

## WSR 23-15-040

## PROPOSED RULES

## WASHINGTON STATE PATROL

[Filed July 11, 2023, 2:31 p.m.]

Original Notice.

Preproposal statement of inquiry was filed as WSR 23-11-130.

Hearing Location(s): On August 22, 2023, at 8:30 a.m., at Washington State Patrol (WSP), Helen Somers Building, 106 11th Street S.E., Room 4023, Olympia, WA 98507.

Date of Intended Adoption: August 22, 2023.

Submit Written Comments to: Kimberly Mathis, Rules Coordinator, 106 11th Street S.E., Olympia, WA 98507, email wsprules@wsp.wa.gov, by August 21, 2023.

Assistance for Persons with Disabilities: Contact Kimberly Mathis, rules coordinator, phone 360-596-4017, email wsprules@wsp.wa.gov, by August 21, 2023.

Purpose of the Proposal and Its Anticipated Effects, Including Any Changes in Existing Rules: WAC 446-65-010(1) needs to be amended to bring all the C.F.R.s adopted by reference current to October 1, 2023.

Reasons Supporting Proposal: Failure to update WAC 446-65-010(1) to incorporate all of the recent amendments to the C.F.R.s adopted by reference therein could jeopardize grant funding to the state. Therefore, the adoption of this rule change, which brings all of the C.F.R.s incorporated by reference current to October 1, 2023, will allow enforcement of all of the federal regulations contained in WAC and will enable the uninterrupted receipt of grant funds to Washington, both of which will preserve the public health, safety, and general welfare of our citizens.

Statutory Authority for Adoption: RCW 46.32.020 and 46.48.170.

Statute Being Implemented: RCW 46.32.020 and 46.48.170.

Rule is necessary because of federal law, Title 49 C.F.R.

Name of Proponent: WSP, governmental.

Name of Agency Personnel Responsible for Drafting: Kimberly Mathis, Olympia, Washington, 360-596-4017; Implementation and Enforcement: WSP, Olympia, Washington, 360-596-3807.

A school district fiscal impact statement is not required under RCW 28A.305.135.

A cost-benefit analysis is not required under RCW 34.05.328. A cost-benefit analysis is not required per RCW 34.05.328 (5) (a) (i) - (ii) and (b) (iii).

This rule proposal, or portions of the proposal, is exempt from requirements of the Regulatory Fairness Act because the proposal:

Is exempt under RCW 19.85.061 because this rule making is being adopted solely to conform and/or comply with federal statute or regulations. Citation of the specific federal statute or regulation and description of the consequences to the state if the rule is not adopted: Title 49 C.F.R. The proposed rule will allow the permanent adoption of the C.F.R.s identified in WAC 446-65-010(1) and will allow the continued enforcement of all of the current federal regulations contained in the WAC and will enable the uninterrupted receipt of grant funds to Washington.

Is exempt under RCW 19.85.025(3) as the rules only correct typographical errors, make address or name changes, or clarify language of a rule without changing its effect.

Is exempt under RCW 19.85.025(4).  
 Scope of exemption for rule proposal:  
 Is fully exempt.

July 11, 2023  
 John R. Batiste  
 Chief

### OTS-4342.3

AMENDATORY SECTION (Amending WSR 21-22-087, filed 11/2/21, effective 12/3/21)

**WAC 446-65-010 Transportation requirements.** (1) The Washington state patrol hereby adopts the following parts of Title 49 Code of Federal Regulations (C.F.R.), as they exist on October 1, ((2020)) 2023, for motor carriers used in intrastate or interstate commerce in their entirety:

- (a) Part 40 Procedures for transportation workplace drug and alcohol testing programs.
- (b) Part 325 Compliance with interstate motor carrier noise emission standards.
- (c) Part 350 Commercial motor carrier safety assistance program.
- (d) Part 355 Compatibility of state laws and regulations affecting interstate motor carrier operations.
- (e) Part 365 Rules governing applications for operating authority.
- (f) Part 367 Standards for registration with states.
- (g) Part 372 Exemptions, commercial zones and terminal areas.
- (h) Part 373 Receipts and bills.
- (i) Part 376 Lease and interchange of vehicles.
- (j) Part 379 Preservation of records.
- (k) Part 380 Special training requirements.
- (l) Part 381 Waivers, exemptions, and pilot programs.
- (m) Part 382 Controlled substances and alcohol use and testing.
- (n) Part 383 Compliance with commercial driver's license program.
- (o) Part 385 Safety fitness procedures.
- (p) Part 387 Minimum levels of financial responsibility for motor carriers.
- (q) Part 390 General.
- (r) Part 391 Qualification of drivers. Provided that 49 C.F.R. 391 subpart D (Tests), and E (Physical Qualifications and Examinations) do not apply to motor carriers operating vehicles with gross vehicle weight rating between 10,001 lbs. and 26,000 lbs. operating intrastate, and not used to transport hazardous materials in a quantity requiring placarding.
- (s) Part 392 Driving of motor vehicles.
- (t) Part 393 Parts and accessories necessary for safe operation.
- (u) Part 395 Hours of service of drivers: Except if a company has drivers of commercial motor vehicle of any size, hauling logs from the point of production or driving in dump truck operations in intrastate commerce provided that:
  - (i) The driver must:

(A) Operate within a (~~one hundred~~) 100 air-mile radius of the location where the driver reports to work and the driver must return to the work reporting location at the end of each duty tour;

(B) Have at least (~~ten~~) 10 consecutive hours off duty separating each on-duty period;

(C) Not drive:

- More than (~~twelve~~) 12 hours following at least (~~ten~~) 10 hours off duty; or

- After the (~~fourteenth~~) 14th hour after coming on duty on at least five days of any period of seven consecutive days; and

- After the (~~sixteenth~~) 16th hour after coming on duty on no more than two days of any period of seven consecutive days; and

- After having been on duty for (~~eighty~~) 80 hours in seven consecutive days if the employing motor carrier does not operate commercial motor vehicle every day of the week; or

- After having been on duty for (~~ninety~~) 90 hours in eight consecutive days if the employing motor carrier operates commercial motor vehicle every day of the week; in any period of seven or eight consecutive days may end with the beginning of any off-duty period of (~~twenty-four~~) 24 or more consecutive hours.

(ii) The motor carrier that employs the driver must maintain and retain for a period of (~~twelve~~) 12 months accurate and true time recordings showing:

(A) The time the driver reports for duty each day;

(B) The total number of hours the driver is on duty each day;

(C) The total number of hours the driver drives each day;

(D) The time the driver is released from duty each day; and

(E) The total time the driver is driving and on duty for the preceding seven days.

(v) Part 396 Inspection, repair, and maintenance.

(w) Part 397 Transportation of hazardous materials; driving and parking rules.

(2) As provided in Part 395, exemption for agricultural transporters, the harvest dates are defined in RCW 46.32.130.

(3) Links to the (~~C.F.R.s.~~) C.F.R. are available on the Washington state patrol website at [www.wsp.wa.gov](http://www.wsp.wa.gov). Copies of the (~~C.F.R.s.~~) C.F.R. may also be ordered through the United States Government Printing Office, 732 N. Capitol Street N.W., Washington, D.C. 20401.

[Statutory Authority: RCW 46.32.020 and 46.48.170. WSR 21-22-087, § 446-65-010, filed 11/2/21, effective 12/3/21; WSR 21-08-002, § 446-65-010, filed 3/24/21, effective 4/24/21; WSR 18-06-029, § 446-65-010, filed 2/28/18, effective 3/1/18. Statutory Authority: RCW 46.32.020. WSR 13-18-069, § 446-65-010, filed 9/3/13, effective 10/4/13; WSR 12-03-080, § 446-65-010, filed 1/13/12, effective 2/13/12; WSR 09-01-016, § 446-65-010, filed 12/5/08, effective 1/5/09; WSR 06-08-082, § 446-65-010, filed 4/4/06, effective 5/5/06; WSR 05-20-090, § 446-65-010, filed 10/5/05, effective 11/5/05; WSR 05-04-002, § 446-65-010, filed 1/19/05, effective 2/19/05. Statutory Authority: RCW 46.48.170. WSR 98-19-043, § 446-65-010, filed 9/11/98, effective 10/12/98. Statutory Authority: RCW 46.33.020. WSR 96-22-035, § 446-65-010, filed 10/31/96, effective 12/1/96. Statutory Authority: RCW 46.32.020. WSR 95-13-080, § 446-65-010, filed 6/20/95, effective 7/21/95; WSR 94-01-178, § 446-65-010, filed 12/22/93, effective 1/22/94; WSR 91-06-066 (Order 90-005), § 446-65-010, filed 3/1/91, effective 4/1/91.]

## WSR 23-15-046

## PROPOSED RULES

## BUILDING CODE COUNCIL

[Filed July 13, 2023, 7:41 a.m.]

Original Notice.

Preproposal statement of inquiry was filed as WSR 23-11-087.

Title of Rule and Other Identifying Information: Chapter 51-54A WAC, Amendments to the 2021 International Fire Code (IFC) to adopt provisions of the 2024 IFC into the 2021 code.

Hearing Location(s): On August 30, 2023, from 10:00 a.m. to 2:00 p.m., at 1500 Jefferson Street S.E., Room #1213, Olympia, WA 98504. Zoom access optional.

Date of Intended Adoption: September 15, 2023.

Submit Written Comments to: State Building Code Council, P.O. Box 41449, Olympia, WA 98504-1449, email sbcc@des.wa.gov, by August 30, 2023.

Assistance for Persons with Disabilities: Contact Rozanna Ghanie, phone 360-407-2244, email sbcc@des.wa.gov, by August 23, 2023.

Purpose of the Proposal and Its Anticipated Effects, Including Any Changes in Existing Rules: Due to rapidly evolving technologies within the field of energy storage systems, these changes are necessary to address applications that are encountered in the field but not addressed within Chapter 12 of IFC. Reference to NFPA 855 is appropriate, as there are items in Chapter 12 that are not fully covered in NFPA 855. By combining the use of both documents, maximum safety can be obtained. In addition, the code user will benefit from the annex note explanations in NFPA 855.

Reasons Supporting Proposal: RCW 19.27.031, 19.27.074.

Statutory Authority for Adoption: RCW 19.27.031, 19.27.074.

Statute Being Implemented: RCW 19.27.031, 19.27.074.

Rule is not necessitated by federal law, federal or state court decision.

Name of Proponent: State building code council, governmental.

Name of Agency Personnel Responsible for Drafting and Implementation: Dustin Curb, 1500 Jefferson Street S.E., Olympia, WA 98504, 360-972-4158; Enforcement: Local enforcing agencies.

A school district fiscal impact statement is not required under RCW 28A.305.135.

A cost-benefit analysis is not required under RCW 34.05.328. Exempt under RCW 34.05.328 (5)(b)(iii). This rule incorporates language and standards from the 2024 IFC which is a national consensus code that generally establishes industry standards. These changes allow for the uniform use of newer technologies across Washington that would otherwise not be covered by the code as adopted currently. The absence of these changes would not preclude the use of newer technologies, but each jurisdiction would need to decipher how to apply the current code, leading to a nonuniform approach across Washington.

This rule proposal, or portions of the proposal, is exempt from requirements of the Regulatory Fairness Act because the proposal:

Is exempt under RCW 19.85.025(3) as the rules are adopting or incorporating by reference without material change federal statutes or regulations, Washington state statutes, rules of other Washington state agencies, shoreline master programs other than those programs governing shorelines of statewide significance, or, as referenced by Washington state law, national consensus codes that generally establish industry



standards, if the material adopted or incorporated regulates the same subject matter and conduct as the adopting or incorporating rule.

Explanation of exemptions: The proposed rule adopts sections from IFC, which is adopted by reference pursuant to RCW 19.27.031.

Scope of exemption for rule proposal:

Is fully exempt.

May 19, 2023  
Tony Doan  
Council Chair

## OTS-4642.2

### NEW SECTION

#### **WAC 51-54A-1201 General.**

**1201.1 Scope.** The provisions of this chapter shall apply to the installation, operation, maintenance, repair, retrofitting, testing, commissioning and decommissioning of energy systems used for generating or storing energy including, but not limited to, energy storage systems under the exclusive control of an electric utility or lawfully designated agency. It shall not apply to equipment associated with the generation, control, transformation, transmission, or distribution of energy installations that is under the exclusive control of an electric utility or lawfully designated agency. Energy storage systems regulated by WAC 51-54A-1207 shall comply with this chapter as appropriate and NFPA 855.

**1201.3 Mixed system installation.** Where mixed systems are approved, the aggregate nameplate kWh energy of all energy storage systems in a fire area shall not exceed the maximum quantity specified for any of the energy systems in this chapter. Where required by the fire code official, a hazard mitigation analysis shall be provided and approved in accordance with Section 104.8.2 to evaluate any potential adverse interaction between the various energy systems and technologies.

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### NEW SECTION

#### **WAC 51-54A-1206 Stationary fuel cell power systems.**

**1206.1 General.** Stationary fuel cell power systems in new and existing occupancies shall comply with this section.

EXCEPTION: The temporary use of a fuel cell-powered electric vehicle to power a Group R-3 or R-4 building while parked shall comply with Section 1206.13.

**1206.5 Residential use.** Stationary fuel cell power systems shall not be installed in Group R-3 and R-4 buildings, or dwelling units associated with Group R-2 buildings unless they are specifically listed for residential use.

EXCEPTION: The temporary use of a fuel cell-powered electric vehicle to power a Group R-3 or R-4 building while parked shall comply with Section 1206.13.

**1206.6.3 Gas detection systems.** Stationary fuel cell power systems shall be provided with a gas detection system. Detection shall be provided in approved locations in the fuel cell power system enclosure, the exhaust system, or the room that encloses the fuel cell power system. The system shall be designed to activate at a flammable gas concentration of not more than 25 percent of the lower flammable limit (LFL).

**1206.6.3.1 System activation.** The activation of the gas detection system shall automatically:

1. Close valves between the gas supply and the fuel cell power system.
2. Shut down the fuel cell power system.
3. Initiate local audible and visible alarms in approved locations.

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AMENDATORY SECTION (Amending WSR 22-13-093 and 23-12-107, filed 6/14/22 and 6/7/23, effective 10/29/23)

**WAC 51-54A-1207 Electrical energy storage systems.**

**1207.1 General.** The provisions in this section are applicable to stationary and mobile electrical energy storage systems (ESS).

EXCEPTION: ESS in Group R-3 and R-4 occupancies not exceeding thresholds in Section 1207.11.4 shall comply with Section 1207.11 through 1207.11.9.

**1207.1.1 Scope.** ESS having capacities exceeding the values shown in Table 1207.1.1 shall comply with this section.

**TABLE 1207.1.1  
Energy Storage System (ESS) Threshold Quantities**

<u>Technology</u>	<u>Energy Capacity<sup>a</sup></u>
<u>Capacitor ESS</u>	<u>3 kWh</u>
<u>Flow batteries<sup>b</sup></u>	<u>20 kWh</u>
<u>Lead-acid batteries, all types</u>	<u>70 kWh<sup>c</sup></u>
<u>Lithium-ion batteries</u>	<u>20 kWh</u>
<u>Sodium nickel chloride batteries</u>	<u>70 kWh</u>
<u>Nickel-cadmium batteries (Ni-Cd), Nickel Metal Hydride (Ni-MH), and Nickel Zinc (Ni-Zn) batteries</u>	<u>70 kWh</u>
<u>Nonelectrochemical ESS<sup>d</sup></u>	<u>70 kWh</u>
<u>Other battery technologies</u>	<u>10 kWh</u>
<u>Other electrochemical ESS technologies</u>	<u>3 kWh</u>
<u>Zinc manganese dioxide batteries (Zn-MnO<sub>2</sub>)</u>	<u>70 kWh</u>

For SI: 1 kilowatt-hour = 3.6 megajoules.

<sup>a</sup> Energy capacity is the total energy capable of being stored (nameplate rating), not the usable energy rating. For units rated in amp-hours, kWh shall equal rated voltage times amp-hour rating divided by 1,000.

<sup>b</sup> Shall include vanadium, zinc-bromine, polysulfide-bromide and other flowing electrolyte-type technologies.

<sup>c</sup> Fifty gallons of lead-acid battery electrolyte shall be considered equivalent to 70 kWh.

<sup>d</sup> Covers nonelectrochemical technologies such as flywheel and thermal ESS.

**1207.1.1.1 Utilities and industrial applications.** This section shall not apply to capacitors and capacitor equipment for electric utilities and industrial facilities used in applications such as flexible ac transmission (FACTS) devices, filter capacitor banks, power factor correction, and standalone capacitor banks for voltage correction and stabilization.

**1207.1.1.2 Mobile ESS.** Mobile ESS deployed at an electric utility substation or generation facility for 90 days or less shall not add to the threshold values in Table 1207.1.1 for the stationary ESS installation if both of the following conditions apply:

1. The mobile ESS complies with Section 1207.10.

2. The mobile ESS is only being used during periods in which the facility's stationary ESS is being tested, repaired, retrofitted, or replaced.

**1207.1.3 Construction documents.** The following information shall be provided with the permit application:

1. Location and layout diagram of the room or area in which the ESS is to be installed.

2. Details on the hourly fire-resistance ratings of assemblies enclosing the ESS.

3. The quantities and types of ESS to be installed.

4. Manufacturer's specifications, ratings, and documentation of the listings of each ESS and associated equipment.

5. Description of energy (battery) management systems and their operation.

6. Location and content of required signage.

7. Details on fire suppression, smoke or fire detection, thermal management, ventilation, exhaust, and deflagration venting systems, if provided.

8. Support arrangement associated with the installation, including any required seismic restraint.

9. A commissioning plan complying with Section 1207.2.1.

10. A decommissioning plan complying with Section 1207.2.3.

11. A fire safety and evacuation plan in accordance with Section 404.

**1207.1.3.1 Utilities applicability.** Plans and specifications associated with ESS owned and operated by electric utilities as a component of the electric grid that are considered critical infrastructure documents in accordance with the provisions of the North American Electric Reliability Corporation and other applicable governmental laws and regulations shall be made available to the fire code official for viewing based on the requirements of the applicable governmental laws and regulations.

**1207.1.4 Hazard mitigation analysis.** Failure modes and effects analysis (FMEA) or other approved hazard mitigation analysis shall be provided in accordance with Section 104.8.2 under any of the following conditions:

1. Where ESS technologies not specifically identified in Table 1207.1.1 are provided.

2. More than one ESS technology is provided in a (~~room or enclosed~~) single fire area where there is a potential for adverse interaction between technologies.

3. Where allowed as a basis for increasing maximum allowable quantities. See Section 1207.5.2.

4. Where flammable gases can be produced under abnormal conditions.

5. Where required by the fire code official to address a potential hazard with an ESS installation that is not addressed by existing requirements.

**1207.1.4.1 Fault condition.** The hazard mitigation analysis shall evaluate the consequences of the following failure modes. Only single failure modes shall be considered.

1. A thermal runaway condition in a single electrochemical ESS unit.

2. A mechanical failure of a nonelectrochemical ESS unit.

3. Failure of any battery (energy) management system or fire protection system within the ESS equipment that is not covered by the product listing failure mode effects analysis (FMEA).

4. Failure of any required protection system external to the ESS including, but not limited to, ventilation (HVAC), exhaust ventilation, smoke detection, fire detection, gas detection, or fire suppression system.

**1207.1.4.2 Analysis approval.** The fire code official is authorized to approve the hazardous mitigation analysis provided that the consequences of the hazard mitigation analysis demonstrate:

1. Fires will be contained within unoccupied ESS rooms or areas for the minimum duration of the fire-resistance-rated separations identified in Section 1207.7.4.

2. Fires involving the ESS will allow occupants or the general public to evacuate to a safe location.

**1207.1.5 Large-scale fire test.** Where required elsewhere in Section 1207, large-scale fire testing shall be conducted on a representative ESS in accordance with UL 9540A. The testing shall be conducted or witnessed and reported by an approved testing laboratory and show that a fire involving one ESS will not propagate to an adjacent ESS, and where installed within buildings, enclosed areas and walk-in units will be contained within the room, enclosed area or walk-in unit for the duration of the test. The test report shall be provided to the fire code official for review and approval in accordance with Section 104.8.2.

**1207.1.6.1 Fire mitigation personnel.** Where, in the opinion of the fire code official, it is essential for public safety that trained personnel be on-site to respond to possible ignition or re-ignition of a damaged ESS, the system owner, agent, or lessee shall dispatch within 15 minutes one or more fire mitigation personnel to the premise, as required and approved, at their expense. These personnel shall remain on duty continuously after the fire department leaves the premise until the damaged energy storage equipment is removed from the premises, or earlier if the fire code official indicates the public safety hazard has been abated.

**1207.2.1 Commissioning.** Commissioning of newly installed ESS and existing ESS that have been retrofitted, replaced, or previously decommissioned and are returning to service shall be conducted prior to the ESS being placed in service in accordance with a commissioning plan that has been approved prior to initiating commissioning. The commissioning plan shall include the following:

1. A narrative description of the activities that will be accomplished during each phase of commissioning, including the personnel intended to accomplish each of the activities.

2. A listing of the specific ESS and associated components, controls, and safety-related devices to be tested, a description of the tests to be performed, and the functions to be tested.

3. Conditions under which all testing will be performed, which are representative of the conditions during normal operation of the system.

4. Documentation of the owner's project requirements and the basis of design necessary to understand the installation and operation of the ESS.

5. Verification that required equipment and systems are installed in accordance with the approved plans and specifications.

6. Integrated testing for all fire and safety systems.

7. Testing for any required thermal management, ventilation, or exhaust systems associated with the ESS installation.

8. Preparation and delivery of operation and maintenance documentation.

9. Training of facility operating and maintenance staff.

10. Identification and documentation of the requirements for maintaining system performance to meet the original design intent during the operation phase.

11. Identification and documentation of personnel who are qualified to service, maintain and decommission the ESS, and respond to incidents involving the ESS, including documentation that such service has been contracted for.

12. A decommissioning plan for removing the ESS from service, and from the facility in which it is located. The plan shall include details on providing a safe, orderly shutdown of energy storage and safety systems with notification to the code officials prior to the actual decommissioning of the system. The decommissioning plan shall include contingencies for removing an intact operational ESS from service, and for removing an ESS from service that has been damaged by a fire or other event.

**EXCEPTIONS:**

Commissioning shall not be required for lead-acid and nickel-cadmium battery systems at facilities under the exclusive control of communications utilities that comply with NFPA 76 and operate at less than 50 VAC and 60 VDC. A decommissioning plan shall be provided and maintained where required by the fire code official.

1. Lead-acid and nickel-cadmium battery systems less than 50 VAC, 60 VDC that are in telecommunications facilities for installations of communications equipment under the exclusive control of communications utilities and located outdoors or in building spaces or walk-in units used exclusively for such installations that are in compliance with NFPA 76 shall be permitted to have a commissioning plan in compliance with recognized industry practices in lieu of complying with Section 1207.2.1.

2. Lead-acid and nickel-cadmium battery systems that are used for dc power for control of substations and control or safe shutdown of generating stations under the exclusive control of the electric utilities, and located in building spaces or walk-in units used exclusively for such installations shall be permitted to have a commissioning plan in compliance with applicable governmental laws and regulations in lieu of developing a commissioning plan in accordance with Section 1207.2.1.

**1207.3.1 Energy storage system listings.** ESS shall be listed in accordance with UL 9540.

**EXCEPTIONS:**

1. Lead-acid and nickel-cadmium battery systems less than 50 VAC, 60 VDC in telecommunications facilities for installations of communications equipment under the exclusive control of communications utilities located outdoors or in building spaces used exclusively for such installations that are in compliance with NFPA 76.

2. Lead-acid and nickel-cadmium battery systems that are used for dc power for control of substations and control or safe shutdown of generating stations under the exclusive control of the electric utility, and located outdoors or in building spaces used exclusively for such installations.

3. Lead-acid battery systems in uninterruptible power supplies listed and labeled in accordance with UL 1778 and utilized for standby power applications.

**1207.3.7.1 Retrofitting lead acid and nickel cadmium.** Changing out or retrofitting of lead-acid and nickel-cadmium batteries in the following applications shall be considered repairs where there is no in-

crease in system size or energy capacity greater than 10 percent of the original design.

1. At facilities under the exclusive control of communications utilities that comply with NFPA 76 and operate at less than 50 VAC and 60 VDC.

2. Battery systems used for dc power for control of substations and control or safe shutdown of generating stations under the exclusive control of the electric utility, and located outdoors or in building spaces used exclusively for such installations.

3. Batteries in uninterruptible power supplies listed and labeled in accordance with UL 1778 and used for standby applications only.

**1207.5 Electrochemical ESS protection.** The protection of electrochemical ESS shall be in accordance with Sections 1207.5.1 through 1207.5.8 where required by Sections 1207.7 through 1207.10.

**TABLE 1207.5**

**Maximum Allowable Quantities of Electrochemical ESS**

<b><u>Technology</u></b>	<b><u>Maximum Allowable Quantities<sup>a</sup></u></b>
<b><u>Storage Batteries</u></b>	
<u>Flow batteries<sup>b</sup></u>	<u>600 kWh</u>
<u>Lead-acid, all types</u>	<u>Unlimited</u>
<u>Lithium-ion</u>	<u>600 kWh</u>
<u>Sodium nickel chloride</u>	<u>600 kWh</u>
<u>Nickel-cadmium (Ni-Cd), Nickel metal hydride (Ni-MH) and nickel zinc (Ni-Zn)</u>	<u>Unlimited</u>
<u>Zinc manganese dioxide (Zn-MnO<sub>2</sub>)</u>	<u>Unlimited</u>
<u>Other battery technologies</u>	<u>200 kWh</u>
<b><u>Capacitors</u></b>	
<u>All types</u>	<u>20 kWh</u>
<b><u>Other Electrochemical ESS</u></b>	
<u>All types</u>	<u>20 kWh</u>

For SI: 1 kilowatt hour = 3.6 megajoules.

<sup>a</sup> For electrochemical ESS units rated in amp-hours, kWh shall equal rated voltage times the amp-hour rating divided by 1,000.

<sup>b</sup> Shall include vanadium, zinc-bromine, polysulfide-bromide, and other flowing electrolyte-type technologies.

**1207.5.1 Size and separation.** Electrochemical ESS shall be segregated into groups not exceeding 50 kWh (180 mega-joules). Each group shall be separated a minimum of three feet (914 mm) from other groups and from walls in the storage room or area. The storage arrangements shall comply with Chapter 10.

**EXCEPTIONS:**

1. Lead-acid and nickel-cadmium battery systems in facilities under the exclusive control of communications utilities and operating at less than 50 VAC and 60 VDC in accordance with NFPA 76.

2. Lead-acid and nickel-cadmium systems that are used for dc power for control of substations and control or safe shutdown of generating stations under the exclusive control of the electric utility, and located outdoors or in building spaces used exclusively for such installations.

3. Lead-acid battery systems in uninterruptible power supplies and labeled in accordance with UL 1778, utilized for standby power applications, and limited to not more than 10 percent of the floor area on the floor on which the ESS is located.

4. The fire code official is authorized to approve larger capacities or smaller separation distances based on large-scale fire testing complying with Section 1207.1.5.

**1207.5.3 Elevation.** Electrochemical ESS shall not be located in the following areas:

1. Where the floor is located more than 75 feet (22,860 mm) above the lowest level of fire department vehicle access.
2. Where the floor is located below the lowest level of exit discharge.

**EXCEPTIONS:**

1. Lead-acid and nickel-cadmium battery systems less than 50 VAC and 60 VDC installed in facilities under the exclusive control of communications utilities in accordance with NFPA 76.
2. Lead-acid and nickel-cadmium systems that are used for dc power for control of substations and control or safe shutdown of generating stations under the exclusive control of the electric utility, and located outdoors or in building spaces used exclusively for such installations.
3. Lead-acid battery systems in uninterruptible power supplies and labeled in accordance with UL 1778, utilized for standby power applications, and limited to not more than 10 percent of the floor area on the floor on which the ESS is located.
4. Where approved, installations shall be permitted in underground vaults complying with NFPA 70, Article 450, Part III.
5. Where approved by the fire code official, installations shall be permitted on higher and lower floors.

**1207.5.4 Fire detection.** An approved automatic smoke detection system or radiant energy-sensing fire detection system complying with Section 907.2 shall be installed in rooms, indoor areas, and walk-in units containing electrochemical ESS. An approved radiant energy-sensing fire detection system shall be installed to protect open parking garage and rooftop installations. Alarm signals from detection systems shall be transmitted to a central station, proprietary or remote station service in accordance with NFPA 72, or where approved to a constantly attended location.

**EXCEPTION:**

Normally unoccupied, remote stand-alone telecommunications structures with a gross floor area of less than 1500 ft<sup>2</sup> (139 m<sup>2</sup>) utilizing lead-acid or nickel-cadmium batteries shall not be required to have a fire detection system installed.

**1207.5.4.1 System status.** Lead-acid and nickel-cadmium battery systems that are used for dc power for control of substations and control or safe shutdown of generating stations under the exclusive control of the electric utility, and located outdoors or in building spaces used exclusively for such installations shall be allowed to use the process control system to monitor the smoke or radiant energy-sensing fire detectors required in Section 1207.5.4.

**1207.5.5 Fire suppression systems.** Rooms and areas within buildings and walk-in units containing electrochemical ESS shall be protected by an automatic fire suppression system designed and installed in accordance with one of the following:

1. Automatic sprinkler systems, designed and installed in accordance with Section 903.3.1.1 for ESS units (groups) with a maximum stored energy capacity of 50 kWh, as described in Section 1207.5.1, shall be designed with a minimum density of 0.3 gpm/ft<sup>2</sup> (1.14 L/min) based over the area of the room or 2,500 square-foot (232 m<sup>2</sup>) design area, whichever is smaller, unless a lower density is approved based upon large-scale fire testing in accordance with Section 1207.1.5.

2. Automatic sprinkler system designed and installed in accordance with Section 903.3.1.1 for ESS units (groups) exceeding 50 kWh shall use a density based on large-scale fire testing complying with Section 1207.1.5.

3. The following alternative automatic fire-extinguishing systems designed and installed in accordance with Section 904, provided that the installation is approved by the fire code official based on large-scale fire testing complying with Section 1207.1.5:

3.1. NFPA 12, Standard on Carbon Dioxide Extinguishing Systems.

3.2. NFPA 15, Standard for Water Spray Fixed Systems for Fire Protection.

3.3. NFPA 750, Standard on Water Mist Fire Protection Systems.

3.4. NFPA 2001, Standard on Clean Agent Fire-Extinguishing Systems.

**1207.6 Electrochemical ESS technology-specific protection.** Electrochemical ESS installations shall comply with the requirements of this section in accordance with the applicable requirements of Table 1207.6.

**TABLE 1207.6  
Electrochemical ESS Technology-Specific Requirements**

Compliance Required <sup>b</sup>		Battery Technology					Sodium nickel chloride	Other ESS and Battery Technologies <sup>b</sup>	Capacitor ESS <sup>b</sup>
Feature	Section	Lead-acid	Nickel cadmium (Ni-Cd), nickel metal hydride (Ni-MH) and nickel zinc (Ni-Zn)	Zinc manganese dioxide (ZnMnO <sub>2</sub> )	Lithium-ion	Flow			
Exhaust ventilation	1207.6.1	Yes	Yes	Yes	No	Yes	No	Yes	Yes
Explosion control	1207.6.3	Yes <sup>a</sup>	Yes <sup>a</sup>	Yes	Yes	No	Yes	Yes	Yes
Safety caps	1207.6.4	Yes	Yes	Yes	No	No	No	Yes	Yes
Spill control and neutralization	1207.6.2	Yes <sup>c</sup>	Yes <sup>c</sup>	Yes <sup>f</sup>	No	Yes	No	Yes	Yes
Thermal runaway	1207.6.5	Yes <sup>d</sup>	Yes <sup>d</sup>	Yes <sup>e</sup>	Yes <sup>e</sup>	No	Yes	Yes <sup>e</sup>	Yes

<sup>a</sup> Not required for lead-acid and nickel-cadmium batteries at facilities under the exclusive control of communications utilities that comply with NFPA 76 and operate at less than 50 VAC and 60 VDC.

<sup>b</sup> Protection shall be provided unless documentation acceptable to the fire code official is provided in accordance with Section 104.8.2 that provides justification why the protection is not necessary based on the technology used.

<sup>c</sup> Applicable to vented-type (i.e., flooded) nickel-cadmium and lead-acid batteries.

<sup>d</sup> Not required for vented-type (i.e., flooded) batteries.

<sup>e</sup> The thermal runaway protection is permitted to be part of a battery management system that has been evaluated with the battery as part of the evaluation to UL 1973.

<sup>f</sup> Not required for batteries with gelled electrolyte.

**1207.6.3 Explosion control.** Where required by Table 1207.6 or elsewhere in this code, explosion control complying with Section 911 shall be provided for rooms, areas, ESS cabinets, or ESS walk-in units containing electrochemical ESS technologies.

- EXCEPTIONS:
1. Where approved, explosion control is permitted to be waived by the fire code official based on large-scale fire testing complying with Section 1207.1.5 that demonstrates that flammable gases are not liberated from electrochemical ESS cells or modules.
  2. Where approved, explosion control is permitted to be waived by the fire code official based on documentation provided in accordance with Section 104.8 that demonstrates that the electrochemical ESS technology to be used does not have the potential to release flammable gas concentrations in excess of 25 percent of the LFL anywhere in the room, area, walk-in unit or structure under thermal runaway, or other fault conditions.
  3. Where approved, ESS cabinets that have no debris, shrapnel, or enclosure pieces ejected during large scale fire testing complying with Section 1207.1.5 shall be permitted in lieu of providing explosion control complying with Section 911.
  4. Explosion control is not required for lead-acid and nickel-cadmium battery systems less than 50 VAC, 60 VDC in telecommunication facilities under the exclusive control of communications utilities located in building spaces or walk-in units used exclusively for such installations.
  5. Explosion control is not required for lead-acid and nickel-cadmium systems used for dc power for control of substations and control or safe shutdown of generating stations under the exclusive control of the electric utility located in building spaces or walk-in units used exclusively for such installations.
  6. Explosion control is not required for lead-acid battery systems in uninterruptible power supplies listed and labeled in accordance with UL 1778, utilized for standby power applications, and housed in a single cabinet in a single fire area in buildings or walk-in units.

**1207.10.1 Charging and storage.** For the purpose of Section 1207.10, charging and storage covers the operation where mobile ESS are charged and stored so they are ready for deployment to another site, and where they are charged and stored after a deployment.

EXCEPTION: Mobile ESS used to temporarily provide power to lead-acid and nickel-cadmium systems that are used for dc power for control of substations and control or safe shutdown of generating stations under the exclusive control of the electric utility, and located outdoors or in building spaces used exclusively for such installations.



**1207.10.2 Deployment.** For the purpose of Section 1207.10, deployment covers operations where mobile ESS are located at a site other than the charging and storage site and are being used to provide power.

**EXCEPTION:** Mobile ESS used to temporarily provide power to lead-acid and nickel-cadmium systems that are used for dc power for control of substations and control or safe shutdown of generating stations under the exclusive control of the electric utility, and located outdoors or in building spaces used exclusively for such installations.

**1207.11 ESS in Group R-3 and R-4 occupancies.** ESS in Group R-3 and R-4 occupancies shall be in accordance with Sections 1207.11.1 through 1207.11.9.

**EXCEPTIONS:**

1. ESS listed and labeled in accordance with UL 9540 and marked "For use in residential dwelling units", where installed in accordance with the manufacturer's instructions and NFPA 70.
2. ESS rated less than 1 kWh (3.6 megajoules).

**1207.11.1 Equipment listings.** ESS shall be listed and labeled in accordance with UL 9540.

**EXCEPTIONS:** Not adopted.

**1207.11.2.1 Spacing.** Individual ESS units shall be separated from each other by at least three feet (914 mm) except where smaller separation distances are documented to be adequate based on large-scale fire testing complying with Section 1207.1.5.

**1207.11.3 Location.** ESS shall be installed only in the following locations:

1. Detached garages and detached accessory structures.
2. Attached garages separated from the dwelling unit living space and sleeping units in accordance with Section 406.3.2 of the International Building Code.
3. Outdoors or on the exterior side of exterior walls located a minimum of three feet (914 mm) from doors and windows directly entering the dwelling unit.
4. Enclosed utility closets, basements, storage or utility spaces within dwelling units and sleeping units with finished or noncombustible walls and ceilings. Walls and ceilings of unfinished wood-framed construction shall be provided with not less than 5/8 in. Type X gypsum wallboard.

ESS shall not be installed in sleeping rooms, or closets or spaces opening directly into sleeping rooms.

**1207.11.4 Energy ratings.** Individual ESS units shall have a maximum rating of 20 kWh. The aggregate rating of the ESS shall not exceed:

1. 40 kWh within utility closets, basements, and storage or utility spaces.
2. 80 kWh in attached or detached garages and detached accessory structures.
3. 80 kWh on exterior walls.
4. 80 kWh outdoors on the ground.

ESS installations exceeding the permitted individual or aggregate ratings shall be installed in accordance with Sections 1207.1 through 1207.9.

**1207.11.6 Fire detection.** ESS installed in Group R-3 and R-4 occupancies shall comply with the following:

1. Rooms and areas within dwelling units, sleeping units, basements and attached garages in which ESS are installed shall be protected by smoke alarms in accordance with Section 907.2.11.
2. A listed heat alarm shall be installed in locations where smoke alarms cannot be installed based on their listing.

1207.11.7 Protection from impact. ESS installed in a location subject to vehicle damage shall be protected by approved barriers. Appliances in garages shall also be installed in accordance with Section 304.3 of the International Mechanical Code.

1207.11.8 Ventilation. Indoor installations of ESS that include batteries that produce hydrogen or other flammable gases during charging shall be provided with exhaust ventilation in accordance with Section 304.5 of the International Mechanical Code.

1207.11.9 Toxic and highly toxic gas. Model code section not adopted.

1207.11.10 Electric vehicle use. The temporary use of an owner or occupant's electric-powered vehicle to power a dwelling unit or sleeping unit while parked in an attached or detached garage or outdoors shall comply with the vehicle manufacturer's instructions and NFPA 70.

3.5. NFPA 2010, Standard for Fixed Aerosol Fire-Extinguishing Systems.

**EXCEPTIONS:**

- 1. Fire suppression systems for lead-acid and nickel-cadmium battery systems at facilities under the exclusive control of communications utilities that operate at less than 50 VAC and 60 VDC shall be provided where required by NFPA 76.
- 2. Lead-acid and nickel-cadmium systems that are used for dc power for control of substations and control or safe shutdown of generating stations under the exclusive control of the electric utility, and located outdoors or in building spaces used exclusively for such installations, shall not be required to have a fire suppression system installed.
- 3. Lead-acid battery systems in uninterruptible power supplies listed and labeled in accordance with UL 1778, utilized for standby power applications, which is limited to not more than 10 percent of the floor area on the floor on which the ESS is located shall not be required to have a fire suppression system.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 22-13-093 and 23-12-107, § 51-54A-1207, filed 6/14/22 and 6/7/23, effective 10/29/23.]

**Reviser's note:** The above section was filed as an amendatory section; however, this section will not come into effect as a new section until October 29, 2023.

AMENDATORY SECTION (Amending WSR 22-13-093 and 23-12-107 [19-02-086], filed 6/14/22 and 6/7/23 [1/2/19], effective 10/29/23 [7/1/19])

**WAC 51-54A-8000 Referenced standards.**

- NFPA 13-19: Standard for the Installation of Sprinkler Systems (except 9.3.6.3(5)) . . . . . 903.3.1.1, 903.3.2, 903.3.8.2, 903.3.8.5, 904.13, 905.3.4, 907.6.4, 914.3.2, 1019.3, 1103.4.8, 3201.1, 3204.2, 3205.5, Table 3206.2, 3206.4.1, 3206.10, 3207.2, 3207.2.1, 3208.2.2, 3208.2.2.1, 3208.4, 3210.1, 3401.1, 5104.1, 5104.1.1, 5106.5.7, 5704.3.3.9, Table 5704.3.6.3(7), 5704.3.7.5.1, 5704.3.8.4
- NFPA ((33)) 33-18 Membrane Enclosures . . . . . 2404.3.5
- NFPA 96-21 Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations 606.2, 606.3, 904.13
- NFPA 130-20 Standard for Fixed Guideway Transit and Passenger Rail Systems 4901.1
- NFPA 855-23 Standard for the Installation of Stationary Energy Storage Systems 1201.1
- UL 142A-2018: Special Purpose Above ground Tanks for Specific Flammable or Combustible Liquids . . . . . 605.4

UL 2272-2016: Electrical Systems for Personal E-Mobility  
 Devices . . . . . 323.2

UL 2849-2020: Electrical Systems for eBikes . . . . . 323.2

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 22-13-093 and 23-12-107, § 51-54A-8000, filed 6/14/22 and 6/7/23, effective 10/29/23. Statutory Authority: RCW 19.27.031, 19.27.074 and chapter 19.27 RCW. WSR 19-02-086, § 51-54A-8000, filed 1/2/19, effective 7/1/19. Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 16-03-055, § 51-54A-8000, filed 1/16/16, effective 7/1/16. Statutory Authority: RCW 19.27A.031, 19.27.074 and chapters 19.27 and 34.05 RCW. WSR 13-04-063, § 51-54A-8000, filed 2/1/13, effective 7/1/13.]

**Reviser's note:** The bracketed material preceding the section above was supplied by the code reviser's office.

## WSR 23-15-048

## PROPOSED RULES

## DEPARTMENT OF ECOLOGY

[Order 21-02—Filed July 13, 2023, 9:47 a.m.]

## Original Notice.

Preproposal statement of inquiry was filed as WSR 21-17-110.

Title of Rule and Other Identifying Information: Ecology is proposing an amendment to chapter 173-443 WAC, Hydrofluorocarbons (HFCs) and other fluorinated greenhouse gases (formerly Hydrofluorocarbons, HFCs).

For more information on this rule making, visit <https://ecology.wa.gov/Regulations-Permits/Laws-rules-rulemaking/Rulemaking/WAC-173-443-455>.

Hearing Location(s): On August 24, 2023, at 10:00 a.m., webinar. Join online and see instructions <https://waecy-wa-gov.zoom.us/join/register/tZApceGhrj4pHNX4uhu3qnkiftq87WCQKwFp>; join by phone 253-215-8782, Meeting ID 844 6890 5361. Presentation and question and answer session followed by the hearing.

Date of Intended Adoption: November 29, 2023.

Submit Written Comments to: Linda Kildahl, US mail: Department of Ecology, Air Quality Program, P.O. Box 47600, Olympia, WA 98504-7600; or parcel delivery: Department of Ecology, Air Quality Program, 300 Desmond Drive S.E., Lacey, WA 98503. Submit comments by mail, online, or at the hearing <https://aq.ecology.commentinput.com?id=trCUMYBx2G>, by August 31, 2023 (close of comment period).

Assistance for Persons with Disabilities: Contact ecology ADA coordinator, phone 360-407-6831, Washington relay service or TTY call 711 or 877-833-6341, email [ecyADAcordinator@ecy.wa.gov](mailto:ecyADAcordinator@ecy.wa.gov), <https://ecology.wa.gov/About-us/Accessibility-equity/Accessibility> for more information, by August 17, 2023.

Purpose of the Proposal and Its Anticipated Effects, Including Any Changes in Existing Rules: To implement chapter 70A.60 RCW, the proposed rule amendments will:

- Establish maximum global warming potential (GWP) thresholds for HFCs used in new stationary refrigeration and air conditioning equipment, small cans of refrigerant, and certain nonessential consumer aerosol products.
- Establish a refrigerant management program with registration, leak inspection, leak repair, recordkeeping and reporting requirements for owners or operators of large stationary refrigeration and air conditioning systems.
- Establish required service practices for technicians who service stationary refrigeration and air conditioning systems.
- Amend product labeling and disclosure requirements.
- Establish new labeling and recordkeeping requirements.
- Update chapter 173-443 WAC to reflect other changes in the law.
- Revise the title of the chapter.

The proposed rule amendments will also add a new section to chapter 173-455 WAC to establish fees and a process for fee updates to cover the costs of administering and enforcing the refrigerant management program.

Reasons Supporting Proposal: In 2021, the legislature passed Hydrofluorocarbons—Emissions reduction (E2SHB 1050, codified in chapter 70A.60 RCW) to further reduce HFC and other high-GWP refrigerant emissions in Washington. The 2021 law authorized ecology to establish GWP

thresholds for refrigerants used in new stationary refrigeration and air conditioning equipment and to establish a refrigerant management program to reduce greenhouse gas (GHG) emissions from large stationary refrigeration and air conditioning systems operating in Washington.

The law requires ecology to adopt rules that:

- Enforce the statutory GWP threshold for HFCs used in new refrigeration equipment in ice rinks.
- Establish a refrigerant management program for large stationary refrigeration and air conditioning systems.
- Amend product labeling and disclosure requirements.

The law authorizes ecology to adopt rules that:

- Establish maximum GWP thresholds for HFCs used in new stationary refrigeration and air conditioning equipment.
- Establish new reporting, labeling, and recordkeeping requirements.
- Establish required service practices for technicians who service stationary refrigeration and air conditioning systems.
- Establish fees to support the refrigerant management program.

Statutory Authority for Adoption: Chapter 70A.60 RCW.

Statute Being Implemented: Chapter 70A.60 RCW.

Rule is not necessitated by federal law, federal or state court decision.

Name of Proponent: Department of ecology, governmental.

Name of Agency Personnel Responsible for Drafting: Linda Kildahl, Lacey, Washington, 360-706-3038; Implementation: Tamara Dumitrescu, Lacey, Washington, 360-338-2606; and Enforcement: Leonard Machut, Lacey, Washington, 360-890-6391.

A school district fiscal impact statement is not required under RCW 28A.305.135.

A cost-benefit analysis is required under RCW 34.05.328. A preliminary cost-benefit analysis may be obtained by contacting Linda Kildahl, Department of Ecology, Air Quality Program, P.O. Box 47600, Olympia, WA 98504-7600, phone 360-706-3038, Washington relay service or TTY call [711 or] 877-833-6341, email linda.kildahl@ecy.wa.gov.

This rule proposal, or portions of the proposal, is exempt from requirements of the Regulatory Fairness Act because the proposal:

Is exempt under RCW 19.85.025(3) as the rules relate only to internal governmental operations that are not subject to violation by a nongovernment party; rules are adopting or incorporating by reference without material change federal statutes or regulations, Washington state statutes, rules of other Washington state agencies, shoreline master programs other than those programs governing shorelines of statewide significance, or, as referenced by Washington state law, national consensus codes that generally establish industry standards, if the material adopted or incorporated regulates the same subject matter and conduct as the adopting or incorporating rule; rules only correct typographical errors, make address or name changes, or clarify language of a rule without changing its effect; and rule content is explicitly and specifically dictated by statute.

Is exempt under RCW 19.85.025(4).

Explanation of exemptions: Ecology baselines are typically complex, consisting of multiple requirements fully or partially specified by existing rules, statutes, or federal laws. Where the proposed rule

differs from this baseline of existing requirements, it is typically subject to (i.e., not exempt from) analysis required under the Regulatory Fairness Act (RFA), chapter 19.85 RCW, based on meeting criteria referenced in RCW 19.85.025(3) as defined by the Administrative Procedure Act in RCW 34.05.310. The small business economic impact statement (SBEIS) below includes a summary of the baseline for this rule making, and whether or how the proposed rule differs from the baseline.

Scope of exemption for rule proposal:

Is partially exempt:

Explanation of partial exemptions: Ecology baselines are typically complex, consisting of multiple requirements fully or partially specified by existing rules, statutes, or federal laws. Where the proposed rule differs from this baseline of existing requirements, it is typically subject to (i.e., not exempt from) analysis required under RFA based on meeting criteria referenced in RCW 19.85.025(3) as defined by the Administrative Procedure Act in RCW 34.05.310. The SBEIS below includes a summary of the baseline for this rule making, and whether or how the proposed rule differs from the baseline.

The proposed rule does impose more-than-minor costs on businesses.

#### Small Business Economic Impact Statement

This SBEIS presents the:

- Compliance requirements of the proposed rule.
- Results of the analysis of relative compliance cost burden.
- Consideration of lost sales or revenue.
- Cost-mitigating action taken by ecology, if required.
- Small business and local government consultation.
- Industries likely impacted by the proposed rule.
- Expected net impact on jobs statewide.

A small business is defined by RFA as having 50 or fewer employees. Estimated costs are determined as compared to the existing regulatory environment; the regulations in the absence of the rule. The SBEIS only considers costs to "businesses in an industry" in Washington state. This means that impacts, for this document, are not evaluated for government agencies.

The existing regulatory environment is called the "baseline" in this document. It includes only existing laws and rules at federal and state levels.

This information is excerpted from ecology's complete set of regulatory analyses for this rule making. For complete discussion of the likely costs, benefits, minimum compliance burden, and relative burden on small businesses, see the associated regulatory analyses document (**Ecology publication no. 23-02-081, July 2023**).

**COMPLIANCE REQUIREMENTS OF THE PROPOSED RULE, INCLUDING PROFESSIONAL SERVICES: 2.2 Baseline:** The baseline for our analyses generally consists of existing rules and laws, and their requirements. This is what allows us to make a consistent comparison between the state of the world with and without the proposed rule amendments.

For this rule making, the baseline includes:

- The existing rule: Chapter 173-443 WAC, Hydrofluorocarbons (HFCs).

- The authorizing statute: Chapter 70A.60 RCW, Hydrofluorocarbons—Emissions reduction (ES2HB [E2SHB] 1112 passed in 2019; ES2HB [E2SHB] 1050 passed in 2021).
- The American Innovation and Manufacturing (AIM) Act of 2020, 42 USC 7675.
- EPA Significant New Alternatives Policy (SNAP) Program, 40 C.F.R. Part 82, Subpart G.
- EPA HFC Allowance Allocation and Reporting Program, 40 C.F.R. Part 84, Subpart A.
- The proposed EPA technology transitions rule: 87 F.R. 76738, Phasedown of Hydrofluorocarbons: Restrictions on the Use of Certain Hydrofluorocarbons Under Subsection (i) the American Innovation and Manufacturing Act of 2020.

We note that while the EPA rule making is occurring at the same time as this ecology rule making, its authorizing AIM Act indicates the likely baseline will include an EPA rule that phases down the production and consumption of HFCs by 85 percent by 2036. The proposed EPA rule is the best current representation of the specifics of this baseline element, and is likely to be adopted on a similar timeline as our proposed rule.

- The Kigali Amendment (2016) to the Montreal protocol on substances that deplete the ozone layer.

While they are not elements of baseline regulations in Washington state or at the federal level, we note the following are regulations that may apply to some of the entities impacted by the proposed rule amendments, if they sell products across multiple markets. Entities affected by similar regulations across multiple jurisdictions in which they do business may be able to take advantage of economies of scale, for example mitigating cost increases by streamlining production attributes for products sold across entire regions.

- California Code of Regulations, Title 17, Division 3, Chapter 1, Subchapter 10 Climate Change, Article 4, Sub. article 5. Prohibitions on Use of Certain Hydrofluorocarbons in Stationary Refrigeration, Stationary Air-conditioning, and Other End-Uses.

- California Code of Regulations, Title 17, Division 3, Chapter 1, Subchapter 10 Climate Change, Article 4, Sub. article 5.1 Management of High Global Warming Potential Refrigerants for Stationary Sources.

**2.3 Proposed rule amendments:** 2.3.1 Proposed amendments to manufacturer requirements: Baselines, proposed amendments, and expected impacts described in this section reflect the assumption that compliance behavior would be undertaken by manufacturers. We acknowledge that other participants along supply chains may incur some of the costs discussed in this section if manufacturers decide to pass on their compliance costs to their customers in the form of higher prices, but in the interest of avoiding double-counting of costs or benefits, we made the simplifying assumption that costs would be borne by manufacturers where this information was unavailable or unknown.

2.3.1.1 Adding centrifugal chillers to existing prohibitions: Baseline: Under the baseline, chapter 173-443 WAC lists specific prohibited substances and the prohibition effective dates for various end-uses of new products and equipment.

Proposed: The proposed rule amendments would add the following chillers to baseline prohibitions starting in 2025:

- Centrifugal chillers (heating; heating and cooling), effective 2025.

- Positive displacement chillers (heating; heating and cooling), effective 2025.

The proposed rule would also list automatic commercial ice machines with expanded lists of prohibited refrigerants, rather than applying a maximum GWP threshold. The list included in our proposed rule matches the list for ice machines with more than 500 grams of refrigerant in the proposed federal technology transitions rule, for:

- Refrigeration:
  - Automatic commercial ice machines (remote condensing units), effective 2025.
  - Automatic commercial ice machines (stand alone units), effective 2025.

2.3.1.2 Setting maximum GWP thresholds for new refrigeration equipment: Baseline: Ecology's existing HFC rule does not contain GWP thresholds. The 2021 law established specific GWP thresholds and effective dates for new equipment used in ice rinks. In particular, the 2021 law set the following GWP thresholds for new equipment manufactured after December 31, 2023:

- 150 GWP threshold for new equipment installed in new ice rinks; and
- 750 GWP threshold for new equipment installed in existing ice rinks.

The proposed EPA technology transitions rule would establish GWP thresholds and prohibitions for a set of end uses of new refrigeration equipment effective in 2025. In particular, the proposed EPA Technology Transition rule would set the following GWP thresholds:

- 300 GWP threshold for new refrigeration equipment with less than 200 lbs. charge capacity;
- 150 GWP threshold for new refrigeration equipment with more than 200 lbs. charge capacity; and
- 700 GWP threshold for chillers used for industrial process refrigeration.

Proposed: The proposed rule amendments would add GWP thresholds for substances consistent with the proposed EPA technology transitions rule, except:

- Our proposed rule would set a 150 GWP threshold for all new refrigeration equipment with charge capacities exceeding 50 lbs.
- Our proposed rule would set a 750 GWP threshold for chillers used for industrial process refrigeration.

Our proposed rule would also incorporate the GWP thresholds and effective dates for ice rinks from the state law.

2.3.1.3 Setting maximum GWP thresholds for new air conditioning equipment: Baseline: RCW 70A.60.020, which was added by the 2021 law, authorizes but does not require ecology to set a 750 GWP threshold for substances used in new stationary air conditioning (excluding chillers) and sets the earliest dates such prohibitions could begin.

The state building code council (council) did not adopt all four safety standards specified in RCW 70A.60.020 (2)(b)(i) by January 1, 2023. The council is expected to complete the required adoption by November 2025. Accordingly, January 1, 2028, is the earliest possible effective date for all stationary air conditioning equipment other than dehumidifiers, room air conditions, and systems with variable refrigerant flow or volume.

The proposed EPA technology transitions rule would set a GWP limit of 700 for:

- Air conditioning except variable refrigerant flow systems, beginning in 2025.



- Variable refrigerant flow systems, beginning in 2026.

Proposed: The proposed rule would set a 750 GWP threshold for substances used in new air conditioning equipment as follows:

- Room air conditioners and residential dehumidifiers, effective 2024. This is one year later than the earliest possible effective date for this type of equipment.

- Variable refrigerant flow or volume systems, effective 2026. This is the earliest possible effective date for this type of equipment.

- Other types of air conditioning equipment used in residential and nonresidential applications, effective 2028. This is based on our understanding that the state building code council will adopt the four specified safety standards no later than January 1, 2026.

2.3.1.4 Setting maximum GWP thresholds for small containers and nonessential consumer products: Baseline: RCW 70A.60.080, which was amended by the 2021 law, prohibits the use of substances with greater than 150 GWP in small containers of refrigerant and nonessential consumer products. These statutory prohibitions went into effect on July 25, 2021.

Proposed: The proposed rule amendments would incorporate the new statutory prohibitions without change.

2.3.1.5 Establishing exemptions: Baseline: The 2021 law established acceptable uses (exemptions) for specified substances for certain end use categories.

For refrigeration equipment, the 2021 law also exempts:

- Equipment with 50 lbs. or less of refrigerant.
- Replacement of components in existing facilities as part of normal maintenance.
- Facilities with new equipment with a building permit issued before the effective date of the amended rule.

Under the 2021 law, stationary air conditioning equipment is also exempt for facilities with new equipment with a building permit issued before the effective date.

Proposed: The proposed rule amendments would establish new exemptions consistent with additional prohibitions being proposed (see previous sections). These exemptions include certain applications of centrifugal chillers and positive displacement chillers:

- Using HFC-134a for some military marine vessels.
- Using HFC-134a and R-404A for some human-related spacecraft and support equipment).

Our proposed rule would also incorporate the other statutory exemptions described above.

2.3.1.6 Amending and adding labeling requirements: Baseline: Under the 2019 and 2021 laws, manufacturers of products and equipment using substances that are listed under the existing rule (see previous sections in 2.3.1) must meet labeling requirements, unless their products are exempt.

RCW 70A.60.060 (4)(c), added by the 2021 law, requires ecology to allow for alternative disclosure methods if ecology determines that compliance with the applicable labeling requirement is not feasible for a particular product or equipment.

RCW 70A.60.020(5), added by the 2021 law, authorized ecology to establish labeling requirements for new stationary air conditioning and refrigeration equipment that is subject to our proposed GWP thresholds.

Proposed: The proposed amendments would also implement the statutory directive to allow for alternative disclosure methods by specify-

ing the required contents and process for requesting approval to use alternative disclosure methods.

The proposed rule amendments would also establish new, separate labeling and disclosure requirements, consistent with the proposed EPA rule, for the following equipment subject to our proposed GWP thresholds:

- New refrigeration equipment.
- New air conditioning equipment.

2.3.1.7 Adding recordkeeping requirements: Baseline: RCW 70A.60.060 requires ecology to establish reporting and recordkeeping requirements. The existing rule includes reporting and recordkeeping requirements for manufacturers of products containing substances that are restricted under the baseline.

The proposed EPA technology transition rule includes reporting requirements and three-year recordkeeping requirements for covered products.

Proposed: The proposed rule amendments would specify that existing reporting requirements would apply to products and equipment using substances that are restricted under amended requirements.

The proposed rule amendments would also establish new, separate recordkeeping requirements, consistent with the proposed EPA rule, for new stationary air conditioning and refrigeration equipment that [is] subject to our proposed GWP thresholds.

The proposed rule would require an additional two years of records retention (five-year retention of records compared to the three years required in the proposed EPA rule).

2.3.1.8 Establishing a variance process and criteria: Baseline: RCW 70A.60.020 (5)(c), added by the 2021 law, gives ecology the authority to grant variances from the proposed GWP thresholds and associated requirements for new stationary air conditioning and refrigeration equipment.

Proposed: The proposed rule amendments would establish three types of variances, with associated eligibility criteria, for which manufacturers can apply by demonstrating that issuance of the requested variance would not increase overall risk to human health or the environment.

2.3.2 Proposed amendments to requirements for facilities: 2.3.2.1 Establishing refrigerant management program (RMP) registration requirements: Baseline: RCW 70A.60.030, added by the 2021 law, directs ecology to adopt rules to implement a refrigerant management program (RMP) applicable to stationary refrigeration and air conditioning systems using high-GWP refrigerants and with a volume of 50 lbs. or more, and installation and servicing of these systems.

RCW 70A.60.030(3) establishes annual registration requirements that apply to the owner or operator of a stationary refrigeration or air conditioning system with a charge capacity of 50 lbs. or more.

Under RCW 70A.60.030(7), ecology must adopt rules requiring the following entities to provide an annual report to ecology:

- Facilities with refrigeration or air conditioning system with a full charge of at least 50 lbs. of high-GWP refrigerant.
- Any person who wholesales, distributes, or reclaims any amount of high-GWP refrigerant.

Under RCW 70A.60.030(8), ecology is also authorized to adopt rules establishing service practices for stationary appliances, which may include reporting requirements for technicians.

The statute also allows ecology to phase in RMP requirements over time based on the relative full charge of refrigeration or air conditioning systems.

Proposed: The proposed rule amendments would incorporate the annual RMP registration requirement from the 2021 law. The proposed rule would also establish reporting requirements.

The proposed rule would phase in a requirement to register and provide information to ecology.

Wholesalers, distributors, and reclaimers of any amount of high-GWP refrigerant would also be required to register with ecology and provide detailed information about the facility with which they interact (including facility information, ownership, operation, and industry).

2.3.2.2 Setting implementation fees and annual fees: Baseline: RCW 70A.60.030(9), added by the 2021 law, gives ecology authority to charge fees to cover the costs of implementing the RMP. Fees must be based on the direct and indirect costs of administering and enforcing the RMP.

The statute also allows ecology to phase in RMP requirements over time based on the relative full charge of refrigeration or air conditioning systems.

Proposed: The proposed rule amendments would set an initial implementation fee of \$150 for facilities with refrigeration or air conditioning systems with a full charge of at least 1,500 lbs. of high-GWP refrigerant.

The proposed rule amendments would also set an annual implementation fee for facilities with refrigeration or air conditioning systems with full charge of at least 200 lbs. of high-GWP refrigerant as follows:

- Beginning in 2024: \$370 for facilities whose equipment has a full charge of at least 1,500 lbs.
- Beginning in 2026: \$170 for facilities whose equipment has a full charge of between 200 and 1,499 lbs.

Ongoing fees (beginning in 2025 and 2027, respectively) would be established using a process consistent with the updating process for other air quality fees. This would be specified in a new section of the air quality fee rule, in WAC 173-455-160 (see discussion in Section 2.3.7).

2.3.2.3 Requiring leak inspection and monitoring: Baseline: RCW 70A.60.030, added by the 2021 law, directs ecology to establish requirements for leak detection and monitoring as part of the RMP. At a minimum, RCW 70A.60.030(6) requires the owner or operator of a registered stationary air conditioning or refrigeration system to inspect for leaks each time significant amounts of refrigerant are added to the system.

RCW 70A.60.030(5) authorizes ecology to scale the requirements for periodic leak-detection inspections based on the relative full charge of the refrigeration or air conditioning systems. RCW 70A.60.030(5) also authorizes ecology to exempt systems that use low-GWP substances or that have automatic leak-detection systems from the requirements for periodic inspections.

Proposed: The proposed rule amendments would set leak inspection requirements for facilities with year-round refrigeration and air conditioning systems with a full charge capacity of at least 1,500 lbs., beginning in 2024.

The rule amendments would also set requirements for automatic leak detection for year-round refrigeration systems with a full charge capacity of at least 1,500 lbs., beginning in 2025.

For facilities with refrigeration or air conditioning systems with full charge between over 200 and 1,500 lbs., beginning in 2024 the proposed rule amendments would require inspections.

For facilities with refrigeration or air conditioning systems with full charge between 50 and 200 lbs., beginning in 2024 the proposed rule amendments would require less frequent inspections.

2.3.2.4 Setting leak rate thresholds and establishing notification requirements: Baseline: The EPA has existing leak-related requirements and leak rate thresholds for any person maintaining, servicing, or repairing appliances containing class I, class II, or non-exempt substitute refrigerants, for the following uses, under Section 608 of the Clean Air Act:

- Industrial process refrigeration.
- Commercial refrigeration.
- Comfort cooling.
- Other covered appliances.

RCW 70A.60.030 (7)(f), added by the 2021 law, requires ecology to establish leak rate thresholds that achieve greater emissions reductions than the federal rules adopted by EPA.

Proposed: The proposed rule amendments would set thresholds for leak rates and associated notification requirements.

2.3.2.5 Establishing requirements for leak repair, timing, and verification: Baseline: The EPA has existing leak-related requirements and leak rate thresholds, as listed above.

EPA requirements include timing requirements for corrective action if the applicable EPA leak rate thresholds ("triggers") are exceeded.

RCW 70A.60.030 (7)(a), added by the 2021 law, requires ecology to adopt rules that require leaking systems to be repaired within a specified amount of time.

Proposed: The proposed rule amendments would establish timing and other requirements for leak repair, beginning in 2024.

The proposed amendments would require verification tests upon completion of leak repairs, as well as follow-up verification tests within 14 days of reaching normal operating conditions for a system that requires evacuation to conduct a repair.

2.3.2.6 Establishing requirements for retrofit and retirement plans: Baseline: The EPA has existing leak-related requirements and leak rate thresholds, as above.

These leak-related EPA requirements include development of a retrofit or retirement plan within 30 days of detecting a leak in excess of leak thresholds.

Proposed: The proposed rule amendments would require facilities with refrigeration or air conditioning systems with full charge of at least 50 lbs. of high-GWP refrigerant, with leaks that are not capable of [being] repaired within the applicable time frames and are not exempt, to prepare and implement a retrofit or retirement plan.

2.3.2.7 Establishing exemption criteria and process for leak repair, retrofit, and replacement: Baseline: RCW 70A.60.030 (8)(b), added by the 2021 law, authorizes ecology to establish a process for wholesalers, distributors, reclaimers, and equipment operators to apply for an exemption from rule requirements related to leak repair and retrofit or replacement. The statute authorizes ecology to grant such

exemptions on the basis of economic hardship, natural disaster, or based on a calculation of the impact on lifecycle GHG emissions.

Proposed: The proposed rule amendments would add three types of exemptions, with associated eligibility criteria, for which facilities can apply by demonstrating that approval of the requested exemption would not increase overall risk to human health or the environment.

Applicants would also need to demonstrate they made a good faith effort to anticipate, address, and mitigate potential noncompliance.

The proposed rule would establish the application process for an exemption.

2.3.2.8 Establishing reporting requirements: Baseline: RCW 70A.60.030(7), added by the 2021 law, directs ecology to establish annual reporting requirements for facilities.

The statute also directs ecology to require refrigerant wholesalers, distributors, and reclaimers to report annually.

Under RCW 70A.60.030(8), ecology is also authorized to adopt rules establishing service practices for stationary appliances, which may include reporting requirements for technicians.

Proposed: The proposed rule amendments would specify the timing and required contents of annual reports.

The proposed rule amendments would also require refrigerant wholesalers, distributors, and reclaimers to report annually for the previous calendar year, beginning in 2025 for 2024.

2.3.2.9 Establishing recordkeeping requirements: Baseline: The EPA has existing requirements for class I, class II, or nonexempt substitute refrigerants, as above.

EPA requirements include recordkeeping requirements for three years.

RCW 70A.60.030 (7)(e), added by the 2021 law, directs ecology to adopt recordkeeping requirements for facility operators as well as refrigerant wholesalers, distributors, and reclaimers.

Proposed: The proposed rule would require recordkeeping beginning in 2024. Facilities with refrigeration or air conditioning systems with full charge of at least 50 lbs. of high-GWP refrigerant would be required to maintain records on site for at least five years.

The proposed rule would also require refrigerant wholesalers, distributors, and reclaimers to maintain records on site for at least five years.

2.3.4 Proposed amendments to requirements for service technicians: 2.3.4.1 Establishing required service practices: Baseline: RCW 70A.60.030 (8)(a), added by the 2021 law, authorizes ecology to adopt rules establishing required service practices for stationary appliances. The rules may include requirements for service technician certification and prohibitions on practices that are likely to result in releases to the environment.

Service practices are required by the EPA under their phaseout of ozone-depleting substances (ODS) program, for class I and class II controlled substances.

Proposed: The proposed rule amendments would require the same service practices for HFCs as are required under the baseline for other refrigerants that are also ODS. The proposed rule amendments would also require that additional refrigerant charge may not be added to equipment known to have a leak unless the charge is needed to maintain operations while preparing for or conducting repairs.

2.3.6 Making corresponding changes to the air quality fee rule: The proposed rule amendments would add a new section to chapter 173-455 WAC to establish the proposed RMP implementation fees author-

ized by the 2021 law. This [These] proposed rule amendments would facilitate annual updating of the RMP implementation fees.

**COSTS OF COMPLIANCE: EQUIPMENT, SUPPLIES, LABOR, PROFESSIONAL SERVICES, ADMINISTRATIVE COSTS, AND OTHER COSTS:**

Summary	PV Cost (low, fewer businesses)	PV Cost (high, fewer businesses)	PV Cost (low, larger business count)	PV Cost (high, larger business count)
Adding Prohibitions	\$79,558	\$385,211	\$79,558	\$385,211
Refrigeration GWP thresholds	(\$25,812,527)	\$292,536,326	(\$62,836,435)	\$123,645,506
AC GWP thresholds	\$11,104,972	\$11,104,972	\$11,104,972	\$11,104,972
RMP registration	\$375,585	\$375,585	\$1,713,345	\$1,713,345
Fees	\$7,443,265	\$7,443,265	\$78,627,164	\$78,627,164
Leak detection	\$40,239,706	\$47,078,609	\$329,633,817	\$363,986,224
Leak rate thresholds	\$2,072,923	\$2,072,923	\$16,691,009	\$16,691,009
Repair timing	Qualitative	Qualitative	Qualitative	Qualitative
Retrofit requirements	Qualitative	Qualitative	Qualitative	Qualitative
Reporting	\$8,472,992	\$8,472,992	\$87,176,863	\$87,176,863
<b>TOTAL</b>	<b>\$43,976,472</b>	<b>\$369,469,882</b>	<b>\$462,190,293</b>	<b>\$683,330,294</b>

**COMPARISON OF COMPLIANCE COST FOR SMALL VERSUS LARGE BUSINESSES:**

Type of Cost	Small Business Low	Small Business High	Large Business Low	Large Business High
Amending prohibitions on the use of certain substances in specified new products and equipment	\$52.22	\$210.71	\$0.02	\$0.09
Setting GWP thresholds for prohibited substances used in new refrigeration equipment with a refrigerant charge capacity of more than 50 lbs	\$5,414.69	\$5,745.28	\$2.25	\$2.38
Setting GWP thresholds for prohibited substances used in new air conditioning equipment	N/A	N/A	N/A	N/A
Establishing refrigerant management program (RMP) registration requirements	\$2.62	\$2.62	\$0.00	\$0.00
Setting implementation fees and annual fees	\$59.09	\$59.09	\$0.02	\$0.02
Requiring leak detection and monitoring	\$68.05	\$141.49	\$0.03	\$0.06
Setting leak rate thresholds and establishing notification requirements	\$4.56	\$4.56	\$0.00	\$0.00
Establishing requirements for leak repair, timing, and verification	N/A	N/A	N/A	N/A
Establishing requirements for retrofit and retirement plans	N/A	N/A	N/A	N/A
Establishing reporting requirements	\$13.05	\$13.05	\$0.01	\$0.01
<b>TOTAL</b>	<b>\$5,614.28</b>	<b>\$6,176.80</b>	<b>\$2.33</b>	<b>\$2.56</b>

**MITIGATION OF DISPROPORTIONATE IMPACT: Ecology considered:**

- (a) Reducing, modifying, or eliminating substantive regulatory requirements;
- (b) Simplifying, reducing, or eliminating recordkeeping and reporting requirements;
- (c) Reducing the frequency of inspections;
- (d) Delaying compliance timetables;
- (e) Reducing or modifying fine schedules for noncompliance; or
- (f) Any other mitigation techniques including those suggested by small businesses or small business advocates.

We considered all of the above options, the goals and objectives of the authorizing statutes and included the following:

- Businesses that have refrigeration equipment with a refrigerant charge capacity of less than 50 lbs. are not required to comply with the requirements of the rule.
- Exemptions from requirements of the rule may be granted if an exemption will not increase the overall risk to human health and the environment and the facility is a retail food facility or a small business, compliance with the requirements would result in extreme financial hardship, and the applicant has made a good faith effort to mitigate any potential noncompliance.

**SMALL BUSINESS AND LOCAL GOVERNMENT CONSULTATION:**

- Met with Washington Food Industry Association and Air Conditioning Contractors Association representatives in June 2021.
- Presented a rule-making overview at North American Sustainable Refrigeration Council conference in September 2021 (including a session focused on impacts to small businesses) and September 2022.
- Held seven open stakeholder meetings in 2022 and 2023.
- Met with the Washington chapter of the United Association of the Plumbers and Pipefitters Industry.
- Held a webinar on the legislative leak report to review ecology methods for setting leak thresholds in the RMP.
- Met with the Washington Air Conditioning Contractors Association in December 2022.

**NAICS CODES OF INDUSTRIES IMPACTED BY THE PROPOSED RULE:** NAICS definitions and industry hierarchies are discussed at <https://www.census.gov/cgi-bin/sssd/naics/naicsrch?chart=2017>.

NAICS Code	Description
115x	Support Activities for Agriculture and Forestry
221x	Utilities
311x	Food Manufacturing
312x	Beverage and Tobacco Product Manufacturing
313x	Textile Mills
323x	Printing and Related Support Activities
324x	Petroleum and Coal Products Manufacturing
325x	Chemical Manufacturing
326x	Plastics and Rubber Products Manufacturing
327x	Nonmetallic Mineral Product Manufacturing
332x	Fabricated Metal Product Manufacturing
334x	Computer and Electronic Product Manufacturing
335x	Electrical Equipment, Appliance, and Component Manufacturing
336x	Transportation Equipment Manufacturing
339x	Miscellaneous Manufacturing
423x	Merchant Wholesalers, Durable Goods
424x	Merchant Wholesalers, Nondurable Goods
425x	Wholesale Trade Agents and Brokers
441x	Motor Vehicle and Parts Dealers
444x	Building Material and Garden Equipment and Supplies Dealers
445x	Food and Beverage Retailers
488x	Support Activities for Transportation
493x	Warehousing and Storage

NAICS Code	Description
512x	Motion Picture and Sound Recording Industries
518x	Computing Infrastructure Providers, Data Processing, Web Hosting, and Related Services
522x	Credit Intermediation and Related Activities
524x	Insurance Carriers and Related Activities
531x	Real Estate
532x	Rental and Leasing Services
541x	Professional, Scientific, and Technical Services
551x	Management of Companies and Enterprises
561x	Administrative and Support Services
611x	Educational Services
621x	Ambulatory Health Care Services
622x	Hospitals
623x	Nursing and Residential Care Facilities
711x	Performing Arts, Spectator Sports, and Related Industries
712x	Museums, Historical Sites, and Similar Institutions
713x	Amusement, Gambling, and Recreation Industries
721x	Accommodation
722x	Food Services and Drinking Places
811x	Repair and Maintenance
812x	Personal and Laundry Services
813x	Religious, Grantmaking, Civic, Professional, and Similar Organizations

The "x" in the four-digit NAICS codes listed in the table represent subcategories within NAICS codes that described.

**CONSIDERATION OF LOST SALES OR REVENUE, IMPACT ON JOBS:** Low-Cost modeled impacts to output accounting for social cost of carbon (millions of \$):

Cost Impact	2025	2033	2043
Dun & Bradstreet	-\$619	-\$7	-\$6
Data Axle	-\$505	-\$120	-\$79

High-Cost modeled impacts to output accounting for social cost of carbon (millions of \$):

Cost Impact	2025	2033	2043
Dun & Bradstreet	-\$595	\$44	\$66
Data Axle	-\$554	-\$181	-\$122

Low-cost impacts on jobs (Dun & Bradstreet):

Industry	2025 Jobs Impact	2043 Jobs Impact
Whole state	-3219	-16
Retail trade	-586	-3
Construction	-584	5
Food services and drinking places	-153	-1
Real estate	-149	-1
Individual and family services	-49	-1

Low-cost impacts on jobs (Data Axle):

Industry	2025 Jobs Impact	2043 Jobs Impact
Whole state	-2642	-286



Industry	2025 Jobs Impact	2043 Jobs Impact
Construction	-500	1
Retail trade	-360	-26
State and Local Government	-150	-32
Food services and drinking places	-131	-17
Real estate	-118	-13

A copy of the statement may be obtained by contacting Linda Kildahl, Department of Ecology, P.O. Box 47600, Olympia, WA 98504-7600, phone 360-706-3038, Washington relay service or TTY call [711 or] 877-833-6341, email [lindal.kildahl@ecy.wa.gov](mailto:lindal.kildahl@ecy.wa.gov) [[linda.kildahl@ecy.wa.gov](mailto:linda.kildahl@ecy.wa.gov)].

July 13, 2023  
Heather R. Bartlett  
Deputy Director

OTS-4615.4

**Chapter 173-443 WAC**  
**HYDROFLUOROCARBONS (HFCs) AND OTHER FLUORINATED GREENHOUSE GASES**

AMENDATORY SECTION (Amending WSR 21-01-085, filed 12/10/20, effective 1/10/21)

**WAC 173-443-010 Policy and purpose.** (1) Ecology's policy under chapters ((70A.15)) 70A.60 and 43.21A RCW is to provide for the systematic control of air pollution from air contaminant sources. Ecology's policy under chapter ((70A.45)) 70A.60 RCW is to reduce the emissions of hydrofluorocarbons (HFCs) and other fluorinated greenhouse gases.

(2) This chapter establishes requirements for the transition to less damaging ((HFCs or suitable)) refrigerants and refrigerant substitutes in the air conditioning and refrigeration, aerosol propellant, and foam end-use categories in Washington in a manner similar to rules adopted under EPA's Significant New Alternative Policy (SNAP) program and refrigerant management and HFC rules adopted ((or proposed for adoption)) by other states around the country ((RCW 70A.45.080)).

[Statutory Authority: Chapters 70A.45 and 70A.15 RCW. WSR 21-01-085 (Order 19-04), § 173-443-010, filed 12/10/20, effective 1/10/21.]

AMENDATORY SECTION (Amending WSR 21-01-085, filed 12/10/20, effective 1/10/21)

**WAC 173-443-020 Applicability.** ~~((+1))~~ The requirements of this chapter apply to ~~((any))~~:

(1) Person who offers for sale, leases, rents, installs, or otherwise causes to enter into Washington commerce any new product or equipment that contains ~~((7))~~ or uses ~~((, or will use HFCs or other substitutes for an end-use))~~ a prohibited substance listed in WAC 173-443-040, Table 1;

(2) A person who offers for sale, leases, rents, installs, or otherwise causes to enter into Washington commerce any new refrigeration or air conditioning system that contains or uses a prohibited substance listed in WAC 173-443-040, Tables 2 and 3, respectively;

(3) A person who sells, offers for sale, or purchases a small container of refrigerant or a nonessential consumer product that contains or uses a prohibited substance listed in WAC 173-443-040, Table 4;

(4) A person who owns or operates a facility that has a refrigeration or air conditioning system;

(5) A person who installs, repairs, maintains, services, replaces, or disposes of a refrigeration or air conditioning system; and

(6) A person who wholesales, distributes, or reclaims a refrigerant with a high global warming potential (GWP).

~~((2) Labeling requirements.~~

~~(a) The labeling requirements in WAC 173-443-070 apply to manufacturers of products or equipment that contains, uses, or will use HFCs as of July 28, 2019, or to manufacturers that introduce such products or equipment into Washington commerce after that date.~~

~~(b) A manufacturer may apply the applicability determination in (a) of this subsection to separate divisions or similar segments of its business based on the end-use that products associated with each division or similar segmentation are intended to serve.)~~

[Statutory Authority: Chapters 70A.45 and 70A.15 RCW. WSR 21-01-085 (Order 19-04), § 173-443-020, filed 12/10/20, effective 1/10/21.]

AMENDATORY SECTION (Amending WSR 21-01-085, filed 12/10/20, effective 1/10/21)

**WAC 173-443-030 Definitions and acronyms.** The definitions in this section apply throughout this chapter unless the text clearly indicates otherwise.

"Aerosol propellant" means a liquid or compressed gas that is used in whole or in part, such as a cosolvent, to expel a liquid or other material from the same self-pressurized container or from a separate container.

"Air conditioning" means the process of treating air to meet the requirements of a conditioning space by controlling its temperature, humidity, cleanliness, or distribution. "Air conditioning" includes the use of chillers, except for purposes of applying a maximum GWP threshold for new air conditioning equipment under WAC 173-443-040, and the use of heat pumps.

"Air conditioning equipment" or "air conditioning system" means the piece(s) of stationary equipment used to provide air conditioning.

"Air conditioning equipment" or "air conditioning system" includes, but is not limited to, room air conditioners and residential and other dehumidifiers; ducted central air conditioners and heat pumps; nonducted air conditioners (both mini and multisplit); packaged roof top units; water source and ground source heat pumps; and remote condensing units used for comfort cooling. "Air conditioning equipment" or "air conditioning system" does not include mobile air conditioning systems, including those used in motor vehicles, rail and trains, aircraft, watercraft, recreational vehicles, recreational trailers, and campers.

"Applicant" means:

(a) Any person who offers to sell, leases, rents, installs, uses, or otherwise causes to enter into Washington commerce any new refrigeration or air conditioning equipment that contains or uses a prohibited substance listed in WAC 173-443-040 (2) or (3) and who applies for a variance under WAC 173-443-095; or

(b) Any person who owns or operates a facility that has a refrigeration or air conditioning system that is subject to the refrigerant management program and who applies for an exemption under WAC 173-443-235.

"Automatic leak detection system" means a calibrated device using continuous monitoring for the purpose of detecting leakage of refrigerants that alerts the operator upon detection of a leak, and may be either:

(a) A direct system that automatically interprets the presence in air of refrigerant leaked from a refrigeration system;

(b) A direct system that automatically interprets measurements (e.g., temperature or pressure) within a refrigeration system that indicates a refrigerant leak in refrigerated cases and other locations in the system.

"Bunstock" or "bun stock" means a large solid box-like structure formed during the production of polyurethane, polyisocyanurate, phenolic, or polystyrene insulation.

"C" means ((Centigrade)) Celsius.

(("Centrifugal chiller" means air conditioning equipment that utilizes a centrifugal compressor in a vapor-compression refrigeration cycle typically used for commercial comfort air conditioning. Under this definition, a centrifugal chiller is a chiller intended for comfort cooling and does not include chillers for industrial process cooling and refrigeration.))

"Capital cost" means an expense incurred in the production of goods or in rendering services including, but not limited to, the cost of engineering, purchase and installation of components or systems and instrumentation, and contractor and construction fees.

"Certified reclaimer" means a person who is a certified reclaimer in accordance with 40 C.F.R. § 82.164.

"Certified refrigerant recovery or recycling equipment" has the same meaning as set forth in 40 C.F.R. § 82.152.

"Certified technician" means a person who holds a current, valid, and applicable certificate in accordance with 40 C.F.R. § 82.40 or 82.161.

"Change in ownership" means the transfer of a legal ownership interest in a facility with a refrigeration or air conditioning system that is subject to this chapter.

"Chiller" means a water or heat transfer fluid chilling equipment package custom built in place or a factory-made and prefabricated assembly of one or more compressors, condensers and evaporators, with

interconnections and accessories including controls, designed for the purpose of cooling or heating water or a heat transfer fluid. A chiller is a machine specifically designed to make use of a vapor compression cycle or absorption refrigeration cycle to transfer heat from a cold water or heat transfer fluid circulating system to the air, a heat transfer fluid, or other heat exchange media. Chillers can be water-cooled, air-cooled, or evaporatively cooled. Chillers include, but are not limited to, rotary chillers, centrifugal chillers, and positive displacement chillers, including reciprocating, scroll, and screw chillers. A chiller used for air conditioning purposes is considered air conditioning equipment except for purposes of applying a GWP threshold under WAC 173-443-040, Table 2. A chiller used for refrigeration in a retail food facility is considered an indirect type of "supermarket system." A chiller used for industrial process refrigeration is considered a type of "other refrigeration" application.

"Code" means a collection of letters, numbers, graphics, or symbols that translates into a form that conveys the information provided by a dedicated or existing product label, or that can convey a user or reader to that information through electronic means (such as a QR code).

"Cold storage warehouse" means a cooled facility designed to store meat, produce, dairy products, and other products that are delivered to other locations for sale to the ultimate consumer.

~~("Commercial refrigeration equipment" means equipment designed to store and display chilled or frozen goods for commercial sale including, but not limited to, stand-alone units, refrigerated food processing and dispensing equipment, remote condensing units, supermarket systems, and vending machines.)~~

"Comfort cooling" means the air conditioning equipment used to provide cooling in order to control heat and/or humidity in occupied facilities including, but not limited to, residential, office, and commercial buildings. Comfort cooling equipment includes, but is not limited to, chillers, commercial split systems, and packaged roof-top units.

"Commercial ice machine" means a nonresidential ice machine or ice maker used in a commercial establishment to produce ice artificially for consumer use including, but not limited to, a hotel, restaurant, or convenience store.

"Component" means a part of a refrigeration or air conditioning system including, but not limited to, condensing units, compressors, evaporators, and receivers; and all of its connections and subassemblies, without which the refrigeration system will not properly function or will be subject to failures.

"Consumer" means the ultimate purchaser, recipient, or end-user of a product.

"Cumulative replacement" means the addition of or change in multiple components over time.

"Date of manufacture" means:

(a) For air conditioning and refrigeration equipment, the date displayed on the manufacturer's equipment label indicating the equipment's date of manufacture;

(b) For refrigeration and air conditioning equipment built up and completed on-site (field erected), the date that the refrigerant circuit was completed and initially filled with refrigerant; or

(c) For foam products imported into the state from outside the United States, the date the foam was originally manufactured, or the date of import if the original manufacture date is not known.

"Dedicated label" means a label adhered or attached to a product, or otherwise included with the product, that is designed to convey required information to the end-user of that product on the ~~((inclusion or))~~ use of ~~((substitutes))~~ substances associated with that product.

"EPA" means the U.S. Environmental Protection Agency.

"Ecology" means the department of ecology.

"End-use" means processes or classes of specific applications within industry sectors including, but not limited to, those listed in WAC 173-443-040.

"Equipment" means a collection of components assembled or manufactured to function together that contains at least one product, or that is in and of itself a product.

~~((("Existing product label" means a label adhered or attached to a product, such as a nameplate or sticker, or to the box or packaging enclosing the product that discloses the substitute contained, used, or to be used in the product.))~~

"F" means Fahrenheit.

"Facility" means any property, plant, building structure, stationary source, stationary equipment or grouping of stationary equipment or stationary sources located on one or more contiguous or adjacent properties in actual physical contact or separated solely by a public roadway or other public right of way, and under common operational control, that includes one or more refrigeration systems subject to this chapter. Operators of military installations may classify such installations as more than a single facility based on distinct and independent functional groupings within contiguous military properties.

"Facility identification number" means a unique identification number provided by ecology for each facility with one or more refrigeration system(s) in operation pursuant to WAC 173-443-115.

"Flexible polyurethane" means a nonrigid polyurethane foam including, but not limited to, that used in furniture, bedding, and chair cushions.

"Foam" means a product with a cellular structure formed via a foaming process in a variety of materials that undergo hardening via a chemical reaction or phase transition.

"Foam blowing agent" means a substance that functions as a source of gas to generate bubbles or cells in the mixture during the formation of foam.

"Foam system" means a multipart liquid product that expands when mixed to form a foam.

~~((("HFC" means hydrofluorocarbon as the term is defined in RCW 70A.45.010.))~~

"Follow-up verification test" means a test conducted after an initial verification test and after the system has returned to normal operating characteristics and conditions in order to confirm that the repair was successful.

"Force majeure" means a sudden and unforeseeable event involving a clear danger, demanding action to prevent or mitigate the loss of, or damage to, life, health, property, or essential public services, arising from causes beyond the control of the applicant, which delays or prevents the performance of any obligation under this chapter, despite the applicant's best efforts to fulfill the obligation. This includes events where the local government, state, or federal government issues a declaration of emergency, which can include war, natural disasters, or pandemics. This does not include financial inability to comply if the financial hardship is caused by an event that is unrela-

ted to the force majeure event or would otherwise exist in the absence of the force majeure event.

"Full charge," "optimal charge," or "critical charge" means the amount of refrigerant required in the refrigerant circuit for normal operating characteristics and conditions of a refrigeration system or refrigeration equipment, as determined by using one or a combination of the following four methods:

(a) Use of the equipment manufacturer's specifications of the full charge;

(b) Use of appropriate calculations based on component sizes, density of refrigerant, volume of piping, seasonal variances, and other relevant considerations;

(c) Use of actual measurements of the amount of refrigerant added to or evacuated from the refrigeration equipment, including for seasonal variances; or

(d) The midpoint of an established range for full charge based on the best available data regarding the normal operating characteristics and conditions for the system.

"Global warming potential," "GWP," "global warming potential value," or "GWP value" means 100-year GWP value as it appears in WAC 173-441-040, and if not contained in WAC 173-441-040, then the GWP value means the 100-year GWP value published by the Intergovernmental Panel on Climate Change (IPCC) in its Fifth Assessment Working Group 1 Report (AR5) (IPCC, 2013).

"Heat transfer fluid" means any gas or liquid used for the purpose of transmitting heat from one place to another.

"HFCs" or "hydrofluorocarbons" means a class of greenhouse gases that are saturated organic compounds containing hydrogen, fluorine, and carbon.

"High-GWP refrigerant" means a compound used as a heat transfer fluid or gas that is:

(a) A chlorofluorocarbon, hydrochlorofluorocarbon, hydrofluorocarbon, perfluorocarbon, or any compound or blend of compounds with a GWP value equal to or greater than 150; or

(b) A regulated refrigerant as defined in this section.

"Household refrigerators and freezers" means refrigerators, refrigerator-freezers, freezers, and miscellaneous household refrigeration ((appliances)) equipment intended for residential use. "Household refrigerators and freezers" does not include "household refrigerators and freezers - Compact," or "household refrigerators and freezers - Built-in."

"Household refrigerators and freezers - Built-in" means any refrigerator, refrigerator-freezer or freezer intended for residential use with 7.75 cubic feet or greater total volume and twenty-four inches or less depth not including doors, handles, and custom front panels; with sides which are not finished and not designed to be visible after installation; and that is designed, intended, and marketed exclusively to be: Installed totally encased by cabinetry or panels that are attached during installation; securely fastened to adjacent cabinetry, walls or floor; and equipped with an integral factory-finished face or accept a custom front panel.

"Household refrigerators and freezers - Compact" means any refrigerator, refrigerator-freezer or freezer intended for residential use with a total refrigerated volume of less than 7.75 cubic feet (220 liters).

"Ice rink" means a frozen body of water, hardened chemicals, or both including, but not limited to, professional ice-skating rinks and

those used by the general public for recreational purposes (RCW 70A.60.010).

"Industrial process refrigeration" means to cool or heat process streams at a specific location in manufacturing and other forms of industrial processes and applications such as chemical production, pharmaceutical, and petrochemical industries. This also includes appliances used in the generation of electricity and for large scale cooling of heat sources such as data centers and data servers. Industrial process refrigeration not using a chiller is considered a type of refrigeration equipment. Industrial process refrigeration using a chiller is considered a type of other refrigeration application. Where one piece of refrigeration equipment is used for both industrial process refrigeration and other applications, it will be considered industrial process refrigeration if 50 percent or more of its operating capacity is used for industrial process refrigeration.

"Integral skin polyurethane" means a self-skinning polyurethane foam including, but not limited to, that used in car steering wheels and dashboards.

"Leak rate calculation" means the rate at which a refrigeration or air conditioning system is losing refrigerant, measured between refrigerant charges or inspections. The leak rate is expressed in terms of the average percentage of the system's full charge lost on a monthly basis over the previous 12 months. The leak rate must be calculated using the 12-month rolling average method as follows:

(a) Step 1. Take the sum of the pounds of refrigerant added to the system over the previous 365-day period;

(b) Step 2. Divide the result of step 1 by the pounds of refrigerant the system normally contains at a full charge; and

(c) Step 3. Multiply the result of step 2 by 100 to obtain a percentage.

"Low temperature refrigeration system" means a commercial or industrial process refrigeration system that maintains food, beverages, or other items at temperatures at or below 32°F (0°C).

"MDI" means metered dose inhaler or medical dose inhaler.

"Manufacturer" means any person, firm, association, partnership, corporation, governmental entity, organization, or joint venture that produces any product that contains or uses HFCs or is an importer or domestic distributor of such a product (RCW ((70A.45.010)) 70A.60.010).

(("New" means:

~~(a) Products or equipment that are manufactured after the effective date of this chapter;~~

~~(b) Products or equipment first installed for an intended purpose with new or used components;~~

~~(c) Products or equipment expanded by the addition of components to increase system capacity after the effective date of this chapter; or~~

~~(d) Products or equipment replaced or cumulatively replaced such that the cumulative capital cost after the effective date of this chapter of replacement exceeds fifty percent of the capital cost of replacing the whole system.))~~

"Mothballing" or "system mothballing" means the intentional shutting down of a refrigeration or air conditioning system for longer than 60 days by the owner or operator of the facility, where the refrigerant has been evacuated from the system or affected component, at least to atmospheric pressure.

"New air conditioning equipment" means any air conditioning equipment or system manufactured for an end-use listed in WAC 173-443-040, Table 3, that is first installed using new components, used components, or a combination of new and used components, and that is one of the following:

- (a) New construction in a new facility;
- (b) A system in an existing facility that undergoes a retrofit;
- (c) A system in an existing facility with a single condenser and single evaporator that has a new exterior condenser, condensing unit, or remote condensing unit; or
- (d) A system in an existing facility with more than one condenser or more than one evaporator that is modified such that the system undergoes cumulative replacement of 75 percent or more of its indoor evaporator units (by number) and 100 percent of its air source or water source condensing units.

"New products or equipment" means products or equipment manufactured for an end-use listed in WAC 173-443-040, Table 1, that is one or more of the following:

- (a) Manufactured after the effective date of the prohibition;
- (b) First installed with new or used components, or expanded by the addition of components to increase capacity, after the effective date of the prohibition; or
- (c) Replaced or underwent cumulative replacement after the effective date of the prohibition such that the capital cost of replacement exceeds 50 percent of the capital cost of replacing the whole system, excluding display cases.

"New refrigeration equipment" means any refrigeration equipment or system manufactured for an end-use listed in WAC 173-443-040, Table 2, that is first installed using new components, used components, or a combination of new and used components, and that is one of the following:

- (a) New construction in a new facility;
- (b) A system in an existing facility that undergoes a retrofit;
- (c) An addition or modification that increases the nominal compressor capacity of a system in an existing facility;
- (d) New construction in an existing facility not previously used for cold storage, retail food refrigeration, commercial refrigeration, industrial process refrigeration, or ice rinks; or
- (e) A system in an existing facility used for commercial refrigeration or industrial process refrigeration that is modified such that the system undergoes cumulative replacement of 75 percent or more of its evaporators (by number) and 100 percent of its compressor racks, condensers, and connected evaporator loads.

"Nonessential consumer products" means the following products if they are propelled by, contain, or manufactured with a chlorofluorocarbon, hydrochlorofluorocarbon, or hydrofluorocarbon:

- (a) Any plastic party streamer or noise horn including, but not limited to:
    - (i) String confetti;
    - (ii) Marine safety horns;
    - (iii) Sporting event horns;
    - (iv) Personal safety horns;
    - (v) Wall-mounted alarms used in factories or other work areas;
- and
- (vi) Intruder alarms used in homes or cars.



(b) Any cleaning fluid for electronic and photographic equipment for which there is not a low-GWP propellant approved by EPA for its use. This includes, but is not limited to:

- (i) Liquid packaging;
- (ii) Solvent wipes;
- (iii) Solvent sprays; and
- (iv) Gas sprays.

(c) Any plastic foam product, except any plastic foam product blown with CFC-11, but which contains no other Class I substances and where this product is used to provide thermal protection to external tanks for space vehicles.

"Nonretail foam products" means products consisting entirely of foam created solely to be an input for another product or manufacturing purpose resulting in another type of product.

"Normal operating characteristics and conditions" mean a refrigeration or air conditioning system's operating temperatures, pressures, fluid flows, speeds, and other characteristics, including full charge of the refrigeration or air conditioning system that would be expected for a given process load and ambient condition during operation.

"Offer for sale" means to make a transaction available regardless of any potential outcome. "Offer for sale" includes advertising for sale in any media such as a publication or broadcast that carries advertising including visual displays and any print/electronic forms.

"Online disclosure" means disclosing the (~~substitute~~) substance(s) contained (~~, used, or to be used in products or equipment~~) or used or the compliance status of the product or equipment by ensuring that the information is available on an internet website that is accessible to the public free of charge.

~~("Owner's manual" means a paper or online instructional book that is available for an end-use product, which provides basic information about the product.)~~

"Operate" means to have operational control of the facility.

"Operator" means the person or entity having operational control of the facility.

"Other air conditioning" or "other air conditioning equipment" means any residential or nonresidential air conditioning equipment or air conditioning system not otherwise defined as a room air conditioner, residential dehumidifier, or variable refrigerant flow (VRF) system.

"Other refrigeration" or "other refrigeration equipment" means any stationary, nonresidential refrigeration equipment that is used for an application other than retail food, cold storage, ice rinks, industrial process refrigeration that does not use a chiller, or air conditioning; or is used for two or more applications including retail food, cold storage, ice rinks, industrial process refrigeration, commercial refrigeration, or air conditioning.

"PSI" means pounds per square inch.

"Packaged terminal air conditioner" or "PTAC" means a wall sleeve and a separate unencased combination of heating and cooling assemblies specified by the builder and intended for mounting through a wall.

"Packaged terminal air conditioner" includes a prime source of refrigeration, separable outdoor louvers, forced ventilation, and heating availability by builder's choice of energy.

"Packaged terminal heat pump" or "PTHP" means a packaged terminal air conditioner that utilizes reverse cycle refrigeration as its prime

heat source and can have supplementary heating availability by builder's choice of energy.

"Person" means an individual, partnership, franchise holder, association, corporation, a state, a city, a county, or any subdivision or instrumentality of the state (RCW ((70A.45.010) 70A.60.010)).

"Phenolic insulation board and bunstock" means phenolic insulation including, but not limited to, that used for roofing and wall insulation.

"Polyolefin" means foam sheets and tubes made of polyolefin, a macromolecule formed by the polymerization of olefin monomer units.

"Polystyrene extruded boardstock and billet (XPS)" means a foam formed from polymers of styrene and produced on extruding machines in the form of continuous foam slabs which can be cut and shaped into panels used for roofing, walls, flooring, and pipes.

"Polystyrene extruded sheet" means polystyrene foam including that used for packaging and buoyancy or floatation. It is also made into food-service items, including hinged polystyrene containers (for "take-out" from restaurants); food trays (meat and poultry) plates, bowls, and retail egg containers.

"Polyurethane" means a polymer formed principally by the reaction of an isocyanate and a polyol.

~~(("Positive displacement chiller" means vapor compression cycle chillers that use positive displacement compressors, typically used for commercial comfort air conditioning. Positive displacement chiller in this definition is a chiller intended for comfort cooling and does not include cooling for industrial process cooling and refrigeration.))~~

"Portable air conditioner" means a portable encased assembly, other than a "packaged terminal air conditioner," "packaged terminal heat pump," or "residential dehumidifier," that delivers cooled, conditioned air to an enclosed space, and is powered by a single-phase electric current. It includes a source of refrigeration and may include additional means for air circulation and heating.

"Product" means an article manufactured or refined for sale that contains or uses a substitute.

"Prohibited substance" means a regulated refrigerant or a substitute that is prohibited from being used by or contained in products or equipment manufactured for end-uses described in WAC 173-443-040, Table 1 through Table 4.

"Refrigerant" or "refrigerant gas" means any substance, including blends and mixtures, which is used for heat transfer purposes and provides a warming or cooling effect.

"Refrigerant blend" means a mixture or combination of two or more single-component refrigerants.

"Refrigerated food processing and dispensing equipment" means retail food refrigeration equipment that is designed to process food and beverages dispensed via a nozzle that are intended for immediate or near-immediate consumption including, but not limited to, chilled and frozen beverages, ice cream, and whipped cream. This end-use excludes water coolers, or units designed solely to cool and dispense water.

"Refrigeration equipment" or "refrigeration system" means any stationary device that is designed to contain and use a refrigerant ((gas including, but not limited to, retail or commercial refrigeration equipment, household refrigeration equipment, and cold storage warehouses)). "Refrigeration equipment" or "refrigeration system" includes refrigeration equipment used in retail food, cold storage, in-

dustrial process refrigeration and cooling that does not use a chiller, ice rinks, and other refrigeration applications.

"Remote condensing unit(~~(s)~~)" means (~~(retail)~~) refrigeration equipment or units that have a central condensing portion and may consist of one or more compressors, condensers, and receivers assembled into a single unit, which may be located external to the sales area. The condensing portion (and often other parts of the system) is located outside the space or area cooled by the evaporator. Remote condensing units are commonly installed in convenience stores, specialty shops (e.g., bakeries, butcher shops), supermarkets, restaurants, and other locations where food is stored, served, or sold.

"Residential dehumidifier" means a residential air conditioning system, other than a room air conditioner, that is a self-contained, electrically operated, portable, and mechanically encased assembly consisting of:

(a) A refrigerated surface (evaporator) that condenses moisture from the atmosphere;

(b) A refrigeration system, including an electric motor;

(c) An air circulating fan; and

(d) A means of collecting and disposing of the condensate.

"Retail foam products" means products consisting entirely of foam that are created for the purpose of selling or otherwise providing that product in a finished state that does not involve any additional manufacturing or refinement.

"Retail food refrigeration" means refrigeration that uses equipment designed to store and display chilled or frozen goods for commercial sale or use including, but not limited to, stand-alone units, refrigerated food processing and dispensing equipment, remote condensing units, and supermarket systems.

"Retrofit" means to convert an appliance from one refrigerant to another refrigerant. Retrofitting includes the conversion of the appliance to achieve system compatibility with the new refrigerant and may include, but is not limited to, changes in lubricants, gaskets, filters, driers, valves, o-rings, or appliance components (RCW (~~(70A.45.010)~~) 70A.60.010).

"Rigid polyurethane and polyisocyanurate laminated boardstock" means laminated board insulation made with polyurethane or polyisocyanurate foam, including that used for roofing and walls.

"Rigid polyurethane appliance foam" means polyurethane foam in domestic appliances used for insulation.

"Rigid polyurethane commercial refrigeration and sandwich panels" means polyurethane foam used to provide insulation in walls and doors, including that used for commercial refrigeration equipment, and used in doors, including garage doors.

"Rigid polyurethane high-pressure two-component spray foam" means a liquid polyurethane foam system sold as two parts (i.e., A-side and B-side) in nonpressurized containers; and is field or factory applied in situ using high-pressure proportioning pumps at 800 - 1600 psi and an application gun to mix and dispense the chemical components.

"Rigid polyurethane low-pressure two-component spray foam" means a liquid polyurethane foam system sold as two parts (i.e., A-side and B-side) in containers that are pressurized to less than 250 psi during manufacture of the system for application without pumps; and are typically applied in situ relying upon a liquid blowing agent and/or gaseous foam blowing agent that also serves as a propellant.

"Rigid polyurethane marine flotation foam" means buoyancy or flotation polyurethane foam used in boat and ship manufacturing for both structural and flotation purposes.

"Rigid polyurethane one-component foam sealants" means a polyurethane foam generally packaged in aerosol cans that is applied in situ using a gaseous foam blowing agent that is also the propellant for the aerosol formulation.

"Rigid polyurethane slabstock and other" means a rigid closed-cell polyurethane foam formed into slabstock insulation for panels and fabricated shapes for pipes and vessels.

"Room air conditioner" includes window units, wall units, packaged terminal air conditioners (PTACs), packaged terminal heat pumps (PTHPs), and portable air conditioners.

"Small business" means any business entity, including a sole proprietorship, corporation, partnership, or other legal entity, that is owned or operated independently from all other businesses, and that has 50 or fewer employees (RCW 19.85.020).

"Small container of refrigerant" means a container having more than two ounces and less than two pounds of a refrigerant that is designed or intended for consumer recharge of a motor vehicle air conditioning (MVAC) system or consumer appliance.

"Stand-alone low-temperature unit" means a stand-alone unit that maintains food or beverages at temperatures at or below 32°F (0°C).

"Stand-alone medium-temperature unit" means a stand-alone unit that maintains food or beverages at temperatures above 32°F (0°C).

"Stand-alone unit" means retail refrigerators, freezers, and reach-in coolers (either open or with doors) where all refrigeration components are integrated and, for the smallest types, the refrigeration circuit is entirely brazed or welded. These systems are fully charged with refrigerant at the factory and typically require only an electricity supply to begin operation.

"Stationary" means the system is:

- (a) Installed in a building, structure, or facility;
- (b) Attached to a foundation, or if not attached, will reside at the same location for more than twelve consecutive months; or
- (c) Located intermittently at the same facility for at least two consecutive years and operates at that facility a total of at least ninety days each year.

"Substitute" means a chemical, product substitute, or alternative manufacturing process, whether existing or new, that is used to perform a function previously performed by a class I substance or class II substance and any substitute subsequently adopted to perform that function including, but not limited to, hydrofluorocarbons. "Substitute" does not include 2-BTP or any compound as applied to its use in aerospace fire extinguishing systems (RCW ((70A.45.010)) 70A.60.010).

"Sufficient disclosure" means providing the name of the (~~substitute~~) substance.

"Supermarket systems" means multiplex or centralized retail food refrigeration equipment systems designed to cool or refrigerate, which operate with racks of compressors installed in a machinery room and which includes both direct and indirect systems.

"Symbol" means a graphical or hybrid word-graphical symbol for the purposes of conveying the types of substitutes used in the product or equipment and signaling that further information on the use of substitutes is available through online disclosure.

"System identification number" means a unique identification number for each refrigeration or air conditioning system at a facility.

The system identification number is comprised of the facility identification number followed by a three-digit number starting at 001 and sequentially assigned to each unique refrigeration or air conditioning system.

"Unit" means a collection of like products bundled together for purposes of commerce.

"Unit label" means a label adhered or attached, or capable of being adhered or attached, to a collection of like products bundled together for purposes of commerce.

"Use" means any utilization of a compound or substance including, but not limited to, utilization in a product in Washington, consumption by the end-user in the state of Washington, or in intermediate applications in the state of Washington, such as formulation or packaging for other subsequent applications.

"Variable refrigerant flow (VRF) system" means an engineered direct expansion (DX) multisplit system incorporating the following: A split system air conditioner or heat pump incorporating a single refrigerant circuit that is a common piping network to two or more indoor evaporators each capable of independent control, or compressor units. "VRF systems" contain a single module outdoor unit or combined module outdoor units with at least one variable capacity compressor that has three or more stages, with air or water as the heat source. This includes "variable refrigerant volume (VRV) systems."

"Vending machine" means a self-contained unit that dispenses goods that must be kept cold or frozen.

"Verification test" means a leak test conducted after a repair is finished to verify that a leak has been repaired.

"Very low temperature refrigeration or cooling" means a refrigeration or cooling system that maintains temperatures below -58°F (-50°C) including, but not limited to, medical and laboratory freezers, specialized industrial process cooling applications, and extreme temperature environmental testing.

[Statutory Authority: Chapters 70A.45 and 70A.15 RCW. WSR 21-01-085 (Order 19-04), § 173-443-030, filed 12/10/20, effective 1/10/21.]

## PART I - PROHIBITIONS ON THE USE OF CERTAIN HYDROFLUOROCARBONS

AMENDATORY SECTION (Amending WSR 21-01-085, filed 12/10/20, effective 1/10/21)

### **WAC 173-443-040 List of prohibited ((substitutes)) substances.**

(1) ~~((The tables))~~ Table 1 in this section lists ~~((substitutes))~~ prohibited ~~((in specific end-uses and the effective date of prohibition, unless an exemption is provided for in WAC 173-443-050.~~

~~(2) Prohibitions for the aerosol propellants end-use category))~~ substances in new products and equipment, as defined in WAC 173-443-030, and the effective date of the prohibition, unless an exemption is provided for in WAC 173-443-050.

<b>(End-Use Category: Aerosol Propellants)</b>		
<b>End-Use</b>	<b>Prohibited Substitutes</b>	<b>Effective Date</b>
Aerosol propellants	HFC-125, HFC-134a, HFC-227ea and blends of HFC-227ea and HFC-134a	January 1, 2020

~~(3) Prohibitions for the air conditioning end-use category.~~

<b>End-Use Category: Air Conditioning</b>		
<b>End-Use</b>	<b>Prohibited Substitutes</b>	<b>Effective Date</b>
Centrifugal chillers (new)	FOR12A, FOR12B, HFC-134a, HFC-227ea, HFC-236fa, HFC-245fa, R-125/134a/600a (28.1/70/1.9), R-125/290/134a/600a (55.0/1.0/42.5/1.5), R-404A, R-407C, R-410A, R-410B, R-417A, R-421A, R-422B, R-422C, R-422D, R-423A, R-424A, R-434A, R-438A, R-507A, RS-44 (2003 composition), THR-03	January 1, 2024
Positive displacement chillers (new)	FOR12A, FOR12B, HFC-134a, HFC-227ea, KDD6, R-125/134a/600a (28.1/70/1.9), R-125/290/134a/600a (55.0/1.0/42.5/1.5), R-404A, R-407C, R-410A, R-410B, R-417A, R-421A, R-422B, R-422C, R-422D, R-424A, R-434A, R-437A, R-438A, R-507A, RS-44 (2003 composition), SP34E, THR-03	January 1, 2024

~~(4) Prohibitions for the refrigeration end-use category.~~

<b>End-Use Category: Refrigeration</b>		
<b>End-Use</b>	<b>Prohibited Substitutes</b>	<b>Effective Date</b>
Cold storage warehouses (new)	HFC-227ea, R-125/290/134a/600a (55.0/1.0/42.5/1.5), R-404A, R-407A, R-407B, R-410A, R-410B, R-417A, R-421A, R-421B, R-422A, R-422B, R-422C, R-422D, R-423A, R-424A, R-428A, R-434A, R-438A, R-507A, RS-44 (2003 composition)	January 1, 2023
Household refrigerators and freezers (new)	FOR12A, FOR12B, HFC-134a, KDD6, R-125/290/134a/600a (55.0/1.0/42.5/1.5), R-404A, R-407C, R-407F, R-410A, R-410B, R-417A, R-421A, R-421B, R-422A, R-422B, R-422C, R-422D, R-424A, R-426A, R-428A, R-434A, R-437A, R-438A, R-507A, RS-24 (2002 formulation), RS-44 (2003 formulation), SP34E, THR-03	January 1, 2022
Household refrigerators and freezers - Compact (new)	FOR12A, FOR12B, HFC-134a, KDD6, R-125/290/134a/600a (55.0/1.0/42.5/1.5), R-404A, R-407C, R-407F, R-410A, R-410B, R-417A, R-421A, R-421B, R-422A, R-422B, R-422C, R-422D, R-424A, R-426A, R-428A, R-434A, R-437A, R-438A, R-507A, RS-24 (2002 formulation), RS-44 (2003 formulation), SP34E, THR-03	January 1, 2021
Household refrigerators and freezers - Built-in appliances (new)	FOR12A, FOR12B, HFC-134a, KDD6, R-125/290/134a/600a (55.0/1.0/42.5/1.5), R-404A, R-407C, R-407F, R-410A, R-410B, R-417A, R-421A, R-421B, R-422A, R-422B, R-422C, R-422D, R-424A, R-426A, R-428A, R-434A, R-437A, R-438A, R-507A, RS-24 (2002 formulation), RS-44 (2003 formulation), SP34E, THR-03	January 1, 2023
Supermarket systems (retrofit)	R-404A, R-407B, R-421B, R-422A, R-422C, R-422D, R-428A, R-434A, R-507A	January 1, 2020
Supermarket systems (new)	HFC-227ea, R-404A, R-407B, R-421B, R-422A, R-422C, R-422D, R-428A, R-434A, R-507A	January 1, 2020
Remote condensing units (retrofit)	R-404A, R-407B, R-421B, R-422A, R-422C, R-422D, R-428A, R-434A, R-507A	January 1, 2020
Remote condensing units (new)	HFC-227ea, R-404A, R-407B, R-421B, R-422A, R-422C, R-422D, R-428A, R-434A, R-507A	January 1, 2020
Stand-alone units (retrofit)	R-404A, R-507A	January 1, 2020

<b>End-Use Category: Refrigeration</b>		
<b>End-Use</b>	<b>Prohibited Substitutes</b>	<b>Effective Date</b>
Stand-alone medium-temperature units (new)	FOR12A, FOR12B, HFC-134a, HFC-227ea, KDD6, R-125/290/134a/600a (55.0/1.0/42.5/1.5), R-404A, R-407A, R-407B, R-407C, R-407F, R-410A, R-410B, R-417A, R-421A, R-421B, R-422A, R-422B, R-422C, R-422D, R-424A, R-426A, R-428A, R-434A, R-437A, R-438A, R-507A, RS-24 (2002 formulation), RS-44 (2003 formulation), SP34E, THR-03	January 1, 2020
Stand-alone low-temperature units (new)	HFC-227ea, KDD6, R-125/290/134a/600a (55.0/1.0/42.5/1.5), R-404A, R-407A, R-407B, R-407C, R-407F, R-410A, R-410B, R-417A, R-421A, R-421B, R-422A, R-422B, R-422C, R-422D, R-424A, R-428A, R-434A, R-437A, R-438A, R-507A, RS-44 (2003 formulation)	January 1, 2020
Refrigerated food processing and dispensing equipment (new)	HFC-227ea, KDD6, R-125/290/134a/600a (55.0/1.0/42.5/1.5), R-404A, R-407A, R-407B, R-407C, R-407F, R-410A, R-410B, R-417A, R-421A, R-421B, R-422A, R-422B, R-422C, R-422D, R-424A, R-428A, R-434A, R-437A, R-438A, R-507A, RS-44 (2003 formulation)	January 1, 2021
Vending machines (retrofit)	R-404A, R-507A	January 1, 2022
Vending machines (new)	FOR12A, FOR12B, HFC-134a, KDD6, R-125/290/134a/600a (55.0/1.0/42.5/1.5), R-404A, R-407C, R-410A, R-410B, R-417A, R-421A, R-422B, R-422C, R-422D, R-426A, R-437A, R-438A, R-507A, RS-24 (2002 formulation), SP34E	January 1, 2022

~~(5) Prohibitions for the foams end-use category.~~

<b>End-Use Category: Foams</b>		
<b>End-Use</b>	<b>Prohibited Substitutes</b>	<b>Effective Date</b>
Rigid polyurethane and polyisocyanurate laminated boardstock	HFC-134a, HFC-245fa, HFC-365mfe, and blends thereof	January 1, 2020
Flexible polyurethane	HFC-134a, HFC-245fa, HFC-365mfe, and blends thereof	January 1, 2020
Integral-skin polyurethane	HFC-134a, HFC-245fa, HFC-365mfe, and blends thereof; Formacel TI, Formacel Z-6	January 1, 2020
Polystyrene extruded sheet	HFC-134a, HFC-245fa, HFC-365mfe, and blends thereof; Formacel TI, Formacel Z-6	January 1, 2020
Phenolic insulation board and bunstock	HFC-143a, HFC-134a, HFC-245fa, HFC-365mfe, and blends thereof	January 1, 2020
Rigid polyurethane slabstock and other	HFC-134a, HFC-245fa, HFC-365mfe, and blends thereof; Formacel TI, Formacel Z-6	January 1, 2020
Rigid polyurethane appliance foam	HFC-134a, HFC-245fa, HFC-365mfe, and blends thereof; Formacel TI, Formacel Z-6	January 1, 2020
Rigid polyurethane commercial refrigeration and sandwich panels	HFC-134a, HFC-245fa, HFC-365mfe, and blends thereof; Formacel TI, Formacel Z-6	January 1, 2020
Polyolefin	HFC-134a, HFC-245fa, HFC-365mfe, and blends thereof; Formacel TI, Formacel Z-6	January 1, 2020
Rigid polyurethane marine flotation foam	HFC-134a, HFC-245fa, HFC-365mfe, and blends thereof; Formacel TI, Formacel Z-6	January 1, 2020
Polystyrene extruded boardstock and billet (XPS)	HFC-134a, HFC-245fa, HFC-365mfe, and blends thereof; Formacel TI, Formacel B, Formacel Z-6	January 1, 2021
Rigid polyurethane high-pressure two-component spray foam	HFC-134a, HFC-245fa, and blends thereof; blends of HFC-365mfe with at least 4 percent HFC-245fa, and commercial blends of HFC-365mfe with 7 to 13 percent HFC-227ea and the remainder HFC-365mfe; Formacel TI	January 1, 2020

<b>End-Use Category: Foams</b>		
<b>End-Use</b>	<b>Prohibited Substitutes</b>	<b>Effective Date</b>
Rigid polyurethane low-pressure two-component spray foam	HFC-134a, HFC-245fa, and blends thereof; blends of HFC-365mfe with at least 4 percent HFC-245fa, and commercial blends of HFC-365mfe with 7 to 13 percent HFC-227ea and the remainder HFC-365mfe; Formacel TI	January 1, 2021
Rigid polyurethane one-component foam sealants	HFC-134a, HFC-245fa, and blends thereof; blends of HFC-365mfe with at least 4 percent HFC-245fa, and commercial blends of HFC-365mfe with 7 to 13 percent HFC-227ea and the remainder HFC-365mfe; Formacel TI	January 1, 2020))

**TABLE 1. Prohibited Substances for New Products and Equipment**

<b>End-Use Category: Aerosol Propellants</b>		
<b>End-Use</b>	<b>Prohibited Substances</b>	<b>Effective Date</b>
Aerosol propellants	HFC-125, HFC-134a, HFC-227ea and blends of HFC-227ea and HFC-134a	January 1, 2020

<b>End-Use Category: Air Conditioning</b>		
<b>End-Use</b>	<b>Prohibited Substances</b>	<b>Effective Date</b>
Centrifugal chillers - Cooling only (New)	FOR12A, FOR12B, HFC-134a, HFC-227ea, HFC-236fa, HFC-245fa, R-125/134a/600a (28.1/70/1.9), R-125/290/134a/600a (55.0/1.0/42.5/1.5), R-404A, R-407C, R-410A, R-410B, R-417A, R-421A, R-422B, R-422C, R-422D, R-423A, R-424A, R-434A, R-438A, R-507A, RS-44 (2003 composition), THR-03	January 1, 2024
Positive displacement chillers - Cooling only (New)	FOR12A, FOR12B, HFC-134a, HFC-227ea, KDD6, R-125/134a/600a (28.1/70/1.9), R-125/290/134a/600a (55.0/1.0/42.5/1.5), R-404A, R-407C, R-410A, R-410B, R-417A, R-421A, R-422B, R-422C, R-422D, R-424A, R-434A, R-437A, R-438A, R-507A, RS-44 (2003 composition), SP34E, THR-03	January 1, 2024
Centrifugal chillers - Heating and heating and cooling (New)	FOR12A, FOR12B, HFC-134a, HFC-227ea, HFC-236fa, HFC-245fa, R-125/134a/600a (28.1/70/1.9), R-125/290/134a/600a (55.0/1.0/42.5/1.5), R-404A, R-407C, R-410A, R-410B, R-417A, R-421A, R-422B, R-422C, R-422D, R-423A, R-424A, R-434A, R-438A, R-507A, RS-44 (2003 composition), THR-03	January 1, 2025
Positive displacement chillers - Heating and heating and cooling (New)	FOR12A, FOR12B, HFC-134a, HFC-227ea, KDD6, R-125/134a/600a (28.1/70/1.9), R-125/290/134a/600a (55.0/1.0/42.5/1.5), R-404A, R-407C, R-410A, R-410B, R-417A, R-421A, R-422B, R-422C, R-422D, R-424A, R-434A, R-437A, R-438A, R-507A, RS-44 (2003 composition), SP34E, THR-03	January 1, 2025

<b>End-Use Category: Refrigeration</b>		
<b>End-Use</b>	<b>Prohibited Substances</b>	<b>Effective Date</b>
Cold storage warehouses (New)	HFC-227ea, R-125/290/134a/600a (55.0/1.0/42.5/1.5), R-404A, R-407A, R-407B, R-410A, R-410B, R-417A, R-421A, R-421B, R-422A, R-422B, R-422C, R-422D, R-423A, R-424A, R-428A, R-434A, R-438A, R-507A, RS-44 (2003 composition)	January 1, 2023
Household refrigerators and freezers (New)	FOR12A, FOR12B, HFC-134a, KDD6, R-125/290/134a/600a (55.0/1.0/42.5/1.5), R-404A, R-407C, R-407F, R-410A, R-410B, R-417A, R-421A, R-421B, R-422A, R-422B, R-422C, R-422D, R-424A, R-426A, R-428A, R-434A, R-437A, R-438A, R-507A, RS-24 (2002 formulation), RS-44 (2003 formulation), SP34E, THR-03	January 1, 2022



<b>End-Use Category: Refrigeration</b>		
<b>End-Use</b>	<b>Prohibited Substances</b>	<b>Effective Date</b>
<u>Household refrigerators and freezers - Compact (New)</u>	FOR12A, FOR12B, HFC-134a, KDD6, R-125/290/134a/600a (55.0/1.0/42.5/1.5), R-404A, R-407C, R-407F, R-410A, R-410B, R-417A, R-421A, R-421B, R-422A, R-422B, R-422C, R-422D, R-424A, R-426A, R-428A, R-434A, R-437A, R-438A, R-507A, RS-24 (2002 formulation), RS-44 (2003 formulation), SP34E, THR-03	<u>January 1, 2021</u>
<u>Household refrigerators and freezers - Built-in appliances (New)</u>	FOR12A, FOR12B, HFC-134a, KDD6, R-125/290/134a/600a (55.0/1.0/42.5/1.5), R-404A, R-407C, R-407F, R-410A, R-410B, R-417A, R-421A, R-421B, R-422A, R-422B, R-422C, R-422D, R-424A, R-426A, R-428A, R-434A, R-437A, R-438A, R-507A, RS-24 (2002 formulation), RS-44 (2003 formulation), SP34E, THR-03	<u>January 1, 2023</u>
<u>Supermarket systems (Retrofit)</u>	R-404A, R-407B, R-421B, R-422A, R-422C, R-422D, R-428A, R-434A, R-507A	<u>January 1, 2020</u>
<u>Supermarket systems (New)</u>	HFC-227ea, R-404A, R-407B, R-421B, R-422A, R-422C, R-422D, R-428A, R-434A, R-507A	<u>January 1, 2020</u>
<u>Remote condensing units, except for automatic commercial ice machines (Retrofit)</u>	R-404A, R-407B, R-421B, R-422A, R-422C, R-422D, R-428A, R-434A, R-507A	<u>January 1, 2020</u>
<u>Remote condensing units, except for automatic commercial ice machines (New)</u>	HFC-227ea, R-404A, R-407B, R-421B, R-422A, R-422C, R-422D, R-428A, R-434A, R-507A	<u>January 1, 2020</u>
<u>Automatic commercial ice machines - Remote condensing units (New and retrofit)</u>	R-404A, R-507, R-507A, R-428A, R-422C, R-434A, R-421B, R-408A, R-422A, R-407B, R-402A, R-422D, R-421A, R-125/R-290/R-134a/R-600a (55.0/1.0/42.5/1.5), R-422B, R-424A, R-402B, GHG-X5, R-417A, R-438A, and R-410B	<u>January 1, 2025</u>
<u>Stand-alone units, except for automatic commercial ice machines (Retrofit)</u>	R-404A, R-507A	<u>January 1, 2020</u>
<u>Stand-alone medium-temperature units (New)</u>	FOR12A, FOR12B, HFC-134a, HFC-227ea, KDD6, R-125/290/134a/600a (55.0/1.0/42.5/1.5), R-404A, R-407A, R-407B, R-407C, R-407F, R-410A, R-410B, R-417A, R-421A, R-421B, R-422A, R-422B, R-422C, R-422D, R-424A, R-426A, R-428A, R-434A, R-437A, R-438A, R-507A, RS-24 (2002 formulation), RS-44 (2003 formulation), SP34E, THR-03	<u>January 1, 2020</u>
<u>Stand-alone low-temperature units (New)</u>	HFC-227ea, KDD6, R-125/290/134a/600a (55.0/1.0/42.5/1.5), R-404A, R-407A, R-407B, R-407C, R-407F, R-410A, R-410B, R-417A, R-421A, R-421B, R-422A, R-422B, R-422C, R-422D, R-424A, R-428A, R-434A, R-437A, R-438A, R-507A, RS-44 (2003 formulation)	<u>January 1, 2020</u>
<u>Automatic commercial ice machines - Stand-alone units (New and retrofit)</u>	R-404A, R-507, R-507A, R-428A, R-422C, R-434A, R-421B, R-408A, R-422A, R-407B, R-402A, R-422D, R-421A, R-125/R-290/R-134a/R-600a (55.0/1.0/42.5/1.5), R-422B, R-424A, R-402B, GHG-X5, R-417A, R-438A, R-410B, R-407A, R-410A, R-442A, R-417C, R-407E, R-437A, R-407C, RS-24 (2004 formulation), and HFC-134a	<u>January 1, 2025</u>
<u>Refrigerated food processing and dispensing equipment (New)</u>	HFC-227ea, KDD6, R-125/290/134a/600a (55.0/1.0/42.5/1.5), R-404A, R-407A, R-407B, R-407C, R-407F, R-410A, R-410B, R-417A, R-421A, R-421B, R-422A, R-422B, R-422C, R-422D, R-424A, R-428A, R-434A, R-437A, R-438A, R-507A, RS-44 (2003 formulation)	<u>January 1, 2021</u>
<u>Vending machines (Retrofit)</u>	R-404A, R-507A	<u>January 1, 2022</u>

<b>End-Use Category: Refrigeration</b>		
<b>End-Use</b>	<b>Prohibited Substances</b>	<b>Effective Date</b>
<u>Vending machines (New)</u>	<u>FOR12A, FOR12B, HFC-134a, KDD6, R-125/290/134a/600a (55.0/1.0/42.5/1.5), R-404A, R-407C, R-410A, R-410B, R-417A, R-421A, R-422B, R-422C, R-422D, R-426A, R-437A, R-438A, R-507A, RS-24 (2002 formulation), SP34E</u>	<u>January 1, 2022</u>

<b>End-Use Category: Foams</b>		
<b>End-Use</b>	<b>Prohibited Substances</b>	<b>Effective Date</b>
<u>Rigid polyurethane and polyisocyanurate laminated boardstock</u>	<u>HFC-134a, HFC-245fa, HFC-365mfc, and blends thereof</u>	<u>January 1, 2020</u>
<u>Flexible polyurethane</u>	<u>HFC-134a, HFC-245fa, HFC-365mfc, and blends thereof</u>	<u>January 1, 2020</u>
<u>Integral skin polyurethane</u>	<u>HFC-134a, HFC-245fa, HFC-365mfc, and blends thereof; Formacel TI, Formacel Z-6</u>	<u>January 1, 2020</u>
<u>Polystyrene extruded sheet</u>	<u>HFC-134a, HFC-245fa, HFC-365mfc, and blends thereof; Formacel TI, Formacel Z-6</u>	<u>January 1, 2020</u>
<u>Phenolic insulation board and bunstock</u>	<u>HFC-143a, HFC-134a, HFC-245fa, HFC-365mfc, and blends thereof</u>	<u>January 1, 2020</u>
<u>Rigid polyurethane slabstock and other</u>	<u>HFC-134a, HFC-245fa, HFC-365mfc, and blends thereof; Formacel TI, Formacel Z-6</u>	<u>January 1, 2020</u>
<u>Rigid polyurethane appliance foam</u>	<u>HFC-134a, HFC-245fa, HFC-365mfc, and blends thereof; Formacel TI, Formacel Z-6</u>	<u>January 1, 2020</u>
<u>Rigid polyurethane commercial refrigeration and sandwich panels</u>	<u>HFC-134a, HFC-245fa, HFC-365mfc, and blends thereof; Formacel TI, Formacel Z-6</u>	<u>January 1, 2020</u>
<u>Polyolefin</u>	<u>HFC-134a, HFC-245fa, HFC-365mfc, and blends thereof; Formacel TI, Formacel Z-6</u>	<u>January 1, 2020</u>
<u>Rigid polyurethane marine flotation foam</u>	<u>HFC-134a, HFC-245fa, HFC-365mfc, and blends thereof; Formacel TI, Formacel Z-6</u>	<u>January 1, 2020</u>
<u>Polystyrene extruded boardstock and billet (XPS)</u>	<u>HFC-134a, HFC-245fa, HFC-365mfc, and blends thereof; Formacel TI, Formacel B, Formacel Z-6</u>	<u>January 1, 2021</u>
<u>Rigid polyurethane high-pressure two-component spray foam</u>	<u>HFC-134a, HFC-245fa, and blends thereof; blends of HFC-365mfc with at least 4 percent HFC-245fa, and commercial blends of HFC-365mfc with 7 to 13 percent HFC-227ea and the remainder HFC-365mfc; Formacel TI</u>	<u>January 1, 2020</u>
<u>Rigid polyurethane low-pressure two-component spray foam</u>	<u>HFC-134a, HFC-245fa, and blends thereof; blends of HFC-365mfc with at least 4 percent HFC-245fa, and commercial blends of HFC-365mfc with 7 to 13 percent HFC-227ea and the remainder HFC-365mfc; Formacel TI</u>	<u>January 1, 2021</u>
<u>Rigid polyurethane one-component foam sealants</u>	<u>HFC-134a, HFC-245fa, and blends thereof; blends of HFC-365mfc with at least 4 percent HFC-245fa, and commercial blends of HFC-365mfc with 7 to 13 percent HFC-227ea and the remainder HFC-365mfc; Formacel TI</u>	<u>January 1, 2020</u>

(2) Table 2 in this section lists prohibited substances in new refrigeration equipment, as defined in WAC 173-443-030, with a refrigerant charge capacity of more than 50 pounds and the effective date of the prohibition, unless an exemption is provided for in WAC 173-443-050.

**TABLE 2. Prohibited Substances for New Refrigeration Equipment**

<b>End-Use</b>	<b>Criteria</b>	<b>Prohibited Substances</b>	<b>Effective Date</b>
<u>Retail food refrigeration including chillers</u>	<u>New refrigeration equipment with a charge capacity of more than 50 pounds</u>	<u>Refrigerants with a GWP of 150 or more</u>	<u>January 1, 2025</u>

<u>End-Use</u>	<u>Criteria</u>	<u>Prohibited Substances</u>	<u>Effective Date</u>
<u>Cold storage warehouses</u>	<u>New refrigeration equipment with a charge capacity of more than 50 pounds</u>	<u>Refrigerants with a GWP of 150 or more</u>	<u>January 1, 2025</u>
<u>Industrial process refrigeration excluding chillers</u>	<u>New refrigeration equipment with a charge capacity of more than 50 pounds</u>	<u>Refrigerants with a GWP of 150 or more</u>	<u>January 1, 2025</u>
<u>Chillers used for industrial process refrigeration</u>	<u>New refrigeration equipment with a charge capacity of more than 50 pounds</u>	<u>Refrigerants with a GWP of 750 or more</u>	<u>January 1, 2025</u>
<u>Ice rinks (New facilities)</u>	<u>New refrigeration equipment with a charge capacity of more than 50 pounds</u>	<u>Refrigerants with a GWP of 150 or more</u>	<u>January 1, 2024</u>
<u>Ice rinks (Existing facilities)</u>	<u>New refrigeration equipment with a charge capacity of more than 50 pounds</u>	<u>Refrigerants with a GWP of 750 or more</u>	<u>January 1, 2024</u>

(3) Table 3 in this section lists prohibited substances in new air conditioning equipment, as defined in WAC 173-443-030, and the effective date of the prohibition, unless an exemption is provided for in WAC 173-443-050.

**TABLE 3. Prohibited Substances for New Air Conditioning Equipment**

<u>End-Use</u>	<u>Criteria</u>	<u>Prohibited Substances</u>	<u>Effective Date</u>
<u>Room air conditioners and residential dehumidifiers</u>	<u>New air conditioning equipment</u>	<u>Refrigerants with a GWP of 750 or more</u>	<u>January 1, 2024</u>
<u>Other types of air conditioning equipment used in residential and nonresidential applications</u>	<u>New air conditioning equipment</u>	<u>Refrigerants with a GWP of 750 or more</u>	<u>January 1, 2028</u>
<u>Variable refrigerant flow (VRF) or volume system</u>	<u>New air conditioning equipment</u>	<u>Refrigerants with a GWP of 750 or more</u>	<u>January 1, 2026</u>

(4) Table 4 in this section lists prohibited substances in small containers of refrigerant and nonessential consumer products, as the terms are defined in WAC 173-443-030, and the effective date of the prohibition.

**TABLE 4. Prohibited Substances for Small Containers of Refrigerant and Nonessential Consumer Products**

<u>End-Use</u>	<u>Prohibited Substances</u>	<u>Effective Date</u>
<u>Small containers of refrigerant</u>	<u>Substitutes with a GWP of 150 or more</u>	<u>July 25, 2021</u>
<u>Nonessential consumer products</u>	<u>Substitutes with a GWP of 150 or more</u>	<u>July 25, 2021</u>

[Statutory Authority: Chapters 70A.45 and 70A.15 RCW. WSR 21-01-085 (Order 19-04), § 173-443-040, filed 12/10/20, effective 1/10/21.]

AMENDATORY SECTION (Amending WSR 21-01-085, filed 12/10/20, effective 1/10/21)

**WAC 173-443-050 Exemptions applicable to WAC 173-443-040, Tables 1 through 3.** ((The following table)) (1) Table 1 in this section lists exemptions to the prohibitions listed in WAC 173-443-040, Table 1.

<b>((End-Use Category</b>	<b>Prohibited Substitutes</b>	<b>Acceptable Uses</b>
Aerosol propellants	HFC-134a	Cleaning products for removal of grease, flux and other soils from electrical equipment; refrigerant flushes; products for sensitivity testing of smoke detectors; lubricants and freeze sprays for electrical equipment or electronics; sprays for aircraft maintenance; sprays containing corrosion preventive compounds used in the maintenance of aircraft, electrical equipment or electronics, or military equipment; pesticides for use near electrical wires, in aircraft, in total release insecticide foggers, or in certified organic use pesticides for which EPA has specifically disallowed all other lower-GWP propellants; mold release agents and mold cleaners; lubricants and cleaners for spinnerettes for synthetic fabrics; duster sprays specifically for removal of dust from photographic negatives, semiconductor chips, specimens under electron microscopes, and energized electrical equipment; adhesives and sealants in large canisters; document preservation sprays; FDA-approved MDIs for medical purposes; wound care sprays; topical coolant sprays for pain relief; products for removing bandage adhesives from skin; bear spray; and pepper spray.
Aerosol propellants	HFC-227ea and blends of HFC-227ea and HFC-134a	FDA-approved MDIs for medical purposes.
Air conditioning	HFC-134a	Military marine vessels where reasonable efforts have been made to ascertain that other alternatives are not technically feasible due to performance or safety requirements.
Air conditioning	HFC-134a and R-404A	Human-rated spacecraft and related support equipment where reasonable efforts have been made to ascertain that other alternatives are not technically feasible due to performance or safety requirements.
Foams—Except rigid polyurethane spray foam	All substitutes	Military applications where reasonable efforts have been made to ascertain that other alternatives are not technically feasible due to performance or safety requirements until January 1, 2022.
Foams—Except rigid polyurethane spray foam	All substitutes	Space and aeronautics-related applications where reasonable efforts have been made to ascertain that other alternatives are not technically feasible due to performance or safety requirements until January 1, 2025.
Rigid polyurethane two-component spray foam	All substitutes	Military or space and aeronautics-related applications where reasonable efforts have been made to ascertain that other alternatives are not technically feasible due to performance or safety requirements until January 1, 2025.))

**TABLE 1. Exemptions for New Products and Equipment**

<u>End-Use</u>	<u>Prohibited Substances</u>	<u>Exemptions</u>
<u>Aerosol propellants</u>	<u>HFC-134a</u>	<p><u>Cleaning products for removal of grease;</u></p> <p><u>Flux and other soils from electrical equipment;</u></p> <p><u>Refrigerant flushes;</u></p> <p><u>Products for sensitivity testing of smoke detectors;</u></p> <p><u>Lubricants and freeze sprays for electrical equipment or electronics;</u></p> <p><u>Sprays for aircraft maintenance;</u></p> <p><u>Sprays containing corrosion preventive compounds used in the maintenance of aircraft, electrical equipment or electronics, or military equipment;</u></p> <p><u>Pesticides for use near electrical wires, in aircraft, in total release insecticide foggers, or in certified organic use pesticides for which EPA has specifically disallowed all other lower-GWP propellants;</u></p> <p><u>Mold release agents and mold cleaners;</u></p> <p><u>Lubricants and cleaners for spinnerettes for synthetic fabrics;</u></p> <p><u>Duster sprays specifically for removal of dust from photographic negatives, semiconductor chips, specimens under electron microscopes, and energized electrical equipment;</u></p> <p><u>Adhesives and sealants in large canisters;</u></p> <p><u>Document preservation sprays;</u></p> <p><u>FDA-approved MDIs for medical purposes;</u></p> <p><u>Wound care sprays;</u></p> <p><u>Topical coolant sprays for pain relief;</u></p> <p><u>Products for removing bandage adhesives from skin;</u></p> <p><u>Bear spray; and</u></p> <p><u>Pepper spray.</u></p>
<u>Aerosol propellants</u>	<u>HFC-227ea and blends of HFC-227ea and HFC-134a</u>	<u>FDA-approved MDIs for medical purposes.</u>
<u>Air conditioning: Centrifugal chillers Positive displacement chillers</u>	<u>HFC-134a</u>	<u>Military marine vessels where reasonable efforts have been made to ascertain that other alternatives are not technically feasible due to performance or safety requirements.</u>
<u>Air conditioning: Centrifugal chillers Positive displacement chillers</u>	<u>HFC-134a and R-404A</u>	<u>Human-rated spacecraft and related support equipment where reasonable efforts have been made to ascertain that other alternatives are not technically feasible due to performance or safety requirements.</u>
<u>Foams - Except rigid polyurethane spray foam</u>	<u>All substitutes</u>	<u>Military applications where reasonable efforts have been made to ascertain that other alternatives are not technically feasible due to performance or safety requirements until January 1, 2022; and Space- and aeronautics-related applications where reasonable efforts have been made to ascertain that other alternatives are not technically feasible due to performance or safety requirements until January 1, 2025.</u>
<u>Rigid polyurethane two-component spray foam</u>	<u>All substitutes</u>	<u>Military or space- and aeronautics-related applications where reasonable efforts have been made to ascertain that other alternatives are not technically feasible due to performance or safety requirements until January 1, 2025.</u>

(2) Table 2 in this section lists exemptions for new stationary refrigeration equipment prohibitions listed in WAC 173-443-040, Table 2.

**TABLE 2. Exemptions For New Stationary Refrigeration Equipment**

<u>End-Use</u>	<u>Prohibited Substances</u>	<u>Exemptions</u>
<u>Retail food refrigeration, including chillers</u>	<u>Refrigerants with a GWP of 150 or more</u>	<u>Equipment with 50 pounds or less of refrigerant;</u> <u>Replacement of a refrigeration component in an existing facility as part of normal maintenance provided the result does not meet the criteria of "new refrigeration equipment" as defined in WAC 173-443-030; and</u> <u>Facilities with new refrigeration equipment with a building permit issued before the effective date of this chapter.</u>
<u>Cold storage warehouses</u>	<u>Refrigerants with a GWP of 150 or more</u>	<u>Equipment with 50 pounds or less of refrigerant;</u> <u>Replacement of a refrigeration component in an existing facility as part of normal maintenance provided the result does not meet the criteria of "new refrigeration equipment" as defined in WAC 173-443-030; and</u> <u>Facilities with new refrigeration equipment with a building permit issued before the effective date of this chapter.</u>
<u>Industrial process refrigeration, excluding chillers</u>	<u>Refrigerants with a GWP of 150 or more</u>	<u>Equipment with 50 pounds or less of refrigerant;</u> <u>Replacement of a refrigeration component in an existing facility as part of normal maintenance provided the result does not meet the criteria of "new refrigeration equipment" as defined in WAC 173-443-030;</u> <u>Very low temperature (VLT) refrigeration or cooling uses; and</u> <u>Facilities with new refrigeration equipment with a building permit issued before the effective date of this chapter.</u>
<u>Chillers used for industrial process refrigeration</u>	<u>Refrigerants with a GWP of 750 or more</u>	<u>Equipment with 50 pounds or less of refrigerant;</u> <u>Replacement of a refrigeration component in an existing facility as part of normal maintenance provided the result does not meet the criteria of "new refrigeration equipment" as defined in WAC 173-443-030;</u> <u>Very low temperature (VLT) refrigeration or cooling uses; and</u> <u>Facilities with new refrigeration equipment with a building permit issued before the effective date of this chapter.</u>

(3) Table 3 in this section lists exemptions for new stationary air conditioning equipment prohibitions listed in WAC 173-443-040, Table 3.

**TABLE 3. Exemptions for New Stationary Air Conditioning Equipment**

<u>End-Use</u>	<u>Prohibited Substances</u>	<u>Exemptions</u>
<u>Room air conditioners and residential dehumidifiers</u>	<u>Refrigerants with a GWP of 750 or more</u>	<u>Facilities with new air conditioning equipment with a building permit issued before the effective date of this chapter.</u>

<u>End-Use</u>	<u>Prohibited Substances</u>	<u>Exemptions</u>
<u>Variable refrigerant flow (VRF) or volume system</u>	<u>Refrigerants with a GWP of 750 or more</u>	<u>Facilities with new air conditioning equipment with a building permit issued before the effective date of this chapter.</u>
<u>Other types of air conditioning equipment used in residential and nonresidential applications</u>	<u>Refrigerants with a GWP of 750 or more</u>	<u>Facilities with new air conditioning equipment with a building permit issued before the effective date of this chapter.</u>

[Statutory Authority: Chapters 70A.45 and 70A.15 RCW. WSR 21-01-085 (Order 19-04), § 173-443-050, filed 12/10/20, effective 1/10/21.]

AMENDATORY SECTION (Amending WSR 21-01-085, filed 12/10/20, effective 1/10/21)

**WAC 173-443-060 Prohibitions and additional requirements for new products and equipment listed in Table 1.** (1) Prohibitions. No person may offer for sale, lease, rent, install, or otherwise cause to enter into Washington commerce any new product or equipment, as defined in WAC 173-443-030, that contains ((,)) or uses ((, or will use HFCs or other substitutes prohibited for an end-use)) a prohibited substance listed in WAC 173-443-040, Table 1, unless an exemption is provided for in WAC 173-443-050.

(2) Sell through provisions.

(a) Products and equipment manufactured prior to the ((applicable)) effective date of a prohibition in WAC 173-443-040, Table 1, may be sold, leased, rented, imported, exported, distributed, installed, used, or otherwise introduced into Washington commerce after the date of prohibition.

((a) For products and equipment imported from outside the United States, the date of import may be considered the date of manufacture.

((b) For refrigeration equipment and chillers, the date the manufacturer affixed an equipment label indicating the equipment's date of manufacture is the date of manufacture.

((c)) (b) Polyurethane foam systems manufactured (blended) before ((an applicable)) the prohibition date and not yet applied on site may be used after the prohibition date.

(3) Other allowances. Except where ((an)) existing ((system)) equipment is retrofit, nothing in this chapter requires a person ((that)) who acquired a product or equipment ((containing)) that contains or ((using)) uses a prohibited ((substitute)) substance prior to the effective date of a prohibition in WAC 173-443-040 to cease use of that product or equipment.

(4) Product labeling and disclosure.

(a) Except as provided in (d) and (e) of this subsection and for products and equipment listed as exempt in WAC 173-443-060, a manufacturer of any new product or equipment listed in Table 1 must disclose the substance(s) contained or used through labeling the product(s) or equipment in accordance with this subsection.

(b) Effective date. The effective date for product labeling and disclosure is January 10, 2021, or one year from the effective date of an applicable prohibition, whichever is later.

(c) Disclosure methods.

(i) A manufacturer of aerosol propellant products must disclose the substance(s) contained or used in such products through one of the following methods:

(A) For aerosol products regulated by the U.S. Consumer Product Safety Commission, the U.S. Food and Drug Administration excluding prescription drug products, or products that are not covered by

(c) (i) (B) of this subsection:

(I) New dedicated label;

(II) On-packaging label;

(III) A label required by another jurisdiction that discloses the substance(s) used or the compliance status of the product; or

(IV) On-product or on-packaging symbol or code; and online disclosure.

(B) For aerosol products regulated by EPA under the Federal Insecticide Fungicide and Rodenticide Act, aerosol products regulated by the Occupational Safety and Health Administration, or aerosol products regulated by the U.S. Food and Drug Administration:

(I) Any option in (c) (ii) (A) through (D) of this subsection; or

(II) A product document, such as a Safety Data Sheet (SDS), that complies with 29 C.F.R. § 1910.1200; and online disclosure if the SDS is not posted online.

(ii) A manufacturer of refrigeration equipment (including refrigeration equipment that contains foam) must disclose the substance(s) contained or used in such equipment through one of the following methods:

(A) For the refrigerant used in household refrigerators and freezers - Compact, and household refrigerators and freezers - Built-in:

(I) New dedicated label;

(II) Underwriters laboratories or equivalent safety label;

(III) A label required by another jurisdiction that discloses the substance(s) used or the compliance status of the equipment; or

(IV) On-product symbol or code; and online disclosure.

(B) For the foam blown in or installed by the manufacturer of household refrigerators and freezers, household refrigerators and freezers - Compact, and household refrigerators and freezers - Built-in:

(I) New dedicated label;

(II) Underwriters laboratories or equivalent safety label;

(III) Owner's manual; or

(IV) On-equipment symbol or code; and online disclosure.

(C) For the refrigerant used in commercial refrigeration equipment:

(I) New dedicated label;

(II) Underwriters laboratories or equivalent safety label;

(III) A label required by another jurisdiction that discloses the substance(s) used or the compliance status of the equipment; or

(IV) On-product symbol or code; and online disclosure.

(D) For the foam blown in or installed by the manufacturer of commercial refrigeration equipment:

(I) New dedicated label;

(II) Underwriters laboratories or equivalent safety label;

(III) Owner's manual; or

(IV) On-equipment symbol or code; and online disclosure.

