.

(2) Subsections (3) and (4) of this section apply to:

(a) Water system plans submitted to the department for approval under WAC 246-290-100 one year after the effective date of this rule.

(b) Small water system management programs developed and implemented or submitted to the department for approval one year after the effective date of this rule.

(3) Municipal water suppliers shall develop and implement a water use efficiency program which includes sufficient cost-effective water use efficiency measures to meet the water use efficiency goals developed under WAC 246-290-830.

(4) Municipal water suppliers shall complete the following items in the water use efficiency program:

(a) Describe the current water use efficiency program;

(b) For systems serving one thousand or more total connections, estimate the amount of water saved through implementation of the water use efficiency program over the ((~~last~~)) prior six or more years; the estimate may include the entire approval period of the most recent water system plan required under WAC 246-290-100;

(c) Describe the chosen water use efficiency goals and document the goals were established in accordance with WAC 246-290-830;

(d) Evaluate water use efficiency measures to determine if they are cost-effective as follows:

(i) Evaluate or implement, at a minimum, the number of water use efficiency measures specified in Table ((~~1~~)) 13 based on the system's total number of connections.

(ii) Evaluate or implement water use efficiency measures from the following categories of measures if they are applicable: Indoor residential, outdoor, and industrial/commercial/institutional.

(iii) For systems serving less than one thousand total connections, describe the evaluation process used to select water use efficiency measures.

(iv) For systems serving one thousand or more total connections, include the following criteria when evaluating water use efficiency measures:

(A) Quantitatively evaluate water use efficiency measures to determine if they are cost-effective from the system's perspective including the marginal costs of producing water.

(B) Address whether the water use efficiency measures are cost-effective if the costs are shared with other entities.

(C) Quantitatively or qualitatively evaluate water use efficiency measures to determine if they are cost-effective from the societal perspective.

Table ((~~1~~)) 13

Number of connections	Less than 500	500-999	1,000-2,499	2,500-9,999	10,000-49,999	50,000 or more
Water use efficiency measures	1	4	5	6	9	12

(e) Describe all water use efficiency measures to be implemented ((~~within~~)) over the next six or more years, including a schedule and a budget that demonstrates how the water use efficiency measures will be funded. Purveyors may submit a schedule and budget for the entire water system plan approval period, if the approval period is longer than six years;

(f) Describe how consumers will be educated on water use efficiency practices;

(g) Estimate projected water savings from selected water use efficiency measures;

(h) Describe how the water use efficiency program will be evaluated for effectiveness;

(i) Evaluate water distribution system leakage as follows:

(i) Include distribution system leakage totals in accordance with WAC 246-290-820 for the past six or more years. Purveyors shall submit distribution system leakage totals for the entire water system plan approval period if the approval period is longer than six years.

(ii) If necessary, include a copy of the water loss control action plan in accordance with WAC 246-290-820(4).

(iii) If all or portions of transmission lines are excluded when determining distribution system leakage, estimate the amount of leakage from the excluded portion of the transmission mains and describe how it is maintained to minimize leakage.

AMENDATORY SECTION (Amending WSR 08-03-061, filed 1/14/08, effective 2/14/08)

WAC 246-290-820 Distribution system leakage standard. (1) Municipal water suppliers shall determine distribution system leakage annually under subsection (2) of this section or an alternative methodology under subsection (3) of this section.

(a) Municipal water suppliers shall include (i), (ii), or (iii) of this subsection in water use efficiency performance reports developed under WAC 246-290-840 and water use efficiency programs developed under WAC 246-290-810:

(i) Distribution system leakage totals calculated under subsection (2) of this section shall be recorded in annual percent and volume;

(ii) Distribution system leakage totals calculated under subsection (3) of this section shall include annual figures and the approved alternative methodology's numerical standard(s); and

(iii) For systems not fully metered, the status of meter installation and any actions taken to minimize leakage.

(b) Municipal water suppliers will be considered in compliance with this section if any of the following conditions are satisfied:

(i) Distribution system leakage calculated in accordance with subsection (2) of this section is ten percent or less for the last three-year average;

(ii) Distribution system leakage calculated under subsection (3) of this section meets the numerical standards for the approved alternative methodology for the last three-year average;

(iii) For systems serving less than five hundred total connections, distribution system leakage calculated in accordance with subsection (2) of this section is twenty percent or less for the last three-year average and the steps outlined in subsection (5) of this section are completed; or

(iv) A water loss control action plan has been developed and implemented under subsection (4) of this section and the system is meeting the implementation schedule.

(2) Calculate the percent of distribution system leakage annually using the following equation:

$$DSL = [(TP - AC)/(TP)] \times 100$$

Where:

DSL	=	Percent of Distribution System Leakage (%)
TP	=	Total Water Produced and Purchased
AC	=	Authorized Consumption

(a) Total water produced and purchased, and authorized consumption must be calculated using data from meters installed under WAC 246-290-496. Elements of authorized consumption that cannot be metered, such as fire flow, must be estimated.

(b) All or portions of transmission lines may be excluded when determining distribution system leakage.

(c) Any water that cannot be accounted for shall be considered distribution system leakage.

(3) Municipal water suppliers may use an alternative methodology to calculate distribution system leakage if both (a) and (b) of this subsection are satisfied.

(a) The alternative methodology is contained in published standards or specifications of the department, Environmental Protection Agency, American Water Works Association, American Public Works Association, or American Society of Civil Engineers.

(b) The alternative methodology is approved for statewide use by the department, to provide a better evaluation of distribution system leakage than percent of total water produced and purchased, is appropriate for the system requesting to use it, and uses numerical standards so that compliance and action levels can be determined.