(iii) A manufacturer of centrifugal or positive displacement chillers must disclose the substance(s) contained or used in such equipment through one of the following methods:



(A) For the refrigerant used in centrifugal and positive displacement chillers:

(I) New dedicated label;

(II) Underwriters laboratories or equivalent safety label;

(III) A label required by another jurisdiction that discloses the substance(s) used or the compliance status of the equipment; or

(IV) On-equipment symbol or code; and online disclosure.

(B) For the foam blown in or installed by the manufacturer of centrifugal and positive displacement chillers:

(I) New dedicated label;

(II) Underwriters laboratories or equivalent safety label;

(III) Owner's manual;

(IV) A label required by another jurisdiction that discloses the substance(s) contained or the compliance status of the equipment; or

(V) On-product symbol or code; and online disclosure.

(iv) A manufacturer of foam products must disclose the substance(s) contained or used in such products through one of the following methods:

(A) For nonretail foam products, the following methods may be used on a unit or on each individual product within a unit:

(I) New dedicated label;

(II) On-packaging label;

(III) A label required by another jurisdiction that discloses the substance(s) used or the compliance status of the product; or

(IV) On-product or on-packaging symbol or code; and online disclosure.

(B) For retail foam products:

(I) New dedicated label;

(II) On-packaging label;

(III) A label required by another jurisdiction that discloses the substance(s) used or the compliance status of the product; or

(IV) On-product or on-packaging symbol or code; and online disclosure.

(C) For the foam blowing agent used in polyurethane foam systems, including spray foam systems:

(I) New dedicated label on the canister or cylinders;

(II) Existing product label on the canister or cylinders;

(III) On-packaging label;

(IV) A label required by another jurisdiction that discloses the substances(s) used or the compliance status of the product;

(V) On-packaging symbol or code; and online disclosure.

(v) Online disclosure may occur through online publication of an owner's manual, safety data sheet, or other documentation that provides information about the product to the end-user of the product.

(d) Alternative disclosure methods.

(i) A manufacturer may request approval to use an alternative disclosure method in lieu of the labeling options listed in (c) of this subsection by submitting a written statement to ecology. The written statement must:

(A) Describe the condition(s) or circumstance(s) that make it infeasible to comply with the labeling requirements of this subsection; and

(B) Propose an alternative disclosure method that satisfactorily communicates the substance(s) used or the compliance status of the product(s) or equipment.

(ii) Ecology will provide a written response to a manufacturer's request to use an alternative disclosure method by approving or deny-

ing the request, or requesting additional information, within 30 days of receipt.

(iii) Ecology may approve the request if it determines that the use of a label meeting the requirements in (c) of this subsection is not feasible for the particular product(s) or equipment.

(iv) If ecology approves the request, the effective date of the approval is the date the manufacturer received written confirmation from ecology that its proposed alternative disclosure method may be used to satisfy this subsection.

(e) The requirements of this subsection do not apply to aircraft and aircraft components subject to certification requirements of the Federal Aviation Administration.

(5) Manufacturer reporting.

(a) A manufacturer of a product or equipment that contains or uses prohibited substance(s) as of July 28, 2020, for an end-use listed in Table 1 of this subsection, or a representative of the manufacturer, must report to ecology consistent with (b) and (c) of this subsection.

(i) It is only necessary for one person to report on behalf of the manufacturer for a particular product or equipment.

(ii) In the event of a manufacturer's failure to provide a complete, accurate, and timely report, ecology will require the submittal of the information from related persons or entities in the following order:

(A) The person or entity that manufactured, produced, or assembled the product or equipment, unless that person or entity has no presence in the United States.

(B) The person or entity that marketed the product or equipment under its name or trademark, unless that person or entity has no presence in the United States.

(C) The first person or entity, whether an importer or a distributor, that owned the product or equipment in the United States.

(iii) This subsection in no way limits the liability of any manufacturer, as defined in WAC 173-443-030, associated with the product or equipment from enforcement under chapter 70A.15 RCW.

(b) Initial status notification.

(i) By December 31, 2019, a manufacturer or its representative must provide ecology an initial status notification of the status of all products and equipment within each applicable end-use that contains or uses any prohibited substance(s) listed in WAC 173-443-040, Table 1.

(ii) An initial status notification must include all covered products and equipment that the manufacturer offers for sale, leases, rents, installs, or otherwise causes to enter into Washington commerce.

(iii) A manufacturer must submit an annual status notification using ecology's notification form. The current form is available on ecology's website. This initial status notification must provide:

(A) Contact information for the manufacturer;

(B) The name of the person authorized to represent the manufacturer for purposes of providing initial status notifications and status updates;

(C) All products and equipment within each applicable end-use;

(D) Which HFCs or other prohibited substance(s) are being used within each applicable end-use; and

(E) Signature and certification by the authorized representative for the manufacturer.

(c) Updated status notifications.

(i) Within 120 days after the effective date of a prohibition listed in WAC 173-443-040, a manufacturer affected by the prohibition must provide ecology with an updated status notification using ecology's form.

(ii) Within 120 days of a manufacturer's introduction into Washington commerce of a new or modified product or equipment that contains or uses a prohibited substance(s) listed in WAC 173-443-040, the manufacturer must provide ecology with an updated status notification using ecology's form.

(iii) The updated status notification required by (c)(i) and (ii) of this subsection must include:

(A) Whether the manufacturer has ceased use of the prohibited substance(s) listed in WAC 173-443-040 for each applicable product(s) or equipment within each end-use;

(B) What, if any, prohibited substance(s) remain in use; and

(C) Updated responses on all information requested in the initial status notification required in (b) of this subsection.

[Statutory Authority: Chapters 70A.45 and 70A.15 RCW. WSR 21-01-085 (Order 19-04), § 173-443-060, filed 12/10/20, effective 1/10/21.]

#### NEW SECTION

**WAC 173-443-065 Prohibitions and additional requirements for new refrigeration equipment listed in Table 2.** (1) Prohibitions. No person shall offer for sale, lease, rent, install, or otherwise cause to enter into Washington commerce any new refrigeration equipment, as defined in WAC 173-443-030, that contains or uses a prohibited substance listed in WAC 173-443-040, Table 2, unless an exemption is provided for in WAC 173-443-050.

(2) Labeling and disclosure. Beginning one year from the effective date of this chapter, a manufacturer of new refrigeration equipment, as defined in WAC 173-443-030, that is intended for sale or other entry into Washington commerce, must disclose the substance(s) contained or used in its equipment by labeling the equipment in accordance with this subsection.

(a) The following information must be disclosed in the form of an on-product label:

(i) Chemical name, or American Society of Heating, Refrigeration and Air-Conditioning Engineers (ASHRAE) designation, of the substance(s) used or contained in the equipment;

(ii) The GWP, labeled as "global warming potential," of the substance(s) used or contained in the equipment;

(iii) The date of manufacture, or at a minimum, the year of manufacture. For field charged or field erected equipment, this is the date of first charge; and

(iv) Full refrigerant charge size in ounces, pounds, or kilograms.

(b) Existing labels meeting the above requirements may be used.

(3) Recordkeeping. As of the effective date of this chapter, a manufacturer of any new refrigeration equipment, as defined in WAC 173-443-030, must maintain for a minimum of five years, and make available upon request by ecology, a copy of the following records:

(a) Sector or subsector of the equipment;

- (b) Refrigerant type the equipment is designed to use;
- (c) Date of manufacture or import;
- (d) Name of company or entity to whom the equipment was sold or otherwise distributed;
- (e) The bill of lading; and
- (f) The invoice.

[]

NEW SECTION

**WAC 173-443-075 Prohibitions and additional requirements for new air conditioning equipment listed in Table 3.** (1) Prohibitions. No person shall offer for sale, lease, rent, install, or other cause to enter into Washington commerce any new air conditioning equipment, as defined in WAC 173-443-030, that contains or uses a prohibited substance listed in WAC 173-443-040, Table 3, unless an exemption is provided for in WAC 173-443-050.

(2) Labeling and disclosure. Beginning one year from the effective date of this chapter, a manufacturer of any new air conditioning equipment, as defined in WAC 173-443-030, that is intended for sale or other entry into Washington commerce, must disclose the substance(s) contained or used in its equipment by labeling the equipment in accordance with this subsection.

(a) The following information must be disclosed in the form of an on-product label:

(i) Chemical name, or American Society of Heating and Air Conditioning Engineers (ASHRAE) designation, of the substance(s) used or contained in the equipment;

(ii) The GWP, labeled as "global warming potential," of the substance(s) used or contained in the equipment;

(iii) Date of manufacture or import; and

(iv) Refrigerant charge size in ounces, pounds, or kilograms.

(b) Existing labels meeting the above requirements may be used.

(3) Recordkeeping. As of the effective date of this chapter, a manufacturer of any new air conditioning equipment, as defined in WAC 173-443-030, must maintain for a minimum of five years, and make available upon request by ecology, a copy of the following records:

(a) The sector or subsector of the equipment;

(b) Refrigerant type the equipment is designed to use and its GWP value;

(c) Date of manufacture or import;

(d) Model and serial number;

(e) Name of company or retailer to whom the equipment was sold or otherwise distributed;

(f) The bill of lading; and

(g) The invoice.

[]

NEW SECTION

**WAC 173-443-085 Prohibitions for small containers of refrigerant and nonessential consumer products listed in Table 4.** Prohibitions. No person shall sell, offer for sale, or purchase a small container of refrigerant or a nonessential consumer product that contains or uses a prohibited substance listed in WAC 173-443-040, Table 4, unless an exemption is provided for in WAC 173-443-050.

[ ]

NEW SECTION

**WAC 173-443-095 Variances.** (1) An applicant may apply to ecology for a variance from the prohibitions of WAC 173-443-040, Table 2 or Table 3. Ecology may grant a variance if it determines that the request meets the conditions identified in subsection (2) of this section and the applicant has complied with subsection (3) of this section.

(2) Types of variances.

(a) Impossibility. Ecology may grant a variance if the applicant demonstrates that the requested exemption will not increase the overall risk to human health or the environment and all of the following apply:

(i) A substance that complies with the applicable threshold is not currently or potentially available; and

(ii) The applicant has made a good faith effort to anticipate, address, and mitigate any potential noncompliance.

(b) Force majeure. Ecology may grant a variance if the applicant demonstrates that the requested exemption will not increase the overall risk to human health or the environment and all of the following apply:

(i) The applicant cannot comply with the applicable prohibitions due to a force majeure event; and

(ii) The applicant has made a good faith effort to anticipate, address, and mitigate the impacts of any force majeure event.

(c) Economic hardship. Ecology may grant a variance if the applicant demonstrates that the requested exemption will not increase the overall risk to human health or the environment and all of the following apply:

(i) The applicant owns or operates a retail food facility or a small business, as defined in WAC 173-443-030;

(ii) Compliance with the applicable prohibitions would result in closure of the entire retail food facility or small business, or a large portion thereof, or a substantial loss of revenue from the retail food facility or small business; and

(iii) The applicant has made a good faith effort to anticipate, address, and mitigate any potential noncompliance.

(3) Application process. To apply for a variance, the applicant must submit an application that meets the requirements of (a) through (i) of this subsection:

(a) Applicant name, ownership status, address, telephone number, and email address;

(b) Description of business activity or product description;

- (c) The specific prohibition(s) for which a variance is requested;
- (d) An explanation of the reasons for seeking a variance;
- (e) Evidence demonstrating how the variance request meets the criteria identified in subsection (2)(a) or (b) or (c) of this section;
- (f) Length of variance requested and the earliest date when compliance can be achieved;
- (g) A description of the damage or harm that will result from having to comply with the applicable prohibition(s) within the required time frame;
- (h) A proposed compliance plan describing how and when compliance with the applicable prohibition(s) will be achieved after the variance is granted. The compliance plan must include all of the following:
  - (i) The method(s) by which compliance will be achieved;
  - (ii) Milestone achievements;
  - (iii) Milestone dates; and
  - (iv) A proposed mitigation plan that demonstrates how the applicant will reduce greenhouse gas emissions while the variance is in place. The mitigation plan must include all calculations used to determine emissions estimates.
- (i) The application must be submitted in writing to either of the following addresses:

Ecology Air Quality Program  
HFC Program  
P.O. Box 47600  
Olympia, WA 98504-7600; or  
By email to: HFC@ecology.wa.gov

- (4) Approval and disapproval process.
  - (a) Ecology will determine whether the variance application is complete and will notify the applicant of its completeness determination within 30 days of receipt of the application. Only complete applications will be considered.
  - (b) Within 60 days of determining that a variance application is complete, ecology will notify the applicant of the decision in writing, and if approved, will specify the terms and conditions of the variance in a letter to the applicant. The applicant and ecology may mutually agree to a longer time period for ecology's review period.
  - (c) During the review period, ecology may request, and the applicant must provide, more information as needed to reach a decision.
  - (d) Ecology will grant a variance only to the applicant. The variance is not transferable.
  - (e) Ecology will not approve a variance retroactively to any date prior to receipt of the application.
  - (f) An applicant adversely affected by ecology's denial of a variance or by the terms and conditions of an approved variance may appeal ecology's decision to the pollution control hearings board pursuant to chapter 43.21B RCW.
- (5) Failure to comply with the terms and conditions of an approved variance.
  - (a) An applicant must comply with the terms and conditions of an approved variance to maintain its approved status.
  - (b) Ecology may revoke or modify the variance approval if it determines that an applicant no longer meets the criteria specified in the variance approval letter.

(c) An applicant adversely affected by an ecology decision to revoke or modify an approved variance may appeal ecology's decision to the pollution control hearings board pursuant to chapter 43.21B RCW.

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## PART II - REGRIGERANT MANAGEMENT PROGRAM

### NEW SECTION

**WAC 173-443-105 Refrigerant management program (RMP) purpose and applicability.** (1) The purpose of the RMP is to reduce greenhouse gas emissions from stationary commercial refrigeration and air conditioning systems and from the installation and servicing of stationary refrigeration and air conditioning systems using high-GWP refrigerants.

(2) The RMP requirements apply to:

(a) Any owner or operator of a facility that has a refrigeration or air conditioning system with a full charge greater than or equal to 50 pounds of a high-GWP refrigerant;

(b) Any person who installs, repairs, maintains, services, or disposes of refrigeration or air conditioning equipment; and

(c) Any person who wholesales, distributes, or reclaims any amount of high-GWP refrigerants in Washington.

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### NEW SECTION

**WAC 173-443-115 Registration requirements for facilities with refrigeration or air conditioning systems.** (1) Full charge of 1,500 pounds or greater. The owner or operator of a facility that has a refrigeration or air conditioning system with a full charge greater than or equal to 1,500 pounds of a high-GWP refrigerant must register with ecology by providing the information specified in subsection (6) of this section as follows:

(a) By March 15, 2024, for refrigeration or air conditioning systems that begin operations on or before January 1, 2024; or

(b) By March 15th of the calendar year after the year in which the system begins operations for systems that begin operating after January 1, 2024.

(2) Full charge of 200 to 1,499 pounds. The owner or operator of a facility that has a refrigeration or air conditioning system with a full charge greater than 199 pounds, but less than 1,500 pounds of a high-GWP refrigerant must register with ecology by providing the information specified in subsection (6) of this section as follows:

(a) By March 15, 2026, for refrigeration or air conditioning systems that begin operations on or before January 1, 2026; or

(b) By March 15th of the calendar year after the year in which the system begins operations for systems that begin operating after January 1, 2026.

(3) Full charge of 50 to 199 pounds. The owner or operator of a facility that has a refrigeration or air conditioning system with a full charge greater than or equal to 50 pounds, but less than 200 pounds of a high-GWP refrigerant must register with ecology by providing the information specified in subsection (6) of this section as follows:

(a) By March 15, 2028, for refrigeration or air conditioning systems that begin operations on or before January 1, 2028; or

(b) By March 15th of the calendar year after the year in which the system begins operations for systems that begin operating after January 1, 2028.

(4) New owners. If there is a change of ownership of a facility that has been registered in accordance with this section, the new owner or operator must register with ecology by March 15th of the calendar year after the change of ownership occurred.

(5) New facilities. The owner or operator of a newly constructed facility, or a facility that is converted for a use that is subject to this chapter, must register the facility with ecology within three months of beginning operations.

(6) Registration information. To register, the owner or operator must provide the following information through the Washington RMP reporting system:

(a) Facility information:

(i) Facility identification number. The identification number for each facility will be assigned by the WA RMP data reporting system;

(ii) Name of facility;

(iii) Name of owner(s);

(iv) Name of operator(s), if different than the owner(s);

(v) North American Industry Classification System (NAICS) code;

(vi) Facility mailing address including street address, city, state, and zip code;

(vii) Facility physical address including street address, city, state, and zip code;

(viii) Facility contact person; and

(ix) Facility contact person's phone number and email address.

(b) Refrigeration or air conditioning system information:

(i) System identification number. The identification number for each system will be assigned by the WA RMP data reporting system;

(ii) System type. The system type must include whether it is a refrigeration or air conditioning system and the specific end-use;

(iii) Equipment manufacturer;

(iv) Equipment model and model year;

(v) Equipment serial number. If the equipment is part of an assembly without a serial number or the serial number is not accessible after assembly, the physical location of the equipment must be recorded;

(vi) Temperature classification. Refrigeration systems must be identified as a very low-temperature, low-temperature, or medium-temperature system, or other;

(vii) Full charge the system is designed for in order to maintain normal operating characteristics; and

(viii) Type of high-GWP refrigerant(s) used.



(7) Change of ownership. Prior to any change of ownership of a facility that has been registered in accordance with this section, the seller must ensure all of the following are completed:

(a) The seller must confirm that the registered refrigeration or air conditioning system is free of refrigerant leaks through a leak inspection performed by a technician certified by EPA under 40 C.F.R. § 82.161;

(b) The seller must inform the prospective buyer of the registration requirements of this section; and

(c) The seller must submit a change of ownership notification to ecology that includes all of the following:

(i) Seller information:

(A) Facility identification number as it appears in the WA RMP data reporting system;

(B) Name of owner or operator; and

(C) Name of facility.

(ii) Prospective buyer information:

(A) Name of owner(s);

(B) Name of operator(s), if different than the owner(s);

(C) Name of facility;

(D) Facility mailing address, including street address, city, state, and zip code;

(E) Facility contact person; and

(F) Facility contact person phone number and email address.

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#### NEW SECTION

**WAC 173-443-125 Registration requirements for refrigerant wholesalers, distributors, and reclaimers.** (1) By March 15, 2024, a refrigerant wholesaler, distributor, or reclaimer that sells, supplies, distributes, or reclaims any amount of high-GWP refrigerant in Washington for any purpose, other than those listed in subsection (2) of this section, must register with ecology by providing the information specified in subsection (3) of this section.

(2) This section does not apply to the sale, supply, distribution, or reclamation of high-GWP refrigerants for the sole purpose of either:

(a) Selling to a refrigerant distributor or wholesaler for eventual resale; or

(b) Providing to a person for reclamation or destruction.

(3) (a) Registration information. A refrigerant wholesaler, distributor, or reclaimer must provide the following information to ecology through the Washington RMP reporting system:

(b) Facility information:

(i) Name of facility;

(ii) Name of owner(s);

(iii) North American Industry Classification (NAICS) code;

(iv) Facility mailing address, including street address, city, state, and zip code;

(v) Facility physical address, including street address, city, state, and zip code;

(vi) Facility contact person;

(vii) Facility contact person's phone number and email address;

(viii) Name and physical address of each wholesale, distribution, or reclaim facility under the registrant's operational control; and

(ix) Name and email address of contact person for each wholesale, distribution, or reclaim facility under the registrant's operational control.

(4) Change of ownership. Prior to any change of ownership of an entity that has been registered pursuant to this section, the seller must ensure all of the following are completed:

(a) The facility must be registered in accordance with this section;

(b) The seller must inform the prospective buyer of the registration requirements of this section; and

(c) The seller must submit a change of ownership notification to ecology that includes all of the following:

(i) Seller information:

(A) Name of facility;

(B) Facility identification number; as it appears in the WA RMP data reporting system; and

(C) Name of person selling the facility;

(ii) Prospective buyer information:

(A) Name of person(s) buying the facility;

(B) Facility mailing address including a street address, city, state, and zip code;

(C) Facility contact person; and

(D) Facility contact person's phone number and email address.

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#### NEW SECTION

**WAC 173-443-135 Implementation fees for facilities with refrigeration or air conditioning systems.** (1) Initial implementation fee. An initial implementation fee must be paid by each owner or operator of a facility that has a refrigeration or air conditioning system with a full charge greater than or equal to 1,500 pounds of a high-GWP refrigerant.

(a) The initial implementation fee is due and payable to ecology within 30 days of receipt of the invoice.

(b) The amount of the initial implementation fee is \$150.

(2) Annual implementation fee. An annual implementation fee must be paid by each owner or operator of a facility that has a refrigeration or air conditioning system with a full charge greater than or equal to 200 pounds of a high-GWP refrigerant.

(a) The annual implementation fee is due and payable to ecology no later than 30 days of receipt of the annual invoice, beginning with the year in which the initial implementation fee is required under subsection (1) of this section.

(b) The amount of the annual implementation fee is determined by this subsection. If the facility has more than one refrigeration or air conditioning system, the amount of the fee is based on the refrigeration or air conditioning system operating at the facility with the largest charge size.

(i) Systems with a full charge of 1,500 or more pounds.

(A) Beginning January 1, 2024, the annual implementation fee for facilities that have a refrigeration or air conditioning system with a full charge of 1,500 pounds or greater is \$370.

(B) Beginning January 1, 2025, and each year thereafter, the amount of the annual implementation fee will be established in accordance with WAC 173-455-160.

(ii) Systems with a full charge of 200 to 1,499 pounds.

(A) Beginning January 1, 2026, the annual implementation fee for facilities that have a refrigeration or air conditioning system with a full charge of 200 to 1,499 pounds is \$170.

(B) Beginning January 1, 2027, and each year thereafter, the amount of the annual implementation fee will be established in accordance with WAC 173-455-160.

(3) There are no implementation fees for refrigerant wholesalers, distributors, or reclaimers.

[ ]

#### NEW SECTION

##### **WAC 173-443-145 Leak detection and monitoring requirements. (1)**

Leak inspection requirements for year-round refrigeration and air conditioning systems with a full charge capacity greater than or equal to 1,500 pounds.

(a) By January 1, 2024, the owner or operator of a facility that has a refrigeration or air conditioning system with a full charge capacity greater than or equal to 1,500 pounds of a high-GWP refrigerant, that is intended to operate year-round, must do all of the following:

(i) Conduct a leak inspection of the full system each month using a calibrated refrigerant leak detection device, or bubble test, unless an automatic leak detection system that meets the requirements of subsection (2)(b) or (c) of this section is installed and functioning correctly on the system.

(ii) Conduct a leak inspection of the full system at the time of verification test or follow-up verification test following a leak repair.

(iii) Conduct a leak inspection of the full system each time refrigerant is added to the system in an amount equal to or greater than five pounds, or one percent of the full charge, whichever is greater.

(iv) Conduct a leak inspection of the full system each time oil residue is observed on any refrigerant circuit component indicating a refrigerant leak.

(2) Automatic leak detection requirements for refrigeration systems with a full charge of 1,500 pounds or more.

(a) The owner or operator of a refrigeration system with a full charge capacity greater than or equal to 1,500 pounds of a high-GWP refrigerant, that is intended to operate year-round, must do the following:

(i) By January 1, 2025, install an automatic leak detection system that meets the requirements of (b) or (c) of this subsection if:

(A) The refrigerant circuit is located entirely within an enclosed building or structure; or

(B) The compressor, evaporator, condenser, or any other component of the refrigeration system is located inside an enclosed building or structure.

(ii) Installation of an automatic leak detection system under (b) or (c) of this subsection is not required if the refrigeration system will be replaced or retrofitted to use a low-GWP refrigerant before January 1, 2027. Written documentation of the intent to transition and the anticipated timeline for the transition must be signed by the facility's representative and kept in accordance with WAC 173-443-195.

(b) For an automatic leak detection system that detects the presence of a high-GWP refrigerant in the air, the automatic leak detection system must be annually audited and calibrated using the manufacturer-recommended procedures so that it:

(i) Accurately detects a concentration level of 10 parts per million of vapor of the specific refrigerant(s) used in the refrigeration system; and

(ii) Alerts the operator when a refrigerant concentration of 100 parts per million of vapor of the refrigerant(s) is reached.

(c) For an automatic leak detection system that interprets measurements to indicate a refrigerant leak, the automatic leak detection system must be annually audited and calibrated using manufacturer-recommended procedures so that it will alert the owner or operator when measurements indicate a loss of 50 pounds of refrigerant or 10 percent of the system's full charge, whichever is less.

(d) If an automatic leak detection system alerts the owner or operator of a leak, a leak inspection must be performed on the system within 24 hours of the alert. The leak inspection must be conducted using a calibrated refrigerant leak detection device or a bubble test to confirm a refrigerant leak and determine the location.

(3) (a) Leak inspection requirements for year-round refrigeration and air conditioning systems with a full charge greater than or equal to 200 pounds but less than 1,500 pounds.

(b) By January 1, 2024, the owner or operator of a facility that has a refrigeration or air conditioning system with a full charge greater than or equal to 200 pounds but less than 1,500 pounds, that is intended to operate year-round, must do all of the following:

(i) Conduct a leak inspection of the full system at least once every three months using a calibrated refrigerant leak detection device, or bubble test, unless an automatic leak detection system that meets the requirements of subsection (2) (b) or (c) of this section is installed and functioning correctly on the system.

(ii) Conduct a leak inspection of the full system at the time of verification test or follow-up verification test following a leak repair.

(iii) Conduct a leak inspection of the full system each time refrigerant is added to the system in an amount equal to or greater than five pounds, or one percent of the full charge, whichever is greater.

(iv) Conduct a leak inspection of the full system each time oil residue is observed on any refrigerant circuit component indicating a refrigerant leak.

(4) (a) Leak inspection requirements for year-round refrigeration and air conditioning systems with a full charge greater than or equal to 50 pounds, but less than 200 pounds.

(b) By January 1, 2024, the owner or operator of a facility that has a refrigeration or air conditioning system with a full charge greater than or equal to 50 pounds, but less than 200 pounds, that is intended to operate year-round must do all of the following:

(i) Conduct a leak inspection of the full system at least once each year using a calibrated refrigerant leak detection device, or bubble test, unless an automatic leak detection system that meets the requirements of subsection (2)(b) or (c) of this section is installed and functioning correctly on the system.

(ii) Conduct a leak inspection of the full system at the time of verification test or follow-up verification test following a leak repair.

(iii) Conduct a leak inspection of the full system each time refrigerant is added to the system in an amount equal to or greater than five pounds, or one percent of the full charge, whichever is greater.

(iv) Conduct a leak inspection of the full system each time oil residue is observed on any refrigerant circuit component indicating a refrigerant leak.

(5) Leak inspection requirements for refrigeration and air conditioning systems not operated year-round.

(a) The owner or operator of a facility that has a refrigeration or air conditioning system that is not intended to operate year-round must conduct a leak inspection of the full system within 30 days after starting each operation of the system, and once every three months thereafter until the system is shut down.

(b) The leak inspections must be conducted using a calibrated refrigerant detection device, or bubble test.

(6) Leak detection and monitoring during system mothballing. The requirements of this section do not apply during the time that a system is undergoing mothballing. The requirements of this section will apply on the day the mothballed system resumes operation.

[ ]

#### NEW SECTION

**WAC 173-443-155 Leak rate thresholds and notification requirements.** (1) The owner or operator of a facility that has a refrigeration or air conditioning system with a full charge greater than or equal to 50 pounds of a high-GWP refrigerant must ensure that the leak rate of the system is calculated during each leak inspection and each time refrigerant is added to the system.

(2) The leak rate must be calculated using the 12-month rolling average method, as defined in WAC 173-443-030, and the results of each calculation must be kept on file in accordance with WAC 173-443-195.

(3) The owner or operator of a facility that has a refrigeration or air conditioning system that exceeds the applicable leak rate threshold, based on the 12-month rolling average, must notify ecology, through the WA RMP data reporting system, within 30 days of determination of the exceedance. The leak rate thresholds are as follows:

(a) Sixteen percent for a commercial or retail refrigeration system;

(b) Twenty-four percent for an industrial process refrigeration system; or

(c) Eight percent for an air conditioning system.

(4) Following the notification required by subsection (3) of this section, the owner or operator of a facility that has a refrigeration or air conditioning system that exceeds the applicable leak rate

threshold must also notify ecology of the following information by the specified deadlines:

(a) The results of a verification test required under WAC 173-443-165(5), no later than 30 days after expiration of the leak repair time frame under WAC 173-443-165 (7) (a);

(b) The results of a follow-up verification test, if required under WAC 173-443-165(6), no later than 30 days after completing the follow-up verification test; and

(c) Within 30 days of completion of all work described in a retrofit or retirement plan prepared in accordance with WAC 173-443-175.

[ ]

#### NEW SECTION

**WAC 173-443-165 Leak repair requirements.** (1) Beginning January 1, 2024, the owner or operator of a facility that has a refrigeration or air conditioning system with a refrigerant charge greater than or equal to 50 pounds of a high-GWP refrigerant must ensure that all detected refrigerant leaks are repaired as provided in this section and must maintain records of all repairs in accordance with WAC 173-443-195.

(2) Fourteen-day requirement. A refrigerant leak must be repaired by a certified technician, as defined in WAC 173-443-030, within 14 calendar days of its detection, except when a longer period is allowed under subsection (3) or (4) of this section.

(3) Forty-five-day allowance. The time period for repair of an identified refrigerant leak is up to 45 days if one or more of the following conditions apply:

(a) A certified technician is not available to complete the repair or replace the component(s). A written record must be kept in accordance with WAC 173-443-195, documenting that the owner or operator exercised due diligence in seeking the services of a certified technician immediately following detection of the leak and that no certified technician was available to complete the repair within 14 calendar days of the initial leak detection;

(b) The parts necessary to repair a leak are unavailable. A written record must be kept in accordance with WAC 173-443-195, documenting that the necessary parts were unavailable within 14 calendar days of the initial leak detection. The written record must include a written statement from the certified technician regarding the necessity of the parts and a written statement from the manufacturer regarding the availability of the parts; or

(c) The leak repair requires an industrial process shutdown that results in an industrial process temporarily ceasing to manufacture the desired product. A written record must be kept in accordance with WAC 173-443-195, documenting why the repair requires an industrial process shutdown and how long the shutdown would last.

(4) One hundred twenty-day allowance. The time period for a repair of an identified refrigerant leak is up to 120 days if all of the following conditions apply:

(a) The facility owner or operator is an entity subject to the mandatory reporting of greenhouse gas emissions under chapter 173-441 WAC;

(b) The leaking system is an industrial process refrigeration system;

(c) The leak repair requires an industrial process shutdown that results in ceasing to manufacture the desired product; and

(d) The owner or operator maintains written records documenting that the conditions in (a) through (c) of this subsection are met, in accordance with WAC 173-443-195.

(5) Verification test. A verification test must be conducted upon completion of any leak repair.

(6) Follow-up verification test. If a refrigeration or air conditioning system is evacuated during a leak repair, a follow-up verification test must be conducted within 14 days of the system reaching normal operating conditions.

(7) Refrigerant leak repair requirements after an unsuccessful verification test. If an initial or follow-up verification test indicates that a refrigerant leak is still occurring, and there is not an approved exemption in place under WAC 173-443-235, the owner or operator must do one of the following:

(a) Ensure the leak is repaired through a subsequent repair attempt(s) within a second time frame that equals the same number of days allowed under subsections (2) through (4) of this section; or

(b) Prepare a retrofit or retirement plan in accordance with WAC 173-443-175.

(8) Leak repair requirements during system mothballing. The requirements of this section do not apply during the time that a refrigeration or air conditioning system is undergoing mothballing. The requirements of this section will apply on the day the mothballed system resumes operation.

[ ]

#### NEW SECTION

**WAC 173-443-175 Requirements to prepare and implement a retrofit or retirement plan.** (1) The owner or operator of a facility that has a refrigeration or air conditioning system with a full charge greater than or equal to 50 pounds of a high-GWP refrigerant that is not repaired within the time frame provided in WAC 173-443-165 (2) through (4), and does not have an approved exemption under WAC 173-443-235, must prepare and implement a retrofit or retirement plan that meets all of the following conditions:

(a) The plan must establish a schedule to retrofit or retire a leaking refrigeration or air conditioning system for no later than six months after expiration of the second leak repair time frame under WAC 173-443-165 (7)(a). All work must be completed in this six-month period;

(b) The plan must be kept at the facility with the leaking refrigeration or air conditioning system in accordance with WAC 173-443-195;

(c) The plan must describe the retrofitted system, or the new system if an existing system is being replaced, and include the following:

(i) System identification number as it appears in the WA RMP reporting system registration;

(ii) System type;

(iii) Equipment manufacturer;  
 (iv) Equipment model or description;  
 (v) Temperature classification. A refrigeration system must be identified as a very low, low, medium, or other temperature system;  
 (vi) Full refrigerant charge;  
 (vii) Type of refrigerant to be used;  
 (viii) A timetable that includes the expected beginning date and completion date for the installation, construction, or retrofit; and  
 (ix) A signature by a representative of the facility and date signed.

(2) A retrofit or retirement plan prepared in accordance with subsection (1) of this section must be submitted to ecology if the applicable leak rate threshold, based on the 12-month rolling average, is exceeded. The plan must be submitted no later than 90 days following expiration of the leak repair time frame in WAC 173-443-165

(7) (a).

(3) Retrofit or retirement plans during system mothballing. The requirements of this section do not apply during the time that a refrigeration or air conditioning system is undergoing mothballing. The requirements of this section will apply on the day the mothballed system resumes operation.

[ ]

#### NEW SECTION

**WAC 173-443-185 Reporting requirements.** (1) The owner or operator of a facility that has a refrigeration or air conditioning system with a full charge greater than or equal to 200 pounds of a high-GWP refrigerant must submit an annual facility refrigeration or air conditioning report (annual report) to ecology each year.

(2) Annual reports must be submitted to ecology by March 15th for the previous calendar year the refrigeration or air conditioning system was in operation and must continue each calendar year thereafter. Annual reports must be submitted by the following dates:

(a) By March 15, 2025, for a refrigeration or air conditioning system with a full charge greater than or equal to 1,500 pounds that begins operation before January 1, 2024.

(b) For a refrigeration or air conditioning system with a full charge greater than or equal to 1,500 pounds that begins operation on or after January 1, 2024, the annual report must be submitted by March 15th of the year after the calendar year in which the system begins operation.

(c) By March 15, 2027, for a refrigeration or air conditioning system with a full charge greater than or equal to 200 pounds, but less than 1,500 pounds, that begins operation before January 1, 2026.

(d) For a refrigeration or air conditioning system with a full charge greater than or equal to 200 pounds, but less than 1,500 pounds, that begins operation on or after January 1, 2026, the annual report must be submitted by March 15th of the year after the calendar year in which the system begins operation.

(3) Annual reports must include the following information for the previous calendar year for each refrigeration or air conditioning system with a full charge greater than or equal to 200 pounds of a high-GWP refrigerant:



- (a) System information.
  - (i) System identification number as it appears in the WA RMP reporting system registration;
  - (ii) System type;
  - (iii) Equipment manufacturer;
  - (iv) Equipment model or description and model year;
  - (v) Equipment serial number. If the equipment is part of an assembly without a serial number, or the serial number is not accessible after assembly, the physical location of the equipment must be identified;
  - (vi) Temperature classification. A refrigeration system must be identified as a very low, low, medium, or other temperature system;
  - (vii) Total refrigerant charge of system;
  - (viii) Type of high-GWP refrigerant(s) used; and
  - (ix) Date of initial installation.
- (b) Service and leak repair information.
  - (i) Annual leak rate as calculated based on 12-month rolling average method;
  - (ii) Date of each leak inspection;
  - (iii) Date of each leak detection;
  - (iv) Date of service(s) or leak repair(s) completed;
- (c) Refrigerant purchases and use information.
  - (i) Total weight in pounds of each type of high-GWP refrigerant purchased;
  - (ii) Total weight in pounds of each type of high-GWP refrigerant charged into the system;
  - (iii) Total weight in pounds of each type of high-GWP refrigerant recovered from the system;
  - (iv) Total weight in pounds of each type of high-GWP refrigerant stored in inventory at the facility, or stored at a different location for use in the facility, on the last day of the calendar year; and
  - (v) Total weight in pounds of any high-GWP refrigerant that was shipped by the owner or operator for reclamation and for destruction.

[ ]

#### NEW SECTION

**WAC 173-443-195 Recordkeeping requirements.** (1) Beginning January 1, 2024, the owner or operator of a facility that has a refrigeration or air conditioning system with a full charge greater than or equal to 50 pounds of a high-GWP refrigerant must maintain the following records for a minimum of five years:

- (a) All registration information required in WAC 173-443-115;
- (b) Documentation of all leak detection systems, leak inspections, and annual audit and calibrations for automatic leak detection systems;
- (c) Records of system service and refrigerant leak repairs and documentation of any conditions allowing more than 14 days to repair a refrigerant leak after detection under WAC 173-443-165 (3) or (4);
- (d) Any retrofit or retirement plan required under WAC 173-443-175;
- (e) All reports required by WAC 173-443-185;

(f) Any application for an exemption under WAC 173-443-235 and any ecology notification of approval, denial, revocation, or modification of an exemption;

(g) Any plan or other written documentation required under WAC 173-443-145 (2)(a)(ii), signed by the facility's representative, indicating that the refrigeration or air conditioning system will be replaced or retrofitted to a low-GWP refrigerant before January 1, 2027;

(h) Invoices of all high-GWP refrigerant purchases;

(i) Records of all shipments of high-GWP refrigerants for reclamation or destruction. The records must include all of the following information:

(i) Name and address of the person the refrigerant was shipped to;

(ii) Date of shipment;

(iii) Type of refrigerant shipped;

(iv) Purpose of shipment (e.g., reclamation or destruction); and

(j) Records of all refrigeration or air conditioning systems component data, measurements, calculations, and assumptions used to determine the full charge.

(2) The records in subsection (1) of this section must be kept at the facility where the refrigeration or air conditioning system is in operation and must be made available to an authorized representative of ecology's HFC program upon request.

[]

#### NEW SECTION

**WAC 173-443-205 Required service practices.** A person performing any installation, maintenance, service, repair, or disposal of a refrigeration or air conditioning system with a full charge greater than or equal to 50 pounds of a high-GWP refrigerant must comply with all of the following conditions:

(1) The person must hold a current, valid, and applicable certificate issued under 40 C.F.R. § 82.161 (as amended November 18, 2016);

(2) In preparing equipment for recycling or disposal, the person may not intentionally disrupt the refrigerant circuit resulting in a discharge to the atmosphere unless an attempt to recover the refrigerant is made using certified refrigerant recovery equipment;

(3) The person must evacuate the equipment in accordance with 40 C.F.R. § 82.156 when evacuation is required before opening equipment to atmospheric conditions. Refrigerant may be returned to the equipment from which it is recovered or to another piece of equipment owned by the same person without being recycled or reclaimed;

(4) The person may not add an additional refrigerant charge unless the refrigerant being added:

(a) Consists wholly of a regulated refrigerant as defined in WAC 173-443-030;

(b) Is an acceptable alternative under the EPA Significant New Alternatives Policy (SNAP) program for the specific equipment;

(5) The person may not add an additional refrigerant charge to equipment known to have a refrigerant leak unless the additional charge is needed to maintain operations while preparing for or conducting a leak repair.

(6) The person must use refrigerant recovery or recycling equipment certified by EPA under 40 C.F.R. § 82.158 (as amended November 18, 2016).

(7) The person must evacuate refrigerant from a nonrefillable cylinder to a vacuum of 15 inches of mercury, relative to standard atmospheric pressure of 29.9 inches of mercury, before recycling or disposal; and

(8) The person must satisfy job site evacuation of refrigerants during recycling, recovering, reclaiming, or disposing in accordance with Title 40 C.F.R. § 82.156 (as amended November 18, 2016).

[ ]

#### NEW SECTION

**WAC 173-443-215 Reporting requirements for refrigerant wholesalers, distributors, and reclaimers.** (1) Refrigerant distributors or wholesalers.

(a) A refrigerant distributor or wholesaler that sells, supplies, or distributes any amount of high-GWP refrigerant in Washington for any purpose, other than those listed in (b) of this subsection, must submit an annual report to ecology in accordance with this subsection.

(b) This subsection does not apply to the sale, supply, or distribution of high-GWP refrigerants for the sole purpose of either:

(i) Selling to a refrigerant distributor or wholesaler for eventual resale; or

(ii) Providing to a person for reclamation or destruction.

(c) The annual report must be submitted by March 15, 2025, for the previous calendar year and must continue to be submitted by March 15th of each year thereafter for the previous calendar year.

(d) The annual report must cover all facilities in Washington under the operational control of the refrigerant distributor or wholesaler.

(e) The annual report must provide annual statewide aggregated data and must include all of the following information:

(i) Contact information:

(A) Name of refrigerant wholesaler or distributor facility;

(B) Facility identification number as it appears in the WA RMP data reporting system;

(C) Mailing address, including street address, city, state, and zip code;

(D) Name of contact person;

(E) Contact person's phone number and email address;

(F) Name of each distributor or wholesaler facility under operational control;

(G) Address of each distributor or wholesaler facility under operational control; and

(H) Contact person's name, phone number, and email address for each refrigerant distributor or wholesaler facility under operational control.

(ii) Refrigerant distribution information:

(A) Total statewide annual aggregated weight in pounds of each type of high-GWP refrigerant purchased or received for subsequent resale or delivery; and

(B) Total statewide annual aggregated weight in pounds of each type of high-GWP refrigerant sold or distributed to a facility in Washington.

(2) Refrigerant reclaimers.

(a) A certified refrigerant reclaimer that reclaims any high-GWP refrigerant in Washington must submit an annual report to ecology in accordance with this subsection;

(b) The annual report must be submitted by March 15, 2025, for the previous calendar year, and must continue to be submitted by March 15th of each year thereafter for the previous calendar year;

(c) The annual report must cover all facilities in Washington under the operational control of the certified refrigerant reclaimer;

(d) The annual report must provide annual statewide aggregate data and must include all of the following information:

(i) Contact information:

(A) Name of certified reclaimer facility;

(B) Facility identification number as it appears in the WA RMP data reporting system;

(C) Mailing address including street address, city, state, and zip code;

(D) Name of contact person;

(E) Email address of contact person;

(F) Name of each refrigerant reclaiming facility under operational control;

(G) Address of each refrigerant reclaiming facility under operational control; and

(H) Contact person's name, address, phone number, and email address for each reclaiming facility under operational control.

(ii) Refrigerant reclamation information:

(A) Total statewide annual aggregated weight in pounds of high-GWP refrigerant that was received by the certified reclaimer for reclamation or destruction;

(B) Total statewide annual aggregated weight in pounds of high-GWP refrigerant that was shipped out of Washington for reclamation; and

(C) Total statewide annual aggregated weight in pounds of high-GWP refrigerant that was shipped out of Washington for destruction.

[]

#### NEW SECTION

**WAC 173-443-225 Recordkeeping requirements for refrigerant wholesalers, distributors, and reclaimers.** (1) Beginning January 1, 2024, a refrigerant distributor, wholesaler, or reclaimer of a high-GWP refrigerant must keep all of the following records for a minimum of five years:

(a) Annual reports submitted pursuant to WAC 173-443-215;

(b) Invoices of all high-GWP refrigerant(s) received through sale or transfer and all high-GWP refrigerant distributed for sale or transfer. These invoices must include all of the following information:

(i) Name of the purchaser;

(ii) Date of sale or transfer;

(iii) Quantity sold or transferred; and

(iv) Type of high-GWP refrigerant(s) purchased, sold, or transferred.

(2) A refrigerant distributor or wholesaler selling a high-GWP refrigerant to a purchaser that is an employer of a certified technician must obtain written documentation showing that the purchaser currently employs at least one certified technician.

(3) The records identified in subsections (1) and (2) of this section must be kept at the facility of the refrigerant distributor or wholesaler and must be made available to an authorized representative of ecology's HFC program upon request.

[ ]

#### NEW SECTION

**WAC 173-443-235 Exemptions.** (1) The owner or operator of a facility that has a refrigeration or air conditioning system may apply to ecology for an exemption from the requirements of WAC 173-443-165 or 173-443-175. Ecology may grant an exemption if it determines the request meets the conditions identified in subsection (2) of this section and the applicant has complied with subsection (3) of this section.

(2) Types of exemptions.

(a) Impossibility. Ecology may grant an exemption if the applicant provides clear and convincing documentation that the requested exemption will not increase the overall risk to human health or the environment and that at least one of the following criteria is met:

(i) The component(s) or parts needed to complete a leak repair are not currently or potentially available; or

(ii) The applicant has made a good faith effort to repair all identified leaks in accordance with WAC 173-443-165 and to operate and maintain the system in accordance with manufacturer recommendations.

(b) Force majeure. Ecology may grant an exemption if the applicant provides clear and convincing documentation that the requested exemption will not increase the overall risk to human health or the environment and that all of the following criteria are met:

(i) The applicant cannot comply with the applicable requirements due to a force majeure event; and

(ii) The applicant has made a good faith effort to anticipate, address, and mitigate the impacts of any force majeure event.

(c) Economic hardship. Ecology may grant an exemption if the applicant provides clear and convincing documentation that the requested exemption will not increase the overall risk to human health or the environment and that all of the following criteria are met:

(i) The facility is a retail food facility or a small business, as defined in WAC 173-443-030;

(ii) Compliance with the applicable requirements would result in extreme financial hardship such as the closure of the facility or a substantial loss of revenue from the facility; and

(iii) The applicant has made a good faith effort to anticipate, address, and mitigate any potential noncompliance.

(3) Application process.

(a) Applicant. If the facility's owner(s) and operator(s) are different persons or entities, the application for an exemption must be submitted by the operator(s) and must include an attestation signed

by the owner(s) indicating they have reviewed and verified the accuracy of the information contained in the application.

(b) To apply for an exemption, the applicant must submit an application that meets the requirements of (b)(i) through (vii) of this subsection:

(i) Applicant contact information:

(A) Name of facility;

(B) Facility owner(s);

(C) Facility operator(s), if different than the owner;

(D) Type of business or business activity;

(E) Facility address, including street address, city, state, and zip code;

(F) Facility contact phone number and email address;

(ii) The specific requirement(s) for which an exemption is requested;

(iii) An explanation of the reasons for seeking an exemption;

(iv) Documentation that the criteria for one or more of the types of exemptions listed in subsection (2)(a) or (b) or (c) of this section is met;

(v) Length of time for which the exemption is requested and the earliest date when compliance can be achieved;

(vi) A description of the damage or harm that will result from having to comply with the applicable requirements within the required time frame; and

(vii) A proposed compliance plan describing how and when compliance with the applicable requirements will be achieved if the exemption is granted. The compliance plan must include all of the following:

(A) The method(s) by which compliance will be achieved;

(B) Milestone achievements;

(C) Milestone dates; and

(D) A proposed mitigation plan that demonstrates how the applicant will reduce greenhouse gas emissions while the exemption is in place. The mitigation plan must include all calculations used to determine emissions estimates.

(c) The application must be submitted in writing to either of the following addresses:

Ecology Air Quality Program

HFC Program

P.O. Box 47600

Olympia, WA 98504-7600; or

By email to: HFC@ecology.wa.gov

(4) Approval and disapproval process.

(a) Ecology will determine whether the exemption application is complete and will notify the applicant of its completeness determination within 30 days of receipt of the application. Only complete applications will be considered.

(b) Within 60 days of determining that the application is complete, ecology will determine if and under what conditions the exemption will be permitted. The applicant and ecology may mutually agree to a longer time period for ecology's review and evaluation.

(c) During the review period, ecology may request, and the applicant must provide, more information, if necessary, to reach a decision.

(d) Ecology will notify the applicant of the decision in writing, and if approved, will specify the terms and conditions of the exemp-

tion in a letter to the applicant. Such terms and conditions may include a requirement that best management practices be followed or that mitigation measures identified in the applicant's proposed compliance plan be implemented.

(e) Ecology will grant an exemption only to the applicant who applied for the exemption. The exemption is not transferrable.

(f) Ecology will not approve an exemption retroactively prior to receipt of the application.

(g) An applicant adversely affected by a denial of an exemption or by the terms and conditions of an approved exemption, may appeal ecology's decision to the pollution control hearings board pursuant to chapter 43.21B RCW.

(5) Failure to comply with the terms of an approved exemption.

(a) The applicant must comply with the terms and conditions of an approved exemption to maintain its approved status.

(b) Ecology may revoke or modify an exemption approval if it determines the applicant no longer meets the criteria specified in the exemption approval letter.

(c) An applicant adversely affected by an ecology decision to revoke or modify an approved exemption may appeal ecology's decision to the pollution control hearings board pursuant to chapter 43.21B RCW.

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#### NEW SECTION

**WAC 173-443-245 Enforcement.** (1) Any violation of this chapter is a violation of chapter 70A.15 RCW and subject to enforcement as provided in that chapter.

(2) In enforcing the requirements of this chapter, ecology will adhere to the provisions of chapter 43.05 RCW regarding site inspections, technical assistance visits, notices of correction, and the issuance of civil penalties, to the extent that these provisions are not in conflict with federal requirements described in RCW 43.05.901.

(3) Ecology may elect to refrain from or cease administering or enforcing a requirement of this chapter if EPA adopts requirements that:

(a) Are substantially duplicative of the requirements of this chapter and that negate the additional emission reduction benefits of state implementation of any requirement of this chapter; or

(b) Preempt state authority under this chapter.

[]

#### NEW SECTION

**WAC 173-443-255 Confidentiality.** (1) Information submitted to ecology under this chapter is a public record subject to the Washington Public Records Act (chapter 42.56 RCW).

(2) A person submitting information to ecology under this chapter who believes that the information is confidential business or proprietary information, or is otherwise exempt from public disclosure under the Washington Public Records Act (chapter 42.56 RCW), may request

ecology keep said information confidential pursuant to RCW 70A.15.2510.

(3) All requests for confidentiality must meet the requirements of RCW 70A.15.2510 and be approved by the director.

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#### NEW SECTION

**WAC 173-443-265 Severability.** If any provision of this chapter or its application is held invalid, the remainder of the chapter or application of the provision is not affected.

[]

#### REPEALER

The following sections of the Washington Administrative Code are repealed:

WAC 173-443-070	Product labeling and disclosure requirements.
WAC 173-443-080	Manufacturer notification.
WAC 173-443-090	Initial notification.
WAC 173-443-100	Status update notification.
WAC 173-443-110	Severability.

#### **OTS-4619.2**

#### NEW SECTION

**WAC 173-455-160 Refrigerant management program fees.** (1) **Entities subject to fees.** Each owner or operator of a refrigeration system or an air conditioning system with a full charge greater than or equal to 200 pounds of a high GWP refrigerant, as defined in WAC 173-443-030, in a single refrigerant circuit is subject to fees under the refrigerant management program.

(2) **Types of fees.** Ecology will charge fees to cover the direct and indirect costs of administering and enforcing the refrigerant management program.

(a) Initial implementation fee. Ecology will charge a one-time fee of \$150 for each refrigeration or air conditioning system with a full refrigerant charge greater than or equal to 1,500 pounds.

(b) Annual implementation fee. Ecology will charge an annual implementation fee each year based on the refrigeration or air conditioning system's refrigerant charge size. For a facility with multiple refrigeration and/or air conditioning systems, the owner or operator



must pay an annual implementation fee for each system pursuant to (b)(i) and (ii) of this subsection.

(i) The annual implementation fee is \$370 for a refrigeration or air conditioning system with a refrigerant charge greater than or equal to 1,500 pounds.

(ii) The annual implementation fee is \$170 for a refrigeration or air conditioning system with a refrigerant charge greater than or equal to 200 pounds, but less than 1,500 pounds.

(3) All fees collected under this section will be deposited into the refrigerant emission management account in accordance with RCW 70A.60.050.

(4) **Fee modifications.** Ecology may adjust the amount of the annual implementation fees set forth in subsection (2)(b) of this section based on the sufficiency of funds generated by the program over the previous year, as needed to cover program costs for the following year. Before changing a fee, ecology will:

(a) Prepare a draft workload analysis and budget that reflects the anticipated cost of administering and enforcing the refrigerant management program over the coming year compared to the total fees collected under this section during the previous year;

(b) Post the draft workload analysis, budget, and proposed fee change on ecology's website by August 1st of the year before the calendar year in which the change will take effect;

(c) Provide a 30-day public comment period on the draft workload analysis, budget, and proposed fee change; and

(d) Post the final workload analysis, budget, and new annual implementation fee by December 1st of the year before the new fee takes effect.

(5) **Payment of fees.** Fees identified in this section must be paid within 30 calendar days of receipt of ecology's billing statement. All fees must be made payable to the Washington state department of ecology. Ecology may assess a late fee surcharge for any fee payment received after 60 calendar days past the due date.

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**WSR 23-15-078**  
**PROPOSED RULES**  
**DEPARTMENT OF**  
**FISH AND WILDLIFE**

[Order 20-03—Filed July 17, 2023, 2:57 p.m.]

Original Notice.

Preproposal statement of inquiry was filed as WSR 20-13-094.

Title of Rule and Other Identifying Information: Fishway and screening rules; creating new Washington department of fish and wildlife (WDFW) chapter 220-670 WAC to implement chapter 77.57 RCW.

Hearing Location(s): On September 28, 2023, at 9:00 a.m., at Yakima Convention Center, 10 North 8th Street, Yakima, WA 98901. Detailed information about fish and wildlife commission meetings can be found at <https://wdfw.wa.gov/about/commission/meetings>.

Date of Intended Adoption: October 26, 2023.

Submit Written Comments to: Gabrielle Stilwater, P.O. Box 43200, Olympia, WA 98504-3200, email [fish-passage-rules@PublicInput.com](mailto:fish-passage-rules@PublicInput.com), fax 360-902-2946, Attn: Gabrielle Stilwater, phone 855-925-2801, project code 2051, website for comments <https://publicinput.com/fish-passage-rules>, by September 29, 2023.

Assistance for Persons with Disabilities: Contact WDFW Americans with Disabilities Act manager, phone 360-902-2349, fax 360-902-2946, Attn: Gabrielle Stilwater, TTY 360-902-2207, email [adaprogram@dfw.wa.gov](mailto:adaprogram@dfw.wa.gov), by September 15, 2023.

Purpose of the Proposal and Its Anticipated Effects, Including Any Changes in Existing Rules: WDFW is proposing a new WAC chapter implementing chapter 77.57 RCW.

In November 2018, the southern resident orca (SRO) task force published its report identifying lack of prey as a key threat to SROs. Recommendation number three of the 2018 SRO task force report endorsed agencies to apply and enforce laws that protect habitat. Specifically, the SRO task force noted that the governor should direct WDFW to develop rules to fully implement chapter 77.57 RCW. The Washington state legislature supported the SRO task force direction with the approval of the 2019 ESHB 1109 (chapter 415, Laws of 2019), which became effective on May 21, 2019. In 2019, WDFW entered into an informal comanagement agreement with Washington state treaty tribes to incorporate climate change science into policy. Additionally, the proposed rules are intended to be consistent with parallel WDFW rules for construction projects in state waters, chapter 220-660 WAC.

This proposal would create and populate new chapter 220-670 WAC that defines general passability and protection standards for new and existing fishways and water diversions. Consideration of incorporating climate change into the design of new water crossing structures is detailed within the standards as well. The proposal codifies current WDFW practices of using the agency's fish passage inventory and assessment guidance and water crossing design guidelines. These standards are the foundation for establishing compliance measures. Compliance measures detail technical assistance support and voluntary compliance steps a structure owner may follow to correct a barrier fishway or water diversion. Compliance measures also establish the effects of noncompliance when a structure owner does not agree to a WDFW compliance request.

Reasons Supporting Proposal: The proposal was developed over the course of three years with input from WDFW staff, tribal partners, additional Washington state agencies, Washington State Association of

Counties, Association of Washington Cities, nongovernmental agencies, small business economic impacts and cost-benefit analyses, and multiple staff work groups and public comment opportunities, including three public comment meetings on the preproposed draft proposal. The proposal defines important fishway and water diversion standards and WDFW administrative actions.

Although this proposal is rooted in restoring SRO populations, there are other reasons supporting this proposal. As the human population grows, land use policies that allow development in or near floodplains can lead to degradation and loss of functioning habitat necessary to support salmon and other fish species. Structures built to protect or support human development activities such as bridges, culverts, and water diversions often further impact fish habitat. In addition to effects of urbanization, transportation, agriculture, logging, mining, and other forms of land use, many rivers have been straightened, diked, and cleared of complex habitat features. Converting natural habitats into lands and rivers that support human uses often degrades the health of the habitat and the fish that depend upon it.

Fishway barriers limit fish life from accessing spawning and rearing habitat. Barriers can negatively affect streambed movement and large wood movement, prevent fish from moving up or downstream, concentrate predators, impact water temperature, and effects [affect] other natural ecological functions. In some cases, the effects associated with barriers can be as impactful as the barrier itself. Culverts are generally designed to last 50 to 100 years. Designing culverts to be resilient to future changes in stream conditions can reduce the risks of culvert failure and the creation of barriers to migrating fish. Culverts and bridges built to accommodate higher stream flows are less likely to fail and block fish, which reduces future maintenance and repair costs. Improperly designed water diversions can reduce the amount of useable fish habitat. In addition, unscreened withdrawal points can trap fish in conveyance structures that pump water from its source to its final destination, leading to injury or death.

Statutory Authority for Adoption: RCW 77.04.012, 77.12.047, 77.57.010, 77.57.030, 77.57.040, 77.57.060, 77.57.070, and 43.05.100; ESHB 1109 (chapter 415, Laws of 2019).

Statute Being Implemented: Chapter 77.57 RCW, Fishways, flow, and screening.

Rule is not necessitated by federal law, federal or state court decision.

Name of Proponent: WDFW, habitat program, fish passage division, governmental.

Name of Agency Personnel Responsible for Drafting and Implementation: Gabrielle Stilwater, 1111 Washington Street S.E., Olympia, WA 98501, 564-999-0768; Enforcement: Kelly Still, 1111 Washington Street S.E., Olympia, WA 98501, 360-902-2605.

A school district fiscal impact statement is not required under RCW 28A.305.135.

A cost-benefit analysis is not required under RCW 34.05.328. Although these proposed rules are not significant legislative rules implementing chapter 77.57 RCW, WDFW voluntarily completed a cost-benefit analysis to provide greater scrutiny of the rules' potential impact. A preliminary cost-benefit analysis can be obtained by contacting Gabrielle Stilwater, P.O. Box 43200, Olympia, WA 98504-3200, email FishPassageRules@dfw.wa.gov, fax 360-902-2946, Attn: Gabrielle Stilwa-

ter, website <https://wdfw.wa.gov/species-habitats/habitat-recovery/fish-passage/rule-making>.

Scope of exemption for rule proposal:

Is not exempt.

The proposed rule does impose more-than-minor costs on businesses.

#### Small Business Economic Impact Statement

**Reviser's note:** The material contained in this filing exceeded the page-count limitations of WAC 1-21-040 for appearance in this issue of the Register. It will appear in the 23-16 issue of the Register.

A copy of the statement may be obtained by contacting Gabrielle Stilwater, P.O. Box 43200, Olympia, WA 98504-3200, phone 564-999-0768, fax 360-902-2946, Attn: Gabrielle Stilwater, TTY 360-902-2207, email [FishPassageRules@dfw.wa.gov](mailto:FishPassageRules@dfw.wa.gov), website <https://wdfw.wa.gov/species-habitats/habitat-recovery/fish-passage/rule-making>.

July 17, 2023

Scott Bird

Rules Coordinator

**Reviser's note:** The material contained in this filing exceeded the page-count limitations of WAC 1-21-040 for appearance in this issue of the Register. It will appear in the 23-16 issue of the Register.

**WSR 23-15-080**  
**PROPOSED RULES**  
**DEPARTMENT OF**  
**SOCIAL AND HEALTH SERVICES**  
(Economic Services Administration)  
[Filed July 17, 2023, 4:43 p.m.]

Supplemental Notice to WSR 23-03-096.

Preproposal statement of inquiry was filed as WSR 21-23-108.

Title of Rule and Other Identifying Information: The department is proposing to adopt WAC 388-439-0005 What is the pandemic EBT program?, 388-439-0015 General information about pandemic EBT benefits, 388-439-0020 Eligibility for pandemic EBT benefits for children under age six, and 388-439-0025 Eligibility for pandemic EBT benefits during the 2023 summer period.

Hearing Location(s): On August 22, 2023, at 10:00 a.m., virtually via Teams or call in. Hearings are being held virtually. Please see the department of social and health services (DSHS) website for the most up-to-date information.

Date of Intended Adoption: Not earlier than August 23, 2023.

Submit Written Comments to: DSHS Rules Coordinator, P.O. Box 45850, Olympia, WA 98504, email DSHSRPAURulesCoordinator@dshs.wa.gov, fax 360-664-6185, by August 22, 2023, at 5:00 p.m.

Assistance for Persons with Disabilities: Contact Shelley Tencza, DSHS rules consultant, phone 360-664-6036, fax 360-664-6185, TTY 711 relay service, email Tencza@dshs.wa.gov, by August 8, 2023, at 5:00 p.m.

Purpose of the Proposal and Its Anticipated Effects, Including Any Changes in Existing Rules: These rules support implementation and extension of the final year of the pandemic EBT program (as allowed under Section 1101 of H.R. 6201, Families First Coronavirus Response Act and amended by Section 1108 of H.R. 1319, American Rescue Plan Act of 2021).

This supplemental filing reflects USDA Food and Nutrition Service's (FNS) recent approval of Washington's P-EBT state plan for children in child care for school year 2022-23 and Washington's P-EBT state plan for summer 2023. These rules are currently in effect (since July 1, 2023) via emergency filing WSR 23-14-093 filed on June 30, 2023.

Reasons Supporting Proposal: See above.

Statutory Authority for Adoption: RCW 74.04.050, 74.04.055, 74.04.057, 74.04.500, 74.04.510, 74.08.090, and 74.08A.120.

Statute Being Implemented: Not applicable.

Rule is not necessitated by federal law, federal or state court decision.

Name of Proponent: DSHS, governmental.

Name of Agency Personnel Responsible for Drafting, Implementation, and Enforcement: Troy Burgess, P.O. Box 45470, Olympia, WA 98504-5470, 360-584-5162.

A school district fiscal impact statement is not required under RCW 28A.305.135.

A cost-benefit analysis is not required under RCW 34.05.328. These rules are exempt as allowed under RCW 34.05.328 (5) (b) (vii) which states in part, "[t]his section does not apply to ... rules of the department of social and health services relating only to client medical or financial eligibility and rules concerning liability for care of dependents.["]

This rule proposal, or portions of the proposal, is exempt from requirements of the Regulatory Fairness Act because the proposal:

Is exempt under RCW 19.85.025(4).

Is exempt under RCW 34.05.328 (5)(b)(vii).

Explanation of exemptions: These amendments relate only to DSHS client medical or financial eligibility and rules concerning liability for care of dependents.

Scope of exemption for rule proposal:

Is fully exempt.

July 17, 2023  
Katherine I. Vasquez  
Rules Coordinator

**SHS-4858.12**

**Chapter 388-439 WAC  
PANDEMIC EBT (P-EBT) PROGRAM**

NEW SECTION

**WAC 388-439-0005 What is the pandemic EBT program?** (1) The pandemic electronic benefits transfer (P-EBT) program is a temporary federally funded nutrition program authorized specifically through the families first coronavirus act. P-EBT provides food benefits to eligible children who do not have access to meals at a covered childcare center or free or reduced-price school meals due to the COVID-19 public health emergency. P-EBT is administered by the department of social and health services (department) and is not bound by the same state or federal rules, regulations, and procedures governing the supplemental nutrition assistance program (SNAP). P-EBT is governed by its own specific rules as found in this chapter. The 2022-2023 school year will be the final year for all P-EBT programs due to the May 2023 expiration of the federal public health emergency (PHE).

(2) The following definitions apply to this program:

(a) "Benefit level" means the P-EBT benefit amount provided to an eligible child;

(b) "Child and adult care food program (CACFP)" means a federal program that provides reimbursements for nutritious meals and snacks to eligible children and adults who are enrolled for care at participating childcare centers, day care homes, and adult day care centers;

(c) "Direct certification" means a determination that a child is eligible for free or reduced-priced school meals without further application to the national school lunch program due to:

(i) Receiving a benefit from a federal means tested assistance program, including SNAP, temporary assistance for needy families (TANF), food distribution program on Indian reservations (FDPIR), some medicaid programs; or

(ii) Other source eligible categories, including children in foster care, children experiencing homelessness, students enrolled in the

migrant education program, and children enrolled in head start or the early childhood education and assistance program (ECEAP);

(d) "Eligible student" means a child or student, regardless of age, who would have access to free or reduced-price school meals through the national school lunch program (NSLP) and school breakfast program (SBP) during the school year, who is:

(i) Enrolled in a school or registered in a program in Washington state that normally participates in the NSLP;

(ii) Attending a school that has been closed or has reduced attendance or hours for five or more consecutive days during the school year due to the COVID-19 PHE designation; and

(iii) Determined by the school to be eligible for free or reduced-priced school meals or attends a school that operates the community eligibility provision or the provision 2 lunch and breakfast program. Students are identified as eligible for free or reduced-price school meals using direct certification or free or reduced-price school meals application;

(e) "Free or reduced-price school meals" means meals provided to students qualified as eligible by the Richard B. Russell National School Lunch Act;

(f) "Meal service" means the typical meals (SBP and NSLP) served when school is in session and consumed on-site as part of the school day. Meal service includes both breakfast and lunch.

(g) "Operating days" are days a school regularly operates, excluding weekends, breaks, and holidays;

(h) "P-EBT card" means the unique electronic benefit transfer (EBT) card that accesses P-EBT food benefits issued to eligible students or children under age six;

(i) "Public health emergency" means a federal declaration of a public health emergency due to the COVID-19 pandemic as issued by the secretary of health and human services;

(j) "School" means any public or nonprofit private schools, charter schools, and tribal compact schools within the state of Washington;

(k) "School closure" means that the school was closed for in-person or remote learning with no meal service available to students enrolled in the school;

(l) "Summer period" means the months of July and August between the end of the school year and the start of the next school year.

[]

#### NEW SECTION

**WAC 388-439-0015 General information about pandemic EBT benefits.** (1) Pandemic electronic benefit transfer (P-EBT) benefits will be deposited into an account accessible with a designated P-EBT card. A P-EBT card and eligibility notice will be issued to each eligible student or child under age six. Each P-EBT card will be:

(a) Linked to a P-EBT account for each eligible student or child under age six for P-EBT benefits; and

(b) Mailed to either:

(i) The last known address on file with the school as reported by the parent or caregiver for the eligible student; or

(ii) The last known address on file with the department as reported by the parent or caregiver for the basic food case for the child under age six.

(c) It is the parent's or caregiver's responsibility to accurately and timely report any address changes to the department for children under six and to the school for school age children. The department or school is not responsible for the expungement of benefits due to unreceived P-EBT notices or cards sent through the mail.

(2) To use a P-EBT account:

(a) The P-EBT card can be used by the eligible student or child under age six or responsible household member, such as a parent or caregiver, on behalf of the eligible student or child under age six, to access the benefits in their EBT account;

(b) A personal identification number (PIN) has to be created that must be used with the P-EBT card to purchase food items;

(c) P-EBT benefits must be accessed from the P-EBT card of an eligible student or child under age six. P-EBT benefits cannot be transferred to a bank account or issued as a check;

(d) P-EBT benefits must be used within 274 days from the initial deposit or last purchase activity on the eligible child's account;

(e) P-EBT benefits not used within 274 days of either activity will be removed; and information about the removal of benefits is included in the initial notice of approval.

(f) P-EBT benefits cannot be replaced once redeemed, removed, lost, or stolen due to fraudulent use.

(g) Families are responsible for keeping the P-EBT card and PIN of an eligible student or child under age six in a safe and secure place.

(3) The purpose of P-EBT benefits is to help low-income families or individuals have a more nutritious diet by providing food benefits to eligible children during the COVID-19 PHE.

(a) P-EBT benefits are used to buy food items for an eligible child (or youth) from a food retailer authorized to accept supplemental nutrition assistance program (SNAP) benefits by the U.S. department of agriculture food and nutrition service (FNS).

(b) Use P-EBT benefits the same as other food benefits under WAC 388-412-0046 (2) (c).

(c) It is not legal to use P-EBT benefits as described under WAC 388-412-0046 (2) (d).

(d) If people intentionally misuse P-EBT benefits, they may be:

(i) Subject to fines; or

(ii) Subject to legal action, including criminal prosecution. Department of social and health services (DSHS) will cooperate with state, local, and federal prosecuting authorities to prosecute trafficking P-EBT benefits.

(4) The household must request a hearing within 90 days of the mailing date in the notice when disagreeing with a decision explained in the notice.

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#### NEW SECTION

**WAC 388-439-0020 Eligibility for pandemic EBT benefits for children under age six.** (1) To be eligible for federally funded pandemic



electronic benefits transfer (P-EBT) benefits for children under age six, a child must be:

(a) A member of a household that received supplemental nutrition assistance program (SNAP) between September 1, 2022, and May 11, 2023;

(b) Under age of six during the specified time period.

(2) Children who do not qualify for federally funded P-EBT benefits because they receive state-funded food assistance program (FAP) may be eligible for state-funded P-EBT.

(a) State-funded P-EBT follows the same eligibility rules as subsection (1) of this section, except that the child must be a member of a household that received FAP, instead of SNAP, between September 1, 2022, and May 11, 2023.

(b) State-funded P-EBT benefits are contingent on the availability of state funds.

(3) We calculate a standard benefit level for each month of P-EBT eligibility by:

(a) Using the full daily meal reimbursement rate of \$8.18 for breakfast, lunch, and snack;

(b) For September 2022, through April 2023, multiplied by the statewide average operating days of 18 days per month;

(c) For the partial prorated month of May 2023, multiplied by the nine operating days prior to the May 11 expiration of the PHE;

(d) Multiplied using a percentage of benefit reimbursement based on statewide child and adult care food program (CACFP) reported meal service prior to the COVID-19 PHE compared to the current school year, a 29.8 percent reduction, as follows:

Child Care Months	Daily Reimbursement Rate	Average Operating Days	Reduction in CACFP Claims	Average Monthly Benefits
September 2022-April 2023	\$8.18	18	29.8%	\$43.88
May 1,-May 11, 2023	\$8.18	9	29.8%	\$28.94

(e) P-EBT benefits are issued for each month that the household receives a SNAP or FAP benefit more than zero dollars.

(4) P-EBT benefits are issued for a child under age six for a retroactive period of time as follows:

(a) A lump sum one-time P-EBT allotment is issued for eligible months from September 2022, through May 2023;

(b) P-EBT during the summer period benefits are disbursed under WAC 388-439-0025.

(5) Benefits for a child under age six will be placed on a P-EBT card under WAC 388-439-0015.

(6) USDA requires all issuances of P-EBT benefits to be complete by December 31, 2023, as federal funding will be exhausted. Any and all P-EBT benefits issued beyond this date will be subject to additional USDA approval and funding.

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NEW SECTION

**WAC 388-439-0025 Eligibility for pandemic EBT benefits during the 2023 summer period.** (1) During the summer period of July and August 2023, schools and covered childcare centers will be deemed as closed.

(2) To be eligible for the pandemic electronic benefits transfer (P-EBT) benefit during the summer period after the 2022-2023 school year, prior to August 31, 2023, a child must be:

(a) An eligible student as defined under WAC 388-439-0005 (2)(d) in June 2023; or

(b) A child under age six, as defined under WAC 388-439-0020(1), between July 1, 2023, and August 31, 2023.

(3) A child determined eligible in subsection (2) of this section will receive a one-time, lump sum payment of \$120 for the 2023 summer period.

(4) Summer P-EBT benefits for an eligible student or a child under age six will be placed on a P-EBT card under WAC 388-439-0015.

(5) USDA requires all issuances of P-EBT benefits to be complete by December 31, 2023, as federal funding will be exhausted. Any and all P-EBT benefits issued beyond this date will be subject to additional USDA approval and funding.

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## WSR 23-15-083

## PROPOSED RULES

## DEPARTMENT OF HEALTH

(Chiropractic Quality Assurance Commission)

[Filed July 18, 2023, 7:50 a.m.]

Original Notice.

Preproposal statement of inquiry was filed as WSR 22-22-088.

Title of Rule and Other Identifying Information: Health equity continuing education (CE) for chiropractors in WAC 246-808-150. The chiropractic quality assurance commission (commission) is proposing amendments to the current rule to establish health equity CE requirements to implement ESSB 5229, and other housekeeping changes.

Hearing Location(s): On September 14, 2023, at 9:20 a.m., at Department of Labor and Industries, 7273 Linderson Way S.W., Tumwater, WA 98501; or virtually using Microsoft Teams. Join on your computer, mobile app, or room device [Date of Intended Adoption: September 14, 2023.](https://gcc02.safelinks.protection.outlook.com/ap/t-59584e83/?url=https%3A%2F%2Fteams.microsoft.com%2F1%2Fmeetup-join%2F19%253ameeting_NmU5ZTI4NjMtYjJjMC00ZGZiLTk3NzctNzFjYjc4YTYzNWUy%2540thread.v%2F0%3Fcontext%3D%257b%2522Tid%2522%253a%252211d0e217-264e-400a-8ba0-57dcc127d72d%2522%252c%2522Oid%2522%253a%2522842fd80d-c544-49c8-bc06-392ac3b3c17b%2522%257d&data=05%7C01%7Cbetty.moe%40doh.wa.gov%7Cf8c9d952792a466997ea08db5c17dcf3%7C11d0e217264e400a8ba057dcc127d72d%7C0%7C0%7C638205029779058862%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6IklhaWwiLCJXVCI6Mn0%3D%7C3000%7C%7C%7C&sdata=JGRyt1qq8R0pkthharSxUcjLwrGegPSa8EkCDxzX0U8%3D&reserved=0, Meeting ID 278 840 993 215, Passcode hoLV9W, or call in (audio only) +1 564-999-2000,,228461156# United States, Olympia, Phone Conference ID 228 461 156#. This meeting will be held as a hybrid meeting option.</p></div><div data-bbox=)

Submit Written Comments to: Betty J. Moe, Regulatory Analyst, P.O. Box 47858, Olympia, WA 98504-7858, email [Betty.Moe@doh.wa.gov](mailto:Betty.Moe@doh.wa.gov), [cqac@doh.wa.gov](mailto:cqac@doh.wa.gov), by September 7, 2023.

Assistance for Persons with Disabilities: Contact Betty J. Moe, phone 360-236-2868, TTY 711, email [cqac@doh.wa.gov](mailto:cqac@doh.wa.gov), by August 31, 2023.

Purpose of the Proposal and Its Anticipated Effects, Including Any Changes in Existing Rules: RCW 43.70.613 (3)(b) directs the rule-making authority for each health profession licensed under Title 18 RCW that is subject to CE to adopt rules requiring a licensee to complete health equity CE training at least once every four years. The statute also directs the department of health (department) to create model rules establishing the minimum standards for health equity CE programs. The department filed model rules for health equity CE minimum standards on November 23, 2022, under WSR 22-23-167. Any rules developed for the commission must meet or exceed the minimum standards in the model rules in WAC 246-12-800 through 246-12-830.

The commission is proposing amendments to WAC 246-808-150 to implement ESSB 5229. The commission is proposing adopting the health equity model rules, WAC 246-12-800 through 246-12-830, for chiropractors to comply with RCW 43.70.613.

The proposed rule adds two hours of health equity education, as required in the model rules, to be completed as part of the current CE requirements every four years. The proposed rule does not change total CE hours but requires two hours in health equity CE every four years

which is absorbed into the existing number of CE hours required. The health equity CE requirement is counted under existing, unspecified CE requirements for the profession.

In addition to the adoption of the model rules, housekeeping has been completed throughout the rule. These updates were necessary for consistency throughout the rule section. As part of the housekeeping changes, the proposed rule language adds "live-remote webinars" to the list of multimedia chiropractic education programs. This list is not a comprehensive list; this language was added for clarity, without changing the requirements of the rule.

Reasons Supporting Proposal: The goal of health equity CE is to equip health care workers with the skills to recognize and reduce health inequities in their daily work. The content of health equity trainings include instruction on skills to address structural factors, such as bias, racism, and poverty, that manifests as health inequities.

Two hours of training allows individuals to gain a foundation in health equity that can have an immediate positive impact on the professional's interaction with those receiving care. Health equity training enables health care professionals to care effectively for patients from diverse cultures, groups, and communities, varying race, ethnicity, gender identity, sexuality, religion, age, ability, socioeconomic status, and other categories of identity. The two hours of health equity CE credits may be earned as part of the health professional's existing CE requirements, therefore not requiring completion of additional CE hours.

Statutory Authority for Adoption: RCW 43.70.613, 18.25.070.

Statute Being Implemented: RCW 43.70.613, 18.25.070.

Rule is not necessitated by federal law, federal or state court decision.

Name of Proponent: Chiropractic quality assurance commission, governmental.

Name of Agency Personnel Responsible for Drafting, Implementation, and Enforcement: Betty J. Moe, 111 Israel Road S.E., Tumwater, WA 98501, 360-236-2868.

A school district fiscal impact statement is not required under RCW 28A.305.135.

A cost-benefit analysis is required under RCW 34.05.328. A preliminary cost-benefit analysis may be obtained by contacting Betty J. Moe, P.O. Box 47858, Olympia, WA 98504-7858, phone 360-236-2868, TTY 711, email Betty.Moe@doh.wa.gov, CQAC@doh.wa.gov.

This rule proposal, or portions of the proposal, is exempt from requirements of the Regulatory Fairness Act because the proposal:

Is exempt under RCW 19.85.025(4).

Scope of exemption for rule proposal:

Is fully exempt.

July 7, 2023  
Robert Nicoloff  
Executive Director

**OTS-4622.3**

AMENDATORY SECTION (Amending WSR 17-07-096, filed 3/20/17, effective 4/20/17)

**WAC 246-808-150 Commission approved continuing education.** (1) A chiropractor must demonstrate completion of ~~((twenty-five))~~ 25 hours of continuing education each annual renewal cycle as required by RCW 18.25.070 and ~~((chapter 246-12 WAC, Part 7))~~ WAC 246-12-170 through 246-12-240. The required continuing education must be obtained during the period between renewals.

(2) A chiropractor must attest to completion of the continuing education requirement upon renewal. If the first renewal period is less than one full year from the date of licensure, no continuing education will be due for the first renewal period.

(3) A chiropractor in active status who resides and practices outside Washington must meet all the requirements.

(4) A chiropractor is not required to obtain prior approval of any continuing education.

(5) The commission approves the following subject material within the scope of practice for continuing chiropractic education credit:

(a) Diagnosis and treatment of the spine or extremity articulations within the scope of practice;

(b) X-ray/diagnostic imaging;

(c) Adjustive technique;

(d) Detection of a subluxation;

(e) Physical examination;

(f) Hygiene;

(g) Symptomatology;

(h) Neurology;

(i) Pathology;

(j) Orthopedics;

(k) Patient/case management, documentation, coding;

(l) Impairment within the scope of practice;

(m) CPR (not to exceed a total of four hours);

(n) Dietary and nutrition advice;

(o) Chiropractic philosophy; and

(p) Governmental regulations relevant to chiropractic and public health (not to exceed a total of ~~((twelve))~~ 12 hours).

(6) Suicide screening and referral.

(a) As part of the continuing education requirements, a chiropractor must obtain a one-time, three-hour training in suicide screening and referral from a qualified suicide prevention training program. The training must be completed during the first full reporting period after initial licensure.

~~((a))~~ (b) A qualified training program is empirically supported training in suicide screening and referral that is at least three hours in length and may be provided in one or more sessions.

~~((b))~~ (c) The hours spent completing a training program in suicide screening and referral under this section count toward meeting any applicable continuing education requirements.

~~((c) Effective July 1, 2017,)~~ (d) In order to meet the suicide screening and referral training requirements, a chiropractor must obtain the three-hour training in suicide screening and referral from a qualified suicide prevention training program identified on the department of health's model list as required under RCW 43.70.442.

~~((d))~~ (e) Nothing in this subsection is intended to expand or limit the chiropractic scope of practice.

(7) Health equity requirements.

(a) Beginning January 1, 2024, as part of the continuing education requirements, a chiropractor must complete a minimum of two hours of training in health equity every four years in accordance with WAC 246-12-800 through 246-12-830.

(b) Hours spent completing health equity continuing education under this section count toward meeting the continuing education requirement(s) for chiropractors for renewal.

(8) Subject matter not approved for continuing education credit:

(a) Subject matter not directly relating to the chiropractic clinical scope of practice; and

(b) Conduct prohibited by Washington state statutes or rules governing chiropractic practice.

~~((8))~~ (9) A chiropractor may earn a maximum of ~~((twelve))~~ 12 hours for:

(a) Completing a multimedia chiropractic education program, which includes, but is not limited to, the internet, teleseminars, employer led training, live remote webinars, and audio or video presentations.

(b) Serving as teachers or lecturers in continuing education programs approved under subsection (5) of this section. A chiropractor may receive credit on the same basis as those attending the program.

~~((9))~~ (10) The commission may randomly audit license holders for compliance. A chiropractor must provide acceptable documentation of attendance upon commission request or audit. Acceptable forms of documentation include:

(a) Transcripts;

(b) Written documentation from the course instructors;

(c) Certificate of completion indicating the name of the course, date(s) of the course, and the number of credit hours completed; or

(d) Other formal documentation which includes:

(i) Participant's name;

(ii) Course title;

(iii) Course content;

(iv) Date(s) of course;

(v) Number of credit hours completed;

(vi) Instructor's name(s); and

(vii) Signature of the program sponsor or course instructor. Multimedia courses are exempt from the signature requirement.

~~((10))~~ (11) A sponsor offering a continuing chiropractic education program does not need prior commission approval for a formal continuing education program. The number of creditable hours may be determined by counting the contact hours of instruction. A credit hour for time actually spent in a course cannot be less than ~~((fifty))~~ 50 minutes as required in ~~((chapter 246-12 WAC, Part 7))~~ WAC 246-12-220.

~~((11))~~ (12) The commission may grant exemptions or time extensions on an individual basis~~((7))~~ if a licensee fails to meet continuing education requirements due to illness, retirement, or other extenuating circumstances.

[Statutory Authority: RCW 18.25.0171, 18.130.050, 18.25.070, and 43.70.442. WSR 17-07-096, § 246-808-150, filed 3/20/17, effective 4/20/17. Statutory Authority: RCW 18.25.0171, 18.25.070, and 2014 c 71. WSR 15-07-005, § 246-808-150, filed 3/6/15, effective 4/6/15. Statutory Authority: RCW 18.25.0171 and 18.25.070. WSR 06-03-057, § 246-808-150, filed 1/11/06, effective 2/11/06. Statutory Authority: RCW 43.70.280. WSR 98-05-060, § 246-808-150, filed 2/13/98, effective 3/16/98. Statutory Authority: Chapter 18.25 RCW. WSR 96-16-074, § 246-808-150, filed 8/6/96, effective 9/6/96.]

## WSR 23-15-085

## PROPOSED RULES

## DEPARTMENT OF ECOLOGY

[Order 22-06—Filed July 18, 2023, 8:05 a.m.]

## Original Notice.

Preproposal statement of inquiry was filed as WSR 22-18-039.

Title of Rule and Other Identifying Information: This rule making would make changes to chapter 173-201A WAC, Water quality standards for surface waters of the state of Washington.

We propose adding new WAC 173-201A-332 Table 332—Outstanding resource water designations by water resource inventory area (WRIA); and amending WAC 173-201A-020 Definitions, 173-201A-330 Tier III—Protection of outstanding resource waters (ORW), and 173-201A-602 Use designations for fresh waters by water resource inventory area (WRIA) - WRIAs 4 and 26. For more information on this rule making, please visit <https://ecology.wa.gov/Regulations-Permits/Laws-rules-rulemaking/Rulemaking/WAC-173-201A-Outstanding-Resource-Waters>.

Hearing Location(s): On Thursday, September 7, 2023, at 5:30 p.m., webinar. Presentation, question and answer session followed by the hearing. We are holding this hearing via webinar. This is an on-line meeting that you can attend from any computer using internet access. Join online and see instructions <https://waecy-wa-gov.zoom.us/j/83739082092>. For audio call US toll number 1-253-205-0468 and enter access code 837 3908 2092. Or to receive a free call back, provide your phone number when you join the event;

On Tuesday, September 12, at 2 p.m., at Kalama Community Building, 216 Elm Street, Kalama, WA 98625. Presentation, question and answer session followed by the hearing. The presentation will focus on the proposed Cascade River ORW designation;

On Thursday, September 14, at 2 p.m., at Skagit County Public Utility District, Aqua Room, 1415 Freeway Drive, Mount Vernon, WA 98273. Presentation, question and answer session followed by the hearing. The presentation will focus on the proposed Green River ORW designation;

On Tuesday, September 19, at 5:30 p.m., at Soap Lake Senior Center, 121 2nd Avenue S.E., Soap Lake, WA 98851. Presentation, question and answer session followed by the hearing. The presentation will focus on the proposed Soap Lake ORW designation; and

On Wednesday, September 20, at 2 p.m., at Bavarian Lodge, Hintertux Room, 810 US Hwy 2, Leavenworth, WA 98826. Presentation, question and answer session followed by the hearing. The presentation will focus on the proposed Napeequa River ORW designation.

Date of Intended Adoption: December 13, 2023.

Submit Written Comments to: Marla Koberstein, US mail: Department of Ecology, Water Quality Program, P.O. Box 47600, Olympia, WA 98504-7600; or parcel delivery: Department of Ecology, Water Quality Program, [no further information provided], <https://ws.ecology.commentinput.com/?id=sUiNmjf5V>, by September 27, 2023.

Assistance for Persons with Disabilities: Contact Ecology ADA coordinator, phone 360-407-6831, speech disability may call TTY at 877-833-6341, impaired hearing may call Washington relay service at 711, email [marla.koberstein@ecy.wa.gov](mailto:marla.koberstein@ecy.wa.gov), by Thursday, August 31, 2023.

Purpose of the Proposal and Its Anticipated Effects, Including Any Changes in Existing Rules: We propose designating four waterbodies as Tier III(A) or Tier III(B) ORWs. ORWs are identified as having exceptional water quality, ecological and recreational values, or unique

attributes that distinguish them among state waterbodies and warrant special protection. An ORW has the highest level of protection assigned to a waterbody under the Tier III antidegradation rule in our water quality standards.

We propose designating the following waterbodies as Tier III(A) ORWs: Portions of the Napeequa River and tributaries (Chelan County); upper watershed of the Green River and tributaries (Skamania County); and upper watershed of the Cascade River and tributaries (Skagit County).

A Tier III(A) designation is the highest level of protection. Proposed activities that would result in new or expanded sources of pollution in an ORW are prohibited, except in limited cases.

We propose designating the following waterbody as a Tier III(B) ORW: Soap Lake (Grant County).

Any new or expanded source of pollution to a Tier III(B) ORW cannot cause a measurable change in water quality. This level of protection would place extra requirements on new or expanded point source discharges to ensure pollution from wastewater is kept to a minimum. For nonpoint sources, this designation would require that certain best management practices are used to limit pollution from runoff to below measurable levels where total elimination is not feasible.

We also propose changes to WAC 173-201A-330 to revise our review process. The rule currently states that ecology will consult with federally recognized tribes in the geographic vicinity of the water (WAC 173-201A-330 (3)(a)). We have revised this to state that the public review process will include "consultation with tribes." We will not limit tribal consultation only to those within the geographic vicinity of the proposed waterbody, nor will we limit consultation to only those tribes that are federally recognized.

Other proposed changes to chapter 173-201A WAC are as follows: WAC 173-201A-020 to add a definition for outstanding resource waters, and WAC 173-201A-602 to note where an ORW exists on waterbodies with specified use designations within Table 602.

Reasons Supporting Proposal: This rule proposal is in response to nominations we received in 2021. On April 2, 2021, the Soap Lake Conservancy and the Confederated Tribes of the Colville Reservation submitted a nomination to designate Soap Lake as a Tier III(B) ORW. On June 24, 2021, the Pew Charitable Trusts, American Rivers, Cascade Forest Conservancy, Wild Salmon Center, American Whitewater, Washington Wild, and Trout Unlimited submitted a nomination to designate portions of the three rivers as Tier III(A) ORWs.

The goal of designating waterbodies as ORWs is to protect and maintain our state's highest quality and most valued waters from actions that would lower water quality.

For each nomination, we reviewed the waterbody to determine if it met at least one of the eligibility requirements under WAC 173-201A-330(1). During this review, which must be completed within 60 days of when we receive the nomination, we contacted tribes in the geographic vicinity of each nominated waterbody, as well as local jurisdictions and other stakeholders, to notify them of the nominations. We determined that each waterbody submitted for consideration met one or more of the eligibility criteria.

We informed the public of our intent to conduct a public review of the nominations during the 2021 triennial review process, and we received a comment letter on behalf of over 50 organizations in support of formally reviewing the ORW nominations. During the rule devel-



opment phase, we gathered more information on each nominated waterbody and conducted additional tribal and stakeholder outreach.

We are now holding a formal public review of each nomination before we consider adopting an ORW designation. After considering public comments and weighing public support for each proposed ORW, we will make a final decision on whether each waterbody should be adopted into chapter 173-201A WAC as an ORW, and whether that waterbody should be given Tier III(A) or Tier III(B) protection, as described under WAC 173-201A-330(5).

Washington has yet to designate any waterbody as an ORW. If we adopt an ORW designation for any of the proposed waterbodies, it will be the first time Washington will assign this highest level of protection for a waterbody under our antidegradation section of the water quality standards.

Statutory Authority for Adoption: Water pollution control, chapter 90.48 RCW, which provides ecology the authority to revise the surface water quality standards. The federal antidegradation policy and implementation methods at 40 C.F.R. 131.12 require states to adopt an antidegradation policy that includes protection of ORWs.

Statute Being Implemented: Chapter 90.48 RCW, Water pollution control.

Rule is not necessitated by federal law, federal or state court decision.

Agency Comments or Recommendations, if any, as to Statutory Language, Implementation, Enforcement, and Fiscal Matters: For more information, see the technical support document, ecology publication XX, the draft rule implementation plan, ecology publication XX, and the preliminary regulatory analyses, ecology publication XX, available on our rule-making web page.

Name of Proponent: Department of ecology, governmental.

Name of Agency Personnel Responsible for Drafting: Marla Koberstein, Headquarters, Lacey, 360-628-6376; Implementation: Chad Brown, Headquarters, Lacey, 360-522-6441; and Enforcement: Vincent McGowan, Headquarters, Lacey, 360-407-6405.

A school district fiscal impact statement is not required under RCW 28A.305.135.

A cost-benefit analysis is required under RCW 34.05.328. A preliminary cost-benefit analysis may be obtained by contacting Marla Koberstein, Department of Ecology, Water Quality Program, P.O. Box 47600, Olympia, WA 98504-7600, phone 360-628-6376, speech disability may call TTY at 877-833-6341, impaired hearing may call Washington relay service at 711, email [swqs@ecy.wa.gov](mailto:swqs@ecy.wa.gov).

This rule proposal, or portions of the proposal, is exempt from requirements of the Regulatory Fairness Act because the proposal:

Is exempt under RCW 19.85.025(4).

Explanation of exemptions: We assessed the compliance costs of the proposed rule amendments (see the preliminary regulatory analyses for this rule making, ecology publication no. 23-10-031) and did not identify any necessary changes in compliance behavior by any identified business. We determined that ecology is exempt from performing additional analyses under RCW 19.85.025(4), which states, "This chapter does not apply to the adoption of a rule if an agency is able to demonstrate that the proposed rule does not affect small businesses." Similarly, the proposed rule amendments do not meet the criteria for the requirement to prepare a small business economic impact statement under RCW 19.85.030 (1)(a), which states, "In the adoption of a rule under chapter 34.05 RCW, an agency shall prepare a small business eco-

conomic impact statement: (i) If the proposed rule will impose more than minor costs on businesses in an industry."

We examined the set of landowners around the proposed ORW-designated waterbodies, including nine business locations. We also identified a special permit holder for annual hydroplane races on Soap Lake. As these businesses have not been identified as affecting current qualities of the proposed ORWs, we do not expect their activities to be impacted by the proposed rule amendments. We expect any likely future business expansion or development to be regulated by baseline laws and rules, and similarly not incur additional compliance costs under the proposed rule amendments. The amendments would protect the exceptional qualities of the proposed ORWs largely in cases of unexpected developments or changes to the regulatory baseline.

Scope of exemption for rule proposal:

Is fully exempt.

July 18, 2023  
Heather R. Bartlett  
Deputy Director

## OTS-4677.2

AMENDATORY SECTION (Amending WSR 22-07-095, filed 3/22/22, effective 4/22/22)

**WAC 173-201A-020 Definitions.** The following definitions are intended to facilitate the use of chapter 173-201A WAC:

**"1-DMax" or "1-day maximum temperature"** is the highest water temperature reached on any given day. This measure can be obtained using calibrated maximum/minimum thermometers or continuous monitoring probes having sampling intervals of 30 minutes or less.

**"7-DADMax" or "7-day average of the daily maximum temperatures"** is the arithmetic average of seven consecutive measures of daily maximum temperatures. The 7-DADMax for any individual day is calculated by averaging that day's daily maximum temperature with the daily maximum temperatures of the three days prior and the three days after that date.

**"Action value"** means a total phosphorus (TP) value established at the upper limit of the trophic states in each ecoregion (see Table 230(1)). Exceedance of an action value indicates that a problem is suspected. A lake-specific study may be needed to confirm if a nutrient problem exists.

**"Actions"** refers broadly to any human projects or activities.

**"Acute conditions"** are changes in the physical, chemical, or biologic environment which are expected or demonstrated to result in injury or death to an organism as a result of short-term exposure to the substance or detrimental environmental condition.

**"AKART"** is an acronym for "all known, available, and reasonable methods of prevention, control, and treatment." AKART shall represent the most current methodology that can be reasonably required for preventing, controlling, or abating the pollutants associated with a discharge. The concept of AKART applies to both point and nonpoint sources of pollution. The term "best management practices," typically ap-

plied to nonpoint source pollution controls is considered a subset of the AKART requirement.

**"Ambient water quality"** refers to the conditions and properties of a surface water of the state as determined by the results of water samples, measurements, or observations.

**"Background"** means the biological, chemical, and physical conditions of a water body, outside the area of influence of the discharge under consideration. Background sampling locations in an enforcement action would be up-gradient or outside the area of influence of the discharge. If several discharges to any water body exist, and enforcement action is being taken for possible violations to the standards, background sampling would be undertaken immediately up-gradient from each discharge.

**"Best management practices (BMP)"** means physical, structural, and/or managerial practices approved by the department that, when used singularly or in combination, prevent or reduce pollutant discharges.

**"Biological assessment"** is an evaluation of the biological condition of a water body using surveys of aquatic community structure and function and other direct measurements of resident biota in surface waters.

**"Bog"** means those wetlands that are acidic, peat forming, and whose primary water source is precipitation, with little, if any, outflow.

**"Carcinogen"** means any substance or agent that produces or tends to produce cancer in humans. For implementation of this chapter, the term carcinogen will apply to substances on the United States Environmental Protection Agency lists of A (known human) and B (probable human) carcinogens, and any substance which causes a significant increased incidence of benign or malignant tumors in a single, well conducted animal bioassay, consistent with the weight of evidence approach specified in the United States Environmental Protection Agency's Guidelines for Carcinogenic Risk Assessment as set forth in 51 FR 33992 et seq. as presently published or as subsequently amended or republished.

**"Chronic conditions"** are changes in the physical, chemical, or biologic environment which are expected or demonstrated to result in injury or death to an organism as a result of repeated or constant exposure over an extended period of time to a substance or detrimental environmental condition.

**"Combined sewer overflow (CSO) treatment plant"** is a facility that provides at-site treatment as provided for in chapter 173-245 WAC. A CSO treatment plant is a specific facility identified in a department-approved CSO reduction plan (long-term control plan) that is designed, operated and controlled by a municipal utility to capture and treat excess combined sanitary sewage and stormwater from a combined sewer system.

**"Compliance schedule"** or **"schedule of compliance"** is a schedule of remedial measures included in a permit or an order, including an enforceable sequence of interim requirements (for example, actions, operations, or milestone events) leading to compliance with an effluent limit, other prohibition, or standard.

**"Created wetlands"** means those wetlands intentionally created from nonwetland sites to produce or replace natural wetland habitat.

**"Critical condition"** is when the physical, chemical, and biological characteristics of the receiving water environment interact with the effluent to produce the greatest potential adverse impact on aquatic biota and existing or designated water uses. For steady-state

discharges to riverine systems the critical condition may be assumed to be equal to the 7Q10 flow event unless determined otherwise by the department.

**"Damage to the ecosystem"** means any demonstrated or predicted stress to aquatic or terrestrial organisms or communities of organisms which the department reasonably concludes may interfere in the health or survival success or natural structure of such populations. This stress may be due to, but is not limited to, alteration in habitat or changes in water temperature, chemistry, or turbidity, and shall consider the potential build up of discharge constituents or temporal increases in habitat alteration which may create such stress in the long term.

**"Department"** means the state of Washington department of ecology.

**"Designated uses"** are those uses specified in this chapter for each water body or segment, regardless of whether or not the uses are currently attained.

**"Director"** means the director of the state of Washington department of ecology.

**"Drainage ditch"** means that portion of a designed and constructed conveyance system that serves the purpose of transporting surplus water; this may include natural water courses or channels incorporated in the system design, but does not include the area adjacent to the water course or channel.

**"Ecoregions"** are defined using EPAs *Ecoregions of the Pacific Northwest* Document No. 600/3-86/033 July 1986 by Omernik and Gallant.

**"Enterococci"** refers to a subgroup of fecal streptococci that includes *S. faecalis*, *S. faecium*, *S. gallinarum*, and *S. avium*. The enterococci are differentiated from other streptococci by their ability to grow in 6.5% sodium chloride, at pH 9.6, and at 10°C and 45°C.

**"E. coli"** is a bacterium in the family Enterobacteriaceae named *Escherichia coli* and is a common inhabitant of the intestinal tract of warm-blooded animals, and its presence in water samples is an indication of fecal pollution and the possible presence of enteric pathogens.

**"Existing uses"** means those uses actually attained in fresh or marine waters on or after November 28, 1975, whether or not they are designated uses. Introduced species that are not native to Washington, and put-and-take fisheries comprised of nonself-replicating introduced native species, do not need to receive full support as an existing use.

**"Fecal coliform"** means that portion of the coliform group which is present in the intestinal tracts and feces of warm-blooded animals as detected by the product of acid or gas from lactose in a suitable culture medium within 24 hours at 44.5 plus or minus 0.2 degrees Celsius.

**"Geometric mean"** means either the nth root of a product of n factors, or the antilogarithm of the arithmetic mean of the logarithms of the individual sample values.

**"Ground water exchange"** means the discharge and recharge of ground water to a surface water. Discharge is inflow from an aquifer, seeps or springs that increases the available supply of surface water. Recharge is outflow downgradient to an aquifer or downstream to surface water for base flow maintenance. Exchange may include ground water discharge in one season followed by recharge later in the year.

**"Hardness"** means a measure of the calcium and magnesium salts present in water. For purposes of this chapter, hardness is measured in milligrams per liter and expressed as calcium carbonate (CaCO<sub>3</sub>).

**"Intake credit"** is a procedure for establishing effluent limits that takes into account the amount of a pollutant that is present in waters of the state, at the time water is removed from the same body of water by the discharger or other facility supplying the discharger with intake water.

**"Intragravel dissolved oxygen"** means the concentration of dissolved oxygen in the spaces between sediment particles in a streambed.

**"Irrigation ditch"** means that portion of a designed and constructed conveyance system that serves the purpose of transporting irrigation water from its supply source to its place of use; this may include natural water courses or channels incorporated in the system design, but does not include the area adjacent to the water course or channel.

**"Lakes"** shall be distinguished from riverine systems as being water bodies, including reservoirs, with a mean detention time of greater than 15 days.

**"Lake-specific study"** means a study intended to quantify existing nutrient concentrations, determine existing characteristic uses for lake class waters, and potential lake uses. The study determines how to protect these uses and if any uses are lost or impaired because of nutrients, algae, or aquatic plants. An appropriate study must recommend a criterion for total phosphorus (TP), total nitrogen (TN) in µg/l, or other nutrient that impairs characteristic uses by causing excessive algae blooms or aquatic plant growth.

**"Mean detention time"** means the time obtained by dividing a reservoir's mean annual minimum total storage by the 30-day 10-year low-flow from the reservoir.

**"Migration"** or **"translocation"** means any natural movement of an organism or community of organisms from one locality to another locality.

**"Migration for naturally limited waters"** is a subcategory of the aquatic life use of salmonid rearing and migration that is limited by the natural physical, chemical, or biological characteristics of the water body.

**"Mixing zone"** means that portion of a water body adjacent to an effluent outfall where mixing results in the dilution of the effluent with the receiving water. Water quality criteria may be exceeded in a mixing zone as conditioned and provided for in WAC 173-201A-400.

**"Natural conditions"** or **"natural background levels"** means surface water quality that was present before any human-caused pollution. When estimating natural conditions in the headwaters of a disturbed watershed it may be necessary to use the less disturbed conditions of a neighboring or similar watershed as a reference condition. (See also WAC 173-201A-260(1).)

**"New or expanded actions"** mean human actions that occur or are regulated for the first time, or human actions expanded such that they result in an increase in pollution, after July 1, 2003, for the purpose of applying this chapter only.

**"Nonpoint source"** means pollution that enters any waters of the state from any dispersed land-based or water-based activities including, but not limited to, atmospheric deposition; surface water runoff from agricultural lands, urban areas, or forest lands; subsurface or underground sources; or discharges from boats or marine vessels not

otherwise regulated under the National Pollutant Discharge Elimination System program.

"Outstanding resource waters" are high quality waters designated by the state due to their exceptional water quality, ecological or recreational significance, unique habitat, or cold water refuge. Outstanding resource waters are given the highest level of protection under the state antidegradation policy.

"Permit" means a document issued pursuant to chapter 90.48 RCW specifying the waste treatment and control requirements and waste discharge conditions.

"pH" means the negative logarithm of the hydrogen ion concentration.

"Pollution" means such contamination, or other alteration of the physical, chemical, or biological properties, of any waters of the state, including change in temperature, taste, color, turbidity, or odor of the waters, or such discharge of any liquid, gaseous, solid, radioactive, or other substance into any waters of the state as will or is likely to create a nuisance or render such waters harmful, detrimental, or injurious to the public health, safety, or welfare, or to domestic, commercial, industrial, agricultural, recreational, or other legitimate beneficial uses, or to livestock, wild animals, birds, fish, or other aquatic life.

"Primary contact recreation" means activities where a person would have direct contact with water to the point of complete submergence including, but not limited to, skin diving, swimming, and water skiing.

"Salmonid spawning, rearing, and migration for naturally limited waters" is a subcategory of the aquatic life use of salmonid spawning, rearing, and migration that is limited by the natural physical, chemical, or biological characteristics of the water body.

"Shoreline stabilization" means the anchoring of soil at the water's edge, or in shallow water, by fibrous plant root complexes; this may include long-term accretion of sediment or peat, along with shoreline progradation in such areas.

"Spatial median" is the middle value of multiple ranked measurements taken within the sampling area.

"Stormwater" means that portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a stormwater drainage system into a defined surface water body, or a constructed infiltration facility.

"Stormwater attenuation" means the process by which peak flows from precipitation are reduced and runoff velocities are slowed as a result of passing through a surface water body.

"Surface waters of the state" includes lakes, rivers, ponds, streams, inland waters, saltwaters, wetlands and all other surface waters and water courses within the jurisdiction of the state of Washington.

"Temperature" means water temperature expressed in degrees Celsius (°C).

"Treatment wetlands" means those wetlands intentionally constructed on nonwetland sites and managed for the primary purpose of wastewater or stormwater treatment. Treatment wetlands are considered part of a collection and treatment system, and generally are not subject to the criteria of this chapter.

"Trophic state" means a classification of the productivity of a lake ecosystem. Lake productivity depends on the amount of biological-

ly available nutrients in water and sediments and may be based on total phosphorus (TP). Secchi depth and chlorophyll-a measurements may be used to improve the trophic state classification of a lake. Trophic states used in this rule include, from least to most nutrient rich, ultra-oligotrophic, oligotrophic, lower mesotrophic, upper mesotrophic, and eutrophic.

**"Turbidity"** means the clarity of water expressed as nephelometric turbidity units (NTU) and measured with a calibrated turbidimeter.

**"Upwelling"** means the natural process along Washington's Pacific Coast where the summer prevailing northerly winds produce a seaward transport of surface water. Cold, deeper more saline waters rich in nutrients and low in dissolved oxygen, rise to replace the surface water. The cold oxygen deficient water enters Puget Sound and other coastal estuaries at depth where it displaces the existing deep water and eventually rises to replace the surface water. Such surface water replacement results in an overall increase in salinity and nutrients accompanied by a depression in dissolved oxygen. Localized upwelling of the deeper water of Puget Sound can occur year-round under influence of tidal currents, winds, and geomorphic features.

**"USEPA"** means the United States Environmental Protection Agency.

**"Variance"** is a time-limited designated use and criterion as defined in 40 C.F.R. 131.3, and must be adopted by rule.

**"Wetlands"** means areas that are inundated or saturated by surface water or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. Wetlands do not include those artificial wetlands intentionally created from nonwetland sites including, but not limited to, irrigation and drainage ditches, grass-lined swales, canals, detention facilities, wastewater treatment facilities, farm ponds, and landscape amenities, or those wetlands created after July 1, 1990, that were unintentionally created as a result of the construction of a road, street, or highway. Wetlands may include those artificial wetlands intentionally created from nonwetland areas to mitigate the conversion of wetlands. (Water bodies not included in the definition of wetlands as well as those mentioned in the definition are still waters of the state.)

**"Wildlife habitat"** means waters of the state used by, or that directly or indirectly provide food support to, fish, other aquatic life, and wildlife for any life history stage or activity.

[Statutory Authority: RCW 90.48.035 and 40 C.F.R. 131.20. WSR 22-07-095 (Order 19-05), § 173-201A-020, filed 3/22/22, effective 4/22/22; WSR 21-19-097 (Order 20-01), § 173-201A-020, filed 9/17/21, effective 10/18/21; WSR 19-04-007 (Order 16-07), § 173-201A-020, filed 1/23/19, effective 2/23/19. Statutory Authority: RCW 90.48.035, 90.48.605 and section 303(c) of the Federal Water Pollution Control Act (Clean Water Act), C.F.R. 40, C.F.R. 131. WSR 16-16-095 (Order 12-03), § 173-201A-020, filed 8/1/16, effective 9/1/16. Statutory Authority: RCW 90.48.035. WSR 11-09-090 (Order 10-10), § 173-201A-020, filed 4/20/11, effective 5/21/11. Statutory Authority: Chapters 90.48 and 90.54 RCW. WSR 03-14-129 (Order 02-14), § 173-201A-020, filed 7/1/03, effective 8/1/03. Statutory Authority: Chapter 90.48 RCW and 40 C.F.R. 131. WSR 97-23-064 (Order 94-19), § 173-201A-020, filed 11/18/97, effective 12/19/97. Statutory Authority: Chapter 90.48 RCW.

WSR 92-24-037 (Order 92-29), § 173-201A-020, filed 11/25/92, effective 12/26/92.]

AMENDATORY SECTION (Amending WSR 03-14-129, filed 7/1/03, effective 8/1/03)

**WAC 173-201A-330 Tier III—Protection of outstanding resource waters.** Where a high quality water is designated as an outstanding resource water, the water quality and uses of those waters must be maintained and protected. As part of the public process, a qualifying water body may be designated as Tier III(A) which prohibits any and all future degradation, or Tier III(B) which allows for de minimis (below measurable amounts) degradation from well-controlled activities.

(1) To be eligible for designation as an outstanding resource water in Washington, one or more of the following must apply:

(a) The water is in a relatively pristine condition (largely absent human sources of degradation) or possesses exceptional water quality, and also occurs in federal and state parks, monuments, preserves, wildlife refuges, wilderness areas, marine sanctuaries, estuarine research reserves, or wild and scenic rivers;

(b) The water has unique aquatic habitat types (for example, peat bogs) that by conventional water quality parameters (such as dissolved oxygen, temperature, or sediment) are not considered high quality, but that are unique and regionally rare examples of their kind;

(c) The water has both high water quality and regionally unique recreational value;

(d) The water is of exceptional statewide ecological significance; or

(e) The water has cold water thermal refuges critical to the long-term protection of aquatic species. For this type of outstanding resource water, the nondegradation protection would apply only to temperature and dissolved oxygen.

(2) Any water or portion thereof that meets one or more of the conditions described in subsection (1) of this section may be designated for protection as an outstanding resource water. A request for designation may be made by the department or through public nominations that are submitted to the department in writing and that include sufficient information to show how the water body meets the appropriate conditions identified in this section.

(3) After receiving a request for outstanding resource water designation, the department will:

(a) Respond within (~~sixty~~) 60 days of receipt with a decision on whether the submitted information demonstrates that the water body meets the eligibility requirements for an outstanding resource water. If the submitted information demonstrates that the water body meets the eligibility requirements, the department will schedule a review of the nominated water for designation as an outstanding resource water. The review will include a public process and consultation with (~~recognized~~) tribes (~~in the geographic vicinity of the water~~).

(b) In determining whether or not to designate an outstanding resource water, the department will consider factors relating to the difficulty of maintaining the current quality of the water body. Outstanding resource waters should not be designated where substantial



and imminent social or economic impact to the local community will occur, unless local public support is overwhelmingly in favor of the designation. The department will carefully weigh the level of support from the public and affected governments in assessing whether or not to designate the water as an outstanding resource water.

(c) After considering public comments and weighing public support for the proposal, the department will make a final determination on whether a nominated water body should be adopted into this chapter as an outstanding resource water.

(4) A designated outstanding resource water will be maintained and protected from all degradation, except for the following situations:

(a) Temporary actions that are necessary to protect the public interest as approved by the department.

(b) Treatment works bypasses for sewage, waste, and stormwater are allowed where such a bypass is unavoidable to prevent the loss of life, personal injury, or severe property damage, and no feasible alternatives to the bypass exist.

(c) Response actions taken in accordance with the Comprehensive Environmental Response Compensation and Liability Act (CERCLA), as amended, or similar federal or state authorities, to alleviate a release into the environment of substances which may pose an imminent and substantial danger to public health or welfare.

(d) The sources of degradation are from atmospheric deposition.

(5) Outstanding resources waters can be designated for either Tier III(A) or Tier III(B) protection.

(a) Tier III(A) is the highest level of protection and allows no further degradation after the waters have been formally designated Tier III(A) under this chapter.

(b) Tier III(B) is the second highest level of protection for outstanding resource waters and conditionally allows minor degradation to occur due to highly controlled actions. The requirements for Tier III(B) are as follows:

(i) To meet the goal for maintaining and protecting the quality of Tier III(B) waters, sources of pollution, considered individually and cumulatively, are not to cause measurable degradation of the water body.

(ii) Regardless of the quality of the water body, all new or expanded point sources of pollution in Tier III(B) waters must use applicable advanced waste treatment and control techniques that reasonably represent the state of the art and must minimize the degradation of water quality to nonmeasurable levels where total elimination is not feasible. Nonpoint sources must use all applicable structural and nonstructural BMPs with the goal of reducing the degradation of water quality to nonmeasurable levels where total elimination is not feasible.

(6) Waterbodies designated as outstanding resource waters are listed under WAC 173-201A-332.

[Statutory Authority: Chapters 90.48 and 90.54 RCW. WSR 03-14-129 (Order 02-14), § 173-201A-330, filed 7/1/03, effective 8/1/03.]

NEW SECTION

**WAC 173-201A-332 Table 332—Outstanding resource water designations by water resource inventory area (WRIA).** (1) Table 332 lists waterbodies designated as Tier III(A) or Tier III(B) outstanding resource waters. Waterbodies are designated in accordance with WAC 173-201A-330.

(2) The coordinates listed in Table 332 are defined in the North American 1983 Datum High Accuracy Reference Network (NAD83 HARN).

**Table 332**

<b>WRIA</b>	<b>County or Counties</b>	<b>Waterbody Name</b>	<b>Designation Boundary</b>	<b>Tier III(A) or III(B)</b>
4 - Upper Skagit	Skagit	Cascade River and tributaries within the designation boundary.	Upstream from the west boundary of Mount Baker Snoqualmie National Forest (latitude 48.5324, longitude -121.3078) at the west section line of Section 07, Township 35 North, Range 12 East, to headwaters, including tributaries.	Tier III(A)
26 - Cowlitz	Skamania	Green River and tributaries within designation boundary.	Upstream from the boundary of the Gifford Pinchot National Forest (latitude 46.3484, longitude -122.0938) at the west section line of Section 17, Township 10 North, Range 06 East, to headwaters, including tributaries.	Tier III(A)
42 - Grand Coulee	Grant	Soap Lake	Latitude 47.4068, longitude -119.4969.	Tier III(B) <sup>1</sup>
45 - Wenatchee	Chelan	Napeequa River and tributaries within the designation boundary.	Upstream from the boundary of the Okanogan-Wenatchee National Forest and private land near river mile 1 (latitude 47.9269, longitude -120.8870) within Section 17, Township 28 North, Range 16 East, to headwaters, including tributaries.	Tier III(A)

**Notes for Table 332**

<sup>1</sup> Notes for Soap Lake:

- a. Soap Lake measurable change is defined as a decrease in salinity as measured by conductivity of 639 microsiemens per centimeter (µS/cm) or greater.
- b. In addition, human actions must not cause lake conductivity to decrease below 19,843 µS/cm as calculated as an annual average more than once in 10 years.
- c. Annual average conductivity is calculated as the arithmetic average of seven or more samples collected April through October. Sampling should be distributed throughout this period.

[ ]

AMENDATORY SECTION (Amending WSR 21-19-097, filed 9/17/21, effective 10/18/21)

**WAC 173-201A-602 Table 602—Use designations for fresh waters by water resource inventory area (WRIA).** (1) Table 602 lists uses for fresh waters. All surface waters of the state have designated uses assigned to them for protection under this chapter. Table 602 lists use

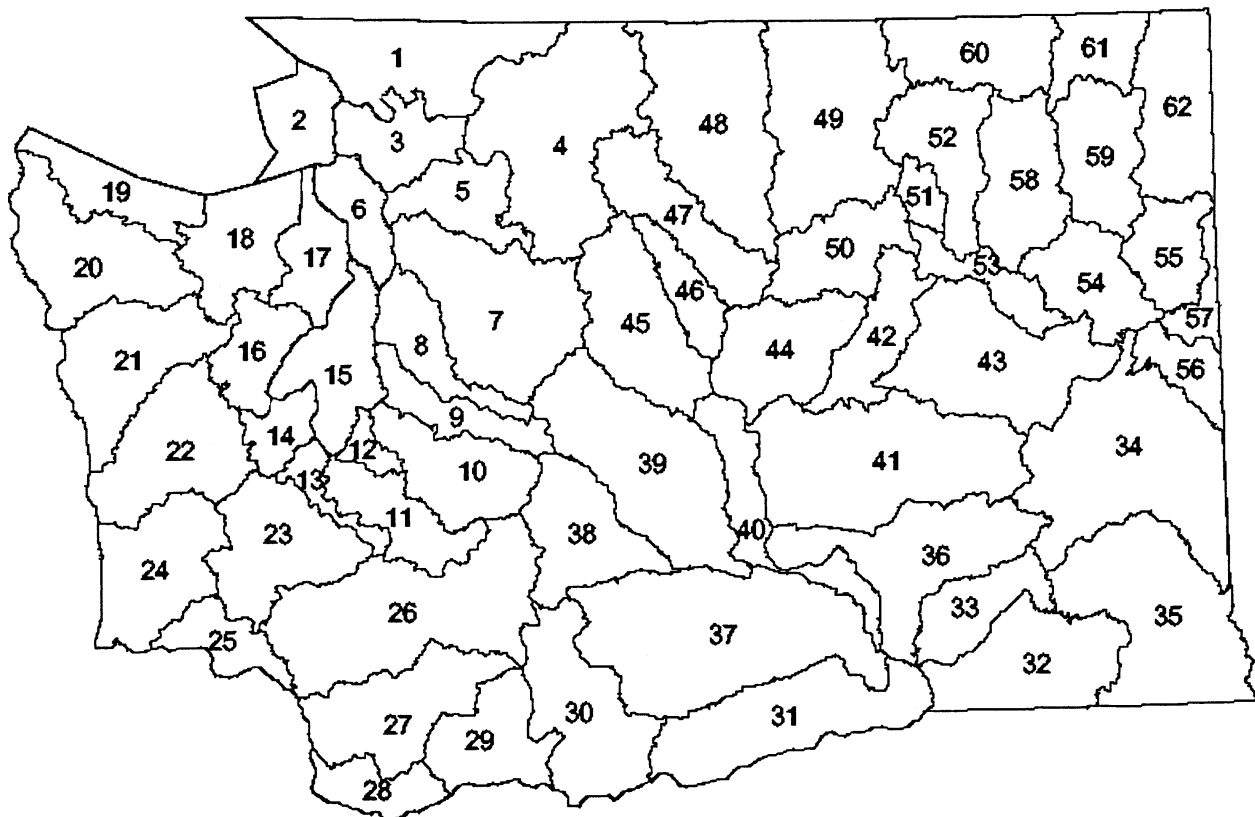
designations for specific fresh waters. Fresh waters not assigned designated uses in Table 602 have their designated uses assigned in accordance with WAC 173-201A-600 and 173-201A-260(3). In Table 602, the Columbia River is listed first, followed by other water bodies listed by WRIA. Only the uses with the most stringent criteria are listed. The criteria notes in Table 602 take precedence over the criteria in WAC 173-201A-200 for same parameter.

(2) Table 602 is necessary to determine and fully comply with the requirements of this chapter. If you are viewing a paper copy of the rule from the office of the code reviser or are using their website, Table 602 may be missing (it will instead say "place illustration here"). In this situation, you may view Table 602 at the department of ecology's website at [www.ecology.wa.gov](http://www.ecology.wa.gov), or request a paper copy of the rule with Table 602 from the department of ecology or the office of the code reviser.

(3) The department has identified waterbodies, or portions thereof, in Table 602 use designations which have additional requirements for supplemental spawning and incubation protection for salmonid species. See WAC 173-201A-200 (1)(c)(iv) for more information.

(4) The coordinates listed in Table 602 are defined in the North American 1983 Datum High Accuracy Reference Network (NAD83 HARN).

Illustration 1: Water Resources Inventory Area Map



Key:			
1. Nooksack	21. Queets/Quinault	41. Lower Crab	61. Upper Lake Roosevelt
2. San Juan	22. Lower Chehalis	42. Grand Coulee	62. Pend Oreille
3. Lower Skagit/Samish	23. Upper Chehalis	43. Upper Crab/Wilson	
4. Upper Skagit	24. Willapa	44. Moses Coulee	

Key:			
5. Stillaguamish	25. Grays/Elochoman	45. Wenatchee	
6. Island	26. Cowlitz	46. Entiat	
7. Snohomish	27. Lewis	47. Chelan	
8. Cedar/Sammamish	28. Salmon/Washougal	48. Methow	
9. Duwamish/Green	29. Wind/White Salmon	49. Okanogan	
10. Puyallup/White	30. Klickitat	50. Foster	
11. Nisqually	31. Rock/Glade	51. Nespelem	
12. Chambers/Clover	32. Walla	52. Sandpile	
13. Deschutes	33. Lower Snake	53. Lower Lake Roosevelt	
14. Kennedy/Goldsborough	34. Palouse	54. Lower Spokane	
15. Kitsap	35. Middle Snake	55. Little Spokane	
16. Skokomish/Dosewallips	36. Esquatzel Coulee	56. Hangman	
17. Quilcene/Snow	37. Lower Yakima	57. Middle Spokane	
18. Elwha/Dungeness	38. Naches	58. Middle Lake Roosevelt	
19. Lyre/Hoko	39. Upper Yakima	59. Colville	
20. Soleduck/Hoh	40. Alkaki/Squilchuck	60. Kettle	

	Aquatic Life Uses	Recreation Uses	Water Supply Uses	Misc. Uses	Additional info for waterbody
<b>Table 602: Columbia River</b>					
<b>Columbia River:</b> From mouth (latitude 46.2502, longitude -124.0829) to the Washington-Oregon border (latitude 46.0002, longitude -118.9809). <sup>1</sup>	Spawning /Rearing	Primary Contact	All	All	-
<b>Columbia River:</b> From Washington-Oregon border (latitude 46.0002, longitude -118.9809) to Grand Coulee Dam (latitude 47.957, longitude -118.9825). <sup>2,3</sup>	Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Columbia River:</b> From Grand Coulee Dam (latitude 47.957, longitude -118.9825) to Canadian border (latitude 49.007, longitude -117.6313).	Core Summer Habitat	Primary Contact	All	All	-

**Notes for Columbia River:**

1. Temperature shall not exceed a 1-day maximum (1-DMax) of 20.0°C due to human activities. When natural conditions exceed a 1-DMax of 20.0°C, no temperature increase will be allowed which will raise the receiving water temperature by greater than 0.3°C; nor shall such temperature increases, at any time, exceed 0.3°C due to any single source or 1.1°C due to all such activities combined. Dissolved oxygen shall exceed 90 percent of saturation. Special condition - Special fish passage exemption as described in WAC 173-201A-200 (1)(f).
2. From Washington-Oregon border (latitude 46.0002, longitude -118.9809) to Priest Rapids Dam (latitude 46.6443, longitude -119.9103). Temperature shall not exceed a 1-DMax of 20.0°C due to human activities. When natural conditions exceed a 1-DMax of 20.0°C, no temperature increase will be allowed which will raise the receiving water temperature by greater than 0.3°C; nor shall such temperature increases, at any time, exceed  $t = 34/(T + 9)$ .
3. From Washington-Oregon border (latitude 46.0002, longitude -118.9809) to Grand Coulee Dam (latitude 47.957, longitude -118.9825). Special condition - Special fish passage exemption as described in WAC 173-201A-200 (1)(f).
4. This WRIA contains waters requiring supplemental spawning and incubation protection for salmonid species per WAC 173-201A-200 (1)(c)(iv). See ecology publication 06-10-038 for further information.

	Aquatic Life Uses	Recreation Uses	Water Supply Uses	Misc. Uses	Additional info for waterbody
<b>Table 602: WRIA 1 - Nooksack</b>					
<b>Bertrand Creek:</b> Upstream from the mouth (latitude 48.9121, longitude -122.5352) to Canadian border.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Breckenridge Creek:</b> Upstream from the mouth (latitude 48.9267, longitude -122.3129), including tributaries.	Core Summer Habitat	Primary Contact	All	All	-

Table 602: WRIA 1 - Nooksack	Aquatic Life Uses	Recreation Uses	Water Supply Uses	Misc. Uses	Additional info for waterbody
<b>Chilliwack River and Little Chilliwack River:</b> All waters above the confluence (latitude 48.9929, longitude -121.4086), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Chuckanut Creek:</b> Upstream from the mouth (latitude 48.7002, longitude -122.4949) to headwaters.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Colony Creek:</b> Upstream from the mouth (latitude 48.5966, longitude -122.4193) to headwaters, including tributaries.	Core Summer Habitat	Primary Contact	All	All	-
<b>Dakota Creek:</b> Upstream from the mouth (latitude 48.9721, longitude -122.7291), including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Dale Creek:</b> Upstream from the mouth (latitude 48.8938, longitude -122.3023).	Core Summer Habitat	Primary Contact	All	All	-
<b>Deer Creek (tributary to Barrett Lake):</b> Upstream from the mouth (latitude 48.8471, longitude -122.5615), including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Depot Creek:</b> Upstream from the mouth (latitude 49.0296, longitude -121.4021), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Fishtrap Creek:</b> Upstream from the mouth (latitude 48.912, longitude -122.5229) to Canadian border.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Hutchinson Creek:</b> Upstream from the mouth (latitude 48.7078, longitude -122.1812), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Johnson Creek's unnamed tributary:</b> Upstream from the mouth (latitude 48.978, longitude -122.3223) just north of Pangborn Road.	Core Summer Habitat	Primary Contact	All	All	-
<b>Nooksack River mainstem:</b> Upstream from the mouth to the confluence with Anderson Creek (latitude 48.8646, longitude -122.3157).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Nooksack River:</b> Upstream from, and including, Anderson Creek (latitude 48.8646, longitude -122.3157) to the confluence with South Fork (latitude 48.8094, longitude -122.2039) except where otherwise designated char, including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Nooksack River, North Fork:</b> Upstream from the confluence with South Fork (latitude 48.8094, longitude -122.2039) upstream to the confluence with Maple Creek (latitude 48.9119, longitude -122.0792), including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Nooksack River, North Fork:</b> Upstream from and including Maple Creek (latitude 48.9119, longitude -122.0792), including all tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Nooksack River, Middle Fork:</b> Upstream from the confluence with mainstem (latitude 48.8341, longitude -122.1549) to headwaters, including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Nooksack River, South Fork:</b> Upstream from the mouth (latitude 48.8075, longitude -122.2024) to Skookum Creek (latitude 48.6701, longitude -122.1417).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)

<b>Table 602: WRIA 1 - Nooksack</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>Nooksack River, South Fork:</b> Upstream from Skookum Creek (latitude 48.6701, longitude -122.1417) to Fobes Creek (latitude 48.6237, longitude -122.1123).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Nooksack River, South Fork:</b> Upstream from the confluence with Fobes Creek (latitude 48.6237, longitude -122.1123), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Padden Creek:</b> Upstream from the mouth (latitude 48.7202, longitude -122.5073) to headwaters, including tributaries.	Core Summer Habitat	Primary Contact	All	All	-
<b>Pepin Creek:</b> From the mouth (latitude 48.9417, longitude -122.4748) to Canadian border (latitude 49.0023, longitude -122.4738).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Saar Creek:</b> From the mouth (latitude 48.9818, longitude -122.2386) to headwaters.	Core Summer Habitat	Primary Contact	All	All	-
<b>Silesia Creek:</b> South of Canadian border (latitude 48.9985, longitude -121.6125), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Skookum Creek:</b> Upstream from the mouth (latitude 48.6702, longitude -122.1417), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Squaw Creek:</b> Upstream from the mouth (latitude 48.969, longitude -122.3291).	Core Summer Habitat	Primary Contact	All	All	-
<b>Squalicum Creek's unnamed tributary:</b> Upstream from latitude 48.7862, longitude -122.4864 to headwaters.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Stickney Creek (Slough) and Kamm Ditch:</b> Upstream from the confluence with mainstem Nooksack River (latitude 48.938, longitude -122.441) to headwaters.	Core Summer Habitat	Primary Contact	All	All	-
<b>Sumas River:</b> From the Canadian border (latitude 49.0024, longitude -122.2324) to headwaters (latitude 48.888, longitude -122.3087) except where designated otherwise.	Spawning /Rearing	Primary Contact	All	All	-
<b>Tenmile Creek:</b> Upstream from the mouth (latitude 48.8559, longitude -122.5771) to Barrett Lake (latitude 48.8513, longitude -122.5718).	Core Summer Habitat	Primary Contact	All	All	-
<b>Tomyhoi Creek:</b> From the Canadian border (latitude 48.9991, longitude -121.7318) to headwaters.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Whatcom Creek:</b> Upstream from the mouth (latitude 48.7549, longitude -122.4824) to outlet of Lake Whatcom (latitude 48.7575, longitude -122.4226), including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)

**Note for WRIA 1:**

- This WRIA contains waters requiring supplemental spawning and incubation protection for salmonid species per WAC 173-201A-200 (1)(c)(iv). See ecology publication 06-10-038 for further information.

<b>Table 602: WRIA 2 - San Juan</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
There are no specific waterbody entries for this WRIA.	-	-	-	-	-

<b>Table 602: WRIA 3 - Lower Skagit-Samish</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>Fisher and Carpenter creeks:</b> Upstream from the mouth (latitude 48.3222, longitude -122.3363), including tributaries.	Core Summer Habitat	Primary Contact	All	All	-
<b>Hansen Creek:</b> Upstream from the mouth (latitude 48.4902, longitude -122.2086), including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Nookachamps Creek:</b> Upstream from the mouth (latitude 48.4709, longitude -122.2954) except where designated char, including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Nookachamps Creek, East Fork, and unnamed creek:</b> Upstream from the confluence (latitude 48.4091, longitude -122.1702), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Samish River:</b> Upstream from latitude 48.547, longitude -122.3373, including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Skagit River mainstem:</b> Upstream from the mouth to Skiyou Slough-lower end (latitude 48.4974, longitude -122.1811).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Skagit River, all tributaries to the mainstem:</b> Upstream from the mouth to Skiyou Slough-lower end (latitude 48.4974, longitude -122.1811); except where designated otherwise.	Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Skagit River:</b> Upstream Skiyou Slough-lower end (latitude 48.4974, longitude -122.1811) to the boundary of WRIA 3 and 4 (latitude 48.5106, longitude -121.8973), except the other waters listed for this WRIA, including tributaries. <sup>1</sup>	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Walker Creek and unnamed creek:</b> Upstream of the confluence (latitude 48.3808, longitude -122.164), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-

**Notes for WRIA 3:**

1. Skagit River (Gorge bypass reach) from Gorge Dam (latitude 48.6978, longitude -121.2082) to Gorge Powerhouse (latitude 48.677, longitude -121.2422). Temperature shall not exceed a 1-DMax of 21°C due to human activities. When natural conditions exceed a 1-DMax of 21°C, no temperature increase will be allowed which will raise the receiving water temperature by greater than 0.3°C, nor shall such temperature increases, at any time, exceed  $t = 34/(T + 9)$ .
2. This WRIA contains waters requiring supplemental spawning and incubation protection for salmonid species per WAC 173-201A-200 (1)(c)(iv). See ecology publication 06-10-038 for further information.

<b>Table 602: WRIA 4 - Upper Skagit</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>Bacon Creek:</b> Upstream from the mouth (latitude 48.5858, longitude -121.3934), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Baker Lake:</b> From dam (latitude 48.649, longitude -121.6906), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Bear Creek and the unnamed outlet creek of Blue Lake:</b> Upstream of the confluence (latitude 48.6204, longitude -121.7488), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Big Beaver Creek:</b> Upstream from the mouth (latitude 48.7747, longitude -121.065), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Big Creek:</b> Upstream from the mouth (latitude 48.3457, longitude -121.451), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)

<b>Table 602: WRIA 4 - Upper Skagit</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>Buck Creek:</b> Upstream from the mouth (latitude 48.2635, longitude -121.3374), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Cascade River and Boulder Creek:</b> All waters above the confluence (latitude 48.5177, longitude -121.3643), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv); <u>173-201A-332</u>
<b>Circle Creek:</b> Upstream from the mouth (latitude 48.2593, longitude -121.339), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Clear Creek:</b> Upstream from the mouth (latitude 48.2191, longitude -121.5684), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Diobsud Creek and unnamed tributary:</b> All waters above the confluence (latitude 48.5846, longitude -121.4422), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Goodell Creek:</b> Upstream from the mouth (latitude 48.6725, longitude -121.2649), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Hozomeen Creek:</b> Upstream from the mouth (latitude 48.9869, longitude -121.0717), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Illabot Creek:</b> Upstream from the mouth (latitude 48.49597, longitude -121.53164), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Jordan Creek:</b> Upstream from the mouth (latitude 48.5228, longitude -121.4229), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Lightning Creek:</b> Upstream from the mouth, including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Little Beaver Creek:</b> Upstream from the mouth (latitude 48.9162, longitude -121.0825), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Murphy Creek:</b> Upstream from the mouth (latitude 48.191, longitude -121.5157), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Newhalem Creek:</b> Upstream from the mouth (latitude 48.6714, longitude -121.2561), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Rocky Creek:</b> Upstream from the mouth (latitude 48.6461, longitude -121.702), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Ruby Creek:</b> Upstream from the mouth (latitude 48.7125, longitude -120.9868), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Sauk River and Dutch Creek:</b> All waters above the confluence (latitude 48.1812, longitude -121.488), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Silver Creek:</b> Upstream from the mouth (latitude 48.9702, longitude -121.1039), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Skagit River:</b> Upstream from latitude 48.5106, longitude -121.8973, including tributaries, except where listed otherwise for this WRIA. <sup>1</sup>	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)



<b>Table 602: WRIA 4 - Upper Skagit</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>Stetattle Creek:</b> Upstream from the mouth (latitude 48.7172, longitude -121.1498), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Straight Creek:</b> Upstream from the mouth (latitude 48.2719, longitude -121.4004), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Suiattle River:</b> Above the confluence with Harriet Creek (latitude 48.2507, longitude -121.3018), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Sulphur Creek:</b> Upstream of the mouth (latitude 48.6482, longitude -121.6997), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Tenas Creek:</b> Upstream of the mouth (latitude 48.3236, longitude -121.4395), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Thunder Creek:</b> Upstream of Lake Shannon (latitude 48.5978, longitude -121.7138), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Thunder Creek:</b> Upstream of Diablo Lake (latitude 48.69469, longitude -121.09830), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>White Chuck River:</b> Upstream of the mouth (latitude 48.1729, longitude -121.4723), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)

**Notes for WRIA 4:**

- Skagit River (Gorge bypass reach) from the Gorge Dam (river mile 96.6) to the Gorge Powerhouse (river mile 94.2). Temperature shall not exceed a 1-DMax of 21°C due to human action. When natural conditions exceed a 1-DMax of 21°C, no temperature increase will be allowed which will raise the receiving water temperature by greater than 0.3°C, nor shall such temperature increases, at any time, exceed  $t = 34/(T + 9)$ .
- This WRIA contains waters requiring supplemental spawning and incubation protection for salmonid species per WAC 173-201A-200 (1)(c)(iv). See ecology publication 06-10-038 for further information.

<b>Table 602: WRIA 5 - Stillaguamish</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>Brooks Creek and unnamed tributary:</b> Upstream of the confluence (latitude 48.296, longitude -121.905), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Canyon Creek:</b> Upstream of the confluence with unnamed tributary (latitude 48.1245, longitude -121.8892) to headwaters, including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Canyon Creek's unnamed tributaries:</b> Upstream from latitude 48.1516, longitude -121.9677.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Unnamed tributaries:</b> Upstream from the mouth of tributary (latitude 48.1463, longitude -121.9653) of unnamed tributary of Canyon Creek (latitude 48.12145, longitude -121.94482).	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Crane Creek and unnamed tributary:</b> Upstream of the confluence (latitude 48.3298, longitude -121.1005), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Crane Creek's unnamed tributaries:</b> Upstream of the confluence (latitude 48.3324, longitude -122.1059), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Cub Creek and unnamed tributary:</b> Upstream of the confluence (latitude 48.1677, longitude -121.9428), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-

Table 602: WRIA 5 - Stillaguamish	Aquatic Life Uses	Recreation Uses	Water Supply Uses	Misc. Uses	Additional info for waterbody
<b>Deer Creek (on N.F. Stillaguamish) and unnamed tributary:</b> Upstream of the confluence (latitude 48.3194, longitude -121.9582), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Dicks Creek and unnamed outlet of Myrtle Lake:</b> Upstream of the confluence (latitude 48.3185, longitude -121.8147), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Jim Creek and Little Jim Creek:</b> Upstream of the confluence (latitude 48.1969, longitude -121.902), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Jorgenson Slough:</b> Upstream from the confluence with Church Creek (latitude 48.2341, longitude -122.3235), between West Pass and Hat Slough, including tributaries.	Core Summer Habitat	Primary Contact	All	All	-
<b>Lake Cavanaugh and all tributaries:</b> All waters above the outlet (latitude 48.3126, longitude -121.9803).	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Pilchuck Creek and Bear Creek:</b> Upstream of the confluence (latitude 48.3444, longitude -122.0691), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Pilchuck Creek's unnamed tributaries:</b> Upstream of the confluence (latitude 48.309, longitude -122.1303), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Pilchuck Creek:</b> Upstream from latitude 48.2395, longitude -122.2015 (above 268 <sup>th</sup> St) to headwaters, including tributaries (except where designated char).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Unnamed tributary to Portage Creek:</b> Upstream of the confluence (latitude 48.1836, longitude -122.2314), including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Stillaguamish River:</b> Upstream from the mouth (latitude 48.2082, longitude -122.323) to confluence of north and south forks (latitude 48.2036, longitude -122.1279).	Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Stillaguamish River, North Fork:</b> Upstream from the mouth (latitude 48.2039, longitude -122.128) to Boulder River (latitude 48.2822, longitude -121.7876), including tributaries (except where designated char).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Stillaguamish River, North Fork, and Boulder River:</b> Upstream from the confluence (latitude 48.2822, longitude -121.7876) to Squire Creek (latitude 48.2802, longitude -121.686), and downstream of the Mt. Baker Snoqualmie National Forest, including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Stillaguamish River, North Fork, and Boulder River:</b> Upstream from the confluence (latitude 48.2802, longitude -121.686) up to Squire Creek (latitude 48.2802, longitude -121.686) that are in or above the Mt. Baker Snoqualmie National Forest, including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Stillaguamish River, North Fork:</b> Upstream from the confluence with Squire Creek (latitude 48.2802, longitude -121.686) to headwaters, including all tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)

<b>Table 602: WRIA 5 - Stillaguamish</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>Stillaguamish River, South Fork:</b> Upstream from the mouth (latitude 48.2034, longitude -122.1277) to Canyon Creek (latitude 48.0972, longitude -121.9711).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Stillaguamish River, South Fork:</b> Upstream from Canyon Creek (latitude 48.0972, longitude -121.9711) to the unnamed tributary at latitude 48.092 longitude -121.8812 (near Cranberry Creek).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Stillaguamish River, South Fork, and the unnamed tributary:</b> Upstream of the confluence (latitude 48.092, longitude -121.8812) near Cranberry Creek, including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)

**Note for WRIA 5:**

1. This WRIA contains waters requiring supplemental spawning and incubation protection for salmonid species per WAC 173-201A-200 (1)(c)(iv). See ecology publication 06-10-038 for further information.

<b>Table 602: WRIA 6 - Island</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
There are no specific waterbody entries for this WRIA.	-	-	-	-	-

<b>Table 602: WRIA 7 - Snohomish</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>Cherry Creek:</b> Upstream from the mouth (latitude 47.7684, longitude -121.9603) to headwaters, including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Cripple Creek:</b> Upstream from the mouth (latitude 47.523, longitude -121.4728), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Kelly Creek:</b> Upstream from the mouth (latitude 47.9849, longitude -121.5034), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Miller River, East Fork, and West Fork Miller River:</b> Upstream of the confluence (latitude 47.675, longitude -121.3892), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>North Fork Creek and unnamed creek:</b> Upstream of the confluence (latitude 47.7406, longitude -121.8246), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Pilchuck River:</b> Upstream from the mouth (latitude 47.9006, longitude -122.0919) to the confluence with Boulder Creek (latitude 48.0248, longitude -121.8217).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Pilchuck River and Boulder Creek:</b> Upstream on the confluence (latitude 48.0248, longitude -121.8217), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Pratt River:</b> Upstream from the mouth (latitude 47.5261, longitude -121.5873), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Skykomish River:</b> Upstream from the mouth (latitude 47.8213, longitude -122.0327) to May Creek (above Gold Bar at latitude 47.8471, longitude -121.6954), including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)

Table 602: WRIA 7 - Snohomish	Aquatic Life Uses	Recreation Uses	Water Supply Uses	Misc. Uses	Additional info for waterbody
<b>Skykomish River and May Creek:</b> Upstream from the confluence above Gold Bar at latitude 47.8471, longitude -121.6954, including tributaries (except where designated char).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Skykomish River, North Fork:</b> Upstream from below Salmon Creek at latitude 47.8790, longitude -121.4594 to headwaters, including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Skykomish River, South Fork, and Beckler River:</b> Upstream from the confluence (latitude 47.715, longitude -121.3398), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Snohomish River:</b> Upstream from the mouth (latitude 48.0202, longitude -122.1989) to the southern tip of Ebey Island (latitude 47.942, longitude -122.1719). <sup>1</sup>	Spawning /Rearing	Primary Contact	All	All	-
<b>Snohomish River:</b> Upstream the southern tip of Ebey Island (latitude 47.942, longitude -122.1719) to below Pilchuck Creek at (latitude 47.9005, longitude -122.0925).	Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Snohomish River:</b> Upstream from below Pilchuck Creek (latitude 47.9005, longitude -122.0925) to the confluence with Skykomish and Snoqualmie River (latitude 47.8212, longitude -122.0331).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Snoqualmie River:</b> Upstream from the mouth (latitude 47.8208, longitude -122.0321) to the confluence with Harris Creek (latitude 47.6772, longitude -121.9382).	Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Snoqualmie River and Harris Creek:</b> Upstream from the confluence (latitude 47.6772, longitude -121.9382) to west boundary of Twin Falls State Park on south fork (latitude 47.4525, longitude -121.7063).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Snoqualmie River, South Fork:</b> Upstream from the west boundary of Twin Falls State Park (latitude 47.4525, longitude -121.7063) to headwaters, including tributaries.	Core Summer Habitat	Primary Contact	All	All	-
<b>Snoqualmie River, North Fork:</b> Upstream from the mouth (latitude 47.5203, longitude -121.7746) to Sunday Creek (latitude 47.6556, longitude -121.6419).	Core Summer Habitat	Primary Contact	All	All	-
<b>Snoqualmie River, North Fork, and Sunday Creek:</b> Upstream of the confluence (latitude 47.6556, longitude -121.6419), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Snoqualmie River, Middle Fork:</b> Upstream from the mouth (latitude 47.52, longitude -121.7767) to Dingford Creek at latitude 47.5156, longitude -121.4545 (except where designated char).	Core Summer Habitat	Primary Contact	All	All	-
<b>Snoqualmie River, Middle Fork, and Dingford Creek:</b> Upstream of the confluence (latitude 47.5156, longitude -121.4545), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Snoqualmie River's Middle Fork's unnamed tributaries:</b> Upstream of the mouth at latitude 47.539, longitude -121.5645.	Char Spawning /Rearing	Primary Contact	All	All	-

<b>Table 602: WRIA 7 - Snohomish</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>Sultan River:</b> Upstream from the mouth (latitude 47.8605, longitude -121.8206) to Chaplain Creek (latitude 47.9211, longitude -121.8033), including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Sultan River:</b> From the confluence with Chaplain Creek (latitude 47.9211, longitude -121.8033) to headwaters, including tributaries. <sup>2</sup>	Core Summer Habitat	Primary Contact	All	All	-
<b>Taylor River:</b> Upstream from the mouth (latitude 47.5468, longitude -121.5355), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Tolt River, North Fork, and unnamed creek:</b> Upstream from the confluence (latitude 47.718, longitude -121.7788), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Tolt River, South Fork:</b> Upstream from the mouth (latitude 47.6957, longitude -121.8213) to the unnamed creek at latitude 47.6921, longitude -121.7408, including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Tolt River, South Fork, and unnamed creek:</b> Upstream of the confluence (latitude 47.6921, longitude -121.7408), including tributaries. <sup>3</sup>	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Tolt River's South Fork's unnamed tributaries:</b> Upstream of the mouth at latitude 47.6888, longitude -121.7869.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Trout Creek:</b> Upstream from the mouth (latitude 47.8643, longitude -121.4877), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)

**Notes for WRIA 7:**

1. Fecal coliform organism levels shall both not exceed a geometric mean value of 200 colonies/100 mL and not have more than 10 percent of the samples obtained for calculating the mean value exceeding 400 colonies/100 mL.
2. No waste discharge will be permitted above city of Everett Diversion Dam (latitude 47.9599, longitude -121.7962).
3. No waste discharge will be permitted for the South Fork Tolt River and tributaries from latitude 47.6957, longitude -121.8213 to headwaters.
4. This WRIA contains waters requiring supplemental spawning and incubation protection for salmonid species per WAC 173-201A-200 (1)(c)(iv). See ecology publication 06-10-038 for further information.

<b>Table 602: WRIA 8 - Cedar-Sammamish</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>Cedar River:</b> Upstream from the confluence with Lake Washington (latitude 47.5005, longitude -122.2159) to the Maplewood Bridge (latitude 47.4693, longitude -122.1596).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Cedar River:</b> Upstream from the Maplewood Bridge (latitude 47.4693, longitude -122.1596) to Landsburg Dam (latitude 47.3759, longitude -121.9615), including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Cedar River:</b> From Landsburg Dam (latitude 47.3759, longitude -121.9615) to Chester Morse Lake (latitude 47.4121, longitude -121.7526), including tributaries. <sup>1</sup>	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Cedar River at Chester Morse Lake Cedar Falls Dam:</b> All waters above the dam (latitude 47.4121, longitude -121.7526) to headwaters, including tributaries. <sup>2</sup>	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Holder Creek and unnamed tributary:</b> Upstream from the confluence (latitude 47.4576, longitude -121.9505), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-

<b>Table 602: WRIA 8 - Cedar-Sammamish</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>Issaquah Creek:</b> Upstream from the confluence with Lake Sammamish (latitude 47.562, longitude -122.0651) to headwaters, including tributaries (except where designated char).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Lake Washington Ship Canal:</b> From Government Locks (latitude 47.6652, longitude -122.3973) to Lake Washington (latitude 47.6471, longitude -122.3003). <sup>3,4</sup>	Core Summer Habitat	Primary Contact	All	All	-

**Notes for WRIA 8:**

1. No waste discharge will be permitted.
2. No waste discharge will be permitted.
3. Salinity shall not exceed one part per thousand (1.0 ppt) at any point or depth along a line that transects the ship canal at the University Bridge (latitude 47.65284, longitude -122.32029).
4. This waterbody is to be treated as a lake for purposes of applying this chapter.
5. This WRIA contains waters requiring supplemental spawning and incubation protection for salmonid species per WAC 173-201A-200 (1)(c)(iv). See ecology publication 06-10-038 for further information.

<b>Table 602: WRIA 9 - Duwamish-Green</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>Duwamish River:</b> From mouth south of a line bearing 254° true from the NW corner of berth 3, terminal No. 37 to the Black River (latitude 47.4737, longitude -122.2521) (Duwamish River continues as the Green River above the Black River).	Rearing/Migration Only	Primary Contact	All, Except Domestic Water	All	-
<b>Green River:</b> From and including the Black River (latitude 47.4737, longitude -122.2521, and point where Duwamish River continues as the Green River) to latitude 47.3699, longitude -122.246 above confluence with Mill Creek.	Spawning/Rearing	Primary Contact	All	All	-
<b>Green River:</b> Upstream from above confluence with Mill Creek at latitude 47.3699, longitude -122.2461 (east of the West Valley highway) to west boundary of Flaming Geyser State Park, including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Green River:</b> Upstream from the west boundary of Flaming Geyser State Park (latitude 47.2805, longitude -122.0379) to headwaters, including tributaries (except where designated char and core).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Green River and Sunday Creek:</b> Upstream from the confluence (latitude 47.2164, longitude -121.4494), including tributaries. <sup>1</sup>	Char Spawning/Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Smay Creek and West Fork Smay Creek:</b> Upstream from the confluence, (latitude 47.2458, longitude -121.592) including tributaries. <sup>1</sup>	Char Spawning/Rearing	Primary Contact	All	All	-

**Notes for WRIA 9:**

1. No waste discharge will be permitted for the Green River and tributaries (King County) from west boundary of Sec. 13-T21N-R7E (river mile 59.1) to headwaters.
2. This WRIA contains waters requiring supplemental spawning and incubation protection for salmonid species per WAC 173-201A-200 (1)(c)(iv). See ecology publication 06-10-038 for further information.

<b>Table 602: WRIA 10 - Puyallup-White</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>Carbon River:</b> Waters above latitude 47.0001, longitude -121.9796, downstream of the Snoqualmie National Forest or Mt. Rainier National Park, including tributaries.	Char Spawning/Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)

Table 602: WRIA 10 - Puyallup-White	Aquatic Life Uses	Recreation Uses	Water Supply Uses	Misc. Uses	Additional info for waterbody
<b>Carbon River:</b> Waters upstream from latitude 47.0001, longitude -121.9796 that are in or above the Snoqualmie National Forest or Mt. Rainier National Park, including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Clarks Creek:</b> Upstream from the mouth (latitude 47.2137, longitude -122.3415), including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Clear Creek:</b> Upstream from the mouth (latitude 47.2342, longitude -122.3942), including tributaries.	Core Summer Habitat	Primary Contact	All	All	-
<b>Clearwater River and Milky Creek:</b> Upstream from the confluence (latitude 47.0978, longitude -121.7835), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Greenwater River:</b> Upstream from the confluence with White River (latitude 47.1586, longitude -121.6596) to headwaters, including all tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Puyallup River:</b> Upstream from the mouth (latitude 47.2685, longitude -122.4269) to river mile 1.0 (latitude 47.2562, longitude -122.4173). <sup>1</sup>	Rearing/ Migration Only	Primary Contact	All, Except Domestic Water	All	-
<b>Puyallup River:</b> Upstream from river mile 1.0 (latitude 47.2562, longitude -122.4173) to the confluence with White River (latitude 47.1999, longitude -122.2591). <sup>1</sup>	Core Summer Habitat	Primary Contact	All	All	-
<b>Puyallup River:</b> Upstream from the confluence with White River (latitude 47.1999, longitude -122.2591) to Mowich River (latitude 46.9005, longitude -122.031), including tributaries (except where designated char).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Puyallup River at and including Mowich River:</b> All waters upstream from the confluence (latitude 46.9005, longitude -122.031), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>South Prairie Creek:</b> Upstream from the Kepka Fishing Pond (latitude 47.1197, longitude -122.0128), including tributaries, except those waters in or above the Snoqualmie National Forest.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>South Prairie Creek:</b> Upstream from the Kepka Fishing Pond (latitude 47.1197, longitude -122.0128) in or above the Snoqualmie National Forest, including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Swam Creek:</b> Upstream from the mouth (latitude 47.2361, longitude -122.3928).	Core Summer Habitat	Primary Contact	All	All	-
<b>Voight Creek and Bear Creek:</b> Upstream from the confluence (latitude 47.0493, longitude -122.1173) and downstream of the Snoqualmie National Forest or Mt. Rainier National Park, including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Voight Creek and Bear Creek:</b> Upstream from the confluence (latitude 47.0493, longitude -122.1173) and in or above the Snoqualmie National Forest or Mt. Rainier National Park, including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-

<b>Table 602: WRIA 10 - Puyallup-White</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>White River:</b> Upstream from the mouth (latitude 47.2001, longitude -122.2585) to latitude 47.2438, longitude -122.2422.	Spawning /Rearing	Primary Contact	All	All	-
<b>White River:</b> Upstream from latitude 47.2438, longitude -122.2422 to Mud Mountain dam (latitude 47.1425, longitude -121.931), including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>White River:</b> Upstream from the Mud Mountain Dam (latitude 47.1425, longitude -121.931) to West Fork White River (latitude 47.1259, longitude -121.62), except where designated char.	Core Summer Habitat	Primary Contact	All	All	-
<b>White River and West Fork White River:</b> Upstream from the confluence (latitude 47.1259, longitude -121.62), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Wilkeson Creek and Gale Creek:</b> Upstream from the confluence (latitude 47.0897, longitude -122.0171), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)

**Notes for WRIA 10:**

1. The Puyallup Tribe regulates water quality from the mouth of the Puyallup River to the up-river boundary of the 1873 Survey Area of the Puyallup Reservation.
2. This WRIA contains waters requiring supplemental spawning and incubation protection for salmonid species per WAC 173-201A-200 (1)(c)(iv). See ecology publication 06-10-038 for further information.

<b>Table 602: WRIA 11 - Nisqually</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>Big Creek:</b> Upstream from the mouth (latitude 46.7424, longitude -122.0396), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Copper Creek:</b> Upstream from the mouth (latitude 46.7542, longitude -121.9615), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>East Creek:</b> Upstream from the mouth (latitude 46.761, longitude -122.2078), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Horn Creek:</b> Upstream from the mouth (latitude 46.9048, longitude -122.4945), including tributaries.	Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Little Nisqually River:</b> Upstream from the mouth (latitude 46.7945, longitude -122.3123), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Mashel River and Little Mashel River:</b> Upstream from the confluence (latitude 46.8574, longitude -122.2802), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Mineral Creek:</b> Upstream from the mouth (latitude 46.7522, longitude -122.1462), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Muck Creek:</b> Upstream from the mouth (latitude 46.9971, longitude -122.6293), including tributaries.	Core Summer Habitat	Primary Contact	All	All	-
<b>Murray Creek:</b> Upstream from the mouth (latitude 46.9234, longitude -122.5269), including tributaries.	Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Nisqually River mainstem:</b> Upstream from the mouth (latitude 47.0858, longitude -122.7075) to Alder Dam (latitude 46.801, longitude -122.3106).	Core Summer Habitat	Primary Contact	All	All	-



<b>Table 602: WRIA 11 - Nisqually</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>Nisqually River:</b> Upstream from the Alder Dam (latitude 46.801, longitude -122.3106) to Tahoma Creek (latitude 46.7372, longitude -121.9022), including tributaries (except where designated char).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Nisqually River and Tahoma Creek:</b> Upstream from the confluence (latitude 46.7372, longitude -121.9022), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Rocky Slough:</b> From latitude 46.8882, longitude -122.4339 to latitude 46.9109, longitude -122.4012.	Spawning /Rearing	Primary Contact	All	All	-
<b>Tanwax Creek:</b> Upstream from the mouth (latitude 46.8636, longitude -122.4582) and downstream of lakes, including tributaries.	Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)

**Note for WRIA 11:**

1. This WRIA contains waters requiring supplemental spawning and incubation protection for salmonid species per WAC 173-201A-200 (1)(c)(iv). See ecology publication 06-10-038 for further information.

<b>Table 602: WRIA 12 - Chambers-Clover</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>Clover Creek:</b> Upstream from the inlet to Lake Steilacoom (latitude 47.1569, longitude -122.5287), including Spanaway Creek to the outlet of Spanaway Lake (latitude 47.1209, longitude -122.4464).	Spawning /Rearing	Primary Contact	All	All	-

<b>Table 602: WRIA 13 - Deschutes</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>Deschutes River:</b> Upstream from the mouth (latitude 47.0436, longitude -122.9091) to, and including, the tributary to Offutt Lake at latitude 46.9236, longitude -122.8123.	Spawning /Rearing	Primary Contact	All	All	-
<b>Deschutes River:</b> Upstream of the tributary to Offutt Lake at latitude 46.9236, longitude -122.8123. All waters in or above the national forest boundary, including tributaries.	Core Summer Habitat	Primary Contact	All	All	-
<b>Deschutes River:</b> Upstream of the tributary to Offutt Lake at latitude 46.9236, longitude -122.8123. All waters below the national forest boundary, including tributaries.	Core Summer Habitat	Primary Contact	All	All	-
<b>McLane Creek:</b> Upstream from the mouth (latitude 47.0347, longitude -122.9904), including tributaries.	Core Summer Habitat	Primary Contact	All	All	-

<b>Table 602: WRIA 14 - Kennedy-Goldsborough</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>Campbell Creek:</b> Upstream from the mouth (latitude 47.2221, longitude -123.0252), including tributaries.	Core Summer Habitat	Primary Contact	All	All	-
<b>Coffee Creek:</b> Upstream from the mouth (latitude 47.2093, longitude -123.1248), including tributaries.	Core Summer Habitat	Primary Contact	All	All	-
<b>Cranberry Creek:</b> Upstream from the mouth (latitude 47.2625, longitude -123.0159), including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)

<b>Table 602: WRIA 14 - Kennedy-Goldsborough</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>Deer Creek:</b> Upstream from the mouth (latitude 47.2594, longitude -123.0094), including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Goldsborough Creek:</b> Upstream from the mouth (latitude 47.2095, longitude -123.0952), including tributaries.	Core Summer Habitat	Primary Contact	All	All	-
<b>Hiawata Creek:</b> Upstream from the mouth (latitude 47.2877, longitude -122.9204), including tributaries.	Spawning /Rearing	Primary Contact	All	All	-
<b>Jarrell Creek:</b> Upstream from the mouth (latitude 47.2771, longitude -122.8909), including tributaries.	Spawning /Rearing	Primary Contact	All	All	-
<b>John's Creek:</b> Upstream from the mouth (latitude 47.2461, longitude -123.043), including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Jones Creek:</b> Upstream from the mouth (latitude 47.263, longitude -122.9321), including tributaries.	Spawning /Rearing	Primary Contact	All	All	-
<b>Malaney Creek:</b> Upstream from the mouth (latitude 47.2514, longitude -123.0197).	Core Summer Habitat	Primary Contact	All	All	-
<b>Mill Creek:</b> Upstream from the mouth (latitude 47.1955, longitude -122.9964), including tributaries.	Core Summer Habitat	Primary Contact	All	All	-
<b>Perry Creek:</b> Upstream from the mouth (latitude 47.0492, longitude -123.0052), including tributaries.	Core Summer Habitat	Primary Contact	All	All	-
<b>Shelton Creek:</b> Upstream from the mouth (latitude 47.2139, longitude -123.0952), including tributaries.	Core Summer Habitat	Primary Contact	All	All	-
<b>Uncle John Creek:</b> Upstream from the mouth (latitude 47.2234, longitude -123.029), including tributaries.	Core Summer Habitat	Primary Contact	All	All	-
<b>Unnamed stream at Peale Passage inlet, on west side of Hartstene Island:</b> Upstream from the mouth (latitude 47.2239, longitude -122.9135).	Spawning /Rearing	Primary Contact	All	All	-

**Note for WRIA 14:**

- This WRIA contains waters requiring supplemental spawning and incubation protection for salmonid species per WAC 173-201A-200 (1)(c)(iv). See ecology publication 06-10-038 for further information.

<b>Table 602: WRIA 15 - Kitsap</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>Anderson Creek:</b> Upstream from the mouth (latitude 47.5278, longitude -122.6831), including tributaries.	Core Summer Habitat	Primary Contact	All	All	-
<b>Barker Creek:</b> Upstream from Dyes Inlet (latitude 47.6378, longitude -122.6701) to Island Lake (latitude 47.6781, longitude -122.6603), including tributaries.	Core Summer Habitat	Primary Contact	All	All	-
<b>Blackjack Creek:</b> Upstream from the mouth (latitude 47.5422, longitude -122.6272) and downstream of Square Lake (latitude 47.4826, longitude -122.6847), including tributaries.	Core Summer Habitat	Primary Contact	All	All	-

<b>Table 602: WRIA 15 - Kitsap</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>Chico Creek:</b> Above confluence with Kitsap Creek (latitude 47.5869, longitude -122.7127), including tributaries.	Core Summer Habitat	Primary Contact	All	All	-
<b>Clear Creek:</b> Upstream from Dyes Inlet (latitude 47.6524, longitude -122.6863) to headwaters, including tributaries.	Core Summer Habitat	Primary Contact	All	All	-
<b>Gamble Creek:</b> Upstream from the mouth (latitude 47.8116, longitude -122.5797), including tributaries.	Core Summer Habitat	Primary Contact	All	All	-
<b>Gorst Creek:</b> Upstream from the mouth (latitude 47.5279, longitude -122.6979), including tributaries.	Core Summer Habitat	Primary Contact	All	All	-
<b>Martha John Creek:</b> Upstream from the mouth (latitude 47.8263, longitude -122.5637), including tributaries.	Core Summer Habitat	Primary Contact	All	All	-
<b>Ross Creek:</b> Upstream from the mouth (latitude 47.5387, longitude -122.6565), including tributaries.	Core Summer Habitat	Primary Contact	All	All	-
<b>Strawberry Creek:</b> Upstream from the mouth (latitude 47.6459, longitude -122.6939), including tributaries.	Core Summer Habitat	Primary Contact	All	All	-
<b>Union River:</b> From the Bremerton Waterworks Dam (latitude 47.5371, longitude -122.7796) to headwaters, including tributaries. <sup>1</sup>	Core Summer Habitat	Primary Contact	All	All	-
<b>Unnamed tributary to Sinclair Inlet (between Gorst and Anderson Creeks):</b> Upstream from the mouth (latitude 47.5270, longitude -122.6932).	Core Summer Habitat	Primary Contact	All	All	-
<b>Unnamed tributary to Sinclair Inlet, east of Blackjack Creek):</b> Upstream from the mouth (latitude 47.5468, longitude -122.6131).	Spawning /Rearing	Primary Contact	All	All	-
<b>Unnamed tributary, west of Port Gamble Bay:</b> Upstream from the mouth (latitude 47.8220, longitude -122.5831).	Core Summer Habitat	Primary Contact	All	All	-

**Notes for WRIA 15:**

1. No waste discharge will be permitted.
2. This WRIA contains waters requiring supplemental spawning and incubation protection for salmonid species per WAC 173-201A-200 (1)(c)(iv). See ecology publication 06-10-038 for further information.

<b>Table 602: WRIA 16 - Skokomish-Dosewallips</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>Dosewallips River:</b> Upstream from the mouth (latitude 47.6852, longitude -122.8965), including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Duckabush River:</b> Upstream from the mouth (latitude 47.6501, longitude -122.936), including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Hamma Hamma River:</b> Upstream from the mouth (latitude 47.547, longitude -123.0453), including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Rock Creek and unnamed tributary:</b> Upstream from the confluence (latitude 47.3894, longitude -123.3512), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Skokomish River:</b> Upstream from the mouth (latitude 47.3294, longitude -123.1189), including tributaries, except where designated char.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)

<b>Table 602: WRIA 16 - Skokomish-Dosewallips</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>Skokomish River, North Fork:</b> Upstream from latitude 47.416, longitude -123.2151 (below Cushman Upper Dam) to headwaters, including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Skokomish River, South Fork, and Brown Creek:</b> Upstream from the confluence (latitude 47.4113, longitude -123.3188), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Vance Creek and Cabin Creek:</b> Upstream from the confluence (latitude 47.3651, longitude -123.3837).	Char Spawning /Rearing	Primary Contact	All	All	-

**Note for WRIA 16:**

- This WRIA contains waters requiring supplemental spawning and incubation protection for salmonid species per WAC 173-201A-200 (1)(c)(iv). See ecology publication 06-10-038 for further information.

<b>Table 602: WRIA 17 - Quilcene-Snow</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>Big Quilcene River:</b> Upstream from the mouth (latitude 47.8186, longitude -122.8618), including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)

**Note for WRIA 17:**

- This WRIA contains waters requiring supplemental spawning and incubation protection for salmonid species per WAC 173-201A-200 (1)(c)(iv). See ecology publication 06-10-038 for further information.

<b>Table 602: WRIA 18 - Elwha-Dungeness</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>Boulder Creek and Deep Creek:</b> Upstream from the confluence (latitude 47.9835, longitude -123.6441), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Dungeness River mainstem:</b> Upstream from the mouth (latitude 48.1524, longitude -123.1294) to Canyon Creek (latitude 47.0254, longitude -123.137).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Dungeness River, tributaries to mainstem:</b> Above and between confluence with Matriotti Creek (latitude 48.1384, longitude -123.1349) to Canyon Creek (latitude 47.0254, longitude -123.137).	Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Dungeness River and Canyon Creek:</b> Upstream from the confluence (latitude 47.0254, longitude -123.137), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Elwha River:</b> Upstream from the mouth (latitude 48.1421, longitude -123.5646) to Cat Creek (latitude 47.9729, longitude -123.5919), including tributaries, except where designated char.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Elwha River and Cat Creek:</b> Upstream from the confluence (latitude 47.9729, longitude -123.5919), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Ennis Creek and White Creek:</b> Upstream from the confluence with the Strait of Juan De Fuca (latitude 48.1172, longitude -123.4051) to the Olympic National Park Boundary, including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Ennis Creek:</b> All waters lying above the Olympic National Park Boundary, including tributaries.	Core Summer Habitat	Primary Contact	All	All	-

<b>Table 602: WRIA 18 - Elwha-Dungeness</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>Griff Creek and unnamed tributary:</b> All waters above the confluence (latitude 48.0134, longitude -123.5455), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Hughes Creek and unnamed tributary:</b> All waters above the confluence (latitude 48.0297, longitude -123.6335), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Little River:</b> Upstream from the mouth (latitude 48.063, longitude -123.5772), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Matriotti Creek:</b> Upstream from the mouth (latitude 48.1385, longitude -123.1352).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Wolf Creek and unnamed tributary:</b> All waters above the confluence (latitude 47.9652, longitude -123.5386), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-

**Note for WRIA 18:**

- This WRIA contains waters requiring supplemental spawning and incubation protection for salmonid species per WAC 173-201A-200 (1)(c)(iv). See ecology publication 06-10-038 for further information.

<b>Table 602: WRIA 19 - Lyre-Hoko</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
There are no specific waterbody entries for this WRIA.	-	-	-	-	-

<b>Table 602: WRIA 20 - Sol Duc</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>Dickey River:</b> Upstream from the mouth (latitude 47.9208, longitude -124.6209), including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Hoh River:</b> Upstream from the mouth (latitude 47.749, longitude -124.429) to the confluence with the South Fork Hoh River (latitude 47.8182, longitude -124.0207).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Hoh River and South Fork Hoh River:</b> All waters above the confluence (latitude 47.8182, longitude -124.0207).	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Quillayute and Bogachiel rivers:</b> Upstream from the mouth (latitude 47.9198, longitude -124.633).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Sol Duc River:</b> Upstream from the mouth (latitude 47.9147, longitude -124.542) to Canyon Creek (latitude 47.9513, longitude -123.8271), including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Sol Duc River:</b> Upstream from the confluence with Canyon Creek (latitude 47.9513, longitude -123.8271), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)

**Note for WRIA 20:**

- This WRIA contains waters requiring supplemental spawning and incubation protection for salmonid species per WAC 173-201A-200 (1)(c)(iv). See ecology publication 06-10-038 for further information.

<b>Table 602: WRIA 21 - Queets-Quinault</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>Clearwater River and unnamed tributary:</b> All waters above the confluence (latitude 47.7272, longitude -124.0365), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-

<b>Table 602: WRIA 21 - Queets-Quinault</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>Kunamakst Creek and unnamed tributary:</b> All waters above the confluence (latitude 47.7284, longitude -124.0793), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Matheny Creek and unnamed tributary:</b> All waters above the confluence (latitude 47.5589, longitude -123.9548), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Queets River:</b> Upstream from the mouth (latitude 47.535, longitude -124.3463) to Tshletshy Creek (latitude 47.6659, longitude -123.9277).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Queets River:</b> Upstream from the confluence with Tshletshy Creek (latitude 47.6659, longitude -123.9277).	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Quinault River:</b> Upstream from the mouth (latitude 47.3488, longitude -124.2926) to the confluence with the North Fork Quinault River (latitude 47.5369, longitude -123.6718).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Quinault River and North Fork Quinault:</b> All waters above the confluence (latitude 47.5369, longitude -123.6718), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Salmon River, Middle Fork, and unnamed tributary:</b> All waters above the confluence (latitude 47.5206, longitude -123.9908), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Sams River and unnamed tributary:</b> All waters above the confluence (latitude 47.6055, longitude -123.8939), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Solleks River and unnamed tributary:</b> All waters above the confluence (latitude 47.694, longitude -124.0135), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Stequaleho Creek and unnamed tributary:</b> All waters above the confluence (latitude 47.662, longitude -124.0439), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Tshletshy Creek and unnamed tributary:</b> All waters above the confluence (latitude 47.6586, longitude -123.868), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-

**Note for WRIA 21:**

1. This WRIA contains waters requiring supplemental spawning and incubation protection for salmonid species per WAC 173-201A-200 (1)(c)(iv). See ecology publication 06-10-038 for further information.

<b>Table 602: WRIA 22 - Lower Chehalis</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>Andrews Creek:</b> Upstream from the confluence with West Fork (latitude 46.823, longitude -124.0234), including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Baker Creek and unnamed tributary:</b> All waters above the confluence (latitude 47.3302, longitude -123.4142), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Big Creek and Middle Fork Big Creek:</b> All waters above the confluence (latitude 47.4041, longitude -123.6583), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Canyon River and unnamed tributary:</b> All waters above the confluence (latitude 47.3473, longitude -123.4949), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-

Table 602: WRIA 22 - Lower Chehalis	Aquatic Life Uses	Recreation Uses	Water Supply Uses	Misc. Uses	Additional info for waterbody
<b>Chehalis River:</b> From upper boundary of Grays Harbor at Cosmopolis (latitude 46.9579, longitude -123.7625) to latitude 46.6004, longitude -123.1472 on main stem and to latitude 46.6013, longitude -123.1253 on South Fork.	Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Chester Creek and unnamed tributary:</b> All waters above the confluence (latitude 47.4192, longitude -123.7856), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Cloquallum Creek:</b> Upstream from the mouth (latitude 46.986, longitude -123.3951).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Decker Creek:</b> Upstream from the mouth (latitude 47.0964, longitude -123.4735).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Delezene Creek:</b> Upstream from the mouth (latitude 46.9413, longitude -123.3893).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Elk River, West Branch:</b> Upstream from latitude 46.8111, longitude -123.9774.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Goforth Creek and unnamed tributary:</b> All waters above the confluence (latitude 47.3559, longitude -123.7325), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Hoquiam River, East Fork:</b> Upstream from the confluence with Lytle Creek (latitude 47.0523, longitude -123.8428), including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Hoquiam River:</b> Upstream from latitude 47.0573, longitude -123.9278 (the approximate upper limit of tidal influence at Dekay Road Bridge), including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Hoquiam River, Middle Fork:</b> Upstream from latitude 47.0418, longitude -123.9052, including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Hoquiam River mainstem (continues as west fork above east fork):</b> Upstream from the mouth (latitude 46.9825, longitude -123.8781) to latitude 47.0573, longitude -123.9278 (the approximate upper limit of tidal influence at Dekay Road Bridge).	Rearing/ Migration Only	Primary Contact	All, Except Domestic Water	All	173-201A-200 (1)(c)(iv)
<b>Humptulips River:</b> Upstream from the mouth (latitude 47.0413, longitude -124.0522) to latitude 47.0810, longitude -124.0655, including tributaries.	Spawning /Rearing	Primary Contact	All	All	-
<b>Humptulips River:</b> Upstream from latitude 47.0810, longitude -124.0655 to Olympic National Forest boundary, including tributaries (except where designated char).	Core Summer Habitat	Primary Contact	All	All	-
<b>Humptulips River:</b> Upstream from Olympic National Forest boundary to headwaters, including tributaries (except where designated char).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Humptulips River, East Fork, and unnamed tributary:</b> All waters above the confluence (latitude 47.3816, longitude -123.7175), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)

Table 602: WRIA 22 - Lower Chehalis	Aquatic Life Uses	Recreation Uses	Water Supply Uses	Misc. Uses	Additional info for waterbody
<b>Humptulips River, West Fork, and Petes Creek:</b> All waters above the confluence (latitude 47.4487, longitude -123.7257), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Johns River and North Fork Johns River:</b> All waters above the confluence (latitude 46.8597, longitude -123.9049).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Little Hoquiam River, North Fork:</b> Upstream from latitude 47.0001, longitude -123.9269, including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Little Hoquiam River:</b> Upstream from latitude 46.9934, longitude -123.9364, including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Mox Chehalis Creek:</b> Upstream from latitude 46.9680, longitude -123.3083, including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Newskah Creek:</b> Upstream from latitude 46.9163, longitude -123.8235, including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Satsop River:</b> Upstream from latitude 46.9828, longitude -123.4887 to headwaters, including tributaries (except where designated char).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Satsop River, West Fork, and Robertson Creek:</b> All waters above the confluence (latitude 47.3324, longitude -123.5557), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Satsop River, Middle Fork, and unnamed tributary:</b> All waters above the confluence (latitude 47.3333, longitude -123.4463), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Wildcat Creek:</b> Upstream from the confluence with Cloquallum Creek (latitude 47.0204, longitude -123.3619), including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Wishkah River, East Fork:</b> Upstream from above latitude 47.0801, longitude -123.7560, including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Wishkah River:</b> Upstream from the mouth (latitude 46.9739, longitude -123.8092) to river mile 6 (latitude 47.0337, longitude -123.8023).	Rearing/ Migration Only	Primary Contact	All, Except Domestic Water	All	-
<b>Wishkah River:</b> Upstream from river mile 6 (latitude 47.0337, longitude -123.8023) to latitude 47.1089, longitude -123.7908.	Spawning /Rearing	Primary Contact	All	All	-
<b>Wishkah River:</b> From latitude 47.1089, longitude -123.7908 to confluence with West Fork (latitude 47.1227, longitude -123.7779), including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Wishkah River and West Fork:</b> Upstream from the confluence (latitude 47.1227, longitude -123.7779) to headwaters, including tributaries. <sup>1</sup>	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Wynoochee River:</b> Upstream from latitude 46.9709, longitude -123.6252 (near railroad crossing) to Olympic National Forest boundary (latitude 47.3452, longitude -123.6452), including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)



<b>Table 602: WRIA 22 - Lower Chehalis</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>Wynoochee River:</b> Upstream from Olympic National Forest boundary (latitude 47.3452, longitude -123.6452) to Wynoochee Dam (latitude 47.3851, longitude -123.6055), including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Wynoochee River:</b> Above Wynoochee Dam (latitude 47.3851, longitude -123.6055), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)

**Notes for WRIA 22:**

- No waste discharge will be permitted from south boundary of Sec. 33-T21N-R8W (river mile 32.0) to headwaters.
- This WRIA contains waters requiring supplemental spawning and incubation protection for salmonid species per WAC 173-201A-200 (1)(c)(iv). See ecology publication 06-10-038 for further information.

<b>Table 602: WRIA 23 - Upper Chehalis</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>Bunker Creek:</b> Upstream from the mouth (latitude 46.6438, longitude -123.1092), including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Cedar Creek:</b> Upstream from latitude 46.8795, longitude -123.2714 (near intersection with Highway 12), including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Chehalis River, South Fork:</b> Upstream from latitude 46.6018, longitude -123.1251 (near junction with State Route 6), including tributaries (except where specifically designated char).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Chehalis River:</b> Upstream from latitude 46.6004, longitude -123.1473, including tributaries (except where specifically designated char).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Chehalis River mainstem:</b> Upstream from the upper boundary of Grays Harbor at Cosmopolis (latitude 46.95801, longitude -123.76252) to latitude 46.6004, longitude -123.1473 on main stem and to latitude 46.6018, longitude -123.125 on South Fork. <sup>1</sup>	Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Chehalis River, South Fork, and unnamed tributary:</b> All waters above the confluence (latitude 46.4514, longitude -123.2919), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Chehalis River, West Fork, and East Fork Chehalis River:</b> All waters above the confluence (latitude 46.4514, longitude -123.2919), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Coffee Creek:</b> Upstream from the mouth (latitude 46.7313, longitude -122.9658), including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Eight Creek and unnamed tributary:</b> All waters above the confluence (latitude 46.621, longitude -123.4137), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Fall Creek and unnamed tributary:</b> All waters above the confluence (latitude 46.7669, longitude -122.6741), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Garrard Creek, South Fork:</b> Upstream from latitude 46.8013, longitude -123.3060, including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Hanaford Creek:</b> Upstream from the mouth to (latitude 46.7604, longitude -122.8662), including tributaries. <sup>2</sup>	Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)

Table 602: WRIA 23 - Upper Chehalis	Aquatic Life Uses	Recreation Uses	Water Supply Uses	Misc. Uses	Additional info for waterbody
<b>Hanaford Creek:</b> Upstream from (latitude 46.7604, longitude -122.8662) to the unnamed tributary at latitude 46.7301, longitude -122.6829, including tributaries (except where designated char).	Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Hanaford Creek and unnamed tributary:</b> All waters above the confluence (latitude 46.7301, longitude -122.6829), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Kearney Creek and unnamed tributary:</b> All waters above the confluence (latitude 46.6255, longitude -122.5699), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Laramie Creek and unnamed tributary:</b> All waters above the confluence (latitude 46.7902, longitude -122.5914), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Lincoln Creek, North Fork:</b> Upstream from latitude 46.7371, longitude -123.2462, including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Lincoln Creek, South Fork:</b> Upstream from latitude 46.7253, longitude -123.2306, including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Mima Creek:</b> Upstream from latitude 46.8588, longitude -123.0856, including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Newaukum River:</b> Upstream from the mouth (latitude 46.6512, longitude -122.9815), including tributaries (except where designated char).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Newaukum River, North Fork, and unnamed tributary:</b> All waters above the confluence (latitude 46.6793, longitude -122.6685), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Newaukum River, South Fork, and Frase Creek:</b> All waters above the confluence (latitude 46.6234, longitude -122.6321), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Pheeny Creek and unnamed tributary:</b> All waters above the confluence (latitude 46.7834, longitude -122.6291), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Porter Creek and Jamaica Day Creek:</b> All waters above the confluence (latitude 46.9416, longitude -123.3011).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Rock Creek (upstream of Callow):</b> All waters above confluence with Chehalis River (latitude 46.8805, longitude -123.2946), except where designated otherwise in this table.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Rock Creek (upstream of Pe Ell) and unnamed tributary:</b> All waters above the confluence (latitude 46.5283, longitude -123.3791), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Scatter Creek:</b> Upstream from latitude 46.8025, longitude -123.0863 (near mouth) to headwaters, including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Seven Creek and unnamed tributary:</b> All waters above the confluence (latitude 46.6192, longitude -123.3736), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-

<b>Table 602: WRIA 23 - Upper Chehalis</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>Skookumchuck River:</b> Upstream from the confluence with Hanaford Creek (latitude 46.7446, longitude -122.9402) to headwaters, including tributaries (except where designated char).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Skookumchuck River mainstem:</b> Upstream from the mouth (latitude 46.7194, longitude -122.9803) to Hanaford Creek (latitude 46.7446, longitude -122.9402).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Skookumchuck River and Hospital Creek:</b> All waters above the confluence (latitude 46.7194, longitude -122.9803), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Stearns Creek's unnamed tributary:</b> Upstream from the mouth (latitude 46.5713, longitude -122.9698).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Stearns Creek's unnamed tributary to West Fork:</b> Upstream from the mouth (latitude 46.5824, longitude -123.0226).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Stillman Creek and Little Mill Creek:</b> All waters above the confluence (latitude 46.5044, longitude -123.1407), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Thrash Creek:</b> Upstream from the mouth (latitude 46.4751, longitude -123.2996), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Waddel Creek:</b> Upstream from the mouth (latitude 46.9027, longitude -123.024), including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)

**Notes for WRIA 23:**

1. Chehalis River from Scammon Creek (RM 65.8) to Newaukum River (RM 75.2); dissolved oxygen shall exceed 5.0 mg/L from June 1st to September 15th. For the remainder of the year, the dissolved oxygen shall meet standard criteria.
2. Dissolved oxygen shall exceed 6.5 mg/L.
3. This WRIA contains waters requiring supplemental spawning and incubation protection for salmonid species per WAC 173-201A-200 (1)(c)(iv). See ecology publication 06-10-038 for further information.

<b>Table 602: WRIA 24 - Willapa</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>Bear River's unnamed south flowing tributary:</b> Upstream from the mouth at latitude 46.3342, longitude -123.9394.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Bear River:</b> Upstream from latitude 46.3284, longitude -123.9172 to headwaters, including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Canon River:</b> Upstream from latitude 46.5879, longitude -123.8672, including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Lower Salmon Creek:</b> Upstream from the mouth (latitude 46.7937, longitude -123.851), including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Middle Nemah River:</b> Upstream from latitude 46.4873, longitude -123.8855, including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Mill Creek:</b> Upstream from latitude 46.6448, longitude -123.6251, including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Naselle River:</b> Upstream from O'Conner Creek (latitude 46.3746, longitude -123.7971) to headwaters, including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)

<b>Table 602: WRIA 24 - Willapa</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>North Nemah River:</b> Upstream from latitude 46.5172, longitude -123.8665, including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>North River and Fall River:</b> All waters above the confluence (latitude 46.7773, longitude -123.5038).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Pioneer Creek:</b> Upstream from latitude 46.8147, longitude -123.5498, including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Salmon Creek:</b> Upstream from latitude 46.8905, longitude -123.6828, including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Smith Creek:</b> Upstream from latitude 46.7554, longitude -123.8424, including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>South Naselle River:</b> upstream from latitude 46.3499, longitude -123.8093.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>South Nemah River:</b> Upstream from latitude 46.4406, longitude -123.8630.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Stringer Creek:</b> Upstream from the mouth (latitude 46.5905, longitude -123.6316), including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Willapa River South Fork:</b> Upstream from latitude 46.6479, longitude -123.7267, including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Willapa River and Oxbow Creek:</b> All waters upstream of the confluence (latitude 46.5805, longitude -123.6343).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Williams Creek:</b> Upstream from latitude 46.5284, longitude -123.8668, including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)

**Note for WRIA 24:**

1. This WRIA contains waters requiring supplemental spawning and incubation protection for salmonid species per WAC 173-201A-200 (1)(c)(iv). See ecology publication 06-10-038 for further information.

<b>Table 602: WRIA 25 - Grays-Elochoman</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>Abernathy Creek and Cameron Creek:</b> All waters above the confluence (latitude 46.197, longitude -123.1632).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Coal Creek:</b> Upstream from latitude 46.1836, longitude -123.0338 (just below Harmony Creek), including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Elochoman River:</b> Upstream from the mouth (latitude 46.2267, longitude -123.4008) to latitude 46.2292, longitude -123.3606, including tributaries.	Spawning /Rearing	Primary Contact	All	All	-
<b>Elochoman River:</b> Upstream from latitude 46.2292, longitude -123.3606 to headwaters.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Germany Creek:</b> Upstream from latitude 46.1946, longitude -123.1259 (near mouth) to headwaters.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)

<b>Table 602: WRIA 25 - Grays-Elochoman</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>Grays River:</b> Upstream from latitude 46.3454, longitude -123.6099 to headwaters.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Hull Creek:</b> Upstream from the mouth (latitude 46.3533, longitude -123.6088), including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Mill Creek:</b> Upstream from latitude 46.1906, longitude -123.1802 (near mouth), including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Skomokawa Creek and Wilson Creek:</b> All waters above the confluence (latitude 46.2889, longitude -123.4456).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)

**Note for WRIA 25:**

- This WRIA contains waters requiring supplemental spawning and incubation protection for salmonid species per WAC 173-201A-200 (1)(c)(iv). See ecology publication 06-10-038 for further information.

<b>Table 602: WRIA 26 - Cowlitz</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>Cispus River:</b> Upstream from the mouth (latitude 46.4713, longitude -122.0727), including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Coweeman River:</b> Upstream from the mouth (latitude 46.1076, longitude -122.8901) to latitude 46.1405, longitude -122.8532, including tributaries.	Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Coweeman River:</b> Upstream from latitude 46.1405, longitude -122.8532 to Mulholland Creek (latitude 46.1734, longitude -122.7152), including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Coweeman River:</b> Upstream from Mulholland Creek (latitude 46.1734, longitude -122.7152) to headwaters.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Cowlitz River:</b> Upstream from the mouth (latitude 46.0967, longitude -122.9173) to latitude 46.2622, longitude -122.9001, including tributaries.	Spawning /Rearing	Primary Contact	All	All	-
<b>Cowlitz River:</b> Upstream from latitude 46.2622, longitude -122.9001 to the base of Mayfield Dam (latitude 46.5031, longitude -122.5883).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Cowlitz River:</b> Upstream from the base of Mayfield Dam (latitude 46.5031, longitude -122.5883) to headwaters, including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Green River:</b> Upstream from the mouth (latitude 46.3717, longitude -122.586), including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv); <u>173-201A-332</u>
<b>Toutle River:</b> Upstream from the mouth (latitude 46.3101, longitude -122.9196) to Green River (latitude 46.3717, longitude -122.586) on North Fork, including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Toutle River, North Fork:</b> Upstream from the Green River (latitude 46.3717, longitude -122.586) to headwaters, including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Toutle River, South Fork:</b> Upstream from the mouth (latitude 46.3286, longitude -122.7211), including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)

**Note for WRIA 26:**

1. This WRIA contains waters requiring supplemental spawning and incubation protection for salmonid species per WAC 173-201A-200 (1)(c)(iv). See ecology publication 06-10-038 for further information.

<b>Table 602: WRIA 27 - Lewis</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>Alec Creek:</b> Upstream from the mouth (latitude 46.1757, longitude -121.8534), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Big Creek:</b> Upstream from the mouth (latitude 46.097, longitude -121.921), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Chickoon Creek:</b> Upstream from the mouth (latitude 46.1534, longitude -121.8843), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Clear Creek:</b> Upstream from the mouth (latitude 46.1133, longitude -122.0048), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Clearwater Creek and unnamed creek:</b> All waters above the confluence (latitude 46.1666, longitude -122.0322), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Curly Creek:</b> Upstream from the mouth (latitude 46.0593, longitude -121.9732), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Cussed Hollow Creek:</b> Upstream from the mouth (latitude 46.144, longitude -121.9015), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Kalama River:</b> Upstream of Interstate 5 (latitude 46.035, longitude -122.8571) to Kalama River Falls (latitude 46.0207, longitude -122.7323), including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Kalama River:</b> Upstream of the lower Kalama River Falls (latitude 46.0207, longitude -122.7323) to headwaters, including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Lewis River:</b> Upstream from Houghton Creek (latitude 45.9374, longitude -122.6698) to Lake Merwin (latitude 45.9568, longitude -122.5562), including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Lewis River and Pass Creek (alternately known as Swamp Creek):</b> All waters above the confluence (latitude 46.201, longitude -121.7085), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Lewis River's unnamed tributaries:</b> Upstream from latitude 46.112, longitude -121.9188.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Lewis River, East Fork:</b> Upstream from, and including, Mason Creek (latitude 45.8366, longitude -122.6435) to Multon Falls (latitude 45.8314, longitude -122.3896), including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Lewis River, East Fork:</b> Upstream from Multon Falls (latitude 45.8314, longitude -122.3896) to headwaters, including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Little Creek:</b> Upstream from the mouth (latitude 46.0821, longitude -121.9235), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Panamaker Creek:</b> Upstream from the mouth (latitude 46.0595, longitude -122.2936), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)

<b>Table 602: WRIA 27 - Lewis</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>Pin Creek:</b> Upstream from the mouth (latitude 46.2002, longitude -121.712), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Pine Creek:</b> Upstream from the mouth (latitude 46.0718, longitude -122.0173), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Quartz Creek:</b> Upstream from the mouth (latitude 46.1795, longitude -121.847), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Rush Creek:</b> Upstream from the mouth (latitude 46.0746, longitude -121.9378), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Spencer Creek:</b> Upstream from the mouth (latitude 46.1397, longitude -121.9063), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Steamboat Creek:</b> Upstream from the mouth (latitude 46.1945, longitude -121.7293), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Tillicum Creek:</b> Upstream from the mouth (latitude 46.1803, longitude -121.8329), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-

**Note for WRIA 27:**

1. This WRIA contains waters requiring supplemental spawning and incubation protection for salmonid species per WAC 173-201A-200 (1)(c)(iv). See ecology publication 06-10-038 for further information.

<b>Table 602: WRIA 28 - Salmon-Washougal</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>Burnt Bridge Creek:</b> Upstream from the mouth (latitude 45.6752, longitude -122.6925).	Spawning /Rearing	Primary Contact	All	All	-
<b>Duncan Creek and unnamed tributary just east of Duncan Creek:</b> All waters north of highway 14 (latitude 45.6133, longitude -122.0549).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Green Leaf Creek and Hamilton Creek:</b> All waters above the confluence (latitude 45.6416, longitude -121.9775).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Hardy Creek:</b> Upstream of the lake inlet (latitude 45.6331, longitude -121.9969), including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Lawton Creek:</b> Upstream from latitude 45.5707, longitude -122.2574, including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Salmon Creek:</b> Upstream from latitude 45.7176, longitude -122.6958 (below confluence with Cougar Creek), including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Washougal River:</b> Upstream from latitude 45.5883, longitude -122.3711, including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Woodward Creek:</b> Upstream of highway 14 (latitude 45.6214, longitude -122.0297), including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)

**Note for WRIA 28:**

1. This WRIA contains waters requiring supplemental spawning and incubation protection for salmonid species per WAC 173-201A-200 (1)(c)(iv). See ecology publication 06-10-038 for further information.

<b>Table 602: WRIA 29 - Wind-White Salmon</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>Bear Creek (tributary to White Salmon River):</b> Upstream from latitude 45.98290, longitude -121.52946, and below National Forest boundary.	Spawning /Rearing	Primary Contact	All	All	-
<b>Buck Creek:</b> Upstream from the mouth (latitude 46.0754, longitude -121.5667), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Carson Creek:</b> Upstream from the mouth (latitude 45.7134, longitude -121.823).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Catherine Creek:</b> Upstream from the mouth (latitude 45.7071, longitude -121.3582), including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Cave Creek:</b> Upstream from the mouth (latitude 45.9886, longitude -121.4928), and below National Forest boundary.	Spawning /Rearing	Primary Contact	All	All	-
<b>Gilmer Creek:</b> Upstream from the mouth (latitude 45.8569, longitude -121.5085), including tributaries, except as noted otherwise.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Gilmer Creek's unnamed tributary:</b> Upstream from the mouth (latitude 45.8733, longitude -121.4587).	Spawning /Rearing	Primary Contact	All	All	-
<b>Gotchen Creek:</b> Upstream from the mouth (latitude 46.0013, longitude -121.5051), including tributaries, except those waters in or above the Gifford Pinchot National Forest.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Gotchen Creek:</b> Upstream from latitude 46.04409 longitude -121.51538 (in or above the Gifford Pinchot National Forest), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Green Canyon Creek:</b> Upstream from the mouth (latitude 46.0489, longitude -121.5485), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Jewett Creek:</b> Upstream from the mouth (latitude 45.7164, longitude -121.4773), including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Killowatt Canyon Creek:</b> Below National Forest Boundary and unnamed creek at latitude 45.963, longitude -121.5154.	Spawning /Rearing	Primary Contact	All	All	-
<b>Little White Salmon River:</b> Upstream from the mouth (latitude 45.72077, longitude -121.64081), and downstream of National Forest boundary, including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Little White Salmon River (mouth at latitude 45.72077, longitude -121.64081):</b> Waters in or above National Forest boundary, including tributaries.	Core Summer Habitat	Primary Contact	All	All	-
<b>Major Creek:</b> Upstream from the mouth (latitude 45.709, longitude -121.3515), including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Morrison Creek:</b> Upstream from the mouth (latitude 46.0744, longitude -121.5351), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Rattlesnake Creek and unnamed tributary:</b> All waters above the confluence (latitude 45.8471, longitude -121.4123), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-



<b>Table 602: WRIA 29 - Wind-White Salmon</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>Rock Creek:</b> Upstream from the mouth (latitude 45.69020, longitude -121.88923) and downstream of Gifford Pinchot National Forest boundaries, including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Spring Creek:</b> Upstream from the mouth (latitude 45.9908, longitude -121.5687), and below National Forest boundary.	Spawning /Rearing	Primary Contact	All	All	-
<b>Trout Lake Creek:</b> Upstream from the mouth (latitude 45.9948, longitude -121.5019), and below Trout Lake (latitude 46.0072, longitude -121.5455), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Trout Lake Creek:</b> At and above Trout Lake (latitude 46.0072, longitude -121.5455), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>White Salmon River:</b> Upstream from the mouth (latitude 45.7283, longitude -121.5219), and downstream of the National Forest boundary, including all natural tributaries (not otherwise designated char).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>White Salmon River (mouth at latitude 45.7283, longitude -121.5219):</b> Occurring in or upstream of National Forest boundary, including all natural tributaries (not otherwise designated char).	Core Summer Habitat	Primary Contact	All	All	-
<b>White Salmon River drainage's unnamed tributaries:</b> Waters originating in Section 13 T6N R10E; all portions occurring downstream of the Gifford Pinchot National Forest boundary.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>White Salmon River drainage's unnamed tributaries:</b> Waters originating in Section 13 T6N R10E; all portions occurring upstream of the Gifford Pinchot National Forest boundary.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>White Salmon River and Cascade Creek:</b> All waters above the confluence (latitude 46.1042, longitude -121.6081), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Wind River:</b> Upstream from the mouth (latitude 45.718, longitude -121.7908) and downstream of Gifford Pinchot National Forest boundaries, including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Wind River (mouth at latitude 45.718, longitude -121.7908):</b> Waters in or upstream of Gifford Pinchot National Forest, including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)

**Note for WRIA 29:**

1. This WRIA contains waters requiring supplemental spawning and incubation protection for salmonid species per WAC 173-201A-200 (1)(c)(iv). See ecology publication 06-10-038 for further information.

<b>Table 602: WRIA 30 - Klickitat</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>Clearwater Creek and Trappers Creek:</b> All waters above the confluence (latitude 46.2788, longitude -121.3325), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Cougar Creek and Big Muddy Creek:</b> All waters above the confluence (latitude 46.1294, longitude -121.2895), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-

<b>Table 602: WRIA 30 - Klickitat</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>Diamond Fork and Cuitin Creek:</b> All waters above the confluence (latitude 46.451, longitude -121.1729), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Diamond Fork's unnamed tributaries:</b> Upstream from latitude 46.4205, longitude -121.1562.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Diamond Fork's unnamed tributaries (outlet of Maiden Springs):</b> Upstream from the mouth (latitude 46.4353, longitude -121.16).	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Fish Lake Stream:</b> Upstream from the mouth (latitude 46.2749, longitude -121.3126), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Frasier Creek and Outlet Creek:</b> All waters above the confluence (latitude 45.9953, longitude -121.2569), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Klickitat River mainstem:</b> Upstream from the mouth (latitude 45.6961, longitude -121.292) to the Little Klickitat River (latitude 45.845, longitude -121.0636).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Klickitat River from Little Klickitat River:</b> Upstream from the confluence (latitude 45.845, longitude -121.0636) to Diamond Fork (latitude 46.374, longitude -121.1943).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Klickitat River:</b> Upstream from the confluence with Diamond Fork (latitude 46.374, longitude -121.1943), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Little Klickitat River:</b> Upstream from the confluence with Cozy Nook Creek (latitude 45.8567, longitude -120.7701), including tributaries.	Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Little Muddy Creek:</b> Upstream from the mouth (latitude 46.2769, longitude -121.3386), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>McCreedy Creek:</b> Upstream from the mouth (latitude 46.323, longitude -121.2527), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-

**Note for WRIA 30:**

1. This WRIA contains waters requiring supplemental spawning and incubation protection for salmonid species per WAC 173-201A-200 (1)(c)(iv). See ecology publication 06-10-038 for further information.

<b>Table 602: WRIA 31 - Rock-Glade</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>Squaw Creek and unnamed tributary:</b> All waters above confluence (latitude 45.8761, longitude -120.4324).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Rock Creek and Quartz Creek:</b> All waters above confluence (latitude 45.8834, longitude -120.5569).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)

**Note for WRIA 31:**

1. This WRIA contains waters requiring supplemental spawning and incubation protection for salmonid species per WAC 173-201A-200 (1)(c)(iv). See ecology publication 06-10-038 for further information.

<b>Table 602: WRIA 32 - Walla Walla</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>Blue Creek and tributaries:</b> Waters above latitude 46.0581, longitude -118.0971.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Coppei Creek, North and South Forks:</b> Upstream from the confluence (latitude 46.1906, longitude -118.1113), including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Dry Creek and tributaries:</b> Upstream from the confluence with unnamed creek at latitude 46.1195, longitude -118.1375 (Seaman Rd).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Mill Creek:</b> Upstream from the mouth (latitude 46.0383, longitude -118.4795) to 13th Street Bridge in Walla Walla (latitude 46.0666, longitude -118.3565). <sup>1</sup>	Rearing/ Migration Only	Primary Contact	All, Except Domestic Water	All	173-201A-200 (1)(c)(iv)
<b>Mill Creek:</b> Upstream from the 13th Street Bridge in Walla Walla (latitude 46.0666, longitude -118.3565) to diversion structure at confluence of Mill Creek and unnamed creek (latitude 46.0798, longitude -118.2541).	Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Mill Creek:</b> Upstream from latitude 46.0798, longitude -118.2541 to headwaters, including tributaries (except where otherwise designated char).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Mill Creek and Railroad Canyon:</b> All waters above the confluence (latitude 46.0066, longitude -118.1185) to the Oregon state line (latitude 46.00061, longitude -118.11525), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Mill Creek:</b> Waters within Washington that are above the city of Walla Walla Waterworks Dam (latitude 45.9896, longitude -118.0525) to headwaters, including tributaries. <sup>2</sup>	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Touchet River:</b> Upstream from latitude 46.3172, longitude -118.0000, including tributaries (not otherwise designated char).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Touchet River, North Fork, and Wolf Creek:</b> All waters above the confluence (latitude 46.2922, longitude -117.9397), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Touchet River, South Fork, and unnamed tributary:</b> All waters above the confluence (latitude 46.2297, longitude -117.9412), except those waters in or above the Umatilla National Forest, including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Touchet River, South Fork, and unnamed tributary:</b> All waters above the confluence (latitude 46.2297, longitude -117.9412) that are in or above the Umatilla National Forest, including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Walla Walla River:</b> Upstream from the mouth (latitude 46.0642, longitude -118.9152) to Lowden (Dry Creek at latitude 46.0506, longitude -118.5944).	Rearing/ Migration Only	Primary Contact	All, Except Domestic Water	All	-
<b>Walla Walla River:</b> From Lowden (Dry Creek at latitude 46.0506, longitude -118.5944) to Oregon border (latitude 46, longitude -118.3796). <sup>3</sup>	Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)

<b>Table 602: WRIA 32 - Walla Walla</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>Whiskey Creek and unnamed tributary system:</b> All waters above confluence (latitude 46.2176, longitude -118.0661).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)

**Notes for WRIA 32:**

1. Dissolved oxygen concentration shall exceed 5.0 mg/L.
2. No waste discharge will be permitted for Mill Creek and tributaries in Washington from city of Walla Walla Waterworks Dam (latitude 45.9896, longitude -118.0525) to headwaters.
3. Temperature shall not exceed a 1-DMax of 20.0°C due to human activities. When natural conditions exceed a 1-DMax of 20.0°C, no temperature increase will be allowed which will raise the receiving water temperature by greater than 0.3°C; nor shall such temperature increases, at any time, exceed  $t = 34/(T + 9)$ .
4. This WRIA contains waters requiring supplemental spawning and incubation protection for salmonid species per WAC 173-201A-200 (1)(c)(iv). See ecology publication 06-10-038 for further information.

<b>Table 602: WRIA 33 - Lower Snake</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>Snake River:</b> Upstream from the mouth (latitude 46.1983, longitude -119.0368) to Washington-Idaho-Oregon border (latitude 45.99599, longitude -116.91705). <sup>1</sup>	Spawning /Rearing	Primary Contact	All	All	-

**Note for WRIA 33:**

1. Below Clearwater River (latitude 46.42711, longitude -119.04021). Temperature shall not exceed a 1-DMax of 20.0°C due to human activities. When natural conditions exceed a 1-DMax of 20.0°C, no temperature increase will be allowed which will raise the receiving water temperature by greater than 0.3°C; nor shall such temperature increases, at any time, exceed  $t = 34/(T + 9)$ . Special condition - Special fish passage exemption as described in WAC 173-201A-200 (1)(f).

<b>Table 602: WRIA 34 - Palouse</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>Palouse River mainstem:</b> Upstream from the mouth (latitude 46.5909, longitude -118.2153) to Palouse Falls (latitude 46.6635, longitude -118.2236).	Spawning /Rearing	Primary Contact	All	All	-
<b>Palouse River:</b> Upstream from Palouse Falls (latitude 46.6635, longitude -118.2236) to south fork (Colfax, latitude 46.8898, longitude -117.3675).	Rearing/ Migration Only	Primary Contact	All, Except Domestic Water	All	-
<b>Palouse River mainstem:</b> Upstream from the confluence with south fork (Colfax, latitude 46.8898, longitude -117.3675) to Idaho border (latitude 46.9124, longitude -117.0395). <sup>1</sup>	Spawning /Rearing	Primary Contact	All	All	-

**Note for WRIA 34:**

1. Temperature shall not exceed a 1-DMax of 20.0°C due to human activities. When natural conditions exceed a 1-DMax of 20.0°C, no temperature increase will be allowed which will raise the receiving water temperature by greater than 0.3°C; nor shall such temperature increases, at any time, exceed  $t = 34/(T + 9)$ .

<b>Table 602: WRIA 35 - Middle Snake</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>All streams flowing into Oregon:</b> From North Fork Wenaha River (upstream from latitude 46.00025, longitude -117.85942) east to, and including, Fairview Creek (upstream from latitude 45.999, longitude -117.60893).	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Asotin River and Charley Creek:</b> Upstream from the confluence (latitude 46.2887, longitude -117.2785) to the headwaters, including tributaries (not otherwise designated char).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Asotin River, North Fork:</b> Upstream of the confluence with Lick Creek (latitude 46.2621, longitude -117.2969), except those waters in or above the Umatilla National Forest, including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)

Table 602: WRIA 35 - Middle Snake	Aquatic Life Uses	Recreation Uses	Water Supply Uses	Misc. Uses	Additional info for waterbody
<b>Asotin River, North Fork:</b> Upstream from the confluence with Lick Creek (latitude 46.2621, longitude -117.2969) and that are in or above the Umatilla National Forest, including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Charley Creek and unnamed tributary:</b> All waters above the confluence (latitude 46.2846, longitude -117.321), except those waters in or above the Umatilla National Forest, including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Charley Creek and unnamed tributary:</b> All waters above the confluence (latitude 46.2846, longitude -117.321) that are in or above the Umatilla National Forest, including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Cottonwood Creek and unnamed tributary:</b> All waters above the confluence (latitude 46.0677, longitude -117.3011).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Crooked Creek:</b> Upstream from the Oregon Border (latitude 46, longitude -117.5553) to headwaters, including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Cummings Creek:</b> Upstream from the mouth (latitude 46.3326, longitude -117.675) except those waters in or above the Umatilla National Forest, including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Cummings Creek (mouth at latitude 46.3326, longitude -117.675):</b> Waters that are in or above the Umatilla National Forest, including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>George Creek:</b> Upstream from (latitude 46.1676, longitude -117.2543) and including Coombs Canyon, including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>George Creek and unnamed tributary:</b> All waters above confluence (latitude 46.2293, longitude -117.1879) not otherwise designated Char.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Grande Ronde River:</b> Upstream from the mouth (latitude 46.08, longitude -116.9802) to the Oregon border (latitude 46, longitude 117.3798). <sup>1</sup>	Spawning /Rearing	Primary Contact	All	All	-
<b>Grouse Creek:</b> Upstream from the Oregon border (latitude 46, longitude -117.413), including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Grub Canyon:</b> Upstream from the mouth (latitude 46.2472, longitude -117.6795), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Hixon Canyon:</b> Upstream from the mouth (latitude 46.2397, longitude -117.6924), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Little Tucannon River:</b> Upstream from the mouth (latitude 46.2283, longitude -117.7226), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Menatchee Creek and West Fork Menatchee Creek:</b> All waters above the confluence (latitude 46.0457, longitude -117.386), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-

<b>Table 602: WRIA 35 - Middle Snake</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>Pataha Creek and Dry Pataha Creek:</b> All waters above the confluence (latitude 46.3611, longitude -117.5562), except those waters in or above the Umatilla National Forest, including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Pataha Creek and Dry Pataha Creek:</b> All waters above the confluence (latitude 46.3611, longitude -117.5562) that are in or above the Umatilla National Forest, including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Snake River:</b> From mouth (latitude 45.99900, longitude -117.60893) to Washington-Idaho-Oregon border (latitude 45.99599, longitude -116.91705). <sup>2</sup>	Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Tenmile Creek:</b> All waters above confluence with unnamed creek (latitude 46.2154, longitude -117.0388).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Tucannon River:</b> Upstream from latitude 46.4592, longitude -117.8461 to Panjab Creek (latitude 46.2046, longitude -117.7061), including tributaries (except where designated char).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Tucannon River mainstem:</b> Upstream from the confluence with Little Tucannon River (latitude 46.2284, longitude -117.7223) to the confluence with Panjab Creek (latitude 46.2046, longitude -117.7061).	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Tucannon River and Panjab Creek:</b> All waters above the confluence (latitude 46.2046, longitude -117.7061), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Tucannon River's unnamed tributaries (South of Marengo):</b> All waters in Sect. 1 T10N R40E and in Sect. 35 T11N R40E above their forks.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Tumalum Creek and unnamed tributary:</b> All waters above the confluence (latitude 46.3592, longitude -117.6498), except those waters in or above the Umatilla National Forest including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Tumalum Creek and unnamed tributary:</b> All waters above the confluence (latitude 46.3592, longitude -117.6498) that are in or above the Umatilla National Forest including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Willow Creek and unnamed tributary:</b> All waters above the confluence (latitude 46.4181, longitude -117.8328) including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-

**Notes for WRIA 35:**

1. Temperature shall not exceed a 1-DMax of 20.0°C due to human activities. When natural conditions exceed a 1-DMax of 20.0°C, no temperature increase will be allowed which will raise the receiving water temperature by greater than 0.3°C; nor shall such temperature increases, at any time, exceed  $t = 34/(T + 9)$ .
2. The following two notes apply:
  - a. Below Clearwater River (latitude 46.4269, longitude -117.0372). Temperature shall not exceed a 1-DMax of 20.0°C due to human activities. When natural conditions exceed a 1-DMax of 20.0°C, no temperature increase will be allowed which will raise the receiving water temperature by greater than 0.3°C; nor shall such temperature increases, at any time, exceed  $t = 34/(T + 9)$ . Special condition - Special fish passage exemption as described in WAC 173-201A-200 (1)(f).
  - b. Above Clearwater River (latitude 46.4269, longitude -117.0372). Temperature shall not exceed a 1-DMax of 20.0°C due to human activities. When natural conditions exceed a 1-DMax of 20.0°C, no temperature increases will be allowed which will raise the receiving water temperature by greater than 0.3°C; nor shall such temperature increases, at any time, exceed 0.3°C due to any single source or 1.1°C due to all such activities combined.
3. This WRIA contains waters requiring supplemental spawning and incubation protection for salmonid species per WAC 173-201A-200 (1)(c)(iv). See ecology publication 06-10-038 for further information.

<b>Table 602: WRIA 36 - Esquatzel Coulee</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
There are no specific waterbody entries for this WRIA.	-	-	-	-	-
<b>Table 602: WRIA 37 - Lower Yakima</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>Ahtanum Creek North Fork's unnamed tributaries:</b> Upstream from the mouth (latitude 46.5458, longitude -120.8869).	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Ahtanum Creek North Fork's unnamed tributaries:</b> Upstream from the mouth (latitude 46.5395, longitude -120.9864).	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Ahtanum Creek:</b> Between confluence with South Fork (latitude 46.5232, longitude -120.8548) and confluence of North and Middle Forks (latitude 46.5177, longitude -121.0152), including tributaries (except where designated char).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Ahtanum Creek, North Fork, and Middle Fork Ahtanum Creek:</b> All waters above the confluence (latitude 46.5177, longitude -121.0152), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Ahtanum Creek, South Fork:</b> Upstream from the mouth (latitude 46.5232, longitude -120.8548), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Carpenter Gulch:</b> Upstream from the mouth (latitude 46.5432, longitude -120.9671), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Foundation Creek:</b> Upstream from the mouth (latitude 45.5321, longitude -120.9973), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Nasty Creek:</b> Upstream from the mouth (latitude 46.5641, longitude -120.918), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Sulphur Creek:</b> Upstream from the mouth (latitude 46.3815, longitude -119.9584).	Rearing/Migration Only	Primary Contact	All, Except Domestic Water	All	-
<b>Yakima River:</b> Upstream from the mouth (latitude 46.248, longitude -119.2422) to Cle Elum River (latitude 47.17683, longitude -120.99756) except where specifically designated otherwise in Table 602. <sup>1</sup>	Spawning /Rearing	Primary Contact	All	All	-

**Notes for WRIA 37:**

- Temperature shall not exceed a 1-DMax of 21.0°C due to human activities. When natural conditions exceed a 1-DMax of 21.0°C, no temperature increase will be allowed which will raise the receiving water temperature by greater than 0.3°C; nor shall such temperature increases, at any time, exceed  $t = 34/(T + 9)$ .
- This WRIA contains waters requiring supplemental spawning and incubation protection for salmonid species per WAC 173-201A-200 (1)(c)(iv). See ecology publication 06-10-038 for further information.

<b>Table 602: WRIA 38 - Naches</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>American River:</b> Upstream from the mouth (latitude 46.9756, longitude -121.1574), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Barton Creek:</b> Upstream from the mouth (latitude 46.8725, longitude -121.2934), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-

<b>Table 602: WRIA 38 - Naches</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>Bumping Lake's unnamed tributaries:</b> Upstream from the mouth (latitude 46.8464, longitude -121.3106).	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Bumping River's unnamed tributaries:</b> Upstream from latitude 46.9316, longitude -121.2078 (outlet of Flat Iron Lake).	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Bumping River:</b> Upstream from the mouth (latitude 46.9853, longitude -121.0931) to the upper end of Bumping Lake (latitude 46.8394, longitude -121.3662), including tributaries (except where designated char).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Bumping River:</b> Upstream of Bumping Lake (latitude 46.8394, longitude -121.3662), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Cedar Creek:</b> Upstream from the mouth (latitude 46.8411, longitude -121.3644), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Clear Creek:</b> Upstream from the mouth (latitude 46.6352, longitude -121.2856), including tributaries (including Clear Lake).	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Crow Creek:</b> Upstream from the mouth (latitude 47.0153, longitude -121.1341), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Deep Creek:</b> Upstream from the mouth (latitude 46.8436, longitude -121.3175), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Goat Creek:</b> Upstream from the mouth (latitude 46.9173, longitude -121.2243), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Granite Creek:</b> Upstream from the mouth (latitude 46.8414, longitude -121.3253), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Indian Creek:</b> Upstream from the mouth (latitude 46.6396, longitude -121.2487), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Little Naches River and Bear Creek:</b> All waters above the confluence (latitude 47.0732, longitude -121.2413), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Little Naches River, South Fork:</b> Upstream from the mouth (latitude 47.0659, longitude -121.2265), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Naches River:</b> Upstream from latitude 46.7641, longitude -120.8284 (just upstream of Cougar Canyon) to the Snoqualmie National Forest boundary (latitude 46.9007, longitude -121.0135), including tributaries (except where designated char).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Naches River:</b> Upstream from the Snoqualmie National Forest boundary (latitude 46.9007, longitude -121.0135) to headwaters (except where designated char).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Pileup Creek:</b> Upstream from the mouth (latitude 47.0449, longitude -121.1829), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Quartz Creek:</b> Upstream from the mouth (latitude 47.0169, longitude -121.1351), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)



<b>Table 602: WRIA 38 - Naches</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>Rattlesnake Creek:</b> All waters above the confluence with North Fork Rattlesnake Creek (latitude 46.8096, longitude -121.0679).	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Rattlesnake Creek, North Fork:</b> All waters above latitude 46.8107, longitude 121.0694 (from and including the unnamed tributary just above confluence with mainstem).	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Sand Creek:</b> Upstream from the mouth (latitude 47.0432, longitude -121.1923), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Sunrise Creek:</b> Upstream from the mouth (latitude 46.9045, longitude -121.2431), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Tieton River:</b> Upstream from the mouth (latitude 46.7463, longitude -120.7871), including tributaries (except where otherwise designated).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Tieton River, North Fork:</b> Upstream from the confluence with Clear Lake (latitude 46.6278, longitude -121.2711), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Tieton River, South Fork:</b> Upstream from the mouth (latitude 46.6261, longitude -121.133), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)

**Note for WRIA 38:**

- This WRIA contains waters requiring supplemental spawning and incubation protection for salmonid species per WAC 173-201A-200 (1)(c)(iv). See ecology publication 06-10-038 for further information.

<b>Table 602: WRIA 39 - Upper Yakima</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>Cle Elum River:</b> Upstream from the mouth (latitude 47.1771, longitude -120.9982) to latitude 47.3805 longitude -121.0979 (above Little Salmon la Sac Creek).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Cle Elum River:</b> Upstream from the confluence with unnamed tributary (latitude 47.3807, longitude -121.0975) to headwaters, including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Indian Creek:</b> Upstream from the mouth (latitude 47.2994, longitude -120.8581) and downstream of Wenatchee National Forest boundary, including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Indian Creek (mouth at latitude 47.2994, longitude -120.8581):</b> Waters in or above the National Forest boundary, including tributaries.	Core Summer Habitat	Primary Contact	All	All	-
<b>Jack Creek:</b> Upstream from the mouth (latitude 47.3172, longitude -120.8561) and downstream of Wenatchee National Forest boundary, including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Jack Creek (mouth at latitude 47.3172, longitude -120.8561):</b> Waters in or above National Forest boundary, including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Little Kachess Lake:</b> Upstream from the narrowest point dividing Kachess Lake from Little Kachess Lake (latitude 47.3542, longitude -121.2378), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-

Table 602: WRIA 39 - Upper Yakima	Aquatic Life Uses	Recreation Uses	Water Supply Uses	Misc. Uses	Additional info for waterbody
<b>Manastash Creek mainstem:</b> Upstream from the mouth (latitude 46.9941, longitude -120.5814) to confluence of North and South Forks (latitude 46.9657, longitude -120.7359).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Manastash Creek, tributaries to mainstem:</b> Between the mouth (latitude 46.9941, longitude -120.5814) and the confluence of North and South Forks (latitude 46.9657, longitude -120.7359).	Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Manastash Creek:</b> All waters above the confluence of the North and South Forks (latitude 46.9657, longitude -120.7359) and downstream of the Wenatchee National Forest boundary.	Core Summer Habitat	Primary Contact	All	All	-
<b>Manastash Creek:</b> All waters above the confluence of the North and South Forks (latitude 46.9657, longitude -120.7359) that are in or above the Wenatchee National Forest.	Core Summer Habitat	Primary Contact	All	All	-
<b>Swauk Creek mainstem:</b> Upstream from the mouth (latitude 47.1239, longitude -120.7381) to confluence with First Creek (latitude 47.2081, longitude -120.7007).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Swauk Creek:</b> Upstream from the confluence with First Creek (latitude 47.2081, longitude -120.7007) to Wenatchee National Forest, including tributaries.	Core Summer Habitat	Primary Contact	All	All	-
<b>Taneum Creek mainstem:</b> Upstream from the mouth (latitude 47.0921, longitude -120.7092) to Wenatchee National Forest boundary (latitude 47.1134, longitude -120.8997).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Taneum Creek, tributaries to mainstem:</b> Between the mouth (latitude 47.0921, longitude -120.7092) and Wenatchee National Forest boundary (latitude 47.1134, longitude -120.8997).	Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Teanaway River mainstem:</b> Upstream from the mouth (latitude 47.1672, longitude -120.835) to West Fork Teanaway River (latitude 47.2567, longitude -120.8981).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Teanaway River, tributaries to mainstem:</b> Between the mouth (latitude 47.1672, longitude -120.835) and West Fork Teanaway River (latitude 47.2567, longitude -120.8981).	Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Teanaway River, West Fork and Middle Fork:</b> Upstream from the mouth (latitude 47.2567, longitude -120.8981) and downstream of the Wenatchee National Forest, including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Teanaway River, West Fork and Middle Fork (confluence at latitude 47.2567, longitude -120.8981):</b> Upstream of the Wenatchee National Forest, including tributaries.	Core Summer Habitat	Primary Contact	All	All	-
<b>Teanaway River, North Fork:</b> Upstream from mouth (latitude 47.2514, longitude -120.8785) to Jungle Creek (latitude 47.3328, longitude -120.8564) and downstream of the Wenatchee National Forest boundary, including tributaries (except where designated otherwise).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)

<b>Table 602: WRIA 39 - Upper Yakima</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>Teanaway River, North Fork:</b> Upstream from the mouth (latitude 47.2514, longitude -120.8785) to Jungle Creek (latitude 47.3328, longitude -120.8564) and in or above the Wenatchee National Forest boundary, including tributaries (except where designated otherwise).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Teanaway River, North Fork, and Jungle Creek:</b> Upstream from the confluence (latitude 47.3328, longitude -120.8564), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Yakima River mainstem:</b> Upstream from the mouth (latitude 46.25010, longitude -119.24668) to the confluence with the Cle Elum River (latitude 47.1768, longitude -120.9976) except where specifically designated otherwise in Table 602. <sup>1</sup>	Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Yakima River:</b> Upstream from the confluence with the Cle Elum River (latitude 47.1768, longitude -120.9976) to headwaters, including tributaries (except where designated otherwise).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Yakima River:</b> Upstream from the confluence with, but not including, Cedar Creek (latitude 47.2892, longitude -121.2947) including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)

**Notes for WRIA 39:**

1. Temperature shall not exceed a 1-DMax of 21.0°C due to human activities. When natural conditions exceed a 1-DMax of 21.0°C, no temperature increase will be allowed which will raise the receiving water temperature by greater than 0.3°C; nor shall such temperature increases, at any time, exceed  $t = 34/(T + 9)$ .
2. This WRIA contains waters requiring supplemental spawning and incubation protection for salmonid species per WAC 173-201A-200 (1)(c)(iv). See ecology publication 06-10-038 for further information.

<b>Table 602: WRIA 40 - Alkaki-Squilchuck</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
There are no specific water body entries for this WRIA.	-	-	-	-	-

<b>Table 602: WRIA 41 - Lower Crab</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>Crab Creek:</b> Upstream from the mouth (latitude 47.1452, longitude -119.2655), including tributaries.	Rearing/ Migration Only	Primary Contact	All, Except Domestic Water	All	-

<b>Table 602: WRIA 42 - Grand Coulee</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>Crab Creek:</b> Upstream from the mouth (latitude 47.1452, longitude -119.2655), including tributaries.	Rearing/ Migration Only	Primary Contact	All, Except Domestic Water	All	-

<b>Table 602: WRIA 43 - Upper Crab-Wilson</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>Crab Creek:</b> Upstream from the mouth (latitude 47.1452, longitude -119.2655), including tributaries.	Rearing/ Migration Only	Primary Contact	All, Except Domestic Water	All	-

<b>Table 602: WRIA 44 - Moses Coulee</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
There are no specific waterbody entries for this WRIA.	-	-	-	-	-
<b>Table 602: WRIA 45 - Wenatchee</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>Chiwaukum Creek:</b> Upstream from the confluence with Skinney Creek (latitude 47.6865, longitude -120.7351) to headwaters, including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Chiwawa River:</b> Upstream from the mouth (latitude 47.7883, longitude -120.6594) to Chikamin Creek (latitude 47.9036, longitude -120.7307), including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Chiwawa River and Chikamin Creek:</b> Upstream from the confluence (latitude 47.9036, longitude -120.7307), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Chumstick Creek:</b> Upstream from the mouth (latitude 47.6026, longitude -120.6444) and downstream of the National Forest boundary, including tributaries (not otherwise designated char).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Chumstick Creek (mouth at latitude 47.6026, longitude -120.6444):</b> In or above the National Forest boundary, including tributaries (not otherwise designated char).	Core Summer Habitat	Primary Contact	All	All	-
<b>Dry Creek and Chumstick Creek:</b> All waters above the confluence (latitude 47.7151, longitude -120.5734), except those waters in or above the Wenatchee National Forest, including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Dry Creek and Chumstick Creek:</b> All waters above the confluence (latitude 47.7151, longitude -120.5734) that are in or above the Wenatchee National Forest, including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Eagle Creek and unnamed tributary:</b> All waters above the confluence (latitude 47.6544, longitude -120.5165) except those waters in or above the Wenatchee National Forest, including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Eagle Creek and unnamed tributary:</b> All waters above the confluence (latitude 47.6544, longitude -120.5165) that are in or above the Wenatchee National Forest, including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Icicle Creek:</b> Upstream from the mouth (latitude 47.5799, longitude -120.6664) to the National Forest boundary, including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Icicle Creek:</b> Upstream from the National Forest boundary to confluence with Jack Creek (latitude 47.6081, longitude -120.8991), including tributaries.	Core Summer Habitat	Primary Contact	All	All	-
<b>Icicle Creek and Jack Creek:</b> Upstream from the confluence (latitude 47.6081, longitude -120.8991), including all tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Ingalls Creek:</b> Upstream from the mouth (latitude 47.4635, longitude -120.6611), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)

<b>Table 602: WRIA 45 - Wenatchee</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>Mission Creek:</b> Upstream from latitude 47.4496, longitude -120.4944 to headwaters and downstream of the National Forest boundary, including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Mission Creek:</b> Upstream from latitude 47.4496, longitude -120.4944 to headwaters and in, or above, the National Forest boundary, including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Peshastin Creek:</b> Upstream from the National Forest boundary (latitude 47.4898, longitude -120.6502) to headwaters, including tributaries (except where designated char).	Core Summer Habitat	Primary Contact	All	All, Except Aesthetics	173-201A-200 (1)(c)(iv)
<b>Peshastin Creek:</b> Upstream from the confluence with Mill Creek (latitude 47.5105, longitude -120.6319) to the National Forest boundary, including tributaries.	Core Summer Habitat	Primary Contact	All	All, Except Aesthetics	173-201A-200 (1)(c)(iv)
<b>Second Creek and unnamed tributary:</b> All waters above the confluence (latitude 47.7384, longitude -120.5946), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Van Creek and unnamed tributary:</b> All waters above the confluence (latitude 47.6719, longitude -120.5385), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Wenatchee River mainstem:</b> Between Peshastin Creek (latitude 47.5573, longitude -120.5741) and the boundary of the Wenatchee National Forest (latitude 47.5851, longitude -120.6902).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Wenatchee River:</b> From Wenatchee National Forest boundary (latitude 47.5851, longitude -120.6902) to Chiwawa River (latitude 47.7883, longitude -120.6594), including tributaries (except where designated otherwise).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Wenatchee River:</b> Upstream from the confluence with Chiwawa River (latitude 47.7883, longitude -120.6594), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)

**Note for WRIA 45:**

1. This WRIA contains waters requiring supplemental spawning and incubation protection for salmonid species per WAC 173-201A-200 (1)(c)(iv). See ecology publication 06-10-038 for further information.

<b>Table 602: WRIA 46 - Entiat</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>Brennegan Creek and unnamed tributary:</b> All waters above the confluence (latitude 47.9096, longitude -120.4199), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Entiat River:</b> Occurring below the National Forest boundary from, and including, the Mad River (latitude 47.7358, longitude -120.3633) to Wenatchee National Forest boundary on the mainstem Entiat River (latitude 47.84815, longitude -120.42051), including tributaries.	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Entiat River:</b> Upstream from the unnamed creek at latitude 47.9135, longitude -120.4942 (below Fox Creek), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Entiat River's unnamed tributaries:</b> Upstream of latitude 47.9107, longitude -121.5012 (below Fox Creek).	Char Spawning /Rearing	Primary Contact	All	All	-

Table 602: WRIA 46 - Entiat	Aquatic Life Uses	Recreation Uses	Water Supply Uses	Misc. Uses	Additional info for waterbody
<b>Gray Canyon, North Fork, and South Fork Gray Canyon:</b> All waters above the confluence (latitude 47.8133, longitude -120.399), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Hornet Creek:</b> Upstream from the mouth (latitude 47.771, longitude -120.4332), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Mad River:</b> Upstream from latitude 47.8015 longitude -120.4920 (below Young Creek), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Mud Creek and Switchback Canyon:</b> All waters above the confluence (latitude 47.7802, longitude -120.3073), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Potato Creek and Gene Creek:</b> All waters above the confluence (latitude 47.8139, longitude -120.3424).	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Preston Creek and South Fork Preston Creek:</b> All waters above the confluence (latitude 47.8835, longitude -120.4241), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Stormy Creek and unnamed tributary:</b> All waters above the confluence (latitude 47.8383, longitude -120.3877), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Tillicum Creek and Indian Creek:</b> All waters above the confluence (latitude 47.7291, longitude -120.4322), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-

**Note for WRIA 46:**

1. This WRIA contains waters requiring supplemental spawning and incubation protection for salmonid species per WAC 173-201A-200 (1)(c)(iv). See ecology publication 06-10-038 for further information.

Table 602: WRIA 47 - Chelan	Aquatic Life Uses	Recreation Uses	Water Supply Uses	Misc. Uses	Additional info for waterbody
<b>Stehekin River:</b> Upstream from the mouth (latitude 48.3202, longitude -120.6791).	Core Summer Habitat	Primary Contact	All	All	-
<b>Chelan River:</b> Downstream from the Lake Chelan Dam outlet (latitude 47.8338, longitude -120.0112) to the fish passage barrier at the end of the canyon (latitude 47.8117, longitude -119.9848). <sup>1, 4</sup>	Migration for Naturally Limited Waters <sup>2</sup>	Primary Contact	All	All	173-201A-440 (9)
<b>Chelan River:</b> From the fish passage barrier at the end of the canyon (latitude 47.8117, longitude -119.9848) to the confluence with the Columbia River (latitude 47.8044, longitude -119.9842). <sup>3, 4, 5</sup>	Salmonid Spawning, Rearing, and Migration for Naturally Limited Waters	Primary Contact	All	All	173-201A-440 (9)

**Notes for WRIA 47:**

1. The temperature criterion is 17.5°C as a 7-DADMax. When water temperature is greater than 17.5°C as a daily maximum at the end of the canyon (compliance point), the temperature within the water body segment may not exceed a 7-DADMax increase of 3.50°C above temperature measured at the dam outlet. The dissolved oxygen criteria are 8.0 mg/L or 90% saturation. The 7-DADMax temperature increase and dissolved oxygen criteria are not to be exceeded at a frequency of more than once every ((ten)) 10 years on average.
2. Migration is generally limited to downstream.
3. The temperature criterion is 17.5°C as a 7-DADMax. When water temperature is greater than 17.5°C as a daily maximum above the confluence with powerhouse channel (compliance point), the temperature within the water body segment may not exceed a 7-DADMax increase of 1.20°C above temperature measured at the end of canyon. The dissolved oxygen criteria are 8.0 mg/L or 95% saturation. The 7-DADMax temperature increase and dissolved oxygen criteria are not to be exceeded at a frequency of more than once every ((ten)) 10 years on average.
4. No further point or nonpoint heat source inputs are allowed downstream of the Lake Chelan Dam outlet to the Chelan River confluence with the Columbia River.

5. Lake Chelan Dam tailrace waters must be cooler than Chelan River when the river water temperature is greater than 17.5°C as a daily maximum above the confluence with powerhouse channel.

<b>Table 602: WRIA 48 - Methow</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>Bear Creek:</b> Upstream from the mouth (latitude 48.4484, longitude -120.161) to the headwaters and in or above the National Forest boundary, including tributaries.	Core Summer Habitat	Primary Contact	All	All	-
<b>Bear Creek:</b> Upstream from the mouth (latitude 48.4484, longitude -120.161) to the headwaters and downstream of the National Forest boundary, including tributaries.	Core Summer Habitat	Primary Contact	All	All	-
<b>Beaver Creek and South Fork Beaver Creek:</b> All waters above the confluence (latitude 48.435, longitude -120.0215), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Big Hidden Lake and outlet stream to the East Fork Pasayten River:</b> Upstream from the mouth (latitude 48.9375, longitude -120.509), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Boulder Creek and Pebble Creek:</b> All waters above the confluence (latitude 48.5878, longitude -120.1069), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Buttermilk Creek:</b> Upstream from the mouth (latitude 48.3629, longitude -120.3392), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Chewuch River:</b> Upstream from the mouth (latitude 48.4753, longitude -120.1808) to headwaters, including tributaries (except where designated otherwise).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Chewuch River:</b> Upstream from the confluence with Buck Creek (latitude 48.7572, longitude -120.1317), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Eagle Creek:</b> Upstream from the mouth (latitude 48.359, longitude -120.3907), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Early Winters Creek:</b> Upstream from the mouth (latitude 48.6013, longitude -120.4389) to headwaters, including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Eureka Creek:</b> Upstream from the mouth (latitude 48.7004, longitude -120.4921), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Goat Creek:</b> Upstream from the confluence with Roundup Creek (latitude 48.6619, longitude -120.3282) to headwaters, including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Gold Creek:</b> Upstream from the mouth (latitude 48.1879, longitude -120.0953), except those waters in or above the Okanogan National Forest, including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Gold Creek:</b> Upstream from the mouth (latitude 48.1879, longitude -120.0953) and in, or above, the Okanogan National Forest, including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Lake Creek:</b> Upstream from the mouth (latitude 48.7513, longitude -120.1371), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Libby Creek and Hornel Draw:</b> All waters above the confluence (latitude 48.2564, longitude -120.1879), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-

<b>Table 602: WRIA 48 - Methow</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>Little Bridge Creek:</b> Upstream of the mouth (latitude 48.379, longitude -120.286), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Lost River Gorge:</b> Upstream from the confluence with Sunset Creek (latitude 48.728, longitude -120.4518), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Methow River:</b> Upstream from the mouth (latitude 48.0505, longitude -119.9025) to the confluence with Twisp River (latitude 48.368, longitude -120.1188).	Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Methow River:</b> Upstream from the confluence with Twisp River (latitude 48.368, longitude -120.1188) to Chewuch River (latitude 48.475, longitude -120.1812).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Methow River:</b> Upstream from the confluence with Chewuch River (latitude 48.475, longitude -120.1812) to headwaters, including tributaries (except where designated char).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Methow River, West Fork:</b> Upstream from the confluence with, and including, Robinson Creek (latitude 48.6595, longitude -120.5389) to headwaters, including tributaries (except unnamed tributary above mouth at latitude 48.6591, longitude -120.5493).	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Pipestone Canyon Creek:</b> Upstream from the mouth (latitude 48.397, longitude -120.058) and below Campbell Lake (latitude 48.4395, longitude -120.0656), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Pipestone Canyon Creek:</b> Upstream from, and including, Campbell Lake (latitude 48.4395, longitude -120.0656), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Smith Canyon Creek and Elderberry Canyon:</b> All waters above the confluence (latitude 48.2618, longitude -120.1682), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Twisp River:</b> Upstream from the mouth (latitude 48.368, longitude -120.1188) to War Creek (latitude 48.3612, longitude -120.396).	Core Summer Habitat	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Twisp River and War Creek:</b> All waters above the confluence (latitude 48.3612, longitude -120.396), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)
<b>Wolf Creek and unnamed tributary:</b> Upstream from the confluence (latitude 48.4848, longitude -120.3178) to headwaters, including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)

**Note for WRIA 48:**

1. This WRIA contains waters requiring supplemental spawning and incubation protection for salmonid species per WAC 173-201A-200 (1)(c)(iv). See ecology publication 06-10-038 for further information.

<b>Table 602: WRIA 49 - Okanogan</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>Okanogan River:</b> Upstream from the mouth (latitude 48.1011, longitude -119.7207).	Spawning /Rearing	Primary Contact	All	All	173-201A-200 (1)(c)(iv)

**Note for WRIA 49:**

1. This WRIA contains waters requiring supplemental spawning and incubation protection for salmonid species per WAC 173-201A-200 (1)(c)(iv). See ecology publication 06-10-038 for further information.



	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>Table 602: WRIA 50 - Foster</b>					
There are no specific waterbody entries for this WRIA.	-	-	-	-	-

	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>Table 602: WRIA 51 - Nespelem</b>					
There are no specific waterbody entries for this WRIA.	-	-	-	-	-

	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>Table 602: WRIA 52 - Sandpile</b>					
There are no specific waterbody entries for this WRIA.	-	-	-	-	-

	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>Table 602: WRIA 53 - Lower Lake Roosevelt</b>					
There are no specific waterbody entries for this WRIA.	-	-	-	-	-

	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>Table 602: WRIA 54 - Lower Spokane</b>					
<b>Spokane River:</b> Upstream from the mouth (latitude 47.8937, longitude -118.3345) to Long Lake Dam (latitude 47.837, longitude -117.8394). <sup>1</sup>	Spawning /Rearing	Primary Contact	All	All	-
<b>Spokane River:</b> Upstream from Long Lake Dam (latitude 47.837, longitude -117.8394) to Nine Mile Bridge (latitude 47.777, longitude -117.5449). <sup>2</sup>	Core Summer Habitat	Primary Contact	All	All	-
<b>Spokane River:</b> Upstream from Nine Mile Bridge (latitude 47.777, longitude -117.5449) to the Idaho border (latitude 47.69747, longitude -117.04185). <sup>3</sup>	Spawning /Rearing	Primary Contact	All	All	-

**Notes for WRIA 54:**

1. Temperature shall not exceed a 1-DMax of 20.0°C due to human activities. When natural conditions exceed a 1-DMax of 20.0°C, no temperature increase will be allowed which will raise the receiving water temperature by greater than 0.3°C; nor shall such temperature increases, at any time, exceed  $t = 34/(T + 9)$ .
2. a. The average euphotic zone concentration of total phosphorus (as P) shall not exceed 25µg/L during the period of June 1st to October 31st.  
 b. Temperature shall not exceed a 1-DMax of 20.0°C, due to human activities. When natural conditions exceed a 1-DMax of 20.0°C, no temperature increase will be allowed which will raise the receiving water temperature by greater than 0.3°C; nor shall such temperature increases, at any time, exceed  $t = 34/(T + 9)$ .
3. Temperature shall not exceed a 1-DMax of 20.0°C due to human activities. When natural conditions exceed a 1-DMax of 20.0°C no temperature increase will be allowed which will raise the receiving water temperature by greater than 0.3°C; nor shall such temperature increases, at any time exceed  $t = 34/(T + 9)$ .

	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>Table 602: WRIA 55 - Little Spokane</b>					
There are no specific waterbody entries for this WRIA.	-	-	-	-	-

	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>Table 602: WRIA 56 - Hangman</b>					
There are no specific waterbody entries for this WRIA.	-	-	-	-	-

<b>Table 602: WRIA 57 - Middle Spokane</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>Lake Creek:</b> Upstream from the Idaho border (latitude 47.5603, longitude -117.0409), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Spokane River:</b> Upstream from Nine Mile Bridge (latitude 47.777, longitude -117.5449) to the Idaho border (latitude 47.69747, longitude -117.04185). <sup>1</sup>	Spawning /Rearing	Primary Contact	All	All	-

**Note for WRIA 57:**

1. Temperature shall not exceed a 1-DMax of 20.0°C due to human activities. When natural conditions exceed a 1-DMax of 20.0°C no temperature increase will be allowed which will raise the receiving water temperature by greater than 0.3°C; nor shall such temperature increases, at any time exceed  $t = 34/(T + 9)$ .

<b>Table 602: WRIA 58 - Middle Lake Roosevelt</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
There are no specific waterbody entries for this WRIA.	-	-	-	-	-

<b>Table 602: WRIA 59 - Colville</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>Colville River:</b> Upstream from the mouth (latitude 48.5738, longitude -118.1115).	Spawning /Rearing	Primary Contact	All	All	-

<b>Table 602: WRIA 60 - Kettle</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
There are no specific waterbody entries for this WRIA.	-	-	-	-	-

<b>Table 602: WRIA 61 - Upper Lake Roosevelt</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
There are no specific waterbody entries for this WRIA.	-	-	-	-	-

<b>Table 602: WRIA 62 - Pend Oreille</b>	<b>Aquatic Life Uses</b>	<b>Recreation Uses</b>	<b>Water Supply Uses</b>	<b>Misc. Uses</b>	<b>Additional info for waterbody</b>
<b>All streams flowing into Idaho:</b> From Bath Creek (latitude 48.5866, longitude 117.0346) to the Canadian border (latitude 49.000, longitude -117.0308).	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Calispell Creek:</b> Upstream from the confluence with Small Creek (latitude 48.3205, longitude -117.3081) to Calispell Lake (latitude 48.2902, longitude -117.3212), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Calispell Lake:</b> Upstream from (latitude 48.2902, longitude -117.3212), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Cedar Creek:</b> Upstream from the mouth (latitude 48.7432, longitude -117.4176) to latitude 48.7502, longitude -117.4346, in or above Colville National Forest boundary, including tributaries.	Core Summer Habitat	Primary Contact	All	All	-
<b>Cedar Creek:</b> Upstream from the mouth (latitude 48.7432, longitude -117.4176) to latitude 48.7502, longitude -117.4346, and downstream of the Colville National Forest, including tributaries.	Core Summer Habitat	Primary Contact	All	All	-

Table 602: WRIA 62 - Pend Oreille	Aquatic Life Uses	Recreation Uses	Water Supply Uses	Misc. Uses	Additional info for waterbody
<b>Cedar Creek:</b> Upstream from latitude 48.7502, longitude -117.4346 to headwaters, and in the Colville National Forest, including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Cedar Creek:</b> Upstream from latitude 48.7502, longitude -117.4346 to headwaters, and outside the Colville National Forest, including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Harvey Creek (also called Outlet Creek) and Paupac Creek:</b> All waters above the confluence (latitude 48.7708, longitude -117.2978), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Indian Creek:</b> Upstream from the mouth (latitude 48.2445, longitude -117.1515) to headwaters.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Le Clerc Creek, East Branch, and West Branch Le Clerc Creek:</b> All waters above the confluence (latitude 48.5337, longitude -117.2827), except those waters in or above the Colville National Forest, including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Le Clerc Creek, East Branch, and West Branch Le Clerc Creek:</b> All waters above the confluence (latitude 48.5337, longitude -117.2827) that are in or above the Colville National Forest, including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Le Clerc Creek:</b> Upstream from the mouth (latitude 48.5189, longitude -117.2821) to the confluence with West Branch Le Clerc Creek (latitude 48.5337, longitude -117.2827), including tributaries.	Core Summer Habitat	Primary Contact	All	All	-
<b>Mill Creek:</b> From mouth (latitude 48.4899, longitude -117.2645) to headwaters, including tributaries.	Core Summer Habitat	Primary Contact	All	All	-
<b>Pend Oreille River:</b> From Canadian border (latitude 49.000, longitude -117.3534) to Idaho border (latitude 48.1998, longitude -117.0389). <sup>1</sup>	Spawning /Rearing	Primary Contact	All	All	-
<b>Slate Creek:</b> From mouth (latitude 48.924, longitude -117.3292) to headwaters, including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Small Creek:</b> From mouth (latitude 48.3206, longitude -117.3087) to the National Forest (latitude 48.8462, longitude -117.2884), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Small Creek:</b> In or above the National Forest (latitude 48.32680, longitude -117.39423), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>South Salmo River:</b> Upstream from latitude 48.9990, longitude -117.1365, including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Sullivan Creek:</b> Upstream of confluence with Harvey Creek (latitude 48.8462, longitude -117.2884) to headwaters, including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-
<b>Tacoma Creek, South Fork:</b> Upstream of confluence with Tacoma Creek (latitude 48.3938, longitude -117.3238) and downstream of the Colville National Forest boundary (latitude 48.3989, longitude -117.3487), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-

Table 602: WRIA 62 - Pend Oreille	Aquatic Life Uses	Recreation Uses	Water Supply Uses	Misc. Uses	Additional info for waterbody
Tacoma Creek, South Fork: Upstream of the Colville National Forest boundary (latitude 48.3989, longitude -117.3487), including tributaries.	Char Spawning /Rearing	Primary Contact	All	All	-

**Note for WRIA 62:**

1. Temperature shall not exceed a 1-DMax of 20.0°C due to human activities. When natural conditions exceed a 1-DMax of 20.0°C, no temperature increase will be allowed which will raise the receiving water temperature by greater than 0.3°C; nor shall such temperature increases, at any time, exceed  $t = 34/(T + 9)$ .

[Statutory Authority: RCW 90.48.035, 40 C.F.R. 131.20, and 40 C.F.R. 131.20. WSR 21-19-097 (Order 20-01), § 173-201A-602, filed 9/17/21, effective 10/18/21; WSR 19-04-007 (Order 16-07), § 173-201A-602, filed 1/23/19, effective 2/23/19. Statutory Authority: RCW 90.48.035. WSR 11-09-090 and 11-11-022 (Order 10-10), § 173-201A-602, filed 4/20/11 and 5/9/11, effective 5/21/11 and 6/9/11; WSR 06-23-117 (Order 06-04), § 173-201A-602, filed 11/20/06, effective 12/21/06. Statutory Authority: Chapters 90.48 and 90.54 RCW. WSR 03-14-129 (Order 02-14), § 173-201A-602, filed 7/1/03, effective 8/1/03.]

**WSR 23-15-088**  
**PROPOSED RULES**  
**DEPARTMENT OF**  
**LABOR AND INDUSTRIES**  
[Filed July 18, 2023, 9:17 a.m.]

Original Notice.

Preproposal statement of inquiry was filed as WSR 23-11-127.

Title of Rule and Other Identifying Information: Elevator fee corrections; WAC 296-96-00922, 296-96-01005, 296-96-01010, 296-96-01025, 296-96-01027, 296-96-01030, 296-96-01035, 296-96-01040, 296-96-01045, 296-96-01055, 296-96-01057, 296-96-01060, and 296-96-01065.

Hearing Location(s): On August 23, 2023, at 9:30 a.m., at Department of Labor and Industries (L&I), Tukwila Office, 12806 Gateway Drive South, Tukwila, WA 98168; or join electronically <https://lni-wa.gov.zoom.us/j/89662194843?pwd=Ykk1UlAvQW4vem5XT1llemF4ZTJyZz09>, Passcode =G+e\$6cw; or join by phone (audio only) 253-215-8782, Meeting ID 896 6219 4843, Passcode 42581105. The in-person and virtual/telephonic hearing starts at 9:30 a.m. and will continue until all oral comments are received.

Date of Intended Adoption: October 17, 2023.

Submit Written Comments to: Meagan Edwards, L&I, Field Services and Public Safety, P.O. Box 44400, Olympia, WA 98504-4400, email [Meagan.Edwards@Lni.wa.gov](mailto:Meagan.Edwards@Lni.wa.gov), fax 360-902-6134, by 5 p.m. on August 23, 2023.

Assistance for Persons with Disabilities: Contact Meagan Edwards, phone 360-522-0125, fax 360-902-6134, email [Meagan.Edwards@Lni.wa.gov](mailto:Meagan.Edwards@Lni.wa.gov), by August 9, 2023.

Purpose of the Proposal and Its Anticipated Effects, Including Any Changes in Existing Rules: The purpose of this rule making is to propose amendments to the elevator rules for corrections to fees under chapter 296-96 WAC. Proposed amendments to this chapter:

Correct the fee effective dates from July 1, 2024, to January 1, 2024; remove obsolete fees; correct the fee amount for inspecting and testing of elevators used for construction; and modify rules for clarity and general housekeeping, such as renumbering, formatting, etc.

Reasons Supporting Proposal: On October 18, 2022, L&I adopted two 8.5 percent increases to all elevator fees effective January 1, 2023, and January 1, 2024 (WSR 22-21-118). The fee increase supports funding for a new conveyance management system. As a result of a typographical error, some of the fee effective dates were incorrect. The fees affected include permits, inspections, and other services for conveyances. This rule making proposes corrections, along with other housekeeping amendments.

Statutory Authority for Adoption: RCW 70.87.030.

Statute Being Implemented: Chapter 70.87 RCW.

Rule is not necessitated by federal law, federal or state court decision.

Name of Proponent: L&I, governmental.

Name of Agency Personnel Responsible for Drafting: Gerald Brown, Program Manager, Tumwater, Washington, 360-999-0592; Implementation and Enforcement: Steve Reinmuth, Assistant Director, Tumwater, Washington, 360-902-6348.

A school district fiscal impact statement is not required under RCW 28A.305.135.

A cost-benefit analysis is not required under RCW 34.05.328. The rules are exempt from the cost-benefit analysis requirement under the Administrative Procedure Act. Specifically, RCW 34.05.328 (5) (b) (vi) exempts rules that set or adjust fees under the authority of RCW 19.02.075 or that set or adjust fees or rates pursuant to legislative standards, including fees set or adjusted under the authority of RCW 19.80.045.

This rule proposal, or portions of the proposal, is exempt from requirements of the Regulatory Fairness Act because the proposal:

Is exempt under RCW 19.85.025(3) as the rules set or adjust fees under the authority of RCW 19.02.075 or that set or adjust fees or rates pursuant to legislative standards, including fees set or adjusted under the authority of RCW 19.80.045.

Scope of exemption for rule proposal:

Is fully exempt.

July 18, 2023  
Joel Sacks  
Director

**OTS-4682.1**

AMENDATORY SECTION (Amending WSR 22-21-118, filed 10/18/22, effective 1/1/23)

**WAC 296-96-00922 Licensing fees.** The following are the department's elevator license fees (~~for FY23, effective January 1, 2023, and FY24, effective January 1, 2024~~):

Type of Fee	Period Covered by Fee	<del>((Dollar Amount of FY23 Fee))</del>	Dollar Amount of ((FY24)) Fee
Elevator contractor/mechanic application fee (not required for renewal of valid license)	Per application	<del>(((\$80.40))</del>	\$86.70
Elevator contractor/ mechanic examination fee	Per application	<del>(((\$242.70 ***))</del>	\$261.70***
Reciprocity application fee	Per application*	<del>(((\$80.40))</del>	\$86.70
Elevator mechanic license	2 years	<del>(((\$161.65))</del>	\$174.30
Elevator contractor license	2 years	<del>(((\$161.65))</del>	\$174.30
Temporary elevator mechanic license application fee (not required for renewal)	Per application	<del>(((\$80.40))</del>	\$86.70
Temporary elevator mechanic license	1 year	<del>(((\$161.65))</del>	\$174.30
Emergency elevator mechanic license	30 days	<del>(((\$39.90))</del>	\$43.00
Elevator mechanic/contractor timely renewal fee	2 years	<del>(((\$161.65))</del>	\$174.30
Elevator mechanic/contractor late renewal fee	2 years	<del>(((\$323.85))</del>	\$349.20
Temporary elevator mechanic timely renewal fee	1 year	<del>(((\$161.65))</del>	\$174.30
Temporary elevator mechanic late renewal fee	1 year	<del>(((\$323.85))</del>	\$349.20
Training provider application/renewal fee	2 years	<del>(((\$161.65))</del>	\$174.30
Continuing education course fee by approved training provider	1 year**	<del>((Not applicable))</del>	Not applicable
Replacement of any licenses		<del>(((\$23.95))</del>	\$25.80
Refund processing fee		<del>(((\$48.15))</del>	\$51.90

\* Reciprocity application is only allowed for applicants who are applying for licensing based upon possession of a valid license that was obtained in state(s) with which the department has a reciprocity.

\*\* This fee is paid directly to the continuing education training course provider approved by the department.  
 \*\*\* This fee may be collected by an outside vendor for some exams and may differ from the fee shown above.

[Statutory Authority: Chapter 70.87 RCW. WSR 22-21-118, § 296-96-00922, filed 10/18/22, effective 1/1/23; WSR 22-05-076, § 296-96-00922, filed 2/15/22, effective 3/18/22; WSR 21-18-096, § 296-96-00922, filed 8/31/21, effective 10/1/21; WSR 19-24-086, § 296-96-00922, filed 12/3/19, effective 12/3/19. Statutory Authority: Chapters 18.27, 70.87, 43.22, and 43.22A RCW. WSR 18-24-102, § 296-96-00922, filed 12/4/18, effective 1/4/19. Statutory Authority: Chapter 70.87 RCW. WSR 18-18-068, § 296-96-00922, filed 8/31/18, effective 10/1/18. Statutory Authority: Chapter 70.87 RCW and 2013 2nd sp.s. c 4. WSR 14-06-041, § 296-96-00922, filed 2/26/14, effective 4/1/14. Statutory Authority: Chapter 70.87 RCW and 2011 1st sp.s. c 50. WSR 12-06-065, § 296-96-00922, filed 3/6/12, effective 4/30/12. Statutory Authority: Chapters 18.27, 18.106, 43.22, and 70.87 RCW. WSR 07-11-128, § 296-96-00922, filed 5/22/07, effective 6/30/07. Statutory Authority: Chapters 18.106, 43.22, and 70.87 RCW. WSR 06-10-066, § 296-96-00922, filed 5/2/06, effective 6/30/06. Statutory Authority: Chapters 18.27, 43.22, and 70.87 RCW. WSR 05-12-032, § 296-96-00922, filed 5/24/05, effective 6/30/05. Statutory Authority: RCW 70.87.020, 70.87.030, 70.87.034, 70.87.120, 70.87.185, 70.87.190, 2002 c 98, 2003 c 143 and 2004 c 66. WSR 04-12-047, § 296-96-00922, filed 5/28/04, effective 6/30/04.]

AMENDATORY SECTION (Amending WSR 22-21-118, filed 10/18/22, effective 1/1/23)

- WAC 296-96-01005 Obtaining permits.** (1) See WAC 296-96-01000 for the permit process.
- (2) Construction and alteration permits are valid for one year from the date of issue. However, permits may be renewed if:
- (a) Application for a renewal permit is submitted before the current permit expires;
- (b) The department approves the request for a renewal permit; and
- (c) A renewal fee of \$78.60 is paid to the department for each permit renewed (~~as follows:~~
- ~~(i) For FY23, effective January 1, 2023: \$72.90.~~
- ~~(ii) For FY24, effective January 1, 2024: \$78.60)).~~
- (3) If the permit has expired the applicant shall reapply for a new permit.
- (4) See WAC 296-96-01006 for work requiring a permit.

[Statutory Authority: Chapter 70.87 RCW. WSR 22-21-118, § 296-96-01005, filed 10/18/22, effective 1/1/23; WSR 22-05-076, § 296-96-01005, filed 2/15/22, effective 3/18/22; WSR 21-18-096, § 296-96-01005, filed 8/31/21, effective 10/1/21. Statutory Authority: Chapters 18.27, 70.87, 43.22, and 43.22A RCW. WSR 18-24-102, § 296-96-01005, filed 12/4/18, effective 1/4/19. Statutory Authority: Chapter 70.87 RCW. WSR 18-18-070, § 296-96-01005, filed 8/31/18, effective 10/1/18. Statutory Authority: Chapter 70.87 RCW and 2013 2nd sp.s. c 4. WSR 14-06-041, § 296-96-01005, filed 2/26/14, effective 4/1/14. Statutory Authority: Chapter 70.87 RCW. WSR 07-24-041, § 296-96-01005, filed 11/30/07, effective 1/1/08. Statutory Authority: Chapters 18.27, 18.106, 43.22, and 70.87 RCW. WSR 07-11-128, §

296-96-01005, filed 5/22/07, effective 6/30/07. Statutory Authority: RCW 70.87.020, 70.87.030, 70.87.034, 70.87.120, 70.87.185, 70.87.190, 2002 c 98, 2003 c 143 and 2004 c 66. WSR 04-12-047, § 296-96-01005, filed 5/28/04, effective 6/30/04. Statutory Authority: RCW 43.22.350, 43.22.434, 43.22.480, 43.22.500, 70.87.030, 18.106.070, 18.106.125, 2001 c 7, and chapters 18.106, 43.22, and 70.87 RCW. WSR 03-12-045, § 296-96-01005, filed 5/30/03, effective 6/30/03. Statutory Authority: RCW 70.87.020, 70.87.030, 70.87.034, 70.87.120, 70.87.185 and chapter 70.87 RCW. WSR 01-02-026, § 296-96-01005, filed 12/22/00, effective 1/22/01.]

AMENDATORY SECTION (Amending WSR 22-21-118, filed 10/18/22, effective 1/1/23)

**WAC 296-96-01010 Installation and alteration permit fees.** Permit fees are based on the total cost of the conveyance or alteration and the labor to install or alter the conveyance. The following permit fees apply to the construction, alteration, or relocation of all conveyances except personnel and material hoists (see WAC 296-96-01025) (~~(. The fees for FY23, effective January 1, 2023, and FY24, effective January 1, 2024, are as follows)~~):

TOTAL COST OF INSTALLATION OR ALTERATION	((FY-23 FEE	FY-24)) FEE
\$0 to and including \$1,000 .....	(( <del>\$80.40</del> ))	\$86.70
\$1,001 to and including \$5,000 .....	(( <del>\$120.95</del> ))	\$130.40
\$5,001 to and including \$7,000 .....	(( <del>\$202.00</del> ))	\$217.80
\$7,001 to and including \$10,000 .....	(( <del>\$242.70</del> ))	\$261.70
\$10,001 to and including \$15,000 .....	(( <del>\$323.85</del> ))	\$349.20
OVER \$15,000 for installation only*.....	(( <del>\$453.40</del> plus))	\$488.90 plus
OVER \$15,000 for alteration only*.....	(( <del>\$323.85</del> ))	\$349.20
*Each additional \$1,000 or fraction thereof.....	(( <del>\$10.95</del> ))	\$11.80

[Statutory Authority: Chapter 70.87 RCW. WSR 22-21-118, § 296-96-01010, filed 10/18/22, effective 1/1/23; WSR 22-05-076, § 296-96-01010, filed 2/15/22, effective 3/18/22; WSR 21-18-096, § 296-96-01010, filed 8/31/21, effective 10/1/21. Statutory Authority: Chapters 18.27, 70.87, 43.22, and 43.22A RCW. WSR 18-24-102, § 296-96-01010, filed 12/4/18, effective 1/4/19. Statutory Authority: Chapter 70.87 RCW. WSR 18-18-070, § 296-96-01010, filed 8/31/18, effective 10/1/18. Statutory Authority: Chapter 70.87 RCW and 2013 2nd sp.s. c 4. WSR 14-06-041, § 296-96-01010, filed 2/26/14, effective 4/1/14. Statutory Authority: Chapter 70.87 RCW and 2011 1st sp.s. c 50. WSR 12-06-065, § 296-96-01010, filed 3/6/12, effective 4/30/12. Statutory Authority: Chapter 70.87 RCW. WSR 07-24-041, § 296-96-01010, filed 11/30/07, effective 1/1/08. Statutory Authority: Chapters 18.27, 18.106, 43.22, and 70.87 RCW. WSR 07-11-128, § 296-96-01010, filed 5/22/07, effective 6/30/07. Statutory Authority: Chapters 18.106, 43.22, and 70.87 RCW. WSR 06-10-066, § 296-96-01010, filed 5/2/06, effective 6/30/06. Statutory Authority: Chapters 18.27, 43.22, and 70.87 RCW. WSR 05-12-032, § 296-96-01010, filed 5/24/05, effective 6/30/05. Statutory Authority: RCW 70.87.020, 70.87.030, 70.87.034, 70.87.120, 70.87.185, 70.87.190, 2002 c 98, 2003 c 143 and 2004 c 66. WSR



04-12-047, § 296-96-01010, filed 5/28/04, effective 6/30/04. Statutory Authority: RCW 43.22.350, 43.22.434, 43.22.480, 43.22.500, 18.27.040, 18.27.070, 18.27.075, 70.87.030, 19.28.041, 19.28.051, 19.28.101, 19.28.121, 19.28.161, 19.28.201, 19.28.211, 19.28.341, 2001 c 7, 2002 c 249, and chapters 19.28, 43.22, 18.27, and 70.87 RCW. WSR 02-12-022, § 296-96-01010, filed 5/28/02, effective 6/28/02. Statutory Authority: RCW 43.22.350, 43.22.434, 43.22.480, 43.22.500, 18.27.070, 18.27.075, 70.87.030, 19.28.041, 19.28.051, 19.28.101, 19.28.121, 19.28.161, 19.28.201, 19.28.211, 19.28.341, 2001 c 159, and chapters 43.22, 19.28, 18.27, and 70.87 RCW. WSR 01-12-035, § 296-96-01010, filed 5/29/01, effective 6/29/01. Statutory Authority: RCW 70.87.020, 70.87.030, 70.87.034, 70.87.120, 70.87.185 and chapter 70.87 RCW. WSR 01-02-026, § 296-96-01010, filed 12/22/00, effective 1/22/01.]

AMENDATORY SECTION (Amending WSR 22-21-118, filed 10/18/22, effective 1/1/23)

**WAC 296-96-01025 Permit fees for personnel and material hoists.**

The fee for each personnel hoist or material hoist installation is ((as follows:

- (1) ~~For FY23, effective January 1, 2023: \$323.85.~~
  - (2) ~~For FY24, effective January 1, 2024:)~~ \$349.20.
- See WAC 296-96-01035(2) for requirements for jumps.

**Note:** An operating certificate is also required for these types of conveyances.

[Statutory Authority: Chapter 70.87 RCW. WSR 22-21-118, § 296-96-01025, filed 10/18/22, effective 1/1/23; WSR 22-05-076, § 296-96-01025, filed 2/15/22, effective 3/18/22; WSR 21-18-096, § 296-96-01025, filed 8/31/21, effective 10/1/21. Statutory Authority: Chapters 18.27, 70.87, 43.22, and 43.22A RCW. WSR 18-24-102, § 296-96-01025, filed 12/4/18, effective 1/4/19. Statutory Authority: Chapter 70.87 RCW. WSR 18-18-070, § 296-96-01025, filed 8/31/18, effective 10/1/18. Statutory Authority: Chapter 70.87 RCW and 2013 2nd sp.s. c 4. WSR 14-06-041, § 296-96-01025, filed 2/26/14, effective 4/1/14. Statutory Authority: Chapter 70.87 RCW and 2011 1st sp.s. c 50. WSR 12-06-065, § 296-96-01025, filed 3/6/12, effective 4/30/12. Statutory Authority: Chapter 70.87 RCW. WSR 07-24-041, § 296-96-01025, filed 11/30/07, effective 1/1/08. Statutory Authority: RCW 43.22.350, 43.22.434, 43.22.480, 43.22.500, 18.27.040, 18.27.070, 18.27.075, 70.87.030, 19.28.041, 19.28.051, 19.28.101, 19.28.121, 19.28.161, 19.28.201, 19.28.211, 19.28.341, 2001 c 7, 2002 c 249, and chapters 19.28, 43.22, 18.27, and 70.87 RCW. WSR 02-12-022, § 296-96-01025, filed 5/28/02, effective 6/28/02. Statutory Authority: RCW 70.87.020, 70.87.030, 70.87.034, 70.87.120, 70.87.185 and chapter 70.87 RCW. WSR 01-02-026, § 296-96-01025, filed 12/22/00, effective 1/22/01.]

AMENDATORY SECTION (Amending WSR 22-21-118, filed 10/18/22, effective 1/1/23)

**WAC 296-96-01027 Permit fee refunds.** The initial installation permit fees are refundable minus a processing fee if the installation work has not been performed. No refunds will be issued for expired

permits. All requests for refunds shall be submitted in writing to the elevator section and shall identify the specific permits and the reasons for which the refunds are requested.

The processing fee for each refund is ((~~as follows:~~

~~(1) For FY23, effective January 1, 2023: \$48.15.~~

~~(2) For FY24, effective January 1, 2024:)) \$51.90.~~

[Statutory Authority: Chapter 70.87 RCW. WSR 22-21-118, § 296-96-01027, filed 10/18/22, effective 1/1/23; WSR 22-05-076, § 296-96-01027, filed 2/15/22, effective 3/18/22; WSR 21-18-096, § 296-96-01027, filed 8/31/21, effective 10/1/21. Statutory Authority: Chapters 18.27, 70.87, 43.22, and 43.22A RCW. WSR 18-24-102, § 296-96-01027, filed 12/4/18, effective 1/4/19. Statutory Authority: Chapter 70.87 RCW. WSR 18-18-070, § 296-96-01027, filed 8/31/18, effective 10/1/18. Statutory Authority: Chapter 70.87 RCW and 2013 2nd sp.s. c 4. WSR 14-06-041, § 296-96-01027, filed 2/26/14, effective 4/1/14. Statutory Authority: Chapter 70.87 RCW and 2011 1st sp.s. c 50. WSR 12-06-065, § 296-96-01027, filed 3/6/12, effective 4/30/12. Statutory Authority: Chapter 70.87 RCW. WSR 07-24-041, § 296-96-01027, filed 11/30/07, effective 1/1/08. Statutory Authority: Chapters 18.27, 18.106, 43.22, and 70.87 RCW. WSR 07-11-128, § 296-96-01027, filed 5/22/07, effective 6/30/07. Statutory Authority: Chapters 18.106, 43.22, and 70.87 RCW. WSR 06-10-066, § 296-96-01027, filed 5/2/06, effective 6/30/06. Statutory Authority: Chapters 18.27, 43.22, and 70.87 RCW. WSR 05-12-032, § 296-96-01027, filed 5/24/05, effective 6/30/05. Statutory Authority: RCW 70.87.020, 70.87.030, 70.87.034, 70.87.120, 70.87.185, 70.87.190, 2002 c 98, 2003 c 143 and 2004 c 66. WSR 04-12-047, § 296-96-01027, filed 5/28/04, effective 6/30/04. Statutory Authority: RCW 43.22.350, 43.22.434, 43.22.480, 43.22.500, 18.27.040, 18.27.070, 18.27.075, 70.87.030, 19.28.041, 19.28.051, 19.28.101, 19.28.121, 19.28.161, 19.28.201, 19.28.211, 19.28.341, 2001 c 7, 2002 c 249, and chapters 19.28, 43.22, 18.27, and 70.87 RCW. WSR 02-12-022, § 296-96-01027, filed 5/28/02, effective 6/28/02. Statutory Authority: RCW 43.22.350, 43.22.434, 43.22.480, 43.22.500, 18.27.070, 18.27.075, 70.87.030, 19.28.041, 19.28.051, 19.28.101, 19.28.121, 19.28.161, 19.28.201, 19.28.211, 19.28.341, 2001 c 159, and chapters 43.22, 19.28, 18.27, and 70.87 RCW. WSR 01-12-035, § 296-96-01027, filed 5/29/01, effective 6/29/01. Statutory Authority: RCW 70.87.020, 70.87.030, 70.87.034, 70.87.120, 70.87.185 and chapter 70.87 RCW. WSR 01-02-026, § 296-96-01027, filed 12/22/00, effective 1/22/01.]

AMENDATORY SECTION (Amending WSR 22-21-118, filed 10/18/22, effective 1/1/23)

**WAC 296-96-01030 Plan approval.** Prior to the start of construction and the issuance of a permit, the applicant shall submit to the department for approval a permit application and plans for new installations or major alterations. To be approved, the plan shall comply with the latest adopted applicable standard and applicable Washington Administrative Code (WAC). In addition, the plans shall include all information necessary to determine whether each installation/alteration complies with all applicable codes. The permit holder shall keep a copy of the approved plan on the job site until the department has witnessed all acceptance tests. Any alterations to the approved plan

shall be submitted to the department for approval before a final inspection will be conducted. The nonrefundable fees for processing the applications are \$43.00 for each installation/major alteration ((are as follows:

- ~~(1) For FY23, effective January 1, 2023: \$39.90.~~  
~~(2) For FY24, effective January 1, 2024: \$43.00).~~

**Exception:** Residential incline chair lifts will not require plan review. Equipment shall be listed and labeled by a product testing laboratory which is accredited by the department and plans supplied by the manufacturer shall be on-site. If the equipment is not listed and labeled as per RCW 19.28.010 it shall be field evaluated or replaced with equipment that is listed and labeled by a product testing laboratory which is accredited by the department. The department may request additional information as deemed necessary to determine if lifts comply with current codes and testing standards. Governor overspeed safety testing shall be verified by manufacturer's documentation (see A18.1 Requirement 9.9.3). The test results certified by, a nationally recognized testing laboratory (NRTL). Certification shall be provided at time of application.

[Statutory Authority: Chapter 70.87 RCW. WSR 22-21-118, § 296-96-01030, filed 10/18/22, effective 1/1/23; WSR 22-05-076, § 296-96-01030, filed 2/15/22, effective 3/18/22; WSR 21-18-096, § 296-96-01030, filed 8/31/21, effective 10/1/21. Statutory Authority: Chapters 18.27, 70.87, 43.22, and 43.22A RCW. WSR 18-24-102, § 296-96-01030, filed 12/4/18, effective 1/4/19. Statutory Authority: Chapter 70.87 RCW. WSR 18-18-070, § 296-96-01030, filed 8/31/18, effective 10/1/18. Statutory Authority: Chapter 70.87 RCW and 2013 2nd sp.s. c 4. WSR 14-06-041, § 296-96-01030, filed 2/26/14, effective 4/1/14. Statutory Authority: Chapter 70.87 RCW and 2011 1st sp.s. c 50. WSR 12-06-065, § 296-96-01030, filed 3/6/12, effective 4/30/12. Statutory Authority: Chapter 70.87 RCW. WSR 07-24-041, § 296-96-01030, filed 11/30/07, effective 1/1/08. Statutory Authority: Chapters 18.27, 18.106, 43.22, and 70.87 RCW. WSR 07-11-128, § 296-96-01030, filed 5/22/07, effective 6/30/07. Statutory Authority: Chapters 18.106, 43.22, and 70.87 RCW. WSR 06-10-066, § 296-96-01030, filed 5/2/06, effective 6/30/06. Statutory Authority: Chapters 18.27, 43.22, and 70.87 RCW. WSR 05-12-032, § 296-96-01030, filed 5/24/05, effective 6/30/05. Statutory Authority: RCW 43.22.350, 43.22.434, 43.22.480, 43.22.500, 70.87.030, 18.106.070, 18.106.125, 2001 c 7, and chapters 18.106, 43.22, and 70.87 RCW. WSR 03-12-045, § 296-96-01030, filed 5/30/03, effective 6/30/03. Statutory Authority: RCW 43.22.350, 43.22.434, 43.22.480, 43.22.500, 18.27.040, 18.27.070, 18.27.075, 70.87.030, 19.28.041, 19.28.051, 19.28.101, 19.28.121, 19.28.161, 19.28.201, 19.28.211, 19.28.341, 2001 c 7, 2002 c 249, and chapters 19.28, 43.22, 18.27, and 70.87 RCW. WSR 02-12-022, § 296-96-01030, filed 5/28/02, effective 6/28/02. Statutory Authority: RCW 43.22.350, 43.22.434, 43.22.480, 43.22.500, 18.27.070, 18.27.075, 70.87.030, 19.28.041, 19.28.051, 19.28.101, 19.28.121, 19.28.161, 19.28.201, 19.28.211, 19.28.341, 2001 c 159, and chapters 43.22, 19.28, 18.27, and 70.87 RCW. WSR 01-12-035, § 296-96-01030, filed 5/29/01, effective 6/29/01. Statutory Authority: RCW 70.87.020, 70.87.030, 70.87.034, 70.87.120, 70.87.185 and chapter 70.87 RCW. WSR 01-02-026, § 296-96-01030, filed 12/22/00, effective 1/22/01.]

AMENDATORY SECTION (Amending WSR 22-21-118, filed 10/18/22, effective 1/1/23)

**WAC 296-96-01035 Inspection fees.** The initial inspection of construction, alteration or relocation of a conveyance is included with the permit fee. Once the department has approved the initial installation of the conveyance, a temporary 30-day operating certificate

will be issued. Prior to the expiration of the 30-day temporary operating certificate, the application for an annual operating certificate and the appropriate fees shall be paid to the department. Once the department has received the appropriate fees and application the owner will be issued the first annual operating certificate. The owner or owner's representative will receive an invoice from the department for renewal. The owner is required to renew the annual operating certificate yearly.

The following inspections require an additional inspection fee:

(1) **Reinspection.** If a conveyance does not pass an initial inspection and an additional inspection is required, the fee for each reinspection of a conveyance is ~~((as follows:~~

~~(a) For FY23, effective January 1, 2023: \$161.65 per conveyance plus \$78.45 per hour for each hour in addition to the first hour.~~

~~(b) For FY24, effective January 1, 2024:)) \$174.30 per conveyance plus \$84.50 per hour for each hour in addition to the first hour.~~

The department may waive reinspection fees.

(2) **Inspecting increases in the height (jumping) of personnel and material hoists.**

(a) The fee for inspecting an increase in the height (jumping) of each personnel hoist or material hoist is ~~((as follows:~~

~~(a) For FY23, effective July 1, 2023: \$161.65 plus \$80.40 per hour for each hour in addition to two hours.~~

~~(b) For FY24, effective July 1, 2024:)) \$174.30 plus \$86.70 per hour for each hour in addition to two hours.~~

This fee is for inspections occurring during regular working hours.

~~((e))~~ (b) The permit holder may be allowed to operate a hoist prior to the jump inspection if:

(i) The electrical limits will not allow the lift to operate above the previously inspected landing; and

(ii) The state elevator inspector is contacted, agrees and can schedule an inspection within three days.

(3) **Variance inspections.**

(a) The fee for an on-site variance inspection is ~~((as follows:~~

~~(i) For FY23, effective July 1, 2023: \$242.70 per conveyance plus \$80.40 per hour for each hour in addition to two hours.~~

~~(ii) For FY24, effective July 1, 2024:)) \$261.70 per conveyance plus \$86.70 per hour for each hour in addition to two hours.~~

This fee is for inspections occurring during regular working hours.

(b) The fee for a variance that does not require an on-site inspection is ~~((as follows:~~

~~(i) For FY23, effective July 1, 2023: \$80.40 per conveyance.~~

~~(ii) For FY24, effective July 1, 2024:)) \$86.70 per conveyance.~~

The individual requesting the variance shall provide the department with pictures, documentation, or other information necessary for the department to review the variance. The department may conduct an on-site variance inspection to verify the information provided or if it determines that an inspection is necessary. If an on-site variance inspection is performed, the fees in (a) of this subsection will apply.

(4) **"Red tag" status fee.** The annual fee for a conveyance in "Red tag" status is ~~((as follows:~~

~~(a) For FY23, effective July 1, 2023: \$39.90.~~

~~(b) For FY24, effective July 1, 2024:)) \$43.00.~~

**Note:** The department shall be provided with written approval from the building official, indicating that the conveyance is not required for building occupancy, when applying to have the conveyance placed in voluntary red tag status.

(5) **Decommission inspection.** The fee for performing a decommission inspection is ~~((as follows:~~

~~(a) For FY23, effective July 1, 2023: \$80.40.~~

~~(b) For FY24, effective July 1, 2024:)) \$86.70.~~

Once the decommission inspection has been performed and approved, the conveyance will no longer require annual inspections until such time that the conveyance is brought back into service. Prior to operating the conveyance, a new inspection and annual operating permit shall be obtained.

(6) **Voluntary inspections by request.** The owner or potential purchaser of a building within the department's jurisdiction may request a voluntary inspection of a conveyance. The fee for this inspection ~~((is as follows:~~

~~(a) For FY23, effective July 1, 2023: \$161.65 per conveyance and \$80.40 per hour for each hour in addition to two hours plus the standard per diem and mileage allowance granted to department inspectors.~~

~~(b) For FY24, effective July 1, 2024:)) will be \$174.30 per conveyance and \$86.70 per hour for each hour in addition to two hours plus the standard per diem and mileage allowance granted to department inspectors.~~

The owner/potential purchaser requesting the voluntary inspection will not be subject to any penalties based on the inspector's findings.

[Statutory Authority: Chapter 70.87 RCW. WSR 22-21-118, § 296-96-01035, filed 10/18/22, effective 1/1/23; WSR 22-05-076, § 296-96-01035, filed 2/15/22, effective 3/18/22; WSR 21-18-096, § 296-96-01035, filed 8/31/21, effective 10/1/21. Statutory Authority: Chapters 18.27, 70.87, 43.22, and 43.22A RCW. WSR 18-24-102, § 296-96-01035, filed 12/4/18, effective 1/4/19. Statutory Authority: Chapter 70.87 RCW. WSR 18-18-070, § 296-96-01035, filed 8/31/18, effective 10/1/18. Statutory Authority: Chapter 70.87 RCW and 2013 2nd sp.s. c 4. WSR 14-06-041, § 296-96-01035, filed 2/26/14, effective 4/1/14. Statutory Authority: Chapter 70.87 RCW and 2011 1st sp.s. c 50. WSR 12-06-065, § 296-96-01035, filed 3/6/12, effective 4/30/12. Statutory Authority: Chapter 70.87 RCW. WSR 07-24-041, § 296-96-01035, filed 11/30/07, effective 1/1/08. Statutory Authority: Chapters 18.27, 18.106, 43.22, and 70.87 RCW. WSR 07-11-128, § 296-96-01035, filed 5/22/07, effective 6/30/07. Statutory Authority: Chapters 18.106, 43.22, and 70.87 RCW. WSR 06-10-066, § 296-96-01035, filed 5/2/06, effective 6/30/06. Statutory Authority: Chapters 18.27, 43.22, and 70.87 RCW. WSR 05-12-032, § 296-96-01035, filed 5/24/05, effective 6/30/05. Statutory Authority: RCW 70.87.020, 70.87.030, 70.87.034, 70.87.120, 70.87.185, 70.87.190, 2002 c 98, 2003 c 143 and 2004 c 66. WSR 04-12-047, § 296-96-01035, filed 5/28/04, effective 6/30/04. Statutory Authority: RCW 43.22.350, 43.22.434, 43.22.480, 43.22.500, 18.27.040, 18.27.070, 18.27.075, 70.87.030, 19.28.041, 19.28.051, 19.28.101, 19.28.121, 19.28.161, 19.28.201, 19.28.211, 19.28.341, 2001 c 7, 2002 c 249, and chapters 19.28, 43.22, 18.27, and 70.87 RCW. WSR 02-12-022, § 296-96-01035, filed 5/28/02, effective 6/28/02. Statutory Authority: RCW 43.22.350, 43.22.434, 43.22.480, 43.22.500, 18.27.070, 18.27.075, 70.87.030, 19.28.041, 19.28.051, 19.28.101, 19.28.121, 19.28.161, 19.28.201, 19.28.211, 19.28.341, 2001 c 159, and chapters 43.22, 19.28, 18.27, and 70.87 RCW. WSR 01-12-035, § 296-96-01035, filed 5/29/01, effective 6/29/01. Statutory Authority: RCW 70.87.020,

70.87.030, 70.87.034, 70.87.120, 70.87.185 and chapter 70.87 RCW. WSR 01-02-026, § 296-96-01035, filed 12/22/00, effective 1/22/01.]

AMENDATORY SECTION (Amending WSR 22-21-118, filed 10/18/22, effective 1/1/23)

**WAC 296-96-01040 Construction-use inspection fee.** (1) The fee for the inspecting and testing of elevators used for construction is \$139.30, in addition to any other fees required in this chapter (~~, is as follows:~~

~~(a) For FY23, effective July 1, 2023: \$129.20.~~

~~(b) For FY24, effective July 1, 2024: \$139.90).~~

This fee purchases a 30-day temporary use permit that may be renewed at the department's discretion.

(2) When this temporary use permit is purchased, a notice declaring that the equipment has not received final approval from the department shall be conspicuously posted in the elevator.

[Statutory Authority: Chapter 70.87 RCW. WSR 22-21-118, § 296-96-01040, filed 10/18/22, effective 1/1/23; WSR 22-05-076, § 296-96-01040, filed 2/15/22, effective 3/18/22; WSR 21-18-096, § 296-96-01040, filed 8/31/21, effective 10/1/21. Statutory Authority: Chapters 18.27, 70.87, 43.22, and 43.22A RCW. WSR 18-24-102, § 296-96-01040, filed 12/4/18, effective 1/4/19. Statutory Authority: Chapter 70.87 RCW. WSR 18-18-070, § 296-96-01040, filed 8/31/18, effective 10/1/18. Statutory Authority: Chapter 70.87 RCW and 2013 2nd sp.s. c 4. WSR 14-06-041, § 296-96-01040, filed 2/26/14, effective 4/1/14. Statutory Authority: Chapter 70.87 RCW and 2011 1st sp.s. c 50. WSR 12-06-065, § 296-96-01040, filed 3/6/12, effective 4/30/12. Statutory Authority: Chapters 18.27, 18.106, 43.22, and 70.87 RCW. WSR 07-11-128, § 296-96-01040, filed 5/22/07, effective 6/30/07. Statutory Authority: Chapters 18.106, 43.22, and 70.87 RCW. WSR 06-10-066, § 296-96-01040, filed 5/2/06, effective 6/30/06. Statutory Authority: Chapters 18.27, 43.22, and 70.87 RCW. WSR 05-12-032, § 296-96-01040, filed 5/24/05, effective 6/30/05. Statutory Authority: RCW 43.22.350, 43.22.434, 43.22.480, 43.22.500, 18.27.040, 18.27.070, 18.27.075, 70.87.030, 19.28.041, 19.28.051, 19.28.101, 19.28.121, 19.28.161, 19.28.201, 19.28.211, 19.28.341, 2001 c 7, 2002 c 249, and chapters 19.28, 43.22, 18.27, and 70.87 RCW. WSR 02-12-022, § 296-96-01040, filed 5/28/02, effective 6/28/02. Statutory Authority: RCW 43.22.350, 43.22.434, 43.22.480, 43.22.500, 18.27.070, 18.27.075, 70.87.030, 19.28.041, 19.28.051, 19.28.101, 19.28.121, 19.28.161, 19.28.201, 19.28.211, 19.28.341, 2001 c 159, and chapters 43.22, 19.28, 18.27, and 70.87 RCW. WSR 01-12-035, § 296-96-01040, filed 5/29/01, effective 6/29/01. Statutory Authority: RCW 70.87.020, 70.87.030, 70.87.034, 70.87.120, 70.87.185 and chapter 70.87 RCW. WSR 01-02-026, § 296-96-01040, filed 12/22/00, effective 1/22/01.]

AMENDATORY SECTION (Amending WSR 22-21-118, filed 10/18/22, effective 1/1/23)

**WAC 296-96-01045 Residential elevator inspection and fees.** (1) Chapter 70.87 RCW requires the department to inspect all new, altered

or relocated conveyances operated exclusively for single-family use in private residences. Prior to installation, a licensed elevator contractor shall complete a permit application as described in WAC 296-96-01005 and pay the appropriate fee listed in WAC 296-96-01010.

(2) Chapter 70.87 RCW allows the department to inspect conveyances operated exclusively for single-family use in private residences when the department is investigating an accident or an alleged or apparent violation of the statute or these rules.

(3) No annual inspection and operating certificate is required for a private residence conveyance operated exclusively for single-family use unless the owner requests it. When an owner requests an inspection and an annual operating certificate, the following fee shall be paid prior to an inspection (~~The fees for FY23, effective January 1, 2023, and FY24, effective January 1, 2024, are as follows~~):

TYPE OF CONVEYANCE	<del>(FY23 FEE</del>	FY24)) FEE
Each inclined stairway chair lift in private residence .....	<del>(((\$37.40))</del>	\$40.30
Each inclined wheel chair lift in a private residence .....	<del>(((\$37.40))</del>	\$40.30
Each vertical wheel chair lift in a private residence .....	<del>(((\$47.30))</del>	\$51.00
Each dumbwaiter in a private residence .....	<del>(((\$37.40))</del>	\$40.30
Each inclined elevator at a private residence .....	<del>(((\$134.30))</del>	\$144.80
Each private residence elevator ...	<del>(((\$86.45))</del>	\$93.20
Duplication of a lost, damaged or stolen operating permit .....	<del>(((\$15.60))</del>	\$16.80

[Statutory Authority: Chapter 70.87 RCW. WSR 22-21-118, § 296-96-01045, filed 10/18/22, effective 1/1/23; WSR 22-05-076, § 296-96-01045, filed 2/15/22, effective 3/18/22; WSR 21-18-096, § 296-96-01045, filed 8/31/21, effective 10/1/21. Statutory Authority: Chapters 18.27, 70.87, 43.22, and 43.22A RCW. WSR 18-24-102, § 296-96-01045, filed 12/4/18, effective 1/4/19. Statutory Authority: Chapter 70.87 RCW. WSR 18-18-070, § 296-96-01045, filed 8/31/18, effective 10/1/18. Statutory Authority: Chapter 70.87 RCW and 2013 2nd sp.s. c 4. WSR 14-06-041, § 296-96-01045, filed 2/26/14, effective 4/1/14. Statutory Authority: Chapter 70.87 RCW and 2011 1st sp.s. c 50. WSR 12-06-065, § 296-96-01045, filed 3/6/12, effective 4/30/12. Statutory Authority: Chapter 70.87 RCW. WSR 07-24-041, § 296-96-01045, filed 11/30/07, effective 1/1/08. Statutory Authority: Chapters 18.27, 18.106, 43.22, and 70.87 RCW. WSR 07-11-128, § 296-96-01045, filed 5/22/07, effective 6/30/07. Statutory Authority: Chapters 18.106, 43.22, and 70.87 RCW. WSR 06-10-066, § 296-96-01045, filed 5/2/06, effective 6/30/06. Statutory Authority: Chapters 18.27, 43.22, and 70.87 RCW. WSR 05-12-032, § 296-96-01045, filed 5/24/05, effective 6/30/05. Statutory Authority: RCW 43.22.350, 43.22.434, 43.22.480, 43.22.500, 18.27.040, 18.27.070, 18.27.075, 70.87.030, 19.28.041, 19.28.051, 19.28.101, 19.28.121, 19.28.161, 19.28.201, 19.28.211, 19.28.341, 2001 c 7, 2002 c 249, and chapters 19.28, 43.22, 18.27, and 70.87 RCW. WSR 02-12-022, § 296-96-01045, filed 5/28/02, effective 6/28/02. Statutory Authority: RCW 43.22.350, 43.22.434, 43.22.480, 43.22.500, 18.27.070, 18.27.075, 70.87.030, 19.28.041, 19.28.051, 19.28.101, 19.28.121, 19.28.161, 19.28.201, 19.28.211, 19.28.341, 2001 c 159, and chapters 43.22, 19.28, 18.27, and 70.87 RCW. WSR 01-12-035, § 296-96-01045,

filed 5/29/01, effective 6/29/01. Statutory Authority: RCW 70.87.020, 70.87.030, 70.87.034, 70.87.120, 70.87.185 and chapter 70.87 RCW. WSR 01-02-026, § 296-96-01045, filed 12/22/00, effective 1/22/01.]

AMENDATORY SECTION (Amending WSR 22-21-118, filed 10/18/22, effective 1/1/23)

**WAC 296-96-01055 Technical services and consultations.** A person, firm, corporation, or governmental agency may request elevator field technical services from the department by paying a fee (~~as follows:~~

~~(1) For FY23, effective July 1, 2023: \$96.65 per hour or any portion thereof (including travel time) plus the standard per diem and mileage allowance granted to department inspectors.~~

~~(2) For FY24, effective July 1, 2024:))~~ of \$104.20 per hour or any portion thereof (including travel time) plus the standard per diem and mileage allowance granted to department inspectors.

These field technical services may include code evaluation, code consultation, plan examination, code interpretation, and clarification of technical data relating to the application of the department's conveyance rules. Field technical services do not include inspections.

[Statutory Authority: Chapter 70.87 RCW. WSR 22-21-118, § 296-96-01055, filed 10/18/22, effective 1/1/23; WSR 22-05-076, § 296-96-01055, filed 2/15/22, effective 3/18/22; WSR 21-18-096, § 296-96-01055, filed 8/31/21, effective 10/1/21. Statutory Authority: Chapters 18.27, 70.87, 43.22, and 43.22A RCW. WSR 18-24-102, § 296-96-01055, filed 12/4/18, effective 1/4/19. Statutory Authority: Chapter 70.87 RCW. WSR 18-18-070, § 296-96-01055, filed 8/31/18, effective 10/1/18. Statutory Authority: Chapter 70.87 RCW and 2013 2nd sp.s. c 4. WSR 14-06-041, § 296-96-01055, filed 2/26/14, effective 4/1/14. Statutory Authority: Chapter 70.87 RCW and 2011 1st sp.s. c 50. WSR 12-06-065, § 296-96-01055, filed 3/6/12, effective 4/30/12. Statutory Authority: Chapters 18.27, 18.106, 43.22, and 70.87 RCW. WSR 07-11-128, § 296-96-01055, filed 5/22/07, effective 6/30/07. Statutory Authority: Chapters 18.106, 43.22, and 70.87 RCW. WSR 06-10-066, § 296-96-01055, filed 5/2/06, effective 6/30/06. Statutory Authority: Chapters 18.27, 43.22, and 70.87 RCW. WSR 05-12-032, § 296-96-01055, filed 5/24/05, effective 6/30/05. Statutory Authority: RCW 43.22.350, 43.22.434, 43.22.480, 43.22.500, 70.87.030, 18.106.070, 18.106.125, 2001 c 7, and chapters 18.106, 43.22, and 70.87 RCW. WSR 03-12-045, § 296-96-01055, filed 5/30/03, effective 6/30/03. Statutory Authority: RCW 43.22.350, 43.22.434, 43.22.480, 43.22.500, 18.27.040, 18.27.070, 18.27.075, 70.87.030, 19.28.041, 19.28.051, 19.28.101, 19.28.121, 19.28.161, 19.28.201, 19.28.211, 19.28.341, 2001 c 7, 2002 c 249, and chapters 19.28, 43.22, 18.27, and 70.87 RCW. WSR 02-12-022, § 296-96-01055, filed 5/28/02, effective 6/28/02. Statutory Authority: RCW 43.22.350, 43.22.434, 43.22.480, 43.22.500, 18.27.070, 18.27.075, 70.87.030, 19.28.041, 19.28.051, 19.28.101, 19.28.121, 19.28.161, 19.28.201, 19.28.211, 19.28.341, 2001 c 159, and chapters 43.22, 19.28, 18.27, and 70.87 RCW. WSR 01-12-035, § 296-96-01055, filed 5/29/01, effective 6/29/01. Statutory Authority: RCW 70.87.020, 70.87.030, 70.87.034, 70.87.120, 70.87.185 and chapter 70.87 RCW. WSR 01-02-026, § 296-96-01055, filed 12/22/00, effective 1/22/01.]



AMENDATORY SECTION (Amending WSR 22-21-118, filed 10/18/22, effective 1/1/23)

**WAC 296-96-01057 Accident investigations.** The department shall investigate an injury-related accident reported by the owner or owner's duly authorized agent. The department may charge a rate (~~as follows:~~

~~(1) For FY23, effective July 1, 2023: \$96.65 per hour or portion thereof (including travel time) plus the standard per diem and mileage allowance granted to department inspectors.~~

~~(2) For FY24, effective July 1, 2024:))~~ of \$104.20 per hour or portion thereof (including travel time) plus the standard per diem and mileage allowance granted to department inspectors.

[Statutory Authority: Chapter 70.87 RCW. WSR 22-21-118, § 296-96-01057, filed 10/18/22, effective 1/1/23; WSR 22-05-076, § 296-96-01057, filed 2/15/22, effective 3/18/22; WSR 21-18-096, § 296-96-01057, filed 8/31/21, effective 10/1/21. Statutory Authority: Chapters 18.27, 70.87, 43.22, and 43.22A RCW. WSR 18-24-102, § 296-96-01057, filed 12/4/18, effective 1/4/19. Statutory Authority: Chapter 70.87 RCW. WSR 18-18-070, § 296-96-01057, filed 8/31/18, effective 10/1/18. Statutory Authority: Chapter 70.87 RCW and 2013 2nd sp.s. c 4. WSR 14-06-041, § 296-96-01057, filed 2/26/14, effective 4/1/14. Statutory Authority: Chapter 70.87 RCW and 2011 1st sp.s. c 50. WSR 12-06-065, § 296-96-01057, filed 3/6/12, effective 4/30/12. Statutory Authority: Chapter 70.87 RCW. WSR 07-24-041, § 296-96-01057, filed 11/30/07, effective 1/1/08.]

AMENDATORY SECTION (Amending WSR 22-21-118, filed 10/18/22, effective 1/1/23)

**WAC 296-96-01060 Inspections after normal business hours.** An inspection outside of normal business hours and business days (i.e., Monday through Friday excluding holidays; 7:00 a.m. to 5:00 p.m.) may be requested under the following conditions:

(1) An inspector is available; and

(2) The inspection is authorized by the department.

(3) The minimum fee for an after-hours inspection is (~~as follows:~~

~~(a) For FY23, effective July 1, 2023: \$120.95 and \$120.95 per hour for each hour in addition to the first hour plus the standard per diem and mileage allowance granted to department inspectors.~~

~~(b) For FY24, effective July 1, 2024:))~~ \$130.40 and \$130.40 per hour for each hour in addition to the first hour plus the standard per diem and mileage allowance granted to department inspectors.

(4) This fee is in addition to any other fees required for the project.

[Statutory Authority: Chapter 70.87 RCW. WSR 22-21-118, § 296-96-01060, filed 10/18/22, effective 1/1/23; WSR 22-05-076, § 296-96-01060, filed 2/15/22, effective 3/18/22; WSR 21-18-096, § 296-96-01060, filed 8/31/21, effective 10/1/21. Statutory Authority: Chapters 18.27, 70.87, 43.22, and 43.22A RCW. WSR 18-24-102, § 296-96-01060, filed 12/4/18, effective 1/4/19. Statutory Authority: Chapter 70.87 RCW. WSR 18-18-070, § 296-96-01060, filed 8/31/18, ef-

fective 10/1/18. Statutory Authority: Chapter 70.87 RCW and 2013 2nd sp.s. c 4. WSR 14-06-041, § 296-96-01060, filed 2/26/14, effective 4/1/14. Statutory Authority: Chapter 70.87 RCW and 2011 1st sp.s. c 50. WSR 12-06-065, § 296-96-01060, filed 3/6/12, effective 4/30/12. Statutory Authority: Chapters 18.27, 18.106, 43.22, and 70.87 RCW. WSR 07-11-128, § 296-96-01060, filed 5/22/07, effective 6/30/07. Statutory Authority: Chapters 18.106, 43.22, and 70.87 RCW. WSR 06-10-066, § 296-96-01060, filed 5/2/06, effective 6/30/06. Statutory Authority: Chapters 18.27, 43.22, and 70.87 RCW. WSR 05-12-032, § 296-96-01060, filed 5/24/05, effective 6/30/05. Statutory Authority: RCW 43.22.350, 43.22.434, 43.22.480, 43.22.500, 18.27.040, 18.27.070, 18.27.075, 70.87.030, 19.28.041, 19.28.051, 19.28.101, 19.28.121, 19.28.161, 19.28.201, 19.28.211, 19.28.341, 2001 c 7, 2002 c 249, and chapters 19.28, 43.22, 18.27, and 70.87 RCW. WSR 02-12-022, § 296-96-01060, filed 5/28/02, effective 6/28/02. Statutory Authority: RCW 43.22.350, 43.22.434, 43.22.480, 43.22.500, 18.27.070, 18.27.075, 70.87.030, 19.28.041, 19.28.051, 19.28.101, 19.28.121, 19.28.161, 19.28.201, 19.28.211, 19.28.341, 2001 c 159, and chapters 43.22, 19.28, 18.27, and 70.87 RCW. WSR 01-12-035, § 296-96-01060, filed 5/29/01, effective 6/29/01. Statutory Authority: RCW 70.87.020, 70.87.030, 70.87.034, 70.87.120, 70.87.185 and chapter 70.87 RCW. WSR 01-02-026, § 296-96-01060, filed 12/22/00, effective 1/22/01.]