(4) If the average distribution system leakage for the last three years does not meet the standard calculated under subsection (1)(b)(i), (ii), or (iii) of this section, the municipal water supplier shall develop and implement a water loss control action plan. Municipal water suppliers shall submit the water loss control action plan to the department as part of a water use efficiency program under WAC 246-290-810 and upon request by the department. The control methods described in a water loss control action plan shall be commensu-

rate with the level of leakage reported. The following items shall be included in the water loss control action plan:

(a) The control methods necessary to achieve compliance with the distribution system leakage standard;

(b) An implementation schedule;

(c) A budget that demonstrates how the control methods will be funded;

(d) Any technical or economic concerns which may affect the system's ability to implement a program or comply with the standard including past efforts and investments to minimize leakage;

(e) If the average distribution system leakage calculated under subsection (2) of this section is greater than ten and less than twenty percent of total water produced and purchased, the water loss control action plan must assess data accuracy and data collection;

(f) If the average distribution system leakage calculated under subsection (2) of this section is between twenty and twenty-nine percent of total water produced and purchased, the water loss control action plan must include elements listed under (e) of this subsection and implementation of field activities such as actively repairing leaks or maintaining meters within twelve months of determining standard exceedance;

(g) If the average distribution system leakage calculated under subsection (2) of this section is at thirty percent or above the total water produced and purchased, the water loss control action plan must include elements listed under (e) and (f) of this subsection and include implementation of additional control methods to reduce leakage within six months of determining standard exceedance; and

(h) If the average distribution system leakage calculated under subsection (3) of this section is over the approved alternative methodology's numerical standard, the department will take appropriate compliance actions and work collaboratively with the municipal water supplier to ensure the control methods and level of activity are commensurate with the level of leakage.

(5) Systems serving less than five hundred total connections may submit a request to the department for approval of an average distribution system leakage up to twenty percent. The following information must be submitted to the department with the request:

(a) Production volume;

(b) Distribution system leakage volume;

(c) Evidence documenting that:

(i) A leak detection survey using best available technologies has been completed on the system within the past six years <u>for purveyors required to develop a small water system management program under WAC 246-290-105 or within the approval period of the most recent water system plan for purveyors required to submit a water system plan under WAC 246-290-100</u>;

(ii) All leaks found have been repaired;

(iii) The system is unable to locate additional leaks; and

(iv) Ongoing efforts to minimize leakage are included as part of the system's water use efficiency program; and

(d) Any technical concerns or economic concerns, or other system characteristics justifying the higher distribution system leakage.

AMENDATORY SECTION (Amending WSR 08-12-019, filed 5/28/08, effective 7/1/08)

WAC 246-290-830 Water use efficiency goal setting. (1) The elected governing board or governing body of the public water system shall establish water use efficiency goals within one year of the effective date of this rule for systems serving one thousand or more total connections, and within two years of the effective date of this rule for systems serving less than one thousand total connections.

(2) Water use efficiency goals must be designed to enhance the efficient use of water by the water system's consumers.

(3) If a municipal water supplier determines that further reductions over current consumption levels are not reasonably achievable, the municipal water supplier shall provide justification that considers historic water use efficiency performance and investment and any other factors that support that determination. Justification must be provided in water use efficiency programs developed under WAC 246-290-810 and in water use efficiency performance reports developed under WAC 246-290-840.

(4) Municipal water suppliers must provide documentation when requested by the department and in water use efficiency programs developed under WAC 246-290-810 that demonstrates the following goal setting requirements have been met:

(a) Goals shall be set in a public forum that provides opportunity for consumers and the public to participate and comment on the water use efficiency goals;

(b) Public notice must occur at least two weeks prior to the public forum. Public notice must include the purpose, date, time, and place of the forum, and where materials supporting the rationale for the proposed goals can be reviewed;

(c) The elected governing board or governing body of the public water system shall review and consider all comments received;

(d) The following must be made available to the public for the purpose of fully documenting the basis for each goal:

(i) The information listed under WAC 246-290-810(4);

(ii) Annual water use efficiency performance reports prepared under WAC 246-290-840;

(iii) Water supply characteristics description in accordance with WAC 246-290-100 (4)(f)(iii)(B) or source description in accordance with WAC 246-290-105 (4)(f); and

(iv) A summary of the comments received and how they were considered.

(5) Existing public processes may be used if all requirements listed under subsection (4) of this section are met.

(6) Water use efficiency goals must include:

(a) Consideration of the system's forecasted demand and water supply characteristics;

(b) Measurable outcomes in terms of reduced or maintained water production or usage. Outcomes may be expressed on a per capita, per connection, total system, or other basis as deemed appropriate by the municipal water supplier;

(c) A schedule for achieving the water use efficiency goals; and

(d) Implementation schedule for each water use efficiency measure selected under WAC 246-290-810(4).

(7) The elected governing board or governing body of the public water system shall evaluate and reestablish water use efficiency goals

following the process identified in subsection (4) of this section at least every six years ((~~and as part of a water system plan approval under WAC 246-290-100 or~~)) for purveyors required to develop a small water system management program ((~~approval~~)) under WAC 246-290-105 or as part of developing or updating a water system plan for purveyors required to submit a water system plan under WAC 246-290-100.

(8) Water use efficiency goals may be changed at any time in accordance with subsection (4) of this section. Changes to goals must be identified in the next performance report.

(9) Water use efficiency programs must be modified if any water use efficiency goal is not met. Program modifications must be designed to achieve the system's water use efficiency goals.