AMENDATORY SECTION (Amending WSR 22-21-118, filed 10/18/22, effective 1/1/23)

**WAC 296-96-01065 Annual operating permit fees.** An annual operating certificate will be issued to the building owner upon payment of the appropriate fee. The owner of record shall be invoiced by the department. If a change of ownership has occurred, it is the new owner's responsibility to ensure the department has the corrected information. (~~The fees for FY23, effective July 1, 2023, and FY24, effective July 1, 2024, are as follows:~~) Below is the fee structure table:

TYPE OF CONVEYANCE	<del>(FY23 FEE</del>	FY24) FEE
Each hydraulic elevator . . . . .	<del>(((\$161.65))</del>	\$174.30
Each roped-hydraulic elevator .	<del>(((\$202.00))</del>	\$217.80
plus for each hoistway opening in excess of two . . . . .	<del>(((\$15.60))</del>	\$16.80
Each cable elevator . . . . .	<del>(((\$202.00))</del>	\$217.80
plus for each hoistway opening in excess of two . . . . .	<del>(((\$15.60))</del>	\$16.80
Each cable elevator traveling more than 25 feet without an opening—for each 25 foot traveled . . . . .	<del>(((\$15.60))</del>	\$16.80
Each limited-use/limited- application (—LULA) elevator . . . . .	<del>(((\$161.65))</del>	\$174.30
Each escalator . . . . .	<del>(((\$134.20))</del>	\$144.70
Each dumbwaiter in other than a private residence . . . . .	<del>(((\$86.45))</del>	\$93.20
Each material lift . . . . .	<del>(((\$161.65))</del>	\$174.30
Each incline elevator in other than a private residence . . . . .	<del>(((\$173.80))</del>	\$187.40

TYPE OF CONVEYANCE	((FY23-FEE	FY24)) FEE
Each belt manlift . . . . .	(( <del>\$161.65</del> )	\$174.30
Each stair lift in other than a private residence . . . . .	(( <del>\$86.45</del> )	\$93.20
Each wheel chair lift in other than a private residence . . . . .	(( <del>\$86.45</del> )	\$93.20
Each personnel hoist . . . . .	(( <del>\$161.65</del> )	\$174.30
Each grain elevator personnel lift . . . . .	(( <del>\$134.20</del> )	\$144.70
Each material hoist . . . . .	(( <del>\$161.65</del> )	\$174.30
Each special purpose elevator . .	(( <del>\$161.65</del> )	\$174.30
Each private residence elevator installed in other than a private residence . . . . .	(( <del>\$161.65</del> )	\$174.30
<del>((Each casket lift . . . . .</del>	<del>\$134.20</del>	<del>\$144.70))</del>
Each sidewalk freight elevator .	(( <del>\$134.20</del> )	\$144.70
Each hand-powered manlift or freight elevator . . . . .	(( <del>\$90.90</del> )	\$98.00
<del>((Each boat launching elevator . . . . .</del>	<del>\$134.20</del>	<del>\$144.70</del>
<del>Each auto parking elevator . . . .</del>	<del>\$134.20</del>	<del>\$144.70))</del>
Each moving walk . . . . .	(( <del>\$134.20</del> )	\$144.70
Duplication of a damaged, lost or stolen operating permit . . . .	(( <del>\$15.60</del> )	\$16.80

[Statutory Authority: Chapter 70.87 RCW. WSR 22-21-118, § 296-96-01065, filed 10/18/22, effective 1/1/23; WSR 22-05-076, § 296-96-01065, filed 2/15/22, effective 3/18/22; WSR 21-18-096, § 296-96-01065, filed 8/31/21, effective 10/1/21. Statutory Authority: Chapters 18.27, 70.87, 43.22, and 43.22A RCW. WSR 18-24-102, § 296-96-01065, filed 12/4/18, effective 1/4/19. Statutory Authority: Chapter 70.87 RCW. WSR 18-18-070, § 296-96-01065, filed 8/31/18, effective 10/1/18. Statutory Authority: Chapter 70.87 RCW and 2013 2nd sp.s. c 4. WSR 14-06-041, § 296-96-01065, filed 2/26/14, effective 4/1/14. Statutory Authority: Chapter 70.87 RCW and 2011 1st sp.s. c 50. WSR 12-06-065, § 296-96-01065, filed 3/6/12, effective 4/30/12. Statutory Authority: Chapter 70.87 RCW. WSR 07-24-041, § 296-96-01065, filed 11/30/07, effective 1/1/08. Statutory Authority: Chapters 18.27, 18.106, 43.22, and 70.87 RCW. WSR 07-11-128, § 296-96-01065, filed 5/22/07, effective 6/30/07. Statutory Authority: Chapters 18.106, 43.22, and 70.87 RCW. WSR 06-10-066, § 296-96-01065, filed 5/2/06, effective 6/30/06. Statutory Authority: Chapters 18.27, 43.22, and 70.87 RCW. WSR 05-12-032, § 296-96-01065, filed 5/24/05, effective 6/30/05. Statutory Authority: RCW 43.22.350, 43.22.434, 43.22.480, 43.22.500, 18.27.040, 18.27.070, 18.27.075, 70.87.030, 19.28.041, 19.28.051, 19.28.101, 19.28.121, 19.28.161, 19.28.201, 19.28.211, 19.28.341, 2001 c 7, 2002 c 249, and chapters 19.28, 43.22, 18.27, and 70.87 RCW. WSR 02-12-022, § 296-96-01065, filed 5/28/02, effective 6/28/02. Statutory Authority: RCW 43.22.350, 43.22.434, 43.22.480, 43.22.500, 18.27.070, 18.27.075, 70.87.030, 19.28.041, 19.28.051, 19.28.101, 19.28.121, 19.28.161, 19.28.201, 19.28.211, 19.28.341, 2001 c 159, and chapters 43.22, 19.28, 18.27, and 70.87 RCW. WSR 01-12-035, § 296-96-01065, filed 5/29/01, effective 6/29/01. Statutory Authority: RCW 70.87.020, 70.87.030, 70.87.034, 70.87.120, 70.87.185 and chapter 70.87 RCW. WSR 01-02-026, § 296-96-01065, filed 12/22/00, effective 1/22/01.]

**WSR 23-15-089**  
**PROPOSED RULES**  
**DEPARTMENT OF**  
**LABOR AND INDUSTRIES**  
[Filed July 18, 2023, 9:16 a.m.]

Continuance of WSR 23-13-127.

Preproposal statement of inquiry was filed as WSR 17-17-134.

Title of Rule and Other Identifying Information: Chapter 296-67 WAC, Safety standards for process safety management of highly hazardous chemicals.

Hearing Location(s): On August 16, 2023, at 6:30 p.m., at Majestic Inn & Spa, 419 Commercial Avenue, Anacortes, WA 98221. A prehearing overview will occur one hour prior to the start of the public hearing. The hearing will begin at the indicated time and will continue until all oral comments are received.

Date of Intended Adoption: October 17, 2023.

Submit Written Comments to: Tari Enos, Department of Labor and Industries (L&I), Division of Occupational Safety and Health (DOSH), P.O. Box 44620, Olympia, WA 98504-4620, email Tari.Enos@Lni.wa.gov, fax 360-902-5619, by August 24, 2023, by 5:00 p.m.

Assistance for Persons with Disabilities: Contact Tari Enos, phone 360-902-5541, fax 360-902-5619, email Tari.Enos@Lni.wa.gov, by July 27, 2023.

Purpose of the Proposal and Its Anticipated Effects, Including Any Changes in Existing Rules: The purpose of this continuance is to provide another public hearing for chapter 296-67 WAC, Safety standards for process safety management of highly hazardous chemicals. Two in-person public hearings will be held in Bellingham on August 10 and 17, 2023, and one virtual public hearing is scheduled for August 15, 2023. This continuance adds an additional in-person hearing in Anacortes scheduled on August 16, 2023, beginning at 6:30 p.m., with a prehearing overview starting at 5:30 p.m.

L&I is proposing adding a new Part B to chapter 296-67 WAC, Safety standards for process safety management of highly hazardous chemicals, which pertains specifically to process safety management (PSM) in petroleum refineries. The new Part B includes existing PSM requirements applicable to refineries updated with new requirements based on the best available evidence learned since the PSM rule was first adopted in 1992. Please see below for an overview of the new chapter 296-67 WAC, Part B.

**Amended Section:**

**WAC 296-67-001 Process safety management of highly hazardous chemicals.**

- Updates the purpose and scope section of the current rule to identify WAC 296-67-001 through 296-67-293 as Part A of the chapter 296-67 WAC.
- Adds an exemption from Part A for petroleum refineries under Part B.

**New Sections:**

**WAC 296-67-300 Purpose and scope—Part B.**

- This section identifies WAC 296-67-300 through 296-67-387 as Part B of chapter 296-67 WAC that applies to petroleum refineries.

- Clarifies that Part B supersedes Part A of this chapter as it relates to petroleum refineries.

**WAC 296-67-307 Definitions.**

- Includes definitions for the following: Affected person, change, damage mechanism, decontamination, employee representative, facility, feasible, flammable gas, flammable liquid, hierarchy of hazard controls, highly hazardous chemical or material, hot work, human factors, independent protection layers, inherent safety, initiating cause, isolate, lagging indicators, leading indicators, major change, must, nonroutine, process, process equipment, process safety culture, process safety hazard, process safety incident, PSM, process safety performance indicators, qualified operator, reactive substance, recognized and generally accepted good engineering practices, replacement-in-kind, safeguard, safety instrumented system, temporary pipe or equipment repair, toxic substance, turnaround, and utility.

**WAC 296-67-311 Process safety management program.**

- Outlines the requirements employers must follow to develop and maintain an effective written PSM program that needs to be reviewed and updated at least once every three years.

**WAC 296-67-315 Employee collaboration.**

- Outlines the requirements employers must follow to develop and maintain a written plan to provide for employee collaboration throughout all PSM phases.

**WAC 296-67-319 Process safety information.**

- Outlines the requirements employers must follow to develop and maintain a compilation of written process safety information before performing any PSM phase.

**WAC 296-67-323 Hazard analyses.**

- Outlines the requirements employers must follow in order to document an effective process hazard analysis to identify and control hazards associated with each process.

**WAC 296-67-327 Operating procedures.**

- Outlines the requirements employers must follow to develop and maintain written operating procedures. This includes minimum standards, steps of each operating phase or mode of operation, operating limits, safety and health considerations, and safety systems.

**WAC 296-27-331 Training.**

- Outlines requirements that each affected employee must be trained in an overview of the process and in applicable operating procedures, as well as being trained in an overview of the process in the hazards and safe work practices related to the process. Includes which training materials are applicable to the employee's job tasks.

**WAC 296-67-335 Contractors.**

- Outlines requirements regarding refinery employer responsibilities when selecting a contractor. They must evaluate the contract employer's safety performance, require any contractor to use a

skilled and trained workforce, and ensure the contractor informs their employees of potential process safety hazards, as well as applicable safety rules and applicable provisions of this chapter.

- Outlines requirements that the refinery employers must develop and maintain effective written procedures, periodically evaluate the performance of contractors, and document that the requirements of this section are being completed by the contractor. The refinery employer must also ensure a copy of the contractor's injury and illness log is available to DOSH upon request.
- Sets requirements that are the contractor's responsibility, including that a contractor must inform its employees of applicable refinery safety rules.

**WAC 296-67-339 Pre-startup safety review.**

- Outlines requirements that the employer must perform a pre-startup safety review (PSSR) for new or modified processes, for partial or unplanned shutdowns/outages, and for all turnaround work performed on a process.
- Outlines requirements that a PSSR must contain all of the requirements prior to the introduction of highly hazardous chemicals or materials to a process.
- Outlines requirements that the employer must ensure experienced operating or maintenance employees that are affected by a change are included in the PSSR, and an operating employee currently working in the process must be designated as the employee representative.

**WAC 296-67-343 Mechanical integrity.**

- Outlines requirements that employers must ensure the mechanical integrity of process equipment by developing and maintaining effective written procedures, which must provide clear instructions for safely performing maintenance on process equipment. These documents developed under this section must be readily accessible to employees and employee representatives.

**WAC 296-67-347 Damage mechanism review.**

- Outlines requirements that the employer must perform a damage mechanism review (DMR) for each new and existing process, as well as determine the priority order for performing DMRs. These DMRs must be revalidated every five years, and if a major change occurs on a process that a DMR exists [for], it must be reviewed before the change is approved. The employer must retain all DMR reports for the life of the process.

**WAC 296-67-351 Hot work.**

- Outlines requirements that the employer must develop and maintain effective written procedures for the issuance of hot work permits, and the permit must be issued prior to the commencement of operations. The employer must also keep hot work permits on file for one year.

**WAC 296-67-355 Management of change.**

- Outlines requirements that a written management of change (MOC) must be developed and maintained by the employer to assess and manage change of process chemicals, technology, procedures, process equipment, and facilities. Qualified personnel and appropri-

ate methods for all MOCs must be used by the employer based on hazard, complexity, and type of change. If any change that is covered in this section changes the process safety information (PSI), information must be amended timely prior to implementation of the change.

**WAC 296-67-359 Management of organizational change.**

- Outlines that a team must be designated by the employer to perform a management of organizational change (MOOC) assessment prior to reducing staffing levels. The MOOC is needed for changes with a duration exceeding 90 calendar days affecting operations. A description of the change must be included in the written MOOC assessment, factors evaluated by the team, and the team's findings and recommendations.

**WAC 296-67-363 Incident investigation—Root cause analysis.**

- Outlines the written procedures that the employer must develop to investigate any incident that could end in a safety incident, and how to report on it promptly. The employer must also initiate the investigation no later than 48 hours after the incident occurs, and that the report must also include a method for performing a root cause analysis.

**WAC 296-67-367 Emergency planning and response.**

- Outlines that the employer must develop and maintain an effective emergency response plan for the entire plant in accordance with WAC 296-24-567 Employee emergency plans and fire prevention plans and also chapter 296-824 WAC, Emergency response.
- Outlines that if the incident exceeds the capability of the internal emergency response team, the written plan must detail how an emergency response would be executed.
- Outlines that the employer must document any agreement with external emergency response teams that are expected to assist in an emergency.

**WAC 296-67-371 Compliance audits.**

- Outlines that the employer must perform an effective compliance audit every three years and must prepare a written report documenting the findings of the audit. The employer must consult with a person who has expertise and experience from each process audited and document the findings and recommendations from the consultations in the written report.
- Outlines that the employer must make the report available to employees and employee representatives, and if any written comments regarding the report are received by employees, the employer must respond in writing within 60 days. The employer must also keep the three most recent compliance audit reports.

**WAC 296-67-375 Process safety culture assessment.**

- Outlines that the employer must develop and maintain an effective process safety culture assessment (PSCA) program, and that within 18 months following the effective date of Part B of this chapter and at least every five years thereafter, the employer must perform an effective PSCA. A team with at least one person knowledgeable with refinery operations must develop and implement a

PSCA, and the team must consult with at least one other individual with expertise assessing process safety culture.

- Outlines that the employer must prioritize recommendations and implement corrective actions, with the assistance of the PSCA team, within 24 months of completing the written report. The PSCA team must perform a written assessment of the implementation and effectiveness of each corrective action within three years of completing the PSCA report. If it is found that the corrective action is ineffective, the employer must implement changes.
- Outlines that PSCA reports and corrective action plans must be made available to all affected employees within 60 calendar days of completion. Any participating contractors must provide PSCA reports and corrective action plans to their employees and employee representatives within 14 days of receipt.

**WAC 296-67-379 Human factors.**

- Outlines that within 18 months of the effective date of Part B of this chapter, the employer must develop and maintain an effective written human factors program. The employer must also include a written analysis of human factors which must contain a description of the selected methodologies and criteria for their use.
- Outlines that the employer must assess human factors in existing procedures and revise them accordingly. Fifty percent of assessments and revisions must be completed by the employer within three years of the effective date of Part B of this chapter, and 100 percent within five years.
- Outlines that the employer must include an assessment of human factors in new and revised procedures, and the employer must train affected operating and maintenance employees in the written human factors program. Also, upon request, the employer must make a copy of the written human factors report available to affected employees.

**WAC 296-67-383 Corrective action program.**

- Outlines that the employer must develop and maintain an effective written corrective action program that includes all of the process methods included in this section. The team performing the analysis must provide all findings and recommendations to the employer. The employer may reject the team's recommendation if the employer can demonstrate in writing that the recommendation meets the certain criteria.
- Outlines that if the employer can demonstrate in writing that an alternative method would provide an equivalent or higher order of safety, the employer may change the team's recommendation. When a recommendation is rejected or changed, it must be communicated to on-site and off-site team members for comment. All comments received regarding a changed or rejected recommendation must be documented.
- Outlines that the employer must complete all corrective actions and comply with all completion dates required by this section. All completion dates must be available upon request to any affected employees and employee representatives.
- Outlines, with a couple of exceptions, any corrective action that does not require a process shut down must be completed within 30 months after the analysis or review are completed unless an employer demonstrates in writing that this isn't feasible.



- Outlines that within 18 months of the audit being completed, each corrective action from the compliance audit must be completed, unless the employer demonstrates in writing that it isn't feasible. Within 18 months of the investigation being completed, the corrective action of the incident investigation must be completed unless the employer demonstrates in writing that it isn't feasible.
- Outlines that if a corrective action cannot be implemented within the required time limits of this section, the employer must ensure interim safeguards are sufficient in ensuring employee safety and health. The employer must document the decision and include all information required in the rule.

**WAC 296-67-387 Trade secrets.**

- Outlines that employers must ensure all information needed to comply with Part B of this chapter is available, pursuant to WAC 296-901-14018 Trade secrets.
- Outlines that nothing in this section precludes the employer from requiring the people to whom the information is made available under this section to enter into confidentiality agreements not to disclose the information.

Reasons Supporting Proposal: In 1992, L&I adopted OSHA's PSM standard to prevent or minimize the consequences of catastrophic releases of toxic, reactive, flammable, or explosive chemicals, referred to as highly hazardous chemicals. These releases may result in toxic, fire, or explosion hazards. PSM is a system for managing the use of highly hazardous chemicals during plant processes and activities to prevent risk of unintentional releases. The unexpected release of highly hazardous chemicals can be deadly, leaving profound and lasting impacts on families, businesses, and communities. The potential for such releases exists any time toxic, reactive, flammable, or explosive chemicals are not properly controlled. The current PSM rule applies to employers in industries who have processes that involve certain threshold quantities of highly hazardous chemicals. Petroleum refineries are one industry covered under the current PSM rules.

Catastrophic events at petroleum refineries across the United States have tragically claimed the lives of many workers, including 13 in Washington state since 1998. In 1998, six workers in Washington state died from an incident related to PSM at the then Equilon refinery in Anacortes, and in 2010, seven more workers died at the then Tesoro petroleum refinery in Anacortes. These tragedies have led to significant discussion about what could have been done to prevent them.

The current rule, as applied to refineries, is outdated, not having been updated in over 20 years and do not reflect current industry practices.

In 2019, California adopted new rules for PSM specific for refineries based on recommendations from an interagency taskforce and other safety experts following a chemical release and fire at a California refinery in 2012. L&I reviewed the best available evidence including, but not limited to, the recommendations from the Chemical Safety Board's investigation of the 2010 Tesoro explosion, the California rule, the California interagency report, information from federal OSHA and the Environmental Protection Agency on PSM modernization efforts, information from California OSHA on implementation of the new PSM refinery rule, as well as inspection information from L&I and OSHA. L&I worked with Washington refineries, labor organizations and advocates,

community and environmental advocates, and other stakeholders to develop the proposed rule for PSM in petroleum refineries. The proposed rule largely aligns with the California rule. These changes, incorporating the best available evidence to prevent catastrophic releases, are needed to ensure that employers and employees are safe while working in the refineries as processes and technology in the industry advance over time.

Statutory Authority for Adoption: RCW 49.17.010, 49.17.040, 49.17.050, and 49.17.060.

Statute Being Implemented: Chapter 49.17 RCW.

Rule is not necessitated by federal law, federal or state court decision.

Name of Proponent: L&I, governmental.

Name of Agency Personnel Responsible for Drafting: Tracy West, Acting Standards Program Manager, Tumwater, Washington, 360-902-6954; Implementation and Enforcement: Craig Blackwood, Tumwater, Washington, 360-902-5828.

A school district fiscal impact statement is not required under RCW 28A.305.135.

A cost-benefit analysis is required under RCW 34.05.328. A preliminary cost-benefit analysis may be obtained by contacting Tari Enos, P.O. Box 44620, Olympia, WA 98504-4620, phone 360-902-5541, fax 360-902-5619, email Tari.Enos@Lni.wa.gov.

This rule proposal, or portions of the proposal, is exempt from requirements of the Regulatory Fairness Act because the proposal:

Is exempt under RCW 19.85.025(4).

Explanation of exemptions: All new requirements under this proposed rule apply to petroleum refineries. There are some requirements that are the responsibility of contractors who may include small businesses; however, those are existing requirements under chapter 296-67 WAC.

Scope of exemption for rule proposal:

Is fully exempt.

July 18, 2023

Joel Sacks

Director

## OTS-1344.9

AMENDATORY SECTION (Amending WSR 14-07-086, filed 3/18/14, effective 5/1/14)

**WAC 296-67-001 ((~~Process safety management of highly hazardous chemicals~~)) Purpose and scope—Part A.** (1) Purpose. WAC 296-67-001 through 296-67-293 comprise Part A of this chapter. This section contains requirements for preventing or minimizing the consequences of catastrophic releases of toxic, reactive, flammable, or explosive chemicals. These releases may result in toxic, fire, or explosion hazards.

(2) Application.

(a) This part applies to the following:

(i) A process which involves a chemical at or above the specified threshold quantities listed in WAC 296-67-285, Appendix A;

(ii) A process which involves a Category 1 flammable gas (as defined in WAC 296-901-14006) or a flammable liquid with a flashpoint below 100°F (37.8°C) on site in one location, in a quantity of 10,000 pounds (4535.9 kg) or more except for:

(A) Hydrocarbon fuels used solely for workplace consumption as a fuel (e.g., propane used for comfort heating, gasoline for vehicle refueling), if such fuels are not a part of a process containing another highly hazardous chemical covered by this standard;

(B) Flammable liquids with a flashpoint below 100°F (37.8°C) stored in atmospheric tanks or transferred which are kept below their normal boiling point without benefit of chilling or refrigeration.

(b) This part does not apply to:

(i) Retail facilities;

(ii) Oil or gas well drilling or servicing operations; (~~(e)~~)

(iii) Normally unoccupied remote facilities; or

(iv) Petroleum refineries under Part B of this chapter.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, 49.17.060 and 29 C.F.R. 1910 Subpart Z. WSR 14-07-086, § 296-67-001, filed 3/18/14, effective 5/1/14. Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, 49.17.060. WSR 07-03-163, § 296-67-001, filed 1/24/07, effective 4/1/07. Statutory Authority: Chapter 49.17 RCW. WSR 92-17-022 (Order 92-06), § 296-67-001, filed 8/10/92, effective 9/10/92.]

## PART B

### NEW SECTION

**WAC 296-67-300 Purpose and scope—Part B.** WAC 296-67-300 through 296-67-387 comprise Part B of this chapter. This part contains requirements for petroleum refineries to reduce the risk of process safety incidents by eliminating or minimizing process safety hazards to which employees may be exposed. Part B supersedes the requirements in WAC 297-67-001 through 296-67-293, Part A, with respect to petroleum refineries.

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### NEW SECTION

**WAC 296-67-307 Definitions.** (1) **Affected person.** Anyone who controls, manages, or performs process-related job tasks in or near a process.

(2) **Change.** Any alteration in process chemicals, technology, procedures, process equipment, facilities or organization that could affect a process. A change does not include replacement-in-kind.

(3) **Damage mechanism.** The mechanical, chemical, physical, microbiological, or other mechanism that results in equipment or material degradation.

(4) **Decontamination.** The application of chemical agents, inert gas, steam, or other material in vessels, piping, or other process equipment in order to eliminate the hazards that residual chemicals or materials present to workers who open process equipment.

(5) **Employee representative.** A union representative, where a union exists, or an employee-designated representative in the absence of a union. The employee representative must be qualified for the task. The term is to be construed broadly, and may include the local union, the international union, or a refinery or contract employee designated by these parties, such as the safety and health committee representative, where the person works on-site at the refinery. Employee representative may partner with an employee representative who does not work on-site when designated by the union, employees in the absence of the union, or when their participation is requested by the employee representative.

(6) **Facility.** The plants, units, buildings, containers or equipment that contain(s) or include(s) a process.

(7) **Feasible.** Capable of being accomplished in a successful manner within a reasonable period of time, taking into account health, safety, economic, environmental, legal, social, and technological factors.

(8) **Flammable gas.** As defined in WAC 296-901-14024 (B.2), Appendix B-Physical hazard criteria.

(9) **Flammable liquid.** As defined in WAC 296-901-14024 (B.6), Appendix B-Physical hazard criteria.

(10) **Hierarchy of hazard controls.** Hazard prevention and control measures, in priority order, to eliminate or minimize a hazard. Hazard prevention and control measures ranked from most effective to least effective are: First order inherent safety, second order inherent safety, and passive, active and procedural protection layers.

(11) **Highly hazardous chemical or material.** A flammable liquid or flammable gas, or a toxic or reactive substance.

(12) **Hot work.** Work involving electric or gas welding, cutting, brazing, or any similar heat, flame, or spark-producing procedures or operations.

(13) **Human factors.** The design of machines, operations and work environments such that they closely match human capabilities, limitations and needs. Human factors include:

(a) Working environment factors;

(b) Organizational and job factors;

(c) Human and individual characteristics such as fatigue that can affect job performance, process safety, and health and safety.

(14) **Independent protection layers (IPLs).** Safeguards that reduce the likelihood or consequences of a process safety incident through the application of devices, systems or actions. IPLs are independent of an initiating cause and independent of other IPLs. Independence ensures that an initiating cause does not affect the function of an IPL and that failure in any one layer does not affect the function of any other layer.

(15) **Inherent safety.** An approach to safety that focuses on eliminating or reducing the hazards associated with a set of conditions. A

process is inherently safer if it eliminates or reduces the hazards associated with materials or operations used in the process, and this elimination or reduction is permanent and inseparable from the material or operation. A process with eliminated or reduced hazards is described as inherently safer compared to a process with only passive, active and procedural safeguards. The process of identifying and implementing inherent safety in a specific context is known as inherently safer design:

(a) **First order inherent safety measure.** A measure that eliminates a hazard. Changes in the chemistry of a process that eliminate the hazards of a chemical are usually considered first order inherent safety measures; for example, by substituting a toxic chemical with an alternative chemical that can serve the same function but is nontoxic.

(b) **Second order inherent safety measure.** A measure that effectively reduces a risk by reducing the severity of a hazard or the likelihood of a release, without the use of add-on safety devices. Changes in process variables to minimize, moderate and simplify a process are usually considered second order inherent safety measures; for example, by redesigning a high-pressure, high-temperature system to operate at ambient temperatures and pressures.

(16) **Initiating cause.** An operational error, mechanical failure or other internal or external event that is the first event in an incident sequence, which marks the transition from a normal situation to an abnormal situation.

(17) **Isolate.** To cause equipment to be removed from service and completely protected from the inadvertent release or introduction of material or energy by such means as:

- (a) Blanking or blinding;
- (b) Misaligning or removing sections of lines, pipes, or ducts;
- (c) Implementing a double block and bleed system; or
- (d) Blocking or disconnecting all mechanical linkages.

(18) **Lagging indicators.** Retrospective metrics of equipment, written procedures, training, employee collaboration, or other practices identified as requiring corrective action.

(19) **Leading indicators.** Predictive metrics of equipment, written procedures, training, employee collaboration, or other best practices used to identify potential and recurring deficiencies.

(20) **Major change.** Any of the following:

- (a) Introduction of a new process;
- (b) Introduction of new process equipment, or new highly hazardous chemical or material that results in any operational change outside of established safe operating limits;
- (c) Any alteration in a process, process condition, process equipment, or process chemistry that results in any operational change outside of established safe operating limits; or
- (d) Introduction of a new process safety hazard or worsening of an existing process safety hazard.

(21) **Must.** Must means mandatory.

(22) **Nonroutine.** Any work done outside of steady state normal operations.

(23) **Process.** Any activity involving a highly hazardous chemical or material, including:

- (a) Use;
- (b) Storage;
- (c) Manufacturing;
- (d) Handling;
- (e) Piping; or

(f) The on-site movement of such chemicals or materials, or combination of these activities.

Utilities and process equipment must be considered part of the process if in the event of a failure or malfunction they could potentially contribute to or fail to mitigate a process safety incident. For purposes of this definition, any group of vessels that are interconnected, or separate vessels that are located such that an incident in one vessel could affect any other vessel, must be considered a single process. This definition includes processes under partial or unplanned shutdowns.

This definition excludes ancillary administrative and support functions, including office buildings, labs, warehouses, maintenance shops, and change rooms.

(24) **Process equipment.** Equipment including, but not limited to, pressure vessels, rotating equipment, piping, instrumentation, process control, or appurtenances, related to a process.

(25) **Process safety culture.** A combination of group values and behaviors that reflects whether there is a collective commitment by leaders and individuals to emphasize process safety over competing goals, in order to ensure the protection of people and the environment.

(26) **Process safety hazard.** A hazard of a process that has the potential for causing a process safety incident, or death or serious physical harm.

(27) **Process safety incident.** An event within or affecting a process that causes a fire, explosion or release of a highly hazardous chemical or material and has the potential to result in death or serious physical harm.

(28) **Process safety management (PSM).** The application of management systems to ensure the safety of petroleum refinery processes.

(29) **Process safety performance indicators.** Measurements of the refinery's activities and events that are used to evaluate the performance of process safety systems.

(30) **Qualified operator.** A person designated by the employer who, by fulfilling the requirements of the training program, has demonstrated the ability to safely perform all assigned duties.

(31) **Reactive substance.** A self-reactive chemical, as defined in WAC 296-901-14024 Appendix B—Physical hazard criteria.

(32) **Recognized and generally accepted good engineering practices (RAGAGEP).** Engineering, operation or maintenance practices and procedures established in codes, standards, technical reports or recommended practices, and published by recognized and generally accepted organizations such as, but not limited to, the American National Standards Institute (ANSI), American Petroleum Institute (API), American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE), American Society of Mechanical Engineers (ASME), American Society of Testing and Materials (ASTM), National Fire Protection Association (NFPA), and International Society of Automation (ISA). The employer should also consider informative sources of industry practices as appropriate. RAGAGEP does not include standards, guidelines or practices developed for internal use by the employer.

(33) **Replacement-in-kind.** A replacement that satisfies the design specifications of the item it is replacing.

(34) **Safeguard.** A device, system or action designed to interrupt the chain of events or mitigate the consequences following an initiating cause. Safeguards include:

(a) **Passive safeguards:** Process or equipment design features that minimize a hazard by reducing either its frequency or consequence, without the active functioning of any device; for example, a diked wall around a storage tank of flammable liquids.

(b) **Active safeguards:** Controls, alarms, safety instrumented systems and mitigation systems that are used to detect and respond to deviations from normal process operations; for example, a pump that is shut off by a high-level switch.

(c) **Procedural safeguards:** Policies, operating procedures, training, administrative checks, emergency response and other management approaches used to prevent incidents or to minimize the outcome of a process safety incident. Examples include hot work procedures and emergency response procedures.

(35) **Safety instrumented system.** Engineered systems designed to achieve or maintain safe operation of a process in response to an unsafe process condition.

(36) **Temporary pipe or equipment repair.** A temporary repair of an active or potential leak from process piping or equipment. This definition includes active or potential leaks in utility piping or utility equipment, and flange or valve packing leaks that may affect a process, and that could result in a process safety incident.

(37) **Toxic substance.** Acute toxicity, as defined in WAC 296-901-14022 Appendix A—Health hazard criteria.

(38) **Turnaround.** A planned total or partial shutdown/outage of a petroleum refinery process unit or plant to perform maintenance, overhaul or repair of a process and process equipment, and to inspect, test, and replace process materials and equipment. Turnaround does not include unplanned shutdowns/outages that occur due to emergencies or other unexpected maintenance matters in a process unit or plant. Turnaround also does not include routine maintenance, where routine maintenance consists of regular, periodic maintenance on one or more pieces of equipment at a refinery process unit or plant that may require shutdown of such equipment.

(39) **Utility.** A system that provides energy or other process-related services to enable the safe operation of a refinery process. This definition includes water, steam and asphyxiants, such as nitrogen and carbon dioxide, when used as part of a process.

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#### NEW SECTION

**WAC 296-67-311 Process safety management program.** (1) The employer must designate the refinery manager as the person with authority and responsibility for compliance with Part B of this chapter.

(2) The employer must develop, implement, and maintain an effective written process safety management (PSM) program, which must be reviewed and updated at least once every three years.

(3) The employer must develop, implement, and maintain an organizational chart that identifies management positions responsible for implementing the PSM program elements required by Part B of this chapter.

(4) The employer must develop, implement and maintain an effective program to track, document, and assess leading and lagging process safety performance indicators.

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NEW SECTION

**WAC 296-67-315 Employee collaboration.** (1) In consultation with employees and employee representatives, the employer must develop, implement, and maintain a written plan to effectively provide for employee collaboration throughout all PSM elements, including:

(a) Effective collaboration by affected operating and maintenance employees and employee representatives, throughout all phases, in performing:

- (i) Process hazard analyses (PHAs);
- (ii) Damage mechanism reviews (DMRs);
- (iii) Hierarchy of hazard controls analyses (HCAs);
- (iv) Management of change assessments (MOCs);
- (v) Management of organizational change assessments (MOOCs);
- (vi) Process safety culture assessments (PSCAs);
- (vii) Incident investigations;
- (viii) Development and maintenance of process safety information;
- (ix) Safeguard protection analyses (SPAs); and
- (x) Pre-startup safety reviews (PSSRs).

(b) Effective collaboration by affected operating and maintenance employees and employee representatives, throughout all phases, in the development, training, implementation, and maintenance of the PSM elements required by this part; and

(c) Access by employees and employee representatives to all documents or information developed or collected by the employer, including information that might be subject to protection as a trade secret.

(2) Authorized collective bargaining agents may select employee(s) to engage in overall PSM program development and implementation planning, and employee(s) to participate in PSM teams and other activities.

(3) Where employees are not represented by an authorized collective bargaining agent, the employer must establish effective procedures in consultation with affected employee(s) for the selection of employee representatives.

(4) Nothing in this section or others in chapter 296-67 WAC, Safety standards for process safety management of highly hazardous chemicals, Part B, must preclude the employer from requiring an employee or employee representative to whom information is made available to enter into a confidentiality agreement prohibiting them from disclosing such information, pursuant to WAC 296-901-14018 Trade secrets.

(5) Within 90 calendar days of the effective date of this part, the employer, in consultation with employees and employee representatives, must develop, implement, and maintain the following:

(a) Effective stop work procedures that ensure:

(i) The authority of all employees, including employees of contractors, to refuse or delay the performance of a task that they believe could reasonably result in serious physical harm or death;



(ii) The authority of all employees, including employees of contractors, to recommend to the qualified operator in charge of a unit that an operation or process be partially or completely shut down, based on a process safety hazard;

(iii) The authority of the qualified operator in charge of a unit to partially or completely shut down an operation or process, based on a process safety hazard; and

(iv) Employees who exercise stop work authority as described in this part are protected from intimidation, retaliation, or discrimination.

(b) Effective procedures to ensure the right of all employees, including employees of contractors, to anonymously report hazards. The employer must respond in writing within 30 calendar days to written hazard reports submitted by employees, employee representatives, contractors, employees of contractors and contractor employee representatives. The employer must prioritize and promptly respond to and correct hazards that present the potential for death and serious physical harm. If the employer determines that an anonymous report does not constitute a hazard, or that the hazard is being corrected by some other means, a written response must be prepared and made available that provides this information to affected employees.

(6) The employer must document the following:

(a) Recommendations to partially or completely shut down an operation or process;

(b) The partial or complete shutdown of an operation or process; and

(c) Written reports of hazards, and the employer's response.

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#### NEW SECTION

**WAC 296-67-319 Process safety information.** (1) The employer must develop, implement, and maintain a compilation of written process safety information (PSI) before performing any:

- (a) PHA;
- (b) HCA;
- (c) SPA; or
- (d) DMR.

(2) The compilation of written PSI must be sufficient to enable the employer and employee involved in operating or maintaining a process to identify and understand the hazards posed by the process.

(3) The PSI must include accurate, verified, and complete information pertaining to the following:

- (a) The hazards of highly hazardous chemicals and materials used in or produced by the process;
- (b) The technology of the process;
- (c) Process equipment used in the process; and
- (d) Results of previous DMRs.

(4) Information pertaining to the highly hazardous chemicals or materials used in, present in, or produced by the process, must include at least the following:

(a) Toxicity information, including acute and chronic health hazards;

(b) Permissible exposure limits pursuant to WAC 296-841-20025;

- (c) Physical data;
- (d) Damage mechanism data;
- (e) Thermal and chemical stability data;
- (f) Reactivity data; and
- (g) Hazardous effects of incompatible mixtures that could foreseeably occur.

Note: Safety data sheets meeting the requirements of WAC 296-901-14014 may be used to comply with this requirement to the extent they contain the information required by this section.

- (5) Information pertaining to the technology of the process must include at least the following:
  - (a) A block flow diagram or simplified process flow diagram;
  - (b) Process chemistry;
  - (c) Maximum intended inventory;
  - (d) Safe upper and lower limits of process variables, such as temperatures, pressures, flows, levels, and compositions; and
  - (e) The consequences of deviations, including chemical mixing and reactions that may affect the safety and health of employees.
- (6) Information pertaining to the equipment in the process must include at least the following:
  - (a) Materials of construction;
  - (b) Piping and instrumentation diagrams (P&IDs);
  - (c) Electrical classification;
  - (d) Relief system design and design basis;
  - (e) Ventilation system design;
  - (f) Design codes and standards employed, including design conditions and operating limits;
  - (g) Material and energy balances for processes built after September 1, 1992;
  - (h) Safety systems, such as interlocks and detection and suppression systems;
  - (i) Electrical supply and distribution systems; and
  - (j) Results of prior DMRs.
- (7) The employer must document that process equipment complies with recognized and generally accepted good engineering practices (RAGAGEP), where RAGAGEP has been established for that process equipment, or with more protective internal practices that ensure safe operation.
- (8) If the employer installs new process equipment for which no RAGAGEP exists, the employer must determine and document that the equipment is designed, constructed, installed, maintained, inspected, tested and operated in a safe manner.
- (9) If existing process equipment was designed and constructed in accordance with codes, standards or practices that are no longer in general use, the employer must determine and document that the process equipment is designed, constructed, installed, maintained, inspected, tested and operated in a safe manner for its intended purpose.
- (10) The employer must provide for employee collaboration, pursuant to WAC 296-67-315 Employee collaboration. The PSI must be made available to all employees, and relevant PSI must be made available to employees of contractors. Information pertaining to the hazards of the process must be effectively communicated to all affected employees.

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NEW SECTION

**WAC 296-67-323 Hazard analyses.** (1) Process hazard analysis (PHA).

(a) The employer must perform and document an effective PHA appropriate to the complexity of each process, in order to identify, evaluate, and control hazards associated with each process. All initial PHAs for processes not previously covered by WAC 296-67-017 must be completed within three years of the effective date of Part B of this chapter. PHAs performed in accordance with the requirements of WAC 296-67-017 must satisfy the initial PHA requirements of Part B of this chapter. All modes of operation pursuant to WAC 296-67-327 Operating procedures, must be covered by the PHA.

(b) The employer must determine and document the priority order for performing PHAs based on the complexity, severity, and extent of process hazards, the number of potentially affected employees, the age of the process and the process operating history. The employer must use at least one of the following methodologies:

- (i) What-if;
- (ii) Checklist;
- (iii) What-if/checklist;
- (iv) Hazard and operability study (HAZOP);
- (v) Failure mode and effects analysis (FMEA);
- (vi) Fault tree analysis; or
- (vii) Other PHA methods recognized by engineering organizations

or governmental agencies.

(c) The PHA must address:

- (i) The hazards of the process;
- (ii) Previous publicly documented process safety incidents in the petroleum refinery and petrochemical industry sectors that are relevant to the process;
- (iii) DMR reports that are applicable to the process;
- (iv) HCA reports that are applicable to the process;
- (v) Potential consequences of failures of process equipment;
- (vi) Facility siting, including the placement of processes, equipment, buildings, employee occupancies and work stations, in order to effectively protect employees from process safety hazards;
- (vii) Human factors;
- (viii) A qualitative evaluation of the types, severity and likelihood of possible incidents that could result from a failure of the process or of process equipment;
- (ix) The potential effects of external events, including seismic events, if applicable;
- (x) The findings of incident investigations relevant to the process;
- (xi) A review of applicable management of change (MOC) documents completed since the last PHA; and
- (xii) Engineering and administrative controls associated with the process.

(d) The PHA must be performed by a team with expertise in engineering and process operations, and must include at least one refinery operating employee who currently works in, or provides training about the process, and who has experience and knowledge specific to the process being evaluated. The team must also include one member with expertise in the specific PHA methodology being used. As necessary, the team must consult with individuals with expertise in damage mecha-

nisms, process chemistry, safeguard protection analysis, and control systems.

(e) The team must document its findings and recommendations in a PHA report, which must be available to affected employees whose work assignments are in the petroleum refinery and who may be affected by the findings and recommendations.

(f) The PHA report must include:

(i) The methodologies, analyses and factors considered by the PHA team;

(ii) The findings of the PHA team; and

(iii) The PHA team's recommendations, including additional safeguards to address any deficiencies identified by the SPA.

(g) At least every five years, the written PHA must be updated and revalidated in accordance with the requirements of this section to ensure that the PHA is consistent with the current process.

(2) Safeguard protection analysis.

(a) For each scenario in the PHA that identifies the potential for a process safety incident, the employer must perform:

(i) An effective written safeguard protection analysis (SPA) to determine the effectiveness of existing individual safeguards;

(ii) The combined effectiveness of all existing safeguards for each failure scenario in the PHA;

(iii) The individual and combined effectiveness of safeguards recommended in the PHA; and

(iv) The individual and combined effectiveness of additional or alternative safeguards that may be needed.

(b) All independent protection layers for each failure scenario must be independent of each other and independent of initiating causes.

(c) The SPA must utilize a quantitative or semi-quantitative method, such as layer of protection analysis (LOPA), or an equally effective method to identify the most protective safeguards. The risk reduction attainable by each safeguard must be based on site-specific failure rate data, or in the absence of such data, industry failure rate data for each device, system, or human factor.

(d) The SPA must be performed by at least one individual with expertise in the specific SPA methodology being used. The SPA may be performed as part of the PHA or as a stand-alone analysis.

(e) The SPA must document the likelihood and severity of all potential initiating events, including equipment failures, human factors, loss of flow control, loss of pressure control, loss of temperature control, loss of level control, excess reaction, and other conditions that may lead to a loss of containment. The SPA must document the risk reduction achieved by each safeguard for all potential initiating events.

(f) The employer must complete all SPAs within six months of the completion or revalidation of the PHA.

(3) Hierarchy of hazard controls analysis.

(a) The employer must perform an HCA in a timely manner as follows:

(i) For all recommendations made by a PHA team for each scenario that identifies the potential for a process safety incident;

(ii) For all recommendations that result from the investigation of a process safety incident;

(iii) As part of managing changes, whenever a major change is proposed; and

(iv) During the design and review of new processes, new process units, new facilities, and their related process equipment.

(b) All HCAs for facility processes must be updated and revalidated as standalone analyses at least once every five years, and can be performed in conjunction with the PHA schedule.

(c) HCAs must be documented and performed by a team with expertise in engineering and process operations. The team must include one member knowledgeable in the HCA methodology being used, and at least one operating employee who currently operates the process and has expertise and experience in the process being evaluated. As necessary, the team must consult with individuals with expertise in damage mechanisms, process chemistry, and control systems.

(d) The HCA team must:

(i) Compile or develop all risk-relevant data for each process;

(ii) Identify, characterize, and prioritize risks posed by each process safety hazard;

(iii) Identify, analyze, and document all inherent safety measures and safeguards for each process safety hazard in the following sequence and priority order, from most preferred to least preferred:

(A) First order inherent safety measures;

(B) Second order inherent safety measures;

(C) Passive safeguards;

(D) Active safeguards; and

(E) Procedural safeguards.

(iv) For purposes of this section, first order inherent safety measures are considered to be most effective and procedural safeguards are considered to be least effective;

(v) Identify, analyze, and document relevant, publicly available information on inherent safety measures and safeguards. This information must include inherent safety measures and safeguards that have been:

(A) Achieved in practice by the petroleum refining industry and related industrial sectors; and

(B) Required or recommended for the petroleum refining industry by a federal or state agency or in a regulation or report.

(vi) For each process safety hazard identified, develop written recommendations in the following sequence and priority order:

(A) Eliminate hazards to the greatest extent feasible using first order inherent safety measures;

(B) Reduce any remaining hazards to the greatest extent feasible using second order inherent safety measures;

(C) Effectively reduce remaining risks using passive safeguards;

(D) Effectively reduce remaining risks using active safeguards;

and

(E) Effectively reduce remaining risks using procedural safeguards.

(e) The HCA team must complete an HCA report within 90 calendar days of developing the recommendations. The employer must append the HCA report to the PHA report. The report must include:

(i) A description of the composition and qualification of the team;

(ii) A description of the HCA methodology used by the team;

(iii) A description of each process safety hazard analyzed by the team;

(iv) A description of the inherent safety measures and safeguards analyzed by the team; and

(v) The rationale for the inherent safety measures and safeguards recommended by the team for each process safety hazard.

(4) The employer must implement all recommendations pursuant to WAC 296-67-383 Corrective action program.

(5) Employers must retain the initial, updated and revalidation of PHAs, SPAs, and HCAs for each process covered by this part, as well as the documented resolution of recommendations described in this section, for the life of the process.

(6) The employer must provide for employee collaboration in performing PHAs, SPAs, and HCAs, pursuant to WAC 296-67-315 Employee collaboration.

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#### NEW SECTION

**WAC 296-67-327 Operating procedures.** (1) The employer must develop, implement, and maintain effective written operating procedures. The operating procedures must provide clear instructions for safely performing activities involved in each process. The operating procedures must be consistent with the PSI and, at a minimum, must address the following:

(a) Steps for each operating phase or mode of operation:

(i) Start up;

(ii) Normal operations;

(iii) Temporary operations;

(iv) Emergency operations;

(v) Emergency shutdown, including the conditions under which emergency shutdown is required, provisions granting the authority of the qualified operator to partially or completely shut down the operation or process, and the assignment of responsibilities to qualified operators in order to ensure that emergency shutdown is executed in a safe and timely manner;

(vi) Normal shutdown;

(vii) Start up following a turnaround, or planned or unplanned shutdown, or after an emergency shutdown; and

(viii) Nonroutine work.

(b) Operating limits:

(i) Consequences of deviations; and

(ii) Steps to correct or avoid deviations.

(c) Safety and health considerations:

(i) Properties of, and hazards presented by, the chemicals and materials used in the process;

(ii) Precautions necessary to prevent exposure, including passive, active and procedural safeguards, personal protective equipment, engineering controls, and administrative controls;

(iii) Protective measures to be taken if physical contact or airborne exposure occurs;

(iv) Safety procedures for opening and decontaminating process equipment;

(v) Verification of the composition and properties of raw materials and control of highly hazardous chemical inventory levels; and

(vi) Any special or unique hazards.

(d) Safety systems and their functions.

(2) Operating procedures must be readily accessible to all affected employees, including the employees of contractors and maintenance employees who are performing work related to the procedure, and whose job tasks expose them to process safety hazards.

(3) Operating procedures must be reviewed and updated as often as necessary to ensure that they reflect current, safe operating practices. The operating procedures must include any changes that result from alterations in process chemicals, technology, personnel, process equipment or other changes to the facility. Changes to operating procedures must be managed pursuant to the requirements of WAC 296-67-355 Management of change.

(4) The employer must annually certify and document that written operating procedures are current and accurate.

(5) The operating procedures must include emergency procedures for each process, including any responses to the overpressurizing or overheating of equipment or piping, and the handling of leaks, spills, releases and discharges of highly hazardous chemicals or materials. These operating procedures must provide that only qualified operators may initiate these operations, and that prior to allowing employees in the vicinity of a leak, release or discharge, the employer must, at a minimum, do one of the following:

(a) Define the conditions for handling leaks, spills, or discharges of highly hazardous chemicals or materials that provide a level of protection that is functionally equivalent to, or safer than, shutting down or isolating the process;

(b) Isolate any vessel, piping, and equipment where a leak, spill, or discharge is occurring; or

(c) Shut down and depressurize all process operations where a leak, release, or discharge is occurring.

(6) The employer must develop, implement, and maintain effective written safe work practices applicable to all affected employees, including maintenance employees and the employees of contractors who are performing work related to the procedure, and whose job tasks expose them to process safety hazards. Safe work practices must be established for specific activities that include, but are not limited to:

(a) Opening and decontaminating process equipment or piping;

(b) Tasks requiring lock-out/tag-out procedures;

(c) Confined space entry;

(d) Handling, controlling and stopping leaks, spills, releases and discharges of highly hazardous chemicals or materials;

(e) Control over entry into hazardous work areas by maintenance, contractor, laboratory or other support personnel.

(7) The employer must provide for employee collaboration, pursuant to WAC 296-67-315 Employee collaboration.

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#### NEW SECTION

**WAC 296-67-331 Training.** (1) Initial training.

(a) Each affected employee involved in the operation of a process, and each affected employee prior to working in a newly assigned process, including employees of contractors, must be trained in an overview of the process and in the applicable operating procedures.

(b) Each affected employee involved in the maintenance of a process, and each affected employee prior to performing work within a newly assigned process, including employees of contractors, must be trained in an overview of the process and in the hazards and safe work practices related to the process.

(c) The training must include the following material applicable to the employee's job tasks:

- (i) Safety and health hazards;
  - (ii) Procedures, including emergency operations and shutdown; and
  - (iii) Safe work practices.
- (2) Refresher and supplemental training.

(a) At least every three years, and more often if necessary, the employer must provide effective refresher and supplemental training to each operating employee to ensure that each employee understands and adheres to current operating procedures.

(b) At least every three years, and more often if necessary, the employer must provide effective refresher and supplemental training to each maintenance employee to ensure that each employee understands and adheres to current maintenance procedures.

(c) The employer, in collaboration with the employees involved in operating or maintaining a process, must determine the appropriate frequency and content of refresher training.

(3) Training certification.

(a) The employer must ensure that each affected employee involved in operating or maintaining a process has received, understood and successfully completed training as specified by this section.

(b) The employer, after the initial or refresher training, must prepare a certification record containing the identity of the employee, the date(s) of training, the means used to verify that the employee understood the training, and the signature(s) of the person(s) who administered the training.

(4) The employer must develop, implement, and maintain an effective written program that includes the following:

(a) The requirements that an employee must meet in order to be designated as qualified; and

(b) Employee testing procedures to verify understanding and to ensure competency in job skill levels and work practices that protect employee safety and health.

(5) Within 24 months of the effective date of Part B of this chapter, the employer must develop, implement, and maintain an effective written training program to ensure that all affected employees are aware of and understand all PSM elements described in this part. Employees and employee representatives collaborating as part of a team pursuant to Part B of this chapter must be trained in the PSM elements relevant to that team.

(6) The employer must provide for employee collaboration in developing, implementing, and maintaining the training program pursuant to WAC 296-67-315 Employee collaboration.

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#### NEW SECTION

**WAC 296-67-335 Contractors.** (1) Application. This section applies to contractors performing maintenance, repair, supply services,



turnaround, major renovation, or specialty work on or adjacent to a process. It does not apply to contractors providing incidental services that do not affect process safety, such as janitorial work, food and drink services, laundry, delivery or other supply services.

(2) Refinery employer responsibilities.

(a) The refinery employer must require that its contractors and any subcontractors use a skilled and trained workforce pursuant to chapter 49.80 RCW, High hazard facilities—Workforce.

(b) When selecting a contractor, the refinery employer must obtain and evaluate information regarding the contract employer's safety performance, including programs used to prevent employee injuries and illnesses, and must require that its contractors and any subcontractors use a skilled and trained workforce.

(c) The refinery employer must inform the contractor and must ensure that the contractor has informed each of its employees of the following:

(i) Potential process safety hazards associated with the contractor's work;

(ii) Applicable refinery safety rules; and

(iii) Applicable provisions of this chapter, including the requirements of WAC 296-67-367 Emergency planning and response, and WAC 296-24-567 Employee emergency plans and fire prevention plans.

(d) The refinery employer must develop, implement, and maintain effective written procedures and safe work practices to ensure the safe entry, presence and exit of the contractor and employees of the contractor in process areas pursuant to WAC 296-67-327 Operating procedures.

(e) The refinery employer must periodically evaluate the performance of contractors in fulfilling their obligations as specified in this section. The refinery employer must ensure and document that the requirements of this section are performed and completed by the contractor.

(f) The refinery employer must obtain and make available to the division of occupational safety and health (DOSH) upon request, a copy of the contractor's injury and illness log related to the contractor's work in the process area.

(3) Contractor responsibilities.

(a) The contractor must ensure that all of its employees are effectively trained in the work practices necessary to safely perform their jobs, including:

(i) Potential process safety hazards related to their jobs;

(ii) Applicable refinery safety and health rules and procedures;

(iii) The specific actions to take in an emergency; and

(iv) Applicable provisions of this chapter, including the provisions of WAC 296-67-367 Emergency planning and response, and WAC 296-24-567 Employee emergency plans and fire prevention plans.

(b) The contractor must document that each contract employee has received and understood the training required by this section. The contractor must prepare a record that contains the identity of the contract employee, the date(s) and subject(s) of training, and the means used to verify that the employee understood the training.

(c) The contractor must ensure that each of its employees understands and follows the safety and health procedures of the refinery employer and the contractor.

(d) The contractor must advise the refinery employer of any specific hazards presented by the contractor's work, as well as any haz-

ards identified by the contractor while performing work for the refinery employer.

(4) Nothing in this section or others in chapter 296-67 WAC, Safety standards for process safety management of highly hazardous chemicals, Part B, must preclude the employer from requiring a contractor or an employee of a contractor to whom information is made available under this part to enter into a confidentiality agreement prohibiting them from disclosing such information, pursuant to WAC 296-901-14018 Trade secrets.

(5) The refinery employer and contract employer must provide for employee collaboration, pursuant to WAC 296-67-315 Employee collaboration.

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#### NEW SECTION

**WAC 296-67-339 Pre-startup safety review.** (1) The employer must perform a pre-startup safety review (PSSR) for new processes and for modified processes if the modification necessitates a change in the PSI, and for partial, planned, or unplanned shutdowns/outages, where activities exceed those covered under an existing procedure. The employer must also perform a PSSR for all turnaround work performed on a process.

(2) The pre-startup safety review must confirm all of the following prior to the introduction of highly hazardous chemicals or materials to a process:

(a) Construction, maintenance, and repair work has been performed in accordance with design specifications;

(b) Process equipment has been maintained, prepared for start up, and is operable in accordance with design specifications;

(c) Effective safety, operating, maintenance, and emergency procedures are in place;

(d) For new processes, a PHA, HCA, DMR, and SPA have each been performed, as applicable, and recommendations have been implemented or resolved before start up. For new or modified processes, all changes have been implemented pursuant to WAC 296-67-355 Management of change; and

(e) Training of each operating employee and maintenance employee affected by the change has been completed.

(3) The employer must involve affected operating and maintenance employees in the PSSR who have expertise and experience in the operations and engineering of the process being started. An operating employee who currently works in the process, and who has expertise and experience in the process being started, must be designated as the employee representative.

(4) The employer must provide for employee collaboration, pursuant to WAC 296-67-315 Employee collaboration.

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NEW SECTION**WAC 296-67-343 Mechanical integrity.** (1) Written procedures.

(a) The employer must develop, implement, and maintain effective written procedures to ensure the ongoing integrity of process equipment.

(b) The procedures must provide clear instructions for safely performing maintenance activities on process equipment, consistent with the PSI for the process.

(c) The procedures and inspection documents developed under this section must be readily accessible to employees and employee representatives, including employees of contractors who are performing work on process equipment, and whose job tasks expose them to process safety hazards.

(2) Inspection and testing.

(a) Inspections and tests must be performed on process equipment using procedures that meet or exceed RAGAGEP.

(b) The frequency of inspections and tests of process equipment must be consistent with:

(i) The applicable manufacturer's recommendations;

(ii) RAGAGEP; or

(iii) Internal practices that are more protective than (b) (i) or (ii) of this subsection.

(c) Inspections and tests must be performed more frequently if determined to be necessary by prior operating or equipment maintenance history.

(d) The employer must retain documentation for each inspection and test that has been performed on process equipment. The documentation must identify the date of the inspection or test, the name of the person who performed the inspection or test, the serial number or other such identifier of the equipment on which the inspection or test was performed, a description of the inspection or test performed, and the results of the inspection or test.

(3) Equipment deficiencies.

(a) The employer must correct deficiencies to ensure safe operation of process equipment. Repair methodologies and preventative maintenance must be consistent with RAGAGEP or more protective internal practices.

(b) The employer must take the necessary means to ensure that temporary repairs on process equipment do not fail and allow the safe operation of that equipment until a permanent repair is made.

(4) Quality assurance.

(a) The employer must ensure that all process equipment, at a minimum, complies with the criteria established by the PSI. The employer must ensure that all process equipment is:

(i) Suitable for the process application for which it is or will be used;

(ii) Fabricated from the proper materials of construction; and

(iii) Designed, constructed, installed, maintained, inspected, tested, operated, and replaced in compliance with manufacturer's and other design specifications and all applicable codes and standards.

(b) If the employer installs new process equipment or has existing process equipment for which no RAGAGEP exists, the employer must document and ensure that this equipment is designed, constructed, installed, maintained, inspected, tested and operated in a safe manner.

(c) The employer must perform regularly scheduled checks and inspections as necessary to ensure that the requirements of (a) of this subsection are met.

(d) The employer must ensure that maintenance materials, spare parts and equipment meet design specifications and applicable codes.

(e) The employer must establish a process for evaluating new or updated codes and standards and implementing changes as appropriate to ensure safe operation.

(f) Once an equipment deficiency or failure mechanism is identified, substantially similar equipment in similar service must be evaluated for the same deficiency or failure mechanism.

(g) The employer must provide for employee collaboration pursuant to WAC 296-67-315 Employee collaboration.

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#### NEW SECTION

**WAC 296-67-347 Damage mechanism review.** (1) The employer must complete a damage mechanism review (DMR) for each existing and new process for which a damage mechanism exists. Where no DMR is performed, the employer must document the rationale for determining that no damage mechanisms exist. The employer must determine and document the priority order for performing DMRs based on the process operating and maintenance history, the PHA schedule, and inspection records.

(2) The employer must complete no less than 50 percent of initial DMRs within three years and all remaining DMRs within five years of the effective date of Part B of this chapter. If the employer has performed and documented a DMR for a process up to five years prior to the effective date of Part B of this chapter, and that DMR includes the elements identified in subsection (8) of this section, that DMR may be used to satisfy the employer's obligation to complete an initial DMR under this section.

(3) A DMR must be revalidated at least once every five years.

(4) A DMR must be reviewed as part of a major change on a process for which a damage mechanism already exists, prior to approval of the change. If a major change may introduce a damage mechanism, a DMR must be performed prior to approval of the change.

(5) Where a damage mechanism is identified as a contributing factor in an incident investigation, the employer must review the most recent DMRs that are relevant to the investigation. If a DMR has not been performed on the processes that are relevant to the investigation, the incident investigation team must recommend that a DMR be performed and completed within a specified time frame.

(6) The DMR for a process must be available to the team performing a PHA for that process.

(7) The DMR must be performed by a team with expertise in engineering, equipment and pipe inspection, damage and failure mechanisms, and the operation of the process or processes under review. The team must include one member knowledgeable in the specific DMR methodology being used.

(8) The DMR for each process must include:

(a) Assessment of process flow diagrams;

(b) Identification of all potential damage mechanisms;

(c) Determination that the materials of construction are appropriate for their application and are resistant to potential damage mechanisms;

(d) Methods to prevent or mitigate damage; and

(e) Review of operating parameters to identify operating conditions that could accelerate or otherwise worsen damage, or that could minimize or eliminate damage.

(9) For purposes of this section, damage mechanisms include, but are not limited to:

(a) Mechanical loading failures, such as ductile fracture, brittle fracture, mechanical fatigue, and buckling;

(b) Erosion, such as abrasive wear, adhesive wear, and fretting;

(c) Corrosion, such as uniform corrosion, microbiologically induced corrosion, localized corrosion, and pitting;

(d) Thermal-related failures, such as creep, metallurgical transformation, and thermal fatigue;

(e) Cracking, such as stress-corrosion cracking; and

(f) Embrittlement, such as high-temperature hydrogen attack.

(10) DMRs must include an assessment of previous experience with the process, including the inspection history and all damage mechanism data, a review of industry-wide experience with the process, and all applicable standards, codes and practices.

(11) At the conclusion of the analysis, the team must prepare a written DMR report, which must include the following:

(a) The process and damage mechanisms analyzed;

(b) Results of all analyses performed;

(c) Recommendations for temporarily mitigating damage; and

(d) Recommendations for preventing damage.

(12) The report must be provided to and, upon request, reviewed with affected employees, including contractor employees, whose work assignments are within the scope of the process evaluated in the DMR.

(13) The employer must implement all recommendations pursuant to WAC 296-67-383 Corrective action program.

(14) The employer must provide for employee collaboration, pursuant to WAC 296-67-315 Employee collaboration.

(15) DMR reports must be retained for the life of the process.

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#### NEW SECTION

**WAC 296-67-351 Hot work.** (1) The employer must develop, implement and maintain effective written procedures for the issuance of hot work permits.

(2) The employer must issue a hot work permit prior to the commencement of hot work operations within or near the process.

(3) The permit must document that fire prevention and protection requirements found in WAC 296-24-695 have been implemented prior to beginning the hot work operations. The permit must:

(a) Indicate the date(s) and time(s) authorized for hot work, including the designated expiration of the permit;

(b) Identify the location and equipment (including the equipment identifier, if applicable) where hot work is to be performed; and

(c) Identify the name and employer of the person performing the hot work.

- (4) The employer must provide for employee collaboration, pursuant to WAC 296-67-315 Employee collaboration.
- (5) Hot work permits must be kept on file for one year.

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NEW SECTION

**WAC 296-67-355 Management of change.** (1) The employer must develop, implement, and maintain effective written management of change (MOC) procedures to assess and manage changes (except for replacements-in-kind) in process chemicals, technology, procedures, process equipment and facilities. The MOC procedure must include provisions for temporary repairs, including temporary pipe repairs.

(2) The MOC procedures must ensure that the following are addressed and documented prior to any change:

- (a) The technical basis for the proposed change;
- (b) Potential process safety impacts of the change including, but not limited to:
- (i) New process safety hazards; or
  - (ii) Worsening an existing process safety hazard;
  - (c) Modifications to operating and maintenance procedures, or development of new operating and maintenance procedures;
  - (d) The time period required for the change; and
  - (e) Authorization requirements for the proposed change.

(3) Prior to implementing a major change, the employer must review or perform a DMR and perform a HCA. The findings of the DMR and recommendations of the HCA must be included in the MOC documentation.

(4) The employer must use qualified personnel and appropriate methods for all MOCs, based upon hazard, complexity and type of change.

(5) Employees involved in the process, as well as maintenance workers whose job tasks will be affected by a change, must be informed of, and effectively trained in the change in a timely manner prior to the implementation of the change. For contractors and employees of contractors who are operating the process and whose job tasks will be affected by a change, the employer must make the MOC documentation available and require effective training in the change in a timely manner, prior to implementation of the change.

(6) If a change covered by this section results in a change to the PSI, such information must be amended and updated in a timely manner.

(7) If a change covered by this section results in a change to the operating procedures, the procedures must be amended and updated in a timely manner prior to implementation of the change.

(8) The employer must provide for employee collaboration pursuant to WAC 296-67-315 Employee collaboration.

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NEW SECTION

**WAC 296-67-359 Management of organizational change.** (1) The employer must develop, implement and maintain effective written procedures to manage organizational changes.

(2) The employer must designate a team to perform a management of organizational change (MOOC) assessment prior to reducing staffing levels, reducing classification levels of employees, changing shift duration, or increasing employee responsibilities at or above 15 percent. The MOOC assessment is required for changes with a duration exceeding 90 calendar days affecting operations, engineering, maintenance, health and safety, or emergency response. This requirement must also apply to employers using employees of contractors in permanent positions.

(3) The MOOC assessment must be in writing and must include a description of the change being proposed, the composition of the team responsible for assessing the proposed change, the factors evaluated by the team, and the team's findings and recommendations.

(4) Prior to performing the MOOC assessment, the employer must ensure that the job function descriptions are current and accurate for all positions potentially affected by the change.

(5) The refinery manager or designee must certify, based on information and belief formed after reasonable inquiry, that the MOOC assessment is accurate and that the proposed organizational change meets the requirements of this section.

(6) All MOOC assessments must include an analysis of human factors.

(7) Prior to implementing a change, the employer must inform all employees potentially affected by the change.

(8) The employer must provide for employee collaboration pursuant to WAC 296-67-315 Employee collaboration.

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NEW SECTION

**WAC 296-67-363 Incident investigation—Root cause analysis.** (1) The employer must develop, implement and maintain effective written procedures for promptly investigating and reporting any incident that results in, or could reasonably have resulted in, a process safety incident.

(2) The written procedures must include an effective method for performing a thorough root cause analysis.

(3) The employer must initiate the incident investigation as promptly as possible, but no later than 48 hours following the incident. As part of the incident investigation, the employer must perform a root cause analysis.

(4) The employer must establish an incident investigation team, which at a minimum must consist of a person with expertise and experience in the process involved, a person with expertise in the employer's root cause analysis method, and a person with expertise in overseeing the investigation and analysis. If the incident involved the work of a contractor, a representative of the contractor's employees must be included on the investigation team.

(5) The incident investigation team must implement the employer's root cause analysis method to determine the initiating and underlying causes of the incident. The analysis must include identification of management system failures, including organizational and safety culture deficiencies.

(6) The incident investigation team must develop recommendations to address the findings of the root cause analysis. The recommendations must include interim measures that will prevent a recurrence or similar incident until final corrective actions can be implemented.

(7) The team must prepare a written investigation report within 90 calendar days of the incident. If the team demonstrates in writing that additional time is needed due to the complexity of the investigation, the team must prepare a status report within 90 calendar days of the incident, and every 30 calendar days thereafter until the investigation is complete. The team must prepare a final investigation report within five months of the incident.

(8) Investigation reports must include:

(a) The date and time of the incident;

(b) The date and time the investigation began;

(c) A detailed description of the incident;

(d) The factors that caused or contributed to the incident, including direct causes, indirect causes and root causes, determined through the root cause analysis;

(e) A list of any DMR(s), PHA(s), SPA(s), and HCA(s) that were reviewed as part of the investigation;

(f) Documentation of relevant findings from the review of DMR(s), PHA(s), SPA(s), and HCA(s);

(g) The incident investigation team's recommendations; and

(h) Interim measures implemented by the employer.

(9) The employer must implement all recommendations pursuant to WAC 296-67-383 Corrective action program.

(10) The employer must complete an HCA in a timely manner for all recommendations that result from the investigation of a process safety incident. The employer must append the HCA report to the investigation report.

(11) Investigation reports must be provided to and upon request, reviewed with employees whose job tasks are affected by the incident. Investigation reports must also be made available to all operating, maintenance and other personnel, including employees of contractors where applicable, whose work assignments are within the facility where the incident occurred or whose job tasks are relevant to the incident findings. Investigation reports must be provided on request to employee representatives and, where applicable, contractor employee representatives.

(12) Any draft or finalized investigation report must be provided immediately to the labor and industries' division of occupational safety and health (DOSH) upon written request.

(13) The employer must provide for employee collaboration pursuant to WAC 296-67-315 Employee collaboration.

(14) Incident investigation reports must be retained for the life of the process.

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NEW SECTION

**WAC 296-67-367 Emergency planning and response.** (1) The employer must develop, implement and maintain an effective emergency response or emergency action plan for the entire plant, pursuant to the provisions of WAC 296-24-567 Employee emergency plans and fire prevention plans, and chapter 296-824 WAC, Emergency response. An emergency response plan must define and include procedures for handling all of the following:

- (a) Large and small spills or releases;
- (b) Fires;
- (c) Explosions; and
- (d) Any other emergency with a direct bearing on employee safety and health.

(2) The written plan must specify how an emergency response will be executed if it exceeds the capability of the employer's internal emergency response team.

(3) The employer must document any agreement with external emergency response organizations expected to assist in an emergency. The documentation must include schedules for planned drills.

(4) The employer must provide for employee collaboration pursuant to WAC 296-67-315 Employee collaboration.

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NEW SECTION

**WAC 296-67-371 Compliance audits.** (1) Every three years, the employer must perform an effective compliance audit. The employer must certify that it has evaluated and verified that the procedures and practices developed under Part B of this chapter are effective and being followed. The employer must prepare a written report documenting the findings of the compliance audit.

(2) The compliance audit must be performed by at least one person with expertise and experience in the requirements of the section under review. As part of the compliance audit, the employer must consult with operators with expertise and experience in each process audited, and must document the findings and recommendations from these consultations in the written report. The report must state the qualifications and identity of the persons performing the compliance audit.

(3) The employer must make the report available to employees and employee representatives. The employer must respond in writing within 60 days to any written comments submitted by an employee or employee representative regarding the report.

(4) The employer must implement all recommendations pursuant to WAC 296-67-383 Corrective action program.

(5) The employer must retain the three most recent compliance audit reports.

(6) The employer must provide for employee collaboration, pursuant to WAC 296-67-315 Employee collaboration.

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NEW SECTION

**WAC 296-67-375 Process safety culture assessment.** (1) The employer must develop, implement and maintain an effective process safety culture assessment (PSCA) program.

(2) The employer must perform an effective PSCA and produce a written report within 18 months following the effective date of Part B of this chapter, and at least every five years thereafter. If the employer has performed and documented a PSCA up to 18 months prior to the effective date of Part B of this chapter, and that PSCA includes the elements required in this section, that PSCA may be used to satisfy the employer's obligation to complete an initial PSCA.

(3) The PSCA must be developed and implemented by a team that must include at least one member knowledgeable in refinery operations and at least one employee representative. The team must consult with at least one employee or other individual(s) with expertise in assessing process safety culture in the petroleum refining industry.

(4) The PSCA must, at a minimum, include an evaluation of the effectiveness of the following elements of process safety leadership:

(a) The employer's hazard reporting program;

(b) The employer's response to reports of hazards;

(c) The employer's procedures to ensure that incentive programs do not discourage reporting of hazards; and

(d) The employer's procedures to ensure that process safety is prioritized during upset or emergency conditions.

(5) The team must develop a written report within 90 calendar days of completion of the PSCA, which must include:

(a) The method(s) used to perform the PSCA;

(b) The findings and conclusions of the PSCA; and

(c) The team's recommendations to address the findings of the PSCA.

(6) The employer, in consultation with the PSCA team, must prioritize recommendations and implement corrective actions within 24 months of completion of the written report.

(7) The PSCA team must perform a written interim assessment of the implementation and effectiveness of each PSCA corrective action within three years following the completion of a PSCA report. If a corrective action is found to be ineffective, the employer must implement changes necessary to ensure effectiveness within, but not to exceed, six months.

(8) The refinery manager or designee must serve as signatory to all PSCA reports, corrective action plans and interim assessments.

(9) PSCA reports, corrective action plans and interim assessments must be communicated and made available to all affected employees, their representatives, and participating contractors within 60 calendar days of completion.

(10) Participating contractors must provide PSCA reports, corrective action plans, and interim assessments to their employees and employee representatives within 14 calendar days of receipt.

(11) The employer must provide for employee collaboration, pursuant to WAC 296-67-315 Employee collaboration.

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NEW SECTION

**WAC 296-67-379 Human factors.** (1) The employer must develop, implement and maintain an effective written human factors program within 18 months following the effective date of Part B of this chapter.

(2) The employer must include a written analysis of human factors, where relevant, in that, at a minimum, represents industry RAGA-GEP relevant to, major changes, incident investigations, PHAs, MOOCs, and HCAs. The analysis must include a description of the selected methodologies and criteria for their use.

(3) The employer must assess human factors in existing operating and maintenance procedures and must revise these procedures accordingly. The employer must complete 50 percent of assessments and revisions within three years following the effective date of Part B of this chapter, and 100 percent within five years.

(4) The human factors analysis must apply an effective method in evaluating at least the following:

- (a) Staffing levels;
- (b) Complexity of tasks;
- (c) Length of time needed to complete tasks;
- (d) Level of training, experience and expertise of employees;
- (e) Human-machine and human-system interface;
- (f) Physical challenges of the work environment in which the task is performed;
- (g) Employee fatigue and other effects of shiftwork and overtime;
- (h) Communication systems; and
- (i) The understandability and clarity of operating and maintenance procedures.

(5) The human factors analysis of process controls must include:

- (a) Error-proof mechanisms;
- (b) Automatic alerts; and
- (c) Automatic system shutdowns.

(6) The employer must include an assessment of human factors in new and revised operating and maintenance procedures.

(7) The employer must train affected operating and maintenance employees in the written human factors program.

(8) The employer must make available, and provide upon request, a copy of the written human factors program to affected employees and their representatives, and affected contractors, employees of contractors, and contractor employee representatives as relevant.

(9) The employer must provide for employee collaboration pursuant to WAC 296-67-315 Employee collaboration.

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NEW SECTION

**WAC 296-67-383 Corrective action program.** (1) The employer must develop, implement and maintain an effective written corrective action program to prioritize and implement recommendations of:

- (a) PHAs;
- (b) SPAs;
- (c) DMRs;
- (d) HCAs;

(e) Incident investigations; and

(f) Compliance audits.

(2) All findings and associated recommendations must be provided to the employer by the team performing the analysis, review, investigation, or audit in a timely manner.

(3) The employer may reject a team recommendation if the employer can demonstrate in writing that the recommendation meets one of the following criteria:

(a) The analysis upon which the recommendation is based contains material factual errors;

(b) The recommendation is not relevant to process safety; or

(c) The recommendation is infeasible; however, a determination of infeasibility must not be based solely on cost.

(4) The employer may change a team recommendation if the employer can demonstrate in writing that an alternative measure would provide an equivalent or higher order of inherent safety. The employer may change a team recommendation for a safeguard if an alternative safeguard provides an equally or more effective level of protection.

(5) The employer must document all instances where any one of the criteria in subsection (3) or (4) of this section is used for the purpose of rejecting or changing a team recommendation.

(6) Each recommendation that is changed or rejected by the employer must be communicated to on-site team members for comment and made available to off-site team members for comment. The employer must document all written comments received from team members for each changed or rejected recommendation. The employer must document a final decision for each recommendation and must communicate it to on-site team members and make it available to off-site team members.

(7) The employer must develop and document corrective actions to implement each accepted recommendation. The employer must assign a completion date for each corrective action and a person responsible for completing the corrective action.

(8) If the employer determines that a corrective action requires revalidation of any applicable PHA, SPA, HCA, or DMR, these revalidations must be subject to the corrective action requirements of this section. The employer must promptly append all revalidated PHAs, SPAs, DMRs, and HCAs to the applicable report.

(9) The employer must promptly complete all corrective actions and must comply with all completion dates required by this section. The employer must perform an MOC for any proposed change to a completion date, pursuant to WAC 296-67-355 Management of change. The employer must make all completion dates available, upon request, to all affected employees and employee representatives.

(10) Except as required by subsections (11) and (13) of this section, each corrective action that does not require a process shutdown must be completed within 30 months after the completion of the analysis or review, unless the employer demonstrates in writing that it is infeasible to do so.

(11) Each corrective action from a compliance audit must be completed within 18 months after completion of the audit, unless the employer demonstrates in writing that it is infeasible to do so. Each corrective action from an incident investigation must be completed within 18 months after completion of the investigation, unless the employer demonstrates in writing that it is infeasible to do so.

(12) Each corrective action requiring a process shutdown must be completed during the first regularly scheduled turnaround of the applicable process, following completion of the PHA, SPA, DMR, HCA, MOC,

compliance audit or incident investigation, unless the employer demonstrates in writing that it is infeasible to do so.

(13) Notwithstanding subsections (10), (11), and (12) of this section, corrective actions addressing process safety hazards must be prioritized and promptly corrected, either through permanent corrections or interim safeguards sufficient to ensure employee safety and health, pending permanent corrections.

(14) Where a corrective action cannot be implemented within the time limits required in subsection (10), (11), or (12) of this section, the employer must ensure that interim safeguards are sufficient to ensure employee safety and health, pending permanent corrections. The employer must document the decision and rationale for any delay and must implement the corrective action as soon as possible. The documentation must include:

(a) The rationale for deferring the corrective action;

(b) All MOC requirements;

(c) A revised timeline describing when the corrective action will be implemented; and

(d) An effective plan to make available the rationale and revised timeline to all affected employees and their representatives.

(15) The employer must track and document the completion of each corrective action and must append the documentation to the applicable PHA, SPA, DMR, HCA, incident investigation or compliance audit.

(16) The employer must provide for employee collaboration, pursuant to WAC 296-67-315 Employee collaboration.

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#### NEW SECTION

**WAC 296-67-387 Trade secrets.** (1) Without regard to possible trade secret status of such information, employers must make all information available as necessary to comply with Part B of this chapter, pursuant to WAC 296-901-14018 Trade secrets.

(2) Nothing in this section precludes the employer from requiring the persons to whom the information is made available under this section to enter into confidentiality agreements not to disclose the information as set forth in WAC 296-901-14018 Trade secrets.

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**WSR 23-15-091****PROPOSED RULES****DEPARTMENT OF HEALTH**

(Nursing Care Quality Assurance Commission)

[Filed July 18, 2023, 10:37 a.m.]

Original Notice.

Preproposal statement of inquiry was filed as WSR 21-05-021 and 23-04-056.

**Title of Rule and Other Identifying Information:** Creating new chapter 246-841A WAC, Nursing assistants. Repealing chapter 246-841 WAC, Nursing assistants; and chapter 246-842 WAC, Nursing assistants—Nursing homes—Nursing assistants training program. The nursing care quality assurance commission (commission) and the department of health (department) are proposing updates to consolidate, clarify, and streamline the nursing assistant rules.

**Hearing Location(s):** On August 30, 2023, at 2:00 p.m., at the Department of Health, Town Center 2, Room 145, 111 Israel Road S.E., Tumwater, WA 98501; or virtually via Zoom. Please follow this link to register for the virtual hearing which will give you instructions to either join the meeting on a device, or to call in to the meeting on the phone [https://us02web.zoom.us/meeting/register/tZIkcu-grT8tHd3RRDgjjRqpV3P8\\_0-EE-\\_i](https://us02web.zoom.us/meeting/register/tZIkcu-grT8tHd3RRDgjjRqpV3P8_0-EE-_i). After registering, you will receive a confirmation email containing information about joining the webinar.

**Date of Intended Adoption:** August 30, 2023.

**Submit Written Comments to:** Bonnie King, P.O. Box 47864, Olympia, WA 98504-7864, email <https://fortress.wa.gov/doh/policyreview>, fax 360-236-4738, by August 16, 2023.

**Assistance for Persons with Disabilities:** Contact Bonnie King, phone 360-236-3538, fax 360-236-4738, TTY 711, email [NCQAC.rules@doh.wa.gov](mailto:NCQAC.rules@doh.wa.gov), by August 16, 2023.

**Purpose of the Proposal and Its Anticipated Effects, Including Any Changes in Existing Rules:** The proposed new chapter represents a collaboration between the commission and the department to address necessary changes in the nursing assistant rules. The commission and department identified that chapter 246-841 WAC needs updating to reflect best practices; and chapter 246-842 WAC needs to be repealed to eliminate redundancy. Chapter 246-841 WAC will also be repealed and rewritten as chapter 246-841A WAC. WAC 246-841-520 Expired license, 246-841-720 Mandatory reporting, and 246-841-990 Nursing assistant—Fees and renewal cycle, are under the authority of the department and will be repealed and consolidated in chapter 246-841A WAC, Nursing assistants. WAC 246-841-520 is proposed for renumbering to WAC 246-841A-980 for more logical placement in the chapter and the title is proposed for a change to expired credential. WAC 246-841-720 will be rewritten as WAC 246-841A-720 to reflect current practice and WAC 246-841-990 will be rewritten as WAC 246-841A-990 with no other changes.

**Reasons Supporting Proposal:** Legislated work by the commission with key interested parties in 2018-2021 confirmed the need and provided direction for updating the rules. The coronavirus disease 2019 (COVID-19) pandemic magnified the need and urgency of the work, including changes to the rules to eliminate barriers to career advancement for nursing assistants and help address the nursing assistant shortage in health care.

Statutory Authority for Adoption: RCW 18.79.110, 18.79.260, 18.88A.030, 18.88A.060, 18.88A.090, 18.88A.082, 18.88A.087, 43.70.040, 43.70.250, and 43.70.280.

Statute Being Implemented: RCW 18.79.110, 18.79.260, 18.88A.030, 18.88A.060, 18.88A.090, 18.88A.082, 18.88A.087, 43.70.040, 43.70.250, and 43.70.280.

Rule is not necessitated by federal law, federal or state court decision.

Name of Proponent: Nursing care quality assurance commission and department of health, governmental.

Name of Agency Personnel Responsible for Drafting: Bonnie King, 111 Israel Road S.E., Tumwater, WA 98504, 360-236-3538; Implementation: Kathy Moisiso, 111 Israel Road S.E., Tumwater, WA 98504, 360-236-4712; and Enforcement: Catherine Woodard, 111 Israel Road S.E., Tumwater, WA 98504, 360-236-4757.

A school district fiscal impact statement is not required under RCW 28A.305.135.

A cost-benefit analysis is required under RCW 34.05.328. A preliminary cost-benefit analysis may be obtained by contacting Bonnie King, P.O. Box 47864, Olympia, WA 98504-7864, phone 360-236-3538, fax 360-236-4738, TTY 711, email NCQAC.rules@doh.wa.gov.

This rule proposal, or portions of the proposal, is exempt from requirements of the Regulatory Fairness Act because the proposal:

Is exempt under RCW 19.85.025(3) as the rules are adopting or incorporating by reference without material change federal statutes or regulations, Washington state statutes, rules of other Washington state agencies, shoreline master programs other than those programs governing shorelines of statewide significance, or, as referenced by Washington state law, national consensus codes that generally establish industry standards, if the material adopted or incorporated regulates the same subject matter and conduct as the adopting or incorporating rule; rules only correct typographical errors, make address or name changes, or clarify language of a rule without changing its effect; and rules adopt, amend, or repeal a procedure, practice, or requirement relating to agency hearings; or a filing or related process requirement for applying to an agency for a license or permit.

Is exempt under RCW [no further information supplied by agency].  
Explanation of exemptions:

WAC Section and Title	Description of Proposed Rule	Rationale for Exemption Determination
WAC 246-841A-390 Definitions	The section includes definitions of terms used in the chapter. Definitions from WAC 246-841-587 have been added here also.	Exemption under RCW 34.05.310 (4)(d) An "interpretive rule" is a rule, the violation of which does not subject a person to a penalty or sanction, that sets forth the agency's interpretation of statutory provisions it administers. The new section includes definitions that are not considered requirements and are not enforceable, yet consistently defined terms used throughout the chapter.
WAC 246-841A-405 Registered nurse delegation to nursing assistants	The proposed rule adopts existing requirements from WAC 246-841-405 to this new section of rule and adds glucometer testing in accord with SHB 1124 (chapter 14, Laws of 2022).	Exempt under RCW 34.05.310 (4)(d) Rules that only clarify language of a rule without changing its effect. The amendment is exempt from significant analysis because the amendment clarifies language of the rule without changing its effect. Exempt under RCW 34.05.310 (4)(c) Rules adopting or incorporating by reference without material change ... Washington state statutes, ... if the material adopted or incorporated regulates the same subject matter and conduct as the adopting or incorporating rule. The addition of glucometer testing SHB 1124 incorporates by reference a Washington state statute and regulates the same subject matter.

WAC Section and Title	Description of Proposed Rule	Rationale for Exemption Determination
WAC 246-841A-407 Medication assistant certification endorsement	The proposed rule makes explicit the option for an expanded level of practice by nursing assistants-certified working in nursing homes with the successful completion of additional training and testing. The certificate is an option, not a mandate.	Exempt under RCW 34.05.310 (4)(c) because it incorporates Washington state statute, the medication assistant statute (RCW 18.88A.082) without any material changes.
WAC 246-841A-409 Types of nursing assistant training programs	The proposed rule identifies the options nursing assistants have for training and progression in the profession and clarifies who it applies to. It removes content repeated in separate sections.	Exempt under RCW 34.05.310 (4)(d). The proposed rule clarifies the four types of nursing assistant training programs available, and which requirements and corrective actions apply to the specific programs.
WAC 246-841A-410 Purpose of the review and approval of nursing assistant training programs	The proposed rule adopts existing requirements from WAC 246-841-410, and states the purpose is to ensure preparation for safe practice of nursing assistants by requiring nursing assistant training programs to meet minimum standards.	Exempt under RCW 34.05.310 (4)(d). The proposed rule clarifies the commission's role.
WAC 246-841A-463 Traditional program and nursing education program students— Application requirements for nursing assistant certification	The proposed rule adopts existing rules and clarifies requirements for nursing assistant certification.	Exempt under RCW 34.05.310 (4)(c). The proposed rule adopts existing rules and clarifies the requirements.
WAC 246-841A-483 Appeal rights of a nursing assistant training program	The proposed rule adopts existing requirements for appeal rights from WAC 246-841-594 to this new section of rule without change.	Exempt under RCW 34.05.310 (4)(c) Rules adopting or incorporating by reference without material change ... Washington state statutes, ... if the material adopted or incorporated regulates the same subject matter and conduct as the adopting or incorporating rule.
WAC 246-481A-530 Alternative training programs— Purpose	The proposed rule adopts existing requirements from WAC 246-841-530 to this new section of rule and removes a duplicative statement regarding the potential benefit of nursing assistant certification as the foundation for progression into nursing.	Exempt under RCW 34.05.310 (4)(c) because the rule adopts without material change an existing Washington state rule. Furthermore, the rule is exempt under RCW 34.05.310 (4)(d), because the proposed rule removes duplicative language to provide clarity.
WAC 246-841A-535 Alternative training programs— Student certification requirement	The proposed rule adopts existing requirements from WAC 246-841-535 except for defined terms. Defined terms are being proposed to be adopted in the new definition section of rule in WAC 246-841A-390 instead of this section of rule.	Exempt under RCW 34.05.310 (4)(c) because the rule adopts without material change an existing Washington state rule.
WAC 246-841A-555 Responsibilities of the program director in alternative programs	The proposed rule adopts existing requirements from WAC 246-841-555 and removes repeated requirements.	Exempt under RCW 34.05.310 (4)(c) because the rule adopts without material change an existing Washington state rule. Furthermore, the rule is exempt under RCW 34.05.310 (4)(d), because the proposed rule removes duplicative language to provide clarity.
WAC 246-841A-578 Alternative program graduates— Eligibility to apply for nursing assistant certification	The proposed rule adopts existing requirements from WAC 246-840-578 and clarifies that the rule relates to students applying for certification instead of application requirements for training programs.	Exempt under RCW 34.05.310 (4)(c) because the rule adopts without material change an existing Washington state rule. Furthermore, the rule is exempt under RCW 34.05.310 (4)(d), because the proposed rule removes duplicative language to provide clarity.
WAC 246-841A-585 Alternative program graduates— Application requirements for nursing assistant certification	The proposed rule adopts requirements from WAC 246-841-585 to this new section of rule without changing the requirements. The title has been changed for clarification.	Exempt under RCW 34.05.310 (4)(c) because the rule adopts without material change an existing Washington state rule.
WAC 246-841A-586 Applicability	The proposed rule adopts requirements from WAC 246-841-586 to this new section of rule without changing the requirements.	Exempt under RCW 34.05.310 (4)(c) because the rule adopts without material change an existing Washington state rule.
WAC 246-841A-589 Medication administration and performing prescriber ordered treatments	The proposed rule adopts requirements from WAC 246-841-589 to this new section of rule without changing the requirements.	Exempt under RCW 34.05.310 (4)(c) because the rule adopts without material change an existing Washington state rule.
WAC 246-841A-595 Application requirements for a medication assistant endorsement	The proposed rule adopts the process requirements from existing WAC 246-841-588 and WAC 246-841-595.	Exempt under RCW 34.05.310 (4)(g). A "procedural rule" is a rule that adopts, amends, or repeals ... (B) any filing or related process requirement for making application to an agency for a license or permit.
WAC 246-841A-720 Mandatory reporting	The proposed rule adopts the existing mandatory reporting requirements for health professions that fall under the statutory authority of the department in chapter 246-16 WAC.	Exempt under RCW 34.05.310 (4)(c) because the rule adopts without material change an existing Washington state rule.
WAC 246-841A-980 Expired credential	The proposed rule adopts the existing requirements from WAC 246-841-520 without change. The title is changed from Expired license to Expired credential to reflect the certification received by nursing assistants.	Exempt under RCW 34.05.310 (4)(c) because the rule adopts without material change an existing Washington state rule.



WAC Section and Title	Description of Proposed Rule	Rationale for Exemption Determination
WAC 246-841A-990 Nursing assistant—Fees and renewal cycle	The proposed rule adopts the existing fees in WAC 246-841-990 without change.	Exempt under RCW 34.05.310 (4)(c) because the rule adopts without material change an existing Washington state rule.

Scope of exemption for rule proposal:

Is partially exempt: See exemptions identified above.

The proposed rule does not impose more-than-minor costs on businesses. Following is a summary of the agency's analysis showing how costs were calculated. The commission and department estimate the costs to businesses of the proposed rule is \$515 (not including cost savings or costs passed to students) and is **less than** the lowest minor cost threshold \$2,120.64 (NAICS code: 611210, Junior Colleges).

**Summary of Businesses Required to Comply to the Proposed Rule:**

NAICS Code (4, 5, or 6 digit)	NAICS Business Description	Number of Businesses in Washington State	Minor Cost Threshold
623110	Nursing Care Facilities (Skilled Nursing Facilities)	143	\$18,038.14
611310	Colleges; Universities; and Professional Schools	99	\$17,202.82
611210	Junior Colleges	17	\$2,120.64
611519	Other Technical and Trade Schools	216	\$2,131.46
622110	General Medical and Surgical Hospitals	118	\$595,428.93

**Summary of All Probable Costs to Businesses:**

WAC Section and Title	Probable Cost(s)
WAC 246-841A-420 Requirements for approval of nursing assistant training programs	Orientation session: \$73.32 Enrollment agreement: \$49.30
WAC 246-841A-440 Common curriculum in approved nursing assistant training programs	Increased training program hours adds \$391.97 for alternative training

**WAC 246-841A-420 Requirements for approval of nursing assistant training programs:**

**Description:** The proposed rule moves existing requirements from WAC 246-841-420, revises and adds other requirements for clarification.

The following proposed changes are analyzed that have an impact to businesses: Attending an orientation session provided by the commission for program applicants; and providing information about program owner(s) implementing a student enrollment agreement.

**Cost(s):** Orientation Session: The proposed rule provides a new one-time virtual orientation session, approximately 90 minutes, provided at no charge by the commission. The commission and department estimate that using a mean registered nurse (RN) hourly wage in Washington of \$48.88,<sup>1</sup> results in an estimated staff time cost of \$73.32.

<sup>1</sup> US Bureau of Labor Statistics. Occupational, Wage, and Employment Statistics; May 2022 State Occupational Employment and Wage Estimates (most recent available); Washington; Link: Washington - May 2022 OEWS State Occupational Employment and Wage Estimates (bls.gov); Occupation #29-1141.

**Enrollment Agreement:** The commission and department estimate 141 out of 188 (75 percent) of programs already have enrollment agreements in place and will therefore not have any additional cost to develop one. For programs that do not have an enrollment agreement, the commission and department anticipate a one-time, administrative task estimated to take two hours in staff time, using a mean administrative assistant wage in Washington of \$24.65,<sup>2</sup> resulting in an estimated total cost of \$49.30.

<sup>2</sup> US Bureau of Labor Statistics. Occupational, Wage, and Employment Statistics; May 2022 State Occupational Employment and Wage Estimates (most recent available); Washington; Link: Washington - May 2022 OEWS State Occupational Employment and Wage Estimates (bls.gov); Occupation #43-6014.

**WAC 246-841A-440 Common Curriculum in approved nursing assistant training programs:**

**Description:** The proposed rule incorporates curriculum requirements from WAC 246-841-490 and expands on the requirements in keeping with the legislative mandate to create a common curriculum framework. The following proposed changes are analyzed that have an impact to businesses: Increases minimum training hours.

**Cost(s): No probable cost.** The commission and department do not anticipate any financial impacts for the following: Increase minimum training hours aside from **the legislatively mandated exempt specialty training hours:** The proposed rules require 106 **other** training hours for traditional nursing assistant training programs. Training programs currently average 172 training hours. The proposed rules are catching up with current practice. Some programs may need to shift classroom hours to skills lab hours, but this presents no probable costs as the instructor is a licensed nurse in either case.

**Significant Edits with Probable Costs:** Increase minimum training hours aside from **the legislatively mandated exempt specialty training hours:** The proposed rules increase the minimum hours required for alternative training programs to 36. Programs currently average 26.5 training hours. Average nurse instructor wage was calculated by averaging the mean RN (\$48.88)<sup>3</sup> and mean LPN (\$33.63)<sup>4</sup> hourly wage in Washington. Average totals: \$41.26. The 9.5 additional hours of training in the proposed rules times a rate of \$41.26 per hour represents a cost of approximately \$391.97 for alternative training programs. Programs would likely off-set this cost through an increase in student tuition or by hiring LPN instructors instead of RN instructors, which is allowable. However, the commission and department are unable to estimate how much this may cost a student because the broad spectrum of programs (high schools, colleges, universities, long-term care facilities, and private businesses) independently determine tuition rates using a variety of rate structures.

<sup>3</sup> US Bureau of Labor Statistics. Occupational, Wage, and Employment Statistics; May 2022 State Occupational Employment and Wage Estimates (most recent available); Washington; Link: Washington - May 2022 OEWS State Occupational Employment and Wage Estimates (bls.gov); Occupation #29-1141. RN

<sup>4</sup> US Bureau of Labor Statistics. Occupational, Wage, and Employment Statistics; May 2022 State Occupational Employment and Wage Estimates (most recent available); Washington; Link: Washington - May 2022 OEWS State Occupational Employment and Wage Estimates (bls.gov); Occupation #29-2061. LPN

A copy of the detailed cost calculations may be obtained by contacting Bonnie King, P.O. Box 47864, Olympia, WA 98504-7864, phone 360-236-3538, fax 360-236-4738, email NCQAC.rules@doh.wa.gov.

July 18, 2023  
Alison Bradywood, DNP, MPH, RN, NHA, NEA-BC  
Executive Director  
Nursing Care Quality Assurance Commission  
Kristin Peterson, JD  
Chief of Policy  
for Umair A. Shah, MD, MPH  
Secretary

**OTS-4365.6**

**Chapter 246-841A WAC  
NURSING ASSISTANTS**

**DEFINITIONS**

NEW SECTION

**WAC 246-841A-390 Definitions.** The definitions in RCW 18.88A.020 and in this section apply throughout this chapter unless the context clearly requires otherwise.

(1) "Asynchronous" means online learning of classroom or theory content that allows students to view and participate with online instructional materials within a flexible, but defined time period and does not include a live video lecture component.

(2) "Clinical" means students' in-facility experiences providing care in accordance with the nursing assistant scope of practice under the supervision of an approved instructor for the training program. Students who opt to complete clinical requirements through the nursing assistant-registered work pathway may be supervised by a licensed nurse as described in subsection (8)(b) of this section.

(3) "Commission" means the Washington state nursing care quality assurance commission.

(4) "Common curriculum" means the curriculum framework provided by the commission for use by all programs. The curriculum framework includes materials for nine basic units and integrates three specialty trainings (developmental disabilities, mental health, and dementia) as directed by the legislature. The common curriculum supports students' development of a holistic, person-centered care approach.

(5) "Competency evaluation" means the measurement of an individual's knowledge and skills as related to safe, competent performance of one's professional role. A formal, state-required competency evaluation is required for certification as a nursing assistant or for a certification endorsement as a medication assistant.

(6) "Corrective action" means the necessary steps a nursing assistant training program must take to address identified deficiencies in or violations of program standards.

(7) "Corrective action designation" means a classification added by the commission to a nursing assistant training program's approval status when deficiencies in or violations of program standards exist. Corrective action designations are described in WAC 246-841A-470 and include: Full approval with plan of correction; full approval with plan of correction and technical assistance; and conditional approval.

(8) "Direct patient care" means implementing all aspects of the nursing process with patients through hands-on, face-to-face contact by a licensed nurse. The nursing process consists of assessment, diagnosis, planning, implementation, and evaluation.

(9) "Direct supervision" means:

(a) For nursing assistant and medication assistant students in clinical: An approved instructor is always on-site to ensure appropriate care assignments, supervise, teach, and evaluate performance while the students are providing care.

(b) For nursing assistant-registered employees using the nursing assistant-registered work pathway for clinical credit in a nursing assistant training program: A licensed nurse is always on-site to supervise and evaluate competency for all tasks assigned and care to be provided.

(c) For medication assistants employed in a nursing home: The licensed registered nurse who directs medication administration and commission-approved treatments to a medication assistant is on-site, immediately accessible in person, and has assessed the residents prior to performance of these duties.

(10) "Good standing" means:

(a) For a nursing assistant training program: The program has operated for at least one year and has full approval status with no corrective action designation as identified in WAC 246-841A-470.

(b) Regarding the status of an individual's license or credential: The license or credential is not currently subject to any sanction, terms, conditions or restrictions required by formal or informal discipline or an agreement to practice with conditions under chapter 18.130 RCW, the Uniform Disciplinary Act.

(11) "Holistic care" means care of the whole person by supporting the person's human needs within one's professional scope of practice. Human needs include physiological, safety, love and belonging, self-esteem, and self-actualization needs.

(12) "Home care aide-certified" means any person certified under chapter 18.88B RCW.

(13) "Hybrid program" means online learning replaces a portion of face-to-face classroom or theory instruction with web-based online learning (e.g., video lectures, online discussions, or activities).

(14) "Learning management system" means a software application for the administration, documentation, tracking, reporting, automation and delivery of educational courses, training programs, or learning and development programs.

(15) "Live online" (also called "synchronous") means online classroom theory learning where students are required to log in at a specific time and participate in real-time activities in the virtual classroom with a live instructor.

(16) "Medical assistant-certified" means a person certified under chapter 18.360 RCW.

(17) "Medication assistant" means a nursing assistant-certified with a medication assistant endorsement issued under chapter 18.88A RCW who is authorized to administer certain medications and perform certain treatments in a nursing home under the supervision of a registered nurse.

(18) "Nursing assistant(s)" includes both nursing assistants-registered and nursing assistants-certified.

(19) "Nursing assistant-certified" means any person certified under chapter 18.88A RCW.

(20) "Nursing assistant-registered" means any person registered under chapter 18.88A RCW.

(21) "Nursing home" means any facility licensed under chapter 18.51 RCW.

(22) "Pass rates" means the averaged percentage of students who successfully meet the standard for the state certification examination

on their first attempt, measured annually for all programs individually and in aggregate.

(23) "Prescriber-ordered treatments" means drugs or care tasks ordered by a practitioner who is authorized by law or rule in the state of Washington to prescribe drugs or treatments.

(24) "Program standards" means:

(a) Requirements as stated in this chapter;

(b) Policies, procedures, and program materials and forms developed by the commission in support of implementation and compliance with this chapter and state and federal laws;

(c) Demonstration of current and accurate information in program teaching, materials, and communications regarding federal and state laws and regulations pertaining to:

(i) Nursing assistant training, testing, and certification requirements;

(ii) Nursing assistant scope of practice and practice standards; and

(iii) Nursing assistant professional conduct requirements; and

(d) Compliance with applicable state and federal laws.

(25) "Technical assistance" means aid by the commission to support the program in its efforts to meet program standards. Technical assistance sessions are scheduled for a designated time period. They may occur by phone, virtual meeting, or in-person. As examples, technical assistance may include:

(a) Review of program activities and processes in relation to program standards;

(b) Review of program standards with explanations and examples relevant to the program;

(c) Introduction to approaches or resources that may be helpful to the program; or

(d) A written summary of technical assistance provided and requirements for the program to meet program standards.

(26) "Technical support" relates to students in hybrid programs with asynchronous online elements and means timely assistance by the training program to correct technical difficulties with access to on-line training program materials or use of those materials. Technical support is provided as part of the overall training program with no additional costs to students for technical support needs.

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## NURSING ASSISTANT SCOPE AND STANDARDS OF PRACTICE

### NEW SECTION

**WAC 246-841A-400 Standards of practice and competencies for nursing assistants.** Competencies and standards of practice are statements of knowledge, skills, and behaviors. They are written as descriptions of observable, measurable actions. All nursing assistant

competencies are performed under the direction and supervision of a licensed registered nurse or licensed practical nurse as required by RCW 18.88A.030. The following competencies are considered standards of practice for both nursing assistant-certified and nursing assistant-registered:

(1) The nursing assistant role and knowledge of rules and regulations.

(a) A nursing assistant demonstrates competency in providing holistic, person-centered care that supports the human needs of diverse individuals. The nursing assistant:

(i) Identifies the holistic needs of clients or residents.

(ii) Provides care to support holistic needs in accordance with nursing assistant competencies and clients' or residents' plans of care.

(iii) Provides person-centered care by adjusting care approaches to accommodate the unique needs and preferences of clients or residents.

(b) A nursing assistant demonstrates knowledge of and can explain the practical implications of the laws and regulations which affect nursing assistant practice including, but not limited to:

(i) Mandatory reporting procedures related to client or resident abuse, neglect, abandonment, and exploitation (chapters 74.34 RCW and 246-16 WAC, and WAC 246-841A-720);

(ii) Scope of practice;

(iii) Opportunities for expanding scope:

(A) Nurse delegation; and

(B) Medication assistant certification endorsement;

(iv) Workers right to know (chapter 49.70 RCW);

(v) The Uniform Disciplinary Act (chapter 18.130 RCW);

(vi) Omnibus Budget Reconciliation Act (OBRA);

(vii) Medicare and medicaid.

(2) Client or resident rights and promotion of independence. A nursing assistant demonstrates behavior which maintains and respects clients' or residents' rights and promotes independence, regardless of race, religion, lifestyle, sexual orientation, gender identity, disease process, or ability to pay. A nursing assistant:

(a) Recognizes that clients or residents have the right to participate in decisions about their care.

(b) Recognizes and respects each client's or resident's need for privacy and confidentiality.

(c) Promotes and respects clients' or residents' rights to make personal choices to accommodate their needs.

(d) Reports clients' or residents' concerns and gives assistance with resolving grievances and disputes.

(e) Provides assistance to clients or residents in getting to and participating in activities.

(f) Respects the property of clients or residents and employer and does not take equipment, material, property, or medications for the nursing assistant's or another's use or benefit. A nursing assistant may not solicit, accept or borrow money, material, or property from a client or resident for the nursing assistant's or another's use or benefit.

(g) Promotes clients' or residents' right to be free from abuse, mistreatment, and neglect.

(h) Intervenes appropriately on a client's or resident's behalf when abuse, mistreatment, or neglect is observed.

(i) Complies with mandatory reporting requirements by reporting to the department of health and the department of social and health services instances of neglect, abuse, exploitation, or abandonment.

(j) Participates in the plan of care regarding the use of restraints in accordance with current professional standards.

(3) Communication and interpersonal skills. A nursing assistant uses communication and interpersonal skills effectively to function as a member of the nursing team. A nursing assistant:

(a) Reads, writes, speaks, and understands English at the level necessary for performing duties of the nursing assistant.

(b) Listens and responds to verbal and nonverbal communication in an appropriate manner.

(c) Recognizes how one's own behavior influences a client's or resident's behavior and uses resources for obtaining assistance in understanding the client's or resident's behavior.

(d) Adjusts one's own behavior to accommodate clients' or residents' physical or mental limitations.

(e) Uses terminology accepted in the health care setting to appropriately record and report observations, actions, and pertinent information accurately and timely.

(f) Is able to explain policies and procedures before and during care of clients or residents.

(4) Infection control. A nursing assistant uses standard and transmission-based precautions to prevent the spread of microorganisms. A nursing assistant:

(a) Uses principles of medical asepsis and demonstrates infection control techniques and standard and transmission-based precautions including, but not limited to:

(i) Demonstrates effective handwashing methods.

(ii) Identifies different types of personal protective equipment (PPE) and demonstrates how and when to use each.

(b) Explains how disease-causing microorganisms are spread.

(c) Explains transmission of bloodborne pathogens.

(d) Demonstrates knowledge of cleaning agents and methods which destroy microorganisms on surfaces.

(5) Safety and emergency procedures. A nursing assistant demonstrates the ability to identify and implement safety and emergency procedures, including the Heimlich maneuver. A nursing assistant:

(a) Provides an environment with adequate ventilation, warmth, light, and quiet.

(b) Promotes a clean, orderly, and safe environment including equipment for a client or resident.

(c) Identifies and uses measures for accident prevention.

(d) Demonstrates principles of good body mechanics for self and clients or residents, using the safest and most efficient methods to lift and move clients, residents, and heavy items.

(e) Demonstrates proper use of protective devices in the care of clients or residents.

(f) Demonstrates knowledge of and follows fire and disaster procedures.

(g) Identifies and demonstrates principles of health and sanitation in food service.

(h) Demonstrates the proper use and storage of cleaning agents and other potentially hazardous materials.

(6) Basic nursing skills. A nursing assistant demonstrates basic technical skills which facilitate an optimal level of functioning for

clients or residents, recognizing individual, cultural, and religious diversity. A nursing assistant:

- (a) Demonstrates proficiency in cardiopulmonary resuscitation (CPR) and can perform CPR independently.
- (b) Takes and records vital signs.
- (c) Measures and records height and weight.
- (d) Measures and records fluid and food intake and output.
- (e) Recognizes normal body functions, deviations from normal body functions and the importance of reporting deviations in a timely manner to a supervising nurse.
- (f) Recognizes, responds to, and reports clients' or residents' emotional, social, cultural, and mental health needs.
- (g) Recognizes, responds to, and reports problems in clients' or residents' environment to ensure safety and comfort of clients.
- (h) Participates in care planning and the nursing reporting process.

(7) Basic restorative services. The nursing assistant incorporates principles and skills in providing restorative care. A nursing assistant:

- (a) Demonstrates knowledge and skill in using assistive devices in ambulation, transferring, eating, and dressing.
  - (b) Demonstrates knowledge and skill in the maintenance of range of motion.
  - (c) Demonstrates proper techniques for turning, positioning, and repositioning clients or residents in a bed and chair.
  - (d) Demonstrates proper techniques for transferring and ambulating clients or residents.
  - (e) Demonstrates knowledge about methods for meeting the elimination needs of clients or residents.
  - (f) Demonstrates knowledge and skill for the use and care of prosthetic devices by clients or residents.
  - (g) Uses basic restorative services by training clients or residents in self-care according to their capabilities.
- (8) Personal care. A nursing assistant demonstrates basic personal care skills. A nursing assistant:

- (a) Assists clients or residents with bathing, oral care, and skin care.
  - (b) Assists clients or residents with grooming and dressing.
  - (c) Provides toileting assistance to clients or residents.
  - (d) Assists clients or residents with eating and hydration.
  - (e) Uses proper oral feeding techniques.
- (9) Life transitions. A nursing assistant demonstrates the ability to support the care needs of clients or residents during life transitions with competency in the following areas:
- (a) Uses basic procedures for admitting, transferring, and discharging clients or residents and maintains professional boundaries.
  - (b) Applies knowledge of psychosocial and mental health considerations during life transitions. Examples include, but are not limited to:
    - (i) Human responses to stress and stressors;
    - (ii) Stages of psychosocial development across the lifespan; and
    - (iii) Human responses to grief and loss.
  - (c) Demonstrates ability to support clients' or residents' holistic needs at the end of life.

(d) Demonstrates knowledge of legal documents affecting care and the nursing assistant role in using the documents:

- (i) Advance directives (living wills, durable power of attorney);



(ii) Portable orders for life sustaining treatment (POLST);

(iii) Do not resuscitate (DNR).

(e) Demonstrates the ability to provide postmortem care with respect for clients' or residents' rights and sensitivity to the grieving process of their loved ones.

(f) Demonstrates awareness of the need for self-care and support in response to grief and loss.

(10) Care of clients or residents with developmental disabilities. A nursing assistant demonstrates basic care of clients or residents with developmental disabilities. In accordance with developmental disability specialty training (WAC 388-112A-0430), a nursing assistant:

(a) Demonstrates a basic understanding of developmental disabilities and awareness of the unique needs of residents with developmental disabilities.

(b) Promotes and supports a resident's self-determination.

(c) Provides culturally compassionate and individualized care by utilizing a basic understanding of each client or resident and each client's or resident's history, experience, and cultural beliefs.

(d) Uses person-centered and interactive planning when working with clients or residents with developmental disabilities.

(e) Uses a problem-solving approach and positive support principles when dealing with challenging behaviors.

(f) Supports clients or residents experiencing a crisis and gets assistance when needed.

(g) Promotes and protects the legal and resident rights of clients or residents with developmental disabilities.

(11) Mental health and social service needs. A nursing assistant demonstrates the ability to identify psychosocial needs of clients or residents based upon awareness of the developmental and age specific processes. A nursing assistant:

(a) Addresses individual behavioral needs of the client or resident.

(b) Knows the developmental tasks associated with the developmental and age specific processes.

(c) Allows the client or resident to make personal choices but provides and reinforces behaviors consistent with the client's or resident's dignity.

(d) Is sensitive and supportive and responds to the emotional needs of the clients or residents and their sources of emotional support.

(e) Applies the knowledge, skills, and behaviors from mental health specialty training in the care of residents and clients (WAC 388-112A-0450).

(12) Care of clients or residents with cognitive impairment. A nursing assistant demonstrates basic care of clients or residents with cognitive impairment. A nursing assistant:

(a) Uses techniques for addressing the unique needs and behaviors of individuals with cognitive impairment including Alzheimer's, dementia, delirium, developmental disabilities, mental illnesses, and other conditions.

(b) Communicates with clients or residents with cognitive impairment in a manner appropriate to their needs.

(c) Demonstrates sensitivity to the behavior of clients or residents with cognitive impairment.

(d) Appropriately responds to the behavior of clients or residents with cognitive impairment.

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NEW SECTION**WAC 246-841A-403 Care settings where nursing assistants may work and registration and certification requirements of students.** (1)

Nursing assistants work in health care facilities as identified in RCW 18.88A.020. These include nursing homes, hospitals, hospice care facilities, and agencies and home health agencies.

(2) In addition, nursing assistants may work for other entities delivering health care services where licensed nurses supervise nursing assistants performing within the nursing assistant scope. Examples include, but are not limited to: Adult family homes, assisted living communities, residential treatment facilities, and correctional facilities.

(3) Nursing assistant students shall apply for a nursing assistant registration within three days of hire at a nursing home. Students working as nursing assistants-registered in a nursing home must become certified within the timeline required by federal regulations.

(4) Nursing assistant students shall meet other registration and certification timelines as required by the care setting.

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NEW SECTION**WAC 246-841A-405 Registered nurse delegation to nursing assistants.** In addition to the competencies identified in WAC

246-841A-400, nursing assistants may perform additional delegated tasks under the supervision of a registered nurse in accordance with RCW 18.79.260.

(1) RCW 18.79.260 addresses general requirements for registered nurse delegation as well as requirements specific to certain care entities and settings, including home health or hospice agencies and community-based or in-home care settings, as defined in the statute.

(2) General requirements for registered nursing delegation that apply in all care settings include:

(a) In accordance with RCW 18.79.260 (3) (f), registered nurse delegation may include glucose monitoring and testing as a general allowance, including in hospitals and nursing homes.

(b) Delegated nursing care tasks described in this section are:

(i) Only for the specific patient receiving delegation; and

(ii) In compliance with all applicable requirements in WAC 246-840-910 through 246-840-970.

(c) A nursing assistant may consent or refuse to consent to perform a delegated nursing care task. The nursing assistant is responsible for their own actions with the decision to consent or refuse to consent and the performance of the delegated nursing care task.

(d) Nursing assistants shall not accept delegation of, or perform, the following nursing care tasks:

(i) Administration of medication by injection, except for insulin injections as authorized in RCW 18.79.260 (3) (e);

- (ii) Sterile procedures;
  - (iii) Central line maintenance;
  - (iv) Piercing or severing of tissues except as authorized in RCW 18.79.260 (3) (e) and (f); and
  - (v) Acts requiring substantial skill or nursing judgment.
- (3) RCW 18.79.260 (3) (e) defines specific requirements for registered nurse delegation in community-based or in-home care settings. Before performing any delegated task in these care settings:
- (a) Nursing assistants-registered must show evidence as required by the department of social and health services of successful completion of both the basic caregiver training and designated nurse delegation core training from the department of social and health services to the registered nurse delegator.
  - (b) Nursing assistants-certified must show the registered nurse delegator evidence as required by the department of social and health services of successful completion of required nurse delegation core training. The training is provided by the department of social and health services.
  - (c) All nursing assistants registered and certified who may be completing insulin injections must show to the registered nurse delegator evidence as required by the department of social and health services of successful completion of nurse delegation special focus on diabetes training.
  - (d) All nursing assistants must meet any additional training requirements identified by the commission. Any exceptions to additional training requirements must comply with RCW 18.79.260 (3) (e) (v).

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#### NEW SECTION

##### **WAC 246-841A-407 Medication assistant certification endorsement.**

Nursing assistants-certified with the required experience, training, and successful completion of competency evaluation as described in WAC 246-841A-586 through 246-841A-595 may apply for a medication assistant certification endorsement.

This endorsement expands the scope of the nursing assistant-certified working in a nursing home setting, allowing the nursing assistant-certified to perform certain medication administration tasks and prescriber ordered treatments under the direct supervision of a designated registered nurse.

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#### **INITIAL AND ONGOING APPROVAL OF NURSING ASSISTANT TRAINING PROGRAMS**

NEW SECTION**WAC 246-841A-409 Types of nursing assistant training programs.**

(1) This chapter addresses four types of nursing assistant training programs:

(a) Traditional nursing assistant training programs, which provide the complete training required for competency evaluation and career entry as a nursing assistant-certified.

(b) Home care aide-certified alternative training programs, which recognize prior training and certification as a home care aide and provide the additional education required to qualify for competency evaluation and career progression to a nursing assistant-certified.

(c) Medical assistant-certified alternative training programs, which recognize prior training and certification as a medical assistant and provide the additional education required to qualify for competency evaluation and career progression to a nursing assistant-certified.

(d) Medication assistant certification endorsement training, which provides the additional education required of experienced nursing assistants-certified to qualify for competency evaluation to earn a medication assistant endorsement.

(2) The requirements for initial and ongoing approval of nursing assistant training programs (described in WAC 246-841A-420 through 246-841A-460) and for corrective actions for nursing assistant training programs (described in WAC 246-841A-465 through 246-841A-490) apply to all training program types unless exceptions are specifically noted in this chapter:

(a) Exceptions for home care aide-certified alternative programs are noted in WAC 246-841A-545.

(b) Exceptions for medical assistant-certified alternative programs are noted in WAC 246-841A-550.

(c) Exceptions for medication assistant certification endorsement programs are noted in WAC 246-841A-590.

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NEW SECTION

**WAC 246-841A-410 Purpose of the review and approval of nursing assistant training programs.** The commission reviews and approves nursing assistant training programs to ensure preparation for safe practice of nursing assistants by requiring nursing assistant training programs to meet minimum standards.

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NEW SECTION

**WAC 246-841A-420 Requirements for approval of nursing assistant training programs.** To qualify as a nursing assistant training program for initial and ongoing approval, an applicant must:

(1) Attend an online orientation provided by the commission prior to submission of an application;

(2) Submit a completed application packet provided by the commission. The completed packet will reflect how the training program will meet program standards on an ongoing basis. The packet will include forms and instructions for submitting required materials which include, but are not limited to:

(a) Owner identification and contact information, business name, and physical address;

(b) Documentation demonstrating the program director and instructor(s) meet all qualifying criteria as stated in WAC 246-841A-430. Required documentation includes:

(i) Verification that the program director and instructor(s) have successfully completed a course in adult instruction as required by WAC 246-841A-430 (2)(a) or have demonstrated one year of experience teaching adults.

(ii) Verification that the program director and instructor(s) who teach the specialty class units (mental health, dementia, and developmental disabilities) have successfully completed coursework in the subjects prior to instructing students as required by WAC 246-841A-430 (6)(g);

(c) Contractual agreements related to providing training. For any program that uses another facility to provide clinical training, contractual agreements include an affiliation agreement between the training program and the facility. The affiliation agreement must describe how the program will provide clinical experience in the facility, making it clear that students will be supervised at all times, taught, and evaluated by an approved instructor who meets the requirements under this chapter. The agreement must specify the rights and responsibilities of both parties, students, and clients or residents;

(d) A student enrollment agreement that the training program will provide to each student for review, discussion, and signature prior to beginning the course. The training program retains a signed copy in each student's file. The student agreement must include:

(i) A statement that specifies the student's rights and responsibilities, including those listed in the clinical affiliation agreement;

(ii) A general description of the program and the program components (classroom, skills lab, and clinical), including the number of hours and length of time required to complete the program;

(iii) The program's policies relevant to students, including all criteria required to pass the course and criteria that may be cause for immediate dismissal or failure;

(iv) A statement that the student has received the class schedule and access to common curriculum materials for students as provided by the commission;

(v) The following statement regarding the right to file a complaint with the commission with concerns about the training program: "Student complaints about this nursing assistant training program can be filed with the nursing care quality assurance commission." The current web page link for filing a complaint must be included with the statement;

(e) An implementation plan for teaching the common curriculum using a format and instructions provided by the commission. Implementation information must include:

(i) The outline of materials for assigned study for each unit, including text readings, videos, and other resources. The main text resource must have a publication date within the last five years;

(ii) Presentations and active discussion of content;

- (iii) A variety of activities to reinforce and apply knowledge and concepts, including activities provided in the common curriculum;
- (iv) Skills practice to integrate theory with skills, including use of skills checklists which match the state exam;
- (v) Plans for evaluation to measure student learning and competency; and
- (vi) Plans for conducting and supervising clinical experiences;
- (f) A description of classroom and skills lab facilities with photographs demonstrating adequate space, equipment, and supplies available to provide the training program in accordance with this chapter;
- (g) Verification that the nursing assistant training program or school is approved to operate in the state of Washington by:
  - (i) The state board for community and technical colleges for college programs;
  - (ii) The superintendent of public instruction for high schools and skills center programs;
  - (iii) The workforce training and education coordinating board for private vocational schools; or
  - (iv) The department of social and health services for nursing home programs. For purposes of this chapter: Lack of a department of social and health services sanction signifies department of social and health services approval; a current sanction with no department of social and health services waiver to conduct training signifies nonapproval;
- (h) A declaration of compliance with all program standards signed by:
  - (i) Program owner or administrator; and
  - (ii) Program director, if different from owner or administrator;
- (3) Submit all application items in one submission and respond to requests for more information or clarification regarding the program's application submission. Failure to submit a completed application packet or respond to request for more information or clarification within 90 days may result in closure of the application;
- (4) Agree to in-person or online site visits by the commission on request or, when applicable per WAC 246-841A-465(2) and 246-841A-470(2)(c)(v), unannounced site visits by the commission. Examples of activities a site visit may include are:
  - (a) Observation of classroom, skills lab, and clinical teaching;
  - (b) A review of the program facilities, equipment, supplies, documentation, and files related to the program with the potential need to make copies or take photos of them;
  - (c) Access to student names and contact information;
  - (d) Interviews with the program owner(s), program director, instructor(s), other support staff, clinical site personnel, and students;
  - (e) A review of facilities, equipment, supplies, and staff at clinical affiliation sites;
- (5) Comply with all program standards;
- (6) For each class taught, implement the common curriculum as developed and described in materials provided by the commission;
- (7) Submit all program change requests on forms provided by the commission and receive approval prior to implementation of the change. Notify other approving agencies of changes prior to implementing the change(s). Program changes include, but are not limited to:
  - (a) Program owner(s);
  - (b) Program director;

- (c) Instructor(s);
- (d) Program location;
- (e) Program curriculum plan as approved;
- (f) Program curriculum hours; and
- (g) Program schedule pattern;
- (8) Comply with changes in program standards;
- (9) Participate in and complete the program renewal process every two years. Failure to renew by the designated deadline results in lapse of approval.

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NEW SECTION

**WAC 246-841A-423 Initial approval of nursing assistant training programs.** The commission will grant initial approval status for one year to a nursing assistant training program applicant demonstrating the ability to meet program standards.

(1) The commission will monitor the nursing assistant training program for the first year and then complete a program evaluation to verify the program has continued to meet program standards. Following the program evaluation, the commission may:

(a) Change the program's status to full approval if program standards have been met consistently; or

(b) Extend a program's initial approval for up to one additional year with an evaluation at the end of the second year to verify program standards have been met consistently; or

(c) Withdraw initial approval if a nursing assistant training program demonstrates deficiencies in or violations of program standards.

(2) A nursing assistant training program with initial approval status is subject to announced and unannounced site visits by the commission.

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NEW SECTION

**WAC 246-841A-425 Full approval of nursing assistant training programs.** The commission will grant full approval status to initially approved nursing assistant training programs demonstrating they have consistently met program standards during the initial approval period.

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NEW SECTION

**WAC 246-841A-427 Approval status of existing programs on the effective date of these rules.** (1) Existing nursing assistant training programs with full approval status retain full approval status on the date these rules take effect.

(2) Existing nursing assistant training programs with conditional approval status retain conditional approval status on the date these rules take effect.

(3) Existing nursing assistant training programs are subject to approval status changes under the rules of this chapter upon the effective date.

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#### NEW SECTION

**WAC 246-841A-430 Program directors and instructors in approved nursing assistant training programs.** (1) The program director must hold an active license in good standing as a registered nurse (RN) in the state of Washington.

(a) The commission may deny or withdraw a program director's approval if there is or has been any action taken against the director which disqualifies them from working with vulnerable populations.

(b) Directing a nursing assistant training program constitutes the practice of nursing. Any unprofessional conduct by a program director, as defined in the Uniform Disciplinary Act, chapter 18.130 RCW, may subject the program director to license discipline under that act.

(2) (a) The program director must have completed a training course on adult instruction or have demonstrated one year of experience teaching adults. Acceptable experience does not include teaching patients. A program director working exclusively in a secondary or post-secondary educational setting is exempt from this requirement.

(b) The training course on adult instruction must provide instruction in:

- (i) Understanding the adult learner;
- (ii) Techniques for teaching adults;
- (iii) Classroom methods for teaching adults;
- (iv) Audio visual techniques for teaching adults.

(3) The program director must attend an online orientation provided by the commission within 30 days of approval as program director.

(4) The program director will have a minimum of three years of experience as an RN, of which at least one year will be in direct patient care.

(5) If the program director will also be acting as an instructor, the program director must meet the requirements for instructional staff.

(6) Program director responsibilities:

(a) Implement the common curriculum as developed and described in materials provided by the commission and in accordance with the requirements of WAC 246-841A-440. The program director is responsible for all classroom and clinical training content and instruction;

(b) Ensure compliance with and assume responsibility for meeting the training program requirements of this chapter;

(c) Ensure that all student clinical training is directly supervised:

(i) For instructor-led clinical training provided by the program, direct supervision means that an approved instructor is always on-site to supervise, teach, and evaluate performance while the students are providing care.



(ii) For clinical training provided through the nursing assistant-registered work pathway described in WAC 246-841A-440(8), direct supervision means the program director requires the student to provide verifiable documentation of supervision and competency evaluation by a supervising licensed nurse prior to awarding clinical training credit. To receive clinical training credit, students must provide documentation on the verification form provided by the commission. The student must also provide evidence of at least 40 hours of work in the role of a nursing assistant;

(d) Ensure that the clinical instructor has no concurrent duties during the time he or she is instructing students;

(e) Create and maintain an environment conducive to teaching and learning;

(f) Select and supervise all instructors involved in the course, including clinical instructors and guest lecturers;

(g) Ensure the instructor(s) teaching specialty units on the topics of mental health, dementia, and developmental disabilities are approved to teach the units prior to teaching them. For the instructor to receive approval, the program director will:

(i) Verify the instructor has completed a class on adult instruction as identified in subsection (2)(b) of this section. Acceptable experience does not include teaching patients. An instructor working exclusively in a secondary or postsecondary educational setting is exempt from this requirement.

(ii) Verify the instructor(s) has completed the corresponding specialty class(es) for the unit(s) they will teach. The mental health and dementia specialty classes must be the complete curriculum approved by the department of social and health services; the developmental disabilities specialty class must be the complete curriculum provided by the developmental disabilities administration of the department of social and health services.

(iii) Submit documentation with an instructor application to the commission;

(h) Ensure teaching of specialty units on mental health, dementia, and developmental disabilities occurs only as components of the complete nursing assistant training program. Unless expressly approved by the department of social and health services to provide stand-alone specialty classes on the specialty topics, a nursing assistant training program is only authorized to provide specialty units as components of the overall nursing assistant training program;

(i) Ensure that students are not asked to, nor allowed to, perform any clinical skill with residents or clients until first demonstrating the skill satisfactorily to an instructor;

(j) Provide students with instruction regarding the nursing assistant-registered work pathway as described in WAC 246-841A-440(8), including supervision and documentation requirements;

(k) Ensure evaluation of professional knowledge, skills, and behaviors of students before verifying completion of the course;

(l) Without delay upon successful completion of course requirements:

(i) Provide students a certificate of completion on a form provided by the commission.

(ii) Provide verification of each student's eligibility to take the state exam. Verification is to be provided in accordance with the established procedure provided to program directors by the commission;

(m) Communicate directly with the commission in all matters regarding the program.

(7) The program director may select instructional staff to assist in the teaching of the course.

(a) Instructional staff must teach in their area of expertise.

(b) Instructional staff must have a minimum of:

(i) One year of verifiable paid or unpaid work experience as a licensed nurse within the past three years providing direct patient care for the elderly or chronically ill of any age; or

(ii) Three years of verifiable paid experience as a licensed nurse at any time providing direct patient care for the elderly or chronically ill of any age and verifiable paid or unpaid work experience as a licensed nurse in any role for at least one of the last three years.

(c) A clinical instructor providing care to patients with staff or students is considered a provider of direct patient care.

(d) Instructional staff must complete a training course on adult instruction as described in subsection (2)(b) of this section or have demonstrated one year of experience teaching adults. Instructional staff working exclusively in a secondary or postsecondary educational setting are exempt from this requirement.

(i) Instructional staff who will teach the specialty units of curriculum on the topics of mental health, dementia, or developmental disabilities, must also demonstrate successful completion of those courses described in (g) of this subsection prior to teaching them.

(ii) Instructional staff must hold an active Washington state license to practice as a registered or licensed practical nurse, in good standing. The commission may deny or withdraw an instructor's approval if there is or has been any action taken against the instructor which disqualifies them from working with vulnerable populations.

(iii) Instructional staff may assist the program director in development of curricula, teaching modalities, and evaluation.

(iv) Instructional staff will always be under the supervision of the program director.

(v) A guest lecturer or individual with expertise in a specific course unit may be used in the classroom setting for teaching within that unit without commission approval, following the program director's review of the currency and relevance of content in relation to unit objectives. Guest lecturers must hold a license, certificate, or registration in good standing in their field of expertise. The allowance for a guest lecturer does not apply to the specialty units of the common curriculum on the topics of mental health, dementia, or developmental disabilities. The specialty units must be taught by a program instructor specifically approved by the commission to teach the specialty units as described in subsection (6)(g) of this section.

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#### NEW SECTION

**WAC 246-841A-440 Common curriculum in approved nursing assistant training programs.** (1) Common curriculum. Approved programs must implement the common curriculum as developed and described in materials provided by the commission in accordance with the transition timelines established by the commission in (a) through (c) of this subsection. The common curriculum includes the complete specialty curricula on the

topics of developmental disabilities, mental health, and dementia as developed by the department of social and health services.

(a) Approved programs must apply for approval to implement the first nine units of the common curriculum within six months of the effective date of these rules and begin implementation by September 1, 2024.

(b) Until they transition to the common curriculum, approved programs may continue to implement their existing curriculum as approved under previous rules; however, subsections (5) through (8) of this section are effective with the effective date of these rules.

(c) Approved programs must implement the specialty curricula as units 10, 11, and 12 of the common curriculum for all students graduating on or after September 1, 2025.

(2) Implementing the common curriculum. Implementing the common curriculum as developed and described in materials provided by the commission includes, but is not limited to:

(a) Interactive presentation and discussion of content for each unit and activity that provides students with an opportunity to reinforce learning and apply knowledge. The program will demonstrate use of a variety of activities across units. Examples include, but are not limited to:

- (i) Written assignments;
- (ii) Responding to videos shown or assigned;
- (iii) Small group exercises;
- (iv) Role play;
- (v) Student presentations; and
- (vi) Team or game-type learning activities.

(b) Instructor demonstration of each unit's lab skills followed by students' practice of the skills under the supervision of an approved instructor who provides guidance and evaluation in real time.

(c) A clinical training opportunity for students to successfully demonstrate the core competencies of a nursing assistant through integration of professional knowledge, skills, and behaviors gained in class and skills lab.

(d) Evaluation to measure each student's level of competency achievement in each part of the training program (classroom theory, skills lab, and clinical) and overall.

(3) Correlation of classroom and clinical teaching. When implementing the common curriculum, programs will ensure clinical teaching is closely correlated with classroom theory teaching to support students' integration of professional knowledge and behaviors with manual skills.

(a) For skills lab training, close correlation means skills included in each unit of the common curriculum are taught together with the unit's classroom theory.

(b) For clinical training, close correlation means clinical training occurs as part of the planned, continuous flow of the class immediately following completion of classroom theory and skills lab. When there are delays in the start of clinical training, as allowed by the program's policies, the program will reverify and document student competency to participate safely in clinical training prior to a student's participation.

(4) Program hours. The program director will determine the amount of time required in the curriculum to achieve the objectives. The time designated may vary with characteristics of the learners and teaching or learning variables, but the program must provide a minimum of 138 training hours total, with a minimum of 66 hours of classroom theory,

a minimum of 32 hours of skills lab, and a minimum of 40 hours of clinical training.

(a) These hours include 32 hours of classroom training on the specialty topics of developmental disabilities (16 hours), mental health (eight hours), and dementia (eight hours). Training programs must incorporate the complete curriculum for each specialty topic as developed by department of social and health services. Requirements for providing and instructing specialty curricula as part of a nursing assistant training program are found in WAC 246-841A-430 (g) and (h).

(i) If a student has already taken one or more of the specialty topics, the program director may excuse the student from repeating the topic(s) when they provide documentation of successful completion.

(ii) Only the specialty classes developed specifically by the department of social and health services qualify for acceptable training to excuse students from specialty topic(s).

(iii) For students who are excused, programs must retain documentation of a student's previous specialty training in the student's file.

(b) Training to orient the student to the health care facility and facility policies and procedures is required, but must not be included in the minimum clinical training hours required.

(5) Classroom theory teaching and learning. Classroom theory teaching and learning may be conducted through the following modalities:

(a) An in-person format in a classroom space approved by the commission;

(b) A live online format.

(i) Prior to implementation, the program must apply to the commission for approval to use a live online format on a form provided by the commission.

(ii) At no time will the ratio of students to instructor exceed 20 students to one instructor in a live online class;

(c) An online or hybrid format that includes asynchronous online elements.

(i) Prior to implementation, the program must apply to the commission for approval to use this online format on a form provided by the commission.

(ii) The program must provide the commission with access to all online programming from both the instructor and the student user views including, but not limited to: Lessons, assignments, quizzes and tests, discussion boards, tools for instructor monitoring of student progress and interacting with students, evaluation mechanisms, and electronic gradebook.

(iii) The student-to-instructor ratio for an online or hybrid program with asynchronous learning elements must not exceed one instructor to 30 students.

(iv) Except for high school programs with a 10-month calendar, the entire program must be completed by students within three months.

(v) For initial and ongoing approval, the program must demonstrate how it meets the standards for online education as established by the commission. The standards require the program to demonstrate:

(A) Evidence of ability to provide online training or online educational programs successfully (i.e., a history of success, institutional support, external review, and certification by a commission-approved quality assurance organization).

(B) Correlation between the curriculum and text readings for the course.

(C) Instructor interaction with and support of students during the classroom theory portion of the class and throughout the entire class.

(D) Close correlation of the teaching and learning of classroom theory with teaching and learning in skills lab and clinical.

(E) The direct supervision role of an approved instructor in the classroom theory, skills lab, and clinical portions of the class.

(F) Student selection process, including entry requirements for the program.

(G) Provision of a live online or in-person orientation for all students prior to beginning the program. The orientation will include information about program requirements and policies, time schedule, appropriate online conduct, and how to navigate the learning management system and program content. The orientation hours may not be included in the minimum required program hours.

(H) An academic-based assignment related to the course outcome in the first week of class for the purpose of reporting attendance.

(I) For each unit, at least one asynchronous online discussion related to a unit outcome that allows instructor feedback, student interaction, and a rubric for grading participation.

(J) Facilitation of students' ability to meet independently in a study group.

(K) The opportunity for robust and individualized instructor feedback for students needing to improve grades or requiring further instruction. This does not include computer-generated feedback.

(L) An organized schedule of classroom theory, skills lab, and clinical activities with paced deadlines to support time management and successful course completion provided to the students.

(M) Ensuring the identity of each student completing online examinations and security measures throughout the examination.

(N) Adequate technical support to the website and to students, including provisions for: Reliability; privacy; security; addressing technical difficulties; assuring back-up of data; services and training for students to use the website and program; and student technical support services.

(O) Evidence of meeting requirements for all nursing assistant training programs as described in this chapter.

(6) Skills lab teaching and learning. Skills lab teaching and learning will be conducted in-person in a commission-approved skills lab.

(7) Clinical teaching and learning: Instructor-led clinical in a care facility. The program shall provide instructor-led clinical training in a care facility for all students completing the program. Instructor-led clinical training means the program must provide a commission-approved instructor who conducts and supervises a coordinated clinical training experience in a nursing home or other care facility where students have an opportunity to safely demonstrate competency in the role of a nursing assistant caring for a variety of individuals with diverse care needs.

(a) The clinical instructor must be on-site with students at all times to supervise, teach, and evaluate performance.

(b) The clinical instructor must have no concurrent duties during the student clinical experience.

(c) The ratio of students to instructor must not exceed 10 students to one instructor in the clinical setting.

(d) Students cannot perform any clinical skill with clients or residents until first satisfactorily demonstrating the skill to an approved instructor.

(e) Students must wear name tags clearly identifying them as students at all times.

(8) Clinical teaching and learning: Nursing assistant-registered work pathway. In accordance with the program's established policies, the program retains authority to allow students who choose to do so, on a case-by-case basis, to complete their clinical training hours by working as a nursing assistant-registered in a care facility under the supervision of a licensed nurse. To meet qualifying standards to count as clinical hours' credit, the nursing assistant-registered employment experience must:

(a) Be completed following successful completion of required classroom theory and skills lab hours;

(b) Be completed in a time frame comparable to that of classmates who complete through instructor-led clinical training as established by the program's schedule and completion policies;

(c) Be performed under a pending or active nursing assistant-registered credential during enrollment in the class;

(d) Include a background check prior to contact with clients or residents;

(e) Occur in a care facility where a licensed nurse is present to provide direct supervision and verify competency for care provided throughout the clinical experience; the supervising nurse may not be a friend or relative;

(f) Include opportunities for the student to successfully demonstrate the competencies of a nursing assistant as identified in WAC 246-841A-400;

(g) Include care of clients or residents who are not friends or relatives;

(h) Be documented on a form provided by the commission and available on file at the training program along with formal documentation of the number of hours worked; and

(i) Be verifiable with the care facility.

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#### NEW SECTION

**WAC 246-841A-450 Physical and electronic resources required for approved nursing assistant training programs.** (1) Classroom, skills lab, and clinical facilities used by the program must provide adequate space, lighting, comfort, privacy, safety, and cleanliness for effective teaching and learning.

(2) Adequate classroom resources, such as a white board or other writing device, audio-visual materials, and written materials must be available. Audio-visual materials include a computer with internet and projection capability in order to access and implement the common curriculum.

(3) Online classrooms used by the program must provide browser-based platforms and mixed media capability such as captioning, video, and audio-text to enhance accessibility. Online classrooms must have a method for providing private and secure methods of evaluation, submitting grades, and providing feedback.

(4) The program must provide the equipment and supplies necessary to teach skills lab and allow students to practice and gain competency as nursing assistants in accordance with WAC 246-841A-400.

(a) A list of required equipment and supplies for all nursing assistant training programs is provided by the commission.

(b) The program will maintain the safety and proper working condition of equipment and supplies.

(c) The program will ensure that equipment and supplies used by the program reflect current practice and are sufficient in quantity for effective teaching and learning for students.

[]

#### NEW SECTION

**WAC 246-841A-455 Administrative procedures for approved nursing assistant training programs.** (1) The program must establish and maintain a file for each student enrolled and demonstrate measures for safe, secure storage of all paper and electronic files. Each student's file must include:

(a) Dates of enrollment, attendance, and completion of the program, including multiple attempts to successfully complete the program;

(b) A record of the student's performance in relationship to all passing criteria for the class, including: Quizzes, tests, and other required assignments; evaluation of skills lab performance; and evaluation of clinical performance.

(i) Skills lab evaluations use a checklist that shows the skills evaluated, the date(s) of skills evaluation, the printed name(s), signature(s), and date(s) of evaluating instructor(s);

(ii) Clinical evaluations document performance in relation to each student's competency as a nursing assistant as identified in WAC 246-841A-400;

(c) Documentation of successful completion of the course, or documentation of the course outcome.

(2) Each student file must be maintained by the program for a period of five years. The program must provide copies of each student's file documents to the student on request, within two business days.

(3) The program director will provide verification of students' successful completion of the training program for testing and certification without delay once requirements are met. Verification is to be provided in accordance with the established procedures and format provided to program directors by the commission.

(4) For programs based in a health care facility, verification of program completion and the application for state testing will not be withheld from a student who has successfully met the requirements of the program. Successful completion will be determined by the training program director separately from other employer issues.

[]

NEW SECTION

**WAC 246-841A-460 Competency evaluation and pass rates.** Students who successfully complete an approved nursing assistant training program or the equivalent in an approved nursing education program may apply to take the state certification exam (also called competency evaluation). The competency evaluation includes a knowledge exam and a skills exam. Students must pass both exams before their certification application can be processed.

(1) Training programs will communicate accurate information about the state certification exam to students and share written and video resources including, but not limited to:

(a) Testing service provider's website and how to access it. This includes the testing handbook, practice tests, and steps to register for the exam.

(b) The commission's website and how to access it. This includes information to help students navigate through training, testing, and certification.

(c) The department of health website and how to access it. This includes steps to apply for nursing assistant registration and certification.

(2) The commission will monitor all training programs' pass rates on the state certification exam. The program standard for pass rates is:

(a) At least 80 percent of first-time test-takers pass the knowledge portion of the examination; and

(b) At least 80 percent of first-time test-takers pass the skills portion of the examination.

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NEW SECTION

**WAC 246-841A-463 Traditional program and nursing education program students—Application requirements for nursing assistant certification.** (1) To be eligible to apply for nursing assistant-certified, a traditional program or nursing education program student must:

(a) Have successfully completed a Washington state-approved training program as outlined in WAC 246-841A-440 or the equivalent in an approved nursing education program; and

(b) Have successfully completed a competency evaluation.

(2) An applicant for nursing assistant-certified must submit to the department:

(a) A completed application for nursing assistant-certified;

(b) Proof of training from an approved traditional nursing assistant training program or an approved nursing education program; and

(c) Applicable fees as required in WAC 246-841A-990.

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**CORRECTIVE ACTION FOR NURSING ASSISTANT TRAINING PROGRAMS**NEW SECTION

**WAC 246-841A-465 Complaint investigations.** The commission may investigate complaints of alleged deficiencies or violations relating to this chapter. The commission:

- (1) Will notify the program director in writing within 10 business days when a complaint investigation is opened.
  - (a) Failure by the program director to cooperate with an investigation may result in disciplinary action against the program director's license as a registered nurse in the state of Washington in accordance with the Uniform Disciplinary Act, chapter 18.130 RCW.
  - (b) Failure to cooperate with an investigation may result in withdrawal of program approval by the commission.
- (2) May conduct announced or unannounced site visits to training programs in the course of investigating complaints. Site visits may include, but are not limited to:
  - (a) Observation of classroom, skills lab, and clinical teaching;
  - (b) A review of the program facilities, equipment, supplies, documentation, and files related to the program. The commission may make copies of documentation or take photos;
  - (c) Access to student names and contact information;
  - (d) Interviews with the program owner(s), program director, instructor(s), other support staff, clinical site personnel, and students;
  - (e) A review of facilities, equipment, supplies, and staff at clinical affiliation sites.
- (3) Will notify the program director of the outcome in writing when the complaint investigation process is complete. Outcomes may include:
  - (a) Closing the complaint with no action; or
  - (b) Specifying deficiencies or violations and, as applicable, providing notification of the commission's intent to add a corrective action designation to the program's full approval status or change the program's approval status which may include:
    - (i) Requirements for corrective action steps by the program;
    - (ii) Withdrawal of program approval; or
    - (iii) Immediate suspension of program approval for immediate threat to public health and safety.

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NEW SECTION

**WAC 246-841A-470 Corrective action designations for nursing assistant training programs.** (1) The commission may add a corrective action designation to a training program's full approval status when deficiencies in or violations of program standards exist. Corrective

action designations are organized to provide progressive steps for corrective action to meet program standards and restore full approval status.

(2) Corrective action designations include:

(a) Full approval with plan of correction:

(i) The program develops, implements, and evaluates an initial plan of correction using a format provided by the commission.

(ii) The commission staff may provide one formal technical assistance session to a program on request.

(b) Full approval with plan of correction and technical assistance:

(i) The program develops, implements, and evaluates an adjusted plan of correction when program standards are not met or violations persist after implementation of the first plan of correction or if the first plan of correction was not fully implemented.

(ii) The commission may require the program to participate in one technical assistance session as part of the plan of correction.

(iii) The commission may require a directed plan of correction, which means the commission stipulates some or all aspects of the plan of correction.

(c) Conditional approval:

(i) The commission may change a program's approval status to conditional if the program fails to fully implement the plan of correction or if deficiencies in or violations of program standards persist with implementation of plans of correction.

(ii) The commission will establish in writing additional specific conditions with which the program must comply.

(iii) The commission may require the program to participate in one technical assistance session with commission staff as a condition.

(iv) The program has a responsibility to seek external sources of technical assistance other than commission staff if additional support is needed to meet conditions.

(v) The commission may conduct announced or unannounced site visits to monitor a program on conditional approval. Failure to cooperate with site visits may result in withdrawal of approval by the commission.

(3) The commission will reevaluate a program's corrective action designation in accordance with a timeline established and provided by the commission at the time the program is notified in writing of the designation.

(4) With reevaluation, the commission may:

(a) Remove a corrective action designation if program standards are consistently met;

(b) Change the corrective action designation to a higher designation with improvement toward meeting standards;

(c) Change the corrective action designation to lower designation if standards are not met; for programs with a conditional approval designation, this means withdrawal of approval in accordance with WAC 246-841A-475;

(d) Extend a corrective action designation if more time and evaluation are needed to determine program standards are being met consistently.

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NEW SECTION

**WAC 246-841A-475 Withdrawal of approval for nursing assistant training programs.** (1) The commission may withdraw a program's approval status when any condition of the program's conditional approval status is not met or the program's deficiencies in or violations of program standards persist with implementation of corrective efforts. When a program's approval status is withdrawn, the program shall submit an action plan for closure to the commission providing options for current students to complete the program. The action plan must be submitted within 10 business days of the withdrawal of approval. The commission must review and act on the action plan within 10 business days of receipt of the action plan.

(2) Program approval may be immediately suspended and withdrawn when continued operation of the program presents an immediate danger to the public health, safety, or welfare in accordance with the Administrative Procedure Act (APA), RCW 34.05.479, and chapter 246-11 WAC. If students are in progress to complete the program at time of suspension, the commission will coordinate with the dual approving agency and other training programs to identify options to support students' training completion.

(3) Program approval may be withdrawn if the program:

- (a) Has no approved program director at the time of program renewal; or
- (b) Has no first-time test-takers for a period of two years; or
- (c) Is no longer approved by the appropriate agency providing dual approval. Agencies providing dual approval include:
  - (i) The office of the superintendent of public instruction for high school and skill center programs;
  - (ii) The state board of community and technical colleges for college programs;
  - (iii) The workforce training and education coordinating board for private vocational schools; or
  - (iv) The department of social and health services for nursing home programs.

A current department of social and health services sanction on a nursing home with no waiver granted by the department of social and health services to conduct training means the nursing home training program is no longer approved by the department of social and health services.

[ ]

NEW SECTION

**WAC 246-841A-483 Appeal rights of a nursing assistant training program.** When a nursing assistant training program's approval has been denied or withdrawn or had its approval status changed to conditional by the commission, the program shall have the right to a hearing to appeal the commission's decision according to the provisions of: Chapters 18.88A and 34.05 RCW, the Administrative Procedure Act; and chapter 246-11 WAC.

[ ]

NEW SECTION

**WAC 246-841A-485 Voluntary closure of an approved nursing assistant training program.** When an approved program plans to close, it shall notify the commission in writing, stating the reason and the date of intended closing.

(1) The program shall notify the commission in writing at least 30 days in advance and complete all current class(es) in session prior to closing.

(2) In the event of an emergency or unexpected event which renders the program inoperable, the program will ensure a transition plan for students to complete their training.

[]

NEW SECTION

**WAC 246-841A-490 Reapplication timelines when program approval is withdrawn.** After a program's approval is withdrawn, the program may be eligible to reapply for initial approval in accordance with certain timelines:

(1) The commission will withdraw approval when the training program loses approval by the office of the superintendent of public instruction, state board of community and technical colleges, workforce training board, or department of social and health services. The program may reapply immediately for initial approval upon regaining approval by the office of the superintendent of public instruction, state board of community and technical colleges, workforce training board, or department of social and health services.

(2) When approval lapses for failure to renew, the program may reapply for initial approval after 90 days. If the program reapplies, receives initial approval, and does not renew a second time, the program may not reapply for initial approval for at least one year.

(3) When approval is withdrawn due to no first-time test-takers within a period of two years, the program may reapply for initial approval six months after notification of withdrawal. If the program reapplies, receives initial approval and has no first-time test-takers again at its one-year program evaluation, the commission may withdraw program approval, and the program may not reapply for initial approval for at least one year after notification of withdrawal.

(4) If the commission withdraws a program's initial or conditional status, the program may reapply for initial approval after one year if it can demonstrate meeting program standards and evidence that the basis for the commission's withdrawal of approval no longer exists.

(5) A program with initial or conditional approval status withdrawn twice by the commission may not reapply for initial approval for at least two years after the date of the second withdrawal.

(6) A program application that includes the same program owner, program director, or instructor(s) from a previous program which had approval withdrawn may be considered by the commission as a reapplication from the previous program, subject to the regulations in this chapter; this applies even if the program has a new name or is operated by a different corporate entity.

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**ALTERNATIVE TRAINING PROGRAMS**NEW SECTION

**WAC 246-841A-530 Alternative training programs—Purpose.** Alternative training programs for home care aide-certified and medical assistant-certified recognize relevant training; provide opportunity for recruitment and career progression in nursing; and maintain a single standard for competency as a nursing assistant.

(1) The alternative program provides additional training, including clinical training, on topics not addressed in the specified training for certification as a home care aide or medical assistant, that will meet the requirements necessary to take the nursing assistant-certified competency evaluation.

(2) Successful completion of an approved alternative program may allow the home care aide-certified and medical assistant-certified to meet requirements to complete a competency evaluation. Successful completion of the competency evaluation may allow an applicant who is a home care aide-certified or medical assistant-certified to become a nursing assistant-certified.

[]

NEW SECTION

**WAC 246-841A-535 Alternative training programs—Student certification requirement.** (1) A student who takes a home care aide-certified alternative program must be a home care aide-certified prior to beginning the program. Home care aide-certified means any person certified under chapter 18.88B RCW.

(2) A student who takes a medical assistant-certified alternative program must be a medical assistant-certified prior to beginning the program and hold a current certification from one of the certifying organizations in WAC 246-827-0200(2), as defined in chapter 18.88A RCW.

[]

NEW SECTION

**WAC 246-841A-545 Home care aide-certified alternative program requirements.** The commission approves home care aide-certified alternative training programs that meet approval requirements. These programs may enroll individuals credentialed as home care aides-certified under chapter 18.88B RCW. Successful completion allows them to apply

to take the state exam evaluating competency for nursing assistant certification.

(1) An alternative program shall:

(a) Meet the requirements for initial and ongoing approval of nursing assistant training programs in this chapter except for the following differences:

(i) The program must implement the common curriculum designed specifically for home care aide-certified alternative programs, as developed and described in materials provided by the commission in accordance with the transition timelines established by the commission in WAC 246-841A-440 (1)(a) through (c).

(ii) The program must provide the minimum required training hours designed specifically for home care aide-certified alternative programs.

(A) The minimum required training hours are: Sixty-eight hours total, with a minimum of 49 hours of classroom theory, a minimum of 13 hours of skills lab, and a minimum of six hours of clinical training.

(B) The minimum program hours include 32 hours of classroom theory training on the specialty topics of: Developmental disabilities (16 hours); mental health (eight hours); and dementia (eight hours).

(b) Be subject to corrective actions for nursing assistant training programs as described in WAC 246-841A-465 through 246-841A-490, when requirements are not met for initial and ongoing approval of nursing assistant training programs (WAC 246-841A-420 through 246-841A-460), including those specific to home care aide-certified alternative programs (WAC 246-841A-530 through 246-841A-555).

(c) Provide a subset of the content for traditional nursing assistant programs as identified in the common curriculum for the alternative program and reflecting the following competency areas found in WAC 246-841A-400:

(i) The nursing assistant role and knowledge of rules and regulations;

(ii) Resident rights and promotion of independence;

(iii) Communication and interpersonal skills;

(iv) Infection control;

(v) Safety and emergency procedures;

(vi) Basic nursing skills;

(vii) Basic restorative services;

(viii) Personal care;

(ix) Life transitions;

(x) Care of clients or residents with developmental disabilities (specialty curriculum);

(xi) Mental health and social service needs (specialty curriculum);

(xii) Care of clients or residents with cognitive impairment (specialty curriculum).

(2) The common curriculum for home care aide-certified alternative programs includes the complete specialty curricula on the topics of developmental disabilities, mental health, and dementia developed by the department of social and health services.

(a) For students who have not already taken the specialty classes, the training program must provide them as part of the class.

(b) For students who have already taken one or more of the specialty topics, the training program may excuse them from repeating the topic(s) when they provide documentation of successful completion.

(i) Only the specialty classes developed specifically by the department of social and health services qualify for acceptable training to excuse students from specialty topic(s).

(ii) For students who are excused, programs must retain a copy of documentation of a student's previous specialty training in the student's file.

(3) Training to orient the student to the health care facility and facility policies and procedures is required, but is not included in the minimum clinical training hours required.

[]

#### NEW SECTION

**WAC 246-841A-550 Medical assistant-certified alternative program requirements.** The commission approves medical assistant-certified alternative training programs that meet approval requirements. These programs serve individuals credentialed as medical assistants-certified as defined in WAC 246-841A-535(2). Successful completion allows them to apply to take the state exam evaluating competency for nursing assistant certification.

(1) An alternative program shall:

(a) Meet the requirements for initial and ongoing approval of nursing assistant training programs in this chapter, except for the following differences:

(i) The program must implement the common curriculum designed specifically for medical assistant-certified alternative programs, as developed and described in materials provided by the commission in accordance with the transition timelines established by the commission in WAC 246-841A-440 (1)(a) through (c).

(ii) The program must provide the minimum required training hours designed specifically for medical assistant-certified alternative programs.

(A) The minimum required training hours are: Sixty-eight hours total, with a minimum of 48 hours of classroom theory, a minimum of 14 hours of skills lab, and a minimum of six hours of clinical training.

(B) The minimum program hours include 32 hours of classroom theory training on the specialty topics of: Developmental disabilities (16 hours); mental health (eight hours); and dementia (eight hours).

(b) Be subject to corrective actions for nursing assistant training programs as described in WAC 246-841A-465 through 246-841A-490, when requirements are not met for initial and ongoing approval of nursing assistant training programs (WAC 246-841A-420 through 246-841A-460), including those specific to medical assistant-certified alternative programs (WAC 246-841A-530 through 246-841A-555).

(c) Provide a subset of the content for traditional nursing assistant programs as identified in the common curriculum for the alternative program and reflecting the following competency areas found in WAC 246-841A-400:

(i) The nursing assistant role and knowledge of rules and regulations;

(ii) Resident rights and promotion of independence;

(iii) Communication and interpersonal skills;

(iv) Infection control;

(v) Safety and emergency procedures;

- (vi) Basic nursing skills;
- (vii) Basic restorative services;
- (viii) Personal care;
- (ix) Life transitions;
- (x) Care of clients or residents with developmental disabilities (specialty curriculum);
- (xi) Mental health and social service needs (specialty curriculum);
- (xii) Care of clients or residents with cognitive impairment (specialty curriculum).

(2) The common curriculum for medical assistant-certified alternative programs includes the complete specialty curricula on the topics of developmental disabilities, mental health, and dementia developed by the department of social and health services.

(a) For students who have not already taken the specialty classes, the training program must provide them as part of the class.

(b) Training programs must follow the regulations in WAC 246-841A-430 and 246-841A-440 for incorporating and teaching specialty curricula.

(c) For students who have already taken one or more of the specialty topics, the training program may excuse them from repeating the topic(s) when they provide documentation of successful completion.

(i) Only the specialty classes developed specifically by the department of social and health services qualify for acceptable training to excuse students from specialty topic(s).

(ii) For students who are excused, programs must retain a copy of documentation of a student's previous specialty training in the student's file.

(3) Training to orient the student to the health care facility and facility policies and procedures is required, but is not included in the minimum clinical training hours required.

[]

#### NEW SECTION

**WAC 246-841A-555 Responsibilities of the program director in alternative programs.** The program director of an alternative program is responsible for:

(1) Verifying home care aides-certified have an active home care aide-certified credential before admission to the alternative program.

(2) Verifying medical assistants have certification before admission to the alternative program.

(3) Assuring the alternative program meets program standards, including the requirements of this chapter and the requirements specific to home care aide-certified alternative programs in WAC 246-841A-545 and to medical assistant-certified programs in WAC 246-841A-550.

[]



NEW SECTION

**WAC 246-841A-578 Alternative program graduates—Eligibility to apply for nursing assistant certification.** To be eligible to apply for nursing assistant certification, a graduate from an alternative program must:

- (1) Be currently credentialed as a home care aide-certified under chapter 18.88B RCW; or
- (2) Be a medical assistant-certified as defined in WAC 246-841A-535(2);
- (3) Have completed a cardiopulmonary resuscitation course; and
- (4) Have successfully completed the competency evaluation.

[]

NEW SECTION

**WAC 246-841A-585 Alternative program graduates—Application requirements for nursing assistant certification.** (1) An applicant for nursing assistant-certified who has successfully completed an approved alternative program as a home care aide-certified must submit to the department:

- (a) A completed application for nursing assistant-certified;
  - (b) A copy of the certificate of completion from an approved alternative program for home care aides-certified;
  - (c) Documentation verifying current certification as a home care aide;
  - (d) Evidence of completion of a cardiopulmonary resuscitation course; and
  - (e) Applicable fees as required in WAC 246-841A-990.
- (2) An applicant for nursing assistant-certified who successfully completed an approved alternative program as a medical assistant-certified must submit to the department:
- (a) A completed application for nursing assistant-certified;
  - (b) A copy of certificate of completion from an approved alternative program for medical assistants-certified;
  - (c) An official transcript from the nationally accredited medical assistant program;
  - (d) Evidence of completion of an adult cardiopulmonary resuscitation course; and
  - (e) Applicable fees as required in WAC 246-841A-990.

[]

**MEDICATION ASSISTANT ENDORSEMENT**

NEW SECTION

**WAC 246-841A-586 Applicability.** WAC 246-841A-589 through 246-841A-595 apply to the endorsement of a nursing assistant-certified as a medication assistant. A nursing assistant-certified with a medication assistant endorsement administers medications and commission-approved treatments to residents in nursing homes under the direct supervision of a designated registered nurse.

Nothing in these rules requires a nursing home to employ a nursing assistant-certified with a medication assistant endorsement. A medication assistant's employer may limit or restrict the range of their employee's functions permitted in these rules, but may not expand those functions.

WAC 246-841A-589 through 246-841A-595 also apply to the approval of education and training programs and the competency evaluation for medication assistants.

Medication assistants are responsible and accountable for their specific functions.

[ ]

NEW SECTION

**WAC 246-841A-589 Medication administration and performing prescriber ordered treatments.** (1) A medication assistant working in a nursing home shall only accept direction to perform medication administration and prescriber-ordered treatments from a designated registered nurse. A medication assistant may only administer medications or perform prescriber-ordered treatments that fall within the medication assistant's scope of practice, education, and demonstrated competency.

(2) It is the responsibility of the designated registered nurse to assess the individual needs of each resident and determine that the direction of medication administration or selected treatment tasks poses minimal risks to each resident. The designated registered nurse determines the frequency of resident assessments and decides the number and types of medications to be administered.

(3) The medication assistant under the direct supervision of a registered nurse in a nursing home, may:

(a) Administer over-the-counter medications;

(b) Administer legend drugs, except for chemotherapeutic agents and experimental drugs;

(c) Administer schedule IV and V medications orally, topically, and through inhalation;

(d) Perform simple prescriber-ordered treatments which include blood glucose monitoring, noncomplex clean dressing changes, pulse oximetry readings, and oxygen administration.

(4) The medication assistant shall accurately document the administration of medication and performance of treatments into the resident's medical records on facility-approved forms or format (e.g., electronic record).

(5) Performance of the tasks identified in subsection (1) of this section will be the sole work assignment to the medication assistant.

(6) A medication assistant may not perform the following tasks:

(a) Assessment of resident need for, or response to medication;

(b) Acceptance of telephone or verbal orders from prescribers;

- (c) Conversion or calculation of drug dosages;
- (d) Injection of any medications;
- (e) Administration of chemotherapeutic agents and experimental drugs;
- (f) Performance of any sterile task or treatment;
- (g) Medication administration through a tube;
- (h) Administration or participation in the handling, including counting or disposal of any schedule I, II, or III controlled substances;
- (i) Participation in any handling, including counting or disposal of schedule IV and V controlled substances other than when administering these substances as authorized by subsection (3)(c) of this section;
- (j) Performance of any task requiring nursing judgment, such as administration of as necessary or as needed (prn) medications.

[ ]

NEW SECTION

**WAC 246-841A-590 Requirements for approval of medication assistant certification endorsement training programs.** (1) A medication assistant certification endorsement training program must:

(a) Be a commission-approved nursing assistant certified training program in good standing, or a commission-approved nursing educational program in good standing; and

(b) Meet the requirements for initial and ongoing approval of nursing assistant training programs in this chapter except for the following differences:

(i) The program must implement as its common curriculum the complete medication assistant-certified model curriculum, as adopted and described in materials from the National Council of State Boards of Nursing;

(ii) The curriculum shall include training on the specific tasks that a medication assistant may and may not perform as listed in WAC 246-841A-589.

(iii) The education and training program may add to the required curriculum as stated in these rules but may not delete any content from the required curriculum.

(2) The program must provide the minimum required training hours designed specifically for medication assistant certification endorsement programs: One hundred hours total, with a minimum of 50 hours of classroom theory, a minimum of 10 hours of skills lab, and a minimum of 40 hours of clinical practicum.

(a) The training program will provide a minimum of 40 hours of directly supervised and progressive clinical experience in the administration of medications to residents in a nursing home.

(b) At no time will the ratio of students to instructor be allowed to exceed 10 students to one instructor during clinical.

(c) Instructional staff for the program must hold an active Washington state license in good standing as a registered nurse.

(d) The training program must include a sample lesson plan for one unit with its application to open a medication assistant certification endorsement program.

(e) The skills lab checklists and competency evaluation activities and documentation shall reflect the medication assistant scope as identified in the National Council of State Boards of Nursing model curriculum and WAC 246-841A-589.

(f) The following options for traditional and alternative training programs described in WAC 246-841A-420 through 246-841A-460 are not applicable for medication assistant certification endorsement programs:

- (i) Nursing assistant-registered work pathway;
- (ii) A live online teaching modality; or
- (iii) Hybrid modalities with asynchronous teaching and learning activities counted as required classroom theory hours.

(g) The program director must attest to the student's successful completion of the course on commission-approved forms or electronic methods designed specifically for medication assistant certification endorsement programs.

(h) The standard to maintain an average annual student pass rate of 80 percent for first-time test-takers on the state's medication assistant competency evaluation applies to a knowledge exam only; psychomotor or skills competency evaluation for medication assistants is addressed by the training program.

(3) In addition to standard equipment and supplies required for nursing assistant training programs as described in WAC 246-841A-450, the program must provide equipment and supplies necessary for students to practice medication administration and prescriber-ordered treatments identified in the National Council of State Boards of Nursing medication assistant curriculum and WAC 246-841A-589. All equipment and supplies should reflect the current standard of nursing home practices. Required equipment and supplies include, but are not limited to:

- (a) A medication cart;
- (b) Professionally developed placebo medications that simulate actual medications in their appearance and packaging, enabling students to practice medication administration steps in the skills lab;
- (c) A glucometer;
- (d) A pulse oximeter; and
- (e) Materials required to teach oxygen administration.

(4) Be subject to corrective actions for nursing assistant training programs as described in WAC 246-841A-465 through 246-841A-490, when requirements are not met for initial and ongoing approval of nursing assistant training programs (WAC 246-841A-420 through 246-841A-460), including those specific to medication assistant certification endorsement programs (WAC 246-841A-586 through 246-841A-595).

[ ]

#### NEW SECTION

**WAC 246-841A-595 Application requirements for a medication assistant endorsement.** (1) Initial applicant requirements: Applicants for an initial medication assistant endorsement must meet the following requirements:

- (a) Be credentialed as a nursing assistant-certified in good standing, under chapter 18.88A RCW;

(b) Successfully complete a commission-approved medication assistant education and training program, as described in WAC 246-841A-590 within the year immediately prior to the date of application;

(c) Complete at least 1,000 hours of work experience in a nursing home as a nursing assistant-certified within the year immediately prior to the date of application; and

(d) After completing the requirements in (a) through (c) of this subsection, the applicant must pass the commission-approved medication assistant competency evaluation.

(2) Application requirements for adding the medication assistant certification endorsement to a nursing assistant-certified credential:

(a) To add an initial medication assistant certification endorsement to a nursing assistant-certified credential, the nursing assistant-certified must submit to the department:

(i) An application on forms approved by the secretary of the department of health.

(ii) The applicable fees under WAC 246-841A-990.

(iii) Proof of completion of:

(A) A commission-approved medication assistant training program under WAC 246-841A-590; and

(B) Competency evaluation described under subsection (1) of this section; and

(iv) Employer documentation of work experience as required in subsection (1)(c) of this section.

(b) An applicant who is currently credentialed as a medication assistant in another state or jurisdiction may qualify for a medication assistant endorsement credential under this chapter. An applicant must submit to the department:

(i) An application on forms approved by the secretary of the department of health;

(ii) Written verification directly from the state or jurisdiction in which the applicant is credentialed, attesting that the applicant holds a credential in good standing substantially equivalent to the medication assistant endorsement credential in Washington;

(iii) Verification of completion of the required education substantially equivalent to the education requirements as described in WAC 246-841A-590(3);

(iv) Employer documentation of work experience as required in subsection (1)(c) of this section; and

(v) The applicable fees under WAC 246-841A-990.

(3) Renewal requirements: To renew a medication assistant certification endorsement credential, the medication assistant must have a current nursing assistant-certified credential in good standing and meet the requirements of WAC 246-12-030.

(4) Continuing competency requirements: A medication assistant shall meet the following requirements on an annual basis to coincide with renewal of their nursing assistant-certified credentials:

(a) Employer documentation of successful completion of 250 hours of employment as a medication assistant in a nursing home setting under the direct supervision of a registered nurse;

(b) Documentation of eight hours of continuing education specific to medications, medication administration, and performance of selected patient treatments. Continuing education hours must be obtained through a commission-approved medication education and training program as described in WAC 246-841A-590, continuing education programs approved by a professional association, or staff development programs offered in a nursing home. The education hours must directly relate to

the medication assistant's role of medication administration and the performance of selected treatments.

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## VIOLETIONS OF STANDARDS AND DISCIPLINARY PROCEDURES

### NEW SECTION

**WAC 246-841A-600 Violations of standards for nursing assistant conduct or practice.** (1) General violations of standards of practice for all nursing assistants. The following conduct may subject a nursing assistant to disciplinary action under the Uniform Disciplinary Act, chapter 18.130 RCW:

- (a) Engaging in conduct described in RCW 18.130.180;
- (b) Engaging in conduct such as, but not limited to:
  - (i) Failure to adhere and perform in accordance with standards of practice and competencies as stated in WAC 246-841A-400;
  - (ii) Performance of care activities beyond the nursing assistant scope of practice or regulations specific to the practice setting;
  - (iii) Performing or attempting to perform care tasks or procedures for which the nursing assistant lacks the appropriate knowledge, experience, and education and/or failing to obtain instruction, supervision and/or consultation for client or resident safety;
  - (iv) Failure to follow a client's or resident's care plan;
  - (v) Failure to report and document accurately and legibly the provision of care and other information pertinent to the care of a client or resident. Examples include, but are not limited to, a client's or resident's status; a change in status; observations of client's or resident's responses to care; progress; or a client's or resident's expressed concern;
  - (vi) Altering or destroying entries or making incorrect, illegible, or false entries in a client or resident record or an employer or employee record;
  - (vii) Failure to protect clients from unsafe practices or conditions, exploitation, abusive acts, neglect, or sexual misconduct as defined in WAC 246-16-100;
  - (viii) Violating the confidentiality or privacy of the client or resident, except where required by law or for the protection of the client or resident. These violations include taking or disseminating photos or videos of a client or resident by any means, including social media;
  - (ix) Providing care for a client or resident while impaired by alcohol or drugs;
  - (x) Providing care for a client or resident while affected by a mental, physical, or emotional condition to the extent that there is an undue risk of harm to self or others;
  - (xi) Abandoning a client or resident by leaving an assignment without transferring responsibilities to appropriate personnel or

caregiver when the condition of the client or resident requires continued care;

(xii) Taking client's property for own or other's use or benefit. Soliciting, accepting, or borrowing money or property from clients;

(xiii) Conviction of a crime involving physical abuse or sexual abuse including convictions of any crime or plea of guilty, including crimes against persons as defined in RCW 43.43.830 and crimes involving the personal property of a client or resident, whether or not the crime relates to the nursing assistant role;

(xiv) Permitting another person to use the nursing assistant credential or using another person's credential;

(xv) Disclosing the contents of the nursing assistant credentialing examination or soliciting, accepting, or compiling information regarding the contents of any examination before, during, or after its administration; or

(xvi) Failure to follow the employer's or workplace policy and procedure for the wastage of medications.

(2) Additional standards of practice for nursing assistants working under registered nurse delegation. These nursing assistants may perform additional care tasks beyond those indicated in WAC 246-841A-400 through nursing assistant delegation by a registered nurse. Registered nurse delegation to nursing assistants is described in WAC 246-841A-405. The following conduct may subject a nursing assistant working under the delegation of a registered nurse to disciplinary action under the Uniform Disciplinary Act, chapter 18.130 RCW. Engaging in conduct that includes, but is not limited to:

(a) Failure to adhere to and perform in accordance with the provisions for delegation of certain tasks as stated in WAC 246-841A-405;

(b) Failure to provide care in accordance with the delegation accepted from a designated registered nurse;

(c) Performance of nursing care tasks without being delegated to do so by a designated registered nurse;

(d) Failure to report and document accurately and legibly the provision of delegated care tasks and other information pertinent to the care of a client or resident in accordance with the delegation accepted from a designated registered nurse. Examples include, but are not limited to, a client's or resident's status; a change in status; observation of patient responses to care; progress; or a client's or resident's expressed concern;

(e) Altering or destroying entries or making incorrect, illegible, or false entries in a client or resident record or an employer or employee record pertaining to delegated care tasks; or

(f) Failure to follow the employer's or workplace policy and procedure for the wastage of medications.

(3) Additional standards of practice for nursing assistants-certified who train and test to earn a medication assistant endorsement. These nursing assistants-certified may perform care tasks beyond those indicated in WAC 246-841A-400 when they work under the direct supervision of a designated registered nurse in a nursing home. A nursing assistant-certified with a medication assistant endorsement can administer certain medications and perform certain prescriber-ordered treatments as described in WAC 246-841A-589. The following conduct may subject a nursing assistant-certified with a medication assistant endorsement to disciplinary action under the Uniform Disciplinary Act, chapter 18.130 RCW. Engaging in conduct that includes, but is not limited to:

(a) Failure to adhere to and perform in accordance with the requirements for medication administration and prescriber-ordered treatments in WAC 246-841A-589;

(b) Failure to administer medications or provide prescriber-ordered treatments in the scope of a nursing assistant-certified with a medication assistant endorsement in accordance with:

(i) The direction of the supervising registered nurse;

(ii) Written orders; or

(iii) Common safety and infection control practices for the care tasks performed;

(c) Failure to report and document accurately and legibly:

(i) The administration of medication and performance of prescriber-ordered treatments into the resident's medical records using the facility-approved form or format (e.g., electronic record); and

(ii) Supporting information pertinent to the care of a resident. Examples include, but are not limited to, a resident's status; a change in status; observations of patient responses to care or treatment(s); progress; or a resident's expressed concern;

(d) Altering or destroying entries or making incorrect, illegible, or false entries in a client or resident record or an employer or employee record pertaining to medication administration or performance of prescriber-ordered treatments;

(e) Administering medications or performing prescriber-ordered treatments beyond the scope of a nursing assistant-certified with a medication assistant endorsement as identified in WAC 246-841A-589; or

(f) Failure to follow the employer's or workplace policy and procedure for the wastage of medications.

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#### NEW SECTION

**WAC 246-841A-720 Mandatory reporting.** The commission adopts the rules for mandatory reporting in chapter 246-16 WAC.

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#### NEW SECTION

**WAC 246-841A-980 Expired credential.** If the certificate has been expired for three years or less, the practitioner must meet the requirements as provided in WAC 246-12-020 through 246-12-051. If the certificate has expired for over three years, the practitioner must:

(1) Demonstrate competence to the standards established by the commission;

(2) Meet the requirements of WAC 246-12-020 through 246-12-051.

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**FEES**

NEW SECTION

**WAC 246-841A-990 Nursing assistant—Fees and renewal cycle.** (1) Credentials must be renewed every year on the practitioner's birthday as provided in WAC 246-12-020 through 246-12-051.

(2) The following nonrefundable fees will be charged for registration credentials:

<b>Title of Fee</b>	<b>Fee</b>
Application - Registration	\$85.00
Renewal of registration	95.00
Duplicate registration	10.00
Registration late penalty	50.00
Expired registration reissuance	52.00

(3) The following nonrefundable fees will be charged for certification credentials:

<b>Title of Fee</b>	<b>Fee</b>
Application for certification	\$85.00
Certification renewal	95.00
Duplicate certification	10.00
Certification late penalty	50.00
Expired certification reissuance	52.00

(4) The following nonrefundable fees will be charged for medication assistant endorsement credentials:

<b>Title of Fee</b>	<b>Fee</b>
Application for endorsement	\$25.00
Endorsement renewal	10.00

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**OTS-4366.1**

REPEALER

The following chapter of the Washington Administrative Code is repealed:

WAC 246-841-400 Standards of practice and competencies for nursing assistants.

WAC 246-841-405	Nursing assistant delegation.
WAC 246-841-410	Purpose of the review and approval of nursing assistant-certified training programs.
WAC 246-841-420	Requirements for approval of nursing assistant-certified training programs.
WAC 246-841-430	Denial or withdrawal of approval for nursing assistant-certified training programs.
WAC 246-841-440	How does a nursing assistant training program whose approval has been withdrawn become reinstated?
WAC 246-841-450	Appeal rights of a nursing assistant-certified training program when the commission has denied or withdrawn approval.
WAC 246-841-460	Closure of an approved nursing assistant-certified training program.
WAC 246-841-470	Program directors and instructors in approved nursing assistant-certified training programs.
WAC 246-841-490	Core curriculum in approved nursing assistant-certified training programs.
WAC 246-841-500	Physical resources required for approved nursing assistant-certified training programs.
WAC 246-841-510	Administrative procedures for approved nursing assistant-certified training programs.
WAC 246-841-520	Expired license.
WAC 246-841-530	Alternative program—Purpose.
WAC 246-841-535	Alternative program—Definitions.
WAC 246-841-545	Home care aide-certified alternative program requirements.
WAC 246-841-550	Medical assistant-certified alternative program requirements.
WAC 246-841-555	Responsibilities of the program director in alternative programs.
WAC 246-841-560	Alternative program application for approval, denial, or withdrawal.
WAC 246-841-570	Recordkeeping and administrative procedures for approved alternative programs.
WAC 246-841-573	Closure of an alternative program.
WAC 246-841-575	Alternative program—Eligibility to complete the nursing assistant-certified competency examination.
WAC 246-841-578	Application requirements.

WAC 246-841-585	Application for nursing assistant-certified from an alternative program.
WAC 246-841-586	Applicability.
WAC 246-841-587	Definitions.
WAC 246-841-588	Application requirements.
WAC 246-841-589	Medication administration and performing prescriber ordered treatments.
WAC 246-841-590	Requirements for approval of education and training programs.
WAC 246-841-591	Commission review and investigation.
WAC 246-841-592	Commission action for violations.
WAC 246-841-593	Reinstatement of approval.
WAC 246-841-594	Appeal rights.
WAC 246-841-595	Medication assistant endorsement program renewal.
WAC 246-841-720	Mandatory reporting.
WAC 246-841-990	Nursing assistant—Fees and renewal cycle.

**OTS-4367.1**REPEALER

The following chapter of the Washington Administrative Code is repealed:

WAC 246-842-100	Standards of practice and competencies of nursing assistants.
WAC 246-842-110	Purpose of review and approval of nursing assistant training programs.
WAC 246-842-120	Requirements for nursing assistant training program approval.
WAC 246-842-130	Denial of approval or withdrawal of approval for programs for which the board is the approving authority.
WAC 246-842-140	Reinstatement of approval.
WAC 246-842-150	Appeal of board decisions.
WAC 246-842-160	Closing of an approved nursing assistant training program.
WAC 246-842-170	Program directors and instructors in approved training programs.
WAC 246-842-180	Students (trainees) in approved training programs.

- WAC 246-842-190 Core curriculum in approved training programs.
- WAC 246-842-200 Physical resources for approved education programs.
- WAC 246-842-210 Administrative procedures for approved nursing assistant training programs.

## WSR 23-15-092

## PROPOSED RULES

## DEPARTMENT OF HEALTH

[Filed July 18, 2023, 10:50 a.m.]

Original Notice.

Proposal is exempt under RCW 34.05.310(4) or 34.05.330(1).

Title of Rule and Other Identifying Information: WAC 246-247-035 National standards adopted by reference for sources of radionuclide emissions. The department of health (department) is proposing an amendment to the federal rule publication date to conform to United States Environmental Protection Agency (EPA) requirements.

Hearing Location(s): On August 30, 2023, at 1:00 p.m. The department will hold a virtual-only hearing. Register in advance for this webinar [https://us02web.zoom.us/webinar/register/WN\\_l84tpmXSSxS6nfc4lEI0cQ](https://us02web.zoom.us/webinar/register/WN_l84tpmXSSxS6nfc4lEI0cQ). After registering, you will receive a confirmation email containing information about joining the webinar.

Date of Intended Adoption: September 6, 2023.

Submit Written Comments to: Department of Health, C/O Nina Helpling, P.O. Box 47820, Olympia, WA 98504-7820, email [radruleupdates@doh.wa.gov](mailto:radruleupdates@doh.wa.gov), <https://fortress.wa.gov/doh/policyreview>, by August 30, 2023.

Assistance for Persons with Disabilities: Contact Nina Helpling, phone 360-236-3065, TTY 711, email [nina.helpling@doh.wa.gov](mailto:nina.helpling@doh.wa.gov), by August 23, 2023.

Purpose of the Proposal and Its Anticipated Effects, Including Any Changes in Existing Rules: The proposed rule updates the publication date of federal rules adopted by reference under 40 C.F.R. Part 61 from 2022 to the most recently adopted 2023 version in WAC 246-247-035. The proposed amendment makes no changes to any requirements previously adopted, but is a requirement that the department adopts the annual updated publication date into state rule to receive full delegation of the radionuclide air emissions program from EPA.

Reasons Supporting Proposal: The intent of RCW 70A.388.040 is to safely regulate the possession and use of radioactive material within the state of Washington. The intent of RCW 70A.388.050(5) is to reduce redundant licensing requirements. The rule meets the intent of the statutes by adopting requirements as stringent as the federal requirements in order for the department to have full delegation authority from EPA.

Statutory Authority for Adoption: RCW 70A.388.040 and 70A.388.050(5).

Statute Being Implemented: RCW 70A.388.040 and 70A.388.050(5).

Rule is not necessitated by federal law, federal or state court decision.

Name of Proponent: Department of health, governmental.

Name of Agency Personnel Responsible for Drafting: Nina Helpling, 111 Israel Road S.E., Tumwater, WA 98501, 360-236-3065; Implementation and Enforcement: John Martell, 309 Bradley Boulevard, Suite 201, Richland, WA 99352, 360-946-3798.

A school district fiscal impact statement is not required under RCW 28A.305.135.

A cost-benefit analysis is not required under RCW 34.05.328. RCW 34.05.328 (5)(b)(iii) exempts rules that adopt or incorporate by reference without material change federal statutes or regulations, Washington state law, the rules of other Washington state agencies, or national consensus codes that generally establish industry standards.

This rule proposal, or portions of the proposal, is exempt from requirements of the Regulatory Fairness Act because the proposal:

Is exempt under RCW 19.85.061 because this rule making is being adopted solely to conform and/or comply with federal statute or regulations. Citation of the specific federal statute or regulation and description of the consequences to the state if the rule is not adopted: EPA publishes a new version of 40 C.F.R. Part 61 - National Emissions Standards for Hazardous Air Pollutants (NESHAP) each year regardless if changes were made to the regulations. This rule proposal is necessary to update the EPA referenced publication date of 40 C.F.R. Part 61 from 2021 to 2022 in WAC 246-247-035 to remain consistent between federal and state rules and as a primary condition for delegation of the NESHAP authority from EPA to the department. If Washington does not adopt the proposed changes, the department would not receive full delegation as required by EPA.

Is exempt under RCW 19.85.025(3) as the rules are adopting or incorporating by reference without material change federal statutes or regulations, Washington state statutes, rules of other Washington state agencies, shoreline master programs other than those programs governing shorelines of statewide significance, or, as referenced by Washington state law, national consensus codes that generally establish industry standards, if the material adopted or incorporated regulates the same subject matter and conduct as the adopting or incorporating rule.

Explanation of exemptions: The department is exempt from requirements of the Regulatory Fairness Act because the proposed rule only incorporates by reference the most recent version of the federal standards necessary for the department to maintain full delegation as required by EPA.

Scope of exemption for rule proposal:

Is fully exempt.

July 18, 2023  
 Kristen Peterson, JD  
 Chief of Policy  
 for Umair A. Shah, MD, MPH  
 Secretary

#### OTS-4674.1

AMENDATORY SECTION (Amending WSR 23-04-063, filed 1/27/23, effective 2/27/23)

**WAC 246-247-035 National standards adopted by reference for sources of radionuclide emissions.** (1) In addition to other requirements of this chapter, the following federal standards, as in effect on July 1, (~~2022~~) 2023, are adopted by reference except as provided in subsection (2) of this section.

(a) For federal facilities:

(i) 40 C.F.R. Part 61, Subpart A - General Provisions.

(ii) 40 C.F.R. Part 61, Subpart H - National Emission Standards for Emissions of Radionuclides Other Than Radon From Department of Energy Facilities.

(iii) 40 C.F.R. Part 61, Subpart I - National Emission Standards for Radionuclide Emissions From Federal Facilities Other Than Nuclear Regulatory Commission Licensees and Not Covered by Subpart H.

(iv) 40 C.F.R. Part 61, Subpart Q - National Emission Standards for Radon Emissions From Department of Energy Facilities.

(b) For nonfederal facilities:

(i) 40 C.F.R. Part 61, Subpart A - General Provisions.

(ii) 40 C.F.R. Part 61, Subpart B - National Emission Standards for Radon Emissions From Underground Uranium Mines.

(iii) 40 C.F.R. Part 61, Subpart K - National Emission Standards for Radionuclide Emissions From Elemental Phosphorus Plants.

(iv) 40 C.F.R. Part 61, Subpart R - National Emissions Standards for Radon from Phosphogypsum Stacks.

(v) 40 C.F.R. Part 61, Subpart T - National Emission Standards for Radon Emissions From the Disposal of Uranium Mill Tailings.

(vi) 40 C.F.R. Part 61, Subpart W - National Emission Standards for Radon Emissions From Operating Mill Tailings.

(2) References to "Administrator" or "EPA" in 40 C.F.R. Part 61 include the department of health except in any section of 40 C.F.R. Part 61 for which a federal rule or delegation indicates that the authority will not be delegated to the state.

[Statutory Authority: RCW 70A.388.040 and 70A.388.050(5). WSR 23-04-063, § 246-247-035, filed 1/27/23, effective 2/27/23. Statutory Authority: RCW 70A.388.040, 70A.388.050(5) and 2020 c 20. WSR 21-22-118, § 246-247-035, filed 11/3/21, effective 12/4/21. Statutory Authority: RCW 70.98.050 and 70.98.080(5). WSR 19-23-039, § 246-247-035, filed 11/12/19, effective 12/13/19. Statutory Authority: RCW 70.98.050, 70.98.080(5) and 40 C.F.R. 63.91. WSR 19-04-042, § 246-247-035, filed 1/29/19, effective 3/1/19. Statutory Authority: RCW 70.98.050 and 70.98.080(5). WSR 18-12-075, § 246-247-035, filed 6/1/18, effective 7/2/18; WSR 17-13-037, § 246-247-035, filed 6/13/17, effective 7/14/17. Statutory Authority: RCW 70.98.050 and 70.98.080. WSR 16-15-083, § 246-247-035, filed 7/19/16, effective 8/19/16; WSR 16-06-003, § 246-247-035, filed 2/17/16, effective 3/19/16. Statutory Authority: RCW 70.98.050 and 70.98.080(5). WSR 12-01-071, § 246-247-035, filed 12/19/11, effective 1/19/12. Statutory Authority: RCW 70.98.050. WSR 05-12-059, § 246-247-035, filed 5/26/05, effective 6/26/05.]

## WSR 23-15-095

## PROPOSED RULES

## DEPARTMENT OF HEALTH

[Filed July 18, 2023, 1:01 p.m.]

Original Notice.

Proposal is exempt under RCW 34.05.310(4) or 34.05.330(1).

Title of Rule and Other Identifying Information: As required by the Nuclear Regulatory Commission (NRC), the department of health (department) is proposing rule amendments to ensure that the following chapters are consistent with NRC rules: Chapter 246-221 WAC, Radiation protection standards; chapter 246-231 WAC, Packaging and transportation of radioactive material; chapter 246-237 WAC, Radiation protection—Physical protection of category 1 and category 2 quantities of radioactive material; and chapter 246-240 WAC, Radiation protection. Amendments are necessary to ensure that these chapters are consistent with NRC rules. The department is also proposing other editorial and nonsubstantive changes.

Hearing Location(s): On August 30, 2023, at 11:30 a.m. The department is holding a virtual-only hearing. Register in advance for this webinar [https://us02web.zoom.us/webinar/register/WN\\_MwQ0imC1SKWy3mkmOWD\\_2A](https://us02web.zoom.us/webinar/register/WN_MwQ0imC1SKWy3mkmOWD_2A). After registering, you will receive a confirmation email containing information about joining the webinar.

Date of Intended Adoption: September 6, 2023.

Submit Written Comments to: Department of Health, C/O Nina Helpling, P.O. Box 47820, Olympia, WA 98504-7820, email [radruleupdates@doh.wa.gov](mailto:radruleupdates@doh.wa.gov), <https://fortress.wa.gov/doh/policyreview/>, by August 30, 2023.

Assistance for Persons with Disabilities: Contact Nina Helpling, phone 360-236-3065, TTY 711, email [nina.helpling@doh.wa.gov](mailto:nina.helpling@doh.wa.gov), by August 23, 2023.

Purpose of the Proposal and Its Anticipated Effects, Including Any Changes in Existing Rules: This proposed rule making amends four chapters of rules to adopt federally required rule changes without material change related to licensing radioactive materials. This rule making adopts the following NRC rule changes that are identified by NRC Regulation Amendments Tracking System (RATS) numbers as follows:

(1) 2020-2 Social Security Fraud Prevention - 85 F.R. 33527 and 85 F.R. 44685: Amends chapter 246-240 WAC to make miscellaneous corrections that are nonsubstantive changes to clarify rule language.

(2) 2020-3 Miscellaneous Corrections - 85 F.R. 65656: Amends chapters 246-221, 246-231, and 246-240 WAC to make nonsubstantive changes such as updating titles, removing outdated requirements, and updating outdated calculations.

(3) 2021-1 Miscellaneous Corrections - 86 F.R. 43397 and 86 F.R. 47209: Amends chapters 246-221, 246-232, 246-237, and 246-240 WAC to remove outdated requirements, update organization names, and update license titles.

(4) 2021-2 Miscellaneous Corrections - 86 F.R. 67839: Amends chapter 246-357 WAC to correct a calculation.

The proposed rule also makes other editorial and nonsubstantive changes.

Reasons Supporting Proposal: The rule making is required to comply with RCW 70A.388.040 State radiation control agency, and 70A.388.110 Federal-state agreements. Under the formal state agreement between the governor and NRC, the department is required to remain compatible with NRC rules. This is done through rule amendments to



make our state rules consistent with, and at-least-as-stringent-as, the NRC's rules. Additional nonsubstantive formatting changes are being proposed to make the rule easier to read.

Statutory Authority for Adoption: RCW 70A.388.040.

Statute Being Implemented: RCW 70A.388.040 and 70A.388.110.

Rule is necessary because of federal law, 85 F.R. 33527, 44685 and 65656; and 86 F.R. 43397, 47209, and 67839.

Name of Proponent: Department of health, governmental.

Name of Agency Personnel Responsible for Drafting, Implementation, and Enforcement: Earl Fordham, 309 Bradley Boulevard, Suite 201, Richland, WA 99352, 509-628-7628.

A school district fiscal impact statement is not required under RCW 28A.305.135.

A cost-benefit analysis is not required under RCW 34.05.328. RCW 34.05.328 (5)(b)(iii) exempts rules that adopt or incorporate by reference without material change federal statutes or regulations, Washington state law, the rules of other Washington state agencies, or national consensus codes that generally establish industry standards. RCW 34.05.328 (5)(b)(iv) exempts rules that only correct typographical errors, make address or name changes, or clarify the language of a rule without changing its effect.

This rule proposal, or portions of the proposal, is exempt from requirements of the Regulatory Fairness Act because the proposal:

Is exempt under RCW 19.85.061 because this rule making is being adopted solely to conform and/or comply with federal statute or regulations. Citation of the specific federal statute or regulation and description of the consequences to the state if the rule is not adopted: 85 F.R. 33527, 44685 and 65656; and 86 F.R. 43397, 47209, and 67839 identify updates to C.F.R., Title 10 - Energy, Chapter I. NRC. Per RCW 70A.388.040 State radiation control agency, and 70A.388.110 Federal-state agreements. Under the formal state agreement between the governor and NRC, the department is required to remain compatible with NRC rules. If the department did not adopt these proposed changes the department would be out of compliance with state compatibility requirements of the NRC, and RCW 70A.388.110 Federal-state agreements.

Is exempt under RCW 19.85.025(3) as the rules are adopting or incorporating by reference without material change federal statutes or regulations, Washington state statutes, rules of other Washington state agencies, shoreline master programs other than those programs governing shorelines of statewide significance, or, as referenced by Washington state law, national consensus codes that generally establish industry standards, if the material adopted or incorporated regulates the same subject matter and conduct as the adopting or incorporating rule; and rules only correct typographical errors, make address or name changes, or clarify language of a rule without changing its effect.

Explanation of exemptions: The agency is exempt from requirements of the Regulatory Fairness Act because the proposed rule only incorporates by reference the federally required standards necessary for the department to maintain full delegation as required by NRC.

Scope of exemption for rule proposal:

Is fully exempt.

July 18, 2023

Kristen Peterson, JD  
Chief of Policy  
for Umair A. Shah, MD, MPH  
Secretary

**OTS-4711.2**

AMENDATORY SECTION (Amending WSR 01-05-110, filed 2/21/01, effective 3/24/01)

**WAC 246-221-005 Radiation protection programs.** (1) Each specific licensee shall develop, document, and implement a radiation protection program sufficient to ensure compliance with the provisions of this chapter.

(2) The licensee shall use, to the extent practical, procedures and engineering controls based upon sound radiation protection principles to achieve occupational doses and doses to members of the public that are as low as is reasonably achievable (ALARA).

(3) The licensee shall review the radiation protection program content and implementation at ~~((the frequency specified in the license))~~ least annually.

(4) To implement the ALARA requirements of subsection (2) of this section, and notwithstanding the requirements of WAC 246-221-060, a constraint on air emission of radioactive material to the environment, excluding radon-220, radon-222 and their daughters, shall be established by licensees such that the individual member of the public likely to receive the highest dose will not be expected to receive a total effective dose equivalent in excess of 0.1 mSv (10 mrem) per year from these emissions. This dose constraint does not apply to sealed sources or to accelerators less than 200MeV. If a licensee subject to this requirement exceeds this dose constraint, the licensee shall report the exceedance as provided in WAC 246-221-260 and promptly take appropriate corrective action to ensure against recurrence.

(5) Each licensee shall maintain records of the radiation protection program, including:

(a) The provisions of the program; and

(b) Audits, where required, and other reviews of program content and implementation.

[Statutory Authority: RCW 70.98.050. WSR 01-05-110, § 246-221-005, filed 2/21/01, effective 3/24/01; WSR 99-15-105, § 246-221-005, filed 7/21/99, effective 8/21/99; WSR 94-01-073, § 246-221-005, filed 12/9/93, effective 1/9/94.]

AMENDATORY SECTION (Amending WSR 18-21-020, filed 10/4/18, effective 11/4/18)

**WAC 246-221-010 Occupational dose limits for adults.** (1) The licensee or registrant shall control the occupational dose to individual adults, except for planned special exposures pursuant to WAC 246-221-030, to the following dose limits:

(a) An annual limit, which is the more limiting of:

(i) The total effective dose equivalent being equal to 0.05 Sv ((5) five rem); or

(ii) The sum of the deep dose equivalent and the committed dose equivalent to any individual organ or tissue other than the lens of the eye being equal to 0.50 Sv (50 rem).

(b) The annual limits to the lens of the eye, to the skin of the whole body, and to the skin of the extremities which are:

(i) A lens dose equivalent of 0.15 Sv (15 rem); and

(ii) A shallow dose equivalent of 0.50 Sv (50 rem) to the skin of the whole body or to the skin of any extremity.

(2) Doses received in excess of the annual limits, including doses received during accidents, emergencies, and planned special exposures, must be subtracted from the limits specified in WAC 246-221-030 for planned special exposures that the individual may receive during the current year and during the individual's lifetime.

(3) When the external exposure is determined by measurement with an external personal monitoring device, the deep-dose equivalent must be used in place of the effective dose equivalent, unless the effective dose equivalent is determined by a dosimetry method approved by the NRC or the department. The assigned deep-dose equivalent must be for the part of the body receiving the highest exposure. The assigned shallow dose equivalent shall be the dose averaged over the contiguous (~~ten~~) 10 square centimeters of skin receiving the highest exposure. The deep dose equivalent, lens dose equivalent, and shallow dose equivalent may be assessed from surveys or other radiation measurements for the purpose of demonstrating compliance with the occupational dose limits, if the individual monitoring device was not in the region of highest potential exposure, or the results of the individual monitoring are unavailable.

(4) Derived air concentration (DAC) and annual limit on intake (ALI) values are specified in WAC 246-221-290 and may be used to determine the individual's dose and to demonstrate compliance with the occupational dose limits.

(5) Notwithstanding the annual dose limits, the licensee shall limit the soluble uranium intake by an individual to 10 milligrams in a week in consideration of chemical toxicity.

(6) The licensee or registrant shall reduce the dose that an individual may be allowed to receive in the current year by the amount of occupational dose received while employed by any other person during the current year as determined in accordance with WAC 246-221-020.

[Statutory Authority: RCW 70.98.050, 56 F.R. 23396, 10 C.F.R. 20.1201 (a)(1)(ii). WSR 18-21-020, § 246-221-010, filed 10/4/18, effective 11/4/18. Statutory Authority: RCW 70.98.050. WSR 14-01-077, § 246-221-010, filed 12/16/13, effective 1/16/14; WSR 04-23-093, § 246-221-010, filed 11/17/04, effective 12/18/04; WSR 01-05-110, § 246-221-010, filed 2/21/01, effective 3/24/01; WSR 94-01-073, § 246-221-010, filed 12/9/93, effective 1/9/94. Statutory Authority: RCW 70.98.050 and 70.98.080. WSR 91-15-112 (Order 184), § 246-221-010, filed 7/24/91, effective 8/24/91. Statutory Authority: RCW 43.70.040. WSR 91-02-049 (Order 121), recodified as § 246-221-010, filed 12/27/90, effective 1/31/91. Statutory Authority: RCW 70.98.080. WSR 87-01-031 (Order 2450), § 402-24-020, filed 12/11/86. Statutory Authority: RCW 70.98.050. WSR 81-01-011 (Order 1570), § 402-24-020, filed 12/8/80; Order 1095, § 402-24-020, filed 2/6/76; Order 1, § 402-24-020, filed 1/8/69; Rules (part), filed 10/26/66.]

AMENDATORY SECTION (Amending WSR 01-05-110, filed 2/21/01, effective 3/24/01)

**WAC 246-221-015 Compliance with requirements for summation of external and internal doses.** (1) If the licensee is required to monitor under both WAC 246-221-090 and 246-221-100, the licensee shall demonstrate compliance with the dose limits by summing external and internal doses. If the licensee is required to monitor only under WAC 246-221-090 or only under WAC 246-221-100, then summation is not required to demonstrate compliance with the dose limits. The licensee may demonstrate compliance with the requirements for summation of external and internal doses under subsections (2), (3), and (4) of this section. The dose equivalents for the lens of the eye, the skin, and the extremities are not included in the summation, but are subject to separate limits.

(2) **Intake by inhalation.** If the only intake of radionuclides is by inhalation, the total effective dose equivalent limit is not exceeded if the sum of the deep dose equivalent divided by the total effective dose equivalent limit, and one of the following, does not exceed unity:

(a) The sum of the fractions of the inhalation ALI for each radionuclide; or

(b) The total number of derived air concentration-hours (DAC-hours) for all radionuclides divided by (~~two thousand~~) 2,000; or

(c) The sum of the calculated committed effective dose equivalents to all significantly irradiated organs or tissues (T) calculated from bioassay data using appropriate biological models and expressed as a fraction of the annual limit. For purposes of this requirement, an organ or tissue is deemed to be significantly irradiated if, for that organ or tissue, the product of the weighting factors,  $w_T$ , and the committed dose equivalent,  $H_{T,50}$ , per unit intake is greater than (~~ten~~) 10 percent of the maximum weighted value of  $H_{50}$ , that is,  $w_T H_{T,50}$ , per unit intake for any organ or tissue.

(3) **Intake by oral ingestion.** If the occupationally exposed individual also receives an intake of radionuclides by oral ingestion greater than (~~ten~~) 10 percent of the applicable oral ALI, the licensee shall account for this intake and include it in demonstrating compliance with the limits.

(4) **Intake through wounds or absorption through skin.** The licensee shall evaluate and, to the extent practical, account for intakes through wounds or skin absorption. The intake through intact skin has been included in the calculation of DAC for hydrogen-3 and does not need to be evaluated or accounted for pursuant to this section.

(5) **External dose from airborne radioactive material.** Licensees shall, when determining the dose from airborne radioactive material, include the contribution to the deep dose equivalent, lens dose equivalent, and shallow dose equivalent from external exposure to the radioactive cloud. Airborne radioactivity measurements and DAC values shall not be used as the primary means to assess the deep dose equivalent when the airborne radioactive material includes radionuclides other than noble gases or if the cloud of airborne radioactive material is not relatively uniform. The determination of the deep dose equivalent to an individual shall be based upon measurements using instruments or individual monitoring devices.

[Statutory Authority: RCW 70.98.050. WSR 01-05-110, § 246-221-015, filed 2/21/01, effective 3/24/01; WSR 94-01-073, § 246-221-015, filed 12/9/93, effective 1/9/94.]

AMENDATORY SECTION (Amending WSR 01-05-110, filed 2/21/01, effective 3/24/01)

**WAC 246-221-030 Requirements for planned special exposures.** A licensee or registrant may authorize an adult worker to receive doses in addition to and accounted for separately from the doses received under the limits specified in WAC 246-221-010 provided that each of the following conditions is satisfied:

(1) The licensee or registrant authorizes a planned special exposure only in an exceptional situation when alternatives that might avoid the dose estimated to result from the planned special exposure are unavailable or impractical.

(2) The licensee or registrant, and employer if the employer is not the licensee or registrant, specifically authorizes the planned special exposure, in writing, before the exposure occurs.

(3) Before a planned special exposure, the licensee or registrant ensures that each individual involved is:

(a) Informed of the purpose of the planned operation; and

(b) Informed of the estimated doses and associated potential risks and specific radiation levels or other conditions that might be involved in performing the task; and

(c) Instructed in the measures to be taken to keep the dose ALARA considering other risks that may be present.

(4) Prior to permitting an individual to participate in a planned special exposure, the licensee or registrant ascertains prior doses as required by WAC 246-221-020(2) during the lifetime of the individual for each individual involved.

(5) Subject to WAC 246-221-010(2), the licensee or registrant shall not authorize a planned special exposure that would cause an individual to receive a dose from all planned special exposures and all doses in excess of the limits to exceed:

(a) The numerical values of any of the dose limits in WAC 246-221-010(1) in any year; and

(b) Five times the annual dose limits in WAC 246-221-010(1) during the individual's lifetime.

(6) The licensee or registrant maintains records that describe:

(a) The exceptional circumstances requiring the use of a planned special exposure;

(b) The name of the management official who authorized the planned special exposure and a copy of the signed authorization;

(c) What actions were necessary;

(d) Why the actions were necessary;

(e) What precautions were taken to assure that doses were maintained ALARA; and

(f) What individual and collective doses were expected to result.

(7) The licensee or registrant records the best estimate of the dose resulting from the planned special exposure in the individual's record and informs the individual, in writing, of the dose within (~~thirty~~) 30 days from the date of the planned special exposure. The dose from planned special exposures shall not be considered in con-

trolling future occupational dose of the individual under WAC 246-221-010(1) but shall be included in evaluations required by subsections (4) and (5) of this section.

(8) The licensee or registrant submits a written report in accordance with WAC 246-221-265.

[Statutory Authority: RCW 70.98.050. WSR 01-05-110, § 246-221-030, filed 2/21/01, effective 3/24/01; WSR 94-01-073, § 246-221-030, filed 12/9/93, effective 1/9/94. Statutory Authority: RCW 70.98.050 and 70.98.080. WSR 91-15-112 (Order 184), § 246-221-030, filed 7/24/91, effective 8/24/91. Statutory Authority: RCW 43.70.040. WSR 91-02-049 (Order 121), recodified as § 246-221-030, filed 12/27/90, effective 1/31/91. Statutory Authority: RCW 70.98.050. WSR 81-01-011 (Order 1570), § 402-24-027, filed 12/8/80.]

AMENDATORY SECTION (Amending WSR 14-01-077, filed 12/16/13, effective 1/16/14)

**WAC 246-221-040 Determination of internal exposure of individuals to concentrations of radioactive materials in restricted areas.**

(1) For purposes of assessing dose used to determine compliance with occupational dose equivalent limits, the licensee shall, when required under WAC 246-221-100, take suitable and timely measurements of:

- (a) Concentrations of radioactive materials in air in work areas;
- or
- (b) Quantities of radionuclides in the body; or
  - (c) Quantities of radionuclides excreted from the body; or
  - (d) Combinations of these measurements.

(2) Unless respiratory protective equipment is used, as provided in WAC 246-221-117, or the assessment of intake is based on bioassays, the licensee shall assume that an individual inhales radioactive material at the airborne concentration in which the individual is present.

(3) When specific information on the physical and biochemical properties of the radionuclides taken into the body or the behavior or the material in an individual is known, the licensee may:

- (a) Use that information to calculate the committed effective dose equivalent, and, if used, the licensee shall document that information in the individual's record; and
- (b) Upon prior approval of the department, adjust the DAC or ALI values to reflect the actual physical and chemical characteristics of airborne radioactive material, for example, aerosol size distribution or density; and

(c) Separately assess the contribution of fractional intakes of Class D, W, or Y compounds of a given radionuclide to the committed effective dose equivalent. See WAC 246-221-290.

(4) If the licensee chooses to assess intakes of Class Y material using the measurements given in subsection (1)(b) or (c) of this section, the licensee may delay the recording and reporting of the assessments for periods up to seven months, unless otherwise required by WAC 246-221-250 or 246-221-260. This delay permits the licensee to make additional measurements basic to the assessments.

(5) If the identity and concentration of each radionuclide in a mixture are known, the fraction of the DAC applicable to the mixture for use in calculating DAC-hours shall be either:

(a) The sum of the ratios of the concentration to the appropriate DAC value, that is, D, W, or Y, from WAC 246-221-290 for each radionuclide in the mixture; or

(b) The ratio of the total concentration for all radionuclides in the mixture to the most restrictive DAC value for any radionuclide in the mixture.

(6) If the identity of each radionuclide in a mixture is known, but the concentration of one or more of the radionuclides in the mixture is not known, the DAC for the mixture shall be the most restrictive DAC of any radionuclide in the mixture.

(7) When a mixture of radionuclides in air exists, a licensee may disregard certain radionuclides in the mixture if:

(a) The licensee uses the total activity of the mixture in demonstrating compliance with the dose limits in WAC 246-221-010 and in complying with the monitoring requirements in WAC 246-221-100; and

(b) The concentration of any radionuclide disregarded is less than ~~((ten))~~ 10 percent of its DAC; and

(c) The sum of these percentages for all of the radionuclides disregarded in the mixture does not exceed ~~((thirty))~~ 30 percent.

(8) When determining the committed effective dose equivalent, the following information may be considered:

(a) In order to calculate the committed effective dose equivalent, the licensee may assume that the inhalation of one ALI, or an exposure of 2,000 DAC-hours, results in a committed effective dose equivalent of 0.05 Sv ~~((5))~~ five rem) for radionuclides that have their ALIs or DACs based on the committed effective dose equivalent.

(b) For an ALI and the associated DAC determined by the nonstochastic organ dose limit of 0.50 Sv (50 rem), the intake of radionuclides that would result in a committed effective dose equivalent of 0.05 Sv ~~((5))~~ five rem), that is, the stochastic ALI, is listed in parentheses in Table I of WAC 246-221-290. The licensee may, as a simplifying assumption, use the stochastic ALIs to determine committed effective dose equivalent. However, if the licensee uses the stochastic ALIs, the licensee shall also demonstrate that the limit in WAC 246-221-010 (1)(a)(ii) is met.

[Statutory Authority: RCW 70.98.050. WSR 14-01-077, § 246-221-040, filed 12/16/13, effective 1/16/14; WSR 94-01-073, § 246-221-040, filed 12/9/93, effective 1/9/94. Statutory Authority: RCW 70.98.050 and 70.98.080. WSR 91-15-112 (Order 184), § 246-221-040, filed 7/24/91, effective 8/24/91. Statutory Authority: RCW 43.70.040. WSR 91-02-049 (Order 121), recodified as § 246-221-040, filed 12/27/90, effective 1/31/91. Statutory Authority: RCW 70.98.050. WSR 81-01-011 (Order 1570), § 402-24-030, filed 12/8/80; Order 1095, § 402-24-030, filed 2/6/76; Order 1, § 402-24-030, filed 1/8/69; Rules (part), filed 10/26/66.]

AMENDATORY SECTION (Amending WSR 17-12-046, filed 6/1/17, effective 7/2/17)

**WAC 246-221-055 Dose equivalent to an embryo/fetus.** (1) The licensee or registrant shall ensure that the dose equivalent to an embryo/fetus during the entire pregnancy, due to occupational exposure of a declared pregnant woman, does not exceed ~~((5))~~ five mSv (0.5 rem).

(2) Once pregnancy has been declared, the licensee or registrant shall make every effort to avoid substantial variation above a uniform monthly exposure rate to a declared pregnant woman in order to satisfy the limit in subsection (1) of this section.

(3) If by the time the woman declares pregnancy to the licensee or registrant, the dose equivalent to the embryo/fetus has exceeded ((5)) five mSv (0.5 rem), or is within 0.50 mSv (0.05 rem) of this dose, the licensee or registrant shall be deemed to be in compliance with subsection (1) of this section if the additional dose equivalent to the embryo/fetus does not exceed 0.50 mSv (0.05 rem) during the remainder of the pregnancy.

(4) The dose equivalent to an embryo/fetus shall be taken as the sum of:

(a) The deep dose equivalent to the declared pregnant woman; and

(b) The dose equivalent to the embryo/fetus from radionuclides in the embryo/fetus and radionuclides in the declared pregnant woman.

(5) The licensee or registrant shall maintain the records of dose equivalent to an embryo/fetus with the records of dose equivalent to the declared pregnant woman. The declaration of pregnancy, including the estimated date of conception, shall also be kept on file, but may be maintained separately from the dose records.

[Statutory Authority: RCW 70.98.010, 70.98.050, and 70.98.080. WSR 17-12-046, § 246-221-055, filed 6/1/17, effective 7/2/17. Statutory Authority: RCW 70.98.050. WSR 01-05-110, § 246-221-055, filed 2/21/01, effective 3/24/01; WSR 94-01-073, § 246-221-055, filed 12/9/93, effective 1/9/94.]

AMENDATORY SECTION (Amending WSR 14-01-077, filed 12/16/13, effective 1/16/14)

**WAC 246-221-060 Dose limits for individual members of the public.** (1) Each licensee or registrant shall conduct operations so that:

(a) The total effective dose equivalent to individual members of the public from the licensed or registered operation does not exceed ((±)) one mSv (0.1 rem) in a year, exclusive of the dose contributions from background radiation, from any medical administration the individual has received, from exposure to individuals administered radioactive material and released under chapter 246-240 WAC, from voluntary participation in medical research programs, and from the licensee's or registrant's disposal of radioactive material into sanitary sewerage in accordance with WAC 246-221-190; and

(b) The dose in any unrestricted area from external sources, exclusive of the dose contributions from patients administered radioactive material and released under chapter 246-240 WAC, does not exceed 0.02 mSv (0.002 rem) in any one hour.

(2) If the licensee or registrant permits members of the public to have access to restricted areas, they shall be escorted and the limits for members of the public continue to apply to those individuals.

(3) Notwithstanding subsection (1) of this section, a licensee or registrant may continue to operate a facility constructed and put into operation prior to January 1, 1994, where the annual dose limit for an individual member of the public is more than ((±)) one mSv (0.1 rem)



and less than ((5)) five mSv (0.5 rem) total effective dose equivalent, if:

(a) The facility's approved operating conditions for each radiation source remain the same. Any increase in the following operating conditions shall require reevaluation by the department and modification of the facility shielding applicable to the source of radiation to meet the ((±)) one mSv (0.1 rem) total effective dose equivalent limit for individual members of the public: Size of the radiation source, workload, or occupancy factors associated with the source of radiation; and

(b) Any change in the permanent shielding of the facility due to remodeling, repair or replacement requires the facility to meet the ((±)) one mSv (0.1 rem) total effective dose equivalent limit for individual members of the public for areas affected by that portion of the shielding.

(4) Each licensee or registrant shall maintain records sufficient to demonstrate compliance with the dose limit for individual members of the public.

[Statutory Authority: RCW 70.98.050. WSR 14-01-077, § 246-221-060, filed 12/16/13, effective 1/16/14; WSR 06-05-019, § 246-221-060, filed 2/6/06, effective 3/9/06; WSR 98-13-037, § 246-221-060, filed 6/8/98, effective 7/9/98; WSR 94-01-073, § 246-221-060, filed 12/9/93, effective 1/9/94. Statutory Authority: RCW 70.98.050 and 70.98.080. WSR 91-15-112 (Order 184), § 246-221-060, filed 7/24/91, effective 8/24/91. Statutory Authority: RCW 43.70.040. WSR 91-02-049 (Order 121), recodified as § 246-221-060, filed 12/27/90, effective 1/31/91. Statutory Authority: RCW 70.98.080. WSR 87-01-031 (Order 2450), § 402-24-040, filed 12/11/86. Statutory Authority: RCW 70.98.050. WSR 81-01-011 (Order 1570), § 402-24-040, filed 12/8/80; Order 1095, § 402-24-040, filed 2/6/76; Order 1, § 402-24-040, filed 1/8/69; Rules (part), filed 10/26/66.]

AMENDATORY SECTION (Amending WSR 14-01-077, filed 12/16/13, effective 1/16/14)

**WAC 246-221-080 Leak tests.** (1) Each sealed radioactive source possessed under the provisions of a specific license, other than hydrogen-3 (tritium), with a half-life greater than ((~~thirty~~)) 30 days and in any form other than gas, shall be tested and results obtained for leakage or contamination prior to initial use and at six-month intervals or as specified by the license, except that each source designed for the purpose of emitting alpha particles shall be tested at intervals not to exceed three months. If at any other time there is reason to suspect that a sealed source might have been damaged, it shall be tested for leakage and results obtained before further use. In the absence of a certificate from a transferor indicating that a test for leakage has been made within six months prior to the transfer (three months for a source designed to emit alpha particles), the sealed source shall not be put into use until tested and the results received.

(2) Leak tests shall be capable of detecting the presence of 185 Bq (0.005 microcurie) of removable contamination. The results of leak tests made pursuant to subsection (1) of this section shall be recorded in units of becquerel or microcuries and shall be maintained for

inspection by the department. Any test conducted pursuant to subsection (1) of this section which reveals the presence of 185 Bq (0.005 microcurie) or more of removable contamination shall be considered evidence that the sealed source is leaking. The licensee shall immediately withdraw the source from use shall take action to prevent the spread of contamination and shall cause it to be decontaminated and repaired or to be disposed in accordance with WAC 246-232-080. If a sealed source shows evidence of leaking, a report shall be filed with the department within five days of the test, describing the equipment involved, the test results, and the corrective action taken.

(3) Test samples shall be taken from the sealed source or from the internal surfaces or the opening of the container in which the sealed source is stored or from surfaces of devices or equipment in which the sealed source is permanently mounted. Tests for contamination and leakage may be made by wiping appropriate accessible surfaces on which one might expect contamination to accumulate and measuring these wipes for transferred contamination. Test samples shall also be taken from the interior surfaces of the container in which a sealed source of radium is stored.

(4) Leak tests are required for sealed radioactive sources that are greater than 3.7 MBq (100 microcuries) for beta and gamma emitting sources and greater than 370 KBq (10 microcuries) for sources designed to emit alpha particles.

(5) Tests for leakage or contamination shall be performed by persons specifically authorized by the department, an agreement state, or the NRC to perform such services.

[Statutory Authority: RCW 70.98.050. WSR 14-01-077, § 246-221-080, filed 12/16/13, effective 1/16/14; WSR 94-01-073, § 246-221-080, filed 12/9/93, effective 1/9/94. Statutory Authority: RCW 70.98.050 and 70.98.080. WSR 91-15-112 (Order 184), § 246-221-080, filed 7/24/91, effective 8/24/91. Statutory Authority: RCW 43.70.040. WSR 91-02-049 (Order 121), recodified as § 246-221-080, filed 12/27/90, effective 1/31/91. Statutory Authority: RCW 70.98.080. WSR 83-19-050 (Order 2026), § 402-24-060, filed 9/16/83. Statutory Authority: RCW 70.98.050. WSR 81-01-011 (Order 1570), § 402-24-060, filed 12/8/80; Order 1095, § 402-24-060, filed 2/6/76; Order 1, § 402-24-060, filed 1/8/69; Rules (part), filed 10/26/66.]

AMENDATORY SECTION (Amending WSR 01-05-110, filed 2/21/01, effective 3/24/01)

**WAC 246-221-090 Personnel monitoring for external dose.** Each licensee or registrant shall monitor occupational exposure from sources of radiation at levels sufficient to demonstrate compliance with the occupational dose limits of WAC 246-221-010, 246-221-030, 246-221-050 and 246-221-055.

(1) Each licensee or registrant shall monitor occupational exposure to radiation from licensed (or registered) and unlicensed (or unregistered) radiation sources under the control of the licensee or registrant and shall supply and shall require the use of individual monitoring devices by:

(a) Each adult likely to receive, in one year from sources external to the body, a dose in excess of (~~ten~~) 10 percent of the applicable limits specified in WAC 246-221-010(1).

(b) Each minor likely to receive, in one year from sources external to the body, a deep dose equivalent in excess of ((1)) one mSv (0.1 rem), a lens dose equivalent in excess of 1.5 mSv (0.15 rem), or a shallow dose equivalent to the skin or to the extremities in excess of ((5)) five mSv (0.5 rem).

(c) Each declared pregnant woman likely to receive during the entire pregnancy, from radiation sources external to the body, a deep dose equivalent in excess of ((1)) one mSv (0.1 rem). All of the occupational dose limits specified in WAC 246-221-010 continue to be applicable to the declared pregnant worker as long as the embryo/fetus dose limit is not exceeded.

(d) Each individual who enters a high or very high radiation area.

(2) Personnel monitoring devices assigned to an individual:

(a) Shall not intentionally be exposed to give a false or erroneous reading;

(b) Shall be assigned to one individual per exposure interval (i.e., weekly, monthly) and used to determine exposure for that individual only;

(c) Shall not be worn by any individual other than that individual originally assigned to the device;

(d) Personnel monitoring devices that are exposed while not being worn by the assigned individual shall be processed and recorded as soon as possible. A replacement monitoring device shall be assigned to the individual immediately. A record of the circumstances of the exposure shall be retained.

(3) All personnel dosimeters, except for direct and indirect reading pocket ionization chambers and those dosimeters used to measure the dose to any extremities, that require processing to determine the radiation dose and that are utilized by licensees or registrants to comply with subsection (1) of this section, with other applicable provisions of chapters 246-220 through 246-255 WAC, or with conditions specified in a licensee's license must be processed and evaluated by a dosimetry processor:

(a) Holding current personnel dosimetry accreditation from either the National Voluntary Laboratory Accreditation Program (NVLAP) of the National Institute of Standards and Technology (formerly known as the National Bureau of Standards) or the United States Department of Energy Laboratory Accreditation Program for Personnel Dosimetry Systems (DOELAP); and

(b) Approved in this accreditation process for the type of radiation or radiations included in the NVLAP or DOELAP program that most closely approximate the type of radiation or radiations for which the individual wearing the dosimeter is monitored.

(4) For the purposes of this section "dosimetry processor" means an individual or an organization that processes and evaluates personnel monitoring devices in order to determine the radiation dose delivered to the device.

(5) Each licensee or registrant shall maintain records of doses received by all individuals for whom monitoring was required under subsection (1) of this section, and records of doses received during planned special exposures, accidents, and emergency conditions. Assessments of dose equivalent and records made using units in effect before January 1, 1994, need not be changed. These records shall include, when applicable:

(a) The deep dose equivalent to the whole body, lens dose equivalent, shallow dose equivalent to the skin, and shallow dose equivalent to the extremities; and

(b) The total effective dose equivalent when required by WAC 246-221-015; and

(c) The total of the deep dose equivalent and the committed dose to the organ receiving the highest total dose (total organ dose equivalent).

(6) The licensee or registrant shall maintain the records specified in subsection (5) of this section on department Form RHF-5A, in accordance with the instructions provided on the form, or in clear and legible records containing all the information required by Form RHF-5A; and shall update the information at least annually.

(7) Each licensee or registrant shall ensure that individuals, for whom they are required to monitor occupational doses in accordance with subsection (1) of this section, wear individual monitoring devices as follows:

(a) An individual monitoring device used for monitoring the dose to the whole body shall be worn at the unshielded or least shielded location of the whole body likely to receive the highest exposure. When a protective apron is worn, the location of the individual monitoring device is typically at the neck (collar).

(b) Any additional individual monitoring device used for monitoring the dose to an embryo/fetus of a declared pregnant woman, pursuant to WAC 246-221-055(1), shall be located at the waist under any protective apron being worn by the woman.

(c) An individual monitoring device used for monitoring the lens dose equivalent, to demonstrate compliance with WAC 246-221-010 (1)(b)(i), shall be located at the neck (collar), outside any protective apron being worn by the monitored individual, or at an unshielded location closer to the eye.

(d) An individual monitoring device used for monitoring the dose to the extremities, to demonstrate compliance with WAC 246-221-010 (1)(b)(ii), shall be worn on the extremity likely to receive the highest exposure. Each individual monitoring device shall be oriented to measure the highest dose to the extremity being monitored.

[Statutory Authority: RCW 70.98.050. WSR 01-05-110, § 246-221-090, filed 2/21/01, effective 3/24/01; WSR 94-01-073, § 246-221-090, filed 12/9/93, effective 1/9/94. Statutory Authority: RCW 70.98.050 and 70.98.080. WSR 92-06-008 (Order 245), § 246-221-090, filed 2/21/92, effective 3/23/92. Statutory Authority: RCW 43.70.040. WSR 91-02-049 (Order 121), recodified as § 246-221-090, filed 12/27/90, effective 1/31/91. Statutory Authority: RCW 70.98.050. WSR 81-01-011 (Order 1570), § 402-24-070, filed 12/8/80; Order 1095, § 402-24-070, filed 2/6/76; Order 708, § 402-24-070, filed 8/24/72; Order 1, § 402-24-070, filed 1/8/69; Rules (part), filed 10/26/66.]

AMENDATORY SECTION (Amending WSR 01-05-110, filed 2/21/01, effective 3/24/01)

**WAC 246-221-100 Personnel monitoring for internal dose. (1)**

Each licensee shall monitor, to determine compliance with WAC 246-221-040, the occupational intake of radioactive material by and assess the committed effective dose equivalent to:

(a) Adults likely to receive, in ((±)) one year, an intake in excess of ((~~ten~~)) 10 percent of the applicable ALI in Table I, Columns 1 and 2, of WAC 246-221-290;

(b) Minors likely to receive, in one year, a committed effective dose equivalent in excess of ((±)) one mSv (0.1 rem); and

(c) Declared pregnant women likely to receive, during the entire pregnancy, a committed effective dose equivalent in excess of ((±)) one mSv (0.1 rem).

(2) Where necessary or desirable in order to aid in determining the extent of an individual's exposure to concentrations of radioactive material, the department may incorporate license provisions or issue an order requiring a licensee or registrant to make available to the individual appropriate bioassay services and to furnish a copy of the reports of such services to the department.

(3) Each licensee shall maintain records of doses received by all individuals for whom monitoring was required pursuant to subsections (1) and (2) of this section, and records of doses received during planned special exposures, accidents, and emergency conditions. Assessments of dose equivalent and records made using units in effect before January 1, 1994, need not be changed. These records shall include, when applicable:

(a) The estimated intake or body burden of radionuclides;

(b) The committed effective dose equivalent assigned to the intake or body burden of radionuclides;

(c) The specific information used to calculate the committed effective dose equivalent pursuant to WAC 246-221-040;

(d) The total effective dose equivalent when required by WAC 246-221-015; and

(e) The total of the deep dose equivalent and the committed dose to the organ receiving the highest total dose (total organ dose equivalent).

(4) The licensee or registrant shall maintain the records specified in subsection (3) of this section on department Form RHF-5A, in accordance with the instructions provided on the form, or in clear and legible records containing all the information required by Form RHF-5A; and shall update the information at least annually.

[Statutory Authority: RCW 70.98.050. WSR 01-05-110, § 246-221-100, filed 2/21/01, effective 3/24/01; WSR 94-01-073, § 246-221-100, filed 12/9/93, effective 1/9/94. Statutory Authority: RCW 43.70.040. WSR 91-02-049 (Order 121), recodified as § 246-221-100, filed 12/27/90, effective 1/31/91; Order 1095, § 402-24-080, filed 2/6/76; Order 1, § 402-24-080, filed 1/8/69; Rules (part), filed 10/26/66.]

AMENDATORY SECTION (Amending WSR 94-01-073, filed 12/9/93, effective 1/9/94)

**WAC 246-221-102 Control of access to high radiation areas.** (1)

The licensee or registrant shall ensure that each entrance or access point to a high radiation area has one or more of the following features:

(a) A control device that, upon entry into the area, causes the level of radiation to be reduced below that level at which an individual might receive a deep dose equivalent of ((±)) one mSv (0.1 rem) in

one hour at (~~thirty~~) 30 centimeters from the source of radiation or from any surface that the radiation penetrates; or

(b) A control device that energizes a conspicuous visible or audible alarm signal so that the individual entering the high radiation area and the supervisor of the activity are made aware of the entry; or

(c) Entryways that are locked, except during periods when access to the areas is required, with positive control over each individual entry.

(2) In place of the controls required by subsection (1) of this section for a high radiation area, the licensee or registrant may substitute continuous direct or electronic surveillance that is capable of preventing unauthorized entry.

(3) The licensee or registrant may apply to the department for approval of alternative methods for controlling access to high radiation areas.

(4) The licensee or registrant shall establish the controls required by subsections (1) and (3) of this section in a way that does not prevent individuals from leaving a high radiation area.

(5) The licensee is not required to control each entrance or access point to a room or other area that is a high radiation area solely because of the presence of radioactive materials prepared for transport and packaged and labeled in accordance with the regulations of the United States Department of Transportation provided that:

(a) The packages do not remain in the area longer than three days; and

(b) The dose rate at one meter from the external surface of any package does not exceed 0.1 mSv (0.01 rem) per hour.

(6) The licensee is not required to control entrance or access to rooms or other areas in hospitals solely because of the presence of patients containing radioactive material, provided that there are personnel in attendance who are taking the necessary precautions to prevent the exposure of individuals to radiation or radioactive material in excess of the established limits and to operate within the ALARA provisions of the licensee's radiation protection program.

(7) The licensee or registrant is not required to control entrance or access to rooms or other areas as described in this section if the licensee or registrant has met all the specific requirements for access and control specified in other applicable chapters of these regulations, such as, chapter 246-243 WAC for industrial radiography, chapter 246-225 WAC for X-rays in the healing arts, and chapter 246-229 WAC for particle accelerators.

[Statutory Authority: RCW 70.98.050. WSR 94-01-073, § 246-221-102, filed 12/9/93, effective 1/9/94.]

AMENDATORY SECTION (Amending WSR 14-01-077, filed 12/16/13, effective 1/16/14)

**WAC 246-221-110 Surveys.** (1) Each licensee or registrant shall make or cause to be made such surveys, as defined in WAC 246-220-010, as may be necessary for the licensee or registrant to establish compliance with these regulations and are reasonable under the circumstances to evaluate the magnitude and extent of radiation levels, concentrations or quantities of radioactive material, and potential radi-

ation hazards. Records of such surveys shall be preserved as specified in WAC 246-221-230. Information on performing surveys may be found in the NRC's Regulatory Guide 8.23 "Radiation Safety Surveys at Medical Institutions."

(2) The licensee shall ensure that instruments and equipment used for quantitative radiation measurements, for example, dose rate and effluent monitoring, are calibrated annually at intervals not to exceed (~~thirteen~~) 13 months for the radiation measured.

[Statutory Authority: RCW 70.98.050. WSR 14-01-077, § 246-221-110, filed 12/16/13, effective 1/16/14; WSR 01-05-110, § 246-221-110, filed 2/21/01, effective 3/24/01; WSR 94-01-073, § 246-221-110, filed 12/9/93, effective 1/9/94. Statutory Authority: RCW 70.98.050 and 70.98.080. WSR 91-15-112 (Order 184), § 246-221-110, filed 7/24/91, effective 8/24/91. Statutory Authority: RCW 43.70.040. WSR 91-02-049 (Order 121), recodified as § 246-221-110, filed 12/27/90, effective 1/31/91. Statutory Authority: RCW 70.98.080. WSR 87-01-031 (Order 2450), § 402-24-085, filed 12/11/86; WSR 83-19-050 (Order 2026), § 402-24-085, filed 9/16/83. Statutory Authority: RCW 70.98.050. WSR 81-01-011 (Order 1570), § 402-24-085, filed 12/8/80; Order 1095, § 402-24-085, filed 2/6/76.]

AMENDATORY SECTION (Amending WSR 01-05-110, filed 2/21/01, effective 3/24/01)

**WAC 246-221-117 Use of individual respiratory protection equipment.** If the licensee assigns or permits the use of respiratory protection equipment to limit the intake of radioactive material:

(1) The licensee shall use only respiratory protection equipment that is:

(a) Tested and certified by the National Institute for Occupational Safety and Health (NIOSH); or

(b) Approved by the department on the basis of the licensee's submittal of an application for authorized use of other respiratory protection equipment, including a demonstration by testing, or a demonstration on the basis of reliable test information, that the material and performance characteristics of the equipment are capable of providing the proposed degree of protection under anticipated conditions of use.

(2) The licensee shall implement and maintain a respiratory protection program that includes:

(a) Air sampling sufficient to identify the potential hazard, permit proper equipment selection, and estimate exposures;

(b) Surveys and bioassays, as appropriate, to evaluate actual intakes;

(c) Testing of respirators for operability (user seal check for face sealing devices and functional check for others) immediately prior to each use;

(d) Written procedures regarding:

(i) Monitoring, including air sampling and bioassays;

(ii) Supervision and training of respirator users;

(iii) Fit testing;

(iv) Respirator selection;

(v) Breathing air quality;

(vi) Inventory and control;

- (vii) Storage, issuance, maintenance, repair, testing, and quality assurance of respiratory protection equipment;
  - (viii) Recordkeeping; and
  - (ix) Limitations on periods of respirator use and relief from respirator use;
- (e) Determination by a physician that the individual user is medically fit to use respiratory protection equipment:
- (i) Before the initial fitting of a face sealing respirator;
  - (ii) Before the first field use of nonface sealing respirators;
- and
- (iii) Either every (~~twelve~~) 12 months thereafter, or periodically at a frequency determined by a physician; and
- (f) Fit testing, with a fit factor greater than or equal to (~~ten~~) 10 times the APF for negative pressure devices, and a fit factor greater than or equal to (~~five hundred~~) 500 for any positive pressure, continuous flow, and pressure-demand devices, before the first field use of tight fitting, face sealing respirators, and periodically thereafter at a frequency not to exceed one year. Fit testing must be performed with the facepiece operating in the negative pressure mode.
- (3) The licensee shall advise each respirator user that the user may leave the area at any time for relief from respirator use in the event of equipment malfunction, physical or psychological distress, procedural or communication failure, significant deterioration of operating conditions, or any other conditions that might require relief.
- (4) The licensee shall also consider limitations appropriate to the type and mode of use. When selecting respiratory devices the licensee shall provide for vision correction, adequate communication, low temperature work environments, and the concurrent use of other safety or radiological protection equipment. The licensee shall use equipment in such a way as not to interfere with the proper operation of the respirator.
- (5) Standby rescue persons are required whenever one-piece atmosphere-supplying suits, or any combination of supplied air respiratory protection device and personnel protective equipment are used from which an unaided individual would have difficulty extricating himself or herself. The standby persons must be equipped with respiratory protection devices or other apparatus appropriate for the potential hazards. The standby rescue persons shall observe or otherwise maintain continuous communication with the workers (visual, voice, signal line, telephone, radio, or other suitable means), and be immediately available to assist them in case of a failure of the air supply or for any other reason that requires relief from distress. A sufficient number of standby rescue persons must be immediately available to assist all users of this type of equipment and to provide effective emergency rescue if needed.
- (6) Atmosphere-supplying respirators must be supplied with respirable air of grade D quality or better as defined by the Compressed Gas Association in publication G-7.1, "Commodity Specification for Air," 1997 and included in the regulations of the Occupational Safety and Health Administration (29 C.F.R. 1910.134 (i)(1)(ii)(A) through (E)). Grade D quality air criteria include:
- (a) Oxygen content (v/v) of 19.5-23.5%;
  - (b) Hydrocarbon (condensed) content of (~~5~~) five milligrams per cubic meter of air or less;
  - (c) Carbon monoxide (CO) content of 10 ppm or less;
  - (d) Carbon dioxide content of 1,000 ppm or less; and



(e) Lack of noticeable odor.

(7) The licensee shall ensure that no objects, materials or substances, such as facial hair, or any conditions that interfere with the face-to-facepiece seal or valve function, and that are under the control of the respirator wearer, are present between the skin of the wearer's face and the sealing surface of a tight-fitting respirator facepiece.

(8) In estimating the dose to individuals from intake of airborne radioactive materials, the concentration of radioactive material in the air that is inhaled when respirators are worn is initially assumed to be the ambient concentration in air without respiratory protection, divided by the assigned protection factor. If the dose is later found to be greater than the estimated dose, the corrected value must be used. If the dose is later found to be less than the estimated dose, the corrected value may be used.

(9) The department may impose restrictions in addition to the provisions of this section, WAC 246-221-113 and 246-221-285, in order to:

(a) Ensure that the respiratory protection program of the licensee is adequate to limit doses to individuals from intakes of airborne radioactive materials consistent with maintaining total effective dose equivalent ALARA; and

(b) Limit the extent to which a licensee may use respiratory protection equipment instead of process or other engineering controls.

(10) The licensee shall obtain authorization from the department before using assigned protection factors in excess of those specified in WAC 246-221-285. The department may authorize a licensee to use higher assigned protection factors on receipt of an application that:

(a) Describes the situation for which a need exists for higher protection factors; and

(b) Demonstrates that the respiratory protection equipment provides these higher protection factors under the proposed conditions of use.

[Statutory Authority: RCW 70.98.050. WSR 01-05-110, § 246-221-117, filed 2/21/01, effective 3/24/01; WSR 98-13-034, § 246-221-117, filed 6/8/98, effective 7/9/98; WSR 94-01-073, § 246-221-117, filed 12/9/93, effective 1/9/94.]

AMENDATORY SECTION (Amending WSR 16-13-054, filed 6/10/16, effective 7/11/16)

**WAC 246-221-160 Procedures for picking up, receiving, and opening packages.** (1) Each licensee who expects to receive a package containing quantities of radioactive material in excess of the Type A<sub>1</sub> or A<sub>2</sub> quantities specified in WAC 246-231-200 shall make arrangements to receive:

(a) The package when it is offered for delivery by the carrier;

or

(b) Immediate notification from the carrier of the arrival of the package at the carrier's terminal.

(2) Each licensee who picks up a package of radioactive material from a carrier's terminal shall pick up the package expeditiously upon receipt of notification from the carrier of its arrival.

(3) Each licensee shall:

(a) Monitor for radioactive contamination the external surfaces of any package labeled with a Radioactive White I, Yellow II or Yellow III label unless the package contains only radioactive material in the form of gas or in special form as defined in WAC 246-231-010; and

(b) Monitor the radiation levels of the external surfaces of any package labeled with a Radioactive White I, Yellow II or Yellow III label unless the package contains quantities of radioactive material that are less than or equal to the Type A quantity, as defined in WAC 246-231-200; and

(c) Monitor all packages known to contain radioactive material for radioactive contamination and radiation levels if the package has evidence of potential contamination, such as packages that are crushed, wet, or damaged.

(4) Monitoring shall be performed:

(a) Immediately upon receipt if there is evidence of package degradation or any other evidence of potential contamination or excessive radiation levels; or

(b) As soon as practicable after receipt, but no later than three hours after the package is received at the licensee's facility if received during the licensee's normal working hours, or no later than three hours from the beginning of the next working day if received after normal working hours.

(5) The licensee shall immediately notify the final delivery carrier and, by telephone, facsimile, or email, (~~or letter,~~) the department when:

(a) For normal shipments, removable radioactive surface contamination exceeds either 22 dpm/cm<sup>2</sup> for beta-gamma emitting radionuclides, all radionuclides with half-lives less than (~~ten~~) 10 days, natural uranium, natural thorium, uranium-235, uranium-238, thorium-232, and thorium-228 and thorium 230 when contained in ores or concentrates; or 2.2 dpm/cm<sup>2</sup> for all other alpha emitting radionuclides; or

(b) For exclusive use shipments, removable radioactive surface contamination exceeds either 220 dpm/cm<sup>2</sup> for beta-gamma emitting radionuclides, all radionuclides with half-lives less than (~~ten~~) 10 days, natural uranium, natural thorium, uranium-235, uranium-238, thorium-232, and thorium-228 and thorium 230 when contained in ores or concentrates; or 22 dpm/cm<sup>2</sup> for all other alpha emitting radionuclides; or

(c) For normal or exclusive use shipments, external radiation levels exceed two mSv/hour (200 millirem per hour) at any point on the external surface of the package; or

(d) For exclusive use shipments where the shipment is made in a closed transport vehicle, packages are secured in a fixed position, and no loading or unloading occurs between the beginning and end of transportation, external radiation levels exceed (~~ten~~) 10 mSv/hour (1000 millirem per hour) at any point on the external surface of the package.

(6) Each licensee shall establish and maintain procedures for safely opening packages in which radioactive material is received, and shall assure that such procedures are followed and that due consideration is given to instructions for the type of package being opened and the monitoring of potentially contaminated packaging material (including packages containing radioactive material in gaseous form) to as-

sure that only background levels of radiation are present prior to disposal of such material as nonradioactive waste.

(7) Licensees transferring special form sources to and from a work site in vehicles owned or operated by the licensee are exempt from the contamination monitoring requirements of subsection (3)(a) of this section but are not exempt from the monitoring requirement in subsection (3)(b) of this section for measuring radiation levels to ensure that the source is still properly lodged in its shield.

[Statutory Authority: RCW 70.98.050 and 70.98.110. WSR 16-13-054, § 246-221-160, filed 6/10/16, effective 7/11/16. Statutory Authority: RCW 70.98.050. WSR 14-01-077, § 246-221-160, filed 12/16/13, effective 1/16/14; WSR 99-15-105, § 246-221-160, filed 7/21/99, effective 8/21/99; WSR 94-01-073, § 246-221-160, filed 12/9/93, effective 1/9/94. Statutory Authority: RCW 70.98.050 and 70.98.080. WSR 91-15-112 (Order 184), § 246-221-160, filed 7/24/91, effective 8/24/91. Statutory Authority: RCW 43.70.040. WSR 91-02-049 (Order 121), recodified as § 246-221-160, filed 12/27/90, effective 1/31/91. Statutory Authority: RCW 70.98.080. WSR 87-01-031 (Order 2450), § 402-24-125, filed 12/11/86; WSR 83-19-050 (Order 2026), § 402-24-125, filed 9/16/83. Statutory Authority: RCW 70.98.050. WSR 81-01-011 (Order 1570), § 402-24-125, filed 12/8/80; Order 1095, § 402-24-125, filed 2/6/76.]

AMENDATORY SECTION (Amending WSR 94-01-073, filed 12/9/93, effective 1/9/94)

**WAC 246-221-190 Disposal by release into sanitary sewerage systems.** (1) No licensee shall discharge radioactive material into a sanitary sewerage system unless:

(a) It is readily soluble or it is biological material which is readily dispersible in water;

(b) The quantity of any radioactive material released in any one month, if diluted by the average monthly quantity of water released by the licensee, will not result in an average concentration exceeding the limits specified in WAC 246-221-290, Table III; and

(c) The sum of the fractions for each radionuclide, if more than one radionuclide is released, will not exceed unity; where the fraction for each radionuclide is determined by dividing the actual monthly average concentration of each radionuclide released by the licensee into the sewer by the concentration of that radionuclide listed in Table III of WAC 246-221-290; and

(d) The total quantity of licensed and other radioactive material that the licensee releases into the sanitary sewerage system in a year does not exceed 185 GBq (~~((5))~~ five Ci) of hydrogen-3, 37 GBq (~~((4))~~ one Ci) of carbon-14, and 37 GBq (~~((4))~~ one Ci) of all other radioactive materials combined.

(2) Excreta from individuals undergoing medical diagnosis or therapy with radioactive material shall be exempt from any limitations contained in this section.

[Statutory Authority: RCW 70.98.050. WSR 94-01-073, § 246-221-190, filed 12/9/93, effective 1/9/94. Statutory Authority: RCW 70.98.050 and 70.98.080. WSR 91-15-112 (Order 184), § 246-221-190, filed 7/24/91, effective 8/24/91. Statutory Authority: RCW 43.70.040. WSR

91-02-049 (Order 121), recodified as § 246-221-190, filed 12/27/90, effective 1/31/91. Statutory Authority: RCW 70.98.080. WSR 83-19-050 (Order 2026), § 402-24-140, filed 9/16/83. Statutory Authority: RCW 70.98.050. WSR 81-01-011 (Order 1570), § 402-24-140, filed 12/8/80; Order 1095, § 402-24-140, filed 2/6/76; Order 1, § 402-24-140, filed 1/8/69; Rules (part), filed 10/26/66.]

AMENDATORY SECTION (Amending WSR 01-05-110, filed 2/21/01, effective 3/24/01)

**WAC 246-221-230 Records important to radiation safety.** (1) Each licensee or registrant shall make and retain records of activities, program reviews, measurements, and calculations which may be necessary to determine the extent of occupational and public exposure from sources of radiation under the control of the licensee or registrant.

(2) Each record required by this section shall be legible throughout the specified retention period.

(3) Each licensee or registrant shall use the SI units: Becquerel, gray, sievert and coulomb per kilogram, or the special units: Curie, rad, rem, and roentgen, including multiples and subdivisions, and shall clearly indicate the units of all quantities on records required by these regulations.

(4) The licensee or registrant shall make a clear distinction among the quantities entered on the records required by these regulations such as, total effective dose equivalent, total organ dose equivalent, shallow dose equivalent, lens dose equivalent, deep dose equivalent, or committed effective dose equivalent.

(5) Records which must be maintained under this part shall be the original or a reproduced copy or microform if such reproduced copy or microform is duly authenticated by authorized personnel and the microform is capable of producing a clear and legible copy after storage for the period specified by department regulations. The record may also be stored in electronic media with the capability for producing legible, accurate, and complete records during the required retention period. Electronic media data storage systems shall incorporate standard or universally recognized security measures. Records, such as letters, drawings, and specifications, shall include all pertinent information, such as stamps, initials, and signatures.

(6) The licensee shall maintain adequate safeguards against tampering with and loss of records.

(7) The licensee or registrant shall retain the following required records until the department terminates each pertinent license or registration requiring the record, and upon termination of the license or registration, the licensee or registrant shall store for at least (~~thirty~~) 30 years:

(a) Records of prior occupational dose and exposure history as recorded on department Form RHF-4 or RHF-4A, or equivalent;

(b) Records on department Form RHF-5 or RHF-5A, or equivalent, of doses received by all individuals for whom monitoring was required pursuant to WAC 246-221-090 and 246-221-100;

(c) Records of doses received during planned special exposures, accidents, and emergency conditions;

(d) The specific information used to calculate the committed effective dose equivalent pursuant to WAC 246-221-040(3);

(e) Records of the results of surveys to determine the dose from external sources of radiation used, in the absence of or in combination with individual monitoring data, in the assessment of individual dose equivalents;

(f) Records of the results of measurements and calculations used to determine individual intakes of radioactive material and used in the assessment of internal dose;

(g) Records showing the results of air sampling, surveys, and bioassays required pursuant to WAC 246-221-117 (1)(b)(i) and (ii);

(h) Records of the results of measurements and calculations used to evaluate the release of radioactive effluents to the environment.

(8) The licensee or registrant shall retain the following records until the department terminates the pertinent license or registration requiring the record:

(a) Records of waste disposal made under the provisions of WAC 246-221-180, 246-221-190, 246-221-210 and 246-221-220, chapter 246-249 WAC, and any burials in soil as previously authorized;

(b) Records of dose to individual members of the public as required by WAC 246-221-060(4);

(c) Records of the provisions of the radiation protection program as required by WAC 246-221-005.

(9) The licensee or registrant shall retain the following records for three years after the record is made:

(a) Records of testing entry control devices for very high radiation areas as required by WAC 246-221-106(3);

(b) Records used in preparing department Form RHF-4 or RHF-4A;

(c) Records showing the results of general surveys required by WAC 246-221-110 and package surveys required by WAC 246-221-160;

(d) Records of calibrations required by WAC 246-221-110;

(e) Records of program audits and other reviews of the content and implementation of the radiation protection program required by WAC 246-221-005;

(f) Records of waste disposal by decay in storage.

(10) If there is a conflict between the department's regulations in this part, license condition, or other written department approval or authorization pertaining to the retention period for the same type of record, the retention period specified in the regulations in this part for such records shall apply unless the department, under WAC 246-220-050, has granted a specific exemption from the record retention requirements specified in the regulations in this part.

(11) The discontinuance or curtailment of activities does not relieve the licensee or registrant of responsibility for retaining all records required by this section.

[Statutory Authority: RCW 70.98.050. WSR 01-05-110, § 246-221-230, filed 2/21/01, effective 3/24/01; WSR 94-01-073, § 246-221-230, filed 12/9/93, effective 1/9/94. Statutory Authority: RCW 70.98.050 and 70.98.080. WSR 91-15-112 (Order 184), § 246-221-230, filed 7/24/91, effective 8/24/91. Statutory Authority: RCW 43.70.040. WSR 91-02-049 (Order 121), recodified as § 246-221-230, filed 12/27/90, effective 1/31/91. Statutory Authority: RCW 70.98.080. WSR 87-01-031 (Order 2450), § 402-24-170, filed 12/11/86; WSR 83-19-050 (Order 2026), § 402-24-170, filed 9/16/83. Statutory Authority: RCW 70.98.050. WSR 81-01-011 (Order 1570), § 402-24-170, filed 12/8/80; Order 1095, § 402-24-170, filed 2/6/76; Order 708, § 402-24-170, filed 8/24/72; Order 1, § 402-24-170, filed 7/2/71; Order 1, § 402-24-170, filed 1/8/69; Rules (part), filed 10/26/66.]

AMENDATORY SECTION (Amending WSR 09-06-003, filed 2/18/09, effective 3/21/09)

**WAC 246-221-235 Reports of transactions involving nationally tracked sources.** Each licensee who manufactures, transfers, receives, disassembles, or disposes of a nationally tracked source shall complete and submit a National Source Tracking Transaction Report as specified in subsections (1) through (5) of this section for each type of transaction.

(1) Each licensee who manufactures a nationally tracked source shall complete and submit a National Source Tracking Transaction Report. The report must include the following information:

(a) The name, address, and license number of the reporting licensee;

(b) The name of the individual preparing the report;

(c) The manufacturer, model, and serial number of the source;

(d) The radioactive material in the source;

(e) The initial source strength in becquerels (curies) at the time of manufacture; and

(f) The manufacture date of the source.

(2) Each licensee that transfers a nationally tracked source to another person shall complete and submit a National Source Tracking Transaction Report. The report must include the following information:

(a) The name, address, and license number of the reporting licensee;

(b) The name of the individual preparing the report;

(c) The name and license number of the recipient facility and the shipping address;

(d) The manufacturer, model, and serial number of the source or, if not available, other information to uniquely identify the source;

(e) The radioactive material in the source;

(f) The initial or current source strength in becquerels (curies);

(g) The date for which the source strength is reported;

(h) The shipping date;

(i) The estimated arrival date; and

(j) For nationally tracked sources transferred as waste under a Uniform Low-Level Radioactive Waste Manifest, the waste manifest number and the container identification of the container with the nationally tracked source.

(3) Each licensee that receives a nationally tracked source shall complete and submit a National Source Tracking Transaction Report. The report must include the following information:

(a) The name, address, and license number of the reporting licensee;

(b) The name of the individual preparing the report;

(c) The name, address, and license number of the person that provided the source;

(d) The manufacturer, model, and serial number of the source or, if not available, other information to uniquely identify the source;

(e) The radioactive material in the source;

(f) The initial or current source strength in becquerels (curies);

(g) The date for which the source strength is reported;

(h) The date of receipt; and

(i) For material received under a Uniform Low-Level Radioactive Waste Manifest, the waste manifest number and the container identification with the nationally tracked source.

(4) Each licensee that disassembles a nationally tracked source shall complete and submit a National Source Tracking Transaction Report. The report must include the following information:

(a) The name, address, and license number of the reporting licensee;

(b) The name of the individual preparing the report;

(c) The manufacturer, model, and serial number of the source or, if not available, other information to uniquely identify the source;

(d) The radioactive material in the source;

(e) The initial or current source strength in becquerels (curies);

(f) The date for which the source strength is reported;

(g) The disassemble date of the source.

(5) Each licensee who disposes of a nationally tracked source shall complete and submit a National Source Tracking Transaction Report. The report must include the following information:

(a) The name, address, and license number of the reporting licensee;

(b) The name of the individual preparing the report;

(c) The waste manifest number;

(d) The container identification with the nationally tracked source;

(e) The date of disposal; and

(f) The method of disposal.

(6) The reports discussed in subsections (1) through (5) of this section must be submitted by the close of the next business day after the transaction. A single report may be submitted for multiple sources and transactions. The reports must be submitted to the National Source Tracking System by using:

(a) The online National Source Tracking System;

(b) Electronically using a computer-readable format;

(c) By facsimile;

(d) By mail to the address on the National Source Tracking Transaction Report Form (NRC Form 748); or

(e) By telephone with follow-up by facsimile or mail.

(7) Each licensee shall correct any error in previously filed reports or file a new report for any missed transaction within five business days of the discovery of the error or missed transaction. Such errors may be detected by a variety of methods such as administrative reviews or by physical inventories required by regulation. In addition, each licensee shall reconcile the inventory of nationally tracked sources possessed by the licensee against that licensee's data in the National Source Tracking System. The reconciliation must be conducted during the month of January in each year. The reconciliation process must include resolving any discrepancies between the National Source Tracking System and the actual inventory by filing the reports identified by subsections (1) through (5) of this section. By January 31, of each year, each licensee must submit to the National Source Tracking System confirmation that the data in the National Source Tracking System is correct.

~~((8) Each licensee that possesses Category 1 or 2 nationally tracked sources shall report its initial inventory of Category 1 or 2 nationally tracked sources to the National Source Tracking System by January 31, 2009. The information may be submitted by using any of the~~

methods identified in subsection (6) (a) through (d) of this section. The initial inventory report shall include the following information:

- ~~(a) The name, address, and license number of the reporting licensee;~~
- ~~(b) The name of the individual preparing the report;~~
- ~~(c) The manufacturer, model, and serial number of each nationally tracked source or, if not available, other information to uniquely identify the source;~~
- ~~(d) The radioactive material in the sealed source;~~
- ~~(e) The initial or current source strength in becquerels (curies); and~~
- ~~(f) The date for which the source strength is reported.)~~

[Statutory Authority: RCW 70.98.050 and 70.98.080. WSR 09-06-003, § 246-221-235, filed 2/18/09, effective 3/21/09.]

AMENDATORY SECTION (Amending WSR 16-13-054, filed 6/10/16, effective 7/11/16)

**WAC 246-221-240 Reports of stolen, lost or missing radiation sources.** (1) Each licensee and registrant shall report by telephone (206-682-5327) and confirm promptly by letter, facsimile, or email to the State Department of Health, Office of Radiation Protection, P.O. Box 47827, Olympia, Washington 98504-7827.

(a) Immediately after its occurrence becomes known to the licensee, stolen, lost, or missing radioactive material in an aggregate quantity equal to or greater than (~~one thousand~~) 1,000 times the quantity specified in WAC 246-221-300, Appendix B; or

(b) Within (~~thirty~~) 30 days after its occurrence becomes known to the licensee, lost, stolen, or missing radioactive material in an aggregate quantity greater than (~~ten~~) 10 times the quantity specified in WAC 246-221-300, Appendix B that is still missing or any item not exempted in chapter 246-232 WAC; or

(c) Immediately after its occurrence becomes known to the registrant, a stolen, lost, or missing radiation machine.

(2) Each licensee or registrant required to make a report pursuant to subsection (1) of this section shall, within (~~thirty~~) 30 days after making the telephone report, make a written report to the department setting forth the following information:

(a) A description of the licensed or registered source of radiation involved, including, for radioactive material, the kind, quantity, and chemical and physical form; and, for radiation machines, the manufacturer, model and serial number, type and maximum energy of radiation emitted; and

(b) A description of the circumstances under which the loss or theft occurred; and

(c) A statement of disposition, or probable disposition, of the licensed or registered source of radiation involved; and

(d) Exposures of individuals to radiation, circumstances under which the exposures occurred, and the possible total effective dose equivalent to persons in unrestricted areas; and

(e) Actions that have been taken, or will be taken, to recover the source of radiation; and



(f) Procedures or measures that have been, or will be, adopted to ensure against a recurrence of the loss or theft of licensed or registered sources of radiation.

(3) Subsequent to filing the written report, the licensee or registrant shall also report additional substantive information on the loss or theft within (~~thirty~~) 30 days after the licensee or registrant learns of such information.

(4) The licensee or registrant shall prepare any report filed with the department pursuant to this section so that names of individuals who may have received exposure to radiation are stated in a separate and detachable portion of the report.

[Statutory Authority: RCW 70.98.050 and 70.98.110. WSR 16-13-054, § 246-221-240, filed 6/10/16, effective 7/11/16. Statutory Authority: RCW 70.98.050. WSR 14-01-077, § 246-221-240, filed 12/16/13, effective 1/16/14; WSR 94-01-073, § 246-221-240, filed 12/9/93, effective 1/9/94. Statutory Authority: RCW 70.98.050 and 70.98.080. WSR 91-15-112 (Order 184), § 246-221-240, filed 7/24/91, effective 8/24/91. Statutory Authority: RCW 43.70.040. WSR 91-02-049 (Order 121), recodified as § 246-221-240, filed 12/27/90, effective 1/31/91. Statutory Authority: RCW 70.98.080. WSR 87-01-031 (Order 2450), § 402-24-180, filed 12/11/86; WSR 83-19-050 (Order 2026), § 402-24-180, filed 9/16/83. Statutory Authority: RCW 70.98.050. WSR 81-01-011 (Order 1570), § 402-24-180, filed 12/8/80; Order 1095, § 402-24-180, filed 2/6/76; Order 708, § 402-24-180, filed 8/24/72; Order 1, § 402-24-180, filed 7/2/71; Order 1, § 402-24-180, filed 1/8/69; Rules (part), filed 10/26/66.]

AMENDATORY SECTION (Amending WSR 16-13-054, filed 6/10/16, effective 7/11/16)

**WAC 246-221-250 Notification of incidents.** (1) **Immediate notification.** Notwithstanding other requirements for notification, each licensee and registrant shall immediately (as soon as possible but no later than four hours after discovery of an incident) notify the State Department of Health, Office of Radiation Protection, P.O. Box 47827, Olympia, Washington 98504-7827, by telephone (206-682-5327) and confirming letter, facsimile, or email with a follow-up written report within (~~thirty~~) 30 days of any incident involving any radiation source which may have caused or threatens to cause:

(a) An individual to receive:

(i) A total effective dose equivalent of 0.25 Sv (25 rem) or more;

(ii) A lens dose equivalent of 0.75 Sv (75 rem) or more; or

(iii) A shallow dose equivalent to the skin or extremities or a total organ dose equivalent of 2.5 Sv (250 rem) or more;

(b) The release of radioactive material, inside or outside of a restricted area, so that, had an individual been present for (~~twenty-four~~) 24 hours, the individual could have received an intake five times the occupational ALI. This provision does not apply to locations where personnel are not normally stationed during routine operations, such as hot-cells or process enclosures; or

(c) The loss of ability to take immediate protective actions necessary to avoid exposure to sources of radiation or releases of radioactive material that could exceed regulatory limits. Events which

could cause such a loss of ability include fires, explosions, toxic gas releases, etc.

(2) **Twenty-four hour notification.** Each licensee and registrant shall within (~~twenty-four~~) 24 hours of discovery of the event, notify the State Department of Health, Office of Radiation Protection, P.O. Box 47827, Olympia, Washington 98504-7827, by telephone (206-682-5327) and confirming letter, facsimile, or email with a follow-up written report within (~~thirty~~) 30 days of any incident involving any radiation source possessed which may have caused or threatens to cause:

(a) An individual to receive, in a period of (~~twenty-four~~) 24 hours:

(i) A total effective dose equivalent exceeding 0.05 Sv (~~(5)~~) five rem);

(ii) A lens dose equivalent exceeding 0.15 Sv (15 rem); or

(iii) A shallow dose equivalent to the skin or extremities or a total organ dose equivalent exceeding 0.5 Sv (50 rem);

(b) The release of radioactive material, inside or outside of a restricted area, so that, had an individual been present for (~~twenty-four~~) 24 hours, the individual could have received an intake in excess of one occupational ALI. This provision does not apply to locations where personnel are not normally stationed during routine operations, such as hot-cells or process enclosures;

(c) An unplanned contamination incident that:

(i) Requires access to the contaminated area, by workers or the general public, to be restricted for more than (~~twenty-four~~) 24 hours by imposing additional radiological controls or by prohibiting entry into the area;

(ii) Involves a quantity of material greater than five times the lowest annual limit on intake specified in WAC 246-221-290; and

(iii) Has access to the area restricted for a reason other than to allow radionuclides with a half-life of less than (~~twenty-four~~) 24 hours to decay prior to decontamination;

(d) Equipment failure or inability to function as designed when:

(i) The equipment is required by regulation or license condition to prevent releases exceeding regulatory limits, to prevent exposures to radiation and radioactive material exceeding regulatory limits or to mitigate the consequences of an accident;

(ii) The equipment is required to be available and operable at the time it becomes disabled or fails to function; and

(iii) No redundant equipment is available and operable to perform the required safety functions;

(e) An unplanned medical treatment at a medical facility of an individual with removable radioactive contamination on the individual's clothing or body; or

(f) An unplanned fire or explosion damaging any radioactive material or any device, container or equipment containing radioactive material when:

(i) The quantity of radioactive material involved is greater than five times the lowest annual limit on intake specified in WAC 246-221-290; and

(ii) The damage affects the integrity of the radioactive material or its container.

(3) For each occurrence requiring notification pursuant to this section, a prompt investigation of the situation shall be initiated by the licensee/registrant. A written report of the findings of the investigation shall be sent to the department within (~~thirty~~) 30 days.

(4) The licensee or registrant shall prepare each report filed with the department under this section so that names of individuals who have received exposure to sources of radiation are stated in a separate and detachable portion of the report.

Any report filed with the department under this section shall contain the information described in WAC 246-221-260 (2) and (3).

(5) The provisions of this section do not apply to doses that result from planned special exposures, provided such doses are within the limits for planned special exposures and are reported pursuant to WAC 246-221-265.

(6) Telephone notifications that do not involve immediate or (~~twenty-four~~) 24 hour notification should be made to the Tumwater office (360-236-3300).

(7) Telephone notification required under this section shall include, to the extent that the information is available at the time of notification:

- (a) The caller's name and call-back telephone number;
- (b) A description of the incident including date and time;
- (c) The exact location of the incident;
- (d) The radionuclides, quantities, and chemical and physical forms of the radioactive materials involved; and
- (e) Any personnel radiation exposure data available.

[Statutory Authority: RCW 70.98.050 and 70.98.110. WSR 16-13-054, § 246-221-250, filed 6/10/16, effective 7/11/16. Statutory Authority: RCW 70.98.050. WSR 14-01-077, § 246-221-250, filed 12/16/13, effective 1/16/14; WSR 01-05-110, § 246-221-250, filed 2/21/01, effective 3/24/01; WSR 98-13-037, § 246-221-250, filed 6/8/98, effective 7/9/98; WSR 95-01-108, § 246-221-250, filed 12/21/94, effective 1/21/95; WSR 94-01-073, § 246-221-250, filed 12/9/93, effective 1/9/94. Statutory Authority: RCW 70.98.050 and 70.98.080. WSR 91-15-112 (Order 184), § 246-221-250, filed 7/24/91, effective 8/24/91. Statutory Authority: RCW 43.70.040. WSR 91-02-049 (Order 121), recodified as § 246-221-250, filed 12/27/90, effective 1/31/91. Statutory Authority: RCW 70.98.080. WSR 87-01-031 (Order 2450), § 402-24-190, filed 12/11/86; WSR 83-19-050 (Order 2026), § 402-24-190, filed 9/16/83. Statutory Authority: RCW 70.98.050. WSR 81-01-011 (Order 1570), § 402-24-190, filed 12/8/80; Order 1095, § 402-24-190, filed 2/6/76; Order 708, § 402-24-190, filed 8/24/72; Order 1, § 402-24-190, filed 7/2/71; Order 1, § 402-24-190, filed 1/8/69; Rules (part), filed 10/26/66.]

AMENDATORY SECTION (Amending WSR 99-15-105, filed 7/21/99, effective 8/21/99)

**WAC 246-221-260 Reports of overexposures and excessive levels and concentrations.** (1) In addition to any notification required by WAC 246-221-250, each licensee or registrant shall submit a written report to the department within (~~thirty~~) 30 days after learning of any of the following occurrences:

- (a) Incidents for which notification is required by WAC 246-221-250; or
  - (b) Doses in excess of any of the following:
    - (i) The occupational dose limits for adults in WAC 246-221-010;
- or

- (ii) The occupational dose limits for a minor in WAC 246-221-050;  
or
- (iii) The limits for an embryo/fetus of a declared pregnant woman in WAC 246-221-055; or
- (iv) The limits for an individual member of the public in WAC 246-221-060; or
- (v) Any applicable limit in the license; or
- (vi) The ALARA constraints for air emissions established under WAC 246-221-005; or
- (c) Levels of radiation or concentrations of radioactive material in:
- (i) A restricted area in excess of applicable limits in the license; or
- (ii) An unrestricted area in excess of (~~ten~~) 10 times the applicable limit set forth in this chapter or in the license or registration, whether or not involving exposure of any individual in excess of the limits in WAC 246-221-060; or
- (d) For source materials milling licensees and nuclear power plants subject to the provisions of United States Environmental Protection Agency's generally applicable environmental radiation standards in 40 C.F.R. 190, levels of radiation or releases of radioactive material in excess of those standards, or of license conditions related to those standards.
- (2) Each report required by subsection (1) of this section shall describe:
- (a) The incident and its exact location, time and date;
- (b) The extent of exposure of individuals to radiation or to radioactive material, including estimates of each individual's dose as required by subsection (3) of this section;
- (c) Levels of radiation and concentrations of radioactive material involved, including the radionuclides, quantities, and chemical and physical form;
- (d) The cause or probable cause of the exposure, levels of radiation or concentrations;
- (e) The manufacturer and model number (if applicable) of any equipment that failed or malfunctioned;
- (f) The results of any evaluations or assessments; and
- (g) Corrective steps taken or planned to assure against a recurrence, including the schedule for achieving conformance with applicable limits, ALARA constraints, generally applicable environmental standards, and associated license conditions.
- (3) Each report filed with the department pursuant to this section shall include for each individual exposed the name, Social Security number, and date of birth, and an estimate of the individual's dose. With respect to the limit for the embryo/fetus in WAC 246-221-055, the identifiers should be those of the declared pregnant woman. The report shall be prepared so that this information is stated in a separate and detachable part of the report.
- (4) Individuals shall be notified of reports in accordance with the requirements of WAC 246-222-040.

[Statutory Authority: RCW 70.98.050. WSR 99-15-105, § 246-221-260, filed 7/21/99, effective 8/21/99; WSR 95-01-108, § 246-221-260, filed 12/21/94, effective 1/21/95; WSR 94-01-073, § 246-221-260, filed 12/9/93, effective 1/9/94. Statutory Authority: RCW 70.98.050 and 70.98.080. WSR 91-15-112 (Order 184), § 246-221-260, filed 7/24/91, effective 8/24/91. Statutory Authority: RCW 43.70.040. WSR 91-02-049

(Order 121), recodified as § 246-221-260, filed 12/27/90, effective 1/31/91. Statutory Authority: RCW 70.98.050. WSR 81-01-011 (Order 1570), § 402-24-200, filed 12/8/80; Order 1095, § 402-24-200, filed 2/6/76; Order 708, § 402-24-200, filed 8/24/72; Order 1, § 402-24-200, filed 7/2/71; Order 1, § 402-24-200, filed 1/8/69; Rules (part), filed 10/26/66.]

AMENDATORY SECTION (Amending WSR 99-05-013, filed 2/5/99, effective 3/8/99)

**WAC 246-221-265 Special reports to the department—Planned special exposures and leaking sources.** (1) The licensee or registrant shall submit a written report to the department within (~~(thirty)~~) 30 days following any planned special exposure conducted in accordance with WAC 246-221-030. The written report shall:

(a) Inform the department that a planned special exposure was conducted;

(b) Indicate the date the planned special exposure occurred; and

(c) Provide the information required by WAC 246-221-030.

(2) The licensee shall file a written report with the department within five days after learning that a sealed source is leaking or contaminated. The report shall describe:

(a) The source;

(b) The source holder;

(c) The equipment in which the source is installed;

(d) The test results; and

(e) The corrective action taken.

[Statutory Authority: RCW 70.98.050. WSR 99-05-013, § 246-221-265, filed 2/5/99, effective 3/8/99; WSR 94-01-073, § 246-221-265, filed 12/9/93, effective 1/9/94.]

AMENDATORY SECTION (Amending WSR 00-07-085, filed 3/15/00, effective 4/15/00)

**WAC 246-221-270 Vacating premises and release of equipment.** (1) Each specific licensee shall notify the department in writing of intent to vacate, at least (~~(thirty)~~) 30 days before vacating or relinquishing possession or control of premises which may have been contaminated with radioactive material as a result of licensed activities.

(2) Each licensee shall permanently decontaminate the premise, before vacating any premise or transferring the premise, in accordance with the standards specified in chapter 246-246 WAC. A survey by the licensee shall be made after the decontamination and the department and the landlord or subsequent tenant or transferee shall be provided with a copy of the survey no later than the date of vacating or relinquishing possession or control of the premise.

(3) No machinery, instruments, laboratory equipment or any other property used in contact with, or close proximity to radioactive material at a licensed premise shall be assigned, sold, leased, or transferred to an unlicensed person unless the property has been decontaminated and meets the standards specified in WAC 246-232-140. A survey

shall be made after the decontamination and the department and subsequent owner or transferee shall be provided with a copy of the survey report.

[Statutory Authority: RCW 70.98.050. WSR 00-07-085, § 246-221-270, filed 3/15/00, effective 4/15/00; WSR 94-01-073, § 246-221-270, filed 12/9/93, effective 1/9/94. Statutory Authority: RCW 43.70.040. WSR 91-02-049 (Order 121), recodified as § 246-221-270, filed 12/27/90, effective 1/31/91; Order 1095, § 402-24-210, filed 2/6/76; Order 1, § 402-24-210, filed 1/8/69; Rules (part), filed 10/26/66.]

AMENDATORY SECTION (Amending WSR 01-05-110, filed 2/21/01, effective 3/24/01)

**WAC 246-221-285 Assigned protection factors for respirators<sup>a</sup>.**

	Operating mode	Assigned Protection Factors
I. Air-Purifying Respirators (Particulate <sup>b</sup> only) <sup>c</sup> :		
Filtering facepiece disposable <sup>d</sup>	Negative Pressure .....	( <sup>d</sup> )
Facepiece, half <sup>e</sup> .....	Negative Pressure .....	10
Facepiece, full .....	Negative Pressure .....	100
Facepiece, half .....	Powered air-purifying respirators .....	50
Facepiece, full .....	Powered air-purifying respirators .....	1000
Helmet/hood .....	Powered air-purifying respirators .....	1000
Facepiece, loose-fitting .....	Powered air-purifying respirators .....	25
II. Atmosphere-Supplying Respirators (Particulate, gases and vapors <sup>f</sup> ):		
1. Air-line respirator:		
Facepiece, half .....	Demand .....	10
Facepiece, half .....	Continuous Flow .....	50
Facepiece, half .....	Pressure Demand .....	50
Facepiece, full .....	Demand .....	100
Facepiece, full .....	Continuous Flow .....	1000
Facepiece, full .....	Pressure Demand .....	1000
Helmet/hood .....	Continuous Flow .....	1000
Facepiece, loose-fitting .....	Continuous Flow .....	25
Suit .....	Continuous Flow .....	( <sup>g</sup> )
2. Self-contained breathing apparatus (SCBA):		
Facepiece, full .....	Demand .....	<sup>h</sup> 100
Facepiece, full .....	Pressure Demand .....	<sup>i</sup> 10,000
Facepiece, full .....	Demand, Recirculating .....	<sup>h</sup> 100
Facepiece, full .....	Positive Pressure Recirculating .....	<sup>i</sup> 10,000
III. Combination Respirators:		
Any combination of air-purifying and atmosphere-supplying respirators.	Assigned protection factor for type and mode of operation as listed above.	

<sup>a</sup> These assigned protection factors apply only in a respiratory protection program that meets the requirements of this chapter. They are applicable only to airborne radiological hazards and may not be appropriate to circumstances when chemical or other respiratory hazards exist instead of, or in addition to, radioactive hazards. Selection and use of respirators for these circumstances must also comply with Department of Labor regulations.

- Radioactive contaminants for which the concentration values in Table 1, Column 3 of WAC 246-221-290, Appendix A, are based on internal dose due to inhalation may, in addition, present external exposure hazards at higher concentrations. Under these circumstances, limitations on occupancy may have to be governed by external dose limits.
- b Air-purifying respirators with APF <100 must be equipped with particulate filters that are at least 95 percent efficient. Air-purifying respirators with APF = 100 must be equipped with particulate filters that are at least 99 percent efficient. Air-purifying respirators with APFs >100 must be equipped with particulate filters that are at least 99.97 percent efficient.
  - c The licensee may apply to the department for the use of an APF greater than ((+)) one for sorbent cartridges as protection against airborne radioactive gases and vapors (e.g., radioiodine).
  - d Licensees may permit individuals to use this type of respirator who have not been medically screened or fit tested on the device provided that no credit be taken for their use in estimating intake or dose. It is also recognized that it is difficult to perform an effective positive or negative pressure preuse user seal check on this type of device. All other respiratory protection program requirements listed in WAC 246-221-117 apply. An assigned protection factor has not been assigned for these devices. However, an APF equal to 10 may be used if the licensee can demonstrate a fit factor of at least 100 by use of a validated or evaluated, qualitative or quantitative fit test.
  - e Under-chin type only. No distinction is made in this section between elastomeric half-masks with replaceable cartridges and those designed with the filter medium as an integral part of the facepiece (e.g., disposable or reusable disposable). Both types are acceptable so long as the seal area of the latter contains some substantial type of seal-enhancing material such as rubber or plastic, the two or more suspension straps are adjustable, the filter medium is at least 95 percent efficient and all other requirements of this part are met.
  - f The assigned protection factors for gases and vapors are not applicable to radioactive contaminants that present an absorption or submersion hazard. For tritium oxide vapor, approximately (~~one-third~~) 1/3 of the intake occurs by absorption through the skin so that an overall protection factor of ((3)) three is appropriate when atmosphere-supplying respirators are used to protect against tritium oxide. Exposure to radioactive noble gases is not considered a significant respiratory hazard, and protective actions for these contaminants should be based on external (submersion) dose considerations.
  - g No NIOSH approval schedule is currently available for atmosphere-supplying suits. This equipment may be used in an acceptable respiratory protection program as long as all the other minimum program requirements, with the exception of fit testing, are met (i.e., WAC 246-221-117).
  - h The licensee should implement institutional controls to assure that these devices are not used in areas immediately dangerous to life or health (IDLH).
  - i This type of respirator may be used as an emergency device in unknown concentrations for protection against inhalation hazards. External radiation hazards and other limitations to permitted exposure such as skin absorption shall be taken into account in these circumstances. This device may not be used by any individual who experiences perceptible outward leakage of breathing gas while wearing the device.

[Statutory Authority: RCW 70.98.050. WSR 01-05-110, § 246-221-285, filed 2/21/01, effective 3/24/01; WSR 94-01-073, § 246-221-285, filed 12/9/93, effective 1/9/94.]

AMENDATORY SECTION (Amending WSR 11-03-068, filed 1/18/11, effective 2/18/11)

**WAC 246-221-290 Appendix A—Annual limits on intake (ALI) and derived air concentrations (DAC) of radionuclides for occupational exposure; effluent concentrations; concentrations for release to sanitary sewerage.** For each radionuclide, Table I indicates the chemical form which is to be used for selecting the appropriate ALI or DAC value. The ALIs and DACs for inhalation are given for an aerosol with an activity median aerodynamic diameter (AMAD) of ((±)) one µm (micron) and for three classes (D,W,Y) of radioactive material, which refer to their retention (approximately days, weeks or years) in the pulmonary region of the lung. This classification applies to a range of clearance half-times for D if less than (~~ten~~) 10 days, for W from (~~ten to one hundred~~) 10 to 100 days, and for Y greater than (~~one hundred~~) 100 days. Table II provides concentration limits for airborne and liquid effluents released to the general environment. Table III provides concentration limits for discharges to sanitary sewerage.

Note: The values in Tables I, II, and III are presented in the computer "E" notation. In this notation a value of 6E-02 represents a value of  $6 \times 10^{-2}$  or 0.06, 6E+2 represents  $6 \times 10^2$  or 600, and 6E+0 represents  $6 \times 10^0$  or 6.

Table I "Occupational Values"

Note that the columns in Table I of this appendix captioned "Oral Ingestion ALI," "Inhalation ALI," and "DAC," are applicable to occupational exposure to radioactive material.

The ALIs in this appendix are the annual intakes of given radionuclide by "Reference Man" which would result in either: A committed effective dose equivalent of 0.05 Sv ((5)) five rem), stochastic ALI; or a committed dose equivalent of 0.5 Sv (50 rem) to an organ or tissue, nonstochastic ALI. The stochastic ALIs were derived to result in

a risk, due to irradiation of organs and tissues, comparable to the risk associated with deep dose equivalent to the whole body of 0.05 Sv ((5)) five rem). The derivation includes multiplying the committed dose equivalent to an organ or tissue by a weighting factor,  $w_T$ . This weighting factor is the proportion of the risk of stochastic effects resulting from irradiation of the organ or tissue,  $T$ , to the total risk of stochastic effects when the whole body is irradiated uniformly. The values of  $w_T$  are listed under the definition of weighting factor in WAC 246-221-005. The nonstochastic ALIs were derived to avoid nonstochastic effects, such as prompt damage to tissue or reduction in organ function.

A value of  $w_T = 0.06$  is applicable to each of the five organs or tissues in the "remainder" category receiving the highest dose equivalents, and the dose equivalents of all other remaining tissues may be disregarded. The following portions of the GI tract — stomach, small intestine, upper large intestine, and lower large intestine — are to be treated as four separate organs.

Note that the dose equivalents for an extremity, elbows, arms below the elbows, feet and lower legs, knees, and legs below the knees, skin, and lens of the eye are not considered in computing the committed effective dose equivalent, but are subject to limits that must be met separately.

When an ALI is defined by the stochastic dose limit, this value alone is given. When an ALI is determined by the non-stochastic dose limit to an organ, the organ or tissue to which the limit applies is shown, and the ALI for the stochastic limit is shown in parentheses. Abbreviated organ or tissue designations are used:

LLI wall = lower large intestine wall;  
 St. wall = stomach wall;  
 Blad wall = bladder wall; and  
 Bone surf = bone surface.

The use of the ALIs listed first, the more limiting of the stochastic and nonstochastic ALIs, will ensure that nonstochastic effects are avoided and that the risk of stochastic effects is limited to an acceptably low value. If, in a particular situation involving a radionuclide for which the nonstochastic ALI is limiting, use of that nonstochastic ALI is considered unduly conservative, the licensee may use the stochastic ALI to determine the committed effective dose equivalent. However, the licensee shall also ensure that the 0.5 Sv (50 rem) dose equivalent limit for any organ or tissue is not exceeded by the sum of the external deep dose equivalent plus the internal committed dose equivalent to that organ, not the effective dose. For the case where there is no external dose contribution, this would be demonstrated if the sum of the fractions of the nonstochastic ALIs ( $ALI_{ns}$ ) that contribute to the committed dose equivalent to the organ receiving the highest dose does not exceed unity, that is,  $\sum (\text{intake (in } \mu\text{Ci) of each radionuclide}/ALI_{ns}) \leq 1.0$ . If there is an external deep dose equivalent contribution of  $H_d$ , then this sum must be less than ((±)) one - ( $H_d/50$ ), instead of  $\leq 1.0$ .

The derived air concentration (DAC) values are derived limits intended to control chronic occupational exposures. The relationship between the DAC and the ALI is given by:



$DAC = ALI \text{ (in } \mu\text{Ci)} / (2000 \text{ hours per working year} \times 60 \text{ minutes/hour} \times 2 \times 10^4 \text{ ml per minute}) = [ALI/2.4 \times 10^9] \mu\text{Ci/ml}$ ,  
 where  $2 \times 10^4$  ml per minute is the volume of air breathed per minute at work by Reference Man under working conditions of light work.

The DAC values relate to one of two modes of exposure: Either external submersion or the internal committed dose equivalents resulting from inhalation of radioactive materials. DACs based upon submersion are for immersion in a semi-infinite cloud of uniform concentration and apply to each radionuclide separately.

The ALI and DAC values include contributions to exposure by the single radionuclide named and any in-growth of daughter radionuclides produced in the body by decay of the parent. However, intakes that include both the parent and daughter radionuclides should be treated by the general method appropriate for mixtures.

The values of ALI and DAC do not apply directly when the individual both ingests and inhales a radionuclide, when the individual is exposed to a mixture of radionuclides by either inhalation or ingestion or both, or when the individual is exposed to both internal and external irradiation. See WAC 246-221-015. When an individual is exposed to radioactive materials which fall under several of the translocation classifications of the same radionuclide, such as, Class D, Class W, or Class Y, the exposure may be evaluated as if it were a mixture of different radionuclides.

It should be noted that the classification of a compound as Class D, W, or Y is based on the chemical form of the compound and does not take into account the radiological half-life of different radionuclides. For this reason, values are given for Class D, W, and Y compounds, even for very short-lived radionuclides.

#### Table II "Effluent Concentrations"

The columns in Table II of this appendix captioned "Effluents," "Air" and "Water" are applicable to the assessment and control of dose to the public, particularly in the implementation of the provisions of WAC 246-221-070. The concentration values given in Columns 1 and 2 of Table II are equivalent to the radionuclide concentrations which, if inhaled or ingested continuously over the course of a year, would produce a total effective dose equivalent of 0.50 mSv (0.05 rem).

Consideration of nonstochastic limits has not been included in deriving the air and water effluent concentration limits because nonstochastic effects are presumed not to occur at or below the dose levels established for individual members of the public. For radionuclides, where the nonstochastic limit was governing in deriving the occupational DAC, the stochastic ALI was used in deriving the corresponding airborne effluent limit in Table II. For this reason, the DAC and airborne effluent limits are not always proportional as was the case in the previous Appendix A of this chapter.

The air concentration values listed in Table II, Column 1 were derived by one of two methods. For those radionuclides for which the stochastic limit is governing, the occupational stochastic inhalation ALI was divided by  $2.4 \times 10^9$ , relating the inhalation ALI to the DAC, as explained above, and then divided by a factor of ~~((three hundred))~~ 300. The factor of ~~((three hundred))~~ 300 includes the following components: A factor of ~~((fifty))~~ 50 to relate the 0.05 Sv ~~((5))~~ five rem annual occupational dose limit to the ~~((1))~~ one mSv (0.1 rem) limit

for members of the public, a factor of three to adjust for the difference in exposure time and the inhalation rate for a worker and that for members of the public; and a factor of two to adjust the occupational values, derived for adults, so that they are applicable to other age groups.

For those radionuclides for which submersion, that is external dose, is limiting, the occupational DAC in Table I, Column 3 was divided by (~~two hundred nineteen~~) 219. The factor of (~~two hundred nineteen~~) 219 is composed of a factor of (~~fifty~~) 50, as described above, and a factor of 4.38 relating occupational exposure for (~~two thousand~~) 2,000 hours per year to full-time exposure (~~eight thousand seven hundred sixty~~) 8,760 hours per year). Note that an additional factor of two for age considerations is not warranted in the submersion case.

The water concentrations were derived by taking the most restrictive occupational stochastic oral ingestion ALI and dividing by  $7.3 \times 10^7$ . The factor of  $7.3 \times 10^7$  (ml) includes the following components: The factors of (~~fifty~~) 50 and two described above and a factor of  $7.3 \times 10^5$  (ml) which is the annual water intake of Reference Man.

Note 2 of this appendix provides groupings of radionuclides which are applicable to unknown mixtures of radionuclides. These groupings, including occupational inhalation ALIs and DACs, air and water effluent concentrations and releases to sewer, require demonstrating that the most limiting radionuclides in successive classes are absent. The limit for the unknown mixture is defined when the presence of one of the listed radionuclides cannot be definitely excluded as being present either from knowledge of the radionuclide composition of the source or from actual measurements.

Table III "Releases to Sewers"

The monthly average concentrations for release to sanitary sewerage are applicable to the provisions in WAC 246-221-190. The concentration values were derived by taking the most restrictive occupational stochastic oral ingestion ALI and dividing by  $7.3 \times 10^6$  (ml). The factor of  $7.3 \times 10^6$  (ml) is composed of a factor of  $7.3 \times 10^5$  (ml), the annual water intake by Reference Man, and a factor of (~~ten~~) 10, such that the concentrations, if the sewage released by the licensee were the only source of water ingested by a Reference Man during a year, would result in a committed effective dose equivalent of (~~5~~) five mSv (0.5 rem).

LIST OF ELEMENTS

Name	Symbol	Atomic Number	Name	Symbol	Atomic Number
Actinium	Ac	89	Molybdenum	Mo	42
Aluminum	Al	13	Neodymium	Nd	60
Americium	Am	95	Neptunium	Np	93
Antimony	Sb	51	Nickel	Ni	28
Argon	Ar	18	Nitrogen	N	7
Arsenic	As	33	Niobium	Nb	41
Astatine	At	85	Osmium	Os	76
Barium	Ba	56	Oxygen	O	8
Berkelium	Bk	97	Palladium	Pd	46

## LIST OF ELEMENTS

Name	Symbol	Atomic Number	Name	Symbol	Atomic Number
Beryllium	Be	4	Phosphorus	P	15
Bismuth	Bi	83	Platinum	Pt	78
Bromine	Br	35	Plutonium	Pu	94
Cadmium	Cd	48	Polonium	Po	84
Calcium	Ca	20	Potassium	K	19
Californium	Cf	98	Praseodymium	Pr	59
Carbon	C	6	Promethium	Pm	61
Cerium	Ce	58	Protactinium	Pa	91
Cesium	Cs	55	Radium	Ra	88
Chlorine	Cl	17	Radon	Rn	86
Chromium	Cr	24	Rhenium	Re	75
Cobalt	Co	27	Rhodium	Rh	45
Copper	Cu	29	Rubidium	Rb	37
Curium	Cm	96	Ruthenium	Ru	44
Dysprosium	Dy	66	Samarium	Sm	62
Einsteinium	Es	99	Scandium	Sc	21
Erbium	Er	68	Selenium	Se	34
Europium	Eu	63	Silicon	Si	14
Fermium	Fm	100	Silver	Ag	47
Fluorine	F	9	Sodium	Na	11
Francium	Fr	87	Strontium	Sr	38
Gadolinium	Gd	64	Sulfur	S	16
Gallium	Ga	31	Tantalum	Ta	73
Germanium	Ge	32	Technetium	Tc	43
Gold	Au	79	Tellurium	Te	52
Hafnium	Hf	72	Terbium	Tb	65
Holmium	Ho	67	Thallium	Tl	81
Hydrogen	H	1	Thorium	Th	90
Indium	In	49	Thulium	Tm	69
Iodine	I	53	Tin	Sn	50
Iridium	Ir	77	Titanium	Ti	22
Iron	Fe	26	Tungsten	W	74
Krypton	Kr	36	Uranium	U	92
Lanthanum	La	57	Vanadium	V	23
Lead	Pb	82	Xenon	Xe	54
Lutetium	Lu	71	Ytterbium	Yb	70
Magnesium	Mg	12	Yttrium	Y	39
Manganese	Mn	25	Zinc	Zn	30
Mendelevium	Md	101	Zirconium	Zr	40
Mercury	Hg	80			

Atomic No.	Radionuclide	Class	Table I Occupational Values			Table II Effluent Concentration		Table III Releases to Sewers
			Col. 1	Col. 2	Col. 3	Col. 1	Col. 2	Monthly Average Concentration
			Oral Ingestion	Inhalation		Air $\mu\text{Ci/ml}$	Water $\mu\text{Ci/ml}$	$\mu\text{Ci/ml}$
				ALI $\mu\text{Ci}$	ALI $\mu\text{Ci}$			
1	Hydrogen-3	Water, DAC includes skin absorption	8E+4	8E+4	2E-5	1E-7	1E-3	1E-2
		Gas (HT or T <sub>2</sub> ) Submersion <sup>1</sup> : Use above values as HT and T <sub>2</sub> oxidize in air and in the body to HTO.						
4	Beryllium-7	W, all compounds except those given for Y	4E+4	2E+4	9E-6	3E-8	6E-4	6E-3
		Y, oxides, halides, and nitrates	-	2E+4	8E-6	3E-8	-	-
4	Beryllium-10	W, see <sup>7</sup> Be	1E+3	2E+2	6E-8	2E-10	-	-
		LLI wall (1E+3)	-	-	-	-	2E-5	2E-4
		Y, see <sup>7</sup> Be	-	1E+1	6E-9	2E-11	-	-
6	Carbon-11 <sup>2</sup>	Monoxide	-	1E+6	5E-4	2E-6	-	-
		Dioxide	-	6E+5	3E-4	9E-7	-	-
		Compounds	4E+5	4E+5	2E-4	6E-7	6E-3	6E-2
6	Carbon-14	Monoxide	-	2E+6	7E-4	2E-6	-	-
		Dioxide	-	2E+5	9E-5	3E-7	-	-
		Compounds	2E+3	2E+3	1E-6	3E-9	3E-5	3E-4
7	Nitrogen-13 <sup>2</sup>	Submersion <sup>1</sup>	-	-	4E-6	2E-8	-	-
8	Oxygen-15 <sup>2</sup>	Submersion <sup>1</sup>	-	-	4E-6	2E-8	-	-
9	Fluorine-18 <sup>2</sup>	D, fluorides of H, Li, Na, K, Rb, Cs, and Fr	5E+4	7E+4	3E-5	1E-7	-	-
		St wall (5E+4)	-	-	-	-	7E-4	7E-3
		W, fluorides of Be, Mg, Ca, Sr, Ba, Ra, Al, Ga, In, Tl, As, Sb, Bi, Fe, Ru, Os, Co, Ni, Pd, Pt, Cu, Ag, Au, Zn, Cd, Hg, Sc, Y, Ti, Zr, V, Nb, Ta, Mn, Tc, and Re	-	9E+4	4E-5	1E-7	-	-
		Y, lanthanum fluoride	-	8E+4	3E-5	1E-7	-	-
11	Sodium-22	D, all compounds	4E+2	6E+2	3E-7	9E-10	6E-6	6E-5
11	Sodium-24	D, all compounds	4E+3	5E+3	2E-6	7E-9	5E-5	5E-4
12	Magnesium-28	D, all compounds except those given for W	7E+2	2E+3	7E-7	2E-9	9E-6	9E-5
		W, oxides, hydroxides, carbides, halides, and nitrates	-	1E+3	5E-7	2E-9	-	-
13	Aluminum-26	D, all compounds except those given for W	4E+2	6E+1	3E-8	9E-11	6E-6	6E-5
		W, oxides, hydroxides, carbides, halides, and nitrates	-	9E+1	4E-8	1E-10	-	-
14	Silicon-31	D, all compounds except those given for W and Y	9E+3	3E+4	1E-5	4E-8	1E-4	1E-3
		W, oxides, hydroxides, carbides, and nitrates	-	3E+4	1E-5	5E-8	-	-
		Y, aluminosilicate glass	-	3E+4	1E-5	4E-8	-	-
14	Silicon-32	D, see <sup>31</sup> Si	2E+3	2E+2	1E-7	3E-10	-	-
		LLI wall (3E+3)	-	-	-	-	4E-5	4E-4
		W, see <sup>31</sup> Si	-	1E+2	5E-8	2E-10	-	-
		Y, see <sup>31</sup> Si	-	5E+0	2E-9	7E-12	-	-
15	Phosphorus-32	D, all compounds except phosphates given for W	6E+2	9E+2	4E-7	1E-9	9E-6	9E-5
		W, phosphates of Zn <sup>2+</sup> , S <sup>3+</sup> , Mg <sup>2+</sup> , Fe <sup>3+</sup> , Bi <sup>3+</sup> , and lanthanides	-	4E+2	2E-7	5E-10	-	-
15	Phosphorus-33	D, see <sup>32</sup> P	6E+3	8E+3	4E-6	1E-8	8E-5	8E-4

Atomic No.	Radionuclide	Class	Table I Occupational Values			Table II Effluent Concentration		Table III Releases to Sewers
			Col. 1	Col. 2	Col. 3	Col. 1	Col. 2	Monthly Average Concentration μCi/ml
			Oral Ingestion	Inhalation		Air μCi/ml	Water μCi/ml	
				ALI μCi	ALI μCi			
16	Sulfur-35	W, see <sup>32</sup> P	-	3E+3	1E-6	4E-9	-	-
		Vapor	-	1E+4	6E-6	2E-8	-	-
		D, sulfides and sulfates except those given for W	1E+4	2E+4	7E-6	2E-8	-	-
		LLI wall (8E+3)	-	-	-	1E-4	1E-3	
		W, elemental sulfur, sulfides of Sr, Ba, Ge, Sn, Pb, As, Sb, Bi, Cu, Ag, Au, Zn, Cd, Hg, W, and Mo. Sulfates of Ca, Sr, Ba, Ra, As, Sb, and Bi	-	2E+3	9E-7	3E-9	-	-
17	Chlorine-36	D, chlorides of H, Li, Na, K, Rb, Cs, and Fr	2E+3	2E+3	1E-6	3E-9	2E-5	2E-4
		W, chlorides of lanthanides, Be, Mg, Ca, Sr, Ba, Ra, Al, Ga, In, Tl, Ge, Sn, Pb, As, Sb, Bi, Fe, Ru, Os, Co, Rh, Ir, Ni, Pd, Pt, Cu, Ag, Au, Zn, Cd, Hg, Sc, Y, Ti, Zr, Hf, V, Nb, Ta, Cr, Mo, W, Mn, Tc, and Re	-	2E+2	1E-7	3E-10	-	-
17	Chlorine-38 <sup>2</sup>	D, see <sup>36</sup> Cl	2E+4	4E+4	2E-5	6E-8	-	-
		St wall (3E+4)	-	-	-	3E-4	3E-3	
17	Chlorine-39 <sup>2</sup>	W, see <sup>36</sup> Cl	-	5E+4	2E-5	6E-8	-	-
		D, see <sup>36</sup> Cl	2E+4	5E+4	2E-5	7E-8	-	-
		St wall (4E+4)	-	-	-	5E-4	5E-3	
		W, see <sup>36</sup> Cl	-	6E+4	2E-5	8E-8	-	-
18	Argon-37	Submersion <sup>1</sup>	-	-	1E+0	6E-3	-	-
18	Argon-39	Submersion <sup>1</sup>	-	-	2E-4	8E-7	-	-
18	Argon-41	Submersion <sup>1</sup>	-	-	3E-6	1E-8	-	-
19	Potassium-40	D, all compounds	3E+2	4E+2	2E-7	6E-10	4E-6	4E-5
19	Potassium-42	D, all compounds	5E+3	5E+3	2E-6	7E-9	6E-5	6E-4
19	Potassium-43	D, all compounds	6E+3	9E+3	4E-6	1E-8	9E-5	9E-4
19	Potassium-44 <sup>2</sup>	D, all compounds	2E+4	7E+4	3E-5	9E-8	-	-
		St wall (4E+4)	-	-	-	5E-4	5E-3	
19	Potassium-45 <sup>2</sup>	D, all compounds	3E+4	1E+5	5E-5	2E-7	-	-
		St wall (5E+4)	-	-	-	7E-4	7E-3	
20	Calcium-41	W, all compounds	3E+3	4E+3	2E-6	-	-	-
		Bone surf (4E+3)	Bone surf (4E+3)	-	5E-9	6E-5	6E-4	
20	Calcium-45	W, all compounds	2E+3	8E+2	4E-7	1E-9	2E-5	2E-4
20	Calcium-47	W, all compounds	8E+2	9E+2	4E-7	1E-9	1E-5	1E-4
21	Scandium-43	Y, all compounds	7E+3	2E+4	9E-6	3E-8	1E-4	1E-3
21	Scandium-44m	Y, all compounds	5E+2	7E+2	3E-7	1E-9	7E-6	7E-5
21	Scandium-44	Y, all compounds	4E+3	1E+4	5E-6	2E-8	5E-5	5E-4
21	Scandium-46	Y, all compounds	9E+2	2E+2	1E-7	3E-10	1E-5	1E-4
21	Scandium-47	Y, all compounds	2E+3	3E+3	1E-6	4E-9	-	-
		LLI wall (3E+3)	-	-	-	4E-5	4E-4	
21	Scandium-48	Y, all compounds	8E+2	1E+3	6E-7	2E-9	1E-5	1E-4

Atomic No.	Radionuclide	Class	Table I Occupational Values			Table II Effluent Concentration		Table III Releases to Sewers
			Col. 1	Col. 2	Col. 3	Col. 1	Col. 2	Monthly Average Concentration
			Oral Ingestion	Inhalation		Air $\mu\text{Ci/ml}$	Water $\mu\text{Ci/ml}$	$\mu\text{Ci/ml}$
				ALI $\mu\text{Ci}$	ALI $\mu\text{Ci}$			
21	Scandium-49 <sup>2</sup>	Y, all compounds	2E+4	5E+4	2E-5	8E-8	3E-4	3E-3
22	Titanium-44	D, all compounds except those given for W and Y	3E+2	1E+1	5E-9	2E-11	4E-6	4E-5
		W, oxides, hydroxides, carbides, halides, and nitrates	-	3E+1	1E-8	4E-11	-	-
		Y, SrTiO	-	6E+0	2E-9	8E-12	-	-
22	Titanium-45	D, see <sup>44</sup> Ti	9E+3	3E+4	1E-5	3E-8	1E-4	1E-3
		W, see <sup>44</sup> Ti	-	4E+4	1E-5	5E-8	-	-
		Y, see <sup>44</sup> Ti	-	3E+4	1E-5	4E-8	-	-
23	Vanadium-47 <sup>2</sup>	D, all compounds except those given for W	3E+4	8E+4	3E-5	1E-7	-	-
		St wall (3E+4)	-	-	-	-	4E-4	4E-3
		W, oxides, hydroxides, carbides, and halides	-	1E+5	4E-5	1E-7	-	-
23	Vanadium-48	D, see <sup>47</sup> V	6E+2	1E+3	5E-7	2E-9	9E-6	9E-5
		W, see <sup>47</sup> V	-	6E+2	3E-7	9E-10	-	-
23	Vanadium-49	D, see <sup>47</sup> V	7E+4	3E+4	1E-5	-	-	-
		LLI wall (9E+4)	-	Bone surf (3E+4)	-	5E-8	1E-3	1E-2
		W, see <sup>47</sup> V	-	2E+4	8E-6	2E-8	-	-
24	Chromium-48	D, all compounds except those given for W and Y	6E+3	1E+4	5E-6	2E-8	8E-5	8E-4
		W, halides and nitrates	-	7E+3	3E-6	1E-8	-	-
		Y, oxides and hydroxides	-	7E+3	3E-6	1E-8	-	-
24	Chromium-49 <sup>2</sup>	D, see <sup>48</sup> Cr	3E+4	8E+4	4E-5	1E-7	4E-4	4E-3
		W, see <sup>48</sup> Cr	-	1E+5	4E-5	1E-7	-	-
		Y, see <sup>48</sup> Cr	-	9E+4	4E-5	1E-7	-	-
24	Chromium-51	D, see <sup>48</sup> Cr	4E+4	5E+4	2E-5	6E-8	5E-4	5E-3
		W, see <sup>48</sup> Cr	-	2E+4	1E-5	3E-8	-	-
		Y, see <sup>48</sup> Cr	-	2E+4	8E-6	3E-8	-	-
25	Manganese-51 <sup>2</sup>	D, all compounds except those given for W	2E+4	5E+4	2E-5	7E-8	3E-4	3E-3
		W, oxides, hydroxides, halides, and nitrates	-	6E+4	3E-5	8E-8	-	-
25	Manganese-52m <sup>2</sup>	D, see <sup>51</sup> Mn	3E+4	9E+4	4E-5	1E-7	-	-
		St wall (4E+4)	-	-	-	-	5E-4	5E-3
		W, see <sup>51</sup> Mn	-	1E+5	4E-5	1E-7	-	-
25	Manganese-52	D, see <sup>51</sup> Mn	7E+2	1E+3	5E-7	2E-9	1E-5	1E-4
		W, see <sup>51</sup> Mn	-	9E+2	4E-7	1E-9	-	-
25	Manganese-53	D, see <sup>51</sup> Mn	5E+4	1E+4	5E-6	-	7E-4	7E-3
		Bone surf (2E+4)	-	-	-	3E-8	-	-
		W, see <sup>51</sup> Mn	-	1E+4	5E-6	2E-8	-	-
25	Manganese-54	D, see <sup>51</sup> Mn	2E+3	9E+2	4E-7	1E-9	3E-5	3E-4
		W, see <sup>51</sup> Mn	-	8E+2	3E-7	1E-9	-	-
25	Manganese-56	D, see <sup>51</sup> Mn	5E+3	2E+4	6E-6	2E-8	7E-5	7E-4
		W, see <sup>51</sup> Mn	-	2E+4	9E-6	3E-8	-	-

Atomic No.	Radionuclide	Class	Table I Occupational Values			Table II Effluent Concentration		Table III Releases to Sewers
			Col. 1	Col. 2	Col. 3	Col. 1	Col. 2	Monthly Average Concentration μCi/ml
			Oral Ingestion	Inhalation		Air μCi/ml	Water μCi/ml	
				ALI μCi	ALI μCi			
26	Iron-52	D, all compounds except those given for W	9E+2	3E+3	1E-6	4E-9	1E-5	1E-4
		W, oxides, hydroxides, and halides	-	2E+3	1E-6	3E-9	-	-
26	Iron-55	D, see <sup>52</sup> Fe	9E+3	2E+3	8E-7	3E-9	1E-4	1E-3
		W, see <sup>52</sup> Fe	-	4E+3	2E-6	6E-9	-	-
26	Iron-59	D, see <sup>52</sup> Fe	8E+2	3E+2	1E-7	5E-10	1E-5	1E-4
		W, see <sup>52</sup> Fe	-	5E+2	2E-7	7E-10	-	-
26	Iron-60	D, see <sup>52</sup> Fe	3E+1	6E+0	3E-9	9E-12	4E-7	4E-6
		W, see <sup>52</sup> Fe	-	2E+1	8E-9	3E-11	-	-
27	Cobalt-55	W, all compounds except those given for Y	1E+3	3E+3	1E-6	4E-9	2E-5	2E-4
		Y, oxides, hydroxides, halides, and nitrates	-	3E+3	1E-6	4E-9	-	-
27	Cobalt-56	W, see <sup>55</sup> Co	5E+2	3E+2	1E-7	4E-10	6E-6	6E-5
		Y, see <sup>55</sup> Co	4E+2	2E+2	8E-8	3E-10	-	-
27	Cobalt-57	W, see <sup>55</sup> Co	8E+3	3E+3	1E-6	4E-9	6E-5	6E-4
		Y, see <sup>55</sup> Co	4E+3	7E+2	3E-7	9E-10	-	-
27	Cobalt-58m	W, see <sup>55</sup> Co	6E+4	9E+4	4E-5	1E-7	8E-4	8E-3
		Y, see <sup>55</sup> Co	-	6E+4	3E-5	9E-8	-	-
27	Cobalt-58	W, see <sup>55</sup> Co	2E+3	1E+3	5E-7	2E-9	2E-5	2E-4
		Y, see <sup>55</sup> Co	1E+3	7E+2	3E-7	1E-9	-	-
27	Cobalt-60m <sup>2</sup>	W, see <sup>55</sup> Co	1E+6	4E+6	2E-3	6E-6	-	-
		St wall (1E+6)	-	-	-	-	2E-2	2E-1
		Y, see <sup>55</sup> Co	-	3E+6	1E-3	4E-6	-	-
27	Cobalt-60	W, see <sup>55</sup> Co	5E+2	2E+2	7E-8	2E-10	3E-6	3E-5
		Y, see <sup>55</sup> Co	2E+2	3E+1	1E-8	5E-11	-	-
27	Cobalt-61 <sup>2</sup>	W, see <sup>55</sup> Co	2E+4	6E+4	3E-5	9E-8	3E-4	3E-3
		Y, see <sup>55</sup> Co	2E+4	6E+4	2E-5	8E-8	-	-
27	Cobalt-62m <sup>2</sup>	W, see <sup>55</sup> Co	4E+4	2E+5	7E-5	2E-7	-	-
		St wall (5E+4)	-	-	-	-	7E-4	7E-3
		Y, see <sup>55</sup> Co	-	2E+5	6E-5	2E-7	-	-
28	Nickel-56	D, all compounds except those given for W	1E+3	2E+3	8E-7	3E-9	2E-5	2E-4
		W, oxides, hydroxides, and carbides	-	1E+3	5E-7	2E-9	-	-
		Vapor	-	1E+3	5E-7	2E-9	-	-
28	Nickel-57	D, see <sup>56</sup> Ni	2E+3	5E+3	2E-6	7E-9	2E-5	2E-4
		W, see <sup>56</sup> Ni	-	3E+3	1E-6	4E-9	-	-
		Vapor	-	6E+3	3E-6	9E-9	-	-
28	Nickel-59	D, see <sup>56</sup> Ni	2E+4	4E+3	2E-6	5E-9	3E-4	3E-3
		W, see <sup>56</sup> Ni	-	7E+3	3E-6	1E-8	-	-
		Vapor	-	2E+3	8E-7	3E-9	-	-
28	Nickel-63	D, see <sup>56</sup> Ni	9E+3	2E+3	7E-7	2E-9	1E-4	1E-3
		W, see <sup>56</sup> Ni	-	3E+3	1E-6	4E-9	-	-
		Vapor	-	8E+2	3E-7	1E-9	-	-

Atomic No.	Radionuclide	Class	Table 1 Occupational Values			Table II Effluent Concentration		Table III Releases to Sewers
			Col. 1	Col. 2	Col. 3	Col. 1	Col. 2	Monthly Average Concentration
			Oral Ingestion	Inhalation		Air $\mu\text{Ci/ml}$	Water $\mu\text{Ci/ml}$	$\mu\text{Ci/ml}$
				ALI $\mu\text{Ci}$	ALI $\mu\text{Ci}$			
28	Nickel-65	D, see $^{56}\text{Ni}$	8E+3	2E+4	1E-5	3E-8	1E-4	1E-3
		W, see $^{56}\text{Ni}$	-	3E+4	1E-5	4E-8	-	-
		Vapor	-	2E+4	7E-6	2E-8	-	-
28	Nickel-66	D, see $^{56}\text{Ni}$	4E+2	2E+3	7E-7	2E-9	-	-
		LLI wall (5E+2)	-	-	-	-	6E-6	6E-5
		W, see $^{56}\text{Ni}$	-	6E+2	3E-7	9E-10	-	-
		Vapor	-	3E+3	1E-6	4E-9	-	-
29	Copper-60 <sup>2</sup>	D, all compounds except those given for W and Y	3E+4	9E+4	4E-5	1E-7	-	-
		St wall (3E+4)	-	-	-	-	4E-4	4E-3
		W, sulfides, halides, and nitrates	-	1E+5	5E-5	2E-7	-	-
		Y, oxides and hydroxides	-	1E+5	4E-5	1E-7	-	-
29	Copper-61	D, see $^{60}\text{Cu}$	1E+4	3E+4	1E-5	4E-8	2E-4	2E-3
		W, see $^{60}\text{Cu}$	-	4E+4	2E-5	6E-8	-	-
		Y, see $^{60}\text{Cu}$	-	4E+4	1E-5	5E-8	-	-
29	Copper-64	D, see $^{60}\text{Cu}$	1E+4	3E+4	1E-5	4E-8	2E-4	2E-3
		W, see $^{60}\text{Cu}$	-	2E+4	1E-5	3E-8	-	-
		Y, see $^{60}\text{Cu}$	-	2E+4	9E-6	3E-8	-	-
29	Copper-67	D, see $^{60}\text{Cu}$	5E+3	8E+3	3E-6	1E-8	6E-5	6E-4
		W, see $^{60}\text{Cu}$	-	5E+3	2E-6	7E-9	-	-
		Y, see $^{60}\text{Cu}$	-	5E+3	2E-6	6E-9	-	-
30	Zinc-62	Y, all compounds	1E+3	3E+3	1E-6	4E-9	2E-5	2E-4
30	Zinc-63 <sup>2</sup>	Y, all compounds	2E+4	7E+4	3E-5	9E-8	-	-
		St wall (3E+4)	-	-	-	-	3E-4	3E-3
30	Zinc-65	Y, all compounds	4E+2	3E+2	1E-7	4E-10	5E-6	5E-5
30	Zinc-69m	Y, all compounds	4E+3	7E+3	3E-6	1E-8	6E-5	6E-4
30	Zinc-69 <sup>2</sup>	Y, all compounds	6E+4	1E+5	6E-5	2E-7	8E-4	8E-3
30	Zinc-71m	Y, all compounds	6E+3	2E+4	7E-6	2E-8	8E-5	8E-4
30	Zinc-72	Y, all compounds	1E+3	1E+3	5E-7	2E-9	1E-5	1E-4
31	Gallium-65 <sup>2</sup>	D, all compounds (( <del>except</del> <del>except</del> )) <u>except</u> those given for W	5E+4	2E+5	7E-5	2E-7	-	-
		St wall (6E+4)	-	-	-	-	9E-4	9E-3
		W, oxides, hydroxides, carbides, halides, and nitrates	-	2E+5	8E-5	3E-7	-	-
31	Gallium-66	D, see $^{65}\text{Ga}$	1E+3	4E+3	1E-6	5E-9	1E-5	1E-4
		W, see $^{65}\text{Ga}$	-	3E+3	1E-6	4E-9	-	-
31	Gallium-67	D, see $^{65}\text{Ga}$	7E+3	1E+4	6E-6	2E-8	1E-4	1E-3
		W, see $^{65}\text{Ga}$	-	1E+4	4E-6	1E-8	-	-
31	Gallium-68 <sup>2</sup>	D, see $^{65}\text{Ga}$	2E+4	4E+4	2E-5	6E-8	2E-4	2E-3
		W, see $^{65}\text{Ga}$	-	5E+4	2E-5	7E-8	-	-
31	Gallium-70 <sup>2</sup>	D, see $^{65}\text{Ga}$	5E+4	2E+5	7E-5	2E-7	-	-
		St wall (7E+4)	-	-	-	-	1E-3	1E-2
		W, see $^{65}\text{Ga}$	-	2E+5	8E-5	3E-7	-	-



Atomic No.	Radionuclide	Class	Table I Occupational Values			Table II Effluent Concentration		Table III Releases to Sewers
			Col. 1	Col. 2	Col. 3	Col. 1	Col. 2	Monthly Average Concentration
			Oral Ingestion	Inhalation		Air $\mu\text{Ci/ml}$	Water $\mu\text{Ci/ml}$	$\mu\text{Ci/ml}$
				ALI $\mu\text{Ci}$	ALI $\mu\text{Ci}$			
31	Gallium-72	D, see $^{65}\text{Ga}$	1E+3	4E+3	1E-6	5E-9	2E-5	2E-4
		W, see $^{65}\text{Ga}$	-	3E+3	1E-6	4E-9	-	-
31	Gallium-73	D, see $^{65}\text{Ga}$	5E+3	2E+4	6E-6	2E-8	7E-5	7E-4
		W, see $^{65}\text{Ga}$	-	2E+4	6E-6	2E-8	-	-
32	Germanium-66	D, all compounds except those given for W	2E+4	3E+4	1E-5	4E-8	3E-4	3E-3
		W, oxides, sulfides, and halides	-	2E+4	8E-6	3E-8	-	-
32	Germanium-67 <sup>2</sup>	D, see $^{66}\text{Ge}$	3E+4	9E+4	4E-5	1E-7	-	-
		St wall (4E+4)	-	-	-	-	6E-4	6E-3
32	Germanium-68	W, see $^{66}\text{Ge}$	-	1E+5	4E-5	1E-7	-	-
		D, see $^{66}\text{Ge}$	5E+3	4E+3	2E-6	5E-9	6E-5	6E-4
32	Germanium-69	W, see $^{66}\text{Ge}$	-	1E+2	4E-8	1E-10	-	-
		D, see $^{66}\text{Ge}$	1E+4	2E+4	6E-6	2E-8	2E-4	2E-3
32	Germanium-71	W, see $^{66}\text{Ge}$	-	8E+3	3E-6	1E-8	-	-
		D, see $^{66}\text{Ge}$	5E+5	4E+5	2E-4	6E-7	7E-3	7E-2
32	Germanium-72 <sup>2</sup>	W, see $^{66}\text{Ge}$	-	4E+4	2E-5	6E-8	-	-
		D, see $^{66}\text{Ge}$	4E+4	8E+4	3E-5	1E-7	-	-
32	Germanium-77	St wall (7E+4)	-	-	-	-	9E-4	9E-3
		W, see $^{66}\text{Ge}$	-	8E+4	4E-5	1E-7	-	-
32	Germanium-78 <sup>2</sup>	D, see $^{66}\text{Ge}$	9E+3	1E+4	4E-6	1E-8	1E-4	1E-3
		W, see $^{66}\text{Ge}$	-	6E+3	2E-6	8E-9	-	-
32	Germanium-78 <sup>2</sup>	D, see $^{66}\text{Ge}$	2E+4	2E+4	9E-6	3E-8	-	-
		St wall (2E+4)	-	-	-	-	3E-4	3E-3
33	Arsenic-69 <sup>2</sup>	W, see $^{66}\text{Ge}$	-	2E+4	9E-6	3E-8	-	-
		W, all compounds	3E+4	1E+5	5E-5	2E-7	-	-
33	Arsenic-70 <sup>2</sup>	St wall (4E+4)	-	-	-	-	6E-4	6E-3
		W, all compounds	1E+4	5E+4	2E-5	7E-8	2E-4	2E-3
33	Arsenic-71	W, all compounds	4E+3	5E+3	2E-6	6E-9	5E-5	5E-4
33	Arsenic-72	W, all compounds	9E+2	1E+3	6E-7	2E-9	1E-5	1E-4
33	Arsenic-73	W, all compounds	8E+3	2E+3	7E-7	2E-9	1E-4	1E-3
33	Arsenic-74	W, all compounds	1E+3	8E+2	3E-7	1E-9	2E-5	2E-4
33	Arsenic-76	W, all compounds	1E+3	1E+3	6E-7	2E-9	1E-5	1E-4
33	Arsenic-77	W, all compounds	4E+3	5E+3	2E-6	7E-9	-	-
		LLI wall (5E+3)	-	-	-	-	6E-5	6E-4
33	Arsenic-78 <sup>2</sup>	W, all compounds	8E+3	2E+4	9E-6	3E-8	1E-4	1E-3
34	Selenium-70 <sup>2</sup>	D, all compounds except those given for W	2E+4	4E+4	2E-5	5E-8	1E-4	1E-3
		W, oxides, hydroxides, carbides, and elemental Se	1E+4	4E+4	2E-5	6E-8	-	-
34	Selenium-73m <sup>2</sup>	D, see $^{70}\text{Se}$	6E+4	2E+5	6E-5	2E-7	4E-4	4E-3
		W, see $^{70}\text{Se}$	3E+4	1E+5	6E-5	2E-7	-	-
34	Selenium-73	D, see $^{70}\text{Se}$	3E+3	1E+4	5E-6	2E-8	4E-5	4E-4
		W, see $^{70}\text{Se}$	-	2E+4	7E-6	2E-8	-	-

Atomic No.	Radionuclide	Class	Table I Occupational Values			Table II Effluent Concentration		Table III Releases to Sewers
			Col. 1	Col. 2	Col. 3	Col. 1	Col. 2	Monthly Average Concentration
			Oral Ingestion	Inhalation		Air $\mu\text{Ci/ml}$	Water $\mu\text{Ci/ml}$	$\mu\text{Ci/ml}$
				ALI $\mu\text{Ci}$	ALI $\mu\text{Ci}$			
34	Selenium-75	D, see <sup>70</sup> Se	5E+2	7E+2	3E-7	1E-9	7E-6	7E-5
		W, see <sup>70</sup> Se	-	6E+2	3E-7	8E-10	-	-
34	Selenium-79	D, see <sup>70</sup> Se	6E+2	8E+2	3E-7	1E-9	8E-6	8E-5
		W, see <sup>70</sup> Se	-	6E+2	2E-7	8E-10	-	-
34	Selenium-81m <sup>2</sup>	D, see <sup>70</sup> Se	4E+4	7E+4	3E-5	9E-8	3E-4	3E-3
		W, see <sup>70</sup> Se	2E+4	7E+4	3E-5	1E-7	-	-
34	Selenium-81 <sup>2</sup>	D, see <sup>70</sup> Se	6E+4	2E+5	9E-5	3E-7	-	-
		St wall (8E+4)	-	-	-	-	1E-3	1E-2
		W, see <sup>70</sup> Se	-	2E+5	1E-4	3E-7	-	-
34	Selenium-83 <sup>2</sup>	D, see <sup>70</sup> Se	4E+4	1E+5	5E-5	2E-7	4E-4	4E-3
		W, see <sup>70</sup> Se	3E+4	1E+5	5E-5	2E-7	-	-
35	Bromine-74m <sup>2</sup>	D, bromides of H, Li, Na, K, Rb, Cs, and Fr	1E+4	4E+4	2E-5	5E-8	-	-
		St wall (2E+4)	-	-	-	-	3E-4	3E-3
		W, bromides of lanthanides, Be, Mg, Ca, Sr, Ba, Ra, Al, Ga, In, Tl, Ge, Sn, Pb, As, Sb, Bi, Fe, Ru, Os, Co, Rh, Ir, Ni, Pd, Pt, Cu, Ag, Au, Zn, Cd, Hg, Sc, Y, Ti, Zr, Hf, V, Nb, Ta, Mn, Tc, and Re	-	4E+4	2E-5	6E-8	-	-
35	Bromine-74 <sup>2</sup>	D, see <sup>74m</sup> Br	2E+4	7E+4	3E-5	1E-7	-	-
		St wall (4E+4)	-	-	-	-	5E-45E-3	-
		W, see <sup>74m</sup> Br	-	8E+4	4E-5	1E-7	-	-
35	Bromine-75 <sup>2</sup>	D, see <sup>74m</sup> Br	3E+4	5E+4	2E-5	7E-8	-	-
		St wall (4E+4)	-	-	-	-	5E-4	5E-3
		W, see <sup>74m</sup> Br	-	5E+4	2E-5	7E-8	-	-
35	Bromine-76	D, see <sup>74m</sup> Br	4E+3	5E+3	2E-6	7E-9	5E-5	5E-4
		W, see <sup>74m</sup> Br	-	4E+3	2E-6	6E-9	-	-
35	Bromine-77	D, see <sup>74m</sup> Br	2E+4	2E+4	1E-5	3E-8	2E-4	2E-3
		W, see <sup>74m</sup> Br	-	2E+4	8E-6	3E-8	-	-
35	Bromine-80m	D, see <sup>74m</sup> Br	2E+4	2E+4	7E-6	2E-8	3E-4	3E-3
		W, see <sup>74m</sup> Br	-	1E+4	6E-6	2E-8	-	-
35	Bromine-80 <sup>2</sup>	D, see <sup>74m</sup> Br	5E+4	2E+5	8E-5	3E-7	-	-
		St wall (9E+4)	-	-	-	-	1E-3	1E-2
		W, see <sup>74m</sup> Br	-	2E+5	9E-5	3E-7	-	-
35	Bromine-82	D, see <sup>74m</sup> Br	3E+3	4E+3	2E-6	6E-9	4E-5	4E-4
		W, see <sup>74m</sup> Br	-	4E+3	2E-6	5E-9	-	-
35	Bromine-83	D, see <sup>74m</sup> Br	5E+4	6E+4	3E-5	9E-8	-	-
		St wall (7E+4)	-	-	-	-	9E-4	9E-3
		W, see <sup>74m</sup> Br	-	6E+4	3E-5	9E-8	-	-
35	Bromine-84 <sup>2</sup>	D, see <sup>74m</sup> Br	2E+4	6E+4	2E-5	8E-8	-	-
		St wall (3E+4)	-	-	-	-	4E-4	4E-3

Atomic No.	Radionuclide	Class	Table I Occupational Values			Table II Effluent Concentration		Table III Releases to Sewers
			Col. 1	Col. 2	Col. 3	Col. 1	Col. 2	Monthly Average Concentration μCi/ml
			Oral Ingestion	Inhalation		Air μCi/ml	Water μCi/ml	
				ALI μCi	ALI μCi			
		W, see <sup>74m</sup> Br	-	6E+4	3E-5	9E-8	-	-
36	Krypton-74 <sup>2</sup>	Submersion <sup>1</sup>	-	-	3E-6	1E-8	-	-
36	Krypton-76	Submersion <sup>1</sup>	-	-	9E-6	4E-8	-	-
36	Krypton-77 <sup>2</sup>	Submersion <sup>1</sup>	-	-	4E-6	2E-8	-	-
36	Krypton-79	Submersion <sup>1</sup>	-	-	2E-5	7E-8	-	-
36	Krypton-81	Submersion <sup>1</sup>	-	-	7E-4	3E-6	-	-
36	Krypton-83m <sup>2</sup>	Submersion <sup>1</sup>	-	-	1E-2	5E-5	-	-
36	Krypton-85m	Submersion <sup>1</sup>	-	-	2E-5	1E-7	-	-
36	Krypton-85	Submersion <sup>1</sup>	-	-	1E-4	7E-7	-	-
36	Krypton-87 <sup>2</sup>	Submersion <sup>1</sup>	-	-	5E-6	2E-8	-	-
36	Krypton-88	Submersion <sup>1</sup>	-	-	2E-6	9E-9	-	-
37	Rubidium-79 <sup>2</sup>	D, all compounds	4E+4	1E+5	5E-5	2E-7	-	-
			St wall (6E+4)	-	-	-	8E-4	8E-3
37	Rubidium-81m <sup>2</sup>	D, all compounds	2E+5	3E+5	1E-4	5E-7	-	-
			St wall (3E+5)	-	-	-	4E-3	4E-2
37	Rubidium-81	D, all compounds	4E+4	5E+4	2E-5	7E-8	5E-4	5E-3
37	Rubidium-82m	D, all compounds	1E+4	2E+4	7E-6	2E-8	2E-4	2E-3
37	Rubidium-83	D, all compounds	6E+2	1E+3	4E-7	1E-9	9E-6	9E-5
37	Rubidium-84	D, all compounds	5E+2	8E+2	3E-7	1E-9	7E-6	7E-5
37	Rubidium-86	D, all compounds	5E+2	8E+2	3E-7	1E-9	7E-6	7E-5
37	Rubidium-87	D, all compounds	1E+3	2E+3	6E-7	2E-9	1E-5	1E-4
37	Rubidium-88 <sup>2</sup>	D, all compounds	2E+4	6E+4	3E-5	9E-8	-	-
			St wall (3E+4)	-	-	-	4E-4	4E-3
37	Rubidium-89 <sup>2</sup>	D, all compounds	4E+4	1E+5	6E-5	2E-7	-	-
			St wall (6E+4)	-	-	-	9E-4	9E-3
38	Strontium-80 <sup>2</sup>	D, all soluble compound except SrTiO	4E+3	1E+4	5E-6	2E-8	6E-5	6E-4
		Y, all insoluble compounds and SrTiO	-	1E+4	5E-6	2E-8	-	-
38	Strontium-81 <sup>2</sup>	D, see <sup>80</sup> Sr	3E+4	8E+4	3E-5	1E-7	3E-4	3E-3
		Y, see <sup>80</sup> Sr	2E+4	8E+4	3E-5	1E-7	-	-
38	Strontium-82	D, see <sup>80</sup> Sr	3E+2	4E+2	2E-7	6E-10	-	-
			LLI wall (2E+2)	-	-	-	3E-6	3E-5
		Y, see <sup>80</sup> Sr	2E+2	9E+1	4E-8	1E-10	-	-
38	Strontium-83	D, see <sup>80</sup> Sr	3E+3	7E+3	3E-6	1E-8	3E-5	3E-4
		Y, see <sup>80</sup> Sr	2E+3	4E+3	1E-6	5E-9	-	-
38	Strontium-85m <sup>2</sup>	D, see <sup>80</sup> Sr	2E+5	6E+5	3E-4	9E-7	3E-3	3E-2
		Y, see <sup>80</sup> Sr	-	8E+5	4E-4	1E-6	-	-
38	Strontium-85	D, see <sup>80</sup> Sr	3E+3	3E+3	1E-6	4E-9	4E-5	4E-4
		Y, see <sup>80</sup> Sr	-	2E+3	6E-7	2E-9	-	-
38	Strontium-87m	D, see <sup>80</sup> Sr	5E+4	1E+5	5E-5	2E-7	6E-4	6E-3
		Y, see <sup>80</sup> Sr	4E+4	2E+5	6E-5	2E-7	-	-
38	Strontium-89	D, see <sup>80</sup> Sr	6E+2	8E+2	4E-7	1E-9	-	-

Atomic No.	Radionuclide	Class	Table I Occupational Values			Table II Effluent Concentration		Table III Releases to Sewers
			Col. 1	Col. 2	Col. 3	Col. 1	Col. 2	Monthly Average Concentration
			Oral Ingestion	Inhalation		Air $\mu\text{Ci/ml}$	Water $\mu\text{Ci/ml}$	$\mu\text{Ci/ml}$
				ALI $\mu\text{Ci}$	ALI $\mu\text{Ci}$			
			LLI wall (6E+2)	-	-	-	8E-6	8E-5
38	Strontium-90	Y, see $^{80}\text{Sr}$	5E+2	1E+2	6E-8	2E-10	-	-
		D, see $^{80}\text{Sr}$	3E+1	2E+1	8E-9	-	-	-
			Bone surf (4E+1)	Bone surf (2E+1)	-	3E-11	5E-7	5E-6
38	Strontium-91	Y, see $^{80}\text{Sr}$	-	4E+0	2E-9	6E-12	-	-
		D, see $^{80}\text{Sr}$	2E+3	6E+3	2E-6	8E-9	2E-5	2E-4
38	Strontium-92	Y, see $^{80}\text{Sr}$	-	4E+3	1E-6	5E-9	-	-
		D, see $^{80}\text{Sr}$	3E+3	9E+3	4E-6	1E-8	4E-5	4E-4
		Y, see $^{80}\text{Sr}$	-	7E+3	3E-6	9E-9	-	-
39	Yttrium-86m <sup>2</sup>	W, all compounds except those given for Y	2E+4	6E+4	2E-5	8E-8	3E-4	3E-3
		Y, oxides and hydroxides	-	5E+4	2E-5	8E-8	-	-
39	Yttrium-86	W, see $^{86m}\text{Y}$	1E+3	3E+3	1E-6	5E-9	2E-5	2E-4
		Y, see $^{86m}\text{Y}$	-	3E+3	1E-6	5E-9	-	-
39	Yttrium-87	W, see $^{86m}\text{Y}$	2E+3	3E+3	1E-6	5E-9	3E-5	3E-4
		Y, see $^{86m}\text{Y}$	-	3E+3	1E-6	5E-9	-	-
39	Yttrium-88	W, see $^{86m}\text{Y}$	1E+3	3E+2	1E-7	3E-10	1E-5	1E-4
		Y, see $^{86m}\text{Y}$	-	2E+2	1E-7	3E-10	-	-
39	Yttrium-90m	W, see $^{86m}\text{Y}$	8E+3	1E+4	5E-6	2E-8	1E-4	1E-3
		Y, see $^{86m}\text{Y}$	-	1E+4	5E-6	2E-8	-	-
39	Yttrium-90	W, see $^{86m}\text{Y}$	4E+2	7E+2	3E-7	9E-10	-	-
			LLI wall (5E+2)	-	-	-	7E-6	7E-5
39	Yttrium-91m <sup>2</sup>	Y, see $^{86m}\text{Y}$	-	6E+2	3E-7	9E-10	-	-
		W, see $^{86m}\text{Y}$	1E+5	2E+5	1E-4	3E-7	2E-3	2E-2
		Y, see $^{86m}\text{Y}$	-	2E+5	7E-5	2E-7	-	-
39	Yttrium-91	W, see $^{86m}\text{Y}$	5E+2	2E+2	7E-8	2E-10	-	-
			LLI wall (6E+2)	-	-	-	8E-6	8E-5
39	Yttrium-92	Y, see $^{86m}\text{Y}$	-	1E+2	5E-8	2E-10	-	-
		W, see $^{86m}\text{Y}$	3E+3	9E+3	4E-6	1E-8	4E-5	4E-4
		Y, see $^{86m}\text{Y}$	-	8E+3	3E-6	1E-8	-	-
39	Yttrium-93	W, see $^{86m}\text{Y}$	1E+3	3E+3	1E-6	4E-9	2E-5	2E-4
		Y, see $^{86m}\text{Y}$	-	2E+3	1E-6	3E-9	-	-
39	Yttrium-94 <sup>2</sup>	W, see $^{86m}\text{Y}$	2E+4	8E+4	3E-5	1E-7	-	-
			St wall (3E+4)	-	-	-	4E-4	4E-3
39	Yttrium-95 <sup>2</sup>	Y, see $^{86m}\text{Y}$	-	8E+4	3E-5	1E-7	-	-
		W, see $^{86m}\text{Y}$	4E+4	2E+5	6E-5	2E-7	-	-
			St wall (5E+4)	-	-	-	7E-4	7E-3
40	Zirconium-86	Y, see $^{86m}\text{Y}$	-	1E+5	6E-5	2E-7	-	-
		D, all compounds except those given for W and Y	1E+3	4E+3	2E-6	6E-9	2E-5	2E-4
		W, oxides, hydroxides, halides, and nitrates	-	3E+3	1E-6	4E-9	-	-
		Y, carbide	-	2E+3	1E-6	3E-9	-	-

Atomic No.	Radionuclide	Class	Table 1 Occupational Values			Table II Effluent Concentration		Table III Releases to Sewers
			Col. 1	Col. 2	Col. 3	Col. 1	Col. 2	Monthly Average Concentration
			Oral Ingestion	Inhalation		Air $\mu\text{Ci/ml}$	Water $\mu\text{Ci/ml}$	$\mu\text{Ci/ml}$
				ALI $\mu\text{Ci}$	ALI $\mu\text{Ci}$			
40	Zirconium-88	D, see $^{86}\text{Zr}$	4E+3	2E+2	9E-8	3E-10	5E-5	5E-4
		W, see $^{86}\text{Zr}$	-	5E+2	2E-7	7E-10	-	-
		Y, see $^{86}\text{Zr}$	-	3E+2	1E-7	4E-10	-	-
40	Zirconium-89	D, see $^{86}\text{Zr}$	2E+3	4E+3	1E-6	5E-9	2E-5	2E-4
		W, see $^{86}\text{Zr}$	-	2E+3	1E-6	3E-9	-	-
		Y, see $^{86}\text{Zr}$	-	2E+3	1E-6	3E-9	-	-
40	Zirconium-93	D, see $^{86}\text{Zr}$	1E+3	6E+0	3E-9	-	-	-
		W, see $^{86}\text{Zr}$	Bone surf (3E+3)	Bone surf (2E+1)	-	2E-11	4E-5	4E-4
			-	2E+1	1E-8	-	-	-
			-	Bone surf (6E+1)	-	9E-11	-	-
		Y, see $^{86}\text{Zr}$	-	6E+1	2E-8	-	-	-
40	Zirconium-95	D, see $^{86}\text{Zr}$	1E+3	1E+2	5E-8	-	2E-5	2E-4
		W, see $^{86}\text{Zr}$	-	Bone surf (3E+2)	-	4E-10	-	-
			-	4E+2	2E-7	5E-10	-	-
			-	3E+2	1E-7	4E-10	-	-
40	Zirconium-97	D, see $^{86}\text{Zr}$	6E+2	2E+3	8E-7	3E-9	9E-6	9E-5
		W, see $^{86}\text{Zr}$	-	1E+3	6E-7	2E-9	-	-
		Y, see $^{86}\text{Zr}$	-	1E+3	5E-7	2E-9	-	-
41	Niobium-88 <sup>2</sup>	W, all compounds except those given for Y	5E+4	2E+5	9E-5	3E-7	-	-
		Y, oxides and hydroxides	St wall (7E+4)	-	-	-	1E-3	1E-2
41	Niobium-89 <sup>2</sup> (66 min)	W, see $^{88}\text{Nb}$	1E+4	4E+4	2E-5	6E-8	1E-4	1E-3
		Y, see $^{88}\text{Nb}$	-	4E+4	2E-5	5E-8	-	-
41	Niobium-89 (122 min)	W, see $^{88}\text{Nb}$	5E+3	2E+4	8E-6	3E-8	7E-5	7E-4
		Y, see $^{88}\text{Nb}$	-	2E+4	6E-6	2E-8	-	-
41	Niobium-90	W, see $^{88}\text{Nb}$	1E+3	3E+3	1E-6	4E-9	1E-5	1E-4
		Y, see $^{88}\text{Nb}$	-	2E+3	1E-6	3E-9	-	-
41	Niobium-93m	W, see $^{88}\text{Nb}$	9E+3	2E+3	8E-7	3E-9	-	-
		Y, see $^{88}\text{Nb}$	LLI wall (1E+4)	-	-	-	2E-4	2E-3
			-	2E+2	7E-8	2E-10	-	-
41	Niobium-94	W, see $^{88}\text{Nb}$	9E+2	2E+2	8E-8	3E-10	1E-5	1E-4
		Y, see $^{88}\text{Nb}$	-	2E+1	6E-9	2E-11	-	-
41	Niobium-95m	W, see $^{88}\text{Nb}$	2E+3	3E+3	1E-6	4E-9	-	-
		Y, see $^{88}\text{Nb}$	LLI wall (2E+3)	-	-	-	3E-5	3E-4
			-	2E+3	9E-7	3E-9	-	-
41	Niobium-95	W, see $^{88}\text{Nb}$	2E+3	1E+3	5E-7	2E-9	3E-5	3E-4
		Y, see $^{88}\text{Nb}$	-	1E+3	5E-7	2E-9	-	-
41	Niobium-96	W, see $^{88}\text{Nb}$	1E+3	3E+3	1E-6	4E-9	2E-5	2E-4

Atomic No.	Radionuclide	Class	Table I Occupational Values			Table II Effluent Concentration		Table III Releases to Sewers
			Col. 1	Col. 2	Col. 3	Col. 1	Col. 2	Monthly Average Concentration
			Oral Ingestion	Inhalation		Air $\mu\text{Ci/ml}$	Water $\mu\text{Ci/ml}$	$\mu\text{Ci/ml}$
				ALI $\mu\text{Ci}$	ALI $\mu\text{Ci}$			
41	Niobium-97 <sup>2</sup>	Y, see <sup>88</sup> Nb	-	2E+3	1E-6	3E-9	-	-
		W, see <sup>88</sup> Nb	2E+4	8E+4	3E-5	1E-7	3E-4	3E-3
41	Niobium-98 <sup>2</sup>	Y, see <sup>88</sup> Nb	-	7E+4	3E-5	1E-7	-	-
		W, see <sup>88</sup> Nb	1E+4	5E+4	2E-5	8E-8	2E-4	2E-3
42	Molybdenum-90	Y, see <sup>88</sup> Nb	-	5E+4	2E-5	7E-8	-	-
		D, all compounds except those given for Y	4E+3	7E+3	3E-6	1E-8	3E-5	3E-4
42	Molybdenum-93m	Y, oxides, hydroxides, and MoS	2E+3	5E+3	2E-6	6E-9	-	-
		D, see <sup>90</sup> Mo	9E+3	2E+4	7E-6	2E-8	6E-5	6E-4
42	Molybdenum-93	Y, see <sup>90</sup> Mo	4E+3	1E+4	6E-6	2E-8	-	-
		D, see <sup>90</sup> Mo	4E+3	5E+3	2E-6	8E-9	5E-5	5E-4
42	Molybdenum-99	Y, see <sup>90</sup> Mo	2E+4	2E+2	8E-8	2E-10	-	-
		D, see <sup>90</sup> Mo	2E+3	3E+3	1E-6	4E-9	-	-
42	Molybdenum-101 <sup>2</sup>	LLI wall (1E+3)	-	-	-	-	2E-5	2E-4
		Y, see <sup>90</sup> Mo	1E+3	1E+3	6E-7	2E-9	-	-
		D, see <sup>90</sup> Mo	4E+4	1E+5	6E-5	2E-7	-	-
43	Technetium-93m <sup>2</sup>	St wall (5E+4)	-	-	-	-	7E-4	7E-3
		Y, see <sup>90</sup> Mo	-	1E+5	6E-5	2E-7	-	-
		D, all compounds except those given for W	7E+4	2E+5	6E-5	2E-7	1E-3	1E-2
43	Technetium-93	W, oxides, hydroxides, halides, and nitrates	-	3E+5	1E-4	4E-7	-	-
		D, see <sup>93m</sup> Tc	3E+4	7E+4	3E-5	1E-7	4E-4	4E-3
43	Technetium-94m <sup>2</sup>	W, see <sup>93m</sup> Tc	-	1E+5	4E-5	1E-7	-	-
		D, see <sup>93m</sup> Tc	2E+4	4E+4	2E-5	6E-8	3E-4	3E-3
43	Technetium-94	W, see <sup>93m</sup> Tc	-	6E+4	2E-5	8E-8	-	-
		D, see <sup>93m</sup> Tc	9E+3	2E+4	8E-6	3E-8	1E-4	1E-3
43	Technetium-95m	W, see <sup>93m</sup> Tc	-	2E+4	1E-5	3E-8	-	-
		D, see <sup>93m</sup> Tc	4E+3	5E+3	2E-6	8E-9	5E-5	5E-4
43	Technetium-95	W, see <sup>93m</sup> Tc	-	2E+3	8E-7	3E-9	-	-
		D, see <sup>93m</sup> Tc	1E+4	2E+4	9E-6	3E-8	1E-4	1E-3
43	Technetium-96m <sup>2</sup>	W, see <sup>93m</sup> Tc	-	2E+4	8E-6	3E-8	-	-
		D, see <sup>93m</sup> Tc	2E+5	3E+5	1E-4	4E-7	2E-3	2E-2
43	Technetium-96	W, see <sup>93m</sup> Tc	-	2E+5	1E-4	3E-7	-	-
		D, see <sup>93m</sup> Tc	2E+3	3E+3	1E-6	5E-9	3E-5	3E-4
43	Technetium-97m	W, see <sup>93m</sup> Tc	-	2E+3	9E-7	3E-9	-	-
		D, see <sup>93m</sup> Tc	5E+3	7E+3	3E-6	-	6E-5	6E-4
43	Technetium-97	St wall (7E+3)	-	7E+3	-	1E-8	-	-
		W, see <sup>93m</sup> Tc	-	1E+3	5E-7	2E-9	-	-
		D, see <sup>93m</sup> Tc	4E+4	5E+4	2E-5	7E-8	5E-4	5E-3
43	Technetium-98	W, see <sup>93m</sup> Tc	-	6E+3	2E-6	8E-9	-	-
		D, see <sup>93m</sup> Tc	1E+3	2E+3	7E-7	2E-9	1E-5	1E-4
		W, see <sup>93m</sup> Tc	-	3E+2	1E-7	4E-10	-	-

Atomic No.	Radionuclide	Class	Table I Occupational Values			Table II Effluent Concentration		Table III Releases to Sewers
			Col. 1	Col. 2	Col. 3	Col. 1	Col. 2	Monthly Average Concentration
			Oral Ingestion	Inhalation		Air $\mu\text{Ci/ml}$	Water $\mu\text{Ci/ml}$	$\mu\text{Ci/ml}$
				ALI $\mu\text{Ci}$	ALI $\mu\text{Ci}$			
43	Technetium-99m	D, see $^{93\text{m}}\text{Tc}$	8E+4	2E+5	6E-5	2E-7	1E-3	1E-2
		W, see $^{93\text{m}}\text{Tc}$	-	2E+5	1E-4	3E-7	-	-
43	Technetium-99	D, see $^{93\text{m}}\text{Tc}$	4E+3	5E+3	2E-6	-	6E-5	6E-4
			-	St wall (6E+3)	-	8E-9	-	-
		W, see $^{93\text{m}}\text{Tc}$	-	7E+2	3E-7	9E-10	-	-
43	Technetium-101 <sup>2</sup>	D, see $^{93\text{m}}\text{Tc}$	9E+4	3E+5	1E-4	5E-7	-	-
			St wall (1E+5)	-	-	-	2E-3	2E-2
		W, see $^{93\text{m}}\text{Tc}$	-	4E+5	2E-4	5E-7	-	-
43	Technetium-104 <sup>2</sup>	D, see $^{93\text{m}}\text{Tc}$	2E+4	7E+4	3E-5	1E-7	-	-
			St wall (3E+4)	-	-	-	4E-4	4E-3
		W, see $^{93\text{m}}\text{Tc}$	-	9E+4	4E-5	1E-7	-	-
44	Ruthenium-94 <sup>2</sup>	D, all compounds except those given for W and Y	2E+4	4E+4	2E-5	6E-8	2E-4	2E-3
		W, halides	-	6E+4	3E-5	9E-8	-	-
		Y, oxides and hydroxides	-	6E+4	2E-5	8E-8	-	-
44	Ruthenium-97	D, see $^{94}\text{Ru}$	8E+3	2E+4	8E-6	3E-8	1E-4	1E-3
		W, see $^{94}\text{Ru}$	-	1E+4	5E-6	2E-8	-	-
		Y, see $^{94}\text{Ru}$	-	1E+4	5E-6	2E-8	-	-
44	Ruthenium-103	D, see $^{94}\text{Ru}$	2E+3	2E+3	7E-7	2E-9	3E-5	3E-4
		W, see $^{94}\text{Ru}$	-	1E+3	4E-7	1E-9	-	-
		Y, see $^{94}\text{Ru}$	-	6E+2	3E-7	9E-10	-	-
44	Ruthenium-105	D, see $^{94}\text{Ru}$	5E+3	1E+4	6E-6	2E-8	7E-5	7E-4
		W, see $^{94}\text{Ru}$	-	1E+4	6E-6	2E-8	-	-
		Y, see $^{94}\text{Ru}$	-	1E+4	5E-6	2E-8	-	-
44	Ruthenium-106	D, see $^{94}\text{Ru}$	2E+2	9E+1	4E-8	1E-10	-	-
			LLI wall (2E+2)	-	-	-	3E-6	3E-5
		W, see $^{94}\text{Ru}$	-	5E+1	2E-8	8E-11	-	-
45	Rhodium-99m	D, all compounds except those given for W and Y	2E+4	6E+4	2E-5	8E-8	2E-4	2E-3
		W, halides	-	8E+4	3E-5	1E-7	-	-
		Y, oxides and hydroxides	-	7E+4	3E-5	9E-8	-	-
45	Rhodium-99	D, see $^{99\text{m}}\text{Rh}$	2E+3	3E+3	1E-6	4E-9	3E-5	3E-4
		W, see $^{99\text{m}}\text{Rh}$	-	2E+3	9E-7	3E-9	-	-
		Y, see $^{99\text{m}}\text{Rh}$	-	2E+3	8E-7	3E-9	-	-
45	Rhodium-100	D, see $^{99\text{m}}\text{Rh}$	2E+3	5E+3	2E-6	7E-9	2E-5	2E-4
		W, see $^{99\text{m}}\text{Rh}$	-	4E+3	2E-6	6E-9	-	-
		Y, see $^{99\text{m}}\text{Rh}$	-	4E+3	2E-6	5E-9	-	-
45	Rhodium-101m	D, see $^{99\text{m}}\text{Rh}$	6E+3	1E+4	5E-6	2E-8	8E-5	8E-4
		W, see $^{99\text{m}}\text{Rh}$	-	8E+3	4E-6	1E-8	-	-
		Y, see $^{99\text{m}}\text{Rh}$	-	8E+3	3E-6	1E-8	-	-
45	Rhodium-101	D, see $^{99\text{m}}\text{Rh}$	2E+3	5E+2	2E-7	7E-10	3E-5	3E-4
		W, see $^{99\text{m}}\text{Rh}$	-	8E+2	3E-7	1E-9	-	-

Atomic No.	Radionuclide	Class	Table I Occupational Values			Table II Effluent Concentration		Table III Releases to Sewers
			Col. 1	Col. 2	Col. 3	Col. 1	Col. 2	Monthly Average Concentration
			Oral Ingestion	Inhalation		Air $\mu\text{Ci/ml}$	Water $\mu\text{Ci/ml}$	$\mu\text{Ci/ml}$
				ALI $\mu\text{Ci}$	ALI $\mu\text{Ci}$			
45	Rhodium-102m	Y, see $^{99\text{m}}\text{Rh}$	-	2E+2	6E-8	2E-10	-	-
		D, see $^{99\text{m}}\text{Rh}$	1E+3	5E+2	2E-7	7E-10	-	-
		LLI wall (1E+3)	-	-	-	2E-5	2E-4	
45	Rhodium-102	W, see $^{99\text{m}}\text{Rh}$	-	4E+2	2E-7	5E-10	-	-
		Y, see $^{99\text{m}}\text{Rh}$	-	1E+2	5E-8	2E-10	-	-
		D, see $^{99\text{m}}\text{Rh}$	6E+2	9E+1	4E-8	1E-10	8E-6	8E-5
45	Rhodium-103m <sup>2</sup>	W, see $^{99\text{m}}\text{Rh}$	-	2E+2	7E-8	2E-10	-	-
		Y, see $^{99\text{m}}\text{Rh}$	-	6E+1	2E-8	8E-11	-	-
		D, see $^{99\text{m}}\text{Rh}$	4E+5	1E+6	5E-4	2E-6	6E-3	6E-2
45	Rhodium-105	W, see $^{99\text{m}}\text{Rh}$	-	1E+6	5E-4	2E-6	-	-
		Y, see $^{99\text{m}}\text{Rh}$	-	1E+6	5E-4	2E-6	-	-
		D, see $^{99\text{m}}\text{Rh}$	4E+3	1E+4	5E-6	2E-8	-	-
45	Rhodium-106m	LLI wall (4E+3)	-	-	-	-	5E-5	5E-4
		W, see $^{99\text{m}}\text{Rh}$	-	6E+3	3E-6	9E-9	-	-
		Y, see $^{99\text{m}}\text{Rh}$	-	6E+3	2E-6	8E-9	-	-
45	Rhodium-107 <sup>2</sup>	D, see $^{99\text{m}}\text{Rh}$	8E+3	3E+4	1E-5	4E-8	1E-4	1E-3
		W, see $^{99\text{m}}\text{Rh}$	-	4E+4	2E-5	5E-8	-	-
		Y, see $^{99\text{m}}\text{Rh}$	-	4E+4	1E-5	5E-8	-	-
46	Palladium-100	D, see $^{100}\text{Pd}$	7E+4	2E+5	1E-4	3E-7	-	-
		St wall (9E+4)	-	-	-	-	1E-3	1E-2
		W, see $^{99\text{m}}\text{Rh}$	-	3E+5	1E-4	4E-7	-	-
46	Palladium-101	Y, see $^{99\text{m}}\text{Rh}$	-	3E+5	1E-4	3E-7	-	-
		D, all compounds except those given for W and Y	1E+3	1E+3	6E-7	2E-9	2E-5	2E-4
		W, nitrates	-	1E+3	5E-7	2E-9	-	-
46	Palladium-103	Y, oxides and hydroxides	-	1E+3	6E-7	2E-9	-	-
		D, see $^{100}\text{Pd}$	1E+4	3E+4	1E-5	5E-8	2E-4	2E-3
		W, see $^{100}\text{Pd}$	-	3E+4	1E-5	5E-8	-	-
46	Palladium-107	Y, see $^{100}\text{Pd}$	-	3E+4	1E-5	4E-8	-	-
		D, see $^{100}\text{Pd}$	6E+3	6E+3	3E-6	9E-9	-	-
		LLI wall (7E+3)	-	-	-	-	1E-4	1E-3
46	Palladium-109	W, see $^{100}\text{Pd}$	-	4E+3	2E-6	6E-9	-	-
		Y, see $^{100}\text{Pd}$	-	4E+3	1E-6	5E-9	-	-
		D, see $^{100}\text{Pd}$	3E+4	2E+4	9E-6	-	-	-
46	Palladium-109	LLI wall (4E+4)	-	Kidneys (2E+4)	-	3E-8	5E-4	5E-3
		W, see $^{100}\text{Pd}$	-	7E+3	3E-6	1E-8	-	-
		Y, see $^{100}\text{Pd}$	-	4E+2	2E-7	6E-10	-	-
47	Silver-102 <sup>2</sup>	D, see $^{100}\text{Pd}$	2E+3	6E+3	3E-6	9E-9	3E-5	3E-4
		W, see $^{100}\text{Pd}$	-	5E+3	2E-6	8E-9	-	-
		Y, see $^{100}\text{Pd}$	-	5E+3	2E-6	6E-9	-	-
47	Silver-102 <sup>2</sup>	D, all compounds except those given for W and Y	5E+4	2E+5	8E-5	2E-7	-	-



Atomic No.	Radionuclide	Class	Table I Occupational Values			Table II Effluent Concentration		Table III Releases to Sewers
			Col. 1	Col. 2	Col. 3	Col. 1	Col. 2	Monthly Average Concentration μCi/ml
			Oral Ingestion	Inhalation		Air μCi/ml	Water μCi/ml	
				ALI μCi	ALI μCi			
			St wall (6E+4)	-	-	-	9E-4	9E-3
		W, nitrates and sulfides	-	2E+5	9E-5	3E-7	-	-
		Y, oxides and hydroxides	-	2E+5	8E-5	3E-7	-	-
47	Silver-103 <sup>2</sup>	D, see <sup>102</sup> Ag	4E+4	1E+5	4E-5	1E-7	5E-4	5E-3
		W, see <sup>102</sup> Ag	-	1E+5	5E-5	2E-7	-	-
		Y, see <sup>102</sup> Ag	-	1E+5	5E-5	2E-7	-	-
47	Silver-104m <sup>2</sup>	D, see <sup>102</sup> Ag	3E+4	9E+4	4E-5	1E-7	4E-4	4E-3
		W, see <sup>102</sup> Ag	-	1E+5	5E-5	2E-7	-	-
		Y, see <sup>102</sup> Ag	-	1E+5	5E-5	2E-7	-	-
47	Silver-104 <sup>2</sup>	D, see <sup>102</sup> Ag	2E+4	7E+4	3E-5	1E-7	3E-4	3E-3
		W, see <sup>102</sup> Ag	-	1E+5	6E-5	2E-7	-	-
		Y, see <sup>102</sup> Ag	-	1E+5	6E-5	2E-7	-	-
47	Silver-105	D, see <sup>102</sup> Ag	3E+3	1E+3	4E-7	1E-9	4E-5	4E-4
		W, see <sup>102</sup> Ag	-	2E+3	7E-7	2E-9	-	-
		Y, see <sup>102</sup> Ag	-	2E+3	7E-7	2E-9	-	-
47	Silver-106m	D, see <sup>102</sup> Ag	8E+2	7E+2	3E-7	1E-9	1E-5	1E-4
		W, see <sup>102</sup> Ag	-	9E+2	4E-7	1E-9	-	-
		Y, see <sup>102</sup> Ag	-	9E+2	4E-7	1E-9	-	-
47	Silver-106 <sup>2</sup>	D, see <sup>102</sup> Ag	6E+4	2E+5	8E-5	3E-7	-	-
			St. wall (6E+4)	-	-	-	9E-4	9E-3
		W, see <sup>102</sup> Ag	-	2E+5	9E-5	3E-7	-	-
		Y, see <sup>102</sup> Ag	-	2E+5	8E-5	3E-7	-	-
47	Silver-108m	D, see <sup>102</sup> Ag	6E+2	2E+2	8E-8	3E-10	9E-6	9E-5
		W, see <sup>102</sup> Ag	-	3E+2	1E-7	4E-10	-	-
		Y, see <sup>102</sup> Ag	-	2E+1	1E-8	3E-11	-	-
47	Silver-110m	D, see <sup>102</sup> Ag	5E+2	1E+2	5E-8	2E-10	6E-6	6E-5
		W, see <sup>102</sup> Ag	-	2E+2	8E-8	3E-10	-	-
		Y, see <sup>102</sup> Ag	-	9E+1	4E-8	1E-10	-	-
47	Silver-111	D, see <sup>102</sup> Ag	9E+2	2E+3	6E-7	-	-	-
			LLI wall (1E+3)	Liver (2E+3)	-	2E-9	2E-5	2E-4
		W, see <sup>102</sup> Ag	-	9E+2	4E-7	1E-9	-	-
		Y, see <sup>102</sup> Ag	-	9E+2	4E-7	1E-9	-	-
47	Silver-112	D, see <sup>102</sup> Ag	3E+3	8E+3	3E-6	1E-8	4E-5	4E-4
		W, see <sup>102</sup> Ag	-	1E+4	4E-6	1E-8	-	-
		Y, see <sup>102</sup> Ag	-	9E+3	4E-6	1E-8	-	-
47	Silver-115 <sup>2</sup>	D, see <sup>102</sup> Ag	3E+4	9E+4	4E-5	1E-7	-	-
			St wall (3E+4)	-	-	-	4E-4	4E-3
		W, see <sup>102</sup> Ag	-	9E+4	4E-5	1E-7	-	-
		Y, see <sup>102</sup> Ag	-	8E+4	3E-5	1E-7	-	-
48	Cadmium-104 <sup>2</sup>	D, all compounds except those given for W and Y	2E+4	7E+4	3E-5	9E-8	3E-4	3E-3
		W, sulfides, halides, and nitrates	-	1E+5	5E-5	2E-7	-	-

Atomic No.	Radionuclide	Class	Table I Occupational Values			Table II Effluent Concentration		Table III Releases to Sewers
			Col. 1	Col. 2	Col. 3	Col. 1	Col. 2	Monthly Average Concentration μCi/ml
			Oral Ingestion	Inhalation		Air μCi/ml	Water μCi/ml	
				ALI μCi	ALI μCi			
48	Cadmium-107	Y, oxides and hydroxides	-	1E+5	5E-5	2E-7	-	-
		D, see <sup>104</sup> Cd	2E+4	5E+4	2E-5	8E-8	3E-4	3E-3
		W, see <sup>104</sup> Cd	-	6E+4	2E-5	8E-8	-	-
48	Cadmium-109	Y, see <sup>104</sup> Cd	-	5E+4	2E-5	7E-8	-	-
		D, see <sup>104</sup> Cd	3E+2	4E+1	1E-8	-	-	-
		Kidneys (4E+2)	-	Kidneys (5E+1)	-	7E-11	6E-6	6E-5
48	Cadmium-113m	W, see <sup>104</sup> Cd	-	1E+2	5E-8	-	-	-
		Kidneys (1E+2)	-	Kidneys (1E+2)	-	2E-10	-	-
		Y, see <sup>104</sup> Cd	-	1E+2	5E-8	2E-10	-	-
48	Cadmium-113	D, see <sup>104</sup> Cd	2E+1	2E+0	1E-9	-	-	-
		Kidneys (4E+1)	-	Kidneys (4E+0)	-	5E-12	5E-7	5E-6
		W, see <sup>104</sup> Cd	-	8E+0	4E-9	-	-	-
48	Cadmium-113	Kidneys (1E+1)	-	Kidneys (1E+1)	-	2E-11	-	-
		Y, see <sup>104</sup> Cd	-	1E+1	5E-9	2E-11	-	-
		D, see <sup>104</sup> Cd	2E+1	2E+0	9E-10	-	-	-
48	Cadmium-115m	Kidneys (3E+1)	-	Kidneys (3E+0)	-	5E-12	4E-7	4E-6
		W, see <sup>104</sup> Cd	-	8E+0	3E-9	-	-	-
		Kidneys (1E+1)	-	Kidneys (1E+1)	-	2E-11	-	-
48	Cadmium-115m	Y, see <sup>104</sup> Cd	-	1E+1	6E-9	2E-11	-	-
		D, see <sup>104</sup> Cd	3E+2	5E+1	2E-8	-	4E-6	4E-5
		Kidneys (8E+1)	-	Kidneys (8E+1)	-	1E-10	-	-
48	Cadmium-115	W, see <sup>104</sup> Cd	-	1E+2	5E-8	2E-10	-	-
		Y, see <sup>104</sup> Cd	-	1E+2	6E-8	2E-10	-	-
		D, see <sup>104</sup> Cd	9E+2	1E+3	6E-7	2E-9	-	-
48	Cadmium-117m	LLI wall (1E+3)	-	-	-	-	1E-5	1E-4
		W, see <sup>104</sup> Cd	-	1E+3	5E-7	2E-9	-	-
		Y, see <sup>104</sup> Cd	-	1E+3	6E-7	2E-9	-	-
48	Cadmium-117	D, see <sup>104</sup> Cd	5E+3	1E+4	5E-6	2E-8	6E-5	6E-4
		W, see <sup>104</sup> Cd	-	2E+4	7E-6	2E-8	-	-
		Y, see <sup>104</sup> Cd	-	1E+4	6E-6	2E-8	-	-
48	Cadmium-117	D, see <sup>104</sup> Cd	5E+3	1E+4	5E-6	2E-8	6E-5	6E-4
		W, see <sup>104</sup> Cd	-	2E+4	7E-6	2E-8	-	-
		Y, see <sup>104</sup> Cd	-	1E+4	6E-6	2E-8	-	-
49	Indium-109	D, all compounds except those given for W	2E+4	4E+4	2E-5	6E-8	3E-4	3E-3
49	Indium-110 <sup>2</sup> (69.1 min)	W, oxides, hydroxides, halides, and nitrates	-	6E+4	3E-5	9E-8	-	-
		D, see <sup>109</sup> In	2E+4	4E+4	2E-5	6E-8	2E-4	2E-3
49	Indium-110 (4.9 h)	W, see <sup>109</sup> In	-	6E+4	2E-5	8E-8	-	-
		D, see <sup>109</sup> In	5E+3	2E+4	7E-6	2E-8	7E-5	7E-4
		W, see <sup>109</sup> In	-	2E+4	8E-6	3E-8	-	-

Atomic No.	Radionuclide	Class	Table I Occupational Values			Table II Effluent Concentration		Table III Releases to Sewers
			Col. 1	Col. 2	Col. 3	Col. 1	Col. 2	Monthly Average Concentration
			Oral Ingestion	Inhalation		Air $\mu\text{Ci/ml}$	Water $\mu\text{Ci/ml}$	$\mu\text{Ci/ml}$
				ALI $\mu\text{Ci}$	ALI $\mu\text{Ci}$			
49	Indium-111	D, see $^{109}\text{In}$	4E+3	6E+3	3E-6	9E-9	6E-5	6E-4
		W, see $^{109}\text{In}$	-	6E+3	3E-6	9E-9	-	-
49	Indium-112 <sup>2</sup>	D, see $^{109}\text{In}$	2E+5	6E+5	3E-4	9E-7	2E-3	2E-2
		W, see $^{109}\text{In}$	-	7E+5	3E-4	1E-6	-	-
49	Indium-113m <sup>2</sup>	D, see $^{109}\text{In}$	5E+4	1E+5	6E-5	2E-7	7E-4	7E-3
		W, see $^{109}\text{In}$	-	2E+5	8E-5	3E-7	-	-
49	Indium-114m	D, see $^{109}\text{In}$	3E+2	6E+1	3E-8	9E-11	-	-
		LLI wall (4E+2)	-	-	-	-	5E-6	5E-5
		W, see $^{109}\text{In}$	-	1E+2	4E-8	1E-10	-	-
49	Indium-115m	D, see $^{109}\text{In}$	1E+4	4E+4	2E-5	6E-8	2E-4	2E-3
		W, see $^{109}\text{In}$	-	5E+4	2E-5	7E-8	-	-
49	Indium-115	D, see $^{109}\text{In}$	4E+1	1E+0	6E-10	2E-12	5E-7	5E-6
		W, see $^{109}\text{In}$	-	5E+0	2E-9	8E-12	-	-
49	Indium-116m <sup>2</sup>	D, see $^{109}\text{In}$	2E+4	8E+4	3E-5	1E-7	3E-4	3E-3
		W, see $^{109}\text{In}$	-	1E+5	5E-5	2E-7	-	-
49	Indium-117m <sup>2</sup>	D, see $^{109}\text{In}$	1E+4	3E+4	1E-5	5E-8	2E-4	2E-3
		W, see $^{109}\text{In}$	-	4E+4	2E-5	6E-8	-	-
49	Indium-117 <sup>2</sup>	D, see $^{109}\text{In}$	6E+4	2E+5	7E-5	2E-7	8E-4	8E-3
		W, see $^{109}\text{In}$	-	2E+5	9E-5	3E-7	-	-
49	Indium-119m <sup>2</sup>	D, see $^{109}\text{In}$	4E+4	1E+5	5E-5	2E-7	-	-
		St wall (5E+4)	-	-	-	-	7E-4	7E-3
		W, see $^{109}\text{In}$	-	1E+5	6E-5	2E-7	-	-
50	Tin-110	D, all compounds except those given for W	4E+3	1E+4	5E-6	2E-8	5E-5	5E-4
		W, sulfides, oxides, hydroxides, halides, nitrates, and stannic phosphate	-	1E+4	5E-6	2E-8	-	-
50	Tin-111 <sup>2</sup>	D, see $^{110}\text{Sn}$	7E+4	2E+5	9E-5	3E-7	1E-3	1E-2
		W, see $^{110}\text{Sn}$	-	3E+5	1E-4	4E-7	-	-
50	Tin-113	D, see $^{110}\text{Sn}$	2E+3	1E+3	5E-7	2E-9	-	-
		LLI wall (2E+3)	-	-	-	-	3E-5	3E-4
		W, see $^{110}\text{Sn}$	-	5E+2	2E-7	8E-10	-	-
50	Tin-117m	D, see $^{110}\text{Sn}$	2E+3	1E+3	5E-7	-	-	-
		LLI wall (2E+3)	-	Bone surf (2E+3)	-	3E-9	3E-5	3E-4
		W, see $^{110}\text{Sn}$	-	1E+3	6E-7	2E-9	-	-
50	Tin-119m	D, see $^{110}\text{Sn}$	3E+3	2E+3	1E-6	3E-9	-	-
		LLI wall (4E+3)	-	-	-	-	6E-5	6E-4
		W, see $^{110}\text{Sn}$	-	1E+3	4E-7	1E-9	-	-
50	Tin-121m	D, see $^{110}\text{Sn}$	3E+3	9E+2	4E-7	1E-9	-	-
		LLI wall (4E+3)	-	-	-	-	5E-5	5E-4
		W, see $^{110}\text{Sn}$	-	5E+2	2E-7	8E-10	-	-
50	Tin-121	D, see $^{110}\text{Sn}$	6E+3	2E+4	6E-6	2E-8	-	-

Atomic No.	Radionuclide	Class	Table I Occupational Values			Table II Effluent Concentration		Table III Releases to Sewers
			Col. 1	Col. 2	Col. 3	Col. 1	Col. 2	Monthly Average Concentration μCi/ml
			Oral Ingestion	Inhalation		Air μCi/ml	Water μCi/ml	
				ALI μCi	ALI μCi			
			LLI wall (6E+3)	-	-	-	8E-5	8E-4
50	Tin-123m <sup>2</sup>	W, see <sup>110</sup> Sn	-	1E+4	5E-6	2E-8	-	-
		D, see <sup>110</sup> Sn	5E+4	1E+5	5E-5	2E-7	7E-4	7E-3
50	Tin-123	W, see <sup>110</sup> Sn	-	1E+5	6E-5	2E-7	-	-
		D, see <sup>110</sup> Sn	5E+2	6E+2	3E-7	9E-10	-	-
			LLI wall (6E+2)	-	-	-	9E-6	9E-5
50	Tin-125	W, see <sup>110</sup> Sn	-	2E+2	7E-8	2E-10	-	-
		D, see <sup>110</sup> Sn	4E+2	9E+2	4E-7	1E-9	-	-
			LLI wall (5E+2)	-	-	-	6E-6	6E-5
50	Tin-126	W, see <sup>110</sup> Sn	-	4E+2	1E-7	5E-10	-	-
		D, see <sup>110</sup> Sn	3E+2	6E+1	2E-8	8E-11	4E-6	4E-5
50	Tin-127	W, see <sup>110</sup> Sn	-	7E+1	3E-8	9E-11	-	-
		D, see <sup>110</sup> Sn	7E+3	2E+4	8E-6	3E-8	9E-5	9E-4
50	Tin-128 <sup>2</sup>	W, see <sup>110</sup> Sn	-	2E+4	8E-6	3E-8	-	-
		D, see <sup>110</sup> Sn	9E+3	3E+4	1E-5	4E-8	1E-4	1E-3
51	Antimony-115 <sup>2</sup>	W, see <sup>110</sup> Sn	-	4E+4	1E-5	5E-8	-	-
		D, all compounds except those given for W W, oxides, hydroxides, halides, sulfides, sulfates, and nitrates	8E+4	2E+5	1E-4	3E-7	1E-3	1E-2
			-	3E+5	1E-4	4E-7	-	-
51	Antimony-116m <sup>2</sup>	D, see <sup>115</sup> Sb	2E+4	7E+4	3E-5	1E-7	3E-4	3E-3
		W, see <sup>115</sup> Sb	-	1E+5	6E-5	2E-7	-	-
51	Antimony-116 <sup>2</sup>	D, see <sup>115</sup> Sb	7E+4	3E+5	1E-4	4E-7	-	-
					St wall (9E+4)	-	-	-
51	Antimony-117	W, see <sup>115</sup> Sb	-	3E+5	1E-4	5E-7	-	-
		D, see <sup>115</sup> Sb	7E+4	2E+5	9E-5	3E-7	9E-4	9E-3
51	Antimony-118m	W, see <sup>115</sup> Sb	-	3E+5	1E-4	4E-7	-	-
		D, see <sup>115</sup> Sb	6E+3	2E+4	8E-6	3E-8	7E-5	7E-4
51	Antimony-119	W, see <sup>115</sup> Sb	5E+3	2E+4	9E-6	3E-8	-	-
		D, see <sup>115</sup> Sb	2E+4	5E+4	2E-5	6E-8	2E-4	2E-3
51	Antimony-120 <sup>2</sup> (16 min)	W, see <sup>115</sup> Sb	2E+4	3E+4	1E-5	4E-8	-	-
		D, see <sup>115</sup> Sb	1E+5	4E+5	2E-4	6E-7	-	-
51	Antimony-120 (5.76 d)	W, see <sup>115</sup> Sb	-	5E+5	2E-4	7E-7	-	-
		D, see <sup>115</sup> Sb	1E+3	2E+3	9E-7	3E-9	1E-5	1E-4
51	Antimony-122	W, see <sup>115</sup> Sb	9E+2	1E+3	5E-7	2E-9	-	-
		D, see <sup>115</sup> Sb	8E+2	2E+3	1E-6	3E-9	-	-
51	Antimony-124m <sup>2</sup>	W, see <sup>115</sup> Sb	7E+2	1E+3	4E-7	2E-9	-	-
		D, see <sup>115</sup> Sb	3E+5	8E+5	4E-4	1E-6	3E-3	3E-2
		W, see <sup>115</sup> Sb	2E+5	6E+5	2E-4	8E-7	-	-

Atomic No.	Radionuclide	Class	Table I Occupational Values			Table II Effluent Concentration		Table III Releases to Sewers
			Col. 1	Col. 2	Col. 3	Col. 1	Col. 2	Monthly Average Concentration
			Oral Ingestion	Inhalation		Air $\mu\text{Ci/ml}$	Water $\mu\text{Ci/ml}$	$\mu\text{Ci/ml}$
				ALI $\mu\text{Ci}$	ALI $\mu\text{Ci}$			
51	Antimony-124	D, see $^{115}\text{Sb}$	6E+2	9E+2	4E-7	1E-9	7E-6	7E-5
		W, see $^{115}\text{Sb}$	5E+2	2E+2	1E-7	3E-10	-	-
51	Antimony-125	D, see $^{115}\text{Sb}$	2E+3	2E+3	1E-6	3E-9	3E-5	3E-4
		W, see $^{115}\text{Sb}$	-	5E+2	2E-7	7E-10	-	-
51	Antimony-126m <sup>2</sup>	D, see $^{115}\text{Sb}$	5E+4	2E+5	8E-5	3E-7	-	-
		St wall (7E+4)	-	-	-	-	9E-4	9E-3
		W, see $^{115}\text{Sb}$	-	2E+5	8E-5	3E-7	-	-
51	Antimony-126	D, see $^{115}\text{Sb}$	6E+2	1E+3	5E-7	2E-9	7E-6	7E-5
		W, see $^{115}\text{Sb}$	5E+2	5E+2	2E-7	7E-10	-	-
51	Antimony-127	D, see $^{115}\text{Sb}$	8E+2	2E+3	9E-7	3E-9	-	-
		LLI wall (8E+2)	-	-	-	-	1E-5	1E-4
		W, see $^{115}\text{Sb}$	7E+2	9E+2	4E-7	1E-9	-	-
51	Antimony-128 <sup>2</sup> (10.4 min)	D, see $^{115}\text{Sb}$	8E+4	4E+5	2E-4	5E-7	-	-
		St wall (1E+5)	-	-	-	-	1E-3	1E-2
		W, see $^{115}\text{Sb}$	-	4E+5	2E-4	6E-7	-	-
51	Antimony-128 (9.01 h)	D, see $^{115}\text{Sb}$	1E+3	4E+3	2E-6	6E-9	2E-5	2E-4
		W, see $^{115}\text{Sb}$	-	3E+3	1E-6	5E-9	-	-
51	Antimony-129	D, see $^{115}\text{Sb}$	3E+3	9E+3	4E-6	1E-8	4E-5	4E-4
		W, see $^{115}\text{Sb}$	-	9E+3	4E-6	1E-8	-	-
51	Antimony-130 <sup>2</sup>	D, see $^{115}\text{Sb}$	2E+4	6E+4	3E-5	9E-8	3E-4	3E-3
		W, see $^{115}\text{Sb}$	-	8E+4	3E-5	1E-7	-	-
51	Antimony-131 <sup>2</sup>	D, see $^{115}\text{Sb}$	1E+4	2E+4	1E-5	-	-	-
		Thyroid (2E+4)	-	Thyroid (4E+4)	-	6E-8	2E-4	2E-3
		W, see $^{115}\text{Sb}$	-	2E+4	1E-5	-	-	-
			-	Thyroid (4E+4)	-	6E-8	-	-
52	Tellurium-116	D, all compounds except those given for W	8E+3	2E+4	9E-6	3E-8	1E-4	1E-3
		W, oxides, hydroxides, and nitrates	-	3E+4	1E-5	4E-8	-	-
52	Tellurium-121m	D, see $^{116}\text{Te}$	5E+2	2E+2	8E-8	-	-	-
		Bone surf (7E+2)	-	Bone surf (4E+2)	-	5E-10	1E-5	1E-4
		W, see $^{116}\text{Te}$	-	4E+2	2E-7	6E-10	-	-
52	Tellurium-121	D, see $^{116}\text{Te}$	3E+3	4E+3	2E-6	6E-9	4E-5	4E-4
		W, see $^{116}\text{Te}$	-	3E+3	1E-6	4E-9	-	-
52	Tellurium-123m	D, see $^{116}\text{Te}$	6E+2	2E+2	9E-8	-	-	-
		Bone surf (1E+3)	-	Bone surf (5E+2)	-	8E-10	1E-5	1E-4
		W, see $^{116}\text{Te}$	-	5E+2	2E-7	8E-10	-	-
52	Tellurium-123	D, see $^{116}\text{Te}$	5E+2	2E+2	8E-8	-	-	-
		Bone surf (1E+3)	-	Bone surf (5E+2)	-	7E-10	2E-5	2E-4
		W, see $^{116}\text{Te}$	-	4E+2	2E-7	-	-	-

Atomic No.	Radionuclide	Class	Table I Occupational Values			Table II Effluent Concentration		Table III Releases to Sewers
			Col. 1	Col. 2	Col. 3	Col. 1	Col. 2	Monthly Average Concentration μCi/ml
			Oral Ingestion	Inhalation		Air μCi/ml	Water μCi/ml	
				ALI μCi	ALI μCi			
52	Tellurium-125m	D, see <sup>116</sup> Te	-	Bone surf (1E+3)	-	2E-9	-	-
			1E+3	4E+2	2E-7	-	-	-
52	Tellurium-127m	D, see <sup>116</sup> Te	Bone surf (1E+3)	Bone surf (1E+3)	-	1E-9	2E-5	2E-4
			-	7E+2	3E-7	1E-9	-	-
52	Tellurium-127	D, see <sup>116</sup> Te	6E+2	3E+2	1E-7	-	9E-6	9E-5
			-	Bone surf (4E+2)	-	6E-10	-	-
52	Tellurium-129	D, see <sup>116</sup> Te	-	3E+2	1E-7	4E-10	-	-
			7E+3	2E+4	9E-6	3E-8	1E-4	1E-3
52	Tellurium-129m	D, see <sup>116</sup> Te	-	2E+4	7E-6	2E-8	-	-
			5E+2	6E+2	3E-7	9E-10	7E-6	7E-5
52	Tellurium-129 <sup>2</sup>	D, see <sup>116</sup> Te	-	2E+2	1E-7	3E-10	-	-
			3E+4	6E+4	3E-5	9E-8	4E-4	4E-3
52	Tellurium-131m	D, see <sup>116</sup> Te	-	7E+4	3E-5	1E-7	-	-
			3E+2	4E+2	2E-7	-	-	-
52	Tellurium-131 <sup>2</sup>	D, see <sup>116</sup> Te	Thyroid (6E+2)	Thyroid (1E+3)	-	2E-9	8E-6	8E-5
			-	4E+2	2E-7	-	-	-
52	Tellurium-132	D, see <sup>116</sup> Te	-	Thyroid (9E+2)	-	1E-9	-	-
			3E+3	5E+3	2E-6	-	-	-
52	Tellurium-132	D, see <sup>116</sup> Te	Thyroid (6E+3)	Thyroid (1E+4)	-	2E-8	8E-5	8E-4
			-	5E+3	2E-6	-	-	-
52	Tellurium-133m <sup>2</sup>	D, see <sup>116</sup> Te	-	Thyroid (1E+4)	-	2E-8	-	-
			2E+2	2E+2	9E-8	-	-	-
52	Tellurium-133 <sup>2</sup>	D, see <sup>116</sup> Te	Thyroid (7E+2)	Thyroid (8E+2)	-	1E-9	9E-6	9E-5
			-	2E+2	9E-8	-	-	-
52	Tellurium-134 <sup>2</sup>	D, see <sup>116</sup> Te	-	Thyroid (6E+2)	-	9E-10	-	-
			3E+3	5E+3	2E-6	-	-	-
52	Tellurium-134 <sup>2</sup>	D, see <sup>116</sup> Te	Thyroid (6E+3)	Thyroid (1E+4)	-	2E-8	9E-5	9E-4
			-	5E+3	2E-6	-	-	-
52	Tellurium-134 <sup>2</sup>	D, see <sup>116</sup> Te	-	Thyroid (1E+4)	-	2E-8	-	-
			1E+4	2E+4	9E-6	-	-	-
52	Tellurium-134 <sup>2</sup>	D, see <sup>116</sup> Te	Thyroid (3E+4)	Thyroid (6E+4)	-	8E-8	4E-4	4E-3
			-	2E+4	9E-6	-	-	-
52	Tellurium-134 <sup>2</sup>	D, see <sup>116</sup> Te	-	Thyroid (6E+4)	-	8E-8	-	-
			2E+4	2E+4	1E-5	-	-	-
52	Tellurium-134 <sup>2</sup>	D, see <sup>116</sup> Te	Thyroid (2E+4)	Thyroid (5E+4)	-	7E-8	3E-4	3E-3
			-	2E+4	1E-5	-	-	-
				Thyroid				

Atomic No.	Radionuclide	Class	Table I Occupational Values			Table II Effluent Concentration		Table III Releases to Sewers
			Col. 1	Col. 2	Col. 3	Col. 1	Col. 2	Monthly Average Concentration μCi/ml
			Oral Ingestion	Inhalation		Air μCi/ml	Water μCi/ml	
				ALI μCi	ALI μCi			
53	Iodine-120m <sup>2</sup>	D, all compounds	-	(5E+4)	-	7E-8	-	-
			1E+4	2E+4	9E-6	3E-8	-	-
53	Iodine-120 <sup>2</sup>	D, all compounds	Thyroid (1E+4)	-	-	-	2E-4	2E-3
			4E+3	9E+3	4E-6	-	-	-
53	Iodine-121	D, all compounds	Thyroid (8E+3)	Thyroid (1E+4)	-	2E-8	1E-4	1E-3
			1E+4	2E+4	8E-6	-	-	-
53	Iodine-123	D, all compounds	Thyroid (3E+4)	Thyroid (5E+4)	-	7E-8	4E-4	4E-3
			3E+3	6E+3	3E-6	-	-	-
53	Iodine-124	D, all compounds	Thyroid (1E+4)	Thyroid (2E+4)	-	2E-8	1E-4	1E-3
			5E+1	8E+1	3E-8	-	-	-
53	Iodine-125	D, all compounds	Thyroid (2E+2)	Thyroid (3E+2)	-	4E-10	2E-6	2E-5
			4E+1	6E+1	3E-8	-	-	-
53	Iodine-126	D, all compounds	Thyroid (1E+2)	Thyroid (2E+2)	-	3E-10	2E-6	2E-5
			2E+1	4E+1	1E-8	-	-	-
53	Iodine-128 <sup>2</sup>	D, all compounds	Thyroid (7E+1)	Thyroid (1E+2)	-	2E-10	1E-6	1E-5
			4E+4	1E+5	5E-5	2E-7	-	-
53	Iodine-129	D, all compounds	St wall (6E+4)	-	-	-	8E-4	8E-3
			5E+0	9E+0	4E-9	-	-	-
53	Iodine-130	D, all compounds	Thyroid (2E+1)	Thyroid (3E+1)	-	4E-11	2E-7	2E-6
			4E+2	7E+2	3E-7	-	-	-
53	Iodine-131	D, all compounds	Thyroid (1E+3)	Thyroid (2E+3)	-	3E-9	2E-5	2E-4
			3E+1	5E+1	2E-8	-	-	-
53	Iodine-132m <sup>2</sup>	D, all compounds	Thyroid (9E+1)	Thyroid (2E+2)	-	2E-10	1E-6	1E-5
			4E+3	8E+3	4E-6	-	-	-
53	Iodine-132	D, all compounds	Thyroid (1E+4)	Thyroid (2E+4)	-	3E-8	1E-4	1E-3
			4E+3	8E+3	3E-6	-	-	-
53	Iodine-133	D, all compounds	Thyroid (9E+3)	Thyroid (1E+4)	-	2E-8	1E-4	1E-3
			1E+2	3E+2	1E-7	-	-	-
53	Iodine-134 <sup>2</sup>	D, all compounds	Thyroid (5E+2)	Thyroid (9E+2)	-	1E-9	7E-6	7E-5
			2E+4	5E+4	2E-5	6E-8	-	-
53	Iodine-135	D, all compounds	Thyroid (3E+4)	-	-	-	4E-4	4E-3
			8E+2	2E+3	7E-7	-	-	-
54	Xenon-120 <sup>2</sup>	Submersion <sup>1</sup>	Thyroid (3E+3)	Thyroid (4E+3)	-	6E-9	3E-5	3E-4
			-	-	-	-	-	-
54	Xenon-121 <sup>2</sup>	Submersion <sup>1</sup>	-	-	1E-5	4E-8	-	-
54	Xenon-122	Submersion <sup>1</sup>	-	-	2E-6	1E-8	-	-
54	Xenon-123	Submersion <sup>1</sup>	-	-	7E-5	3E-7	-	-
54	Xenon-123	Submersion <sup>1</sup>	-	-	6E-6	3E-8	-	-

Atomic No.	Radionuclide	Class	Table I Occupational Values			Table II Effluent Concentration		Table III Releases to Sewers
			Col. 1	Col. 2	Col. 3	Col. 1	Col. 2	Monthly Average Concentration μCi/ml
			Oral Ingestion	Inhalation		Air μCi/ml	Water μCi/ml	
				ALI μCi	ALI μCi			
54	Xenon-125	Submersion <sup>1</sup>	-	-	2E-5	7E-8	-	-
54	Xenon-127	Submersion <sup>1</sup>	-	-	1E-5	6E-8	-	-
54	Xenon-129m	Submersion <sup>1</sup>	-	-	2E-4	9E-7	-	-
54	Xenon-131m	Submersion <sup>1</sup>	-	-	4E-4	2E-6	-	-
54	Xenon-133m	Submersion <sup>1</sup>	-	-	1E-4	6E-7	-	-
54	Xenon-133	Submersion <sup>1</sup>	-	-	1E-4	5E-7	-	-
54	Xenon-135m <sup>2</sup>	Submersion <sup>1</sup>	-	-	9E-6	4E-8	-	-
54	Xenon-135	Submersion <sup>1</sup>	-	-	1E-5	7E-8	-	-
54	Xenon-138 <sup>2</sup>	Submersion <sup>1</sup>	-	-	4E-6	2E-8	-	-
55	Cesium-125 <sup>2</sup>	D, all compounds	5E+4	1E+5	6E-5	2E-7	-	-
			St wall (9E+4)	-	-	-	1E-3	1E-2
55	Cesium-127	D, all compounds	6E+4	9E+4	4E-5	1E-7	9E-4	9E-3
55	Cesium-129	D, all compounds	2E+4	3E+4	1E-5	5E-8	3E-4	3E-3
55	Cesium-130 <sup>2</sup>	D, all compounds	6E+4	2E+5	8E-5	3E-7	-	-
			St wall (1E+5)	-	-	-	1E-3	1E-2
55	Cesium-131	D, all compounds	2E+4	3E+4	1E-5	4E-8	3E-4	3E-3
55	Cesium-132	D, all compounds	3E+3	4E+3	2E-6	6E-9	4E-5	4E-4
55	Cesium-134m	D, all compounds	1E+5	1E+5	6E-5	2E-7	-	-
			St wall (1E+5)	-	-	-	2E-3	2E-2
55	Cesium-134	D, all compounds	7E+1	1E+2	4E-8	2E-10	9E-7	9E-6
55	Cesium-135m <sup>2</sup>	D, all compounds	1E+5	2E+5	8E-5	3E-7	1E-3	1E-2
55	Cesium-135	D, all compounds	7E+2	1E+3	5E-7	2E-9	1E-5	1E-4
55	Cesium-136	D, all compounds	4E+2	7E+2	3E-7	9E-10	6E-6	6E-5
55	Cesium-137	D, all compounds	1E+2	2E+2	6E-8	2E-10	1E-6	1E-5
55	Cesium-138 <sup>2</sup>	D, all compounds	2E+4	6E+4	2E-5	8E-8	-	-
			St wall (3E+4)	-	-	-	4E-4	4E-3
56	Barium-126 <sup>2</sup>	D, all compounds	6E+3	2E+4	6E-6	2E-8	8E-5	8E-4
56	Barium-128	D, all compounds	5E+2	2E+3	7E-7	2E-9	7E-6	7E-5
56	Barium-131m <sup>2</sup>	D, all compounds	4E+5	1E+6	6E-4	2E-6	-	-
			St wall (5E+5)	-	-	-	7E-3	7E-2
56	Barium-131	D, all compounds	3E+3	8E+3	3E-6	1E-8	4E-5	4E-4
56	Barium-133m	D, all compounds	2E+3	9E+3	4E-6	1E-8	-	-
			LLI wall (3E+3)	-	-	-	4E-5	4E-4
56	Barium-133	D, all compounds	2E+3	7E+2	3E-7	9E-10	2E-5	2E-4
56	Barium-135m	D, all compounds	3E+3	1E+4	5E-6	2E-8	4E-5	4E-4
56	Barium-139 <sup>2</sup>	D, all compounds	1E+4	3E+4	1E-5	4E-8	2E-4	2E-3
56	Barium-140	D, all compounds	5E+2	1E+3	6E-7	2E-9	-	-
			LLI wall (6E+2)	-	-	-	8E-6	8E-5
56	Barium-141 <sup>2</sup>	D, all compounds	2E+4	7E+4	3E-5	1E-7	3E-4	3E-3
56	Barium-142 <sup>2</sup>	D, all compounds	5E+4	1E+5	6E-5	2E-7	7E-4	7E-3
57	Lanthanum-131 <sup>2</sup>	D, all compounds except those given for W	5E+4	1E+5	5E-5	2E-7	6E-4	6E-3
		W, oxides and hydroxides	-	2E+5	7E-5	2E-7	-	-



Atomic No.	Radionuclide	Class	Table I Occupational Values			Table II Effluent Concentration		Table III Releases to Sewers
			Col. 1	Col. 2	Col. 3	Col. 1	Col. 2	Monthly Average Concentration
			Oral Ingestion	Inhalation		Air $\mu\text{Ci/ml}$	Water $\mu\text{Ci/ml}$	$\mu\text{Ci/ml}$
				ALI $\mu\text{Ci}$	ALI $\mu\text{Ci}$			
57	Lanthanum-132	D, see $^{131}\text{La}$	3E+3	1E+4	4E-6	1E-8	4E-5	4E-4
		W, see $^{131}\text{La}$	-	1E+4	5E-6	2E-8	-	-
57	Lanthanum-135	D, see $^{131}\text{La}$	4E+4	1E+5	4E-5	1E-7	5E-4	5E-3
		W, see $^{131}\text{La}$	-	9E+4	4E-5	1E-7	-	-
57	Lanthanum-137	D, see $^{131}\text{La}$	1E+4	6E+1	3E-8	-	2E-4	2E-3
		W, see $^{131}\text{La}$	-	Liver (7E+1)	-	1E-10	-	-
			-	3E+2	1E-7	-	-	-
			-	Liver (3E+2)	-	4E-10	-	-
57	Lanthanum-138	D, see $^{131}\text{La}$	9E+2	4E+0	1E-9	5E-12	1E-5	1E-4
		W, see $^{131}\text{La}$	-	1E+1	6E-9	2E-11	-	-
57	Lanthanum-140	D, see $^{131}\text{La}$	6E+2	1E+3	6E-7	2E-9	9E-6	9E-5
		W, see $^{131}\text{La}$	-	1E+3	5E-7	2E-9	-	-
57	Lanthanum-141	D, see $^{131}\text{La}$	4E+3	9E+3	4E-6	1E-8	5E-5	5E-4
		W, see $^{131}\text{La}$	-	1E+4	5E-6	2E-8	-	-
57	Lanthanum-142 <sup>2</sup>	D, see $^{131}\text{La}$	8E+3	2E+4	9E-6	3E-8	1E-4	1E-3
		W, see $^{131}\text{La}$	-	3E+4	1E-5	5E-8	-	-
57	Lanthanum-143 <sup>2</sup>	D, see $^{131}\text{La}$	4E+4	1E+5	4E-5	1E-7	-	-
		W, see $^{131}\text{La}$	St wall (4E+4)	-	-	-	5E-4	5E-3
			-	9E+4	4E-5	1E-7	-	-
58	Cerium-134	W, all compounds except those given for Y	5E+2	7E+2	3E-7	1E-9	-	-
			LLI wall (6E+2)	-	-	-	8E-6	8E-5
		Y, oxides, hydroxides, and fluorides	-	7E+2	3E-7	9E-10	-	-
58	Cerium-135	W, see $^{134}\text{Ce}$	2E+3	4E+3	2E-6	5E-9	2E-5	2E-4
		Y, see $^{134}\text{Ce}$	-	4E+3	1E-6	5E-9	-	-
58	Cerium-137m	W, see $^{134}\text{Ce}$	2E+3	4E+3	2E-6	6E-9	-	-
		Y, see $^{134}\text{Ce}$	LLI wall (2E+3)	-	-	-	3E-5	3E-4
			-	4E+3	2E-6	5E-9	-	-
58	Cerium-137	W, see $^{134}\text{Ce}$	5E+4	1E+5	6E-5	2E-7	7E-4	7E-3
		Y, see $^{134}\text{Ce}$	-	1E+5	5E-5	2E-7	-	-
58	Cerium-139	W, see $^{134}\text{Ce}$	5E+3	8E+2	3E-7	1E-9	7E-5	7E-4
		Y, see $^{134}\text{Ce}$	-	7E+2	3E-7	9E-10	-	-
58	Cerium-141	W, see $^{134}\text{Ce}$	2E+3	7E+2	3E-7	1E-9	-	-
		Y, see $^{134}\text{Ce}$	LLI wall (2E+3)	-	-	-	3E-5	3E-4
			-	6E+2	2E-7	8E-10	-	-
58	Cerium-143	W, see $^{134}\text{Ce}$	1E+3	2E+3	8E-7	3E-9	-	-
		Y, see $^{134}\text{Ce}$	LLI wall (1E+3)	-	-	-	2E-5	2E-4
			-	2E+3	7E-7	2E-9	-	-
58	Cerium-144	W, see $^{134}\text{Ce}$	2E+2	3E+1	1E-8	4E-11	-	-
		Y, see $^{134}\text{Ce}$	LLI wall (3E+2)	-	-	-	3E-6	3E-5

Atomic No.	Radionuclide	Class	Table I Occupational Values			Table II Effluent Concentration		Table III Releases to Sewers
			Col. 1	Col. 2	Col. 3	Col. 1	Col. 2	Monthly Average Concentration μCi/ml
			Oral Ingestion	Inhalation		Air μCi/ml	Water μCi/ml	
				ALI μCi	ALI μCi			
59	Praseodymium-136 <sup>2</sup>	Y, see <sup>134</sup> Ce	-	1E+1	6E-9	2E-11	-	-
		W, all compounds except those given for Y	5E+4	2E+5	1E-4	3E-7	-	-
		St wall (7E+4)	-	-	-	1E-3	1E-2	
59	Praseodymium-137 <sup>2</sup>	Y, oxides, hydroxides, carbides, and fluorides	-	2E+5	9E-5	3E-7	-	-
		W, see <sup>136</sup> Pr	4E+4	2E+5	6E-5	2E-7	5E-4	5E-3
59	Praseodymium-138m	Y, see <sup>136</sup> Pr	-	1E+5	6E-5	2E-7	-	-
59	Praseodymium-139	W, see <sup>136</sup> Pr	1E+4	5E+4	2E-5	8E-8	1E-4	1E-3
		Y, see <sup>136</sup> Pr	-	4E+4	2E-5	6E-8	-	-
59	Praseodymium-142m <sup>2</sup>	W, see <sup>136</sup> Pr	4E+4	1E+5	5E-5	2E-7	6E-4	6E-3
		Y, see <sup>136</sup> Pr	-	1E+5	5E-5	2E-7	-	-
59	Praseodymium-142	W, see <sup>136</sup> Pr	8E+4	2E+5	7E-5	2E-7	1E-3	1E-2
		Y, see <sup>136</sup> Pr	-	1E+5	6E-5	2E-7	-	-
59	Praseodymium-143	W, see <sup>136</sup> Pr	1E+3	2E+3	9E-7	3E-9	1E-5	1E-4
		Y, see <sup>136</sup> Pr	-	2E+3	8E-7	3E-9	-	-
59	Praseodymium-144 <sup>2</sup>	W, see <sup>136</sup> Pr	9E+2	8E+2	3E-7	1E-9	-	-
		LLI wall (1E+3)	-	-	-	2E-5	2E-4	
		Y, see <sup>136</sup> Pr	-	7E+2	3E-7	9E-10	-	-
59	Praseodymium-145	W, see <sup>136</sup> Pr	3E+4	1E+5	5E-5	2E-7	-	-
		St wall (4E+4)	-	-	-	6E-4	6E-3	
59	Praseodymium-147 <sup>2</sup>	Y, see <sup>136</sup> Pr	-	1E+5	5E-5	2E-7	-	-
		W, see <sup>136</sup> Pr	3E+3	9E+3	4E-6	1E-8	4E-5	4E-4
59	Praseodymium-147 <sup>2</sup>	Y, see <sup>136</sup> Pr	-	8E+3	3E-6	1E-8	-	-
		W, see <sup>136</sup> Pr	5E+4	2E+5	8E-5	3E-7	-	-
60	Neodymium-136 <sup>2</sup>	St wall (8E+4)	-	-	-	1E-3	1E-2	
		Y, see <sup>136</sup> Pr	-	2E+5	8E-5	3E-7	-	-
60	Neodymium-138	W, all compounds except those given for Y	1E+4	6E+4	2E-5	8E-8	2E-4	2E-3
		Y, oxides, hydroxides, carbides, and fluorides	-	5E+4	2E-5	8E-8	-	-
60	Neodymium-139m	W, see <sup>136</sup> Nd	2E+3	6E+3	3E-6	9E-9	3E-5	3E-4
		Y, see <sup>136</sup> Nd	-	5E+3	2E-6	7E-9	-	-
60	Neodymium-139 <sup>2</sup>	W, see <sup>136</sup> Nd	5E+3	2E+4	7E-6	2E-8	7E-5	7E-4
		Y, see <sup>136</sup> Nd	-	1E+4	6E-6	2E-8	-	-
60	Neodymium-141	W, see <sup>136</sup> Nd	9E+4	3E+5	1E-4	5E-7	1E-3	1E-2
		Y, see <sup>136</sup> Nd	-	3E+5	1E-4	4E-7	-	-
60	Neodymium-147	W, see <sup>136</sup> Nd	2E+5	7E+5	3E-4	1E-6	2E-3	2E-2
		Y, see <sup>136</sup> Nd	-	6E+5	3E-4	9E-7	-	-
60	Neodymium-149 <sup>2</sup>	W, see <sup>136</sup> Nd	1E+3	9E+2	4E-7	1E-9	-	-
		LLI wall (1E+3)	-	-	-	2E-5	2E-4	
60	Neodymium-149 <sup>2</sup>	Y, see <sup>136</sup> Nd	-	8E+2	4E-7	1E-9	-	-
60	Neodymium-149 <sup>2</sup>	W, see <sup>136</sup> Nd	1E+4	3E+4	1E-5	4E-8	1E-4	1E-3

Atomic No.	Radionuclide	Class	Table 1 Occupational Values			Table II Effluent Concentration		Table III Releases to Sewers
			Col. 1	Col. 2	Col. 3	Col. 1	Col. 2	Monthly Average Concentration
			Oral Ingestion	Inhalation		Air $\mu\text{Ci/ml}$	Water $\mu\text{Ci/ml}$	$\mu\text{Ci/ml}$
				ALI $\mu\text{Ci}$	ALI $\mu\text{Ci}$			
60	Neodymium-151 <sup>2</sup>	Y, see <sup>136</sup> Nd	-	2E+4	1E-5	3E-8	-	-
		W, see <sup>136</sup> Nd	7E+4	2E+5	8E-5	3E-7	9E-4	9E-3
		Y, see <sup>136</sup> Nd	-	2E+5	8E-5	3E-7	-	-
61	Promethium-141 <sup>2</sup>	W, all compounds except those given for Y	5E+4	2E+5	8E-5	3E-7	-	-
		St wall (6E+4)	-	-	-	-	8E-4	8E-3
61	Promethium-143	Y, oxides, hydroxides, carbides, and fluorides	-	2E+5	7E-5	2E-7	-	-
		W, see <sup>141</sup> Pm	5E+3	6E+2	2E-7	8E-10	7E-5	7E-4
61	Promethium-144	Y, see <sup>141</sup> Pm	-	7E+2	3E-7	1E-9	-	-
		W, see <sup>141</sup> Pm	1E+3	1E+2	5E-8	2E-10	2E-5	2E-4
61	Promethium-145	Y, see <sup>141</sup> Pm	-	1E+2	5E-8	2E-10	-	-
		W, see <sup>141</sup> Pm	1E+4	2E+2	7E-8	-	1E-4	1E-3
61	Promethium-146	Y, see <sup>141</sup> Pm	-	Bone surf (2E+2)	-	3E-10	-	-
		W, see <sup>141</sup> Pm	2E+3	5E+1	2E-8	7E-11	2E-5	2E-4
		Y, see <sup>141</sup> Pm	-	4E+1	2E-8	6E-11	-	-
61	Promethium-147	W, see <sup>141</sup> Pm	4E+3	1E+2	5E-8	-	-	-
		LLI wall (5E+3)	-	Bone surf (2E+2)	-	3E-10	7E-5	7E-4
61	Promethium-148m	Y, see <sup>141</sup> Pm	-	1E+2	6E-8	2E-10	-	-
		W, see <sup>141</sup> Pm	7E+2	3E+2	1E-7	4E-10	1E-5	1E-4
61	Promethium-148	Y, see <sup>141</sup> Pm	-	3E+2	1E-7	5E-10	-	-
		W, see <sup>141</sup> Pm	4E+2	5E+2	2E-7	8E-10	-	-
61	Promethium-149	LLI wall (5E+2)	-	-	-	-	7E-6	7E-5
		Y, see <sup>141</sup> Pm	-	5E+2	2E-7	7E-10	-	-
61	Promethium-150	W, see <sup>141</sup> Pm	1E+3	2E+3	8E-7	3E-9	-	-
		LLI wall (1E+3)	-	-	-	-	2E-5	2E-4
61	Promethium-151	Y, see <sup>141</sup> Pm	-	2E+3	8E-7	2E-9	-	-
		W, see <sup>141</sup> Pm	5E+3	2E+4	8E-6	3E-8	7E-5	7E-4
61	Promethium-151	Y, see <sup>141</sup> Pm	-	2E+4	7E-6	2E-8	-	-
		W, see <sup>141</sup> Pm	2E+3	4E+3	1E-6	5E-9	2E-5	2E-4
62	Samarium-141m <sup>2</sup>	Y, see <sup>141</sup> Pm	-	3E+3	1E-6	4E-9	-	-
		W, all compounds	3E+4	1E+5	4E-5	1E-7	4E-4	4E-3
62	Samarium-141 <sup>2</sup>	W, all compounds	5E+4	2E+5	8E-5	2E-7	-	-
		St wall (6E+4)	-	-	-	-	8E-4	8E-3
62	Samarium-142 <sup>2</sup>	W, all compounds	8E+3	3E+4	1E-5	4E-8	1E-4	1E-3
62	Samarium-145	W, all compounds	6E+3	5E+2	2E-7	7E-10	8E-5	8E-4
62	Samarium-146	W, all compounds	1E+1	4E-2	1E-11	-	-	-
		Bone surf (3E+1)	-	Bone surf (6E-2)	-	9E-14	3E-7	3E-6
62	Samarium-147	W, all compounds	2E+1	4E-2	2E-11	-	-	-
		Bone surf (3E+1)	-	Bone surf (7E-2)	-	1E-13	4E-7	4E-6

Atomic No.	Radionuclide	Class	Table I Occupational Values			Table II Effluent Concentration		Table III Releases to Sewers
			Col. 1	Col. 2	Col. 3	Col. 1	Col. 2	Monthly Average Concentration μCi/ml
			Oral Ingestion	Inhalation		Air μCi/ml	Water μCi/ml	
				ALI μCi	ALI μCi			
62	Samarium-151	W, all compounds	1E+4	1E+2	4E-8	-	-	-
			LLI wall (1E+4)	Bone surf (2E+2)	-	2E-10	2E-4	2E-3
62	Samarium-153	W, all compounds	2E+3	3E+3	1E-6	4E-9	-	-
			LLI wall (2E+3)	-	-	-	3E-5	3E-4
62	Samarium-155 <sup>2</sup>	W, all compounds	6E+4	2E+5	9E-5	3E-7	-	-
			St wall (8E+4)	-	-	-	1E-3	1E-2
62	Samarium-156	W, all compounds	5E+3	9E+3	4E-6	1E-8	7E-5	7E-4
63	Europium-145	W, all compounds	2E+3	2E+3	8E-7	3E-9	2E-5	2E-4
63	Europium-146	W, all compounds	1E+3	1E+3	5E-7	2E-9	1E-5	1E-4
63	Europium-147	W, all compounds	3E+3	2E+3	7E-7	2E-9	4E-5	4E-4
63	Europium-148	W, all compounds	1E+3	4E+2	1E-7	5E-10	1E-5	1E-4
63	Europium-149	W, all compounds	1E+4	3E+3	1E-6	4E-9	2E-4	2E-3
63	Europium-150 (12.62h)	W, all compounds	3E+3	8E+3	4E-6	1E-8	4E-5	4E-4
63	Europium-150 (34.2 y)	W, all compounds	8E+2	2E+1	8E-9	3E-11	1E-5	1E-4
63	Europium-152m	W, all compounds	3E+3	6E+3	3E-6	9E-9	4E-5	4E-4
63	Europium-152	W, all compounds	8E+2	2E+1	1E-8	3E-11	1E-5	1E-4
63	Europium-154	W, all compounds	5E+2	2E+1	8E-9	3E-11	7E-6	7E-5
63	Europium-155	W, all compounds	4E+3	9E+1	4E-8	-	5E-5	5E-4
			-	Bone surf (1E+2)	-	2E-10	-	-
63	Europium-156	W, all compounds	6E+2	5E+2	2E-7	6E-10	8E-6	8E-5
63	Europium-157	W, all compounds	2E+3	5E+3	2E-6	7E-9	3E-5	3E-4
63	Europium-158 <sup>2</sup>	W, all compounds	2E+4	6E+4	2E-5	8E-8	3E-4	3E-3
64	Gadolinium-145 <sup>2</sup>	D, all compounds except those given for W	5E+4	2E+5	6E-5	2E-7	-	-
			St wall (5E+4)	-	-	-	6E-4	6E-3
		W, oxides, hydroxides, and fluorides	-	2E+5	7E-5	2E-7	-	-
64	Gadolinium-146	D, see <sup>145</sup> Gd	1E+3	1E+2	5E-8	2E-10	2E-5	2E-4
		W, see <sup>145</sup> Gd	-	3E+2	1E-7	4E-10	-	-
64	Gadolinium-147	D, see <sup>145</sup> Gd	2E+3	4E+3	2E-6	6E-9	3E-5	3E-4
		W, see <sup>145</sup> Gd	-	4E+3	1E-6	5E-9	-	-
64	Gadolinium-148	D, see <sup>145</sup> Gd	1E+1	8E+3	3E-12	-	-	-
			Bone surf (2E+1)	Bone surf (2E+2)	-	2E-14	3E-7	3E-6
		W, see <sup>145</sup> Gd	-	3E-2	1E-11	-	-	-
			-	Bone surf (6E-2)	-	8E-14	-	-
64	Gadolinium-149	D, see <sup>145</sup> Gd	3E+3	2E+3	9E-7	3E-9	4E-5	4E-4
		W, see <sup>145</sup> Gd	-	2E+3	1E-6	3E-9	-	-
64	Gadolinium-151	D, see <sup>145</sup> Gd	6E+3	4E+2	2E-7	-	9E-5	9E-4
			-	Bone surf (6E+2)	-	9E-10	-	-
		W, see <sup>145</sup> Gd	-	1E+3	5E-7	2E-9	-	-
64	Gadolinium-152	D, see <sup>145</sup> Gd	2E+1	1E-2	4E-12	-	-	-

Atomic No.	Radionuclide	Class	Table I Occupational Values			Table II Effluent Concentration		Table III Releases to Sewers
			Col. 1	Col. 2	Col. 3	Col. 1	Col. 2	Monthly Average Concentration μCi/ml
			Oral Ingestion	Inhalation		Air μCi/ml	Water μCi/ml	
				ALI μCi	ALI μCi			
			Bone surf (3E+1)	Bone surf (2E-2)	-	3E-14	4E-7	4E-6
		W, see <sup>145</sup> Gd	-	4E-2	2E-11	-	-	-
				Bone surf (8E-2)	-	1E-13	-	-
64	Gadolinium-153	D, see <sup>145</sup> Gd	5E+3	1E+2	6E-8	-	6E-5	6E-4
				Bone surf (2E+2)	-	3E-10	-	-
		W, see <sup>145</sup> Gd	-	6E+2	2E-7	8E-10	-	-
64	Gadolinium-159	D, see <sup>145</sup> Gd	3E+3	8E+3	3E-6	1E-8	4E-5	4E-4
		W, see <sup>145</sup> Gd	-	6E+3	2E-6	8E-9	-	-
65	Terbium-147 <sup>2</sup>	W, all compounds	9E+3	3E+4	1E-5	5E-8	1E-4	1E-3
65	Terbium-149	W, all compounds	5E+3	7E+2	3E-7	1E-9	7E-5	7E-4
65	Terbium-150	W, all compounds	5E+3	2E+4	9E-6	3E-8	7E-5	7E-4
65	Terbium-151	W, all compounds	4E+3	9E+3	4E-6	1E-8	5E-5	5E-4
65	Terbium-153	W, all compounds	5E+3	7E+3	3E-6	1E-8	7E-5	7E-4
65	Terbium-154	W, all compounds	2E+3	4E+3	2E-6	6E-9	2E-5	2E-4
65	Terbium-155	W, all compounds	6E+3	8E+3	3E-6	1E-8	8E-5	8E-4
65	Terbium-156m (5.0 h)	W, all compounds	2E+4	3E+4	1E-5	4E-8	2E-4	2E-3
65	Terbium-156m (24.4 h)	W, all compounds	7E+3	8E+3	3E-6	1E-8	1E-4	1E-3
65	Terbium-156	W, all compounds	1E+3	1E+3	6E-7	2E-9	1E-5	1E-4
65	Terbium-157	W, all compounds	5E+4	3E+2	1E-7	-	-	-
			LLI wall (5E+4)	Bone surf (6E+2)	-	8E-10	7E-4	7E-3
65	Terbium-158	W, all compounds	1E+3	2E+1	8E-9	3E-11	2E-5	2E-4
65	Terbium-160	W, all compounds	8E+2	2E+2	9E-8	3E-10	1E-5	1E-4
65	Terbium-161	W, all compounds	2E+3	2E+3	7E-7	2E-9	-	-
			LLI wall (2E+3)	-	-	-	3E-5	3E-4
66	Dysprosium-155	W, all compounds	9E+3	3E+4	1E-5	4E-8	1E-4	1E-3
66	Dysprosium-157	W, all compounds	2E+4	6E+4	3E-5	9E-8	3E-4	3E-3
66	Dysprosium-159	W, all compounds	1E+4	2E+3	1E-6	3E-9	2E-4	2E-3
66	Dysprosium-165	W, all compounds	1E+4	5E+4	2E-5	6E-8	2E-4	2E-3
66	Dysprosium-166	W, all compounds	6E+2	7E+2	3E-7	1E-9	-	-
			LLI wall (8E+2)	-	-	-	1E-5	1E-4
67	Holmium-155 <sup>2</sup>	W, all compounds	4E+4	2E+5	6E-5	2E-7	6E-4	6E-3
67	Holmium-157 <sup>2</sup>	W, all compounds	3E+5	1E+6	6E-4	2E-6	4E-3	4E-2
67	Holmium-159 <sup>2</sup>	W, all compounds	2E+5	1E+6	4E-4	1E-6	3E-3	3E-2
67	Holmium-161	W, all compounds	1E+5	4E+5	2E-4	6E-7	1E-3	1E-2
67	Holmium-162m <sup>2</sup>	W, all compounds	5E+4	3E+5	1E-4	4E-7	7E-4	7E-3
67	Holmium-162 <sup>2</sup>	W, all compounds	5E+5	2E+6	1E-3	3E-6	-	-
			St wall (8E+5)	-	-	-	1E-2	1E-1
67	Holmium-164m <sup>2</sup>	W, all compounds	1E+5	3E+5	1E-4	4E-7	1E-3	1E-2
67	Holmium-164 <sup>2</sup>	W, all compounds	2E+5	6E+5	3E-4	9E-7	-	-
			St wall (2E+5)	-	-	-	3E-3	3E-2
67	Holmium-166m	W, all compounds	6E+2	7E+0	3E-9	9E-12	9E-6	9E-5

Atomic No.	Radionuclide	Class	Table I Occupational Values			Table II Effluent Concentration		Table III Releases to Sewers
			Col. 1	Col. 2	Col. 3	Col. 1	Col. 2	Monthly Average Concentration μCi/ml
			Oral Ingestion	Inhalation		Air μCi/ml	Water μCi/ml	
				ALI μCi	ALI μCi			
67	Holmium-166	W, all compounds	9E+2	2E+3	7E-7	2E-9	-	-
			LLI wall (9E+2)	-	-	-	1E-5	1E-4
67	Holmium-167	W, all compounds	2E+4	6E+4	2E-5	8E-8	2E-4	2E-3
68	Erbium-161	W, all compounds	2E+4	6E+4	3E-5	9E-8	2E-4	2E-3
68	Erbium-165	W, all compounds	6E+4	2E+5	8E-5	3E-7	9E-4	9E-3
68	Erbium-169	W, all compounds	3E+3	3E+3	1E-6	4E-9	-	-
			LLI wall (4E+3)	-	-	-	5E-5	5E-4
68	Erbium-171	W, all compounds	4E+3	1E+4	4E-6	1E-8	5E-5	5E-4
68	Erbium-172	W, all compounds	1E+3	1E+3	6E-7	2E-9	-	-
			LLI wall (E+3)	-	-	-	2E-5	2E-4
69	Thulium-162 <sup>2</sup>	W, all compounds	7E+4	3E+5	1E-4	4E-7	-	-
			St wall (7E+4)	-	-	-	1E-3	1E-2
69	Thulium-166	W, all compounds	4E+3	1E+4	6E-6	2E-8	6E-5	6E-4
69	Thulium-167	W, all compounds	2E+3	2E+3	8E-7	3E-9	-	-
			LLI wall (2E+3)	-	-	-	3E-5	3E-4
69	Thulium-170	W, all compounds	8E+2	2E+2	9E-8	3E-10	-	-
			LLI wall (1E+3)	-	-	-	1E-5	1E-4
69	Thulium-171	W, all compounds	1E+4	3E+2	1E-7	-	-	-
			LLI wall (1E+4)	Bone surf (6E+2)	-	8E-10	2E-4	2E-3
69	Thulium-172	W, all compounds	7E+2	1E+3	5E-7	2E-9	-	-
			LLI wall (8E+2)	-	-	-	1E-5	1E-4
69	Thulium-173	W, all compounds	4E+3	1E+4	5E-6	2E-8	6E-5	6E-4
69	Thulium-175 <sup>2</sup>	W, all compounds	7E+4	3E+5	1E-4	4E-7	-	-
			St wall (9E+4)	-	-	-	1E-3	1E-2
70	Ytterbium-162 <sup>2</sup>	W, all compounds except those given for Y	7E+4	3E+5	1E-4	4E-7	1E-3	1E-2
		Y, oxides, hydroxides, and fluorides	-	3E+5	1E-4	4E-7	-	-
70	Ytterbium-166	W, see <sup>162</sup> Yb	1E+3	2E+3	8E-7	3E-9	2E-5	2E-4
		Y, see <sup>162</sup> Yb	-	2E+3	8E-7	3E-9	-	-
70	Ytterbium-167 <sup>2</sup>	W, see <sup>162</sup> Yb	3E+5	8E+5	3E-4	1E-6	4E-3	4E-2
		Y, see <sup>162</sup> Yb	-	7E+5	3E-4	1E-6	-	-
70	Ytterbium-169	W, see <sup>162</sup> Yb	2E+3	8E+2	4E-7	1E-9	2E-5	2E-4
		Y, see <sup>162</sup> Yb	-	7E+2	3E-7	1E-9	-	-
70	Ytterbium-175	W, see <sup>162</sup> Yb	3E+3	4E+3	1E-6	5E-9	-	-
			LLI wall (3E+3)	-	-	-	4E-5	4E-4
		Y, see <sup>162</sup> Yb	-	3E+3	1E-6	5E-9	-	-
70	Ytterbium-177 <sup>2</sup>	W, see <sup>162</sup> Yb	2E+4	5E+4	2E-5	7E-8	2E-4	2E-3
		Y, see <sup>162</sup> Yb	-	5E+4	2E-5	6E-8	-	-
70	Ytterbium-178 <sup>2</sup>	W, see <sup>162</sup> Yb	1E+4	4E+4	2E-5	6E-8	2E-4	2E-3
		Y, see <sup>162</sup> Yb	-	4E+4	2E-5	5E-8	-	-

Atomic No.	Radionuclide	Class	Table I Occupational Values			Table II Effluent Concentration		Table III Releases to Sewers
			Col. 1	Col. 2	Col. 3	Col. 1	Col. 2	Monthly Average Concentration μCi/ml
			Oral Ingestion	Inhalation		Air μCi/ml	Water μCi/ml	
				ALI μCi	ALI μCi			
71	Lutetium-169	W, all compounds except those given for Y	3E+3	4E+3	2E-6	6E-9	3E-5	3E-4
		Y, oxides, hydroxides, and fluorides	-	4E+3	2E-6	6E-9	-	-
71	Lutetium-170	W, see <sup>169</sup> Lu	1E+3	2E+3	9E-7	3E-9	2E-5	2E-4
		Y, see <sup>169</sup> Lu	-	2E+3	8E-7	3E-9	-	-
71	Lutetium-171	W, see <sup>169</sup> Lu	2E+3	2E+3	8E-7	3E-9	3E-5	3E-4
		Y, see <sup>169</sup> Lu	-	2E+3	8E-7	3E-9	-	-
71	Lutetium-172	W, see <sup>169</sup> Lu	1E+3	1E+3	5E-7	2E-9	1E-5	1E-4
		Y, see <sup>169</sup> Lu	-	1E+3	5E-7	2E-9	-	-
71	Lutetium-173	W, see <sup>169</sup> Lu	5E+3	3E+2	1E-7	-	7E-5	7E-4
			-	Bone surf (5E+2)	-	6E-10	-	-
		Y, see <sup>169</sup> Lu	-	3E+2	1E-7	4E-10	-	-
71	Lutetium-174m	W, see <sup>169</sup> Lu	2E+3	2E+2	1E-7	-	-	-
			LLI wall (3E+3)	Bone surf (3E+2)	-	5E-10	4E-5	4E-4
		Y, see <sup>169</sup> Lu	-	2E+2	9E-8	3E-10	-	-
71	Lutetium-174	W, see <sup>169</sup> Lu	5E+3	1E+2	5E-8	-	7E-5	7E-4
			-	Bone surf (2E+2)	-	3E-10	-	-
		Y, see <sup>169</sup> Lu	-	2E+2	6E-8	2E-10	-	-
71	Lutetium-176m	W, see <sup>169</sup> Lu	8E+3	3E+4	1E-5	3E-8	1E-4	1E-3
		Y, see <sup>169</sup> Lu	-	2E+4	9E-6	3E-8	-	-
71	Lutetium-176	W, see <sup>169</sup> Lu	7E+2	5E+0	2E-9	-	1E-5	1E-4
			-	Bone surf (1E+1)	-	2E-11	-	-
		Y, see <sup>169</sup> Lu	-	8E+0	3E-9	1E-11	-	-
71	Lutetium-177m	W, see <sup>169</sup> Lu	7E+2	1E+2	5E-8	-	1E-5	1E-4
			-	Bone surf (1E+2)	-	2E-10	-	-
		Y, see <sup>169</sup> Lu	-	8E+1	3E-8	1E-10	-	-
71	Lutetium-177	W, see <sup>169</sup> Lu	2E+3	2E+3	9E-7	3E-9	-	-
			LLI wall (3E+3)	-	-	-	4E-5	4E-4
		Y, see <sup>169</sup> Lu	-	2E+3	9E-7	3E-9	-	-
71	Lutetium-178m <sup>2</sup>	W, see <sup>169</sup> Lu	5E+4	2E+5	8E-5	3E-7	-	-
			St. wall (6E+4)	-	-	-	8E-4	8E-3
		Y, see <sup>169</sup> Lu	-	2E+5	7E-5	2E-7	-	-
71	Lutetium-178 <sup>2</sup>	W, see <sup>169</sup> Lu	4E+4	1E+5	5E-5	2E-7	-	-
			St wall (4E+4)	-	-	-	6E-4	6E-3
		Y, see <sup>169</sup> Lu	-	1E+5	5E-5	2E-7	-	-
71	Lutetium-179	W, see <sup>169</sup> Lu	6E+3	2E+4	8E-6	3E-8	9E-5	9E-4
		Y, see <sup>169</sup> Lu	-	2E+4	6E-6	3E-8	-	-
72	Hafnium-170	D, all compounds except those given for W	3E+3	6E+3	2E-6	8E-9	4E-5	4E-4
		W, oxides, hydroxides, carbides, and nitrates	-	5E+3	2E-6	6E-9	-	-

Atomic No.	Radionuclide	Class	Table I Occupational Values			Table II Effluent Concentration		Table III Releases to Sewers	
			Col. 1	Col. 2	Col. 3	Col. 1	Col. 2	Monthly Average Concentration μCi/ml	
			Oral Ingestion	Inhalation		Air μCi/ml	Water μCi/ml		
				ALI μCi	ALI μCi				DAC μCi/ml
72	Hafnium-172	D, see <sup>170</sup> Hf	1E+3	9E+0	4E-9	-	2E-5	2E-4	
		W, see <sup>170</sup> Hf	-	Bone surf (2E+1)	-	3E-11	-	-	
			-	4E+1	2E-8	-	-	-	
72	Hafnium-173	D, see <sup>170</sup> Hf	5E+3	1E+4	5E-6	2E-8	7E-5	7E-4	
		W, see <sup>170</sup> Hf	-	Bone surf (6E+1)	-	8E-11	-	-	
			-	1E+4	5E-6	2E-8	-	-	
72	Hafnium-175	D, see <sup>170</sup> Hf	3E+3	9E+2	4E-7	-	4E-5	4E-4	
		W, see <sup>170</sup> Hf	-	Bone surf (1E+3)	-	1E-9	-	-	
			-	1E+3	5E-7	2E-9	-	-	
72	Hafnium-177m <sup>2</sup>	D, see <sup>170</sup> Hf	2E+4	6E+4	2E-5	8E-8	3E-4	3E-3	
		W, see <sup>170</sup> Hf	-	9E+4	4E-5	1E-7	-	-	
			-	1E+0	5E-10	-	3E-6	3E-5	
72	Hafnium-178m	D, see <sup>170</sup> Hf	3E+2	1E+0	5E-10	-	3E-6	3E-5	
		W, see <sup>170</sup> Hf	-	Bone surf (2E+0)	-	3E-12	-	-	
			-	5E+0	2E-9	-	-	-	
72	Hafnium-179m	D, see <sup>170</sup> Hf	1E+3	3E+2	1E-7	-	1E-5	1E-4	
		W, see <sup>170</sup> Hf	-	Bone surf (9E+0)	-	1E-11	-	-	
			-	6E+2	3E-7	8E-10	-	-	
72	Hafnium-180m	D, see <sup>170</sup> Hf	7E+3	2E+4	9E-6	3E-8	1E-4	1E-3	
		W, see <sup>170</sup> Hf	-	3E+4	1E-5	4E-8	-	-	
			-	1E+3	2E+2	7E-8	-	2E-5	2E-4
72	Hafnium-181	D, see <sup>170</sup> Hf	1E+3	2E+2	7E-8	-	2E-5	2E-4	
		W, see <sup>170</sup> Hf	-	Bone surf (4E+2)	-	6E-10	-	-	
			-	4E+2	2E-7	6E-10	-	-	
72	Hafnium-182m <sup>2</sup>	D, see <sup>170</sup> Hf	4E+4	9E+4	4E-5	1E-7	5E-4	5E-3	
		W, see <sup>170</sup> Hf	-	1E+5	6E-5	2E-7	-	-	
			-	2E+2	8E-1	3E-10	-	-	
72	Hafnium-182	D, see <sup>170</sup> Hf	2E+2	8E-1	3E-10	-	-	-	
		W, see <sup>170</sup> Hf	-	Bone surf (4E+2)	Bone surf (2E+0)	-	2E-12	5E-6	5E-5
			-	3E+0	1E-9	-	-	-	
72	Hafnium-183 <sup>2</sup>	D, see <sup>170</sup> Hf	2E+4	5E+4	2E-5	6E-8	3E-4	3E-3	
		W, see <sup>170</sup> Hf	-	Bone surf (7E+0)	-	1E-11	-	-	
			-	6E+4	2E-5	8E-8	-	-	
72	Hafnium-184	D, see <sup>170</sup> Hf	2E+3	8E+3	3E-6	1E-8	3E-5	3E-4	
		W, see <sup>170</sup> Hf	-	6E+3	3E-6	9E-9	-	-	
			-	4E+4	1E+5	5E-5	2E-7	5E-4	5E-3
73	Tantalum-172 <sup>2</sup>	W, all compounds except those given for Y	4E+4	1E+5	5E-5	2E-7	5E-4	5E-3	
73	Tantalum-173	Y, elemental Ta, oxides, hydroxides, halides, carbides, nitrates, and nitrides	-	1E+5	4E-5	1E-7	-	-	
		W, see <sup>172</sup> Ta	7E+3	2E+4	8E-6	3E-8	9E-5	9E-4	
		Y, see <sup>172</sup> Ta	-	2E+4	7E-6	2E-8	-	-	
73	Tantalum-174 <sup>2</sup>	W, see <sup>172</sup> Ta	3E+4	1E+5	4E-5	1E-7	4E-4	4E-3	



Atomic No.	Radionuclide	Class	Table I Occupational Values			Table II Effluent Concentration		Table III Releases to Sewers
			Col. 1	Col. 2	Col. 3	Col. 1	Col. 2	Monthly Average Concentration μCi/ml
			Oral Ingestion	Inhalation		Air μCi/ml	Water μCi/ml	
				ALI μCi	ALI μCi			
		Y, see <sup>172</sup> Ta	-	9E+4	4E-5	1E-7	-	-
73	Tantalum-175	W, see <sup>172</sup> Ta	6E+3	2E+4	7E-6	2E-8	8E-5	8E-4
		Y, see <sup>172</sup> Ta	-	1E+4	6E-6	2E-8	-	-
73	Tantalum-176	W, see <sup>172</sup> Ta	4E+3	1E+4	5E-6	2E-8	5E-5	5E-4
		Y, see <sup>172</sup> Ta	-	1E+4	5E-6	2E-8	-	-
73	Tantalum-177	W, see <sup>172</sup> Ta	1E+4	2E+4	8E-6	3E-8	2E-4	2E-3
		Y, see <sup>172</sup> Ta	-	2E+4	7E-6	2E-8	-	-
73	Tantalum-178	W, see <sup>172</sup> Ta	2E+4	9E+4	4E-5	1E-7	2E-4	2E-3
		Y, see <sup>172</sup> Ta	-	7E+4	3E-5	1E-7	-	-
73	Tantalum-179	W, see <sup>172</sup> Ta	2E+4	5E+3	2E-6	8E-9	3E-4	3E-3
		Y, see <sup>172</sup> Ta	-	9E+2	4E-7	1E-9	-	-
73	Tantalum-180m	W, see <sup>172</sup> Ta	2E+4	7E+4	3E-5	9E-8	3E-4	3E-3
		Y, see <sup>172</sup> Ta	-	6E+4	2E-5	8E-8	-	-
73	Tantalum-180	W, see <sup>172</sup> Ta	1E+3	4E+2	2E-7	6E-10	2E-5	2E-4
		Y, see <sup>172</sup> Ta	-	2E+1	1E-8	3E-11	-	-
73	Tantalum-182m <sup>2</sup>	W, see <sup>172</sup> Ta	2E+5	5E+5	2E-4	8E-7	-	-
		St wall (2E+5)	-	-	-	-	3E-3	3E-2
		Y, see <sup>172</sup> Ta	-	4E+5	2E-4	6E-7	-	-
73	Tantalum-182	W, see <sup>172</sup> Ta	8E+2	3E+2	1E-7	5E-10	1E-5	1E-4
		Y, see <sup>172</sup> Ta	-	1E+2	6E-8	2E-10	-	-
73	Tantalum-183	W, see <sup>172</sup> Ta	9E+2	1E+3	5E-7	2E-9	-	-
		LLI wall (1E+3)	-	-	-	-	2E-5	2E-4
		Y, see <sup>172</sup> Ta	-	1E+3	4E-7	1E-9	-	-
73	Tantalum-184	W, see <sup>172</sup> Ta	2E+3	5E+3	2E-6	8E-9	3E-5	3E-4
		Y, see <sup>172</sup> Ta	-	5E+3	2E-6	7E-9	-	-
73	Tantalum-185 <sup>2</sup>	W, see <sup>172</sup> Ta	3E+4	7E+4	3E-5	1E-7	4E-4	4E-3
		Y, see <sup>172</sup> Ta	-	6E+4	3E-5	9E-8	-	-
73	Tantalum-186 <sup>2</sup>	W, see <sup>172</sup> Ta	5E+4	2E+5	1E-4	3E-7	-	-
		St wall (7E+4)	-	-	-	-	1E-3	1E-2
		Y, see <sup>172</sup> Ta	-	2E+5	9E-5	3E-7	-	-
74	Tungsten-176	D, all compounds	1E+4	5E+4	2E-5	7E-8	1E-4	1E-3
74	Tungsten-177	D, all compounds	2E+4	9E+4	4E-5	1E-7	3E-4	3E-3
74	Tungsten-178	D, all compounds	5E+3	2E+4	8E-6	3E-8	7E-5	7E-4
74	Tungsten-179 <sup>2</sup>	D, all compounds	5E+5	2E+6	7E-4	2E-6	7E-3	7E-2
74	Tungsten-181	D, all compounds	2E+4	3E+4	1E-5	5E-8	2E-4	2E-3
74	Tungsten-185	D, all compounds	2E+3	7E+3	3E-6	9E-9	-	-
		LLI wall (3E+3)	-	-	-	-	4E-5	4E-4
74	Tungsten-187	D, all compounds	2E+3	9E+3	4E-6	1E-8	3E-5	3E-4
74	Tungsten-188	D, all compounds	4E+2	1E+3	5E-7	2E-9	-	-
		LLI wall (5E+2)	-	-	-	-	7E-6	7E-5
75	Rhenium-177 <sup>2</sup>	D, all compounds except those given for W	9E+4	3E+5	1E-4	4E-7	-	-

Atomic No.	Radionuclide	Class	Table I Occupational Values			Table II Effluent Concentration		Table III Releases to Sewers
			Col. 1	Col. 2	Col. 3	Col. 1	Col. 2	Monthly Average Concentration μCi/ml
			Oral Ingestion	Inhalation		Air μCi/ml	Water μCi/ml	
				ALI μCi	ALI μCi			
			St wall (1E+5)	-	-	-	2E-3	2E-2
75	Rhenium-178 <sup>2</sup>	W, oxides, hydroxides, and nitrates D, see <sup>177</sup> Re	- 7E+4	4E+5 3E+5	1E-4 1E-4	5E-7 4E-7	- -	- -
			St wall (1E+5)	-	-	-	1E-3	1E-2
75	Rhenium-181	W, see <sup>177</sup> Re D, see <sup>177</sup> Re	- 5E+3	3E+5 9E+3	1E-4 4E-6	4E-7 1E-8	- 7E-5	- 7E-4
75	Rhenium-182 (12.7 h)	W, see <sup>177</sup> Re D, see <sup>177</sup> Re	- 7E+3	9E+3 1E+4	4E-6 5E-6	1E-8 2E-8	- 9E-5	- 9E-4
75	Rhenium-182 (64.0 h)	W, see <sup>177</sup> Re D, see <sup>177</sup> Re	- 1E+3	2E+4 2E+3	6E-6 1E-6	2E-8 3E-9	- 2E-5	- 2E-4
75	Rhenium-184m	W, see <sup>177</sup> Re D, see <sup>177</sup> Re	- 2E+3	2E+3 3E+3	9E-7 1E-6	3E-9 4E-9	- 3E-5	- 3E-4
75	Rhenium-184	W, see <sup>177</sup> Re D, see <sup>177</sup> Re	- 2E+3	4E+2 4E+3	2E-7 1E-6	6E-10 5E-9	- 3E-5	- 3E-4
75	Rhenium-186m	W, see <sup>177</sup> Re D, see <sup>177</sup> Re	- 1E+3	1E+3 2E+3	6E-7 7E-7	2E-9 -	- -	- -
			St wall (2E+3)	St wall (2E+3)	-	3E-9	2E-5	2E-4
75	Rhenium-186	W, see <sup>177</sup> Re D, see <sup>177</sup> Re	- 2E+3	2E+2 3E+3	6E-8 1E-6	2E-10 4E-9	- 3E-5	- 3E-4
75	Rhenium-187	W, see <sup>177</sup> Re D, see <sup>177</sup> Re	- 6E+5	2E+3 8E+5	7E-7 4E-4	2E-9 -	- 8E-3	- 8E-2
			-	St wall (9E+5)	-	1E-6	-	-
75	Rhenium-188m <sup>2</sup>	W, see <sup>177</sup> Re D, see <sup>177</sup> Re	- 8E+4	1E+5 1E+5	4E-5 6E-5	1E-7 2E-7	- 1E-3	- 1E-2
75	Rhenium-188	W, see <sup>177</sup> Re D, see <sup>177</sup> Re	- 2E+3	1E+5 3E+3	6E-5 1E-6	2E-7 4E-9	- 2E-5	- 2E-4
75	Rhenium-189	W, see <sup>177</sup> Re D, see <sup>177</sup> Re	- 3E+3	3E+3 5E+3	1E-6 2E-6	4E-9 7E-9	- 4E-5	- 4E-4
76	Osmium-180 <sup>2</sup>	W, see <sup>177</sup> Re D, all compounds except those given for W and Y	- 1E+5	4E+3 4E+5	2E-6 2E-4	6E-9 5E-7	- 1E-3	- 1E-2
		W, halides and nitrates	-	5E+5	2E-4	7E-7	-	-
		Y, oxides and hydroxides	-	5E+5	2E-4	6E-7	-	-
76	Osmium-181 <sup>2</sup>	D, see <sup>180</sup> Os W, see <sup>180</sup> Os	1E+4 -	4E+4 5E+4	2E-5 2E-5	6E-8 6E-8	2E-4 -	2E-3 -
		Y, see <sup>180</sup> Os	-	4E+4	2E-5	6E-8	-	-
76	Osmium-182	D, see <sup>180</sup> Os W, see <sup>180</sup> Os	2E+3 -	6E+3 4E+3	2E-6 2E-6	8E-9 6E-9	3E-5 -	3E-4 -
		Y, see <sup>180</sup> Os	-	4E+3	2E-6	6E-9	-	-
76	Osmium-185	D, see <sup>180</sup> Os W, see <sup>180</sup> Os	2E+3 -	5E+2 8E+2	2E-7 3E-7	7E-10 1E-9	3E-5 -	3E-4 -
		Y, see <sup>180</sup> Os	-	8E+2	3E-7	1E-9	-	-

Atomic No.	Radionuclide	Class	Table I Occupational Values			Table II Effluent Concentration		Table III Releases to Sewers
			Col. 1	Col. 2	Col. 3	Col. 1	Col. 2	Monthly Average Concentration
			Oral Ingestion	Inhalation		Air $\mu\text{Ci/ml}$	Water $\mu\text{Ci/ml}$	$\mu\text{Ci/ml}$
				ALI $\mu\text{Ci}$	ALI $\mu\text{Ci}$			
76	Osmium-189m	D, see $^{180}\text{Os}$	8E+4	2E+5	1E-4	3E-7	1E-3	1E-2
		W, see $^{180}\text{Os}$	-	2E+5	9E-5	3E-7	-	-
		Y, see $^{180}\text{Os}$	-	2E+5	7E-5	2E-7	-	-
76	Osmium-191m	D, see $^{180}\text{Os}$	1E+4	3E+4	1E-5	4E-8	2E-4	2E-3
		W, see $^{180}\text{Os}$	-	2E+4	8E-6	3E-8	-	-
		Y, see $^{180}\text{Os}$	-	2E+4	7E-6	2E-8	-	-
76	Osmium-191	D, see $^{180}\text{Os}$	2E+3	2E+3	9E-7	3E-9	-	-
		LLI wall (3E+3)	-	-	-	3E-5	-	3E-4
		W, see $^{180}\text{Os}$	-	2E+3	7E-7	2E-9	-	-
76	Osmium-193	Y, see $^{180}\text{Os}$	-	1E+3	6E-7	2E-9	-	-
		D, see $^{180}\text{Os}$	2E+3	5E+3	2E-6	6E-9	-	-
		LLI wall (2E+3)	-	-	-	2E-5	-	2E-4
76	Osmium-194	W, see $^{180}\text{Os}$	-	3E+3	1E-6	4E-9	-	-
		Y, see $^{180}\text{Os}$	-	3E+3	1E-6	4E-9	-	-
		D, see $^{180}\text{Os}$	4E+2	4E+1	2E-8	6E-11	-	-
76	Osmium-194	LLI wall (6E+2)	-	-	-	8E-6	-	8E-5
		W, see $^{180}\text{Os}$	-	6E+1	2E-8	8E-11	-	-
		Y, see $^{180}\text{Os}$	-	8E+0	3E-9	1E-11	-	-
77	Iridium-182 <sup>2</sup>	D, all compounds except those given for W and Y	4E+4	1E+5	6E-5	2E-7	-	-
		St wall (4E+4)	-	-	-	6E-4	-	6E-3
		W, halides, nitrates, and metallic iridium	-	2E+5	6E-5	2E-7	-	-
77	Iridium-184	Y, oxides and hydroxides	-	1E+5	5E-5	2E-7	-	-
		D, see $^{182}\text{Ir}$	8E+3	2E+4	1E-5	3E-8	1E-4	1E-3
		W, see $^{182}\text{Ir}$	-	3E+4	1E-5	5E-8	-	-
77	Iridium-185	Y, see $^{182}\text{Ir}$	-	3E+4	1E-5	4E-8	-	-
		D, see $^{182}\text{Ir}$	5E+3	1E+4	5E-6	2E-8	7E-5	7E-4
		W, see $^{182}\text{Ir}$	-	1E+4	5E-6	2E-8	-	-
77	Iridium-186	Y, see $^{182}\text{Ir}$	-	1E+4	4E-6	1E-8	-	-
		D, see $^{182}\text{Ir}$	2E+3	8E+3	3E-6	1E-8	3E-5	3E-4
		W, see $^{182}\text{Ir}$	-	6E+3	3E-6	9E-9	-	-
77	Iridium-187	Y, see $^{182}\text{Ir}$	-	6E+3	2E-6	8E-9	-	-
		D, see $^{182}\text{Ir}$	1E+4	3E+4	1E-5	5E-8	1E-4	1E-3
		W, see $^{182}\text{Ir}$	-	3E+4	1E-5	4E-8	-	-
77	Iridium-188	Y, see $^{182}\text{Ir}$	-	3E+4	1E-5	4E-8	-	-
		D, see $^{182}\text{Ir}$	2E+3	5E+3	2E-6	6E-9	3E-5	3E-4
		W, see $^{182}\text{Ir}$	-	4E+3	1E-6	5E-9	-	-
77	Iridium-189	Y, see $^{182}\text{Ir}$	-	3E+3	1E-6	5E-9	-	-
		D, see $^{182}\text{Ir}$	5E+3	5E+3	2E-6	7E-9	-	-
		LLI wall (5E+3)	-	-	-	7E-5	-	7E-4
		W, see $^{182}\text{Ir}$	-	4E+3	2E-6	5E-9	-	-

Atomic No.	Radionuclide	Class	Table I Occupational Values			Table II Effluent Concentration		Table III Releases to Sewers
			Col. 1	Col. 2	Col. 3	Col. 1	Col. 2	Monthly Average Concentration μCi/ml
			Oral Ingestion	Inhalation		Air μCi/ml	Water μCi/ml	
				ALI μCi	ALI μCi			
77	Iridium-190m <sup>2</sup>	Y, see <sup>182</sup> Ir	-	4E+3	1E-6	5E-9	-	-
		D, see <sup>182</sup> Ir	2E+5	2E+5	8E-5	3E-7	2E-3	2E-2
		W, see <sup>182</sup> Ir	-	2E+5	9E-5	3E-7	-	-
77	Iridium-190	Y, see <sup>182</sup> Ir	-	2E+5	8E-5	3E-7	-	-
		D, see <sup>182</sup> Ir	1E+3	9E+2	4E-7	1E-9	1E-5	1E-4
		W, see <sup>182</sup> Ir	-	1E+3	4E-7	1E-9	-	-
77	Iridium-192m	Y, see <sup>182</sup> Ir	-	9E+2	4E-7	1E-9	-	-
		D, see <sup>182</sup> Ir	3E+3	9E+1	4E-8	1E-10	4E-5	4E-4
		W, see <sup>182</sup> Ir	-	2E+2	9E-8	3E-10	-	-
77	Iridium-192	Y, see <sup>182</sup> Ir	-	2E+1	6E-9	2E-11	-	-
		D, see <sup>182</sup> Ir	9E+2	3E+2	1E-7	4E-10	1E-5	1E-4
		W, see <sup>182</sup> Ir	-	4E+2	2E-7	6E-10	-	-
77	Iridium-194m	Y, see <sup>182</sup> Ir	-	2E+2	9E-8	3E-10	-	-
		D, see <sup>182</sup> Ir	6E+2	9E+1	4E-8	1E-10	9E-6	9E-5
		W, see <sup>182</sup> Ir	-	2E+2	7E-8	2E-10	-	-
77	Iridium-194	Y, see <sup>182</sup> Ir	-	1E+2	4E-8	1E-10	-	-
		D, see <sup>182</sup> Ir	1E+3	3E+3	1E-6	4E-9	1E-5	1E-4
		W, see <sup>182</sup> Ir	-	2E+3	9E-7	3E-9	-	-
77	Iridium-195m	Y, see <sup>182</sup> Ir	-	2E+3	8E-7	3E-9	-	-
		D, see <sup>182</sup> Ir	8E+3	2E+4	1E-5	3E-8	1E-4	1E-3
		W, see <sup>182</sup> Ir	-	3E+4	1E-5	4E-8	-	-
77	Iridium-195	Y, see <sup>182</sup> Ir	-	2E+4	9E-6	3E-8	-	-
		D, see <sup>182</sup> Ir	1E+4	4E+4	2E-5	6E-8	2E-4	2E-3
		W, see <sup>182</sup> Ir	-	5E+4	2E-5	7E-8	-	-
78	Platinum-186	Y, see <sup>182</sup> Ir	-	4E+4	2E-5	6E-8	-	-
		D, all compounds	1E+4	4E+4	2E-5	5E-8	2E-4	2E-3
		W, see <sup>182</sup> Ir	-	2E+3	9E-7	3E-9	-	-
78	Platinum-188	Y, see <sup>182</sup> Ir	-	2E+3	8E-7	3E-9	-	-
		D, all compounds	2E+3	2E+3	7E-7	2E-9	2E-5	2E-4
		W, see <sup>182</sup> Ir	-	2E+3	8E-7	3E-9	-	-
78	Platinum-189	Y, see <sup>182</sup> Ir	-	3E+4	1E-5	4E-8	1E-4	1E-3
		D, all compounds	1E+4	3E+4	1E-5	4E-8	1E-4	1E-3
		W, see <sup>182</sup> Ir	-	3E+4	1E-5	4E-8	1E-4	1E-3
78	Platinum-191	Y, see <sup>182</sup> Ir	-	8E+3	4E-6	1E-8	5E-5	5E-4
		D, all compounds	4E+3	8E+3	4E-6	1E-8	5E-5	5E-4
		W, see <sup>182</sup> Ir	-	8E+3	4E-6	1E-8	5E-5	5E-4
78	Platinum-193m	Y, see <sup>182</sup> Ir	-	3E+3	3E-6	8E-9	-	-
		D, all compounds	3E+3	6E+3	3E-6	8E-9	-	-
		W, see <sup>182</sup> Ir	-	3E+3	3E-6	8E-9	-	-
78	Platinum-193	Y, see <sup>182</sup> Ir	-	4E+4	2E-5	6E-8	-	-
		D, all compounds	4E+4	2E+4	1E-5	3E-8	-	-
		W, see <sup>182</sup> Ir	-	4E+4	2E-5	6E-8	-	-
78	Platinum-195m	Y, see <sup>182</sup> Ir	-	5E+4	2E-5	7E-8	-	-
		D, all compounds	2E+3	4E+3	2E-6	6E-9	-	-
		W, see <sup>182</sup> Ir	-	5E+4	2E-5	7E-8	-	-
78	Platinum-197m <sup>2</sup>	Y, see <sup>182</sup> Ir	-	4E+4	2E-5	6E-8	3E-5	3E-4
		D, all compounds	2E+4	4E+4	2E-5	6E-8	2E-4	2E-3
		W, see <sup>182</sup> Ir	-	4E+4	2E-5	6E-8	3E-5	3E-4
78	Platinum-197	Y, see <sup>182</sup> Ir	-	1E+4	4E-6	1E-8	4E-5	4E-4
		D, all compounds	3E+3	1E+4	4E-6	1E-8	4E-5	4E-4
		W, see <sup>182</sup> Ir	-	1E+4	4E-6	1E-8	4E-5	4E-4
78	Platinum-199 <sup>2</sup>	Y, see <sup>182</sup> Ir	-	1E+5	6E-5	2E-7	7E-4	7E-3
		D, all compounds	5E+4	1E+5	6E-5	2E-7	7E-4	7E-3
		W, see <sup>182</sup> Ir	-	1E+5	6E-5	2E-7	7E-4	7E-3
78	Platinum-200	Y, see <sup>182</sup> Ir	-	3E+3	1E-6	5E-9	2E-5	2E-4
		D, all compounds	1E+3	3E+3	1E-6	5E-9	2E-5	2E-4
		W, see <sup>182</sup> Ir	-	3E+3	1E-6	5E-9	2E-5	2E-4
79	Gold-193	Y, see <sup>182</sup> Ir	-	2E+4	9E-6	3E-8	-	-
		D, all compounds except those given for W and Y	9E+3	3E+4	1E-5	4E-8	1E-4	1E-3
		W, halides and nitrates	-	2E+4	9E-6	3E-8	-	-
79	Gold-194	Y, oxides and hydroxides	-	2E+4	8E-6	3E-8	-	-
		D, see <sup>193</sup> Au	3E+3	8E+3	3E-6	1E-8	4E-5	4E-4
		W, halides and nitrates	-	2E+4	9E-6	3E-8	-	-

Atomic No.	Radionuclide	Class	Table I Occupational Values			Table II Effluent Concentration		Table III Releases to Sewers
			Col. 1	Col. 2	Col. 3	Col. 1	Col. 2	Monthly Average Concentration μCi/ml
			Oral Ingestion	Inhalation		Air μCi/ml	Water μCi/ml	
				ALI μCi	ALI μCi			
79	Gold-195	W, see <sup>193</sup> Au	-	5E+3	2E-6	8E-9	-	-
		Y, see <sup>193</sup> Au	-	5E+3	2E-6	7E-9	-	-
		D, see <sup>193</sup> Au	5E+3	1E+4	5E-6	2E-8	7E-5	7E-4
		W, see <sup>193</sup> Au	-	1E+3	6E-7	2E-9	-	-
		Y, see <sup>193</sup> Au	-	4E+2	2E-7	6E-10	-	-
79	Gold-198m	D, see <sup>193</sup> Au	1E+3	3E+3	1E-6	4E-9	1E-5	1E-4
		W, see <sup>193</sup> Au	-	1E+3	5E-7	2E-9	-	-
		Y, see <sup>193</sup> Au	-	1E+3	5E-7	2E-9	-	-
		D, see <sup>193</sup> Au	1E+3	4E+3	2E-6	5E-9	2E-5	2E-4
79	Gold-198	W, see <sup>193</sup> Au	-	2E+3	8E-7	3E-9	-	-
		Y, see <sup>193</sup> Au	-	2E+3	7E-7	2E-9	-	-
		D, see <sup>193</sup> Au	3E+3	9E+3	4E-6	1E-8	-	-
		LLI wall (3E+3)	-	-	-	4E-5	4E-4	
79	Gold-200m	W, see <sup>193</sup> Au	-	4E+3	2E-6	6E-9	-	-
		Y, see <sup>193</sup> Au	-	4E+3	2E-6	5E-9	-	-
		D, see <sup>193</sup> Au	1E+3	4E+3	1E-6	5E-9	2E-5	2E-4
		W, see <sup>193</sup> Au	-	3E+3	1E-6	4E-9	-	-
		Y, see <sup>193</sup> Au	-	2E+4	1E-6	3E-9	-	-
79	Gold-200 <sup>2</sup>	D, see <sup>193</sup> Au	3E+4	6E+4	3E-5	9E-8	4E-4	4E-3
		W, see <sup>193</sup> Au	-	8E+4	3E-5	1E-7	-	-
		Y, see <sup>193</sup> Au	-	7E+4	3E-5	1E-7	-	-
79	Gold-201 <sup>2</sup>	D, see <sup>193</sup> Au	7E+4	2E+5	9E-5	3E-7	-	-
		St wall (9E+4)	-	-	-	1E-3	1E-2	
		W, see <sup>193</sup> Au	-	2E+5	1E-4	3E-7	-	-
		Y, see <sup>193</sup> Au	-	2E+5	9E-5	3E-7	-	-
		Vapor	-	8E+3	4E-6	1E-8	-	-
80	Mercury-193m	Organic D	4E+3	1E+4	5E-6	2E-8	6E-5	6E-4
		D, sulfates	3E+3	9E+3	4E-6	1E-8	4E-5	4E-4
		W, oxides, hydroxides, halides, nitrates, and sulfides	-	8E+3	3E-6	1E-8	-	-
		Vapor	-	3E+4	1E-5	4E-8	-	-
80	Mercury-193	Organic D	2E+4	6E+4	3E-5	9E-8	3E-4	3E-3
		D, see <sup>193m</sup> Hg	2E+4	4E+4	2E-5	6E-8	2E-4	2E-3
		W, see <sup>193m</sup> Hg	-	4E+4	2E-5	6E-8	-	-
		Vapor	-	3E+1	1E-8	4E-11	-	-
80	Mercury-194	Organic D	2E+1	3E+1	1E-8	4E-11	2E-7	2E-6
		D, see <sup>193m</sup> Hg	8E+2	4E+1	2E-8	6E-11	1E-5	1E-4
		W, see <sup>193m</sup> Hg	-	1E+2	5E-8	2E-10	-	-
		Vapor	-	4E+3	2E-6	6E-9	-	-
80	Mercury-195m	Organic D	3E+3	6E+3	3E-6	8E-9	4E-5	4E-4
		D, see <sup>193m</sup> Hg	2E+3	5E+3	2E-6	7E-9	3E-5	3E-4
		W, see <sup>193m</sup> Hg	-	4E+3	2E-6	5E-9	-	-
		Vapor	-	3E+4	1E-5	4E-8	-	-
80	Mercury-195	Organic D	2E+4	5E+4	2E-5	6E-8	2E-4	2E-3
		D, see <sup>193m</sup> Hg	1E+4	4E+4	1E-5	5E-8	2E-4	2E-3

Atomic No.	Radionuclide	Class	Table I Occupational Values			Table II Effluent Concentration		Table III Releases to Sewers
			Col. 1	Col. 2	Col. 3	Col. 1	Col. 2	Monthly Average Concentration μCi/ml
			Oral Ingestion	Inhalation		Air μCi/ml	Water μCi/ml	
				ALI μCi	ALI μCi			
80	Mercury-197m	W, see <sup>193m</sup> Hg	-	3E+4	1E-5	5E-8	-	-
		Vapor	-	5E+3	2E-6	7E-9	-	-
		Organic D	4E+3	9E+3	4E-6	1E-8	5E-5	5E-4
		D, see <sup>193m</sup> Hg	3E+3	7E+3	3E-6	1E-8	4E-5	4E-4
80	Mercury-197	W, see <sup>193m</sup> Hg	-	5E+3	2E-6	7E-9	-	-
		Vapor	-	8E+3	4E-6	1E-8	-	-
		Organic D	7E+3	1E+4	6E-6	2E-8	9E-5	9E-4
		D, see <sup>193m</sup> Hg	6E+3	1E+4	5E-6	2E-8	8E-5	8E-4
80	Mercury-199m <sup>2</sup>	W, see <sup>193m</sup> Hg	-	9E+3	4E-6	1E-8	-	-
		Vapor	-	8E+4	3E-5	1E-7	-	-
		Organic D	6E+4	2E+5	7E-5	2E-7	-	-
		St wall (1E+5)	-	-	-	1E-3	1E-2	
80	Mercury-203	D, see <sup>193m</sup> Hg	6E+4	1E+5	6E-5	2E-7	8E-4	8E-3
		W, see <sup>193m</sup> Hg	-	2E+5	7E-5	2E-7	-	-
		Vapor	-	8E+2	4E-7	1E-9	-	-
		Organic D	5E+2	8E+2	3E-7	1E-9	7E-6	7E-5
80	Mercury-203	D, see <sup>193m</sup> Hg	2E+3	1E+3	5E-7	2E-9	3E-5	3E-4
		W, see <sup>193m</sup> Hg	-	1E+3	5E-7	2E-9	-	-
		D, all compounds	5E+4	2E+5	6E-5	2E-7	-	-
		St wall (7E+4)	-	-	-	1E-3	1E-2	
81	Thallium-194 <sup>2</sup>	D, all compounds	3E+5	6E+5	2E-4	8E-7	-	-
		St wall (3E+5)	-	-	-	4E-3	4E-2	
81	Thallium-195 <sup>2</sup>	D, all compounds	6E+4	1E+5	5E-5	2E-7	9E-4	9E-3
81	Thallium-197	D, all compounds	7E+4	1E+5	5E-5	2E-7	1E-3	1E-2
81	Thallium-198m <sup>2</sup>	D, all compounds	3E+4	5E+4	2E-5	8E-8	4E-4	4E-3
81	Thallium-198	D, all compounds	2E+4	3E+4	1E-5	5E-8	3E-4	3E-3
81	Thallium-199	D, all compounds	6E+4	8E+4	4E-5	1E-7	9E-4	9E-3
81	Thallium-200	D, all compounds	8E+3	1E+4	5E-6	2E-8	1E-4	1E-3
81	Thallium-201	D, all compounds	2E+4	2E+4	9E-6	3E-8	2E-4	2E-3
81	Thallium-202	D, all compounds	4E+3	5E+3	2E-6	7E-9	5E-5	5E-4
81	Thallium-204	D, all compounds	2E+3	2E+3	9E-7	3E-9	2E-5	2E-4
82	Lead-195m <sup>2</sup>	D, all compounds	6E+4	2E+5	8E-5	3E-7	8E-4	8E-3
82	Lead-198	D, all compounds	3E+4	6E+4	3E-5	9E-8	4E-4	4E-3
82	Lead-199 <sup>2</sup>	D, all compounds	2E+4	7E+4	3E-5	1E-7	3E-4	3E-3
82	Lead-200	D, all compounds	3E+3	6E+3	3E-6	9E-9	4E-5	4E-4
82	Lead-201	D, all compounds	7E+3	2E+4	8E-6	3E-8	1E-4	1E-3
82	Lead-202m	D, all compounds	9E+3	3E+4	1E-5	4E-8	1E-4	1E-3
82	Lead-202	D, all compounds	1E+2	5E+1	2E-8	7E-11	2E-6	2E-5
82	Lead-203	D, all compounds	5E+3	9E+3	4E-6	1E-8	7E-5	7E-4
82	Lead-205	D, all compounds	4E+3	1E+3	6E-7	2E-9	5E-5	5E-4
82	Lead-209	D, all compounds	2E+4	6E+4	2E-5	8E-8	3E-4	3E-3
82	Lead-210	D, all compounds	6E-1	2E-1	1E-10	-	-	-
		Bone surf (1E+0)	1E+4	6E+2	3E-7	9E-10	2E-4	2E-3
82	Lead-211 <sup>2</sup>	D, all compounds	1E+4	6E+2	3E-7	9E-10	2E-4	2E-3

Atomic No.	Radionuclide	Class	Table I Occupational Values			Table II Effluent Concentration		Table III Releases to Sewers
			Col. 1	Col. 2	Col. 3	Col. 1	Col. 2	Monthly Average Concentration
			Oral Ingestion	Inhalation		Air $\mu\text{Ci/ml}$	Water $\mu\text{Ci/ml}$	$\mu\text{Ci/ml}$
				ALI $\mu\text{Ci}$	ALI $\mu\text{Ci}$			
82	Lead-212	D, all compounds	8E+1	3E+1	1E-8	5E-11	-	-
			Bone surf (1E+2)	-	-	-	2E-6	2E-5
82	Lead-214 <sup>2</sup>	D, all compounds	9E+3	8E+2	3E-7	1E-9	1E-4	1E-3
83	Bismuth-200 <sup>2</sup>	D, nitrates	3E+4	8E+4	4E-5	1E-7	4E-4	4E-3
		W, all other compounds	-	1E+5	4E-5	1E-7	-	-
83	Bismuth-201 <sup>2</sup>	D, see <sup>200</sup> Bi	1E+4	3E+4	1E-5	4E-8	2E-4	2E-3
		W, see <sup>200</sup> Bi	-	4E+4	2E-5	5E-8	-	-
83	Bismuth-202 <sup>2</sup>	D, see <sup>200</sup> Bi	1E+4	4E+4	2E-5	6E-8	2E-4	2E-3
		W, see <sup>200</sup> Bi	-	8E+4	3E-5	1E-7	-	-
83	Bismuth-203	D, see <sup>200</sup> Bi	2E+3	7E+3	3E-6	9E-9	3E-5	3E-4
		W, see <sup>200</sup> Bi	-	6E+3	3E-6	9E-9	-	-
83	Bismuth-205	D, see <sup>200</sup> Bi	1E+3	3E+3	1E-6	3E-9	2E-5	2E-4
		W, see <sup>200</sup> Bi	-	1E+3	5E-7	2E-9	-	-
83	Bismuth-206	D, see <sup>200</sup> Bi	6E+2	1E+3	6E-7	2E-9	9E-6	9E-5
		W, see <sup>200</sup> Bi	-	9E+2	4E-7	1E-9	-	-
83	Bismuth-207	D, see <sup>200</sup> Bi	1E+3	2E+3	7E-7	2E-9	1E-5	1E-4
		W, see <sup>200</sup> Bi	-	4E+2	1E-7	5E-10	-	-
83	Bismuth-210m	D, see <sup>200</sup> Bi	4E+1	5E+0	2E-9	-	-	-
			Kidneys (6E+1)	Kidneys (6E+0)	-	9E-12	8E-7	8E-6
		W, see <sup>200</sup> Bi	-	7E-1	3E-10	9E-13	-	-
83	Bismuth-210	D, see <sup>200</sup> Bi	8E+2	2E+2	1E-7	-	1E-5	1E-4
			-	Kidneys (4E+2)	-	5E-10	-	-
		W, see <sup>200</sup> Bi	-	3E+1	1E-8	4E-11	-	-
83	Bismuth-212 <sup>2</sup>	D, see <sup>200</sup> Bi	5E+3	2E+2	1E-7	3E-10	7E-5	7E-4
		W, see <sup>200</sup> Bi	-	3E+2	1E-7	4E-10	-	-
83	Bismuth-213 <sup>2</sup>	D, see <sup>200</sup> Bi	7E+3	3E+2	1E-7	4E-10	1E-4	1E-3
		W, see <sup>200</sup> Bi	-	4E+2	1E-7	5E-10	-	-
83	Bismuth-214 <sup>2</sup>	D, see <sup>200</sup> Bi	2E+4	8E+2	3E-7	1E-9	-	-
			St wall (2E+4)	-	-	-	3E-4	3E-3
		W, see <sup>200</sup> Bi	-	9E-2	4E-7	1E-9	-	-
84	Polonium-203 <sup>2</sup>	D, all compounds except those given for W	3E+4	6E+4	3E-5	9E-8	3E-4	3E-3
		W, oxides, hydroxides, and nitrates	-	9E+4	4E-5	1E-7	-	-
84	Polonium-205 <sup>2</sup>	D, see <sup>203</sup> Po	2E+4	4E+4	2E-5	5E-8	3E-4	3E-3
		W, see <sup>203</sup> Po	-	7E+4	3E-5	1E-7	-	-
84	Polonium-207	D, see <sup>203</sup> Po	8E+3	3E+4	1E-5	3E-8	1E-4	1E-3
		W, see <sup>203</sup> Po	-	3E+4	1E-5	4E-8	-	-
84	Polonium-210	D, see <sup>203</sup> Po	3E+0	6E-1	3E-10	9E-13	4E-8	4E-7
		W, see <sup>203</sup> Po	-	6E-1	3E-10	9E-13	-	-
85	Astatine-207 <sup>2</sup>	D, halides	6E+3	3E+3	1E-6	4E-9	8E-5	8E-4
		W	-	2E+3	9E-7	3E-9	-	-
85	Astatine-211	D, halides	1E+2	8E+1	3E-8	1E-10	2E-6	2E-5

Atomic No.	Radionuclide	Class	Table I Occupational Values			Table II Effluent Concentration		Table III Releases to Sewers
			Col. 1	Col. 2	Col. 3	Col. 1	Col. 2	Monthly Average Concentration
			Oral Ingestion	Inhalation		Air $\mu\text{Ci/ml}$	Water $\mu\text{Ci/ml}$	$\mu\text{Ci/ml}$
				ALI $\mu\text{Ci}$	ALI $\mu\text{Ci}$			
86	Radon-220	W	-	5E+1	2E-8	8E-11	-	-
		With daughters removed	-	2E+4	7E-6	2E-8	-	-
		With daughters present	-	2E+1	9E-9	3E-11	-	-
86	Radon-222	With daughters removed	-	1E+4	4E-6	1E-8	-	-
		With daughters present	-	1E+2	3E-8	1E-10	-	-
				(or 12 working level months)		(or 1.0 working level)		
87	Francium-222 <sup>2</sup>	D, all compounds	2E+3	5E+2	2E-7	6E-10	3E-5	3E-4
87	Francium-223 <sup>2</sup>	D, all compounds	6E+2	8E+2	3E-7	1E-9	8E-6	8E-5
88	Radium-223	W, all compounds	5E+0	7E-1	3E-10	9E-13	-	-
			Bone surf (9E+0)	-	-	-	1E-7	1E-6
88	Radium-224	W, all compounds	8E+0	2E+0	7E-10	2E-12	-	-
			Bone surf (2E+1)	-	-	-	2E-7	2E-6
88	Radium-225	W, all compounds	8E+0	7E-1	3E-10	9E-13	-	-
			Bone surf (2E+1)	-	-	-	2E-7	2E-6
88	Radium-226	W, all compounds	2E+0	6E-1	3E-10	9E-13	-	-
			Bone surf (5E+0)	-	-	-	6E-8	6E-7
88	Radium-227 <sup>2</sup>	W, all compounds	2E+4	1E+4	6E-6	-	-	-
			Bone surf (2E+4)	Bone surf (2E+4)	-	3E-8	3E-4	3E-3
88	Radium-228	W, all compounds	2E+0	1E+0	5E-10	2E-12	-	-
			Bone surf (4E+0)	-	-	-	6E-8	6E-7
89	Actinium-224	D, all compounds except those given for W and Y	2E+3	3E+1	1E-8	-	-	-
			LLI wall (2E+3)	Bone surf (4E+1)	-	5E-11	3E-5	3E-4
		W, halides and nitrates Y, oxides and hydroxides	-	5E+1	2E-8	7E-11	-	-
89	Actinium-225	D, see <sup>224</sup> Ac	5E+1	3E-1	1E-10	-	-	-
			LLI wall (5E+1)	Bone surf (5E-1)	-	7E-13	7E-7	7E-6
		W, see <sup>224</sup> Ac Y, see <sup>224</sup> Ac	-	6E-1	3E-10	9E-13	-	-
89	Actinium-226	D, see <sup>224</sup> Ac	1E+2	3E+0	1E-9	-	-	-
			LLI wall (1E+2)	Bone surf (4E+0)	-	5E-12	2E-6	2E-5
		W, see <sup>224</sup> Ac Y, see <sup>224</sup> Ac	-	5E+0	2E-9	7E-12	-	-
89	Actinium-227	D, see <sup>224</sup> Ac	2E-1	4E-4	2E-13	-	-	-
			Bone surf (4E-1)	Bone surf (8E-4)	-	1E-15	5E-9	5E-8
		W, see <sup>224</sup> Ac	-	2E-3	7E-13	-	-	-



Atomic No.	Radionuclide	Class	Table I Occupational Values			Table II Effluent Concentration		Table III Releases to Sewers	
			Col. 1	Col. 2	Col. 3	Col. 1	Col. 2	Monthly Average Concentration μCi/ml	
			Oral Ingestion	Inhalation		Air μCi/ml	Water μCi/ml		
				ALI μCi	ALI μCi				DAC μCi/ml
89	Actinium-228	Y, see <sup>224</sup> Ac	-	Bone surf (3E-3)	-	4E-15	-	-	
			-	4E-3	2E-12	6E-15	-	-	
		D, see <sup>224</sup> Ac	2E+3	9E+0	4E-9	-	3E-5	3E-4	
			-	Bone surf (2E+1)	-	2E-11	-	-	
90	Thorium-226 <sup>2</sup>	W, see <sup>224</sup> Ac	-	4E+1	2E-8	-	-	-	
			-	Bone surf (6E+1)	-	8E-11	-	-	
		Y, see <sup>224</sup> Ac	-	4E+1	2E-8	6E-11	-	-	
			W, all compounds except those given for Y	5E+3	2E+2	6E-8	2E-10	-	-
90	Thorium-227	Y, oxides and hydroxides	St wall (5E+3)	-	-	-	7E-5	7E-4	
			-	1E+2	6E-8	2E-10	-	-	
		W, see <sup>226</sup> Th	1E+2	3E-1	1E-10	5E-13	2E-6	2E-5	
			-	3E-1	1E-10	5E-13	-	-	
90	Thorium-228	W, see <sup>226</sup> Th	6E+0	1E-2	4E-12	-	-	-	
			-	Bone surf (1E+1)	Bone surf (2E-2)	-	3E-14	2E-7	2E-6
		Y, see <sup>226</sup> Th	-	2E-2	7E-12	2E-14	-	-	
			W, see <sup>226</sup> Th	6E-1	9E-4	4E-13	-	-	-
90	Thorium-229	Y, see <sup>226</sup> Th	-	Bone surf (1E+0)	Bone surf (2E-3)	-	3E-15	2E-8	2E-7
			-	2E-3	1E-12	-	-	-	
		W, see <sup>226</sup> Th	-	Bone surf (3E-3)	-	4E-15	-	-	
			4E+0	6E-3	3E-12	-	-	-	
90	Thorium-230	Y, see <sup>226</sup> Th	-	Bone surf (9E+0)	Bone surf (2E-2)	-	2E-14	1E-7	1E-6
			-	2E-2	6E-12	-	-	-	
		W, see <sup>226</sup> Th	-	Bone surf (2E-2)	-	3E-14	-	-	
			4E+3	6E+3	3E-6	9E-9	5E-5	5E-4	
90	Thorium-231	Y, see <sup>226</sup> Th	-	6E+3	3E-6	9E-9	-	-	
			W, see <sup>226</sup> Th	7E-1	1E-3	5E-13	-	-	-
		Y, see <sup>226</sup> Th	-	Bone surf (2E+0)	Bone surf (3E-3)	-	4E-15	3E-8	3E-7
			-	3E-3	1E-12	-	-	-	
90	Thorium-234	W, see <sup>226</sup> Th	-	Bone surf (4E-3)	-	6E-15	-	-	
			3E+2	2E+2	8E-8	3E-10	-	-	
		Y, see <sup>226</sup> Th	-	LLI wall (4E+2)	-	-	5E-6	5E-5	
			-	2E+2	6E-8	2E-10	-	-	
91	Protactinium-227 <sup>2</sup>	W, all compounds except those given for Y	4E+3	1E+2	5E-8	2E-10	5E-5	5E-4	
		Y, oxides and hydroxides	-	1E+2	4E-8	1E-10	-	-	
91	Protactinium-228	W, see <sup>227</sup> Pa	1E+3	1E+1	5E-9	-	2E-5	2E-4	
			-	Bone surf (2E+1)	-	3E-11	-	-	

Atomic No.	Radionuclide	Class	Table 1 Occupational Values			Table II Effluent Concentration		Table III Releases to Sewers
			Col. 1	Col. 2	Col. 3	Col. 1	Col. 2	Monthly Average Concentration μCi/ml
			Oral Ingestion	Inhalation		Air μCi/ml	Water μCi/ml	
				ALI μCi	ALI μCi			
91	Protactinium-230	Y, see <sup>227</sup> Pa	-	1E+1	5E-9	2E-11	-	-
		W, see <sup>227</sup> Pa	6E+2	5E+0	2E-9	7E-12	-	-
91	Protactinium-231	Y, see <sup>227</sup> Pa	-	4E+0	1E-9	5E-12	-	-
		W, see <sup>227</sup> Pa	2E-1	2E-3	6E-13	-	-	-
91	Protactinium-232	Y, see <sup>227</sup> Pa	-	4E-3	2E-12	-	-	-
		W, see <sup>227</sup> Pa	1E+3	2E+1	9E-9	-	2E-5	2E-4
91	Protactinium-233	Y, see <sup>227</sup> Pa	-	6E+2	2E-7	8E-10	-	-
		W, see <sup>227</sup> Pa	2E+3	8E+3	3E-6	1E-8	3E-5	3E-4
92	Uranium-230	D, UF <sub>6</sub> , UO <sub>2</sub> F <sub>2</sub> , UO <sub>2</sub> (NO <sub>3</sub> ) <sub>2</sub>	4E+0	4E-1	2E-10	-	-	-
		W, UO <sub>3</sub> , UF <sub>4</sub> , UCl <sub>4</sub>	-	4E-1	1E-10	5E-13	-	-
92	Uranium-231	D, see <sup>230</sup> U	5E+3	8E+3	3E-6	1E-8	-	-
		W, see <sup>230</sup> U	-	6E+3	2E-6	8E-9	-	-
92	Uranium-232	D, see <sup>230</sup> U	2E+0	2E-1	9E-11	-	-	-
		W, see <sup>230</sup> U	-	4E-1	2E-10	5E-13	-	-
92	Uranium-233	D, see <sup>230</sup> U	1E+1	1E+0	5E-10	-	-	-
		W, see <sup>230</sup> U	-	7E-1	3E-10	1E-12	-	-
92	Uranium-234 <sup>3</sup>	D, see <sup>230</sup> U	1E+1	1E+0	5E-10	-	-	-
		W, see <sup>230</sup> U	-	7E-1	3E-10	1E-12	-	-
92	Uranium-235 <sup>3</sup>	D, see <sup>230</sup> U	1E+1	1E+0	6E-10	-	-	-
		W, see <sup>230</sup> U	-	7E-1	3E-10	1E-12	-	-

Atomic No.	Radionuclide	Class	Table I Occupational Values			Table II Effluent Concentration		Table III Releases to Sewers
			Col. 1	Col. 2	Col. 3	Col. 1	Col. 2	Monthly Average Concentration μCi/ml
			Oral Ingestion	Inhalation		Air μCi/ml	Water μCi/ml	
				ALI μCi	ALI μCi			
92	Uranium-236		Bone surf (2E+1)	Bone surf (2E+0)	-	3E-12	3E-7	3E-6
		W, see <sup>230</sup> U	-	8E-1	3E-10	1E-12	-	-
		Y, see <sup>230</sup> U	-	4E-2	2E-11	6E-14	-	-
92	Uranium-237	D, see <sup>230</sup> U	1E+1	1E+0	5E-10	-	-	-
		W, see <sup>230</sup> U	-	8E-1	3E-10	1E-12	-	-
		Y, see <sup>230</sup> U	-	4E-2	2E-11	6E-14	-	-
92	Uranium-238 <sup>3</sup>	D, see <sup>230</sup> U	2E+3	3E+3	1E-6	4E-9	-	-
		W, see <sup>230</sup> U	-	2E+3	7E-7	2E-9	3E-5	3E-4
		Y, see <sup>230</sup> U	-	2E+3	6E-7	2E-9	-	-
92	Uranium-239 <sup>2</sup>	D, see <sup>230</sup> U	1E+1	1E+0	6E-10	-	-	-
		W, see <sup>230</sup> U	-	8E-1	3E-10	1E-12	3E-7	3E-6
		Y, see <sup>230</sup> U	-	4E-2	2E-11	6E-14	-	-
92	Uranium-240	D, see <sup>230</sup> U	7E+4	2E+5	8E-5	3E-7	9E-4	9E-3
		W, see <sup>230</sup> U	-	2E+5	7E-5	2E-7	-	-
		Y, see <sup>230</sup> U	-	2E+5	6E-5	2E-7	-	-
92	Uranium-natural <sup>3</sup>	D, see <sup>230</sup> U	1E+3	4E+3	2E-6	5E-9	2E-5	2E-4
		W, see <sup>230</sup> U	-	3E+3	1E-6	4E-9	-	-
		Y, see <sup>230</sup> U	-	2E+3	1E-6	3E-9	-	-
93	Neptunium-232 <sup>2</sup>	D, see <sup>230</sup> U	1E+1	1E+0	5E-10	-	-	-
		W, see <sup>230</sup> U	-	8E-1	3E-10	9E-13	3E-7	3E-6
		Y, see <sup>230</sup> U	-	5E-2	2E-11	9E-14	-	-
93	Neptunium-233 <sup>2</sup>	W, all compounds	1E+5	2E+3	7E-7	-	2E-3	2E-2
		W, all compounds	-	Bone surf (5E+2)	-	6E-9	-	-
		W, all compounds	8E+5	3E+6	1E-3	4E-6	1E-2	1E-1
93	Neptunium-234	W, all compounds	2E+3	3E+3	1E-6	4E-9	3E-5	3E-4
93	Neptunium-235	W, all compounds	2E+4	8E+2	3E-7	-	-	-
93	Neptunium-236 (1.15E+5 y)	W, all compounds	LLI wall (2E+4)	Bone surf (1E+3)	-	2E-9	3E-4	3E-3
		W, all compounds	3E+0	2E-2	9E-12	-	-	-
93	Neptunium-236 (22.5 h)	W, all compounds	Bone surf (6E+0)	Bone surf (5E-2)	-	8E-14	9E-8	9E-7
		W, all compounds	3E+3	3E+1	1E-8	-	-	-
93	Neptunium-237	W, all compounds	Bone surf (4E+3)	Bone surf (7E+1)	-	1E-10	5E-5	5E-4
		W, all compounds	5E-1	4E-3	2E-12	-	-	-
93	Neptunium-238	W, all compounds	Bone surf (1E+0)	Bone surf (1E-2)	-	1E-14	2E-8	2E-7
		W, all compounds	1E+3	6E+1	3E-8	-	2E-5	2E-4
			-	Bone surf (2E+2)	-	2E-10	-	-

Atomic No.	Radionuclide	Class	Table I Occupational Values			Table II Effluent Concentration		Table III Releases to Sewers
			Col. 1	Col. 2	Col. 3	Col. 1	Col. 2	Monthly Average Concentration
			Oral Ingestion	Inhalation		Air $\mu\text{Ci/ml}$	Water $\mu\text{Ci/ml}$	$\mu\text{Ci/ml}$
				ALI $\mu\text{Ci}$	ALI $\mu\text{Ci}$			
93	Neptunium-239	W, all compounds	2E+3	2E+3	9E-7	3E-9	-	-
			LLI wall (2E+3)	-	-	-	2E-5	2E-4
93	Neptunium-240 <sup>2</sup>	W, all compounds	2E+4	8E+4	3E-5	1E-7	3E-4	3E-3
94	Plutonium-234	W, all compounds except PuO <sub>2</sub>	8E+3	2E+2	9E-8	3E-10	1E-4	1E-3
		Y, PuO <sub>2</sub>	-	2E+2	8E-8	3E-10	-	-
94	Plutonium-235 <sup>2</sup>	W, see <sup>234</sup> Pu	9E+5	3E+6	1E-3	4E-6	1E-2	1E-1
		Y, see <sup>234</sup> Pu	-	3E+6	1E-3	3E-6	-	-
94	Plutonium-236	W, see <sup>234</sup> Pu	2E+0	2E-2	8E-12	-	-	-
			Bone surf (4E+0)	Bone surf (4E-2)	-	5E-14	6E-8	6E-7
		Y, see <sup>234</sup> Pu	-	4E-2	2E-11	6E-14	-	-
94	Plutonium-237	W, see <sup>234</sup> Pu	1E+4	3E+3	1E-6	5E-9	2E-4	2E-3
		Y, see <sup>234</sup> Pu	-	3E+3	1E-6	4E-9	-	-
94	Plutonium-238	W, see <sup>234</sup> Pu	9E-1	7E-3	3E-12	-	-	-
			Bone surf (2E+0)	Bone surf (1E-2)	-	2E-14	2E-8	2E-7
		Y, see <sup>234</sup> Pu	-	2E-2	8E-12	2E-14	-	-
94	Plutonium-239	W, see <sup>234</sup> Pu	8E-1	6E-3	3E-12	-	-	-
			Bone surf (1E+0)	Bone surf (1E-2)	-	2E-14	2E-8	2E-7
		Y, see <sup>234</sup> Pu	-	2E-2	7E-12	-	-	-
			-	Bone surf (2E-2)	-	2E-14	-	-
94	Plutonium-240	W, see <sup>234</sup> Pu	8E-1	6E-3	3E-12	-	-	-
			Bone surf (1E+0)	Bone surf (1E-2)	-	2E-14	2E-8	2E-7
		Y, see <sup>234</sup> Pu	-	2E-2	7E-12	-	-	-
			-	Bone surf (2E-2)	-	2E-14	-	-
94	Plutonium-241	W, see <sup>234</sup> Pu	4E+1	3E-1	1E-10	-	-	-
			Bone surf (7E+1)	Bone surf (6E-1)	-	8E-13	1E-6	1E-5
		Y, see <sup>234</sup> Pu	-	8E-1	3E-10	-	-	-
			-	Bone surf (1E+0)	-	1E-12	-	-
94	Plutonium-242	W, see <sup>234</sup> Pu	8E-1	7E-3	3E-12	-	-	-
			Bone surf (1E+0)	Bone surf (1E-2)	-	2E-14	2E-8	2E-7
		Y, see <sup>234</sup> Pu	-	2E-2	7E-12	-	-	-
			-	Bone surf (2E-2)	-	2E-14	-	-
94	Plutonium-243	W, see <sup>234</sup> Pu	2E+4	4E+4	2E-5	5E-8	2E-4	2E-3
		Y, see <sup>234</sup> Pu	-	4E+4	2E-5	5E-8	-	-
94	Plutonium-244	W, see <sup>234</sup> Pu	8E-1	7E-3	3E-12	-	-	-
			Bone surf (2E+0)	Bone surf (1E-2)	-	2E-14	2E-8	2E-7
		Y, see <sup>234</sup> Pu	-	2E-2	7E-12	-	-	-
			-	Bone surf (2E-2)	-	2E-14	-	-
94	Plutonium-245	W, see <sup>234</sup> Pu	2E+3	5E+3	2E-6	6E-9	3E-5	3E-4

Atomic No.	Radionuclide	Class	Table 1 Occupational Values			Table II Effluent Concentration		Table III Releases to Sewers
			Col. 1	Col. 2	Col. 3	Col. 1	Col. 2	Monthly Average Concentration μCi/ml
			Oral Ingestion	Inhalation		Air μCi/ml	Water μCi/ml	
				ALI μCi	ALI μCi			
94	Plutonium-246	Y, see <sup>234</sup> Pu	-	4E+3	2E-6	6E-9	-	-
		W, see <sup>234</sup> Pu	4E+2	3E+2	1E-7	4E-10	-	-
95	Americium-237 <sup>2</sup>	Y, see <sup>234</sup> Pu	-	3E+2	1E-7	4E-10	-	-
		W, all compounds	8E+4	3E+5	1E-4	4E-7	1E-3	1E-2
95	Americium-238 <sup>2</sup>	W, all compounds	4E+4	3E+3	1E-6	-	5E-4	5E-3
			-	Bone surf (6E+3)	-	9E-9	-	-
95	Americium-239	W, all compounds	5E+3	1E+4	5E-6	2E-8	7E-5	7E-4
95	Americium-240	W, all compounds	2E+3	3E+3	1E-6	4E-9	3E-5	3E-4
95	Americium-241	W, all compounds	8E-1	6E-3	3E-12	-	-	-
			Bone surf (1E+0)	Bone surf (1E-2)	-	2E-14	2E-8	2E-7
95	Americium-242m	W, all compounds	8E-1	6E-3	3E-12	-	-	-
			Bone surf (1E+0)	Bone surf (1E-2)	-	2E-14	2E-8	2E-7
95	Americium-242	W, all compounds	4E+3	8E+1	4E-8	-	5E-5	5E-4
			-	Bone surf (9E+1)	-	1E-10	-	-
95	Americium-243	W, all compounds	8E-1	6E-3	3E-12	-	-	-
			Bone surf (1E+0)	Bone surf (1E-2)	-	2E-14	2E-8	2E-7
95	Americium-244m <sup>2</sup>	W, all compounds	6E+4	4E+3	2E-6	-	-	-
			St wall (8E+4)	Bone surf (7E+3)	-	1E-8	1E-3	1E-2
95	Americium-244	W, all compounds	3E+3	2E+2	8E-8	-	4E-5	4E-4
			-	Bone surf (3E+2)	-	4E-10	-	-
95	Americium-245	W, all compounds	3E+4	8E+4	3E-5	1E-7	4E-4	4E-3
95	Americium-246m <sup>2</sup>	W, all compounds	5E+4	2E+5	8E-5	3E-7	-	-
			St wall (6E+4)	-	-	-	8E-4	8E-3
95	Americium-246 <sup>2</sup>	W, all compounds	3E+4	1E+5	4E-5	1E-7	4E-4	4E-3
96	Curium-238	W, all compounds	2E+4	1E+3	5E-7	2E-9	2E-4	2E-3
96	Curium-240	W, all compounds	6E+1	6E-1	2E-10	-	-	-
			Bone surf (8E+1)	Bone surf (6E-1)	-	9E-13	1E-6	1E-5
96	Curium-241	W, all compounds	1E+3	3E+1	1E-8	-	2E-5	2E-4
			-	Bone surf (4E+1)	-	5E-11	-	-
96	Curium-242	W, all compounds	3E+1	3E-1	1E-10	-	-	-
			Bone surf (5E+1)	Bone surf (3E-1)	-	4E-13	7E-7	7E-6
96	Curium-243	W, all compounds	1E+0	9E-3	4E-12	-	-	-
			Bone surf (2E+0)	Bone surf (2E-2)	-	2E-14	3E-8	3E-7
96	Curium-244	W, all compounds	1E+0	1E-2	5E-12	-	-	-
			Bone surf (3E+0)	Bone surf (2E-2)	-	3E-14	3E-8	3E-7
96	Curium-245	W, all compounds	7E-1	6E-3	3E-12	-	-	-
			Bone surf (1E+0)	Bone surf (1E-2)	-	2E-14	2E-8	2E-7

Atomic No.	Radionuclide	Class	Table I Occupational Values			Table II Effluent Concentration		Table III Releases to Sewers
			Col. 1	Col. 2	Col. 3	Col. 1	Col. 2	Monthly Average Concentration μCi/ml
			Oral Ingestion	Inhalation		Air μCi/ml	Water μCi/ml	
				ALI μCi	ALI μCi			
96	Curium-246	W, all compounds	7E-1	6E-3	3E-12	-	-	-
			Bone surf (1E+0)	Bone surf (1E-2)	-	2E-14	2E-8	2E-7
96	Curium-247	W, all compounds	8E-1	6E-3	3E-12	-	-	-
			Bone surf (1E+0)	Bone surf (1E-2)	-	2E-14	2E-8	2E-7
96	Curium-248	W, all compounds	2E-1	2E-3	7E-13	-	-	-
			Bone surf (4E-1)	Bone surf (3E-3)	-	4E-15	5E-9	5E-8
96	Curium-249 <sup>2</sup>	W, all compounds	5E+4	2E+4	7E-6	-	7E-4	7E-3
			-	Bone surf (3E+4)	-	4E-8	-	-
96	Curium-250	W, all compounds	4E-2	3E-4	1E-13	-	-	-
			Bone surf (6E-2)	Bone surf (5E-4)	-	8E-16	9E-10	9E-9
97	Berkelium-245	W, all compounds	2E+3	1E+3	5E-7	2E-9	3E-5	3E-4
97	Berkelium-246	W, all compounds	3E+3	3E+3	1E-6	4E-9	4E-5	4E-4
97	Berkelium-247	W, all compounds	5E-1	4E-3	2E-12	-	-	-
			Bone surf (1E+0)	Bone surf (9E-3)	-	1E-14	2E-8	2E-7
97	Berkelium-249	W, all compounds	2E+2	2E+0	7E-10	-	-	-
			Bone surf (5E+2)	Bone surf (4E+0)	-	5E-12	6E-6	6E-5
97	Berkelium-250	W, all compounds	9E+3	3E+2	1E-7	-	1E-4	1E-3
			-	Bone surf (7E+2)	-	1E-9	-	-
98	Californium-244 <sup>2</sup>	W, all compounds except those given for Y	3E+4	6E+2	2E-7	8E-10	-	-
			St wall (3E+4)	-	-	-	4E-4	4E-3
		Y, oxides and hydroxides	-	6E+2	2E-7	8E-10	-	-
98	Californium-246	W, see <sup>244</sup> Cf	4E+2	9E+0	4E-9	1E-11	5E-6	5E-5
		Y, see <sup>244</sup> Cf	-	9E+0	4E-9	1E-11	-	-
98	Californium-248	W, see <sup>244</sup> Cf	8E+0	6E-2	3E-11	-	-	-
			Bone surf (2E+1)	Bone surf (1E-1)	-	2E-13	2E-7	2E-6
		Y, see <sup>244</sup> Cf	-	1E-1	4E-11	1E-13	-	-
98	Californium-249	W, see <sup>244</sup> Cf	5E-1	4E-3	2E-12	-	-	-
			Bone surf (1E+0)	Bone surf (9E-3)	-	1E-14	2E-8	2E-7
		Y, see <sup>244</sup> Cf	-	1E-2	4E-12	-	-	-
			-	Bone surf (1E-2)	-	2E-14	-	-
98	Californium-250	W, see <sup>244</sup> Cf	1E+0	9E-3	4E-12	-	-	-
			Bone surf (2E+0)	Bone surf (2E-2)	-	3E-14	3E-8	3E-7
		Y, see <sup>244</sup> Cf	-	3E-2	1E-11	4E-14	-	-
98	Californium-251	W, see <sup>244</sup> Cf	5E-1	4E-3	2E-12	-	-	-
			Bone surf (1E+0)	Bone surf (9E-3)	-	1E-14	2E-8	2E-7
		Y, see <sup>244</sup> Cf	-	1E-2	4E-12	-	-	-
			-	Bone surf (1E-2)	-	2E-14	-	-

Atomic No.	Radionuclide	Class	Table 1 Occupational Values			Table II Effluent Concentration		Table III Releases to Sewers
			Col. 1	Col. 2	Col. 3	Col. 1	Col. 2	Monthly Average Concentration
			Oral Ingestion	Inhalation		Air $\mu\text{Ci/ml}$	Water $\mu\text{Ci/ml}$	$\mu\text{Ci/ml}$
				ALI $\mu\text{Ci}$	ALI $\mu\text{Ci}$			
98	Californium-252	W, see <sup>244</sup> Cf	2E+0	2E-2	8E-12	-	-	-
			Bone surf (5E+0)	Bone surf (4E-2)	-	5E-14	7E-8	7E-7
		Y, see <sup>244</sup> Cf	-	3E-2	1E-11	5E-14	-	-
98	Californium-253	W, see <sup>244</sup> Cf	2E+2	2E+0	8E-10	3E-12	-	-
			Bone surf (4E+2)	-	-	-	5E-6	5E-5
		Y, see <sup>244</sup> Cf	-	2E+0	7E-10	2E-12	-	-
98	Californium-254	W, see <sup>244</sup> Cf	2E+0	2E-2	9E-12	3E-14	3E-8	3E-7
		Y, see <sup>244</sup> Cf	-	2E-2	7E-12	2E-14	-	-
99	Einsteinium-250	W, all compounds	4E+4	5E+2	2E-7	-	6E-4	6E-3
			-	Bone surf (1E+3)	-	2E-9	-	-
99	Einsteinium-251	W, all compounds	7E+3	9E+2	4E-7	-	1E-4	1E-3
			-	Bone surf (1E+3)	-	2E-9	-	-
99	Einsteinium-253	W, all compounds	2E+2	1E+0	6E-10	2E-12	2E-6	2E-5
99	Einsteinium-254m	W, all compounds	3E+2	1E+1	4E-9	1E-11	-	-
			LLI wall (3E+2)	-	-	-	4E-6	4E-5
99	Einsteinium-254	W, all compounds	8E+0	7E-2	3E-11	-	-	-
			Bone surf (2E+1)	Bone surf (1E-1)	-	2E-13	2E-7	2E-6
100	Fermium-252	W, all compounds	5E+2	1E+1	5E-9	2E-11	6E-6	6E-5
100	Fermium-253	W, all compounds	1E+3	1E+1	4E-9	1E-11	1E-5	1E-4
100	Fermium-254	W, all compounds	3E+3	9E+1	4E-8	1E-10	4E-5	4E-4
100	Fermium-255	W, all compounds	5E+2	2E+1	9E-9	3E-11	7E-6	7E-5
100	Fermium-257	W, all compounds	2E+1	2E-1	7E-11	-	-	-
			Bone surf (4E+1)	Bone surf (2E-1)	-	3E-13	5E-7	5E-6
101	Mendelevium-257	W, all compounds	7E+3	8E+1	4E-8	-	1E-4	1E-3
			-	Bone surf (9E+1)	-	1E-10	-	-
101	Mendelevium-258	W, all compounds	3E+1	2E-1	1E-10	-	-	-
			Bone surf (5E+1)	Bone surf (3E-1)	-	5E-13	6E-7	6E-6
-	Any single radionuclide not listed above with decay mode other than alpha emission or spontaneous fission and with radioactive half-life less than ((2)) two hours	Submersion <sup>1</sup>	-	2E+2	1E-7	1E-9	-	-
-	Any single radionuclide not listed above with decay mode other than alpha emission or spontaneous fission and with radioactive half-life greater than ((2)) two hours	....	-	2E-1	1E-10	1E-12	1E-8	1E-7

Atomic No.	Radionuclide	Class	Table I Occupational Values			Table II Effluent Concentration		Table III Releases to Sewers
			Col. 1	Col. 2	Col. 3	Col. 1	Col. 2	Monthly Average Concentration
			Oral Ingestion	Inhalation		Air $\mu\text{Ci/ml}$	Water $\mu\text{Ci/ml}$	$\mu\text{Ci/ml}$
				ALI $\mu\text{Ci}$	ALI $\mu\text{Ci}$			
-	Any single radionuclide not listed above that decays by alpha emission or spontaneous fission, or any mixture for which either the identity or the concentration of any radionuclide in the mixture is not known	....	-	4E-4	2E-13	1E-15	2E-9	2E-8

FOOTNOTES:

<sup>1</sup>"Submersion" means that values given are for submersion in a hemispherical semi-infinite cloud of airborne material.

<sup>2</sup>These radionuclides have radiological half-lives of less than ((2)) two hours. The total effective dose equivalent received during operations with these radionuclides might include a significant contribution from external exposure. The DAC values for all radionuclides, other than those designated Class "Submersion," are based upon the committed effective dose equivalent due to the intake of the radionuclide into the body and do NOT include potentially significant contributions to dose equivalent from external exposures. The licensee may substitute 1E-7  $\mu\text{Ci/ml}$  for the listed DAC to account for the submersion dose prospectively, but should use individual monitoring devices or other radiation measuring instruments that measure external exposure to demonstrate compliance with the limits. (See WAC 246-221-015(5).)

<sup>3</sup>For soluble mixtures of U-238, U-234, and U-235 in air, chemical toxicity may be the limiting factor (see WAC 246-221-010(5)). If the percent by weight (enrichment) of U-235 is not greater than ((5)) five, the concentration value for a 40-hour workweek is 0.2 milligrams uranium per cubic meter of air average. For any enrichment, the product of the average concentration and time of exposure during a 40-hour workweek shall not exceed 8E-3 (SA)  $\mu\text{Ci-hr/ml}$ , where SA is the specific activity of the uranium inhaled. The specific activity for natural uranium is 6.77E-7 curies per gram U. The specific activity for other mixtures of U-238, U-235, and U-234, if not known, shall be:

SA = 3.6E-7 curies/gram U, U-depleted

SA = [0.4 + 0.38 (enrichment) + 0.0034 (enrichment)<sup>2</sup>] E-6, enrichment  $\geq$  0.72 where enrichment is the percentage by weight of U-235, expressed as percent.

NOTE:

1. If the identity of each radionuclide in a mixture is known but the concentration of one or more of the radionuclides in the mixture is not known, the DAC for the mixture shall be the most restrictive DAC of any radionuclide in the mixture.
2. If the identity of each radionuclide in the mixture is not known, but it is known that certain radionuclides specified in this appendix are not present in the mixture, the inhalation ALI, DAC, and effluent and sewage concentrations for the mixture are the lowest values specified in this appendix for any radionuclide that is not known to be absent from the mixture; or

If it is known that Ac-227-D and Cm-250-W are not present	-	7E-4	3E-13	-	-	-
If, in addition, it is known that Ac-227-W,Y, Th-229-W,Y, Th-230-W, Th-232-W,Y, Pa-231-W,Y, Np-237-W, Pu-239-W, Pu-240-W, Pu-242-W, Am-241-W, Am-242m-W, Am-243-W, Cm-245-W, Cm-246-W, Cm-247-W, Cm-248-W, Bk-247-W, Cf-249-W, and Cf-251-W are not present	-	7E-3	3E-12	-	-	-
If, in addition, it is known that Sm-146-W, Sm-147-W, Gd-148-D,W, Gd-152-D,W, Th-228-W,Y, Th-230-Y, U-232-Y, U-233-Y, U-234-Y, U-235-Y, U-236-Y, U-238-Y, Np-236-W, Pu-236-W,Y, Pu-238-W,Y, Pu-239-Y, Pu-240-Y, Pu-242-Y, Pu-244-W,Y, Cm-243-W, Cm-244-W, Cf-248-W, Cf-249-Y, Cf-250-W,Y, Cf-251-Y, Cf-252-W,Y, and Cf-254-W,Y are not present	-	7E-2	3E-11	-	-	-
If, in addition, it is known that Pb-210-D, Bi-210m-W, Po-210-D,W, Ra-223-W, Ra-225-W, Ra-226-W, Ac-225-D,W,Y, Th-227-W,Y, U-230-D,W,Y, U-232-D,W, Pu-241-W, Cm-240-W, Cm-242-W, Cf-248-Y, Es-254-W, Fm-257-W, and Md-258-W are not present	-	7E-1	3E-10	-	-	-
If, in addition, it is known that Si-32-Y, Ti-44-Y, Fe-60-D, Sr-90-Y, Zr-93-D, Cd-113m-D, Cd-113-D, In-115-D,W, La-138-D, Lu-176-W, Hf-178m-D,W, Hf-182-D,W, Bi-210m-D, Ra-224-W, Ra-228-W, Ac-226-D,W,Y, Pa-230-W,Y, U-233-D,W, U-234-D,W, U-235-D,W, U-236-D,W, U-238-D,W, Pu-241-Y, Bk-249-W, Cf-253-W,Y, and Es-253-W are not present	-	7E+0	3E-9	-	-	-
If it is known that Ac-227-D,W,Y, Th-229-W,Y, Th-232-W,Y, Pa-231-W,Y, Cm-248-W, and Cm-250-W are not present	-	-	-	1E-14	-	-
If, in addition, it is known that Sm-146-W, Gd-148-D,W, Gd-152-D, Th-228-W,Y, Th-230-W,Y, U-232-Y, U-233-Y, U-234-Y, U-235-Y, U-236-Y, U-238-Y, U-Nat-Y, Np-236-W, Np-237-W, Pu-236-W,Y, Pu-238-W,Y, Pu-239-W,Y, Pu-240-W,Y, Pu-242-W,Y, Pu-244-W,Y, Am-241-W, Am-242m-W, Am-243-W, Cm-243-W, Cm-244-W, Cm-245-W, Cm-246-W, Cm-247-W, Bk-247-W, Cf-249-W,Y, Cf-250-W,Y, Cf-251-W,Y, Cf-252-W,Y, and Cf-254-W,Y are not present	-	-	-	1E-13	-	-



If, in addition, it is known that Sm-147-W, Gd-152-W, Pb-210-D, Bi-210m-W, Po-210-D,W, Ra-223-W, Ra-225-W, Ra-226-W, Ac-225-D,W,Y, Th-227-W,Y, U-230-D,W,Y, U-232-D,W, U-Nat-W, Pu-241-W, Cm-242-W, Cf-248-W,Y, Es-254-W, Fm-257-W, and Md-258-W are not present

- - - - - 1E-12 -

If, in addition, it is known that Fe-60, Sr-90, Cd-113m, Cd-113, In-115, I-129, Cs-134, Sm-145, Sm-147, Gd-148, Gd-152, Hg-194 (organic), Bi-210m, Ra-223, Ra-224, Ra-225, Ac-225, Th-228, Th-230, U-233, U-234, U-235, U-236, U-238, U-Nat, Cm-242, Cf-248, Es-254, Fm-257, and Md-258 are not present

- - - - - 1E-6 1E-5

3. If a mixture of radionuclides consists of uranium and its daughters in ore dust (10 µm AMAD particle distribution assumed) prior to chemical separation of the uranium from the ore, the following values may be used for the DAC of the mixture: 6E-11 µCi of gross alpha activity from uranium-238, uranium-234, thorium-230, and radium-226 per milliliter of air; 3E-11 µCi of natural uranium per milliliter of air; or 45 micrograms of natural uranium per cubic meter of air.

4. If the identity and concentration of each radionuclide in a mixture are known, the limiting values should be derived as follows: Determine, for each radionuclide in the mixture, the ratio between the concentration present in the mixture and the concentration otherwise established in this section for the specific radionuclide when not in a mixture. The sum of such ratios for all of the radionuclides in the mixture may not exceed "1" (i.e., "unity").

Example: If radionuclides "A," "B," and "C" are present in concentrations CA, CB, and CC, and if the applicable DACs are DAC<sub>A</sub>, DAC<sub>B</sub>, and DAC<sub>C</sub>, respectively, then the concentrations shall be limited so that the following relationship exists:

$$\frac{C_A}{DAC_A} + \frac{C_B}{DAC_B} + \frac{C_C}{DAC_C} \leq 1$$

[Statutory Authority: RCW 70.98.050. WSR 11-03-068, § 246-221-290, filed 1/18/11, effective 2/18/11. Statutory Authority: RCW 70.98.050 and 70.98.080. WSR 09-06-003, § 246-221-290, filed 2/18/09, effective 3/21/09. Statutory Authority: RCW 70.98.050. WSR 94-01-073, § 246-221-290, filed 12/9/93, effective 1/9/94. Statutory Authority: RCW 43.70 040. WSR 91-02-049 (Order 121), recodified as § 246-221-290, filed 12/27/90, effective 1/31/91. Statutory Authority: RCW 70.98.050. WSR 81-01-011 (Order 1570), § 402-24-220, filed 12/8/80; Order 1095, § 402-24-220, filed 2/6/76; Order 1, § 402-24-220, filed 1/8/69; Rules (part), filed 10/26/66.]

**Reviser's note:** The brackets and enclosed material in the text of the above section occurred in the copy filed by the agency and appear in the Register pursuant to the requirements of RCW 34.08.040.

**OTS-4712.1**

AMENDATORY SECTION (Amending WSR 17-01-034, filed 12/12/16, effective 1/12/17)

**WAC 246-231-010 Definitions, abbreviations, and acronyms.** The definitions, abbreviations, and acronyms in this section and in WAC 246-220-010 apply throughout this chapter unless the context clearly indicates otherwise. To ensure compatibility with international transportation standards, all limits in this chapter are given in terms of dual units: The International System of Units (SI) followed or preceded by U.S. standard or customary units. The U.S. customary units are not exact equivalents, but are rounded to a convenient value, providing a functionally equivalent unit. For the purpose of this chapter, either unit may be used.

(1) "A1" means the maximum activity of special form radioactive material permitted in a Type A package. This value is either listed in WAC 246-231-200, Table A-1 or may be derived in accordance with the procedures prescribed in WAC 246-231-200.

(2) "A2" means the maximum activity of radioactive material, other than special form material, LSA and SCO material, permitted in a Type A package. This value is either listed in WAC 246-231-200, Table A-1, or may be derived in accordance with the procedure prescribed in WAC 246-231-200.

(3) "Carrier" means a person engaged in the transportation of passengers or property by land or water as a common, contract, or private carrier, or by civil aircraft.

(4) "Certificate holder" means a person who has been issued a certificate of compliance or other package approval by NRC.

(5) "Certificate of compliance" means the certificate issued by NRC under 10 C.F.R. 71 Subpart D which approves the design of a package for the transportation of radioactive material.

(6) "Close reflection by water" means immediate contact by water of sufficient thickness for maximum reflection of neutrons.

(7) "Consignment" means each shipment of a package or groups of packages or load of radioactive material offered by a shipper for transport.

(8) "Containment system" means the assembly of components of the packaging intended to retain the radioactive material during transport.

(9) "Contamination" means the presence of a radioactive substance on a surface in quantities in excess of  $0.4 \text{ Bq/cm}^2$  ( $1 \times 10^{-5} \text{ } \mu\text{Ci/cm}^2$ ) for beta and gamma emitters and low toxicity alpha emitters, or  $0.04 \text{ Bq/cm}^2$  ( $1 \times 10^{-6} \text{ } \mu\text{Ci/cm}^2$ ) for all other alpha emitters.

(a) Fixed contamination means contamination that cannot be removed from a surface during normal conditions of transport.

(b) Nonfixed contamination means contamination that can be removed from a surface during normal conditions of transport.

(10) "Conveyance" means:

(a) For transport by public highway or rail any transport vehicle or large freight container;

(b) For transport by water any vessel, or any hold, compartment, or defined deck area of a vessel including any transport vehicle on board the vessel; and

(c) For transport by any aircraft.

(11) "Criticality safety index (CSI)" means the dimensionless number (rounded up to the next tenth) assigned to and placed on the label of a fissile material package, to designate the degree of control of accumulation of packages, overpacks, or freight containers containing fissile material during transportation. Determination of the criticality safety index is described in WAC 246-231-094, 246-231-096, and 10 C.F.R. 71.22, 71.23, and 71.59. The criticality safety index for an overpack, freight container, consignment, or conveyance containing fissile material packages is the arithmetic sum of the criticality safety indices of all the fissile material packages contained within the overpack, freight container, consignment, or conveyance.

(12) "Deuterium" means, for the purposes of WAC 246-231-040 and 246-231-094, deuterium and any deuterium compounds, including heavy water, in which the ratio of deuterium atoms to hydrogen atoms exceeds 1:5000.

(13) "DOT" means the United States Department of Transportation. DOT regulations are found in Code of Federal Regulations Title 49 Transportation.

(14) "Exclusive use" means the sole use by a single consignor of a conveyance for which all initial, intermediate, and final loading and unloading are carried out in accordance with the direction of the consignor or consignee. The consignor and the carrier must ensure that any loading or unloading is performed by personnel having radiological training and resources appropriate for safe handling of the consignment. The consignor must issue specific instructions, in writing, for maintenance of exclusive use shipment controls, and include them with the shipping paper information provided to the carrier by the consignor.

(15) "Fissile material" means the radionuclides uranium-233, uranium-235, plutonium-239, and plutonium-241, or any combination of these radionuclides. Fissile material means the fissile nuclides themselves, not material containing fissile nuclides. Unirradiated natural uranium and depleted uranium, and natural uranium or depleted uranium that has been irradiated in thermal reactors only are not included in this definition. Certain exclusions from fissile material controls are provided in WAC 246-231-040.

(16) "Graphite" means graphite with a boron equivalent content less than ((5)) five parts per million and density greater than 1.5 grams per cubic centimeter.

(17) "Indian Tribe" means an Indian or Alaskan native Tribe, band, nation, pueblo, village, or community that the Secretary of the Interior acknowledges to exist as an Indian Tribe pursuant to the Federally Recognized Indian Tribe List Act of 1994, 25 U.S.C. 479a. A current listing of officially recognized Indian Tribes may be found at: <http://www.bia.gov/cs/groups/mywcsp/documents/text/idc-020733.pdf>.

(18) "Low specific activity (LSA) material" means radioactive material with limited specific activity which is nonfissile or is excepted under WAC 246-231-040 or 10 C.F.R. 71.15 and which satisfies the descriptions and limits set forth below. Shielding materials surrounding the LSA material may not be considered in determining the estimated average specific activity of the package contents. LSA material must be in one of three groups:

(a) LSA-I.

(i) Uranium and thorium ores, concentrates of uranium and thorium ores, and other ores containing naturally occurring radioactive radionuclides which are intended to be processed for the use of these radionuclides;

(ii) Natural uranium, depleted uranium, natural thorium, or their compounds or mixtures, provided they are unirradiated and in solid or liquid form; or

(iii) Radioactive material other than fissile material for which the A2 value is unlimited; or

(iv) Other radioactive material in which the activity is distributed throughout and the estimated average specific activity does not exceed 30 times the value for exempt material activity concentration determined in accordance with Appendix A.

(b) LSA-II.

(i) Water with tritium concentration up to 0.8 TBq/liter (20.0 Ci/liter); or

(ii) Other radioactive material in which the activity is distributed throughout, and the estimated average specific activity does not exceed  $1 \times 10^{-4}$  A2/g for solids and gases, and  $1 \times 10^{-5}$  A2/g for liquids.

(c) LSA-III. Solids (e.g., consolidated wastes, activated materials), excluding powders, that satisfy the requirements of the 10 C.F.R. 71.77, in which:

(i) The radioactive material is distributed throughout a solid or a collection of solid objects, or is essentially uniformly distributed in a solid compact binding agent (such as concrete, bitumen, ceramic, etc.); and

(ii) The radioactive material is relatively insoluble, or it is intrinsically contained in a relatively insoluble material, so that, even under loss of packaging, the loss of radioactive material per package by leaching, when placed in water for seven days, would not exceed 0.1 A2; and

(iii) The estimated average specific activity of the solid, excluding any shielding material, does not exceed  $2 \times 10^{-3}$  A2/g.

(19) "Low toxicity alpha emitters" means natural uranium, depleted uranium, natural thorium; uranium-235, uranium-238, thorium-232, thorium-228 or thorium-230 when contained in ores or physical or chemical concentrates or tailings; or alpha emitters with a half-life of less than (~~ten~~) 10 days.

(20) "Maximum normal operating pressure" means the maximum gauge pressure that would develop in the containment system in a period of one year under the heat condition specified in NRC regulations 10 C.F.R. 71.71 (c)(1), in the absence of venting, external cooling by an ancillary system, or operational controls during transport.

(21) "Natural thorium" means thorium with the naturally occurring distribution of thorium isotopes (essentially 100 weight percent thorium-232).

(22) "Normal form radioactive material" means radioactive material that has not been demonstrated to qualify as "special form radioactive material."

(23) "Nuclear waste" as used in WAC 246-231-140 means any quantity of radioactive material (not including radiography sources being returned to the manufacturer) required to be in Type B packaging while transported to, through, or across state boundaries to a disposal site, or to a collection point for transport to a disposal site. Nuclear waste, as used in these regulations, is a special classification of radioactive waste.

(24) "Optimum interspersed hydrogenous moderation" means the presence of hydrogenous material between packages to such an extent that the maximum nuclear reactivity results.

(25) "Package" means the packaging together with its radioactive contents as presented for transport.

(a) "Fissile material package" or Type AF package, Type BF package, Type B(U)F package or Type B(M)F package means a fissile material packaging together with its fissile material contents.

(b) "Type A package" means a Type A packaging together with its radioactive contents. A Type A package is defined and must comply with the DOT regulations in 49 C.F.R. 173.

(c) "Type B package" means a Type B packaging together with its radioactive contents. Upon approval by NRC, a Type B package design is designated by NRC as B(U) unless the package has a maximum normal operating pressure of more than 700 kPa (100 lbs/in<sup>2</sup>) gauge or a pressure relief device that would allow the release of radioactive material to the environment under the tests specified in NRC regulations 10 C.F.R. 71.73 (hypothetical accident conditions), in which case it will receive a designation B(M). B(U) refers to the need for unilateral ap-

proval of international shipments; B(M) refers to the need for multi-lateral approval of international shipments. There is no distinction made in how packages with these designations may be used in domestic transportation. To determine their distinction for international transportation, see DOT regulations in 49 C.F.R. 173. A Type B package approved before September 6, 1983, was designated only as Type B. Limitations on its use are specified in 10 C.F.R. 71.19.

(26) "Packaging" means the assembly of components necessary to ensure compliance with the packaging requirements of this chapter. It may consist of one or more receptacles, absorbent materials, spacing structures, thermal insulation, radiation shielding, and devices for cooling or absorbing mechanical shocks. The vehicle, tie-down system, and auxiliary equipment may be designated as part of the packaging.

(27) "Special form radioactive material" means radioactive material that satisfies the following conditions:

(a) It is either a single solid piece or is contained in a sealed capsule that can be opened only by destroying the capsule;

(b) The piece or capsule has at least one dimension not less than ((5)) five mm (0.2 in); and

(c) It satisfies the requirements of 10 C.F.R. 71.75. A special form encapsulation designed in accordance with the requirements of 10 C.F.R. 71.4 in effect on June 30, 1983, (see 10 C.F.R. 71, revised as of January 1, 1983), and constructed before July 1, 1985; a special form encapsulation designed in accordance with the requirements of 10 C.F.R. 71.4 in effect on March 31, 1996 (see 10 C.F.R. 71, revised as of January 1, 1996), and constructed before April 1, 1998; and special form material that was successfully tested before September 10, 2015, in accordance with the requirements of 10 C.F.R. 71.75(d) in effect before September 10, 2015, may continue to be used. Any other special form encapsulation must meet the specifications of this definition.

(28) "Specific activity of a radionuclide" means the radioactivity of the radionuclide per unit mass of that nuclide. The specific activity of a material in which the radionuclide is essentially uniformly distributed is the radioactivity per unit mass of the material.

(29) "Spent nuclear fuel" or "spent fuel" means fuel that has been withdrawn from a nuclear reactor following irradiation, has undergone at least one year's decay since being used as a source of energy in a power reactor, and has not been chemically separated into its constituent elements by reprocessing. Spent fuel includes the special nuclear material, by-product material, source material, and other radioactive materials associated with fuel assemblies.

(30) "State" means a state of the United States, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, Guam, American Samoa, and the Commonwealth of the Northern Mariana Islands.

(31) "Surface contaminated object (SCO)" means a solid object that is not itself classed as radioactive material, but which has radioactive material distributed on any of its surfaces. SCO must be in one of two groups with surface activity not exceeding the following limits:

(a) SCO-I: A solid object on which:

(i) The nonfixed contamination on the accessible surface averaged over 300 cm<sup>2</sup> (or the area of the surface if less than 300 cm<sup>2</sup>) does not exceed ((4)) four Bq/cm<sup>2</sup> (1x10<sup>-4</sup> microcurie/cm<sup>2</sup>) for beta and gamma and low toxicity alpha emitters, or 0.4 Bq/cm<sup>2</sup> (1x10<sup>-5</sup> microcurie/cm<sup>2</sup>) for all other alpha emitters;

(ii) The fixed contamination on the accessible surface averaged over 300 cm<sup>2</sup> (or the area of the surface if less than 300 cm<sup>2</sup>) does not exceed 4x10<sup>4</sup> Bq/cm<sup>2</sup> (1.0 microcurie/cm<sup>2</sup>) for beta and gamma and low toxicity alpha emitters, or 4x10<sup>3</sup> Bq/cm<sup>2</sup> (0.1 microcurie/cm<sup>2</sup>) for all other alpha emitters; and

(iii) The nonfixed contamination plus the fixed contamination on the inaccessible surface averaged over 300 cm<sup>2</sup> (or the area of the surface if less than 300 cm<sup>2</sup>) does not exceed 4x10<sup>4</sup> Bq/cm<sup>2</sup> ((±)) one microcurie/cm<sup>2</sup> for beta and gamma and low toxicity alpha emitters, or 4x10<sup>3</sup> Bq/cm<sup>2</sup> (0.1 microcurie/cm<sup>2</sup>) for all other alpha emitters.

(b) SCO-II: A solid object on which the limits for SCO-I are exceeded and on which:

(i) The nonfixed contamination on the accessible surface averaged over 300 cm<sup>2</sup> (or the area of the surface if less than 300 cm<sup>2</sup>) does not exceed 400 Bq/cm<sup>2</sup> (1x10<sup>-2</sup> microcurie/cm<sup>2</sup>) for beta and gamma and low toxicity alpha emitters or 40 Bq/cm<sup>2</sup> (1x10<sup>-3</sup> microcurie/cm<sup>2</sup>) for all other alpha emitters;

(ii) The fixed contamination on the accessible surface averaged over 300 cm<sup>2</sup> (or the area of the surface if less than 300 cm<sup>2</sup>) does not exceed 8x10<sup>5</sup> Bq/cm<sup>2</sup> (20 microcuries/cm<sup>2</sup>) for beta and gamma and low toxicity alpha emitters, or 8x10<sup>4</sup> Bq/cm<sup>2</sup> ((±)) two microcuries/cm<sup>2</sup> for all other alpha emitters; and

(iii) The nonfixed contamination plus the fixed contamination on the inaccessible surface averaged over 300 cm<sup>2</sup> (or the area of the surface if less than 300 cm<sup>2</sup>) does not exceed 8x10<sup>5</sup> Bq/cm<sup>2</sup> (20 microcuries/cm<sup>2</sup>) for beta and gamma and low toxicity alpha emitters, or 8x10<sup>4</sup> Bq/cm<sup>2</sup> ((±)) two microcuries/cm<sup>2</sup> for all other alpha emitters.

(32) "Transport index (TI)" means the dimensionless number (rounded up to the next tenth) placed on the label of a package, to designate the degree of control to be exercised by the carrier during transportation. The transport index is the number determined by multiplying the maximum radiation level in millisievert (mSv) per hour at ((±)) one meter (3.3 ft) from the external surface of the package by 100 (equivalent to the maximum radiation level in millirem per hour at ((±)) one meter (3.3 ft)).

(33) "Tribal official" means the highest ranking individual who represents Tribal leadership, such as the chief, president, or Tribal council leadership.

(34) "Type A quantity" means a quantity of radioactive material, the aggregate radioactivity of which does not exceed A1 for special form radioactive material, or A2 for normal form radioactive material, where A1 and A2 are given in Table A-1 of WAC 246-231-200, or may be determined by procedures described in WAC 246-231-200.

(35) "Type B quantity" means a quantity of radioactive material greater than a Type A quantity.

(36) "Unirradiated uranium" means uranium containing not more than 2x10<sup>3</sup> Bq of plutonium per gram of uranium-235, not more than 9x10<sup>6</sup> Bq of fission products per gram of uranium-235, and not more than 5x10<sup>-3</sup> g of uranium-236 per gram of uranium-235.

(37) Uranium-natural, depleted, enriched.

(a) "Natural uranium" means uranium (which may be chemically separated) with the naturally occurring distribution of uranium isotopes

(approximately 0.711 weight percent uranium-235, and the remainder by weight essentially uranium-238).

(b) "Depleted uranium" means uranium containing less uranium-235 than the naturally occurring distribution of uranium isotopes.

(c) "Enriched uranium" means uranium containing more uranium-235 than the naturally occurring distribution of uranium isotopes.

[Statutory Authority: RCW 70.98.050 and 70.98.110. WSR 17-01-034, § 246-231-010, filed 12/12/16, effective 1/12/17. Statutory Authority: RCW 70.98.050. WSR 14-09-017, § 246-231-010, filed 4/7/14, effective 5/8/14; WSR 08-09-093, § 246-231-010, filed 4/18/08, effective 5/19/08; WSR 99-15-105, § 246-231-010, filed 7/21/99, effective 8/21/99.]

AMENDATORY SECTION (Amending WSR 17-01-034, filed 12/12/16, effective 1/12/17)

**WAC 246-231-040 Exemptions.** (1) Common and contract carriers, freight forwarders, warehouse workers, and the U.S. Postal Service are exempt from this chapter and chapters 246-232, 246-233, 246-235, 246-237, 246-240, 246-243, and 246-244 WAC to the extent that they transport or store radioactive material in the regular course of their carriage for another or storage incident thereto.

(2) Any licensee who delivers radioactive material to a carrier for transport, where such transport is subject to the regulations of the United States Postal Service, is exempt from the provisions of WAC 246-231-005.

(3) **Exemption of physicians.** Any physician as defined in WAC 246-220-010 who is licensed by the department, NRC or an agreement state, to dispense drugs in the practice of medicine, is exempt from WAC 246-220-030 with respect to transport by the physician of licensed material for use in the practice of medicine. However, any physician operating under this exemption must be licensed under chapter 246-240 WAC, 10 C.F.R. 35, or the equivalent agreement state regulations.

(4) **Exemption for low-level materials.** A licensee is exempt from all requirements of this chapter with respect to shipment or carriage of the following low-level materials:

(a) Natural material and ores containing naturally occurring radionuclides that are either in their natural state, or have only been processed for purposes other than for the extraction of the radionuclides, and which are not intended to be processed for use of these radionuclides, provided the activity concentration of the material does not exceed (~~ten~~) 10 times the applicable radionuclide activity concentration values specified in WAC 246-231-200, Table A-2 or Table A-3.

(b) Materials for which the activity concentration is not greater than the activity concentration values specified in WAC 246-231-200, Table A-2 or Table A-3, or for which the consignment activity is not greater than the limit for an exempt consignment found in WAC 246-231-200, Table A-2 or Table A-3.

(c) Nonradioactive solid objects with radioactive substances present on any surfaces in quantities not in excess of the levels cited in the definition of contamination in WAC 246-231-010.

(5) A licensee is exempt from all the requirements of this chapter, other than 10 C.F.R. 71.5 and 71.88, with respect to shipment or

carriage of the following packages, provided the packages do not contain any fissile material, or the material is exempt from classification as fissile material in this subsection;

(a) A package that contains no more than a Type A quantity of radioactive material;

(b) A package transported within the United States that contains no more than 0.74 TBq (20 Ci) of special form plutonium-244; or

(c) The package contains only LSA or SCO radioactive material, provided:

(i) That the LSA or SCO material has an external radiation dose of less than or equal to 10 mSv/h ((±)) one rem/h), at a distance of three meters from the unshielded material; or

(ii) That the package contains only LSA-I or SCO-I material.

(6) **Exemption from classification as fissile material.** Fissile material meeting at least one of the requirements in (a) through (f) of this subsection is exempt from classification as fissile material and from the fissile material package standards of 10 C.F.R. 71.55 and 71.59, but are subject to all other requirements of this chapter, except as noted.

(a) Individual package containing ((2)) two grams or less fissile material.

(b) Individual or bulk packaging containing 15 grams or less of fissile material provided the package has at least 200 grams of solid nonfissile material for every gram of fissile material. Lead, beryllium, graphite, and hydrogenous material enriched in deuterium may be present in the package but must not be included in determining the required mass for solid nonfissile material.

(c) (i) Low concentrations of solid fissile material commingled with solid nonfissile material, provided that:

(A) There are at least 2000 grams of solid nonfissile material for every gram of fissile material; and

(B) There are no more than 180 grams of fissile material distributed within 360 kg of contiguous nonfissile material.

(ii) Lead, beryllium, graphite, and hydrogenous material enriched in deuterium may be present in the package but must not be included in determining the required mass of solid nonfissile material.

(d) Uranium enriched in uranium-235 to a maximum of ((±)) one percent by weight, and with total plutonium and uranium-233 content of up to ((±)) one percent of the mass of uranium-235, provided that the mass of any beryllium, graphite, and hydrogenous material enriched in deuterium constitutes less than ((5)) five percent of the uranium mass, and that the fissile material is distributed homogeneously and does not form a lattice arrangement within the package.

(e) Liquid solutions of uranyl nitrate enriched in uranium-235 to a maximum of ((2)) two percent by mass, with a total plutonium and uranium-233 content not exceeding 0.002 percent of the mass of uranium, and with a minimum nitrogen to uranium atomic ratio (N/U) of ((2)) two. The material must be contained in at least a DOT Type A package.

(f) Packages containing, individually, a total plutonium mass of not more than 1000 grams, of which not more than 20 percent by mass may consist of plutonium-239, plutonium-241, or any combination of these radionuclides.

[Statutory Authority: RCW 70.98.050 and 70.98.110. WSR 17-01-034, § 246-231-040, filed 12/12/16, effective 1/12/17; WSR 16-13-054, § 246-231-040, filed 6/10/16, effective 7/11/16. Statutory Authority: RCW 70.98.050. WSR 14-09-017, § 246-231-040, filed 4/7/14, effective



5/8/14; WSR 08-09-093, § 246-231-040, filed 4/18/08, effective 5/19/08; WSR 99-15-105, § 246-231-040, filed 7/21/99, effective 8/21/99.]

AMENDATORY SECTION (Amending WSR 14-09-017, filed 4/7/14, effective 5/8/14)

**WAC 246-231-094 General license—Fissile material.** (1) A general license is issued to any licensee of the department, NRC, or an agreement state, to transport fissile material, or to deliver fissile material to a carrier for transport, if the material is shipped in accordance with this section. The fissile material need not be contained in a package which meets the standards of 10 C.F.R. 71 Subparts E and F; however, the material must be contained in a Type A package. The Type A package must also meet the DOT requirements of 49 C.F.R. 173.417(a).

(2) The general license applies only to a licensee who has a quality assurance program approved by NRC as satisfying the provisions of 10 C.F.R. 71 Subpart H.

(3) The general license applies only when a package's contents:

(a) Contain no more than a Type A quantity of radioactive material; and

(b) Contain less than 500 total grams of beryllium, graphite, or hydrogenous material enriched in deuterium.

(4) The general license applies only to packages containing fissile material that are labeled with a CSI which:

(a) Has been determined in accordance with subsection (5) of this section;

(b) Has a value less than or equal to 10; and

(c) For a shipment of multiple packages containing fissile material, the sum of the CSIs must be less than or equal to 50 (for shipment on a nonexclusive use conveyance) and less than or equal to 100 (for shipment on an exclusive use conveyance).

(5) (a) The value for the CSI must be greater than or equal to the number calculated by the following equation:

$$CSI = 10 \left[ \frac{\text{grams of } ^{235}\text{U}}{X} + \frac{\text{grams of } ^{233}\text{U}}{Y} + \frac{\text{grams of Pu}}{Z} \right];$$

(b) The calculated CSI must be rounded up to the first decimal place;

(c) The values of X, Y, and Z used in the CSI equation must be taken from WAC 246-231-200 Table-1 or Table-2, as appropriate;

(d) If Table-2 is used to obtain the value of X, then the values for the terms in the equation for uranium-233 and plutonium must be assumed to be zero; and

(e) Values from Table-1 for X, Y, and Z must be used to determine the CSI if:

(i) Uranium-233 is present in the package;

(ii) The mass of plutonium exceeds ((±)) one percent of the mass of uranium-235;

(iii) The uranium is of unknown uranium-235 enrichment or greater than 24 weight percent enrichment; or

(iv) Substances having a moderating effectiveness (i.e., an average hydrogen density greater than H<sub>2</sub>O) (e.g., certain hydrocarbon oils or plastics) are present in any form, except as polyethylene used for packing or wrapping.

**Table-1.**  
**Mass Limits for General License Packages**  
**Containing Mixed Quantities of Fissile Ma-**  
**terial or Uranium-235 of Unknown Enrichment**  
**per WAC 246-231-094 (5)**

<b>Fissile material</b>	<b>Fissile material mass mixed with moderating substances having an average hydrogen density less than or equal to H<sub>2</sub>O (grams)</b>	<b>Fissile material mass mixed with moderating substances having an average hydrogen density greater than H<sub>2</sub>O<sup>a</sup> (grams)</b>
<sup>235</sup> U (X)	60	38
<sup>233</sup> U (Y)	43	27
<sup>239</sup> Pu or <sup>241</sup> Pu (Z)	37	24

<sup>a</sup> When mixtures of moderating substances are present, the lower mass limits shall be used if more than 15 percent of the moderating substance has an average hydrogen density greater than H<sub>2</sub>O.

**Table-2.**  
**Mass Limits for General License Packages**  
**Containing Uranium-235 of Known Enrichment**  
**per WAC 246-231-094 (5)**

<b>Uranium enrichment in weight percent of <sup>235</sup>U not exceeding</b>	<b>Fissile material mass of <sup>235</sup>U (X) (grams)</b>
24	60
20	63
15	67
11	72
10	76
9.5	78
9	81
8.5	82
8	85
7.5	88
7	90
6.5	93
6	97
5.5	102
5	108
4.5	114
4	120
3.5	132
3	150

Uranium enrichment in weight percent of $^{235}\text{U}$ not exceeding	Fissile material mass of $^{235}\text{U}$ (X) (grams)
2.5	180
2	246
1.5	408
1.35	480
1	1,020
0.92	1,800

[Statutory Authority: RCW 70.98.050. WSR 14-09-017, § 246-231-094, filed 4/7/14, effective 5/8/14; WSR 08-09-093, § 246-231-094, filed 4/18/08, effective 5/19/08.]

AMENDATORY SECTION (Amending WSR 14-09-017, filed 4/7/14, effective 5/8/14)

**WAC 246-231-098 External radiation standards for all packages.**

(1) Except as provided in subsection (2) of this section, each package of radioactive materials offered for transportation must be designed and prepared for shipment so that under conditions normally incident to transportation the radiation level does not exceed ((2)) two mSv/hour (200 mrem/hour) at any point on the external surface of the package, and the transport index does not exceed 10.

(2) A package that exceeds the radiation level limits specified in subsection (1) of this section must be transported by exclusive use shipment only, and the radiation levels for such shipment must not exceed the following during transportation:

(a) ((2)) Two mSv/hour (200 mrem/hour) on the external surface of the package, unless the following conditions are met, in which case the limit is 10 mSv/hour (1000 mrem/hour):

(i) The shipment is made in a closed transport vehicle;

(ii) The package is secured within the vehicle so that its position remains fixed during transportation; and

(iii) There are no loading or unloading operations between the beginning and end of the transportation;

(b) ((2)) Two mSv/hour (200 mrem/hour) at any point on the outer surface of the vehicle, including the top and underside of the vehicle; or in the case of a flat-bed style vehicle, at any point on the vertical planes projected from the outer edges of the vehicle, on the upper surface of the load or enclosure, if used, and on the lower external surface of the vehicle; and

(c) 0.1 mSv/hour (10 mrem/hour) at any point ((2)) two meters (80 in) from the outer lateral surfaces of the vehicle (excluding the top and underside of the vehicle); or in the case of a flat-bed style vehicle, at any point ((2)) two meters (6.6 feet) from the vertical planes projected by the outer edges of the vehicle (excluding the top and underside of the vehicle); and

(d) 0.02 mSv/hour ((2)) two mrem/hour) in any normally occupied space, except that this provision does not apply to private carriers, if exposed personnel under their control wear radiation dosimetry devices in conformance with WAC 246-221-090 and 246-221-100.

(3) For shipments made under the provisions of subsection (2) of this section, the shipper shall provide specific written instructions to the carrier for maintenance of the exclusive use shipment controls. The instructions must be included with the shipping paper information.

(4) The written instructions required for exclusive use shipments must be sufficient so that, when followed, they will cause the carrier to avoid actions that will unnecessarily delay delivery or unnecessarily result in increased radiation levels or radiation exposures to transport workers or members of the general public.

[Statutory Authority: RCW 70.98.050. WSR 14-09-017, § 246-231-098, filed 4/7/14, effective 5/8/14; WSR 08-09-093, § 246-231-098, filed 4/18/08, effective 5/19/08.]

AMENDATORY SECTION (Amending WSR 17-01-034, filed 12/12/16, effective 1/12/17)

**WAC 246-231-106 Preliminary determinations.** Before the first use of any packaging for the shipment of licensed material:

(1) The licensee shall ascertain that there are no cracks, pinholes, uncontrolled voids, or other defects that could significantly reduce the effectiveness of the packaging;

(2) Where the maximum normal operating pressure will exceed 35 kPa (~~((5))~~ five lbs/in<sup>2</sup>) gauge, the licensee shall test the containment system at an internal pressure at least (~~((fifty))~~ 50 percent higher than the maximum normal operating pressure, to verify the capability of that system to maintain its structural integrity at that pressure;

(3) The licensee shall conspicuously and durably mark the packaging with its model number, serial number, gross weight, and a package identification number assigned by NRC. Before applying the model number, the licensee shall determine that the packaging has been fabricated in accordance with the design approved by NRC; and

(4) The licensee shall ascertain that the determinations in subsections (1) through (3) of this section have been made.

[Statutory Authority: RCW 70.98.050 and 70.98.110. WSR 17-01-034, § 246-231-106, filed 12/12/16, effective 1/12/17. Statutory Authority: RCW 70.98.050. WSR 14-09-017, § 246-231-106, filed 4/7/14, effective 5/8/14; WSR 08-09-093, § 246-231-106, filed 4/18/08, effective 5/19/08.]

AMENDATORY SECTION (Amending WSR 22-11-063, filed 5/16/22, effective 6/16/22)

**WAC 246-231-140 Advance notification of shipment of irradiated reactor fuel and nuclear waste.** (1)(a) As specified in subsections (2), (3), and (4) of this section, each licensee shall provide advance notification to the governor of a state, or the governor's designee, of the shipment of licensed material, within or across the boundary of the state, before the transport, or delivery to a carrier, for trans-

port, of licensed material outside the confines of the licensee's plant or other place of use or storage.

(b) As specified in subsections (2), (3), and (4) of this section, after June 11, 2013, each licensee shall provide advance notification to the Tribal official of participating tribes referenced in subsection (3)(c)(iii) of this section, or the official's designee, of the shipment of licensed material within or across the boundary of the Tribe's reservation before the transport, or delivery to a carrier for transport, of licensed material outside the confines of the licensee's plant or other place of use or storage.

(2) Advance notification is required under this section for shipments of irradiated reactor fuel in quantities less than that subject to advance notification requirements of NRC regulations 10 C.F.R. 73.37(f). Advance notification is also required under this section for shipment of licensed material, other than irradiated fuel, meeting the following three conditions:

(a) The licensed material is required by this section to be in Type B packaging for transportation;

(b) The licensed material is being transported to or across a state boundary (~~en route~~) enroute to a disposal facility or to a collection point for transport to a disposal facility; and

(c) The quantity of licensed material in a single package exceeds the least of the following:

(i) Three thousand times the A1 value of the radionuclides as specified in WAC 246-231-200, Table A-1 for special form radioactive material;

(ii) Three thousand times the A2 value of the radionuclides as specified in WAC 246-231-200, Table A-1 for normal form radioactive material; or

(iii) One thousand TBq (27,000 Ci).

(3) Procedures for submitting advance notification.

(a) The notification must be made in writing to the office of each appropriate governor or governor's designee, to the office of each appropriate Tribal official or Tribal official's designee, and to the Director, Office of Nuclear Security and Incident Response.

(b) A notification delivered by mail must be postmarked at least seven days before the beginning of the seven-day period during which departure of the shipment is estimated to occur.

(c) A notification delivered by any other means than mail must reach the office of the governor or the governor's designee, or of the Tribal official or the Tribal official's designee, at least four days before the beginning of the seven-day period during which departure of the shipment is estimated to occur.

(i) (~~A list of the names and mailing addresses of the governors' designees receiving advance notification of transportation of nuclear waste was published in the Federal Register on June 30, 1995, (60 FR 34306).~~) Reserved.

(ii) Contact information for each state, including telephone and mailing addresses of governors and governors' designees, and participating Tribes, including telephone and mailing addresses of Tribal officials and Tribal official's designees, is available on the NRC website at <https://scp.nrc.gov/special/designee.pdf>.

(iii) A list of the names and mailing addresses of the governors' designees and Tribal officials' designees of participating Tribes is available on request from the Director, Division of Materials Safety, Security, State, and Tribal Programs, Office of Nuclear Material Safe-

ty and Safeguards, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555-0001.

(d) The licensee shall retain a copy of the notification as a record for three years.

(4) Information to be furnished in advance notification of shipment. Each advance notification of shipment of irradiated reactor fuel or nuclear waste must contain the following information:

(a) The name, address, and telephone number of the shipper, carrier, and receiver of the irradiated reactor fuel or nuclear waste shipment;

(b) A description of the irradiated reactor fuel or nuclear waste contained in the shipment, as specified in the regulations of DOT in 49 C.F.R. 172.202 and 172.203(d);

(c) The point of origin of the shipment and the seven-day period during which departure of the shipment is estimated to occur;

(d) The seven-day period during which arrival of the shipment at state boundaries or Tribal reservation boundaries is estimated to occur;

(e) The destination of the shipment, and the seven-day period during which arrival of the shipment is estimated to occur; and

(f) A point of contact, with a telephone number, for current shipment information.

(5) Revision notice. A licensee who finds that schedule information previously furnished to a governor or governor's designee, or a Tribal official or Tribal official's designee, in accordance with this section, will not be met, shall telephone a responsible individual in the office of the governor of the state or of the governor's designee or the Tribal official or the Tribal official's designee, and inform that individual of the extent of the delay beyond the schedule originally reported. The licensee shall maintain a record of the name of the individual contacted for three years.

(6) Cancellation notice.

(a) Each licensee who cancels an irradiated reactor fuel or nuclear waste shipment for which advance notification has been sent shall send a cancellation notice to the governor of each state or to the governor's designee previously notified, to each Tribal official or to the Tribal official's designee previously notified, and to the Director, Office of Nuclear Security and Incident Response.

(b) The licensee shall state in the notice that it is a cancellation and identify the advance notification that is being canceled. The licensee shall retain a copy of the notice as a record for three years.

[Statutory Authority: RCW 70A.388.040 and 70A.388.110. WSR 22-11-063, § 246-231-140, filed 5/16/22, effective 6/16/22. Statutory Authority: RCW 70.98.050 and 70.98.110. WSR 17-01-034, § 246-231-140, filed 12/12/16, effective 1/12/17. Statutory Authority: RCW 70.98.050. WSR 14-09-017, § 246-231-140, filed 4/7/14, effective 5/8/14; WSR 08-09-093, § 246-231-140, filed 4/18/08, effective 5/19/08; WSR 99-15-105, § 246-231-140, filed 7/21/99, effective 8/21/99.]

AMENDATORY SECTION (Amending WSR 17-01-034, filed 12/12/16, effective 1/12/17)

**WAC 246-231-174 Changes to quality assurance program.** (1) Each quality assurance program approval holder shall submit, in accordance with 10 C.F.R. 71.1(a), a description of a proposed change to its NRC-approved quality assurance program that will reduce commitments in the program description as approved by the NRC. The quality assurance program approval holder shall not implement the change before receiving NRC approval.

(a) The description of a proposed change to the NRC-approved quality assurance program must identify the change, the reason for the change, the basis for concluding that the revised program incorporating the change continues to satisfy the applicable requirements of 10 C.F.R. Subpart H.

(b) (Reserved.)

(2) Each quality assurance program approval holder may change a previously approved quality assurance program without prior NRC approval, if the change does not reduce the commitments in the quality assurance program previously approved by the NRC. Changes to the quality assurance program that do not reduce the commitments shall be submitted to the NRC every (~~twenty-four~~) 24 months, in accordance with 10 C.F.R. 71.1(a). In addition to quality assurance program changes involving administrative improvements and clarifications, spelling corrections, and nonsubstantive changes to punctuation or editorial items, the following changes are not considered reductions in commitment:

(a) The use of a quality assurance standard approved by the NRC that is more recent than the quality assurance standard in the certificate holder's or applicant's current quality assurance program at the time of the change;

(b) The use of generic organizational position titles that clearly denote the position function, supplemented as necessary by descriptive text, rather than specific titles, provided that there is no substantive change to either the functions of the position or reporting responsibilities;

(c) The use of generic organization charts to indicate functional relationships, authorities, and responsibilities, or alternatively, the use of descriptive text, provided that there is no substantive change to the functional relationships, authorities, or responsibilities;

(d) The elimination of quality assurance program information that duplicates language in quality assurance regulatory guides and quality assurance standards to which the quality assurance program approval holder has committed to on record; and

(e) Organizational revisions that ensure that persons and organizations performing quality assurance functions continue to have the requisite authority and organizational freedom, including sufficient independence from cost and schedule when opposed to safety considerations.

(3) Each quality assurance program approval holder shall maintain records of quality assurance program changes.

[Statutory Authority: RCW 70.98.050 and 70.98.110. WSR 17-01-034, § 246-231-174, filed 12/12/16, effective 1/12/17.]

AMENDATORY SECTION (Amending WSR 17-01-034, filed 12/12/16, effective 1/12/17)

**WAC 246-231-200 Appendix A—Determination of A1 and A2.** (1)

Values of A1 and A2 for individual radionuclides, which are the basis for many activity limits elsewhere in these regulations, are given in this section, Table A-1. The curie (Ci) values specified are obtained by converting from the Terabecquerel (TBq) value. The Terabecquerel values are the regulatory standard. The curie values are for information only and are not intended to be the regulatory standard. Where values of A1 or A2 are unlimited, it is for radiation control purposes only. For nuclear criticality safety, some materials are subject to controls placed on fissile material.

(2) (a) For individual radionuclides whose identities are known, but which are not listed in this section, Table A-1, the A1 and A2 values contained in this section, Table A-3 may be used. Otherwise, the licensee shall obtain prior NRC approval of the A1 and A2 values for radionuclides not listed in this section, Table A-1, before shipping the material.

(b) For individual radionuclides whose identities are known, but which are not listed in this section, Table A-2, the exempt material activity concentration and exempt consignment activity values contained in this section, Table A-3 may be used. Otherwise, the licensee shall obtain prior NRC approval of the exempt material activity concentration and exempt consignment activity values for radionuclides not listed in this section, Table A-2, before shipping the material.

(c) The licensee shall submit requests for prior approval, described under (a) and (b) of this subsection, to NRC in accordance with 10 C.F.R. 71.1.

(3) In the calculations of A1 and A2 for a radionuclide not in this section, Table A-1, a single radioactive decay chain, in which radionuclides are present in their naturally occurring proportions, and in which no daughter radionuclide has a half-life either longer than ~~((ten))~~ 10 days, or longer than that of the parent radionuclide, shall be considered as a single radionuclide, and the activity to be taken into account, and the A1 or A2 value to be applied shall be those corresponding to the parent radionuclide of that chain. In the case of radioactive decay chains in which any daughter radionuclide has a half-life either longer than ~~((ten))~~ 10 days, or greater than that of the parent radionuclide, the parent and those daughter radionuclides shall be considered as mixtures of different radionuclides.

(4) For mixtures of radionuclides whose identities and respective activities are known, the following conditions apply:

(a) For special form radioactive material, the maximum quantity transported in a Type A package is as follows:

$$\sum_i \frac{B(i)}{A_1(i)} \leq 1$$

Where B(i) is the activity of radionuclide i in special form, and A<sub>1</sub>(i) is the A<sub>1</sub> value for radionuclide i.

(b) For normal form radioactive material, the maximum quantity transported in a Type A package:



$$\sum_i \frac{B(i)}{A_2(i)} \leq 1$$

Where B(i) is the activity of radionuclide i in normal form, and A<sub>2</sub>(i) is the A<sub>2</sub> value for radionuclide i.

(c) If the package contains both special and normal form radioactive material, the activity that may be transported in a Type A package is as follows:

$$\sum_i \frac{B(i)}{A_1(i)} + \sum_j \frac{C(j)}{A_2(j)} \leq 1$$

Where B(i) is the activity of radionuclide i as special form radioactive material, A<sub>1</sub>(i) is the A<sub>1</sub> value for radionuclide i, C(j) is the activity of radionuclide j as normal form radioactive material, and A<sub>2</sub>(j) is the A<sub>2</sub> value for radionuclide j.

(d) Alternatively, the A<sub>1</sub> value for mixtures of special form material may be determined as follows:

$$A_1 \text{ for mixture} = \frac{1}{\sum_i \frac{f(i)}{A_1(i)}}$$

Where f(i) is the fraction of activity for radionuclide i in the mixture and A<sub>1</sub>(i) is the appropriate A<sub>1</sub> value for radionuclide i.

(e) Alternatively, the A<sub>2</sub> value for mixtures of normal form material may be determined as follows:

$$A_2 \text{ for mixture} = \frac{1}{\sum_i \frac{f(i)}{A_2(i)}}$$

Where f(i) is the fraction of activity for radionuclide i in the mixture and A<sub>2</sub>(i) is the appropriate A<sub>2</sub> value for radionuclide i.

(f) The exempt activity concentration for mixtures of nuclides may be determined as follows:

$$\text{Exempt activity concentration for mixture} = \frac{1}{\sum_i \frac{f(i)}{[A](i)}}$$

Where f(i) is the fraction of activity concentration of radionuclide i in the mixture, and [A](i) is the activity concentration for exempt material containing radionuclide i.

(g) The activity limit for an exempt consignment for mixtures of radionuclides may be determined as follows:

$$\text{Exempt consignment activity limit for mixture} = \frac{1}{\sum_i \frac{f(i)}{A(i)}}$$

Where f(i) is the fraction of activity of radionuclide i in the mixture and A(i) is the activity limit for exempt consignments for radionuclide i.

(5) (a) When the identity of each radionuclide is known, but the individual activities of some of the radionuclides are not known, the radionuclides may be grouped and the lowest A1 or A2 value, as appropriate, for the radionuclides in each group may be used in applying the formulas in subsection (4) of this section. Groups may be based on the total alpha activity and the total beta/gamma activity when these are known, using the lowest A1 or A2 values for the alpha emitters and beta/gamma emitters.

(b) When the identity of each radionuclide is known but the individual activities of some of the radionuclides are not known, the radionuclides may be grouped and the lowest [A] (activity concentration for exempt material) or A (activity limit for exempt consignment) value, as appropriate, for the radionuclides in each group may be used in applying the formulas in paragraph IV of this appendix. Groups may be based on the total alpha activity and the total beta/gamma activity when these are known, using the lowest [A] or A values for the alpha emitters and beta/gamma emitters, respectively.

Table A-1.—A1 and A2 Values for Radionuclides

Symbol of radionuclide	Element and atomic number	A1 (TBq)	A1 (Ci) <sup>b</sup>	A2 (TBq)	A2 (Ci) <sup>b</sup>	Specific activity	
						(TBq/g)	(Ci/g)
Ac-225 (a)	Actinium (89)	8.0X10 <sup>-1</sup>	2.2X10 <sup>1</sup>	6.0X10 <sup>-3</sup>	1.6X10 <sup>-1</sup>	2.1X10 <sup>3</sup>	5.8X10 <sup>4</sup>
Ac-227 (a)		9.0X10 <sup>-1</sup>	2.4X10 <sup>1</sup>	9.0X10 <sup>-5</sup>	2.4X10 <sup>-3</sup>	2.7	7.2X10 <sup>1</sup>
Ac-228		6.0X10 <sup>-1</sup>	1.6X10 <sup>1</sup>	5.0X10 <sup>-1</sup>	1.4X10 <sup>1</sup>	8.4X10 <sup>4</sup>	2.2X10 <sup>6</sup>
Ag-105	Silver (47)	2.0	5.4X10 <sup>1</sup>	2.0	5.4X10 <sup>1</sup>	1.1X10 <sup>3</sup>	3.0X10 <sup>4</sup>
Ag-108m (a)		7.0X10 <sup>-1</sup>	1.9X10 <sup>1</sup>	7.0X10 <sup>-1</sup>	1.9X10 <sup>1</sup>	9.7X10 <sup>-1</sup>	2.6X10 <sup>1</sup>
Ag-110m (a)		4.0X10 <sup>-1</sup>	1.1X10 <sup>1</sup>	4.0X10 <sup>-1</sup>	1.1X10 <sup>1</sup>	1.8X10 <sup>2</sup>	4.7X10 <sup>3</sup>
Ag-111		2.0	5.4X10 <sup>1</sup>	6.0X10 <sup>-1</sup>	1.6X10 <sup>1</sup>	5.8X10 <sup>3</sup>	1.6X10 <sup>5</sup>
Al-26	Aluminum (13)	1.0X10 <sup>-1</sup>	2.7	1.0X10 <sup>-1</sup>	2.7	7.0X10 <sup>-4</sup>	1.9X10 <sup>-2</sup>
Am-241	Americium (95)	1.0X10 <sup>1</sup>	2.7X10 <sup>2</sup>	1.0X10 <sup>-3</sup>	2.7X10 <sup>-2</sup>	1.3X10 <sup>-1</sup>	3.4
Am-242m (a)		1.0X10 <sup>1</sup>	2.7X10 <sup>2</sup>	1.0X10 <sup>-3</sup>	2.7X10 <sup>-2</sup>	3.6X10 <sup>-1</sup>	1.0X10 <sup>1</sup>
Am-243 (a)		5.0	1.4X10 <sup>2</sup>	1.0X10 <sup>-3</sup>	2.7X10 <sup>-2</sup>	7.4X10 <sup>-3</sup>	2.0X10 <sup>-1</sup>
Ar-37	Argon (18)	4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	3.7X10 <sup>3</sup>	9.9X10 <sup>4</sup>
Ar-39		4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	2.0X10 <sup>1</sup>	5.4X10 <sup>2</sup>	1.3	3.4X10 <sup>1</sup>
Ar-41		3.0X10 <sup>-1</sup>	8.1	3.0X10 <sup>-1</sup>	8.1	1.5X10 <sup>6</sup>	4.2X10 <sup>7</sup>
As-72	Arsenic (33)	3.0X10 <sup>-1</sup>	8.1	3.0X10 <sup>-1</sup>	8.1	6.2X10 <sup>4</sup>	1.7X10 <sup>6</sup>
As-73		4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	8.2X10 <sup>2</sup>	2.2X10 <sup>4</sup>
As-74		1.0	2.7X10 <sup>1</sup>	9.0X10 <sup>-1</sup>	2.4X10 <sup>1</sup>	3.7X10 <sup>3</sup>	9.9X10 <sup>4</sup>
As-76		3.0X10 <sup>-1</sup>	8.1	3.0X10 <sup>-1</sup>	8.1	5.8X10 <sup>4</sup>	1.6X10 <sup>6</sup>
As-77		2.0X10 <sup>1</sup>	5.4X10 <sup>2</sup>	7.0X10 <sup>-1</sup>	1.9X10 <sup>1</sup>	3.9X10 <sup>4</sup>	1.0X10 <sup>6</sup>
At-211 (a)	Astatine (85)	2.0X10 <sup>1</sup>	5.4X10 <sup>2</sup>	5.0X10 <sup>-1</sup>	1.4X10 <sup>1</sup>	7.6X10 <sup>4</sup>	2.1X10 <sup>6</sup>
Au-193	Gold (79)	7.0	1.9X10 <sup>2</sup>	2.0	5.4X10 <sup>1</sup>	3.4X10 <sup>4</sup>	9.2X10 <sup>5</sup>
Au-194		1.0	2.7X10 <sup>1</sup>	1.0	2.7X10 <sup>1</sup>	1.5X10 <sup>4</sup>	4.1X10 <sup>5</sup>
Au-195		1.0X10 <sup>1</sup>	2.7X10 <sup>2</sup>	6.0	1.6X10 <sup>2</sup>	1.4X10 <sup>2</sup>	3.7X10 <sup>3</sup>
Au-198		1.0	2.7X10 <sup>1</sup>	6.0X10 <sup>-1</sup>	1.6X10 <sup>1</sup>	9.0X10 <sup>3</sup>	2.4X10 <sup>5</sup>
Au-199		1.0X10 <sup>1</sup>	2.7X10 <sup>2</sup>	6.0X10 <sup>-1</sup>	1.6X10 <sup>1</sup>	7.7X10 <sup>3</sup>	2.1X10 <sup>5</sup>
Ba-131 (a)	Barium (56)	2.0	5.4X10 <sup>1</sup>	2.0	5.4X10 <sup>1</sup>	3.1X10 <sup>3</sup>	8.4X10 <sup>4</sup>
Ba-133		3.0	8.1X10 <sup>1</sup>	3.0	8.1X10 <sup>1</sup>	9.4	2.6X10 <sup>2</sup>
Ba-133m		2.0X10 <sup>1</sup>	5.4X10 <sup>2</sup>	6.0X10 <sup>-1</sup>	1.6X10 <sup>1</sup>	2.2X10 <sup>4</sup>	6.1X10 <sup>5</sup>
Ba-140 (a)		5.0X10 <sup>-1</sup>	1.4X10 <sup>1</sup>	3.0X10 <sup>-1</sup>	8.1	2.7X10 <sup>3</sup>	7.3X10 <sup>4</sup>
Be-7	Beryllium (4)	2.0X10 <sup>1</sup>	5.4X10 <sup>2</sup>	2.0X10 <sup>1</sup>	5.4X10 <sup>2</sup>	1.3X10 <sup>4</sup>	3.5X10 <sup>5</sup>
Be-10		4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	6.0X10 <sup>-1</sup>	1.6X10 <sup>1</sup>	8.3X10 <sup>-4</sup>	2.2X10 <sup>-2</sup>

Symbol of radionuclide	Element and atomic number	A1 (TBq)	A1 (Ci) <sup>b</sup>	A2 (TBq)	A2 (Ci) <sup>b</sup>	Specific activity	
						(TBq/g)	(Ci/g)
Bi-205	Bismuth (83)	7.0X10 <sup>-1</sup>	1.9X10 <sup>1</sup>	7.0X10 <sup>-1</sup>	1.9X10 <sup>1</sup>	1.5X10 <sup>3</sup>	4.2X10 <sup>4</sup>
Bi-206		3.0X10 <sup>-1</sup>	8.1	3.0X10 <sup>-1</sup>	8.1	3.8X10 <sup>3</sup>	1.0X10 <sup>5</sup>
Bi-207		7.0X10 <sup>-1</sup>	1.9X10 <sup>1</sup>	7.0X10 <sup>-1</sup>	1.9X10 <sup>1</sup>	1.9	5.2X10 <sup>1</sup>
Bi-210		1.0	2.7X10 <sup>1</sup>	6.0X10 <sup>-1</sup>	1.6X10 <sup>1</sup>	4.6X10 <sup>3</sup>	1.2X10 <sup>5</sup>
Bi-210m (a)		6.0X10 <sup>-1</sup>	1.6X10 <sup>1</sup>	2.0X10 <sup>-2</sup>	5.4X10 <sup>-1</sup>	2.1X10 <sup>-5</sup>	5.7X10 <sup>-4</sup>
Bi-212 (a)		7.0X10 <sup>-1</sup>	1.9X10 <sup>1</sup>	6.0X10 <sup>-1</sup>	1.6X10 <sup>1</sup>	5.4X10 <sup>5</sup>	1.5X10 <sup>7</sup>
Bk-247	Berkelium (97)	8.0	2.2X10 <sup>2</sup>	8.0X10 <sup>-4</sup>	2.2X10 <sup>-2</sup>	3.8X10 <sup>-2</sup>	1.0
Bk-249 (a)		4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	3.0X10 <sup>-1</sup>	8.1	6.1X10 <sup>1</sup>	1.6X10 <sup>3</sup>
Br-76	Bromine (35)	4.0X10 <sup>-1</sup>	1.1X10 <sup>1</sup>	4.0X10 <sup>-1</sup>	1.1X10 <sup>1</sup>	9.4X10 <sup>4</sup>	2.5X10 <sup>6</sup>
Br-77		3.0	8.1X10 <sup>1</sup>	3.0	8.1X10 <sup>1</sup>	2.6X10 <sup>4</sup>	7.1X10 <sup>5</sup>
Br-82		4.0X10 <sup>-1</sup>	1.1X10 <sup>1</sup>	4.0X10 <sup>-1</sup>	1.1X10 <sup>1</sup>	4.0X10 <sup>4</sup>	1.1X10 <sup>6</sup>
C-11	Carbon (6)	1.0	2.7X10 <sup>1</sup>	6.0X10 <sup>-1</sup>	1.6X10 <sup>1</sup>	3.1X10 <sup>7</sup>	8.4X10 <sup>8</sup>
C-14		4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	3.0	8.1X10 <sup>1</sup>	1.6X10 <sup>-1</sup>	4.5
Ca-41	Calcium (20)	Unlimited	Unlimited	Unlimited	Unlimited	3.1X10 <sup>-3</sup>	8.5X10 <sup>-2</sup>
Ca-45		4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	1.0	2.7X10 <sup>1</sup>	6.6X10 <sup>2</sup>	1.8X10 <sup>4</sup>
Ca-47 (a)		3.0	8.1X10 <sup>1</sup>	3.0X10 <sup>-1</sup>	8.1	2.3X10 <sup>4</sup>	6.1X10 <sup>5</sup>
Cd-109	Cadmium (48)	3.0X10 <sup>1</sup>	8.1X10 <sup>2</sup>	2.0	5.4X10 <sup>1</sup>	9.6X10 <sup>1</sup>	2.6X10 <sup>3</sup>
Cd-113m		4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	5.0X10 <sup>-1</sup>	1.4X10 <sup>1</sup>	8.3	2.2X10 <sup>2</sup>
Cd-115 (a)		3.0	8.1X10 <sup>1</sup>	4.0X10 <sup>-1</sup>	1.1X10 <sup>1</sup>	1.9X10 <sup>4</sup>	5.1X10 <sup>5</sup>
Cd-115m		5.0X10 <sup>-1</sup>	1.4X10 <sup>1</sup>	5.0X10 <sup>-1</sup>	1.4X10 <sup>1</sup>	9.4X10 <sup>2</sup>	2.5X10 <sup>4</sup>
Ce-139	Cerium (58)	7.0	1.9X10 <sup>2</sup>	2.0	5.4X10 <sup>1</sup>	2.5X10 <sup>2</sup>	6.8X10 <sup>3</sup>
Ce-141		2.0X10 <sup>1</sup>	5.4X10 <sup>2</sup>	6.0X10 <sup>-1</sup>	1.6X10 <sup>1</sup>	1.1X10 <sup>3</sup>	2.8X10 <sup>4</sup>
Ce-143		9.0X10 <sup>-1</sup>	2.4X10 <sup>1</sup>	6.0X10 <sup>-1</sup>	1.6X10 <sup>1</sup>	2.5X10 <sup>4</sup>	6.6X10 <sup>5</sup>
Ce-144 (a)		2.0X10 <sup>-1</sup>	5.4	2.0X10 <sup>-1</sup>	5.4	1.2X10 <sup>2</sup>	3.2X10 <sup>3</sup>
Cf-248	Californium (98)	4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	6.0X10 <sup>-3</sup>	1.6X10 <sup>-1</sup>	5.8X10 <sup>1</sup>	1.6X10 <sup>3</sup>
Cf-249		3.0	8.1X10 <sup>1</sup>	8.0X10 <sup>-4</sup>	2.2X10 <sup>-2</sup>	1.5X10 <sup>-1</sup>	4.1
Cf-250		2.0X10 <sup>1</sup>	5.4X10 <sup>2</sup>	2.0X10 <sup>-3</sup>	5.4X10 <sup>-2</sup>	4.0	1.1X10 <sup>2</sup>
Cf-251		7.0	1.9X10 <sup>2</sup>	7.0X10 <sup>-4</sup>	1.9X10 <sup>-2</sup>	5.9X10 <sup>-2</sup>	1.6
Cf-252		1.0X10 <sup>-1</sup>	2.7	3.0X10 <sup>-3</sup>	8.1X10 <sup>-2</sup>	2.0X10 <sup>1</sup>	5.4X10 <sup>2</sup>
Cf-253 (a)		4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	4.0X10 <sup>-2</sup>	1.1	1.1X10 <sup>3</sup>	2.9X10 <sup>4</sup>
Cf-254		1.0X10 <sup>-3</sup>	2.7X10 <sup>-2</sup>	1.0X10 <sup>-3</sup>	2.7X10 <sup>-2</sup>	3.1X10 <sup>2</sup>	8.5X10 <sup>3</sup>
Cl-36	Chlorine (17)	1.0X10 <sup>1</sup>	2.7X10 <sup>2</sup>	6.0X10 <sup>-1</sup>	1.6X10 <sup>1</sup>	1.2X10 <sup>-3</sup>	3.3X10 <sup>-2</sup>
Cl-38		2.0X10 <sup>-1</sup>	5.4	2.0X10 <sup>-1</sup>	5.4	4.9X10 <sup>6</sup>	1.3X10 <sup>8</sup>
Cm-240	Curium (96)	4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	2.0X10 <sup>-2</sup>	5.4X10 <sup>-1</sup>	7.5X10 <sup>2</sup>	2.0X10 <sup>4</sup>
Cm-241		2.0	5.4X10 <sup>1</sup>	1.0	2.7X10 <sup>1</sup>	6.1X10 <sup>2</sup>	1.7X10 <sup>4</sup>
Cm-242		4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	1.0X10 <sup>-2</sup>	2.7X10 <sup>-1</sup>	1.2X10 <sup>2</sup>	3.3X10 <sup>3</sup>
Cm-243		9.0	2.4X10 <sup>2</sup>	1.0X10 <sup>-3</sup>	2.7X10 <sup>-2</sup>	1.9X10 <sup>-3</sup>	5.2X10 <sup>1</sup>
Cm-244		2.0X10 <sup>1</sup>	5.4X10 <sup>2</sup>	2.0X10 <sup>-3</sup>	5.4X10 <sup>-2</sup>	3.0	8.1X10 <sup>1</sup>
Cm-245		9.0	2.4X10 <sup>2</sup>	9.0X10 <sup>-4</sup>	2.4X10 <sup>-2</sup>	6.4X10 <sup>-3</sup>	1.7X10 <sup>-1</sup>
Cm-246		9.0	2.4X10 <sup>2</sup>	9.0X10 <sup>-4</sup>	2.4X10 <sup>-2</sup>	1.1X10 <sup>-2</sup>	3.1X10 <sup>-1</sup>
Cm-247 (a)		3.0	8.1X10 <sup>1</sup>	1.0X10 <sup>-3</sup>	2.7X10 <sup>-2</sup>	3.4X10 <sup>-6</sup>	9.3X10 <sup>-5</sup>
Cm-248		2.0X10 <sup>-2</sup>	5.4X10 <sup>-1</sup>	3.0X10 <sup>-4</sup>	8.1X10 <sup>-3</sup>	1.6X10 <sup>-4</sup>	4.2X10 <sup>-3</sup>
Co-55	Cobalt (27)	5.0X10 <sup>-1</sup>	1.4X10 <sup>1</sup>	5.0X10 <sup>-1</sup>	1.4X10 <sup>1</sup>	1.1X10 <sup>5</sup>	3.1X10 <sup>6</sup>
Co-56		3.0X10 <sup>-1</sup>	8.1	3.0X10 <sup>-1</sup>	8.1	1.1X10 <sup>3</sup>	3.0X10 <sup>4</sup>
Co-57		1.0X10 <sup>1</sup>	2.7X10 <sup>2</sup>	1.0X10 <sup>1</sup>	2.7X10 <sup>2</sup>	3.1X10 <sup>2</sup>	8.4X10 <sup>3</sup>
Co-58		1.0	2.7X10 <sup>1</sup>	1.0	2.7X10 <sup>1</sup>	1.2X10 <sup>3</sup>	3.2X10 <sup>4</sup>
Co-58m		4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	2.2X10 <sup>5</sup>	5.9X10 <sup>6</sup>

Symbol of radionuclide	Element and atomic number	A1 (TBq)	A1 (Ci) <sup>b</sup>	A2 (TBq)	A2 (Ci) <sup>b</sup>	Specific activity	
						(TBq/g)	(Ci/g)
Co-60		4.0X10 <sup>-1</sup>	1.1X10 <sup>1</sup>	4.0X10 <sup>-1</sup>	1.1X10 <sup>1</sup>	4.2X10 <sup>1</sup>	1.1X10 <sup>3</sup>
Cr-51	Chromium (24)	3.0X10 <sup>1</sup>	8.1X10 <sup>2</sup>	3.0X10 <sup>1</sup>	8.1X10 <sup>2</sup>	3.4X10 <sup>3</sup>	9.2X10 <sup>4</sup>
Cs-129	Cesium (55)	4.0	1.1X10 <sup>2</sup>	4.0	1.1X10 <sup>2</sup>	2.8X10 <sup>4</sup>	7.6X10 <sup>5</sup>
Cs-131		3.0X10 <sup>1</sup>	8.1X10 <sup>2</sup>	3.0X10 <sup>1</sup>	8.1X10 <sup>2</sup>	3.8X10 <sup>3</sup>	1.0X10 <sup>5</sup>
Cs-132		1.0	2.7X10 <sup>1</sup>	1.0	2.7X10 <sup>1</sup>	5.7X10 <sup>3</sup>	1.5X10 <sup>5</sup>
Cs-134		7.0X10 <sup>-1</sup>	1.9X10 <sup>1</sup>	7.0X10 <sup>-1</sup>	1.9X10 <sup>1</sup>	4.8X10 <sup>1</sup>	1.3X10 <sup>3</sup>
Cs-134m		4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	6.0X10 <sup>-1</sup>	1.6X10 <sup>1</sup>	3.0X10 <sup>5</sup>	8.0X10 <sup>6</sup>
Cs-135		4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	1.0	2.7X10 <sup>1</sup>	4.3X10 <sup>-5</sup>	1.2X10 <sup>-3</sup>
Cs-136		5.0X10 <sup>-1</sup>	1.4X10 <sup>1</sup>	5.0X10 <sup>-1</sup>	1.4X10 <sup>1</sup>	2.7X10 <sup>3</sup>	7.3X10 <sup>4</sup>
Cs-137 (a)		2.0	5.4X10 <sup>1</sup>	6.0X10 <sup>-1</sup>	1.6X10 <sup>1</sup>	3.2	8.7X10 <sup>1</sup>
Cu-64	Copper (29)	6.0	1.6X10 <sup>2</sup>	1.0	2.7X10 <sup>1</sup>	1.4X10 <sup>5</sup>	3.9X10 <sup>6</sup>
Cu-67		1.0X10 <sup>1</sup>	2.7X10 <sup>2</sup>	7.0X10 <sup>-1</sup>	1.9X10 <sup>1</sup>	2.8X10 <sup>4</sup>	7.6X10 <sup>5</sup>
Dy-159	Dysprosium (66)	2.0X10 <sup>1</sup>	5.4X10 <sup>2</sup>	2.0X10 <sup>1</sup>	5.4X10 <sup>2</sup>	2.1X10 <sup>2</sup>	5.7X10 <sup>3</sup>
Dy-165		9.0X10 <sup>-1</sup>	2.4X10 <sup>1</sup>	6.0X10 <sup>-1</sup>	1.6X10 <sup>1</sup>	3.0X10 <sup>5</sup>	8.2X10 <sup>6</sup>
Dy-166 (a)		9.0X10 <sup>-1</sup>	2.4X10 <sup>1</sup>	3.0X10 <sup>-1</sup>	8.1	8.6X10 <sup>3</sup>	2.3X10 <sup>5</sup>
Er-169	Erbium (68)	4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	1.0	2.7X10 <sup>1</sup>	3.1X10 <sup>3</sup>	8.3X10 <sup>4</sup>
Er-171		8.0X10 <sup>-1</sup>	2.2X10 <sup>1</sup>	5.0X10 <sup>-1</sup>	1.4X10 <sup>1</sup>	9.0X10 <sup>4</sup>	2.4X10 <sup>6</sup>
Eu-147	Europium (63)	2.0	5.4X10 <sup>1</sup>	2.0	5.4X10 <sup>1</sup>	1.4X10 <sup>3</sup>	3.7X10 <sup>4</sup>
Eu-148		5.0X10 <sup>-1</sup>	1.4X10 <sup>1</sup>	5.0X10 <sup>-1</sup>	1.4X10 <sup>1</sup>	6.0X10 <sup>2</sup>	1.6X10 <sup>4</sup>
Eu-149		2.0X10 <sup>1</sup>	5.4X10 <sup>2</sup>	2.0X10 <sup>1</sup>	5.4X10 <sup>2</sup>	3.5X10 <sup>2</sup>	9.4X10 <sup>3</sup>
Eu-150 (short lived)		2.0	5.4X10 <sup>1</sup>	7.0X10 <sup>-1</sup>	1.9X10 <sup>1</sup>	6.1X10 <sup>4</sup>	1.6X10 <sup>6</sup>
Eu-150 (long lived)		7.0X10 <sup>-1</sup>	1.9X10 <sup>1</sup>	7.0X10 <sup>-1</sup>	1.9X10 <sup>1</sup>	6.1X10 <sup>4</sup>	1.6X10 <sup>6</sup>
Eu-152		1.0	2.7X10 <sup>1</sup>	1.0	2.7X10 <sup>1</sup>	6.5	1.8X10 <sup>2</sup>
Eu-152m		8.0X10 <sup>-1</sup>	2.2X10 <sup>1</sup>	8.0X10 <sup>-1</sup>	2.2X10 <sup>1</sup>	8.2X10 <sup>4</sup>	2.2X10 <sup>6</sup>
Eu-154		9.0X10 <sup>-1</sup>	2.4X10 <sup>1</sup>	6.0X10 <sup>-1</sup>	1.6X10 <sup>1</sup>	9.8	2.6X10 <sup>2</sup>
Eu-155		2.0X10 <sup>1</sup>	5.4X10 <sup>2</sup>	3.0	8.1X10 <sup>1</sup>	1.8X10 <sup>1</sup>	4.9X10 <sup>2</sup>
Eu-156		7.0X10 <sup>-1</sup>	1.9X10 <sup>1</sup>	7.0X10 <sup>-1</sup>	1.9X10 <sup>1</sup>	2.0X10 <sup>3</sup>	5.5X10 <sup>4</sup>
F-18	Fluorine (9)	1.0	2.7X10 <sup>1</sup>	6.0X10 <sup>-1</sup>	1.6X10 <sup>1</sup>	3.5X10 <sup>6</sup>	9.5X10 <sup>7</sup>
Fe-52 (a)	Iron (26)	3.0X10 <sup>-1</sup>	8.1	3.0X10 <sup>-1</sup>	8.1	2.7X10 <sup>5</sup>	7.3X10 <sup>6</sup>
Fe-55		4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	8.8X10 <sup>1</sup>	2.4X10 <sup>3</sup>
Fe-59		9.0X10 <sup>-1</sup>	2.4X10 <sup>1</sup>	9.0X10 <sup>-1</sup>	2.4X10 <sup>1</sup>	1.8X10 <sup>3</sup>	5.0X10 <sup>4</sup>
Fe-60 (a)		4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	2.0X10 <sup>-1</sup>	5.4	7.4X10 <sup>-4</sup>	2.0X10 <sup>-2</sup>
Ga-67	Gallium (31)	7.0	1.9X10 <sup>2</sup>	3.0	8.1X10 <sup>1</sup>	2.2X10 <sup>4</sup>	6.0X10 <sup>5</sup>
Ga-68		5.0X10 <sup>-1</sup>	1.4X10 <sup>1</sup>	5.0X10 <sup>-1</sup>	1.4X10 <sup>1</sup>	1.5X10 <sup>6</sup>	4.1X10 <sup>7</sup>
Ga-72		4.0X10 <sup>-1</sup>	1.1X10 <sup>1</sup>	4.0X10 <sup>-1</sup>	1.1X10 <sup>1</sup>	1.1X10 <sup>5</sup>	3.1X10 <sup>6</sup>
Gd-146 (a)	Gadolinium (64)	5.0X10 <sup>-1</sup>	1.4X10 <sup>1</sup>	5.0X10 <sup>-1</sup>	1.4X10 <sup>1</sup>	6.9X10 <sup>2</sup>	1.9X10 <sup>4</sup>
Gd-148		2.0X10 <sup>1</sup>	5.4X10 <sup>2</sup>	2.0X10 <sup>-3</sup>	5.4X10 <sup>-2</sup>	1.2	3.2X10 <sup>1</sup>
Gd-153		1.0X10 <sup>1</sup>	2.7X10 <sup>2</sup>	9.0	2.4X10 <sup>2</sup>	1.3X10 <sup>2</sup>	3.5X10 <sup>3</sup>
Gd-159		3.0	8.1X10 <sup>1</sup>	6.0X10 <sup>-1</sup>	1.6X10 <sup>1</sup>	3.9X10 <sup>4</sup>	1.1X10 <sup>6</sup>
Ge-68 (a)	Germanium (32)	5.0X10 <sup>-1</sup>	1.4X10 <sup>1</sup>	5.0X10 <sup>-1</sup>	1.4X10 <sup>1</sup>	2.6X10 <sup>2</sup>	7.1X10 <sup>3</sup>
Ge-71		4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	5.8X10 <sup>3</sup>	1.6X10 <sup>5</sup>
Ge-77		3.0X10 <sup>-1</sup>	8.1	3.0X10 <sup>-1</sup>	8.1	1.3X10 <sup>5</sup>	3.6X10 <sup>6</sup>
Hf-172 (a)	Hafnium (72)	6.0X10 <sup>-1</sup>	1.6X10 <sup>1</sup>	6.0X10 <sup>-1</sup>	1.6X10 <sup>1</sup>	4.1X10 <sup>1</sup>	1.1X10 <sup>3</sup>
Hf-175		3.0	8.1X10 <sup>1</sup>	3.0	8.1X10 <sup>1</sup>	3.9X10 <sup>2</sup>	1.1X10 <sup>4</sup>
Hf-181		2.0	5.4X10 <sup>1</sup>	5.0X10 <sup>-1</sup>	1.4X10 <sup>1</sup>	6.3X10 <sup>2</sup>	1.7X10 <sup>4</sup>
Hf-182		Unlimited	Unlimited	Unlimited	Unlimited	8.1X10 <sup>-6</sup>	2.2X10 <sup>-4</sup>
Hg-194 (a)	Mercury (80)	1.0	2.7X10 <sup>1</sup>	1.0	2.7X10 <sup>1</sup>	1.3X10 <sup>-1</sup>	3.5

Symbol of radionuclide	Element and atomic number	A1 (TBq)	A1 (Ci) <sup>b</sup>	A2 (TBq)	A2 (Ci) <sup>b</sup>	Specific activity	
						(TBq/g)	(Ci/g)
Hg-195m (a)		3.0	8.1X10 <sup>1</sup>	7.0X10 <sup>-1</sup>	1.9X10 <sup>1</sup>	1.5X10 <sup>4</sup>	4.0X10 <sup>5</sup>
Hg-197		2.0X10 <sup>1</sup>	5.4X10 <sup>2</sup>	1.0X10 <sup>1</sup>	2.7X10 <sup>2</sup>	9.2X10 <sup>3</sup>	2.5X10 <sup>5</sup>
Hg-197m		1.0X10 <sup>1</sup>	2.7X10 <sup>2</sup>	4.0X10 <sup>-1</sup>	1.1X10 <sup>1</sup>	2.5X10 <sup>4</sup>	6.7X10 <sup>5</sup>
Hg-203		5.0	1.4X10 <sup>2</sup>	1.0	2.7X10 <sup>1</sup>	5.1X10 <sup>2</sup>	1.4X10 <sup>4</sup>
Ho-166	Holmium (67)	4.0X10 <sup>-1</sup>	1.1X10 <sup>1</sup>	4.0X10 <sup>-1</sup>	1.1X10 <sup>1</sup>	2.6X10 <sup>4</sup>	7.0X10 <sup>5</sup>
Ho-166m		6.0X10 <sup>-1</sup>	1.6X10 <sup>1</sup>	5.0X10 <sup>-1</sup>	1.4X10 <sup>1</sup>	6.6X10 <sup>-2</sup>	1.8
I-123	Iodine (53)	6.0	1.6X10 <sup>2</sup>	3.0	8.1X10 <sup>1</sup>	7.1X10 <sup>4</sup>	1.9X10 <sup>6</sup>
I-124		1.0	2.7X10 <sup>1</sup>	1.0	2.7X10 <sup>1</sup>	9.3X10 <sup>3</sup>	2.5X10 <sup>5</sup>
I-125		2.0X10 <sup>1</sup>	5.4X10 <sup>2</sup>	3.0	8.1X10 <sup>1</sup>	6.4X10 <sup>2</sup>	1.7X10 <sup>4</sup>
I-126		2.0	5.4X10 <sup>1</sup>	1.0	2.7X10 <sup>1</sup>	2.9X10 <sup>3</sup>	8.0X10 <sup>4</sup>
I-129		Unlimited	Unlimited	Unlimited	Unlimited	6.5X10 <sup>-6</sup>	1.8X10 <sup>-4</sup>
I-131		3.0	8.1X10 <sup>1</sup>	7.0X10 <sup>-1</sup>	1.9X10 <sup>1</sup>	4.6X10 <sup>3</sup>	1.2X10 <sup>5</sup>
I-132		4.0X10 <sup>-1</sup>	1.1X10 <sup>1</sup>	4.0X10 <sup>-1</sup>	1.1X10 <sup>1</sup>	3.8X10 <sup>5</sup>	1.0X10 <sup>7</sup>
I-133		7.0X10 <sup>-1</sup>	1.9X10 <sup>1</sup>	6.0X10 <sup>-1</sup>	1.6X10 <sup>1</sup>	4.2X10 <sup>4</sup>	1.1X10 <sup>6</sup>
I-134		3.0X10 <sup>-1</sup>	8.1	3.0X10 <sup>-1</sup>	8.1	9.9X10 <sup>5</sup>	2.7X10 <sup>7</sup>
I-135 (a)		6.0X10 <sup>-1</sup>	1.6X10 <sup>1</sup>	6.0X10 <sup>-1</sup>	1.6X10 <sup>1</sup>	1.3X10 <sup>5</sup>	3.5X10 <sup>6</sup>
In-111	Indium (49)	3.0	8.1X10 <sup>1</sup>	3.0	8.1X10 <sup>1</sup>	1.5X10 <sup>4</sup>	4.2X10 <sup>5</sup>
In-113m		4.0	1.1X10 <sup>2</sup>	2.0	5.4X10 <sup>1</sup>	6.2X10 <sup>5</sup>	1.7X10 <sup>7</sup>
In-114m (a)		1.0X10 <sup>1</sup>	2.7X10 <sup>2</sup>	5.0X10 <sup>-1</sup>	1.4X10 <sup>1</sup>	8.6X10 <sup>2</sup>	2.3X10 <sup>4</sup>
In-115m		7.0	1.9X10 <sup>2</sup>	1.0	2.7X10 <sup>1</sup>	2.2X10 <sup>5</sup>	6.1X10 <sup>6</sup>
Ir-189 (a)	Iridium (77)	1.0X10 <sup>1</sup>	2.7X10 <sup>2</sup>	1.0X10 <sup>1</sup>	2.7X10 <sup>2</sup>	1.9X10 <sup>3</sup>	5.2X10 <sup>4</sup>
Ir-190		7.0X10 <sup>-1</sup>	1.9X10 <sup>1</sup>	7.0X10 <sup>-1</sup>	1.9X10 <sup>1</sup>	2.3X10 <sup>3</sup>	6.2X10 <sup>4</sup>
Ir-192		<sup>c</sup> 1.0	<sup>c</sup> 2.7X10 <sup>1</sup>	6.0X10 <sup>-1</sup>	1.6X10 <sup>1</sup>	3.4X10 <sup>2</sup>	9.2X10 <sup>3</sup>
Ir-194		3.0X10 <sup>-1</sup>	8.1	3.0X10 <sup>-1</sup>	8.1	3.1X10 <sup>4</sup>	8.4X10 <sup>5</sup>
K-40	Potassium (19)	9.0X10 <sup>-1</sup>	2.4X10 <sup>1</sup>	9.0X10 <sup>-1</sup>	2.4X10 <sup>1</sup>	2.4X10 <sup>-7</sup>	6.4X10 <sup>-6</sup>
K-42		2.0X10 <sup>-1</sup>	5.4	2.0X10 <sup>-1</sup>	5.4	2.2X10 <sup>5</sup>	6.0X10 <sup>6</sup>
K-43		7.0X10 <sup>-1</sup>	1.9X10 <sup>1</sup>	6.0X10 <sup>-1</sup>	1.6X10 <sup>1</sup>	1.2X10 <sup>5</sup>	3.3X10 <sup>6</sup>
Kr-79	Krypton (36)	4.0	1.1X10 <sup>2</sup>	2.0	5.4X10 <sup>1</sup>	4.2X10 <sup>4</sup>	1.1X10 <sup>6</sup>
Kr-81		4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	7.8X10 <sup>-4</sup>	2.1X10 <sup>-2</sup>
Kr-85		1.0X10 <sup>1</sup>	2.7X10 <sup>2</sup>	1.0X10 <sup>1</sup>	2.7X10 <sup>2</sup>	1.5X10 <sup>1</sup>	3.9X10 <sup>2</sup>
Kr-85m		8.0	2.2X10 <sup>2</sup>	3.0	8.1X10 <sup>1</sup>	3.0X10 <sup>5</sup>	8.2X10 <sup>6</sup>
Kr-87		2.0X10 <sup>-1</sup>	5.4	2.0X10 <sup>-1</sup>	5.4	1.0X10 <sup>6</sup>	2.8X10 <sup>7</sup>
La-137	Lanthanum (57)	3.0X10 <sup>1</sup>	8.1X10 <sup>2</sup>	6.0	1.6X10 <sup>2</sup>	1.6X10 <sup>-3</sup>	4.4X10 <sup>-2</sup>
La-140		4.0X10 <sup>-1</sup>	1.1X10 <sup>1</sup>	4.0X10 <sup>-1</sup>	1.1X10 <sup>1</sup>	2.1X10 <sup>4</sup>	5.6X10 <sup>5</sup>
Lu-172	Lutetium (71)	6.0X10 <sup>-1</sup>	1.6X10 <sup>1</sup>	6.0X10 <sup>-1</sup>	1.6X10 <sup>1</sup>	4.2X10 <sup>3</sup>	1.1X10 <sup>5</sup>
Lu-173		8.0	2.2X10 <sup>2</sup>	8.0	2.2X10 <sup>2</sup>	5.6X10 <sup>1</sup>	1.5X10 <sup>3</sup>
Lu-174		9.0	2.4X10 <sup>2</sup>	9.0	2.4X10 <sup>2</sup>	2.3X10 <sup>1</sup>	6.2X10 <sup>2</sup>
Lu-174m		2.0X10 <sup>1</sup>	5.4X10 <sup>2</sup>	1.0X10 <sup>1</sup>	2.7X10 <sup>2</sup>	2.0X10 <sup>2</sup>	5.3X10 <sup>3</sup>
Lu-177		3.0X10 <sup>1</sup>	8.1X10 <sup>2</sup>	7.0X10 <sup>-1</sup>	1.9X10 <sup>1</sup>	4.1X10 <sup>3</sup>	1.1X10 <sup>5</sup>
Mg-28 (a)	Magnesium (12)	3.0X10 <sup>-1</sup>	8.1	3.0X10 <sup>-1</sup>	8.1	2.0X10 <sup>5</sup>	5.4X10 <sup>6</sup>
Mn-52	Manganese (25)	3.0X10 <sup>-1</sup>	8.1	3.0X10 <sup>-1</sup>	8.1	1.6X10 <sup>4</sup>	4.4X10 <sup>5</sup>
Mn-53		Unlimited	Unlimited	Unlimited	Unlimited	6.8X10 <sup>-5</sup>	1.8X10 <sup>-3</sup>
Mn-54		1.0	2.7X10 <sup>1</sup>	1.0	2.7X10 <sup>1</sup>	2.9X10 <sup>2</sup>	7.7X10 <sup>3</sup>
Mn-56		3.0X10 <sup>-1</sup>	8.1	3.0X10 <sup>-1</sup>	8.1	8.0X10 <sup>5</sup>	2.2X10 <sup>7</sup>
Mo-93	Molybdenum (42)	4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	2.0X10 <sup>1</sup>	5.4X10 <sup>2</sup>	4.1X10 <sup>-2</sup>	1.1
Mo-99 (a) (h)		1.0	2.7X10 <sup>1</sup>	6.0X10 <sup>-1</sup>	1.6X10 <sup>1</sup>	1.8X10 <sup>4</sup>	4.8X10 <sup>5</sup>

Symbol of radionuclide	Element and atomic number	A1 (TBq)	A1 (Ci) <sup>b</sup>	A2 (TBq)	A2 (Ci) <sup>b</sup>	Specific activity	
						(TBq/g)	(Ci/g)
N-13	Nitrogen (7)	9.0X10 <sup>-1</sup>	2.4X10 <sup>1</sup>	6.0X10 <sup>-1</sup>	1.6X10 <sup>1</sup>	5.4X10 <sup>7</sup>	1.5X10 <sup>9</sup>
Na-22	Sodium (11)	5.0X10 <sup>-1</sup>	1.4X10 <sup>1</sup>	5.0X10 <sup>-1</sup>	1.4X10 <sup>1</sup>	2.3X10 <sup>2</sup>	6.3X10 <sup>3</sup>
Na-24		2.0X10 <sup>-1</sup>	5.4	2.0X10 <sup>-1</sup>	5.4	3.2X10 <sup>5</sup>	8.7X10 <sup>6</sup>
Nb-93m	Niobium (41)	4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	3.0X10 <sup>1</sup>	8.1X10 <sup>2</sup>	8.8	2.4X10 <sup>2</sup>
Nb-94		7.0X10 <sup>-1</sup>	1.9X10 <sup>1</sup>	7.0X10 <sup>-1</sup>	1.9X10 <sup>1</sup>	6.9X10 <sup>-3</sup>	1.9X10 <sup>-1</sup>
Nb-95		1.0	2.7X10 <sup>1</sup>	1.0	2.7X10 <sup>1</sup>	1.5X10 <sup>3</sup>	3.9X10 <sup>4</sup>
Nb-97		9.0X10 <sup>-1</sup>	2.4X10 <sup>1</sup>	6.0X10 <sup>-1</sup>	1.6X10 <sup>1</sup>	9.9X10 <sup>5</sup>	2.7X10 <sup>7</sup>
Nd-147	Neodymium (60)	6.0	1.6X10 <sup>2</sup>	6.0X10 <sup>-1</sup>	1.6X10 <sup>1</sup>	3.0X10 <sup>3</sup>	8.1X10 <sup>4</sup>
Nd-149		6.0X10 <sup>-1</sup>	1.6X10 <sup>1</sup>	5.0X10 <sup>-1</sup>	1.4X10 <sup>1</sup>	4.5X10 <sup>5</sup>	1.2X10 <sup>7</sup>
Ni-59	Nickel (28)	Unlimited	Unlimited	Unlimited	Unlimited	3.0X10 <sup>-3</sup>	8.0X10 <sup>-2</sup>
Ni-63		4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	3.0X10 <sup>1</sup>	8.1X10 <sup>2</sup>	2.1	5.7X10 <sup>1</sup>
Ni-65		4.0X10 <sup>-1</sup>	1.1X10 <sup>1</sup>	4.0X10 <sup>-1</sup>	1.1X10 <sup>1</sup>	7.1X10 <sup>5</sup>	1.9X10 <sup>7</sup>
Np-235	Neptunium (93)	4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	5.2X10 <sup>1</sup>	1.4X10 <sup>3</sup>
Np-236 (short-lived)		2.0X10 <sup>1</sup>	5.4X10 <sup>2</sup>	2.0	5.4X10 <sup>1</sup>	4.7X10 <sup>-4</sup>	1.3X10 <sup>-2</sup>
Np-236 (long-lived)		9.0	2.4X10 <sup>2</sup>	2.0X10 <sup>-2</sup>	5.4X10 <sup>-1</sup>	4.7X10 <sup>-4</sup>	1.3X10 <sup>-2</sup>
Np-237		2.0X10 <sup>1</sup>	5.4X10 <sup>2</sup>	2.0X10 <sup>-3</sup>	5.4X10 <sup>-2</sup>	2.6X10 <sup>-5</sup>	7.1X10 <sup>-4</sup>
Np-239		7.0	1.9X10 <sup>2</sup>	4.0X10 <sup>-1</sup>	1.1X10 <sup>1</sup>	8.6X10 <sup>3</sup>	2.3X10 <sup>5</sup>
Os-185	Osmium (76)	1.0	2.7X10 <sup>1</sup>	1.0	2.7X10 <sup>1</sup>	2.8X10 <sup>2</sup>	7.5X10 <sup>3</sup>
Os-191		1.0X10 <sup>1</sup>	2.7X10 <sup>2</sup>	2.0	5.4X10 <sup>1</sup>	1.6X10 <sup>3</sup>	4.4X10 <sup>4</sup>
Os-191m		4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	3.0X10 <sup>1</sup>	8.1X10 <sup>2</sup>	4.6X10 <sup>4</sup>	1.3X10 <sup>6</sup>
Os-193		2.0	5.4X10 <sup>1</sup>	6.0X10 <sup>-1</sup>	1.6X10 <sup>1</sup>	6.2X10 <sup>4</sup>	5.3X10 <sup>5</sup>
Os-194 (a)		3.0X10 <sup>-1</sup>	8.1	3.0X10 <sup>-1</sup>	8.1	1.1X10 <sup>1</sup>	3.1X10 <sup>2</sup>
P-32	Phosphorus (15)	5.0X10 <sup>-1</sup>	1.4X10 <sup>1</sup>	5.0X10 <sup>-1</sup>	1.4X10 <sup>1</sup>	1.1X10 <sup>4</sup>	2.9X10 <sup>5</sup>
P-33		4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	1.0	2.7X10 <sup>1</sup>	5.8X10 <sup>3</sup>	1.6X10 <sup>5</sup>
Pa-230 (a)	Protactinium (91)	2.0	5.4X10 <sup>1</sup>	7.0X10 <sup>-2</sup>	1.9	1.2X10 <sup>3</sup>	3.3X10 <sup>4</sup>
Pa-231		4.0	1.1X10 <sup>2</sup>	4.0X10 <sup>-4</sup>	1.1X10 <sup>-2</sup>	1.7X10 <sup>-3</sup>	4.7X10 <sup>-2</sup>
Pa-233		5.0	1.4X10 <sup>2</sup>	7.0X10 <sup>-1</sup>	1.9X10 <sup>1</sup>	7.7X10 <sup>2</sup>	2.1X10 <sup>4</sup>
Pb-201	Lead (82)	1.0	2.7X10 <sup>1</sup>	1.0	2.7X10 <sup>1</sup>	6.2X10 <sup>4</sup>	1.7X10 <sup>6</sup>
Pb-202		4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	2.0X10 <sup>1</sup>	5.4X10 <sup>2</sup>	1.2X10 <sup>-4</sup>	3.4X10 <sup>-3</sup>
Pb-203		4.0	1.1X10 <sup>2</sup>	3.0	8.1X10 <sup>1</sup>	1.1X10 <sup>4</sup>	3.0X10 <sup>5</sup>
Pb-205		Unlimited	Unlimited	Unlimited	Unlimited	4.5X10 <sup>-6</sup>	1.2X10 <sup>-4</sup>
Pb-210 (a)		1.0	2.7X10 <sup>1</sup>	5.0X10 <sup>-2</sup>	1.4	2.8	7.6X10 <sup>1</sup>
Pb-212 (a)		7.0X10 <sup>-1</sup>	1.9X10 <sup>1</sup>	2.0X10 <sup>-1</sup>	5.4	5.1X10 <sup>4</sup>	1.4X10 <sup>6</sup>
Pd-103 (a)	Palladium (46)	4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	2.8X10 <sup>3</sup>	7.5X10 <sup>4</sup>
Pd-107		Unlimited	Unlimited	Unlimited	Unlimited	1.9X10 <sup>-5</sup>	5.1X10 <sup>-4</sup>
Pd-109		2.0	5.4X10 <sup>1</sup>	5.0X10 <sup>-1</sup>	1.4X10 <sup>1</sup>	7.9X10 <sup>4</sup>	2.1X10 <sup>6</sup>
Pm-143	Promethium (61)	3.0	8.1X10 <sup>1</sup>	3.0	8.1X10 <sup>1</sup>	1.3X10 <sup>2</sup>	3.4X10 <sup>3</sup>
Pm-144		7.0X10 <sup>-1</sup>	1.9X10 <sup>1</sup>	7.0X10 <sup>-1</sup>	1.9X10 <sup>1</sup>	9.2X10 <sup>1</sup>	2.5X10 <sup>3</sup>
Pm-145		3.0X10 <sup>1</sup>	8.1X10 <sup>2</sup>	1.0X10 <sup>1</sup>	2.7X10 <sup>2</sup>	5.2	1.4X10 <sup>2</sup>
Pm-147		4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	2.0	5.4X10 <sup>1</sup>	3.4X10 <sup>1</sup>	9.3X10 <sup>2</sup>
Pm-148m (a)		8.0X10 <sup>-1</sup>	2.2X10 <sup>1</sup>	7.0X10 <sup>-1</sup>	1.9X10 <sup>1</sup>	7.9X10 <sup>2</sup>	2.1X10 <sup>4</sup>
Pm-149		2.0	5.4X10 <sup>1</sup>	6.0X10 <sup>-1</sup>	1.6X10 <sup>1</sup>	1.5X10 <sup>4</sup>	4.0X10 <sup>5</sup>
Pm-151		2.0	5.4X10 <sup>1</sup>	6.0X10 <sup>-1</sup>	1.6X10 <sup>1</sup>	2.7X10 <sup>4</sup>	7.3X10 <sup>5</sup>
Po-210	Polonium (84)	4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	2.0X10 <sup>-2</sup>	5.4X10 <sup>-1</sup>	1.7X10 <sup>2</sup>	4.5X10 <sup>3</sup>
Pr-142	Praseodymium (59)	4.0X10 <sup>-1</sup>	1.1X10 <sup>1</sup>	4.0X10 <sup>-1</sup>	1.1X10 <sup>1</sup>	4.3X10 <sup>4</sup>	1.2X10 <sup>6</sup>

Symbol of radionuclide	Element and atomic number	A1 (TBq)	A1 (Ci) <sup>b</sup>	A2 (TBq)	A2 (Ci) <sup>b</sup>	Specific activity	
						(TBq/g)	(Ci/g)
Pt-143		3.0	8.1X10 <sup>1</sup>	6.0X10 <sup>-1</sup>	1.6X10 <sup>1</sup>	2.5X10 <sup>3</sup>	6.7X10 <sup>4</sup>
Pt-188 (a)	Platinum (78)	1.0	2.7X10 <sup>1</sup>	8.0X10 <sup>-1</sup>	2.2X10 <sup>1</sup>	2.5X10 <sup>3</sup>	6.8X10 <sup>4</sup>
Pt-191		4.0	1.1X10 <sup>2</sup>	3.0	8.1X10 <sup>1</sup>	8.7X10 <sup>3</sup>	2.4X10 <sup>5</sup>
Pt-193		4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	1.4	3.7X10 <sup>1</sup>
Pt-193m		4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	5.0X10 <sup>-1</sup>	1.4X10 <sup>1</sup>	5.8X10 <sup>3</sup>	1.6X10 <sup>5</sup>
Pt-195m		1.0X10 <sup>1</sup>	2.7X10 <sup>2</sup>	5.0X10 <sup>-1</sup>	1.4X10 <sup>1</sup>	6.2X10 <sup>3</sup>	1.7X10 <sup>5</sup>
Pt-197		2.0X10 <sup>1</sup>	5.4X10 <sup>2</sup>	6.0X10 <sup>-1</sup>	1.6X10 <sup>1</sup>	3.2X10 <sup>4</sup>	8.7X10 <sup>5</sup>
Pt-197m		1.0X10 <sup>1</sup>	2.7X10 <sup>2</sup>	6.0X10 <sup>-1</sup>	1.6X10 <sup>1</sup>	3.7X10 <sup>5</sup>	1.0X10 <sup>7</sup>
Pu-236	Plutonium (94)	3.0X10 <sup>1</sup>	8.1X10 <sup>2</sup>	3.0X10 <sup>-3</sup>	8.1X10 <sup>-2</sup>	2.0X10 <sup>1</sup>	5.3X10 <sup>2</sup>
Pu-237		2.0X10 <sup>1</sup>	5.4X10 <sup>2</sup>	2.0X10 <sup>1</sup>	5.4X10 <sup>2</sup>	4.5X10 <sup>2</sup>	1.2X10 <sup>4</sup>
Pu-238		1.0X10 <sup>1</sup>	2.7X10 <sup>2</sup>	1.0X10 <sup>-3</sup>	2.7X10 <sup>-2</sup>	6.3X10 <sup>-1</sup>	1.7X10 <sup>1</sup>
Pu-239		1.0X10 <sup>1</sup>	2.7X10 <sup>2</sup>	1.0X10 <sup>-3</sup>	2.7X10 <sup>-2</sup>	2.3X10 <sup>-3</sup>	6.2X10 <sup>-2</sup>
Pu-240		1.0X10 <sup>1</sup>	2.7X10 <sup>2</sup>	1.0X10 <sup>-3</sup>	2.7X10 <sup>-2</sup>	8.4X10 <sup>-3</sup>	2.3X10 <sup>-1</sup>
Pu-241 (a)		4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	6.0X10 <sup>-2</sup>	1.6	3.8	1.0X10 <sup>2</sup>
Pu-242		1.0X10 <sup>1</sup>	2.7X10 <sup>2</sup>	1.0X10 <sup>-3</sup>	2.7X10 <sup>-2</sup>	1.5X10 <sup>-4</sup>	3.9X10 <sup>-3</sup>
Pu-244 (a)		4.0X10 <sup>-1</sup>	1.1X10 <sup>1</sup>	1.0X10 <sup>-3</sup>	2.7X10 <sup>-2</sup>	6.7X10 <sup>-7</sup>	1.8X10 <sup>-5</sup>
Ra-223 (a)	Radium (88)	4.0X10 <sup>-1</sup>	1.1X10 <sup>1</sup>	7.0X10 <sup>-3</sup>	1.9X10 <sup>-1</sup>	1.9X10 <sup>3</sup>	5.1X10 <sup>4</sup>
Ra-224 (a)		4.0X10 <sup>-1</sup>	1.1X10 <sup>1</sup>	2.0X10 <sup>-2</sup>	5.4X10 <sup>-1</sup>	5.9X10 <sup>3</sup>	1.6X10 <sup>5</sup>
Ra-225 (a)		2.0X10 <sup>-1</sup>	5.4	4.0X10 <sup>-3</sup>	1.1X10 <sup>-1</sup>	1.5X10 <sup>3</sup>	3.9X10 <sup>4</sup>
Ra-226 (a)		2.0X10 <sup>-1</sup>	5.4	3.0X10 <sup>-3</sup>	8.1X10 <sup>-2</sup>	3.7X10 <sup>-2</sup>	1.0
Ra-228 (a)		6.0X10 <sup>-1</sup>	1.6X10 <sup>1</sup>	2.0X10 <sup>-2</sup>	5.4X10 <sup>-1</sup>	1.0X10 <sup>1</sup>	2.7X10 <sup>2</sup>
Rb-81	Rubidium (37)	2.0	5.4X10 <sup>1</sup>	8.0X10 <sup>-1</sup>	2.2X10 <sup>1</sup>	3.1X10 <sup>5</sup>	8.4X10 <sup>6</sup>
Rb-83 (a)		2.0	5.4X10 <sup>1</sup>	2.0	5.4X10 <sup>1</sup>	6.8X10 <sup>2</sup>	1.8X10 <sup>4</sup>
Rb-84		1.0	2.7X10 <sup>1</sup>	1.0	2.7X10 <sup>1</sup>	1.8X10 <sup>3</sup>	4.7X10 <sup>4</sup>
Rb-86		5.0X10 <sup>-1</sup>	1.4X10 <sup>1</sup>	5.0X10 <sup>-1</sup>	1.4X10 <sup>1</sup>	3.0X10 <sup>3</sup>	8.1X10 <sup>4</sup>
Rb-87		Unlimited	Unlimited	Unlimited	Unlimited	3.2X10 <sup>-9</sup>	8.6X10 <sup>-8</sup>
Rb (nat)		Unlimited	Unlimited	Unlimited	Unlimited	6.7X10 <sup>6</sup>	1.8X10 <sup>8</sup>
Re-184	Rhenium (75)	1.0	2.7X10 <sup>1</sup>	1.0	2.7X10 <sup>1</sup>	6.9X10 <sup>2</sup>	1.9X10 <sup>4</sup>
Re-184m		3.0	8.1X10 <sup>1</sup>	1.0	2.7X10 <sup>1</sup>	1.6X10 <sup>2</sup>	4.3X10 <sup>3</sup>
Re-186		2.0	5.4X10 <sup>1</sup>	6.0X10 <sup>-1</sup>	1.6X10 <sup>1</sup>	6.9X10 <sup>3</sup>	1.9X10 <sup>5</sup>
Re-187		Unlimited	Unlimited	Unlimited	Unlimited	1.4X10 <sup>-9</sup>	3.8X10 <sup>-8</sup>
Re-188		4.0X10 <sup>-1</sup>	1.1X10 <sup>1</sup>	4.0X10 <sup>-1</sup>	1.1X10 <sup>1</sup>	3.6X10 <sup>4</sup>	9.8X10 <sup>5</sup>
Re-189 (a)		3.0	8.1X10 <sup>1</sup>	6.0X10 <sup>-1</sup>	1.6X10 <sup>1</sup>	2.5X10 <sup>4</sup>	6.8X10 <sup>5</sup>
Re (nat)		Unlimited	Unlimited	Unlimited	Unlimited	0.0	2.4X10 <sup>-8</sup>
Rh-99	Rhodium (45)	2.0	5.4X10 <sup>1</sup>	2.0	5.4X10 <sup>1</sup>	3.0X10 <sup>3</sup>	8.2X10 <sup>4</sup>
Rh-101		4.0	1.1X10 <sup>2</sup>	3.0	8.1X10 <sup>1</sup>	4.1X10 <sup>1</sup>	1.1X10 <sup>3</sup>
Rh-102		5.0X10 <sup>-1</sup>	1.4X10 <sup>1</sup>	5.0X10 <sup>-1</sup>	1.4X10 <sup>1</sup>	4.5X10 <sup>1</sup>	1.2X10 <sup>3</sup>
Rh-102m		2.0	5.4X10 <sup>1</sup>	2.0	5.4X10 <sup>1</sup>	2.3X10 <sup>2</sup>	6.2X10 <sup>3</sup>
Rh-103m		4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	1.2X10 <sup>6</sup>	3.3X10 <sup>7</sup>
Rh-105		1.0X10 <sup>1</sup>	2.7X10 <sup>2</sup>	8.0X10 <sup>-1</sup>	2.2X10 <sup>1</sup>	3.1X10 <sup>4</sup>	8.4X10 <sup>5</sup>
Rn-222 (a)	Radon (86)	3.0X10 <sup>-1</sup>	8.1	4.0X10 <sup>-3</sup>	1.1X10 <sup>-1</sup>	5.7X10 <sup>3</sup>	1.5X10 <sup>5</sup>
Ru-97	Ruthenium (44)	5.0	1.4X10 <sup>2</sup>	5.0	1.4X10 <sup>2</sup>	1.7X10 <sup>4</sup>	4.6X10 <sup>5</sup>
Ru-103 (a)		2.0	5.4X10 <sup>1</sup>	2.0	5.4X10 <sup>1</sup>	1.2X10 <sup>3</sup>	3.2X10 <sup>4</sup>
Ru-105		1.0	2.7X10 <sup>1</sup>	6.0X10 <sup>-1</sup>	1.6X10 <sup>1</sup>	2.5X10 <sup>5</sup>	6.7X10 <sup>6</sup>
Ru-106 (a)		2.0X10 <sup>-1</sup>	5.4	2.0X10 <sup>-1</sup>	5.4	1.2X10 <sup>2</sup>	3.3X10 <sup>3</sup>
S-35	Sulphur (16)	4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	3.0	8.1X10 <sup>1</sup>	1.6X10 <sup>3</sup>	4.3X10 <sup>4</sup>
Sb-122	Antimony (51)	4.0X10 <sup>-1</sup>	1.1X10 <sup>1</sup>	4.0X10 <sup>-1</sup>	1.1X10 <sup>1</sup>	1.5X10 <sup>4</sup>	4.0X10 <sup>5</sup>

Symbol of radionuclide	Element and atomic number	A1 (TBq)	A1 (Ci) <sup>b</sup>	A2 (TBq)	A2 (Ci) <sup>b</sup>	Specific activity	
						(TBq/g)	(Ci/g)
Sb-124		6.0X10 <sup>-1</sup>	1.6X10 <sup>1</sup>	6.0X10 <sup>-1</sup>	1.6X10 <sup>1</sup>	6.5X10 <sup>2</sup>	1.7X10 <sup>4</sup>
Sb-125		2.0	5.4X10 <sup>1</sup>	1.0	2.7X10 <sup>1</sup>	3.9X10 <sup>1</sup>	1.0X10 <sup>3</sup>
Sb-126		4.0X10 <sup>-1</sup>	1.1X10 <sup>1</sup>	4.0X10 <sup>-1</sup>	1.1X10 <sup>1</sup>	3.1X10 <sup>3</sup>	8.4X10 <sup>4</sup>
Sc-44	Scandium (21)	5.0X10 <sup>-1</sup>	1.4X10 <sup>1</sup>	5.0X10 <sup>-1</sup>	1.4X10 <sup>1</sup>	6.7X10 <sup>5</sup>	1.8X10 <sup>7</sup>
Sc-46		5.0X10 <sup>-1</sup>	1.4X10 <sup>1</sup>	5.0X10 <sup>-1</sup>	1.4X10 <sup>1</sup>	1.3X10 <sup>3</sup>	3.4X10 <sup>4</sup>
Sc-47		1.0X10 <sup>1</sup>	2.7X10 <sup>2</sup>	7.0X10 <sup>-1</sup>	1.9X10 <sup>1</sup>	3.1X10 <sup>4</sup>	8.3X10 <sup>5</sup>
Sc-48		3.0X10 <sup>-1</sup>	8.1	3.0X10 <sup>-1</sup>	8.1	5.5X10 <sup>4</sup>	1.5X10 <sup>6</sup>
Se-75	Selenium (34)	3.0	8.1X10 <sup>1</sup>	3.0	8.1X10 <sup>1</sup>	5.4X10 <sup>2</sup>	1.5X10 <sup>4</sup>
Se-79		4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	2.0	5.4X10 <sup>1</sup>	2.6X10 <sup>-3</sup>	7.0X10 <sup>-2</sup>
Si-31	Silicon (14)	6.0X10 <sup>-1</sup>	1.6X10 <sup>1</sup>	6.0X10 <sup>-1</sup>	1.6X10 <sup>1</sup>	1.4X10 <sup>6</sup>	3.9X10 <sup>7</sup>
Si-32		4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	5.0X10 <sup>-1</sup>	1.4X10 <sup>1</sup>	3.9	1.1X10 <sup>2</sup>
Sm-145	Samarium (62)	1.0X10 <sup>1</sup>	2.7X10 <sup>2</sup>	1.0X10 <sup>1</sup>	2.7X10 <sup>2</sup>	9.8X10 <sup>1</sup>	2.6X10 <sup>3</sup>
Sm-147		Unlimited	Unlimited	Unlimited	Unlimited	<del>(8.5X10<sup>-1</sup>)</del> 8.5X10 <sup>-10</sup>	2.3X10 <sup>-8</sup>
Sm-151		4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	1.0X10 <sup>1</sup>	2.7X10 <sup>2</sup>	9.7X10 <sup>-1</sup>	2.6X10 <sup>1</sup>
Sm-153		9.0	2.4X10 <sup>2</sup>	6.0X10 <sup>-1</sup>	1.6X10 <sup>1</sup>	1.6X10 <sup>4</sup>	4.4X10 <sup>5</sup>
Sn-113 (a)	Tin (50)	4.0	1.1X10 <sup>2</sup>	2.0	5.4X10 <sup>1</sup>	3.7X10 <sup>2</sup>	1.0X10 <sup>4</sup>
Sn-117m		7.0	1.9X10 <sup>2</sup>	4.0X10 <sup>-1</sup>	1.1X10 <sup>1</sup>	3.0X10 <sup>3</sup>	8.2X10 <sup>4</sup>
Sn-119m		4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	3.0X10 <sup>1</sup>	8.1X10 <sup>2</sup>	1.4X10 <sup>2</sup>	3.7X10 <sup>3</sup>
Sn-121m (a)		4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	9.0X10 <sup>-1</sup>	2.4X10 <sup>1</sup>	2.0	5.4X10 <sup>1</sup>
Sn-123		8.0X10 <sup>-1</sup>	2.2X10 <sup>1</sup>	6.0X10 <sup>-1</sup>	1.6X10 <sup>1</sup>	3.0X10 <sup>2</sup>	8.2X10 <sup>3</sup>
Sn-125		4.0X10 <sup>-1</sup>	1.1X10 <sup>1</sup>	4.0X10 <sup>-1</sup>	1.1X10 <sup>1</sup>	4.0X10 <sup>3</sup>	1.1X10 <sup>5</sup>
Sn-126 (a)		6.0X10 <sup>-1</sup>	1.6X10 <sup>1</sup>	4.0X10 <sup>-1</sup>	1.1X10 <sup>1</sup>	1.0X10 <sup>-3</sup>	2.8X10 <sup>-2</sup>
Sr-82 (a)	Strontium (38)	2.0X10 <sup>-1</sup>	5.4	2.0X10 <sup>-1</sup>	5.4	2.3X10 <sup>3</sup>	6.2X10 <sup>4</sup>
Sr-85		2.0	5.4X10 <sup>1</sup>	2.0	5.4X10 <sup>1</sup>	8.8X10 <sup>2</sup>	2.4X10 <sup>4</sup>
Sr-85m		5.0	1.4X10 <sup>2</sup>	5.0	1.4X10 <sup>2</sup>	1.2X10 <sup>6</sup>	3.3X10 <sup>7</sup>
Sr-87m		3.0	8.1X10 <sup>1</sup>	3.0	8.1X10 <sup>1</sup>	4.8X10 <sup>5</sup>	1.3X10 <sup>7</sup>
Sr-89		6.0X10 <sup>-1</sup>	1.6X10 <sup>1</sup>	6.0X10 <sup>-1</sup>	1.6X10 <sup>1</sup>	1.1X10 <sup>3</sup>	2.9X10 <sup>4</sup>
Sr-90 (a)		3.0X10 <sup>-1</sup>	8.1	3.0X10 <sup>-1</sup>	8.1	5.1	1.4X10 <sup>2</sup>
Sr-91 (a)		3.0X10 <sup>-1</sup>	8.1	3.0X10 <sup>-1</sup>	8.1	1.3X10 <sup>5</sup>	3.6X10 <sup>6</sup>
Sr-92 (a)		1.0	2.7X10 <sup>1</sup>	3.0X10 <sup>-1</sup>	8.1	4.7X10 <sup>5</sup>	1.3X10 <sup>7</sup>
T(H-3)	Tritium (1)	4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	3.6X10 <sup>2</sup>	9.7X10 <sup>3</sup>
Ta-178 (long-lived)	Tantalum (73)	1.0	2.7X10 <sup>1</sup>	8.0X10 <sup>-1</sup>	2.2X10 <sup>1</sup>	4.2X10 <sup>6</sup>	1.1X10 <sup>8</sup>
Ta-179		3.0X10 <sup>1</sup>	8.1X10 <sup>2</sup>	3.0X10 <sup>1</sup>	8.1X10 <sup>2</sup>	4.1X10 <sup>1</sup>	1.1X10 <sup>3</sup>
Ta-182		9.0X10 <sup>-1</sup>	2.4X10 <sup>1</sup>	5.0X10 <sup>-1</sup>	1.4X10 <sup>1</sup>	2.3X10 <sup>2</sup>	6.2X10 <sup>3</sup>
Tb-157	Terbium (65)	4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	5.6X10 <sup>-1</sup>	1.5X10 <sup>1</sup>
Tb-158		1.0	2.7X10 <sup>1</sup>	1.0	2.7X10 <sup>1</sup>	5.6X10 <sup>-1</sup>	1.5X10 <sup>1</sup>
Tb-160		1.0	2.7X10 <sup>1</sup>	6.0X10 <sup>-1</sup>	1.6X10 <sup>1</sup>	4.2X10 <sup>2</sup>	1.1X10 <sup>4</sup>
Tc-95m (a)	Technetium (43)	2.0	5.4X10 <sup>1</sup>	2.0	5.4X10 <sup>1</sup>	8.3X10 <sup>2</sup>	2.2X10 <sup>4</sup>
Tc-96		4.0X10 <sup>-1</sup>	1.1X10 <sup>1</sup>	4.0X10 <sup>-1</sup>	1.1X10 <sup>1</sup>	1.2X10 <sup>4</sup>	3.2X10 <sup>5</sup>
Tc-96m (a)		4.0X10 <sup>-1</sup>	1.1X10 <sup>1</sup>	4.0X10 <sup>-1</sup>	1.1X10 <sup>1</sup>	1.4X10 <sup>6</sup>	3.8X10 <sup>7</sup>
Tc-97		Unlimited	Unlimited	Unlimited	Unlimited	5.2X10 <sup>-5</sup>	1.4X10 <sup>-3</sup>
Tc-97m		4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	1.0	2.7X10 <sup>1</sup>	5.6X10 <sup>2</sup>	1.5X10 <sup>4</sup>
Tc-98		8.0X10 <sup>-1</sup>	2.2X10 <sup>1</sup>	7.0X10 <sup>-1</sup>	1.9X10 <sup>1</sup>	3.2X10 <sup>-5</sup>	8.7X10 <sup>-4</sup>
Tc-99		4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	9.0X10 <sup>-1</sup>	2.4X10 <sup>1</sup>	6.3X10 <sup>-4</sup>	1.7X10 <sup>-2</sup>
Tc-99m		1.0X10 <sup>1</sup>	2.7X10 <sup>2</sup>	4.0	1.1X10 <sup>2</sup>	1.9X10 <sup>5</sup>	5.3X10 <sup>6</sup>
Te-121	Tellurium (52)	2.0	5.4X10 <sup>1</sup>	2.0	5.4X10 <sup>1</sup>	2.4X10 <sup>3</sup>	6.4X10 <sup>4</sup>



Symbol of radionuclide	Element and atomic number	A1 (TBq)	A1 (Ci) <sup>b</sup>	A2 (TBq)	A2 (Ci) <sup>b</sup>	Specific activity	
						(TBq/g)	(Ci/g)
Te-121m		5.0	1.4X10 <sup>2</sup>	3.0	8.1X10 <sup>1</sup>	2.6X10 <sup>2</sup>	7.0X10 <sup>3</sup>
Te-123m		8.0	2.2X10 <sup>2</sup>	1.0	2.7X10 <sup>1</sup>	3.3X10 <sup>2</sup>	8.9X10 <sup>3</sup>
Te-125m		2.0X10 <sup>1</sup>	5.4X10 <sup>2</sup>	9.0X10 <sup>-1</sup>	2.4X10 <sup>1</sup>	6.7X10 <sup>2</sup>	1.8X10 <sup>4</sup>
Te-127		2.0X10 <sup>1</sup>	5.4X10 <sup>2</sup>	7.0X10 <sup>-1</sup>	1.9X10 <sup>1</sup>	9.8X10 <sup>4</sup>	2.6X10 <sup>6</sup>
Te-127m (a)		2.0X10 <sup>1</sup>	5.4X10 <sup>2</sup>	5.0X10 <sup>-1</sup>	1.4X10 <sup>1</sup>	3.5X10 <sup>2</sup>	9.4X10 <sup>3</sup>
Te-129		7.0X10 <sup>-1</sup>	1.9X10 <sup>1</sup>	6.0X10 <sup>-1</sup>	1.6X10 <sup>1</sup>	7.7X10 <sup>5</sup>	2.1X10 <sup>7</sup>
Te-129m (a)		8.0X10 <sup>-1</sup>	2.2X10 <sup>1</sup>	4.0X10 <sup>-1</sup>	1.1X10 <sup>1</sup>	1.1X10 <sup>3</sup>	3.0X10 <sup>4</sup>
Te-131m (a)		7.0X10 <sup>-1</sup>	1.9X10 <sup>1</sup>	5.0X10 <sup>-1</sup>	1.4X10 <sup>1</sup>	3.0X10 <sup>4</sup>	8.0X10 <sup>5</sup>
Te-132 (a)		5.0X10 <sup>-1</sup>	1.4X10 <sup>1</sup>	4.0X10 <sup>-1</sup>	1.1X10 <sup>1</sup>	1.1X10 <sup>4</sup>	3.0X10 <sup>5</sup>
Th-227	Thorium (90)	1.0X10 <sup>1</sup>	2.7X10 <sup>2</sup>	5.0X10 <sup>-3</sup>	1.4X10 <sup>-1</sup>	1.1X10 <sup>3</sup>	3.1X10 <sup>4</sup>
Th-228 (a)		5.0X10 <sup>-1</sup>	1.4X10 <sup>1</sup>	1.0X10 <sup>-3</sup>	2.7X10 <sup>-2</sup>	3.0X10 <sup>1</sup>	8.2X10 <sup>2</sup>
Th-229		5.0	1.4X10 <sup>2</sup>	5.0X10 <sup>-4</sup>	1.4X10 <sup>-2</sup>	7.9X10 <sup>-3</sup>	2.1X10 <sup>-1</sup>
Th-230		1.0X10 <sup>1</sup>	2.7X10 <sup>2</sup>	1.0X10 <sup>-3</sup>	2.7X10 <sup>-2</sup>	7.6X10 <sup>-4</sup>	2.1X10 <sup>-2</sup>
Th-231		4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	2.0X10 <sup>-2</sup>	5.4X10 <sup>-1</sup>	2.0X10 <sup>4</sup>	5.3X10 <sup>5</sup>
Th-232		Unlimited	Unlimited	Unlimited	Unlimited	4.0X10 <sup>-9</sup>	1.1X10 <sup>-7</sup>
Th-234 (a)		3.0X10 <sup>-1</sup>	8.1	3.0X10 <sup>-1</sup>	8.1	8.6X10 <sup>2</sup>	2.3X10 <sup>4</sup>
Th(nat)		Unlimited	Unlimited	Unlimited	Unlimited	8.1X10 <sup>-9</sup>	2.2X10 <sup>-7</sup>
Ti-44 (a)	Titanium (22)	5.0X10 <sup>-1</sup>	1.4X10 <sup>1</sup>	4.0X10 <sup>-1</sup>	1.1X10 <sup>1</sup>	6.4	1.7X10 <sup>2</sup>
Tl-200	Thallium (81)	9.0X10 <sup>-1</sup>	2.4X10 <sup>1</sup>	9.0X10 <sup>-1</sup>	2.4X10 <sup>1</sup>	2.2X10 <sup>4</sup>	6.0X10 <sup>5</sup>
Tl-201		1.0X10 <sup>1</sup>	2.7X10 <sup>2</sup>	4.0	1.1X10 <sup>2</sup>	7.9X10 <sup>3</sup>	2.1X10 <sup>5</sup>
Tl-202		2.0	5.4X10 <sup>1</sup>	2.0	5.4X10 <sup>1</sup>	2.0X10 <sup>3</sup>	5.3X10 <sup>4</sup>
Tl-204		1.0X10 <sup>1</sup>	2.7X10 <sup>2</sup>	7.0X10 <sup>-1</sup>	1.9X10 <sup>1</sup>	1.7X10 <sup>1</sup>	4.6X10 <sup>2</sup>
Tm-167	Thulium (69)	7.0	1.9X10 <sup>2</sup>	8.0X10 <sup>-1</sup>	2.2X10 <sup>1</sup>	3.1X10 <sup>3</sup>	8.5X10 <sup>4</sup>
Tm-170		3.0	8.1X10 <sup>1</sup>	6.0X10 <sup>-1</sup>	1.6X10 <sup>1</sup>	2.2X10 <sup>2</sup>	6.0X10 <sup>3</sup>
Tm-171		4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>
U-230 (fast lung absorption) (a)(d)	Uranium (92)	4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	1.0X10 <sup>-1</sup>	2.7	1.0X10 <sup>3</sup>	2.7X10 <sup>4</sup>
U-230 (medium lung absorption) (a)(e)		4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	4.0X10 <sup>-3</sup>	1.1X10 <sup>-1</sup>	1.0X10 <sup>3</sup>	2.7X10 <sup>4</sup>
U-230 (slow lung absorption) (a)(f)		3.0X10 <sup>1</sup>	8.1X10 <sup>2</sup>	3.0X10 <sup>-3</sup>	8.1X10 <sup>-2</sup>	1.0X10 <sup>3</sup>	2.7X10 <sup>4</sup>
U-232 (fast lung absorption) (d)		4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	1.0X10 <sup>-2</sup>	2.7X10 <sup>-1</sup>	8.3X10 <sup>-1</sup>	2.2X10 <sup>1</sup>
U-232 (medium lung absorption) (e)		4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	7.0X10 <sup>-3</sup>	1.9X10 <sup>-1</sup>	8.3X10 <sup>-1</sup>	2.2X10 <sup>1</sup>
U-232 (slow lung absorption) (f)		1.0X10 <sup>1</sup>	2.7X10 <sup>2</sup>	1.0X10 <sup>-3</sup>	2.7X10 <sup>-2</sup>	8.3X10 <sup>-1</sup>	2.2X10 <sup>1</sup>
U-233 (fast lung absorption) (d)		4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	9.0X10 <sup>-2</sup>	2.4	3.6X10 <sup>-4</sup>	9.7X10 <sup>-3</sup>
U-233 (medium lung absorption) (e)		4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	2.0X10 <sup>-2</sup>	5.4X10 <sup>-1</sup>	3.6X10 <sup>-4</sup>	9.7X10 <sup>-3</sup>
U-233 (slow lung absorption) (f)		4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	6.0X10 <sup>-3</sup>	1.6X10 <sup>-1</sup>	3.6X10 <sup>-4</sup>	9.7X10 <sup>-3</sup>
U-234 (fast lung absorption) (d)		4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	9.0X10 <sup>-2</sup>	2.4	2.3X10 <sup>-4</sup>	6.2X10 <sup>-3</sup>
U-234 (medium lung absorption) (e)		4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	2.0X10 <sup>-2</sup>	5.4X10 <sup>-1</sup>	2.3X10 <sup>-4</sup>	6.2X10 <sup>-3</sup>
U-234 (slow lung absorption) (f)		4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	6.0X10 <sup>-3</sup>	1.6X10 <sup>-1</sup>	2.3X10 <sup>-4</sup>	6.2X10 <sup>-3</sup>
U-235 (all lung absorption types) (a), (d), (e), (f)		Unlimited	Unlimited	Unlimited	Unlimited	8.0X10 <sup>-8</sup>	2.2X10 <sup>-6</sup>
U-236 (fast lung absorption) (d)		Unlimited	Unlimited	Unlimited	Unlimited	2.4X10 <sup>-6</sup>	6.5X10 <sup>-5</sup>
U-236 (medium lung absorption) (e)		4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	2.0X10 <sup>-2</sup>	5.4X10 <sup>-1</sup>	2.4X10 <sup>-6</sup>	6.5X10 <sup>-5</sup>

Symbol of radionuclide	Element and atomic number	A1 (TBq)	A1 (Ci) <sup>b</sup>	A2 (TBq)	A2 (Ci) <sup>b</sup>	Specific activity	
						(TBq/g)	(Ci/g)
U-236 (slow lung absorption) (f)		4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	6.0X10 <sup>-3</sup>	1.6X10 <sup>-1</sup>	2.4X10 <sup>-6</sup>	6.5X10 <sup>-5</sup>
U-238 (all lung absorption types) (d), (e), (f)		Unlimited	Unlimited	Unlimited	Unlimited	1.2X10 <sup>-8</sup>	3.4X10 <sup>-7</sup>
U (nat)		Unlimited	Unlimited	Unlimited	Unlimited	2.6X10 <sup>-8</sup>	7.1X10 <sup>-7</sup>
U (enriched to 20% or less) (g)		Unlimited	Unlimited	Unlimited	Unlimited	See Table A-4	See Table A-4
U (dep)		Unlimited	Unlimited	Unlimited	Unlimited	See Table A-4	See Table A-3
V-48	Vanadium (23)	4.0X10 <sup>-1</sup>	1.1X10 <sup>1</sup>	4.0X10 <sup>-1</sup>	1.1X10 <sup>1</sup>	6.3X10 <sup>3</sup>	1.7X10 <sup>5</sup>
V-49		4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	3.0X10 <sup>2</sup>	8.1X10 <sup>3</sup>
W-178 (a)	Tungsten (74)	9.0	2.4X10 <sup>2</sup>	5.0	1.4X10 <sup>2</sup>	1.3X10 <sup>3</sup>	3.4X10 <sup>4</sup>
W-181		3.0X10 <sup>1</sup>	8.1X10 <sup>2</sup>	3.0X10 <sup>1</sup>	8.1X10 <sup>2</sup>	2.2X10 <sup>2</sup>	6.0X10 <sup>3</sup>
W-185		4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	8.0X10 <sup>-1</sup>	2.2X10 <sup>1</sup>	3.5X10 <sup>2</sup>	9.4X10 <sup>3</sup>
W-187		2.0	5.4X10 <sup>1</sup>	6.0X10 <sup>-1</sup>	1.6X10 <sup>1</sup>	2.6X10 <sup>4</sup>	7.0X10 <sup>5</sup>
W-188 (a)		4.0X10 <sup>-1</sup>	1.1X10 <sup>1</sup>	3.0X10 <sup>-1</sup>	8.1	3.7X10 <sup>2</sup>	1.0X10 <sup>4</sup>
Xe-122 (a)	Xenon (54)	4.0X10 <sup>-1</sup>	1.1X10 <sup>1</sup>	4.0X10 <sup>-1</sup>	1.1X10 <sup>1</sup>	4.8X10 <sup>4</sup>	1.3X10 <sup>6</sup>
Xe-123		2.0	5.4X10 <sup>1</sup>	7.0X10 <sup>-1</sup>	1.9X10 <sup>1</sup>	4.4X10 <sup>5</sup>	1.2X10 <sup>7</sup>
Xe-127		4.0	1.1X10 <sup>2</sup>	2.0	5.4X10 <sup>1</sup>	1.0X10 <sup>3</sup>	2.8X10 <sup>4</sup>
Xe-131m		4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	4.0X10 <sup>1</sup>	1.1X10 <sup>3</sup>	3.1X10 <sup>3</sup>	8.4X10 <sup>4</sup>
Xe-133		2.0X10 <sup>1</sup>	5.4X10 <sup>2</sup>	1.0X10 <sup>1</sup>	2.7X10 <sup>2</sup>	6.9X10 <sup>3</sup>	1.9X10 <sup>5</sup>
Xe-135		3.0	8.1X10 <sup>1</sup>	2.0	5.4X10 <sup>1</sup>	9.5X10 <sup>4</sup>	2.6X10 <sup>6</sup>
Y-87 (a)	Yttrium (39)	1.0	2.7X10 <sup>1</sup>	1.0	2.7X10 <sup>1</sup>	1.7X10 <sup>4</sup>	4.5X10 <sup>5</sup>
Y-88		4.0X10 <sup>-1</sup>	1.1X10 <sup>1</sup>	4.0X10 <sup>-1</sup>	1.1X10 <sup>1</sup>	5.2X10 <sup>2</sup>	1.4X10 <sup>4</sup>
Y-90		3.0X10 <sup>-1</sup>	8.1	3.0X10 <sup>-1</sup>	8.1	2.0X10 <sup>4</sup>	5.4X10 <sup>5</sup>
Y-91		6.0X10 <sup>-1</sup>	1.6X10 <sup>1</sup>	6.0X10 <sup>-1</sup>	1.6X10 <sup>1</sup>	9.1X10 <sup>2</sup>	2.5X10 <sup>4</sup>
Y-91m		2.0	5.4X10 <sup>1</sup>	2.0	5.4X10 <sup>1</sup>	1.5X10 <sup>6</sup>	4.2X10 <sup>7</sup>
Y-92		2.0X10 <sup>-1</sup>	5.4	2.0X10 <sup>-1</sup>	5.4	3.6X10 <sup>5</sup>	9.6X10 <sup>6</sup>
Y-93		3.0X10 <sup>-1</sup>	8.1	3.0X10 <sup>-1</sup>	8.1	1.2X10 <sup>5</sup>	3.3X10 <sup>6</sup>
Yb-169	Ytterbium (70)	4.0	1.1X10 <sup>2</sup>	1.0	2.7X10 <sup>1</sup>	8.9X10 <sup>2</sup>	2.4X10 <sup>4</sup>
Yb-175		3.0X10 <sup>1</sup>	8.1X10 <sup>2</sup>	9.0X10 <sup>-1</sup>	2.4X10 <sup>1</sup>	6.6X10 <sup>3</sup>	1.8X10 <sup>5</sup>
Zn-65	Zinc (30)	2.0	5.4X10 <sup>1</sup>	2.0	5.4X10 <sup>1</sup>	3.0X10 <sup>2</sup>	8.2X10 <sup>3</sup>
Zn-69		3.0	8.1X10 <sup>1</sup>	6.0X10 <sup>-1</sup>	1.6X10 <sup>1</sup>	1.8X10 <sup>6</sup>	4.9X10 <sup>7</sup>
Zn-69m (a)		3.0	8.1X10 <sup>1</sup>	6.0X10 <sup>-1</sup>	1.6X10 <sup>1</sup>	1.2X10 <sup>5</sup>	3.3X10 <sup>6</sup>
Zr-88	Zirconium (40)	3.0	8.1X10 <sup>1</sup>	3.0	8.1X10 <sup>1</sup>	6.6X10 <sup>2</sup>	1.8X10 <sup>4</sup>
Zr-93		Unlimited	Unlimited	Unlimited	Unlimited	9.3X10 <sup>-5</sup>	2.5X10 <sup>-3</sup>
Zr-95 (a)		2.0	5.4X10 <sup>1</sup>	8.0X10 <sup>-1</sup>	2.2X10 <sup>1</sup>	7.9X10 <sup>2</sup>	2.1X10 <sup>4</sup>
Zr-97 (a)		4.0X10 <sup>-1</sup>	1.1X10 <sup>1</sup>	4.0X10 <sup>-1</sup>	1.1X10 <sup>1</sup>	7.1X10 <sup>4</sup>	1.9X10 <sup>6</sup>

(a)	A <sub>1</sub> or A <sub>2</sub> values include contributions from daughter nuclides with half-lives less than ten days, as listed in the following:	
	Mg-28	Al-28
	Ca-47	Sc-47
	Ti-44	Sc-44
	Fe-52	Mn-52m
	Fe-60	Co-60m
	Zn-69m	Zn-69
	Ge-68	Ga-68
	Rb-83	Kr-83m
	Sr-82	Rb-82
	Sr-90	Y-90
	Sr-91	Y-91m
	Sr-92	Y-92
	Y-87	Sr-87m
	Zr-95	Nb-95m
	Zr-97	Nb-97m, Nb-97
	Mo-99	Tc-99m
	Tc-95m	Tc-95

Tc-96m	Tc-96
Ru-103	Rh-103m
Ru-106	Rh-106
Pd-103	Rh-103m
Ag-108m	Ag-108
Ag-110m	Ag-110
Cd-115	In-115m
In-114m	In-114
Sn-113	In-113m
Sn-121m	Sn-121
Sn-126	Sb-126m
Te-127m	Te-127
Te-129m	Te-129
Te-131m	Te-131
Te-132	I-132
I-135	Xe-135m
Xe-122	I-122
Cs-137	Ba-137m
Ba-131	Cs-131
Ba-140	La-140
Ce-144	Pr-144m, Pr-144
Pm-148m	Pm-148
Gd-146	Eu-146
Dy-166	Ho-166
Hf-172	Lu-172
W-178	Ta-178
W-188	Re-188
Re-189	Os-189m
Os-194	Ir-194
Ir-189	Os-189m
Pt-188	Ir-188
Hg-194	Au-194
Hg-195m	Hg-195
Pb-210	Bi-210
Pb-212	Bi-212, Tl-208, Po-212
Bi-210m	Tl-206
Bi-212	Tl-208, Po-212
At-211	Po-211
Rn-222	Po-218, Pb-214, At-218, Bi-214, Po-214
Ra-223	Rn-219, Po-215, Pb-211, Bi-211, Po-211, Tl-207
Ra-224	Rn-220, Po-216, Pb-212, Bi-212, Tl-208, Po-212
Ra-225	Ac-225, Fr-221, At-217, Bi-213, Tl-209, Po-213, Pb-209
Ra-226	Rn-222, Po-218, Pb-214, At-218, Bi-214, Po-214
Ra-228	Ac-228
Ac-225	Fr-221, At-217, Bi-213, Tl-209, Po-213, Pb-209
Ac-227	Fr-223
Th-228	Ra-224, Rn-220, Po-216, Pb-212, Bi-212, Tl-208, Po-212
Th-234	Pa-234m, Pa-234
Pa-230	Ac-226, Th-226, Fr-222, Ra-222, Rn-218, Po-214
U-230	Th-226, Ra-222, Rn-218, Po-214
U-235	Th-231
Pu-241	U-237
Pu-244	U-240, Np-240m
Am-242m	Am-242, Np-238
Am-243	Np-239
Cm-247	Pu-243
Bk-249	Am-245
Cf-253	Cm-249
Am-243	Np-239
Cm-247	Pu-243
Bk-249	Am-245
Cf-253	Cm-249
(b)	The values of $A_1$ and $A_2$ in Curies (Ci) are approximate and for information only the regulatory standard units are terabecquerels (TBq).
(c)	The activity of IR-192 in special form may be determined from a measurement of the rate of decay or a measurement of the radiation level at a prescribed distance from the source.
(d)	These values apply only to compounds of uranium that take the chemical form of $UF_6$ , $UO_2F_2$ and $UO_2(NO_3)_2$ in both normal and accident conditions of transport.
(e)	These values apply only to compounds of uranium that take the chemical form of $UO_3$ , $UF_4$ , $UCl_4$ and hexavalent compounds in both normal and accident conditions of transport.
(f)	These values apply to all compounds of uranium other than those specified in notes (d) and (e) of this table.
(g)	These values apply to unirradiated uranium only.
(h)	$A_2 = 0.74$ TBq (20 Ci) for Mo-99 for domestic use.

Table A-2.—Exempt Material Activity Concentrations and Exempt Consignment Activity Limits for Radionuclides

Symbol of radionuclide	Element and atomic number	Activity concentration for exempt material (Bq/g)	Activity concentration for exempt material (Ci/g)	Activity limit for exempt consignment (Bq)	Activity limit for exempt consignment (Ci)
Ac-225	Actinium (89)	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>
Ac-227	-	1.0X10 <sup>-1</sup>	2.7X10 <sup>-12</sup>	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>
Ac-228	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Ag-105	Silver (47)	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Ag-108m (b)	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Ag-110m	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Ag-111	-	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Al-26	Aluminum (13)	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>
Am-241	Americium (95)	1.0	2.7X10 <sup>-11</sup>	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>
Am-242m (b)	-	1.0	2.7X10 <sup>-11</sup>	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>
Am-243 (b)	-	1.0	2.7X10 <sup>-11</sup>	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>
Ar-37	Argon (18)	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>	1.0X10 <sup>8</sup>	2.7X10 <sup>-3</sup>
Ar-39	-	1.0X10 <sup>7</sup>	2.7X10 <sup>-4</sup>	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>
Ar-41	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>9</sup>	2.7X10 <sup>-2</sup>
As-72	Arsenic (33)	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>
As-73	-	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>	1.0X10 <sup>7</sup>	2.7X10 <sup>-4</sup>
As-74	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
As-76	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>
As-77	-	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
At-211	Astatine (85)	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>	1.0X10 <sup>7</sup>	2.7X10 <sup>-4</sup>
Au-193	Gold (79)	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>7</sup>	2.7X10 <sup>-4</sup>
Au-194	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Au-195	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>7</sup>	2.7X10 <sup>-4</sup>
Au-198	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Au-199	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Ba-131	Barium (56)	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Ba-133	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Ba-133m	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Ba-140 (b)	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>
Be-7	Beryllium (4)	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>	1.0X10 <sup>7</sup>	2.7X10 <sup>-4</sup>
Be-10	-	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Bi-205	Bismuth (83)	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Bi-206	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>
Bi-207	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Bi-210	-	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Bi-210m	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>
Bi-212 (b)	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>
Bk-247	Berkelium (97)	1.0	2.7X10 <sup>-11</sup>	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>
Bk-249	-	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Br-76	Bromine (35)	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>
Br-77	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Br-82	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
C-11	Carbon (6)	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
C-14	-	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>	1.0X10 <sup>7</sup>	2.7X10 <sup>-4</sup>
Ca-41	Calcium (20)	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>	1.0X10 <sup>7</sup>	2.7X10 <sup>-4</sup>
Ca-45	-	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>	1.0X10 <sup>7</sup>	2.7X10 <sup>-4</sup>

Symbol of radionuclide	Element and atomic number	Activity concentration for exempt material (Bq/g)	Activity concentration for exempt material (Ci/g)	Activity limit for exempt consignment (Bq)	Activity limit for exempt consignment (Ci)
Ca-47	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Cd-109	Cadmium (48)	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Cd-113m	-	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Cd-115	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Cd-115m	-	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Ce-139	Cerium (58)	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Ce-141	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>7</sup>	2.7X10 <sup>-4</sup>
Ce-143	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Ce-144 (b)	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>
Cf-248	Californium (98)	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>
Cf-249	-	1.0	2.7X10 <sup>-11</sup>	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>
Cf-250	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>
Cf-251	-	1.0	2.7X10 <sup>-11</sup>	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>
Cf-252	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>
Cf-253	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>
Cf-254	-	1.0	2.7X10 <sup>-11</sup>	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>
Cl-36	Chlorine (17)	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Cl-38	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>
Cm-240	Curium (96)	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>
Cm-241	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Cm-242	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>
Cm-243	-	1.0	2.7X10 <sup>-11</sup>	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>
Cm-244	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>
Cm-245	-	1.0	2.7X10 <sup>-11</sup>	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>
Cm-246	-	1.0	2.7X10 <sup>-11</sup>	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>
Cm-247	-	1.0	2.7X10 <sup>-11</sup>	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>
Cm-248	-	1.0	2.7X10 <sup>-11</sup>	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>
Co-55	Cobalt (27)	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Co-56	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>
Co-57	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Co-58	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Co-58m	-	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>	1.0X10 <sup>7</sup>	2.7X10 <sup>-4</sup>
Co-60	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>
Cr-51	Chromium (24)	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>	1.0X10 <sup>7</sup>	2.7X10 <sup>-4</sup>
Cs-129	Cesium (55)	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>
Cs-131	-	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Cs-132	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>
Cs-134	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>
Cs-134m	-	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>
Cs-135	-	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>	1.0X10 <sup>7</sup>	2.7X10 <sup>-4</sup>
Cs-136	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>
Cs-137 (b)	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>
Cu-64	Copper (29)	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Cu-67	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Dy-159	Dysprosium (66)	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>	1.0X10 <sup>7</sup>	2.7X10 <sup>-4</sup>
Dy-165	-	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>

Symbol of radionuclide	Element and atomic number	Activity concentration for exempt material (Bq/g)	Activity concentration for exempt material (Ci/g)	Activity limit for exempt consignment (Bq)	Activity limit for exempt consignment (Ci)
Dy-166	-	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Er-169	Erbium (68)	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>	1.0X10 <sup>7</sup>	2.7X10 <sup>-4</sup>
Er-171	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Eu-147	Europium (63)	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Eu-148	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Eu-149	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>7</sup>	2.7X10 <sup>-4</sup>
Eu-150 (short lived)	-	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Eu-150 (long lived)	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Eu-152	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Eu-152m	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Eu-154	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Eu-155	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>7</sup>	2.7X10 <sup>-4</sup>
Eu-156	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
F-18	Fluorine (9)	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Fe-52	Iron (26)	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Fe-55	-	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Fe-59	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Fe-60	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>
Ga-67	Gallium (31)	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Ga-68	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>
Ga-72	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>
Gd-146	Gadolinium (64)	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Gd-148	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>
Gd-153	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>7</sup>	2.7X10 <sup>-4</sup>
Gd-159	-	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Ge-68	Germanium (32)	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>
Ge-71	-	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>	1.0X10 <sup>8</sup>	2.7X10 <sup>-3</sup>
Ge-77	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>
Hf-172	Hafnium (72)	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Hf-175	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Hf-181	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Hf-182	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Hg-194	Mercury (80)	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Hg-195m	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Hg-197	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>7</sup>	2.7X10 <sup>-4</sup>
Hg-197m	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Hg-203	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>
Ho-166	Holmium (67)	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>
Ho-166m	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
I-123	Iodine (53)	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>7</sup>	2.7X10 <sup>-4</sup>
I-124	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
I-125	-	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
I-126	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
I-129	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>
I-131	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
I-132	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>

Symbol of radionuclide	Element and atomic number	Activity concentration for exempt material (Bq/g)	Activity concentration for exempt material (Ci/g)	Activity limit for exempt consignment (Bq)	Activity limit for exempt consignment (Ci)
I-133	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
I-134	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>
I-135	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
In-111	Indium (49)	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
In-113m	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
In-114m	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
In-115m	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Ir-189	Iridium (77)	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>7</sup>	2.7X10 <sup>-4</sup>
Ir-190	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Ir-192	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>
Ir-194	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>
K-40	Potassium (19)	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
K-42	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
K-43	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Kr-79	Krypton (36)	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>
Kr-81	-	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>	1.0X10 <sup>7</sup>	2.7X10 <sup>-4</sup>
Kr-85	-	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>
Kr-85m	-	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>	1.0X10 <sup>10</sup>	2.7X10 <sup>-1</sup>
Kr-87	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>9</sup>	2.7X10 <sup>-2</sup>
La-137	Lanthanum (57)	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>	1.0X10 <sup>7</sup>	2.7X10 <sup>-4</sup>
La-140	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>
Lu-172	Lutetium (71)	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Lu-173	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>7</sup>	2.7X10 <sup>-4</sup>
Lu-174	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>7</sup>	2.7X10 <sup>-4</sup>
Lu-174m	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>7</sup>	2.7X10 <sup>-4</sup>
Lu-177	-	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>	1.0X10 <sup>7</sup>	2.7X10 <sup>-4</sup>
Mg-28	Magnesium (12)	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>
Mn-52	Manganese (25)	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>
Mn-53	-	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>	1.0X10 <sup>9</sup>	2.7X10 <sup>-2</sup>
Mn-54	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Mn-56	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>
Mo-93	Molybdenum (42)	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>	1.0X10 <sup>8</sup>	2.7X10 <sup>-3</sup>
Mo-99	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
N-13	Nitrogen (7)	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>9</sup>	2.7X10 <sup>-2</sup>
Na-22	Sodium (11)	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Na-24	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>
Nb-93m	Niobium (41)	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>	1.0X10 <sup>7</sup>	2.7X10 <sup>-4</sup>
Nb-94	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Nb-95	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Nb-97	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Nd-147	Neodymium (60)	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Nd-149	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Ni-59	Nickel (28)	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>	1.0X10 <sup>8</sup>	2.7X10 <sup>-3</sup>
Ni-63	-	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>	1.0X10 <sup>8</sup>	2.7X10 <sup>-3</sup>
Ni-65	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Np-235	Neptunium (93)	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>	1.0X10 <sup>7</sup>	2.7X10 <sup>-4</sup>

Symbol of radionuclide	Element and atomic number	Activity concentration for exempt material (Bq/g)	Activity concentration for exempt material (Ci/g)	Activity limit for exempt consignment (Bq)	Activity limit for exempt consignment (Ci)
Np-236 (short-lived)	-	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>	1.0X10 <sup>7</sup>	2.7X10 <sup>-4</sup>
Np-236 (long-lived)	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>
Np-237 (b)	-	1.0	2.7X10 <sup>-11</sup>	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>
Np-239	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>7</sup>	2.7X10 <sup>-4</sup>
Os-185	Osmium (76)	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Os-191	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>7</sup>	2.7X10 <sup>-4</sup>
Os-191m	-	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>	1.0X10 <sup>7</sup>	2.7X10 <sup>-4</sup>
Os-193	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Os-194	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>
P-32	Phosphorus (15)	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>
P-33	-	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>	1.0X10 <sup>8</sup>	2.7X10 <sup>-3</sup>
Pa-230	Protactinium (91)	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Pa-231	-	1.0	2.7X10 <sup>-11</sup>	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>
Pa-233	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>7</sup>	2.7X10 <sup>-4</sup>
Pb-201	Lead (82)	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Pb-202	-	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Pb-203	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Pb-205	-	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>	1.0X10 <sup>7</sup>	2.7X10 <sup>-4</sup>
Pb-210 (b)	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>
Pb-212 (b)	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>
Pd-103	Palladium (46)	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>	1.0X10 <sup>8</sup>	2.7X10 <sup>-3</sup>
Pd-107	-	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>	1.0X10 <sup>8</sup>	2.7X10 <sup>-3</sup>
Pd-109	-	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Pm-143	Promethium (61)	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Pm-144	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Pm-145	-	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>	1.0X10 <sup>7</sup>	2.7X10 <sup>-4</sup>
Pm-147	-	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>	1.0X10 <sup>7</sup>	2.7X10 <sup>-4</sup>
Pm-148m	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Pm-149	-	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Pm-151	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Po-210	Polonium (84)	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>
Pr-142	Praseodymium (59)	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>
Pr-143	-	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Pt-188	Platinum (78)	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Pt-191	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Pt-193	-	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>	1.0X10 <sup>7</sup>	2.7X10 <sup>-4</sup>
Pt-193m	-	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>	1.0X10 <sup>7</sup>	2.7X10 <sup>-4</sup>
Pt-195m	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Pt-197	-	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Pt-197m	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Pu-236	Plutonium (94)	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>
Pu-237	-	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>	1.0X10 <sup>7</sup>	2.7X10 <sup>-4</sup>
Pu-238	-	1.0	2.7X10 <sup>-11</sup>	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>
Pu-239	-	1.0	2.7X10 <sup>-11</sup>	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>
Pu-240	-	1.0	2.7X10 <sup>-11</sup>	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>
Pu-241	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>



Symbol of radionuclide	Element and atomic number	Activity concentration for exempt material (Bq/g)	Activity concentration for exempt material (Ci/g)	Activity limit for exempt consignment (Bq)	Activity limit for exempt consignment (Ci)
Pu-242	-	1.0	2.7X10 <sup>-11</sup>	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>
Pu-244	-	1.0	2.7X10 <sup>-11</sup>	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>
Ra-223 (b)	Radium (88)	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>
Ra-224 (b)	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>
Ra-225	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>
Ra-226 (b)	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>
Ra-228 (b)	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>
Rb-81	Rubidium (37)	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Rb-83	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Rb-84	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Rb-86	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>
Rb-87	-	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>	1.0X10 <sup>7</sup>	2.7X10 <sup>-4</sup>
Rb (nat)	-	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>	1.0X10 <sup>7</sup>	2.7X10 <sup>-4</sup>
Re-184	Rhenium (75)	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Re-184m	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Re-186	-	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Re-187	-	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>	1.0X10 <sup>9</sup>	2.7X10 <sup>-2</sup>
Re-188	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>
Re-189	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Re (nat)	-	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>	1.0X10 <sup>9</sup>	2.7X10 <sup>-2</sup>
Rh-99	Rhodium (45)	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Rh-101	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>7</sup>	2.7X10 <sup>-4</sup>
Rh-102	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Rh-102m	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Rh-103m	-	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>	1.0X10 <sup>8</sup>	2.7X10 <sup>-3</sup>
Rh-105	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>7</sup>	2.7X10 <sup>-4</sup>
Rn-222 (b)	Radon (86)	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>8</sup>	2.7X10 <sup>-3</sup>
Ru-97	Ruthenium (44)	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>7</sup>	2.7X10 <sup>-4</sup>
Ru-103	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Ru-105	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Ru-106 (b)	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>
S-35	Sulphur (16)	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>	1.0X10 <sup>8</sup>	2.7X10 <sup>-3</sup>
Sb-122	Antimony (51)	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>
Sb-124	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Sb-125	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Sb-126	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>
Sc-44	Scandium (21)	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>
Sc-46	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Sc-47	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Sc-48	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>
Se-75	Selenium (34)	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Se-79	-	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>	1.0X10 <sup>7</sup>	2.7X10 <sup>-4</sup>
Si-31	Silicon (14)	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Si-32	-	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Sm-145	Samarium (62)	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>7</sup>	2.7X10 <sup>-4</sup>
Sm-147	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>

Symbol of radionuclide	Element and atomic number	Activity concentration for exempt material (Bq/g)	Activity concentration for exempt material (Ci/g)	Activity limit for exempt consignment (Bq)	Activity limit for exempt consignment (Ci)
Sm-151	-	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>	1.0X10 <sup>8</sup>	2.7X10 <sup>-3</sup>
Sm-153	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Sn-113	Tin (50)	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>	1.0X10 <sup>7</sup>	2.7X10 <sup>-4</sup>
Sn-117m	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Sn-119m	-	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>	1.0X10 <sup>7</sup>	2.7X10 <sup>-4</sup>
Sn-121m	-	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>	1.0X10 <sup>7</sup>	2.7X10 <sup>-4</sup>
Sn-123	-	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Sn-125	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>
Sn-126	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>
Sr-82	Strontium (38)	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>
Sr-85	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Sr-85m	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>7</sup>	2.7X10 <sup>-4</sup>
Sr-87m	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Sr-89	-	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Sr-90 (b)	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>
Sr-91	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>
Sr-92	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
T(H-3)	Tritium (1)	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>	1.0X10 <sup>9</sup>	2.7X10 <sup>-2</sup>
Ta-178 (long-lived)	Tantalum (73)	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Ta-179	-	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>	1.0X10 <sup>7</sup>	2.7X10 <sup>-4</sup>
Ta-182	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>
Tb-157	Terbium (65)	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>	1.0X10 <sup>7</sup>	2.7X10 <sup>-4</sup>
Tb-158	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Tb-160	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Tc-95m	Technetium (43)	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Tc-96	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Tc-96m	-	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>	1.0X10 <sup>7</sup>	2.7X10 <sup>-4</sup>
Tc-97	-	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>	1.0X10 <sup>8</sup>	2.7X10 <sup>-3</sup>
Tc-97m	-	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>	1.0X10 <sup>7</sup>	2.7X10 <sup>-4</sup>
Tc-98	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Tc-99	-	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>	1.0X10 <sup>7</sup>	2.7X10 <sup>-4</sup>
Tc-99m	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>7</sup>	2.7X10 <sup>-4</sup>
Te-121	Tellurium (52)	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Te-121m	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Te-123m	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>7</sup>	2.7X10 <sup>-4</sup>
Te-125m	-	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>	1.0X10 <sup>7</sup>	2.7X10 <sup>-4</sup>
Te-127	-	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Te-127m	-	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>	1.0X10 <sup>7</sup>	2.7X10 <sup>-4</sup>
Te-129	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Te-129m	-	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Te-131m	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Te-132	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>7</sup>	2.7X10 <sup>-4</sup>
Th-227	Thorium (90)	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>
Th-228 (b)	-	1.0	2.7X10 <sup>-11</sup>	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>
Th-229 (b)	-	1.0	2.7X10 <sup>-11</sup>	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>
Th-230	-	1.0	2.7X10 <sup>-11</sup>	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>

Symbol of radionuclide	Element and atomic number	Activity concentration for exempt material (Bq/g)	Activity concentration for exempt material (Ci/g)	Activity limit for exempt consignment (Bq)	Activity limit for exempt consignment (Ci)
Th-231	-	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>	1.0X10 <sup>7</sup>	2.7X10 <sup>-4</sup>
Th-232	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>
Th-234 (b)	-	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>
Th (nat) (b)	-	1.0	2.7X10 <sup>-11</sup>	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>
Ti-44	Titanium (22)	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>
Tl-200	Thallium (81)	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Tl-201	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Tl-202	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Tl-204	-	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>
Tm-167	Thulium (69)	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Tm-170	-	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Tm-171	-	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>	1.0X10 <sup>8</sup>	2.7X10 <sup>-3</sup>
U-230 (fast lung absorption) (b), (d)	Uranium (92)	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>
U-230 (medium lung absorption) (e)	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>
U-230 (slow lung absorption) (f)	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>
U-232 (fast lung absorption) (b), (d)	-	1.0	2.7X10 <sup>-11</sup>	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>
U-232 (medium lung absorption) (e)	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>
U-232 (slow lung absorption) (f)	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>
U-233 (fast lung absorption) (d)	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>
U-233 (medium lung absorption) (e)	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>
U-233 (slow lung absorption) (f)	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>
U-234 (fast lung absorption) (d)	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>
U-234 (medium lung absorption) (e)	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>
U-234 (slow lung absorption) (f)	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>
U-235 (all lung absorption types) (b), (d), (e), (f)	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>
U-236 (fast lung absorption) (d)	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>
U-236 (medium lung absorption) (e)	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>
U-236 (slow lung absorption) (f)	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>
U-238 (all lung absorption types) (b), (d), (e), (f)	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>
U (nat) (b)	-	1.0	2.7X10 <sup>-11</sup>	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>
U (enriched to 20% or less) (g)	-	1.0	2.7X10 <sup>-11</sup>	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>
U (dep)	-	1.0	2.7X10 <sup>-11</sup>	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>
V-48	Vanadium (23)	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>
V-49	-	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>	1.0X10 <sup>7</sup>	2.7X10 <sup>-4</sup>
W-178	Tungsten (74)	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
W-181	-	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>	1.0X10 <sup>7</sup>	2.7X10 <sup>-4</sup>
W-185	-	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>	1.0X10 <sup>7</sup>	2.7X10 <sup>-4</sup>
W-187	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
W-188	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>
Xe-122	Xenon (54)	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>9</sup>	2.7X10 <sup>-2</sup>
Xe-123	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>9</sup>	2.7X10 <sup>-2</sup>
Xe-127	-	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>
Xe-131m	-	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>
Xe-133	-	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>
Xe-135	-	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>	1.0X10 <sup>10</sup>	2.7X10 <sup>-1</sup>

Symbol of radionuclide	Element and atomic number	Activity concentration for exempt material (Bq/g)	Activity concentration for exempt material (Ci/g)	Activity limit for exempt consignment (Bq)	Activity limit for exempt consignment (Ci)
Y-87	Yttrium (39)	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Y-88	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Y-90	-	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>
Y-91	-	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Y-91m	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Y-92	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>
Y-93	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>
Yb-169	Ytterbium (70)	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>7</sup>	2.7X10 <sup>-4</sup>
Yb-175	-	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>	1.0X10 <sup>7</sup>	2.7X10 <sup>-4</sup>
Zn-65	Zinc (30)	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Zn-69	-	1.0X10 <sup>4</sup>	2.7X10 <sup>-7</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Zn-69m	-	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Zr-88	Zirconium (40)	1.0X10 <sup>2</sup>	2.7X10 <sup>-9</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Zr-93 (b)	-	1.0X10 <sup>3</sup>	2.7X10 <sup>-8</sup>	1.0X10 <sup>7</sup>	2.7X10 <sup>-4</sup>
Zr-95	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>6</sup>	2.7X10 <sup>-5</sup>
Zr-97 (b)	-	1.0X10 <sup>1</sup>	2.7X10 <sup>-10</sup>	1.0X10 <sup>5</sup>	2.7X10 <sup>-6</sup>

(a) (Reserved)

(b) Parent nuclides and their progeny included in secular equilibrium are listed as follows:

- Sr-90 Y-90
- Zr-93 Nb-93m
- Zr-97 Nb-97
- Ru-106 Rh-106
- Ag-108m Ag-108
- Cs-137 Ba-137m
- Ce-144 Pr-144
- Ba-140 La-140
- Bi-212 Tl-208 (0.36), Po-212 (0.64)
- Pb-210 Bi-210, Po-210
- Pb-212 Bi-212, Tl-208 (0.36), Po-212 (0.64)
- Rn-222 Po-218, Pb-214, Bi-214, Po-214
- Ra-223 Rn-219, Po-215, Pb-211, Bi-211, Tl-207
- Ra-224 Rn-220, Po-216, Pb-212, Bi-212, Tl-208 (0.36), Po-212 (0.64)
- Ra-226 Rn-222, Po-218, Pb-214, Bi-214, Po-214, Pb-210, Bi-210, Po-210
- Ra-228 Ac-228
- Th-228 Ra-224, Rn-220, Po-216, Pb-212, Bi-212, Tl-208 (0.36), Po-212 (0.64)
- Th-229 Ra-225, Ac-225, Fr-221, At-217, Bi-213, Po-213, Pb-209
- Th-nat Ra-228, Ac-228, Th-228, Ra-224, Rn-220, Po-216, Pb-212, Bi-212, Tl-208 (0.36), Po-212 (0.64)
- Th-234 Pa-234m
- U-230 Th-226, Ra-222, Rn-218, Po-214
- U-232 Th-228, Ra-224, Rn-220, Po-216, Pb-212, Bi-212, Tl-208 (0.36), Po-212 (0.64)
- U-235 Th-231
- U-238 Th-234, Pa-234m
- U-nat Th-234, Pa-234m, U-234, Th-230, Ra-226, Rn-222, Po-218, Pb-214, Bi-214, Po-214, Pb-210, Bi-210, Po-210
- Np-237 Pa-233
- Am-242m Am-242
- Am-243 Np-239

(c) (Reserved)

(d) These values apply only to compounds of uranium that take the chemical form of UF<sub>6</sub>, UO<sub>2</sub>F<sub>2</sub> and UO<sub>2</sub>(NO<sub>3</sub>)<sub>2</sub> in both normal and accident conditions of transport.

(e) These values apply only to compounds of uranium that take the chemical form of UO<sub>3</sub>, UF<sub>4</sub>, UCl<sub>4</sub> and hexavalent compounds in both normal and accident conditions of transport.

(f) These values apply to all compounds of uranium other than those specified in notes (d) and (e) of this table.

(g) These values apply to unirradiated uranium only.

Table A-3. General Values for A1 and A2

Contents	A <sub>1</sub>		A <sub>2</sub>		Activity concentration for exempt material (Bq/g)	Activity concentration for exempt material (Ci/g)	Activity limits for exempt consignments (Bq)	Activity limits for exempt consignments (Ci)
	(TBq)	(Ci)	(TBq)	(Ci)				
Only beta or gamma emitting radionuclides are known to be present	1 x 10 <sup>-1</sup>	2.7 x 10 <sup>0</sup>	2 x 10 <sup>-2</sup>	5.4 x 10 <sup>-1</sup>	1 x 10 <sup>1</sup>	2.7 x 10 <sup>-10</sup>	1 x 10 <sup>4</sup>	2.7 x 10 <sup>-7</sup>

Contents	A <sub>1</sub>		A <sub>2</sub>		Activity concentration for exempt material (Bq/g)	Activity concentration for exempt material (Ci/g)	Activity limits for exempt consignments (Bq)	Activity limits for exempt consignments (Ci)
	(TBq)	(Ci)	(TBq)	(Ci)				
Alpha emitting nuclides, but no neutron emitters, are known to be present (a)	$2 \times 10^{-1}$	$5.4 \times 10^0$	$9 \times 10^{-5}$	$2.4 \times 10^{-3}$	$1 \times 10^{-1}$	$2.7 \times 10^{-12}$	$1 \times 10^3$	$2.7 \times 10^{-8}$
Neutron emitting nuclides are known to be present or no relevant data are available	$1 \times 10^{-3}$	$2.7 \times 10^{-2}$	$9 \times 10^{-5}$	$2.4 \times 10^{-3}$	$1 \times 10^{-1}$	$2.7 \times 10^{-12}$	$1 \times 10^3$	$2.7 \times 10^{-8}$

(a) If beta or gamma emitting nuclides are known to be present, the A<sub>1</sub> value of 0.1 TBq (2.7 Ci) should be used.

Table A-4.  
Activity-Mass Relationships for Uranium

Uranium Enrichment <sup>1</sup> wt % U-235 present	Specific Activity	
	TBq/g	Ci/g
0.45	$1.8 \times 10^{-8}$	$5.0 \times 10^{-7}$
0.72	$2.6 \times 10^{-8}$	$7.1 \times 10^{-7}$
1	$2.8 \times 10^{-8}$	$7.6 \times 10^{-7}$
1.5	$3.7 \times 10^{-8}$	$1.0 \times 10^{-6}$
5	$1.0 \times 10^{-7}$	$2.7 \times 10^{-6}$
10	$1.8 \times 10^{-7}$	$4.8 \times 10^{-6}$
20	$3.7 \times 10^{-7}$	$1.0 \times 10^{-5}$
35	$7.4 \times 10^{-7}$	$2.0 \times 10^{-5}$
50	$9.3 \times 10^{-7}$	$2.5 \times 10^{-5}$
90	$2.2 \times 10^{-6}$	$5.8 \times 10^{-5}$
93	$2.6 \times 10^{-6}$	$7.0 \times 10^{-5}$
95	$3.4 \times 10^{-6}$	$9.1 \times 10^{-5}$

<sup>1</sup> The figures for uranium include representative values for the activity of the uranium-234 that is concentrated during the enrichment process.

[Statutory Authority: RCW 70.98.050 and 70.98.110. WSR 17-01-034, § 246-231-200, filed 12/12/16, effective 1/12/17; WSR 16-13-054, § 246-231-200, filed 6/10/16, effective 7/11/16. Statutory Authority: RCW 70.98.050. WSR 14-09-017, § 246-231-200, filed 4/7/14, effective 5/8/14; WSR 11-03-068, § 246-231-200, filed 1/18/11, effective 2/18/11; WSR 08-09-093, § 246-231-200, filed 4/18/08, effective 5/19/08; WSR 99-15-105, § 246-231-200, filed 7/21/99, effective 8/21/99.]

**Reviser's note:** The brackets and enclosed material in the text of the above section occurred in the copy filed by the agency and appear in the Register pursuant to the requirements of RCW 34.08.040.

**OTS-4713.1**

AMENDATORY SECTION (Amending WSR 22-11-063, filed 5/16/22, effective 6/16/22)

**WAC 246-237-010 Definitions, abbreviations, and acronyms.** The definitions, abbreviations, and acronyms in this section and in WAC 246-220-010 apply throughout this chapter unless the context clearly indicates otherwise:

(1) "Access control" means a system for allowing only approved individuals to have unescorted access to the security zone and for ensuring that all other individuals are subject to escorted access.

(2) "Act" means the Atomic Energy Act of 1954, including any amendments thereto.

(3) "Aggregated" means accessible by the breach of a single physical barrier that would allow access to radioactive material in any form, including any devices that contain the radioactive material, when the total activity equals or exceeds a Category 2 quantity of radioactive material.

(4) "Agreement state" means any state with which the Atomic Energy Commission or the NRC has entered into an effective agreement under subsection 274b of the act. Nonagreement state means any other state.

(5) "Approved individual" means an individual whom the licensee has determined to be trustworthy and reliable for unescorted access in accordance with WAC 246-237-021 through 246-237-033 and who has completed the training required by WAC 246-237-043(3).

(6) "Background investigation" means the investigation conducted by a licensee or applicant to support the determination of trustworthiness and reliability.

(7) "Becquerel (Bq)" means the SI unit of activity. One becquerel is equal to  $(\pm)$  one disintegration or transformation per second ( $s^{-1}$ ).

(8) "By-product material" means:

(a) Any radioactive material (except special nuclear material) yielded in, or made radioactive by, exposure to the radiation incident to the process of producing or using special nuclear material;

(b) The tailings or wastes produced by the extraction or concentration of uranium or thorium from ore processed primarily for its source material content, including discrete surface wastes resulting from uranium solution extraction processes. Underground ore bodies depleted by these solution extraction operations do not constitute "by-product material" within this definition;

(c) (i) Any discrete source of radium-226 that is produced, extracted, or converted after extraction, before, on, or after August 8, 2005, for use for a commercial, medical, or research activity; or

(ii) Any material that:

(A) Has been made radioactive by use of a particle accelerator; and

(B) Is produced, extracted, or converted after extraction, before, on, or after August 8, 2005, for use for a commercial, medical, or research activity; and

(d) Any discrete source of naturally occurring radioactive material, other than source material, that:

(i) The NRC, in consultation with the Administrator of the Environmental Protection Agency, the Secretary of Energy, the Secretary of Homeland Security, and the head of any other appropriate federal agency, determines would pose a threat similar to the threat posed by a

discrete source of radium-226 to the public health and safety or the common defense and security; and

(ii) Before, on, or after August 8, 2005, is extracted or converted after extraction for use in a commercial, medical, or research activity.

(9) "Carrier" means a person engaged in the transportation of passengers or property by land or water as a common, contract, or private carrier, or by civil aircraft.

(10) "Category 1 quantity of radioactive material" means a quantity of radioactive material meeting or exceeding the Category 1 threshold in Table 1 of WAC 246-237-900 Appendix A: Table 1—Category 1 and Category 2. This is determined by calculating the ratio of the total activity of each radionuclide to the Category 1 threshold for that radionuclide and adding the ratios together. If the sum equals or exceeds ( $\pm$ ) one, the quantity would be considered a Category 1 quantity. Category 1 quantities of radioactive material do not include the radioactive material contained in any fuel assembly, subassembly, fuel rod, or fuel pellet.

(11) "Category 2 quantity of radioactive material" means a quantity of radioactive material meeting or exceeding the Category 2 threshold but less than the Category 1 threshold in Table 1 of WAC 246-237-900 Appendix A: Table 1—Category 1 and Category 2. This is determined by calculating the ratio of the total activity of each radionuclide to the Category 2 threshold for that radionuclide and adding the ratios together. If the sum equals or exceeds one, the quantity would be considered a Category 2 quantity. Category 2 quantities of radioactive material do not include the radioactive material contained in any fuel assembly, subassembly, fuel rod, or fuel pellet.

(12) "Curie" means a unit of quantity of radioactivity. One curie (Ci) is that quantity of radioactive material which decays at the rate of  $3.7 \times 10^{10}$  transformations per second (tps).

(13) "Diversion" means the unauthorized movement of radioactive material subject to this chapter to a location different from the material's authorized destination inside or outside of the site at which the material is used or stored.

(14) "Escorted access" means accompaniment while in a security zone by an approved individual who maintains continuous direct visual surveillance at all times over an individual who is not approved for unescorted access.

(15) "FBI" means the federal bureau of investigation.

(16) "Fingerprint orders" means the orders issued by the NRC or the legally binding requirements issued by agreement states that require fingerprints and criminal history records checks for individuals with unescorted access to Category 1 and Category 2 quantities of radioactive material or safeguards information-modified handling.

(17) "Government agency" means any executive department, commission, independent establishment, corporation, wholly or partly owned by the United States of America which is an instrumentality of the United States, or any board, bureau, division, service, office, officer, authority, administration, or other establishment in the executive branch of the government.

(18) "License" means, except where otherwise specified, a license for radioactive material issued pursuant to the regulations in chapters 246-232, 246-233, 246-235, 246-240, 246-243, or 246-244 WAC.

(19) "License issuing authority" means the licensing agency (the department, NRC, or an agreement state) that issued the license.

(20) "LLEA (local law enforcement agency)" means a public or private organization that has been approved by a federal, state, or local government to carry firearms and make arrests, and is authorized and has the capability to provide an armed response in the jurisdiction where the licensed Category 1 or Category 2 quantity of radioactive material is used, stored, or transported.

(21) "Lost or missing licensed material" means licensed material whose location is unknown. It includes material that has been shipped but has not reached its destination and whose location cannot be readily traced in the transportation system.

(22) "Mobile device" means a piece of equipment containing licensed radioactive material that is either mounted on wheels or casters, or otherwise equipped for moving without a need for disassembly or dismounting; or designed to be hand carried. Mobile devices do not include stationary equipment installed in a fixed location.

(23) "Movement control center" means an operations center that is remote from transport activity and that maintains position information on the movement of radioactive material, receives reports of attempted attacks or thefts, provides a means for reporting these and other problems to appropriate agencies, and can request and coordinate appropriate aid.

(24) "No-later-than arrival time" means the date and time that the shipping licensee and receiving licensee have established as the time at which an investigation will be initiated if the shipment has not arrived at the receiving facility. The no-later-than arrival time may not be more than six hours after the estimated arrival time for shipments of Category 2 quantities of radioactive material.

(25) "NRC" or "commission" means the U.S. Nuclear Regulatory Commission.

(26) "Person" means any individual, corporation, partnership, firm, association, trust, estate, public or private institution, group, government agency other than NRC or the Department of Energy, any state or any political subdivision of, or any political entity within, a state, any foreign government or nation, or any political subdivision of any such government or nation, or other entity, and any legal successor, representative, agent or agency of the foregoing.

(27) "Reviewing official" means the individual who makes the trustworthiness and reliability determination of an individual to determine whether the individual may have, or continue to have, unescorted access to the Category 1 or Category 2 quantities of radioactive materials that are possessed by the licensee.

(28) "Sabotage" means deliberate damage, with malevolent intent, to a Category 1 or Category 2 quantity of radioactive material, a device that contains a Category 1 or Category 2 quantity of radioactive material, or the components of the security system.

(29) "Safe haven" means a readily recognizable and readily accessible site at which security is present or from which, in the event of an emergency, the transport crew can notify and wait for the local law enforcement authorities.

(30) "Security zone" means any temporary or permanent area determined and established by the licensee for the physical protection of Category 1 or Category 2 quantities of radioactive material.

(31) "State" means a state of the United States, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, Guam, American Samoa, and the Commonwealth of the Northern Mariana Islands.

(32) "Telemetric position monitoring system" means a data transfer system that captures information by instrumentation or measuring



devices about the location and status of a transport vehicle or package between the departure and destination locations.

(33) "Trustworthiness and reliability" are characteristics of an individual considered dependable in judgment, character, and performance, such that unescorted access to Category 1 or Category 2 quantities of radioactive material by that individual does not constitute an unreasonable risk to the public health and safety or security. A determination of trustworthiness and reliability for this purpose is based upon the results from a background investigation.

(34) "Unescorted access" means solitary access to an aggregated Category 1 or Category 2 quantity of radioactive material or the devices that contain the material.

(35) "United States" means when used in a geographical sense includes Puerto Rico and all territories and possessions of the United States.

[Statutory Authority: RCW 70A.388.040 and 70A.388.110. WSR 22-11-063, § 246-237-010, filed 5/16/22, effective 6/16/22. Statutory Authority: RCW 70.98.050 and 70.98.110. WSR 16-13-079, § 246-237-010, filed 6/14/16, effective 7/15/16.]

AMENDATORY SECTION (Amending WSR 16-13-079, filed 6/14/16, effective 7/15/16)

**WAC 246-237-011 Specific exemptions.** (1) The department may, upon application of any interested person or upon its own initiative, grant such exemptions from the requirements of the rules in this chapter as it determines are authorized by law and will not endanger life or property or the common defense and security, and are otherwise in the public interest.

(2) Any licensee's activities are exempt from the requirements of WAC 246-237-021 through 246-237-057 to the extent that its activities are included in a security plan required by 10 C.F.R. Part 73.

(3) A licensee who possesses radioactive waste that contains Category 1 or Category 2 quantities of radioactive material is exempt from the requirements of WAC 246-237-021 through 246-237-081, except that any radioactive waste that contains discrete sources, ion-exchange resins, or activated material that weighs less than (~~two thousand~~) 2,000 kg (~~((four thousand four hundred nine))~~) 4,409 pounds) is not exempt from the requirements of this chapter. The licensee shall implement the following requirements to secure the radioactive waste:

(a) Use continuous physical barriers which allow access to the radioactive waste only through established access control points;

(b) Use a locked door or gate with monitored alarm at the access control point;

(c) Assess and respond to each actual or attempted unauthorized access to determine whether an actual or attempted theft, sabotage, or diversion occurred; and

(d) Immediately notify the LLEA and request an armed response from the LLEA upon determination that there was an actual or attempted theft, sabotage, or diversion of the radioactive waste that contains Category 1 or Category 2 quantities of radioactive material.

[Statutory Authority: RCW 70.98.050 and 70.98.110. WSR 16-13-079, § 246-237-011, filed 6/14/16, effective 7/15/16.]

AMENDATORY SECTION (Amending WSR 17-01-034, filed 12/12/16, effective 1/12/17)

**WAC 246-237-025 Background investigations.** (1) Initial investigation. Before allowing an individual unescorted access to Category 1 or Category 2 quantities of radioactive material or to the devices that contain the material, licensees shall complete a background investigation of the individual seeking unescorted access authorization. The scope of the investigation must encompass at least the seven years preceding the date of the background investigation or since the individual's (~~eighteenth~~) 18th birthday, whichever is shorter. The background investigation must include at a minimum:

(a) Fingerprinting and an FBI identification and criminal history records check in accordance with WAC 246-237-027;

(b) Verification of true identity. Licensees shall verify the true identity of the individual who is applying for unescorted access authorization to ensure that the applicant is who they claim to be. A licensee shall review official identification documents (driver's license; passport; government identification; certificate of birth issued by the state, province, or country of birth) and compare the documents to personal information data provided by the individual to identify any discrepancy in the information. Licensees shall document the type, expiration, and identification number of the identification document, or maintain a photocopy of identifying documents on file in accordance with WAC 246-237-031. Licensees shall certify in writing that the identification was properly reviewed, and shall maintain the certification and all related documents for review upon inspection;

(c) Employment history verification. Licensees shall complete an employment history verification, including military history. Licensees shall verify the individual's employment with each previous employer for the most recent seven years before the date of application;

(d) Verification of education. Licensees shall verify that the individual participated in the education process during the claimed period;

(e) Character and reputation determination. Licensees shall complete reference checks to determine the character and reputation of the individual who has applied for unescorted access authorization. Unless other references are not available, reference checks may not be conducted with any person who is known to be a close member of the individual's family including, but not limited to, the individual's spouse, parents, siblings, or children, or any individual who resides in the individual's permanent household. Reference checks under this chapter must be limited to whether the individual has been and continues to be trustworthy and reliable;

(f) The licensee shall also, to the extent possible, obtain independent information to corroborate that provided by the individual (for example, seek references not supplied by the individual); and

(g) If a previous employer, educational institution, or any other entity with which the individual claims to have been engaged fails to provide information or indicates an inability or unwillingness to provide information within a time frame deemed appropriate by the licensee but at least after (~~ten~~) 10 business days of the request or if the licensee is unable to reach the entity, the licensee shall document the refusal, unwillingness, or inability in the record of investigation; and attempt to obtain the information from an alternate source.

(2) Grandfathering.

(a) Individuals who have been determined to be trustworthy and reliable for unescorted access to Category 1 or Category 2 quantities of radioactive material under the fingerprint orders may continue to have unescorted access to Category 1 and Category 2 quantities of radioactive material without further investigation. These individuals shall be subject to the reinvestigation requirement.

(b) Individuals who have been determined to be trustworthy and reliable under the provisions of 10 C.F.R. Part 73 or the security orders for access to safeguards information, safeguards information-modified handling, or risk-significant material may have unescorted access to Category 1 and Category 2 quantities of radioactive material without further investigation. The licensee shall document that the individual was determined to be trustworthy and reliable under the provisions of 10 C.F.R. Part 73 or a security order. Security order, in this context, refers to any order that was issued by the NRC that required fingerprints and an FBI criminal history records check for access to safeguards information, safeguards information-modified handling, or risk-significant material such as special nuclear material or large quantities of uranium hexafluoride. These individuals shall be subject to the reinvestigation requirement.

(3) Reinvestigations. Licensees shall conduct a reinvestigation every (~~ten~~) 10 years for any individual with unescorted access to Category 1 or Category 2 quantities of radioactive material. The reinvestigation shall consist of fingerprinting and an FBI identification and criminal history records check in accordance with WAC 246-237-027. The reinvestigations must be completed within (~~ten~~) 10 years of the date on which these elements were last completed.

[Statutory Authority: RCW 70.98.050 and 70.98.110. WSR 17-01-034, § 246-237-025, filed 12/12/16, effective 1/12/17; WSR 16-13-079, § 246-237-025, filed 6/14/16, effective 7/15/16.]

AMENDATORY SECTION (Amending WSR 16-13-079, filed 6/14/16, effective 7/15/16)

**WAC 246-237-041 Security program.** (1) Applicability.

(a) Each licensee who possesses an aggregated Category 1 or Category 2 quantity of radioactive material shall establish, implement, and maintain a security program in accordance with the requirements of this chapter.

(b) An applicant for a new license, and each licensee who would become newly subject to the requirements of this chapter, upon application for modification of its license, shall implement the requirements of this chapter, as appropriate, before taking possession of an aggregated Category 1 or Category 2 quantity of radioactive material.

(c) Any licensee who has not previously implemented the security orders or been subject to the provisions of WAC 246-237-041 through 246-237-057 shall provide written notification to the department at least (~~ninety~~) 90 days before aggregating radioactive material to a quantity that equals or exceeds the Category 2 threshold.

(2) General performance objective. Each licensee shall establish, implement, and maintain a security program designed to monitor and, without delay, detect, assess, and respond to an actual or attempted unauthorized access to Category 1 or Category 2 quantities of radioactive material.

(3) Program features. Each licensee's security program must include the program features, as appropriate, described in WAC 246-237-043 through 246-237-055.

[Statutory Authority: RCW 70.98.050 and 70.98.110. WSR 16-13-079, § 246-237-041, filed 6/14/16, effective 7/15/16.]

AMENDATORY SECTION (Amending WSR 16-13-079, filed 6/14/16, effective 7/15/16)

**WAC 246-237-045 LLEA coordination.** (1) A licensee subject to this chapter shall coordinate, to the extent practicable, with a LLEA for responding to threats to the licensee's facility, including any necessary armed response. The information provided to the LLEA must include:

(a) A description of the facilities and the Category 1 and Category 2 quantities of radioactive materials along with a description of the licensee's security measures which have been implemented to comply with this chapter; and

(b) A notification that the licensee will request a timely armed response by the LLEA to any actual or attempted theft, sabotage, or diversion of Category 1 or Category 2 quantities of material.

(2) The licensee shall notify the department within three business days if:

(a) The LLEA has not responded to the request for coordination within (~~sixty~~) 60 days of the coordination request; or

(b) The LLEA notifies the licensee that the LLEA does not plan to participate in coordination activities.

(3) The licensee shall document its efforts to coordinate with the LLEA. The documentation must be kept for three years.

(4) The licensee shall coordinate with the LLEA at least every (~~twelve~~) 12 months, or when changes to the facility design or operation adversely affect the potential vulnerability of the licensee's material to theft, sabotage, or diversion.

[Statutory Authority: RCW 70.98.050 and 70.98.110. WSR 16-13-079, § 246-237-045, filed 6/14/16, effective 7/15/16.]

AMENDATORY SECTION (Amending WSR 16-13-079, filed 6/14/16, effective 7/15/16)

**WAC 246-237-051 Maintenance and testing.** (1) Each licensee subject to this chapter shall implement a maintenance and testing program to ensure that intrusion alarms, associated communication systems, and other physical components of the systems used to secure or detect unauthorized access to radioactive material are maintained in operable condition and are capable of performing their intended function when needed. The equipment relied on to meet the security requirements of this part must be inspected and tested for operability and performance at the manufacturer's suggested frequency. If there is no suggested manufacturer's suggested frequency, the testing must be performed at least annually, not to exceed (~~twelve~~) 12 months.

(2) The licensee shall maintain records of the maintenance and testing activities for three years.

[Statutory Authority: RCW 70.98.050 and 70.98.110. WSR 16-13-079, § 246-237-051, filed 6/14/16, effective 7/15/16.]

AMENDATORY SECTION (Amending WSR 16-13-079, filed 6/14/16, effective 7/15/16)

**WAC 246-237-057 Reporting of events.** (1) The licensee shall immediately notify the LLEA after determining that an unauthorized entry resulted in an actual or attempted theft, sabotage, or diversion of a Category 1 or Category 2 quantity of radioactive material. As soon as possible after initiating a response, but not at the expense of causing delay or interfering with the LLEA response to the event, the licensee shall notify the department. In no case shall the notification to the department be later than four hours after the discovery of any attempted or actual theft, sabotage, or diversion.

(2) The licensee shall assess any suspicious activity related to possible theft, sabotage, or diversion of Category 1 or Category 2 quantities of radioactive material and notify the LLEA as appropriate. As soon as possible but not later than four hours after notifying the LLEA, the licensee shall notify the department.

(3) The initial telephonic notification required by subsection (1) of this section must be followed within a period of (~~thirty~~) 30 days by a written report submitted to the department. The report must include sufficient information for department analysis and evaluation, including identification of any necessary corrective actions to prevent future instances.

[Statutory Authority: RCW 70.98.050 and 70.98.110. WSR 16-13-079, § 246-237-057, filed 6/14/16, effective 7/15/16.]

AMENDATORY SECTION (Amending WSR 16-13-079, filed 6/14/16, effective 7/15/16)

**WAC 246-237-079 Requirements for physical protection of Category 1 and Category 2 quantities of radioactive material during shipment.**

(1) Shipments by road.

(a) Each licensee who transports, or delivers to a carrier for transport, in a single shipment, a Category 1 quantity of radioactive material shall:

(i) Ensure that movement control centers are established that maintain position information from a remote location. These control centers must monitor shipments (~~twenty-four~~) 24 hours a day, seven days a week, and have the ability to communicate immediately, in an emergency, with the appropriate law enforcement agencies.

(ii) Ensure that redundant communications are established that allow the transport to contact the escort vehicle (when used) and movement control center at all times. Redundant communications may not be subject to the same interference factors as the primary communication.

(iii) Ensure that shipments are continuously and actively monitored by a telemetric position monitoring system or an alternative tracking system reporting to a movement control center. A movement control center must provide positive confirmation of the location, status, and control over the shipment. The movement control center must be prepared to promptly implement preplanned procedures in response to deviations from the authorized route or a notification of actual, attempted, or suspicious activities related to the theft, loss, or diversion of a shipment. These procedures will include, but not be limited to, the identification of and contact information for the appropriate LLEA along the shipment route.

(iv) Provide an individual to accompany the driver for those highway shipments with a driving time period greater than the maximum number of allowable hours of service in a (~~twenty-four~~) 24 hour duty day as established by the Department of Transportation Federal Motor Carrier Safety Administration. The accompanying individual may be another driver.

(v) Develop written normal and contingency procedures to address:

(A) Notifications to the communication center and law enforcement agencies;

(B) Communication protocols. Communication protocols must include a strategy for the use of authentication codes and duress codes and provisions for refueling or other stops, detours, and locations where communication is expected to be temporarily lost;

(C) Loss of communications; and

(D) Responses to an actual or attempted theft or diversion of a shipment.

(vi) Each licensee who makes arrangements for the shipment of Category 1 quantities of radioactive material shall ensure that drivers, accompanying personnel, and movement control center personnel have access to the normal and contingency procedures.

(b) Each licensee who transports Category 2 quantities of radioactive material shall maintain constant control or surveillance during transit and have the capability for immediate communication to summon appropriate response or assistance.

(c) Each licensee who delivers to a carrier for transport, in a single shipment, a Category 2 quantity of radioactive material shall:

(i) Use carriers who have established package tracking systems. An established package tracking system is a documented, proven, and reliable system routinely used to transport objects of value. In order for a package tracking system to maintain constant control or surveillance, the package tracking system must allow the shipper or transporter to identify when and where the package was last and when it should arrive at the next point of control.

(ii) Use carriers who maintain constant control or surveillance during transit and have the capability for immediate communication to summon appropriate response or assistance; and

(iii) Use carriers who have established tracking systems that require an authorized signature prior to releasing the package for delivery or return.

(2) Shipments by rail.

(a) Each licensee who transports, or delivers to a carrier for transport, in a single shipment, a Category 1 quantity of radioactive material shall:

(i) Ensure that rail shipments are monitored by a telemetric position monitoring system or an alternative tracking system reporting to the licensee, third-party, or railroad communications center. The

communications center shall provide positive confirmation of the location of the shipment and its status. The communications center shall implement preplanned procedures in response to deviations from the authorized route or to a notification of actual, attempted, or suspicious activities related to the theft or diversion of a shipment. These procedures will include, but not be limited to, the identification of and contact information for the appropriate LLEA along the shipment route.

(ii) Ensure that periodic reports to the communications center are made at preset intervals.

(b) Each licensee who transports, or delivers to a carrier for transport, in a single shipment, a Category 2 quantity of radioactive material shall:

(i) Use carriers who have established package tracking systems. An established package tracking system is a documented, proven, and reliable system routinely used to transport objects of value. In order for a package tracking system to maintain constant control or surveillance, the package tracking system must allow the shipper or transporter to identify when and where the package was last and when it should arrive at the next point of control.

(ii) Use carriers who maintain constant control or surveillance during transit and have the capability for immediate communication to summon appropriate response or assistance; and

(iii) Use carriers who have established tracking systems that require an authorized signature prior to releasing the package for delivery or return.

(3) Investigations. Each licensee who makes arrangements for the shipment of Category 1 quantities of radioactive material shall immediately conduct an investigation upon discovery that a Category 1 shipment is lost or missing. Each licensee who makes arrangements for the shipment of Category 2 quantities of radioactive material shall immediately conduct an investigation, in coordination with the receiving licensee, of any shipment that has not arrived by the designated no-later-than arrival time.

[Statutory Authority: RCW 70.98.050 and 70.98.110. WSR 16-13-079, § 246-237-079, filed 6/14/16, effective 7/15/16.]

AMENDATORY SECTION (Amending WSR 16-13-079, filed 6/14/16, effective 7/15/16)

**WAC 246-237-081 Reporting requirements.** (1) The shipping licensee shall notify the appropriate LLEA and the department within one hour of its determination that a shipment of Category 1 quantities of radioactive material is lost or missing. The appropriate LLEA would be the law enforcement agency in the area of the shipment's last confirmed location. During the investigation required by WAC 246-237-079(3), the shipping licensee will provide agreed upon updates to the department on the status of the investigation.

(2) The shipping licensee shall notify the department within four hours of its determination that a shipment of Category 2 quantities of radioactive material is lost or missing. If, after (~~twenty-four~~) 24 hours of the determination that the shipment is lost or missing, the radioactive material has not been located and secured, the licensee shall immediately notify the department.

(3) The shipping licensee shall notify the designated LLEA along the shipment route as soon as possible upon discovery of any actual or attempted theft or diversion of a shipment or suspicious activities related to the theft or diversion of a shipment of a Category 1 quantity of radioactive material. As soon as possible after notifying the LLEA, the licensee shall notify the department upon discovery of any actual or attempted theft or diversion of a shipment, or any suspicious activity related to the shipment of Category 1 radioactive material.

(4) The shipping licensee shall notify the department as soon as possible upon discovery of any actual or attempted theft or diversion of a shipment, or any suspicious activity related to the shipment, of a Category 2 quantity of radioactive material.

(5) The shipping licensee shall notify the department and the LLEA as soon as possible upon recovery of any lost or missing Category 1 quantities of radioactive material.

(6) The shipping licensee shall notify the department as soon as possible upon recovery of any lost or missing Category 2 quantities of radioactive material.

(7) The initial telephonic notification required by subsections (1) through (4) of this section must be followed within a period of (~~thirty~~) 30 days by a written report submitted to the department by an appropriate method. A written report is not required for notifications of suspicious activities required by subsections (3) and (4) of this section. In addition, the licensee shall provide a copy of the written report to the department. The report must set forth the following information:

(a) A description of the licensed material involved, including kind, quantity, chemical and physical form;

(b) A description of the circumstances under which the loss or theft occurred;

(c) A statement of disposition, or probable disposition, of the licensed material involved;

(d) Actions that have been taken, or will be taken, to recover the material; and

(e) Procedures or measures that have been, or will be, adopted to ensure against a recurrence of the loss or theft of licensed material.

(8) Subsequent to filing the written report, the licensee shall also report any additional substantive information about the loss or theft to the department within (~~thirty~~) 30 days after the licensee learns of such information.

[Statutory Authority: RCW 70.98.050 and 70.98.110. WSR 16-13-079, § 246-237-081, filed 6/14/16, effective 7/15/16.]

AMENDATORY SECTION (Amending WSR 16-13-079, filed 6/14/16, effective 7/15/16)

**WAC 246-237-900 Appendix A: Table 1—Category 1 and Category 2 thresholds.** Terabecquerel (TBq) values are the regulatory standard. The curie (Ci) values specified are obtained by converting from the TBq value. The curie values provided for practical usefulness only.



Radioactive material	Category 1 (TBq)	Category 1 (Ci)	Category 2 (TBq)	Category 2 (Ci)
Americium-241	60	1,620	0.6	16.2
Americium-241/Be	60	1,620	0.6	16.2
Californium-252	20	540	0.2	5.40
Cobalt-60	30	810	0.3	8.10
Curium-244	50	1,350	0.5	13.5
Cesium-137	100	2,700	1	27.0
Gadolinium-153	1,000	27,000	10	270
Iridium-192	80	2,160	0.8	21.6
Plutonium-238	60	1,620	0.6	16.2
Plutonium-239/Be	60	1,620	0.6	16.2
Promethium-147	40,000	1,080,000	400	10,800
Radium-226	40	1,080	0.4	10.8
Selenium-75	200	5,400	2	54.0
Strontium-90	1,000	27,000	10	270
Thulium-170	20,000	540,000	200	5,400
Ytterbium-169	300	8,100	3	81.0

Note: Calculations Concerning Multiple Sources or Multiple Radionuclides

The "sum of fractions" methodology for evaluating combinations of multiple sources or multiple radionuclides is to be used in determining whether a location meets or exceeds the threshold and is thus subject to the requirements of this chapter.

I. If multiple sources of the same radionuclide or multiple radionuclides are aggregated at a location, the sum of the ratios of the total activity of each of the radionuclides must be determined to verify whether the activity at the location is less than the Category 1 or Category 2 thresholds of Table 1, as appropriate. If the calculated sum of the ratios, using the equation below, is greater than or equal to 1.0, then the applicable requirements of this chapter apply.

II. First determine the total activity for each radionuclide from Table 1. This is done by adding the activity of each individual source, material in any device, and any loose or bulk material that contains the radionuclide. Then use the equation below to calculate the sum of the ratios by inserting the total activity of the applicable radionuclides from Table 1 in the numerator of the equation and the corresponding threshold activity from Table 1 in the denominator of the equation. Calculations must be performed in metric values (TBq) and the numerator and denominator values must be in the same units.

- R<sub>1</sub>= total activity for radionuclide 1
- R<sub>2</sub>= total activity for radionuclide 2
- R<sub>N</sub>= total activity for radionuclide n
- AR<sub>1</sub>= activity threshold for radionuclide 1
- AR<sub>2</sub>= activity threshold for radionuclide 2
- AR<sub>N</sub>= activity threshold for radionuclide n

$$(( \sum_1^n \left[ \frac{R_1}{AR_1} + \frac{R_2}{AR_2} + \frac{R_n}{AR_n} \right] \geq 1.0 ))$$

$$\frac{R_1}{AR_1} + \frac{R_2}{AR_2} + \dots + \frac{R_n}{AR_n} \geq 1.0$$

[Statutory Authority: RCW 70.98.050 and 70.98.110. WSR 16-13-079, § 246-237-900, filed 6/14/16, effective 7/15/16.]

### OTS-4714.1

AMENDATORY SECTION (Amending WSR 22-19-084, filed 9/20/22, effective 10/21/22)

**WAC 246-240-010 Definitions, abbreviations, and acronyms.** The definitions, abbreviations, and acronyms in this section and in WAC 246-220-010 apply throughout this chapter unless the context clearly indicates otherwise.

(1) "Address of use" means the building or buildings that are identified on the license and where radioactive material may be received, prepared, used, or stored.

(2) "Area of use" means a portion of an address of use that has been set aside for the purpose of receiving, preparing, using, or storing radioactive material.

(3) "Associate radiation safety officer" means an individual who:

(a) Meets the requirements in WAC 246-240-069 and 246-240-081;

and

(b) Is currently identified as an associate radiation safety officer for the types of use of radioactive material for which the individual has been assigned duties and tasks by the radiation safety officer on:

(i) A specific medical use license issued by the department, NRC, or an agreement state; or

(ii) A medical use permit issued by an NRC master material licensee.

(4) "Attestation" means written certification under oath.

(5) "Authorized medical physicist" means an individual who:

(a) Meets the requirements in WAC 246-240-072 and 246-240-081; or

(b) Is identified as an authorized medical physicist or teletherapy physicist on:

(i) A specific medical use license issued by the department, NRC, or an agreement state;

(ii) A medical use permit issued by an NRC master material licensee;

(iii) A permit issued by an NRC or agreement state broad scope medical use licensee; or

(iv) A permit issued by an NRC master material license broad scope medical use permittee.

(6) "Authorized nuclear pharmacist" means a pharmacist who:

(a) Meets the requirements in WAC 246-240-075 and 246-240-081; or

(b) Is identified as an authorized nuclear pharmacist on:

(i) A specific license issued by the department, NRC, or an agreement state, that authorizes medical use or the practice of nuclear pharmacy;

(ii) A permit issued by an NRC master material licensee that authorizes medical use or the practice of nuclear pharmacy;

(iii) A permit issued by an NRC or agreement state broad scope medical use licensee that authorizes medical use or the practice of nuclear pharmacy; or

(iv) A permit issued by an NRC master material license broad scope medical use permittee that authorizes medical use or the practice of nuclear pharmacy; or

(c) Is identified as an authorized nuclear pharmacist by a commercial nuclear pharmacy that has been authorized to identify authorized nuclear pharmacists; or

(d) Is designated as an authorized nuclear pharmacist in accordance with WAC 246-235-100(2).

(7) "Authorized user" means a physician, dentist, or podiatrist who:

(a) Meets the requirements in WAC 246-240-081 and 246-240-154, 246-240-163, 246-240-210, 246-240-213, 246-240-216, 246-240-278, 246-240-301, or 246-240-399; or

(b) Is identified as an authorized user on:

(i) A department, NRC, or agreement state license that authorizes the medical use of radioactive material; or

(ii) A permit issued by an NRC master material licensee that is authorized to permit the medical use of radioactive material; or

(iii) A permit issued by a department, NRC, or agreement state specific licensee of broad scope that is authorized to permit the medical use of radioactive material; or

(iv) A permit issued by an NRC master material license broad scope permittee that is authorized to permit the medical use of radioactive material.

(8) "Brachytherapy" means a method of radiation therapy in which sources are used to deliver a radiation dose at a distance of up to a few centimeters by surface, intracavitary, intraluminal, or interstitial application.

(9) "Brachytherapy source" means a radioactive source or a manufacturer-assembled source train or a combination of these sources that is designed to deliver a therapeutic dose within a distance of a few centimeters.

(10) "Client's address" means the area of use or a temporary job site for the purpose of providing mobile medical service in accordance with WAC 246-240-125.

(11) "Cyclotron" means a particle accelerator in which the charged particles travel in an outward spiral or circular path. A cyclotron accelerates charged particles at energies usually in excess of 10 mega-electron volts and is commonly used for production of short half-life radionuclides for medical use.

(12) "Dedicated check source" means a radioactive source that is used to assure the constant operation of a radiation detection or measurement device over several months or years.

(13) "Dentist" means an individual licensed by a state or territory of the United States, the District of Columbia, or the Commonwealth of Puerto Rico to practice dentistry.

(14) "FDA" means the U.S. Food and Drug Administration.

(15) "High dose-rate remote afterloader" means a brachytherapy device that remotely delivers a dose rate in excess of 12 gray (1200 rads) per hour at the point or surface where the dose is prescribed.

(16) "Low dose-rate remote afterloader" means a brachytherapy device that remotely delivers a dose rate of less than or equal to two

gray (200 rads) per hour at the point or surface where the dose is prescribed.

(17) "Management" means the chief executive officer or other individual having the authority to manage, direct, or administer the licensee's activities, or that person's delegate or delegates.

(18) "Manual brachytherapy" means a type of brachytherapy in which the brachytherapy sources (e.g., seeds, ribbons) are manually placed topically on or inserted either into the body cavities that are in close proximity to a treatment site or directly into the tissue volume.

(19) "Medical event" means an event that meets the criteria in WAC 246-240-651.

(20) "Medical institution" means an organization in which more than one medical discipline is practiced.

(21) "Medical use" means the intentional internal or external administration of radioactive material or the radiation from radioactive material to patients or human research subjects under the supervision of an authorized user.

(22) "Medium dose-rate remote afterloader" means a brachytherapy device that remotely delivers a dose rate of greater than two gray (200 rads), but less than or equal to 12 grays (1200 rads) per hour at the point or surface where the dose is prescribed.

(23) "Mobile medical service" means the transportation of radioactive material to and its medical use at the client's address.

(24) "Ophthalmic physicist" means an individual who:

(a) Meets the requirements in WAC 246-240-272 (1)(b) and 246-240-081; and

(b) Is identified as an ophthalmic physicist on a:

(i) Specific medical use license issued by the NRC or an agreement state;

(ii) Permit issued by an NRC or agreement state broad scope medical use licensee;

(iii) Medical use permit issued by an NRC master material licensee; or

(iv) Permit issued by an NRC master material licensee broad scope medical use permittee.

(25) "Output" means the exposure rate, dose rate, or a quantity related in a known manner to these rates from a brachytherapy source or a teletherapy, remote afterloader, or gamma stereotactic radiosurgery unit for a specified set of exposure conditions.

(26) "Patient intervention" means actions by the patient or human research subject, whether intentional or unintentional, such as dislodging or removing treatment devices or prematurely terminating the administration.

(27) "Podiatrist" means an individual licensed by a state or territory of the United States, the District of Columbia, or the Commonwealth of Puerto Rico to practice podiatry.

(28) "Positron emission tomography (PET) radionuclide production facility" means a facility operating an accelerator for the purpose of producing positron emission tomography radionuclides.

(29) "Preceptor" means an individual who provides, directs, or verifies training and experience required for an individual to become an authorized user, an authorized medical physicist, an authorized nuclear pharmacist, an authorized radiation safety officer, or an associate radiation safety officer.

(30) "Prescribed dosage" means the specified activity or range of activity of unsealed radioactive material as documented:

- (a) In a written directive; or
- (b) In accordance with the directions of the authorized user for procedures performed under WAC 246-240-151 and 246-240-157.
- (31) "Prescribed dose" means:
- (a) For gamma stereotactic radiosurgery, the total dose as documented in the written directive;
- (b) For teletherapy, the total dose and dose per fraction as documented in the written directive;
- (c) For manual brachytherapy, either the total source strength and exposure time or the total dose, as documented in the written directive; or
- (d) For remote brachytherapy afterloaders, the total dose and dose per fraction as documented in the written directive.
- (32) "Pulsed dose-rate remote afterloader" means a special type of remote afterloading brachytherapy device that uses a single source capable of delivering dose rates in the "high dose-rate" range, but:
- (a) Is approximately (~~one-tenth~~) 1/10th of the activity of typical high dose-rate remote afterloader sources; and
- (b) Is used to simulate the radiobiology of a low dose-rate treatment by inserting the source for a given fraction of each hour.
- (33) "Sealed source and device registry" means the national registry that contains all the registration certificates, generated by NRC and the agreement states, that summarize the radiation safety information for the sealed sources and devices and describe the licensing and use conditions approved for the product.
- (34) "Stereotactic radiosurgery" means the use of external radiation in conjunction with a stereotactic guidance device to very precisely deliver a therapeutic dose to a tissue volume.
- (35) "Structured educational program" means an educational program designed to impart particular knowledge and practical education through interrelated studies and supervised training.
- (36) "Teletherapy" means a method of radiation therapy in which collimated gamma rays are delivered at a distance from the patient or human research subject.
- (37) "Temporary job site" means a location where mobile medical services are conducted at other than those fixed locations of use authorized by the license.
- (38) "Therapeutic dosage" means a dosage of unsealed radioactive material that is intended to deliver a radiation dose to a patient or human research subject for palliative or curative treatment.
- (39) "Therapeutic dose" means a radiation dose delivered from a source containing radioactive material to a patient or human research subject for palliative or curative treatment.
- (40) "Treatment site" means the anatomical description of the tissue intended to receive a radiation dose, as described in a written directive.
- (41) "Type of use" means use of radioactive material under WAC 246-240-151, 246-240-157, 246-240-201, 246-240-251, 246-240-301, 246-240-351, or 246-240-501.
- (42) "Unit dosage" means a dosage prepared for medical use for administration as a single dosage to a patient or human research subject without any further manipulation of the dosage after it is initially prepared.
- (43) "Written directive" means an authorized user's written order for the administration of radioactive material or radiation from radioactive material to a specific patient or human research subject, as specified in WAC 246-240-060.

[Statutory Authority: RCW 70A.388.040 and 70A.388.110. WSR 22-19-084, § 246-240-010, filed 9/20/22, effective 10/21/22. Statutory Authority: RCW 70.98.050. WSR 13-11-021, § 246-240-010, filed 5/7/13, effective 6/7/13; WSR 11-03-068, § 246-240-010, filed 1/18/11, effective 2/18/11. Statutory Authority: RCW 70.98.050 and 70.98.080. WSR 09-06-003, § 246-240-010, filed 2/18/09, effective 3/21/09. Statutory Authority: RCW 70.98.050. WSR 07-14-131, § 246-240-010, filed 7/3/07, effective 8/3/07; WSR 06-05-019, § 246-240-010, filed 2/6/06, effective 3/9/06; WSR 98-13-037, § 246-240-010, filed 6/8/98, effective 7/9/98. Statutory Authority: RCW 70.98.050 and 70.98.080. WSR 92-06-008 (Order 245), § 246-240-010, filed 2/21/92, effective 3/23/92.]

AMENDATORY SECTION (Amending WSR 22-19-084, filed 9/20/22, effective 10/21/22)

**WAC 246-240-075 Training for an authorized nuclear pharmacist.**

Except as provided in WAC 246-240-078, the licensee shall require the authorized nuclear pharmacist to be a pharmacist who:

(1) Is certified by a specialty board whose certification process has been recognized by the department, NRC, or an agreement state. The names of board certifications that have been recognized by the department, NRC, or an agreement state are posted on the NRC's medical uses licensee toolkit web page. To have its certification process recognized, a specialty board shall require all candidates for certification to:

(a) Have graduated from a pharmacy program accredited by the ((American)) Accreditation Council ((on Pharmaceutical)) for Pharmacy Education (ACPE) or have passed the Foreign Pharmacy Graduate Examination Committee (FPGEC) examination;

(b) Hold a current, active license to practice pharmacy;

(c) Provide evidence of having acquired at least 4,000 hours of training/experience in nuclear pharmacy practice. Academic training may be substituted for no more than 2,000 hours of the required training and experience; and

(d) Pass an examination in nuclear pharmacy administered by diplomates of the specialty board, which assesses knowledge and competency in procurement, compounding, quality assurance, dispensing, distribution, health and safety, radiation safety, provision of information and consultation, monitoring patient outcomes, research and development; or

(2) (a) Has completed 700 hours in a structured educational program consisting of both:

(i) Two hundred hours of classroom and laboratory training in the following areas:

(A) Radiation physics and instrumentation;

(B) Radiation protection;

(C) Mathematics pertaining to the use and measurement of radioactivity;

(D) Chemistry of radioactive material for medical use; and

(E) Radiation biology; and

(ii) Supervised practical experience in a nuclear pharmacy involving:

- (A) Shipping, receiving, and performing related radiation surveys;
- (B) Using and performing checks for proper operation of instruments used to determine the activity of dosages, survey meters, and, if appropriate, instruments used to measure alpha-or beta-emitting radionuclides;
- (C) Calculating, assaying, and safely preparing dosages for patients or human research subjects;
- (D) Using administrative controls to avoid medical events in the administration of radioactive material; and
- (E) Using procedures to prevent or minimize radioactive contamination and using proper decontamination procedures; and
- (b) Has obtained written attestation, signed by a preceptor authorized nuclear pharmacist, that the individual has satisfactorily completed the requirements in (a) of this subsection and is able to independently fulfill the radiation safety-related duties as an authorized nuclear pharmacist.

[Statutory Authority: RCW 70A.388.040 and 70A.388.110. WSR 22-19-084, § 246-240-075, filed 9/20/22, effective 10/21/22. Statutory Authority: RCW 70.98.050. WSR 13-11-021, § 246-240-075, filed 5/7/13, effective 6/7/13; WSR 11-03-068, § 246-240-075, filed 1/18/11, effective 2/18/11; WSR 06-05-019, § 246-240-075, filed 2/6/06, effective 3/9/06.]

AMENDATORY SECTION (Amending WSR 22-19-084, filed 9/20/22, effective 10/21/22)

**WAC 246-240-078 Training for experienced radiation safety officer, teletherapy or medical physicist, authorized medical physicist, authorized user, nuclear pharmacist, and authorized nuclear pharmacist.** (1)(a) An individual identified on a department, NRC, or an agreement state license; or a permit issued by a department, NRC, or an agreement state broad scope licensee or master material license permit; or by a master material license permittee of broad scope as a radiation safety officer, a teletherapy or medical physicist, an authorized medical physicist, a nuclear pharmacist or authorized nuclear pharmacist on or before January 14, 2019, need not comply with the training requirements of WAC 246-240-069, 246-240-072, or 246-240-075, respectively except the radiation safety officers and authorized medical physicists identified in this subsection must meet the training requirements in WAC 246-240-069(4) or 246-240-072(3), as appropriate, for any material or uses for which they were not authorized prior to this date.

(b) Any individual certified by the American Board of Health Physics in Comprehensive Health Physics; American Board of Radiology; American Board of Nuclear Medicine; American Board of Science in Nuclear Medicine; Board of Pharmaceutical Specialties in Nuclear Pharmacy; American Board of Medical Physics in radiation oncology physics; Royal College of Physicians and Surgeons of Canada in nuclear medicine; American Osteopathic Board of Radiology; or American Osteopathic Board of Nuclear Medicine on or before October 24, 2005, need not comply with the training requirements of WAC 246-240-069 to be identified as a radiation safety officer or as an associate radiation safety officer on a department, NRC, or an agreement state license or NRC mas-

ter material license permit for those materials and uses that these individuals performed on or before October 24, 2005.

(c) Any individual certified by the American Board of Radiology in therapeutic radiological physics, Roentgen ray and gamma ray physics, X-ray and radium physics, or radiological physics, or certified by the American Board of Medical Physics in radiation oncology physics, on or before October 24, 2005, need not comply with the training requirements for an authorized medical physicist described in WAC 246-240-072, for those materials and uses that these individuals performed on or before October 24, 2005.

(d) A radiation safety officer, a medical physicist, or a nuclear pharmacist, who used only accelerator-produced radioactive materials, discrete sources of radium-226, or both, for medical uses or in the practice of nuclear pharmacy at a government agency or federally recognized Indian tribe before November 30, 2007, or at all other locations of use before August 8, 2009, or an earlier date as noticed by the NRC, need not comply with the training requirements of WAC 246-240-069, 246-240-072 or 246-240-075, respectively, when performing the same uses. A nuclear pharmacist, who prepared only radioactive drugs containing accelerator-produced radioactive materials, or a medical physicist, who used only accelerator-produced radioactive materials, at the locations and during the time period identified in this subsection, qualifies as an authorized nuclear pharmacist or an authorized medical physicist, respectively, for those materials and uses performed before these dates, for the purposes of this chapter.

(2) (a) Physicians, dentists, or podiatrists identified as authorized users for the medical use of radioactive material on a license issued by the department, NRC, or an agreement state, a permit issued by an NRC master material license, a permit issued by a department, NRC, or an agreement state broad scope licensee, or permit issued by an NRC master material license broad scope permittee on or before January 14, 2019, who perform only those medical uses for which they were authorized on or before that date need not comply with the training requirements of WAC 246-240-151 through 246-240-399.

(b) Physicians, dentists, or podiatrists not identified as authorized users for the medical use of radioactive material on a license issued by the department, NRC, or an agreement state, a permit issued by an NRC master material licensee, a permit issued by the department, NRC, or an agreement state broad scope licensee, or a permit issued in accordance with ((an NRC)) a commission master material broad scope license on or before October 24, 2005, need not comply with the training requirements of WAC 246-240-151 through 246-240-399 for those materials and uses that these individuals performed on or before October 24, 2005, as follows:

(i) For uses authorized under WAC 246-240-151 or 246-240-157, or oral administration of sodium iodide I-131 requiring a written directive for imaging and localization purposes, a physician who was certified on or before October 24, 2005, in nuclear medicine by the American Board of Nuclear Medicine; diagnostic radiology by the American Board of Radiology; diagnostic radiology or radiology by the American Osteopathic Board of Radiology; nuclear medicine by the Royal College of Physicians and Surgeons of Canada; or American Osteopathic Board of Nuclear Medicine in nuclear medicine;

(ii) For uses authorized under WAC 246-240-201, a physician who was certified on or before October 24, 2005, by the American Board of Nuclear Medicine; the American Board of Radiology in radiology, therapeutic radiology, or radiation oncology; nuclear medicine by the Royal



College of Physicians and Surgeons of Canada; or the American Osteopathic Board of Radiology after 1984;

(iii) For uses authorized under WAC 246-240-251 or 246-240-351, a physician who was certified on or before October 24, 2005, in radiology, therapeutic radiology or radiation oncology by the American Board of Radiology; radiation oncology by the American Osteopathic Board of Radiology; radiology, with specialization in radiotherapy, as a British "Fellow of the Faculty of Radiology" or "Fellow of the Royal College of Radiology"; or therapeutic radiology by the Canadian Royal College of Physicians and Surgeons; and

(iv) For uses authorized under WAC 246-240-301, a physician who was certified on or before October 24, 2005, in radiology, diagnostic radiology, therapeutic radiology, or radiation oncology by the American Board of Radiology; nuclear medicine by the American Board of Nuclear Medicine; diagnostic radiology or radiology by the American Osteopathic Board of Radiology; or nuclear medicine by the Royal College of Physicians and Surgeons of Canada.

(c) Physicians, dentists, or podiatrists who used only accelerator-produced radioactive materials, discrete sources of radium-226, or both, for medical uses performed at a government agency or federally recognized Indian tribe before November 30, 2007, or at all other locations of use before August 8, 2009, or an earlier date as noticed by the NRC, need not comply with the training requirements of WAC 246-240-151 through 246-240-399 of this chapter when performing the same medical uses. A physician, dentist, or podiatrist, who used only accelerator-produced radioactive materials, discrete sources of radium-226, or both, for medical uses at the locations and time period identified in this subsection, qualifies as an authorized user for those materials and uses performed before these dates, for the purposes of this chapter.

(3) Individuals who need not comply with training requirements as described in this section may serve as preceptors for, and supervisors of, applicants seeking authorization on state of Washington radioactive materials licenses for the same uses for which these individuals are authorized.

[Statutory Authority: RCW 70A.388.040 and 70A.388.110. WSR 22-19-084, § 246-240-078, filed 9/20/22, effective 10/21/22. Statutory Authority: RCW 70.98.050. WSR 13-11-021, § 246-240-078, filed 5/7/13, effective 6/7/13; WSR 11-03-068, § 246-240-078, filed 1/18/11, effective 2/18/11; WSR 06-05-019, § 246-240-078, filed 2/6/06, effective 3/9/06.]

AMENDATORY SECTION (Amending WSR 22-19-084, filed 9/20/22, effective 10/21/22)

**WAC 246-240-210 Training for use of unsealed radioactive material for which a written directive is required.** Except as provided in WAC 246-240-078, the licensee shall require an authorized user of unsealed radioactive material for the uses authorized under WAC 246-240-201 to be a physician who:

(1) Is certified by a medical specialty board whose certification process has been recognized by the department, NRC, or an agreement state and who meets the requirements in subsection (2)(a)(ii)(G) of this section. The names of board certifications that have been recog-

nized by the department, NRC, or an agreement state are posted on the NRC's medical uses licensee toolkit web page. To have its certification process recognized, a specialty board shall require all candidates for certification to:

(a) Successfully complete a residency training in a radiation therapy or nuclear medicine training program or a program in a related medical specialty that includes 700 hours of training and experience as described in subsection (2)(a)(i) through (ii)(E) of this section. Eligible training programs must be approved by the Residency Review Committee of the Accreditation Council for Graduate Medical Education or Royal College of Physicians and Surgeons of Canada or the (~~Committee on Postgraduate~~) Council on Postdoctoral Training of the American Osteopathic Association; and

(b) Pass an examination, administered by diplomates of the specialty board, which tests knowledge and competence in radiation safety, radionuclide handling, quality assurance, and clinical use of unsealed radioactive material for which a written directive is required; or

(2)(a) Has completed 700 hours of training and experience, including a minimum of 200 hours of classroom and laboratory training, in basic radionuclide handling techniques applicable to the medical use of unsealed radioactive material requiring a written directive. The training and experience must include:

(i) Classroom and laboratory training in the following areas:

(A) Radiation physics and instrumentation;

(B) Radiation protection;

(C) Mathematics pertaining to the use and measurement of radioactivity;

(D) Chemistry of radioactive material for medical use; and

(E) Radiation biology; and

(ii) Work experience, under the supervision of an authorized user who meets the requirements in WAC 246-240-078, or this section, or equivalent NRC or agreement state requirements. A supervising authorized user, who meets the requirements in this subsection, must also have experience in administering dosages in the same dosage category or categories (as in (a)(ii)(G) of this subsection) as the individual requesting authorized user status. The work experience must involve:

(A) Ordering, receiving, and unpacking radioactive materials safely and performing the related radiation surveys;

(B) Performing quality control procedures on instruments used to determine the activity of dosages and performing checks for proper operation of survey meters;

(C) Calculating, measuring, and safely preparing patient or human research subject dosages;

(D) Using administrative controls to prevent a medical event involving the use of unsealed radioactive material;

(E) Using procedures to contain spilled radioactive material safely and using proper decontamination procedures;

(F) (Reserved);

(G) Administering dosages of radioactive drugs to patients or human research subjects from the three categories in this subsection. Radioactive drugs containing radionuclides in categories not included in this subsection are regulated under WAC 246-240-501. This work experience must involve a minimum of three cases in each of the following categories for which the individual is requesting authorized user status:

(I) Oral administration of less than or equal to 1.22 gigabecquerels (33 millicuries) of sodium iodide I-131 for which a written directive is required;

(II) Oral administration of greater than 1.22 gigabecquerels (33 millicuries) of sodium iodide I-131. Experience with at least three cases in this also satisfies the requirement in (a)(ii)(G)(I) of this subsection;

(III) Parenteral administration of any radioactive drug that contains a radionuclide that is primarily used for its electron emission, beta radiation characteristics, alpha radiation characteristics, or photon energy less than 150 keV for which a written directive is required; and

(b) Has obtained written attestation that the individual has satisfactorily completed the requirements in (a) of this subsection, and is able to independently fulfill at radiation safety-related duties as an authorized user for the medical uses authorized under WAC 246-240-201 for which the individual is requesting authorized user status. The written attestation must be obtained from either:

(i) A preceptor authorized user who meets the requirements in this section, WAC 246-240-078, 246-240-210, or equivalent NRC or agreement state requirements, and has experience in administering dosages in the same dosage category or categories (as in (a)(ii)(G) of this subsection) as the individual requesting authorized user status; or

(ii) A residency program director who affirms in writing that the attestation represents the consensus of the residency program faculty where at least one faculty member is an authorized user who meets the requirements in WAC 246-240-078, 246-240-210, or equivalent NRC or agreement state requirements, has experience in administering dosages in the same dosage category or categories as the individual requesting authorized user status, and concurs with the attestation provided by the residency program director. The residency training program must be approved by the Residency Review Committee of the Accreditation Council for Graduate Medical Education or the Royal College of Physicians and Surgeons of Canada or the Council on Postdoctoral Training of the American Osteopathic Association and must include training and experience specified in (a) of this subsection.

[Statutory Authority: RCW 70A.388.040 and 70A.388.110. WSR 22-19-084, § 246-240-210, filed 9/20/22, effective 10/21/22. Statutory Authority: RCW 70.98.050. WSR 14-09-017, § 246-240-210, filed 4/7/14, effective 5/8/14; WSR 13-11-021, § 246-240-210, filed 5/7/13, effective 6/7/13; WSR 11-03-068, § 246-240-210, filed 1/18/11, effective 2/18/11; WSR 07-14-131, § 246-240-210, filed 7/3/07, effective 8/3/07; WSR 06-05-019, § 246-240-210, filed 2/6/06, effective 3/9/06.]

AMENDATORY SECTION (Amending WSR 22-19-084, filed 9/20/22, effective 10/21/22)

**WAC 246-240-278 Training for use of manual brachytherapy sources.** Except as provided in WAC 246-240-078, the licensee shall require an authorized user of a manual brachytherapy source for the uses authorized under WAC 246-240-251 to be a physician who:

(1) Is certified by a medical specialty board whose certification process has been recognized by the department, NRC, or an agreement

state. The names of board certifications that have been recognized by the department, NRC, or an agreement state are posted on the NRC's medical uses licensee toolkit web page. To have its certification process recognized, a specialty board shall require all candidates for certification to:

(a) Successfully complete a minimum of three years of residency training in a radiation oncology program approved by the Residency Review Committee of the Accreditation Council for Graduate Medical Education or Royal College of Physicians and Surgeons of Canada or the (~~Committee on Postgraduate~~) Council on Postdoctoral Training of the American Osteopathic Association; and

(b) Pass an examination, administered by diplomates of the specialty board, which tests knowledge and competence in radiation safety, radionuclide handling, treatment planning, quality assurance, and clinical use of manual brachytherapy; or

(2) (a) Has completed a structured educational program in basic radionuclide handling techniques applicable to the use of manual brachytherapy sources that includes:

(i) Two hundred hours of classroom and laboratory training in the following areas:

(A) Radiation physics and instrumentation;

(B) Radiation protection;

(C) Mathematics pertaining to the use and measurement of radioactivity; and

(D) Radiation biology; and

(ii) Five hundred hours of work experience, under the supervision of an authorized user who meets the requirements in WAC 246-240-078, 246-240-278 or equivalent agreement state or NRC requirements at a medical institution authorized to use radioactive materials under WAC 246-240-251, involving:

(A) Ordering, receiving, and unpacking radioactive materials safely and performing the related radiation surveys;

(B) Checking survey meters for proper operation;

(C) Preparing, implanting, and removing brachytherapy sources;

(D) Maintaining running inventories of material on hand;

(E) Using administrative controls to prevent a medical event involving the use of radioactive material;

(F) Using emergency procedures to control radioactive material;

and

(b) Has completed three years of supervised clinical experience in radiation oncology, under an authorized user who meets the requirements in WAC 246-240-078, 246-240-278, or equivalent NRC or agreement state requirements, as part of a formal training program approved by the Residency Review Committee for Radiation Oncology of the Accreditation Council for Graduate Medical Education or the Royal College of Physicians and Surgeons of Canada or the (~~Committee~~) Council on Postdoctoral Training of the American Osteopathic Association. This experience may be obtained concurrently with the supervised work experience required by (a) (ii) of this subsection; and

(c) Has obtained written attestation that the individual has satisfactorily completed the requirements in (a) and (b) of this subsection and is able to independently fulfill the radiation safety-related duties as an authorized user of manual brachytherapy sources for the medical uses authorized under WAC 246-240-251. The attestation must be obtained from either:

(i) A preceptor authorized user who meets the requirements in WAC 246-240-078, 246-240-278, or equivalent agreement state or NRC requirements; or

(ii) A residency program director who affirms in writing that the attestation represents the consensus of the residency program faculty where at least one faculty member is an authorized user who meets the requirements in WAC 246-240-078, 246-240-278, or equivalent NRC or agreement state requirements, and concurs with the attestation provided by the residency program director. The residency training program must be approved by the Residency Review Committee of the Accreditation Council for Graduate Medical Education or the Royal College of Physicians and Surgeons of Canada or the Council on Postdoctoral Training of the American Osteopathic Association and must include training and experience specified in (a) and (b) of this subsection.

[Statutory Authority: RCW 70A.388.040 and 70A.388.110. WSR 22-19-084, § 246-240-278, filed 9/20/22, effective 10/21/22. Statutory Authority: RCW 70.98.050. WSR 13-11-021, § 246-240-278, filed 5/7/13, effective 6/7/13; WSR 11-03-068, § 246-240-278, filed 1/18/11, effective 2/18/11; WSR 07-14-131, § 246-240-278, filed 7/3/07, effective 8/3/07; WSR 06-05-019, § 246-240-278, filed 2/6/06, effective 3/9/06.]

AMENDATORY SECTION (Amending WSR 22-19-084, filed 9/20/22, effective 10/21/22)

**WAC 246-240-651 Report and notification of a medical event.** (1)

A licensee shall report any event as a medical event, except for an event that results from patient intervention, in which:

(a) The administration of radioactive material or radiation from radioactive material, except permanent implant brachytherapy, results in:

(i) A dose that differs from the prescribed dose or dose that would have resulted from the prescribed dosage by more than 0.05 Sv (five rem) effective dose equivalent, 0.5 Sv (50 rem) to an organ or tissue, or 0.5 Sv (50 rem) shallow dose equivalent to the skin; and

(A) The total dose delivered differs from the prescribed dose by 20 percent or more;

(B) The total dosage delivered differs from the prescribed dosage by 20 percent or more or falls outside the prescribed dosage range; or

(C) The fractionated dose delivered differs from the prescribed dose, for a single fraction, by 50 percent or more.

(ii) A dose that exceeds 0.05 Sv (five rem) effective dose equivalent, 0.5 Sv (50 rem) to an organ or tissue, or 0.5 Sv (50 rem) shallow dose equivalent to the skin from any of the following:

(A) An administration of a wrong radioactive drug containing radioactive material or the wrong radionuclide for a brachytherapy procedure;

(B) An administration of a radioactive drug containing radioactive material by the wrong route of administration;

(C) An administration of a dose or dosage to the wrong individual or human research subject;

(D) An administration of a dose or dosage delivered by the wrong mode of treatment; or

(E) A leaking sealed source.

(iii) A dose to the skin or an organ or tissue other than the treatment site that exceeds by:

(A) 0.5 Sv (50 rem) or more the expected dose to that site from the procedure if the administration had been given in accordance with the written directive prepared or revised before administration; and

(B) Fifty percent or more the expected dose to that site from the procedure if the administration had been given in accordance with the written directive prepared or revised before administration.

(b) For permanent implant brachytherapy, the administration of radioactive material or radiation from radioactive material (excluding sources that were implanted in the correct site but migrated outside the treatment site) that results in:

(i) The total source strength administered differing by 20 percent or more from the total source strength documented in the post-implantation portion of the written directive;

(ii) The total source strength administered outside of the treatment site exceeding 20 percent of the total source strength documented in the post-implantation portion of the written directive; or

(iii) An administration that includes any of the following:

(A) The wrong radionuclide;

(B) The wrong individual or human research subject;

(C) Sealed sources implanted directly into a location discontinuous from the treatment site, as documented in the post-implantation portion of the written directive; or

(D) A leaking sealed source resulting in a dose that exceeds 0.5 Sv (50 rem) to an organ or tissue.

(2) A licensee shall report any event resulting from intervention of a patient or human research subject in which the administration of radioactive material or radiation from radioactive material results or will result in unintended permanent functional damage to an organ or a physiological system, as determined by a physician.

(3) The licensee shall notify by telephone (360-236-3300) the department no later than the next calendar day after discovery of the medical event.

(4) By an appropriate method listed in WAC 246-221-250, the licensee shall submit a written report to the department at P.O. Box 47827, Olympia WA 98504-7827 within 15 days after discovery of the medical event.

(a) The written report must include:

(i) The licensee's name;

(ii) The name of the prescribing physician;

(iii) A brief description of the event;

(iv) Why the event occurred;

(v) The effect, if any, on the individuals who received the administration;

(vi) What actions, if any, have been taken or are planned to prevent recurrence; and

(vii) Certification that the licensee notified the individual (or the individual's responsible relative or guardian), and if not, why not.

(b) The report may not contain the individual's name or any other information that could lead to identification of the individual.

(5) The licensee shall provide notification of the event to the referring physician and also notify the individual who is the subject of the medical event no later than 24 hours after its discovery, unless the referring physician personally informs the licensee either that they will inform the individual or that, based on medical judg-

ment, telling the individual would be harmful. The licensee is not required to notify the individual without first consulting the referring physician. If the referring physician or the affected individual cannot be reached within 24 hours, the licensee shall notify the individual as soon as possible thereafter. The licensee may not delay any appropriate medical care for the individual, including any necessary remedial care as a result of the medical event, because of any delay in notification. To meet the requirements of this subsection, the notification of the individual who is the subject of the medical event may be made instead to that individual's responsible relative or guardian. If a verbal notification is made, the licensee shall inform the individual, or appropriate responsible relative or guardian, that a written description of the event can be obtained from the licensee upon request. The licensee shall provide a written description if requested.

(6) Aside from the notification requirement, nothing in this section affects any rights or duties of licensees and physicians in relation to each other, to individuals affected by the medical event, or to that individual's responsible relatives or guardians.

(7) A licensee shall:

(a) Annotate a copy of the report provided to the department with the:

(i) Name of the individual who is the subject of the event; and

(ii) Identification number or if no other identification number is available, the Social Security number (~~(or other identification number, if one has been assigned,)~~) of the individual who is the subject of the event; and

(b) Provide a copy of the annotated report to the referring physician, if other than the licensee, no later than 15 days after the discovery of the event.

[Statutory Authority: RCW 70A.388.040 and 70A.388.110. WSR 22-19-084, § 246-240-651, filed 9/20/22, effective 10/21/22. Statutory Authority: RCW 70.98.050. WSR 06-05-019, § 246-240-651, filed 2/6/06, effective 3/9/06.]

AMENDATORY SECTION (Amending WSR 22-19-084, filed 9/20/22, effective 10/21/22)

**WAC 246-240-654 Report and notification of a dose to an embryo/fetus or a nursing child.** (1) A licensee shall report to the department at P.O. Box 47827, Olympia WA 98504-7827, (phone 360-236-3300), any dose to an embryo/fetus that is greater than 50 mSv (five rem) dose equivalent that is a result of an administration of radioactive material or radiation from radioactive material to a pregnant individual unless the dose to the embryo/fetus was specifically approved, in advance, by the authorized user.

(2) A licensee shall report any dose to a nursing child that is a result of an administration of radioactive material to a breast-feeding individual that:

(a) Is greater than 50 mSv (five rem) total effective dose equivalent; or

(b) Has resulted in unintended permanent functional damage to an organ or a physiological system of the child, as determined by a physician.

(3) The licensee shall notify by telephone the department no later than the next calendar day after discovery of a dose to the embryo/fetus or nursing child that requires a report in subsection (1) or (2) of this section.

(4) By an appropriate method listed in WAC 246-221-250, the licensee shall submit a written report to the department within 15 days after discovery of a dose to the embryo/fetus or nursing child that requires a report in subsection (1) or (2) of this section.

(a) The written report must include:

- (i) The licensee's name;
- (ii) The name of the prescribing physician;
- (iii) A brief description of the event;
- (iv) Why the event occurred;
- (v) The effect, if any, on the embryo/fetus or the nursing child;
- (vi) What actions, if any, have been taken or are planned to prevent recurrence; and
- (vii) Certification that the licensee notified the pregnant individual or mother (or the mother's or child's responsible relative or guardian), and if not, why not.

(b) The report must not contain the individual's or child's name or any other information that could lead to identification of the individual or child.

(5) The licensee shall provide notification of the event to the referring physician and also notify the pregnant individual or mother, both hereafter referred to as the mother, no later than 24 hours after discovery of an event that would require reporting under subsection (1) or (2) of this section, unless the referring physician personally informs the licensee either that they will inform the mother or that, based on medical judgment, telling the mother would be harmful. The licensee is not required to notify the mother without first consulting with the referring physician. If the referring physician or mother cannot be reached within 24 hours, the licensee shall make the appropriate notifications as soon as possible thereafter. The licensee may not delay any appropriate medical care for the embryo/fetus or for the nursing child, including any necessary remedial care as a result of the event, because of any delay in notification. To meet the requirements of this subsection, the notification may be made to the mother's or child's responsible relative or guardian instead of the mother. If a verbal notification is made, the licensee shall inform the mother, or the mother's or child's responsible relative or guardian, that a written description of the event can be obtained from the licensee upon request. The licensee shall provide a written description if requested.

(6) A licensee shall:

(a) Annotate a copy of the report provided to the department with the:

(i) Name of the pregnant individual or the nursing child who is the subject of the event; and

(ii) Identification number or if no other identification number is available, the Social Security number ((or other identification number, if one has been assigned, of the pregnant individual or the nursing child)) of the individual who is the subject of the event; and

(b) Provide a copy of the annotated report to the referring physician, if other than the licensee, no later than 15 days after the discovery of the event.



[Statutory Authority: RCW 70A.388.040 and 70A.388.110. WSR 22-19-084, § 246-240-654, filed 9/20/22, effective 10/21/22. Statutory Authority: RCW 70.98.050. WSR 06-05-019, § 246-240-654, filed 2/6/06, effective 3/9/06.]

**WSR 23-15-096**  
**PROPOSED RULES**  
**DEPARTMENT OF**  
**FISH AND WILDLIFE**

[Order 23-12—Filed July 18, 2023, 1:11 p.m.]

Original Notice.

Preproposal statement of inquiry was filed as WSR 23-11-100 on May 19, 2023.

Title of Rule and Other Identifying Information: Revising the WAC for the emerging commercial fishery in the lower Columbia River.

Hearing Location(s): On August 22, 2023, at 1:00 - 2:30 p.m., at Washington Department of Fish and Wildlife (WDFW), Region 5 Ridgefield Office, 5525 South 11th Street, Ridgefield, WA 98642; and virtually [https://us02web.zoom.us/webinar/register/WN\\_-D\\_9Qg-IRz-dVH\\_QQJuhvA](https://us02web.zoom.us/webinar/register/WN_-D_9Qg-IRz-dVH_QQJuhvA).

Date of Intended Adoption: On or after August 23, 2023.

Submit Written Comments to: Kelly Henderson, P.O. Box 43200, Olympia, WA 98504, email [emerging-commercial-fisheries@PublicInput.com](mailto:emerging-commercial-fisheries@PublicInput.com), website <https://publicinput.com/emerging-commercial-fisheries>, voicemail comments 855-925-2801, project code 5016, by August 22, 2023.

Assistance for Persons with Disabilities: Contact VI/ADA compliance coordinator, phone 360-902-2349, TTY 711, email [Title6@dfw.wa.gov](mailto:Title6@dfw.wa.gov), <https://wdfw.wa.gov/accessibility/requestsaccommodation>, by August 8, 2023.

Purpose of the Proposal and Its Anticipated Effects, Including Any Changes in Existing Rules: The purpose of this rule is to adjust the timing of participant selection and the timing for in-hand gear requirements to allow fishers sufficient time to secure gear before the recreational season begins. In addition, this rule will clarify conditions pertaining to the successful fisher applicants.

Reasons Supporting Proposal: These revisions come at the request of the recreational fishing industry given their timeline constraints and commitments with the public purchasing the required fishing gear. The revisions also provide detailed conditions pertaining to applicant requirements for those considering applying for the lottery and expectations for successfully chosen applicants ahead of a potential 2024 fishery (and future fisheries). These conditions for both successful applicants and WDFW provide measured steps to improve fishing participation and essential data collection from the fishery for management and evaluation purposes.

Statutory Authority for Adoption: RCW 77.04.012, 77.04.020, 77.04.130, 77.12.045, 77.12.047, 77.70.160, 77.50.030, 77.65.400.

Statute Being Implemented: RCW 77.70.160.

Rule is not necessitated by federal law, federal or state court decision.

Agency Comments or Recommendations, if any, as to Statutory Language, Implementation, Enforcement, and Fiscal Matters: Gear, season, and permit specifications associated with the emerging commercial fishery will be decided annually based on salmon and steelhead run sizes, availability of impacts to listed species under the federal Endangered Species Act and as part of the North of Falcon and compact processes.

Name of Proponent: WDFW, governmental.

Name of Agency Personnel Responsible for Drafting: Charlene Hurst, Ridgefield, Washington, 360-605-0536; Implementation: Ryan

Lothrop, Olympia, Washington, 360-902-2808; and Enforcement: Captain Jeff Wickersham, Ridgefield and Montesano, Washington, 360-696-6211.

A school district fiscal impact statement is not required under RCW 28A.305.135.

A cost-benefit analysis is not required under RCW 34.05.328. Under RCW 34.05.328(5), a cost-benefit analysis is not required for this rule as WDFW is not implementing RCW 77.55 with this rule.

This rule proposal, or portions of the proposal, is exempt from requirements of the Regulatory Fairness Act because the proposal:

Is exempt under RCW 19.85.025(4).

Scope of exemption for rule proposal:

Is fully exempt.

July 18, 2023

Scott Bird

Rules Coordinator

## OTS-4716.1

AMENDATORY SECTION (Amending WSR 22-23-006, filed 11/2/22, effective 12/3/22)

**WAC 220-360-520 Columbia River emerging commercial fishery—Issuance of an emerging commercial fishery license and experimental fishery permit—License and permit conditions.** (1) To maintain consistency in this fishery enabling the department to gather the best available information, a fisher selected by lottery (~~in the initial year the fishery is offered will be able to renew their~~) will be able to obtain a permit for the duration of the fishery.

(2) Applications for participation in the (~~one-time~~) lottery are due by (~~April 30th~~) October 15th of the (~~initial~~) year (~~in which the fishery is offered~~) preceding the fishery starting with October 15, 2023, (for the fishery starting in 2024). Any permits remaining available or that become available will be part of the subsequent year's lottery subject to all of the same conditions of the original lottery taking place in 2023.

(a) Only one application per person is allowed, and only one alternative gear type may be permitted per person for this emerging commercial fishery. Selected fishers wishing to switch between alternative gear types (e.g., purse seine to beach seine) may do so with written approval from the WDFW staff and said switch may only occur between fishing seasons.

(b) (~~The alternative gear an applicant is interested in fishing is in the applicant's possession by the time their application is submitted.~~) The proof of purchase for the alternative gear an applicant is interested in fishing must be submitted to WDFW by April 30th in the inaugural year of the fishery. If such proof of purchase is not submitted by the above date, the department will notify that fisher of their failure and select a new fisher to replace them in the fishery.

(3) Issuance of the annual emerging commercial fishery license and experimental fishery permit will occur by (~~May 30th~~) November 15th of the year and prior to the start of each fishing season.

(a) If the total number of available permits is not filled from the applications received by the deadline for that year, the department may ask for additional applications. If more applications are submitted than the number of permits available for that year, the WDFW will select and notify additional fishers to serve as alternates in the event a selected applicant is no longer able to participate or fails to present the proper proof of purchase for alternate gear.

(b) Applicants selected must respond within 10 business days of being notified by ~~((the department))~~ WDFW to accept the permit and purchase the emerging fishery license. If the applicant fails to purchase the license and permit within 10 business days of notification of selection, ~~((the department))~~ WDFW may issue the license and permit to another applicant.

(4) The conditions of possessing a valid license and permit are as follows:

(a) Fishery participants are not precluded from participation in other commercial fisheries.

(b) Fishery participants are required to have a state observer observing their catch while actively fishing.

(c) ~~((If a permit holder fails to make multiple landings during the fishery, the experimental permit issued to that fisher will be voided, that person will have his or her name permanently withdrawn from the applicant pool, and a new applicant will be selected from the applicant pool.))~~ Fishery participants are required to actively fish all of the open periods during any season of the fishery.

(d) This license and permit are not transferable between persons. The license and permit holder must be present and in possession of a valid license and permit during fishing operations. ~~((A violation of this subsection is punishable under RCW 77.15.540 Unlawful use of a commercial fishery license—Penalty.))~~

(e) It is unlawful to violate the conditions of the emerging commercial fishery license and experimental fishery permit. A violation of this subsection is punishable under RCW 77.15.540 Unlawful use of a commercial fishery license—Penalty.

(f) This license and permit may be revoked, at any time, at the discretion of the director ~~((and))~~. Future licenses and permits denied for failure to comply with conditions specified in the permit or violations of other commercial fishing regulations.

[Statutory Authority: RCW 77.04.012, 77.04.020, 77.04.130, 77.12.045, 77.12.047, 77.70.160, 77.50.030, and 77.65.400. WSR 22-23-006 (Order 22-262), § 220-360-520, filed 11/2/22, effective 12/3/22.]

**WSR 23-15-097**  
**PROPOSED RULES**  
**DEPARTMENT OF**  
**FISH AND WILDLIFE**

[Order 23-11—Filed July 18, 2023, 1:13 p.m.]

Original Notice.

Preproposal statement of inquiry was filed as WSR 23-11-101 on May 19, 2023.

**Title of Rule and Other Identifying Information:** The department is considering amendments to current recreational fishing seasons and rules for Lake Roosevelt sturgeon. WAC 220-316-010 Sturgeon—Areas, seasons, limits and unlawful acts.

**Hearing Location(s):** On August 22, 2023, at 6:00 p.m., Zoom meeting, [https://us02web.zoom.us/webinar/register/WN\\_qBoqkc--Rh6KgOj7RwxQWQ](https://us02web.zoom.us/webinar/register/WN_qBoqkc--Rh6KgOj7RwxQWQ). After registering, you will receive a confirmation email containing information about joining the meeting.

**Date of Intended Adoption:** September 5, 2023.

**Submit Written Comments to:** Kelly Henderson, email [roosevelt-sturgeon@PublicInput.com](mailto:roosevelt-sturgeon@PublicInput.com), website <https://publicinput.com/roosevelt-sturgeon>, voicemail comments 855-925-2801, project code 5179, by August 22, 2023.

**Assistance for Persons with Disabilities:** Contact VI/ADA compliance coordinator, phone 360-902-2349, TTY 711, email [Title6@dfw.wa.gov](mailto:Title6@dfw.wa.gov), <https://wdfw.wa.gov/accessibility/requestsaccommodation>, by August 8, 2023.

**Purpose of the Proposal and Its Anticipated Effects, Including Any Changes in Existing Rules:** The purpose of the proposal is to change the permanent rules for the Lake Roosevelt white sturgeon fishery. The anticipated effect of this change is enhanced conservation of the white sturgeon population in Lake Roosevelt; specifically, protection for certain year-classes of high conservation value while allowing for harvest of over-represented year-classes of hatchery-origin sturgeon. The Lake Roosevelt sturgeon fishery is currently closed to fishing by permanent rule. Changes would include a fishing season of September 16 - November 30 and a harvest slot limit of 53 - 63 inches Fork Length per fish. In addition, anglers would be required to cease fishing for the day once they obtained their daily limit and for the season once they had reached their annual limit. Other statewide recreational rules would apply to this fishery.

**Reasons Supporting Proposal:** Weak year-classes of wild-caught-larval (WCL) white sturgeon produced between 2011 and 2016 (year-classes of concern), which were reared and released as part of the conservation aquaculture program in Lake Roosevelt, will begin entering harvestable sizes in 2023. This group of sturgeon is present in low abundance but has high conservation value. Concurrently, there is a need to maintain a harvest sturgeon fishery in Lake Roosevelt in order to remove over-represented year-classes of hatchery sturgeon produced from 2001-2010. The Lake Roosevelt sturgeon fishery will require multiple rule changes over the next decade in order to maintain harvest of target year-classes of sturgeon while managing the fishery to minimize harvest impacts to WCL year-classes of concern.

**Statutory Authority for Adoption:** RCW 77.04.012, 77.04.055, 77.12.047, and 77.60.070.

**Statute Being Implemented:** RCW 77.04.012, 77.04.055, and 77.12.047.

Rule is not necessitated by federal law, federal or state court decision.

Name of Proponent: Washington department of fish and wildlife, governmental.

Name of Agency Personnel Responsible for Drafting: Bill Baker, Colville, 509-563-5499; Implementation: Chris Donley, Spokane, 509-892-1001 ext. 307; and Enforcement: Captain Mike Sprecher, Spokane, 509-892-1001.

A school district fiscal impact statement is not required under RCW 28A.305.135.

A cost-benefit analysis is not required under RCW 34.05.328.

This rule proposal, or portions of the proposal, is exempt from requirements of the Regulatory Fairness Act because the proposal:

Is exempt under RCW 19.85.025(4).

Scope of exemption for rule proposal:

Is fully exempt.

July 18, 2023

Scott Bird

Rules Coordinator

## OTS-4755.1

AMENDATORY SECTION (Amending WSR 20-05-022, filed 2/7/20, effective 3/9/20)

**WAC 220-316-010 Sturgeon—Areas, seasons, limits and unlawful acts.** (1) It is unlawful to fish for or retain green sturgeon.

(2) It is unlawful to fish for sturgeon with terminal gear other than bait and one single-point barbless hook.

(3) Any sturgeon that cannot lawfully be retained must be released immediately.

(4) It is unlawful to totally or partially remove oversized sturgeon from the water. Oversized sturgeon are defined as: Any sturgeon larger than 55 inches fork length.

(5) It is unlawful to use a gaff or other body-penetrating device while restraining, handling, or landing a sturgeon.

(6) The daily limit for white sturgeon is one fish.

(7) The annual limit for white sturgeon is two fish, regardless of where the angler takes the sturgeon. After an angler reaches their annual limit of white sturgeon, catch and release fishing is permitted in areas open to catch and release fishing.

(8) The possession limit is two daily limits of fresh, frozen, or processed white sturgeon.

(9) It is unlawful to possess sturgeon eggs in the field without retaining the intact carcass of the fish from which the eggs have been removed.

(10) Statewide night closure for white sturgeon fishing.

(11) Coastal marine areas: Open year-round catch and release only.

(12) Coastal tributaries:

(a) Open when season is open for salmon or game fish.

(b) Catch and release only.

- (13) Puget Sound marine areas: Open year-round catch and release only.
- (14) Puget Sound tributaries:
- (a) Open when season is open for salmon or game fish; except: Snohomish River from mouth to Highway 9 Bridge: Open year-round.
- (b) Catch and release only.
- (15) Columbia River and tributaries (except Snake River):
- (a) From a true north-south line through Buoy 10 (the mouth) upstream to a line crossing the Columbia River from navigation marker 82 on the Oregon shore, westerly to the boundary marker on the Washington shore upstream of Fir Point (navigational marker 82 line; including Vancouver Lake and all other waters west of Burlington Northern Railroad from the Columbia River drawbridge near Vancouver downstream to Lewis River (Clark County): Open year-round catch and release only when season is open for salmon or game fish.
- (b) From a line crossing the Columbia River from navigation marker 82 on the Oregon shore, westerly to the boundary marker on the Washington shore upstream of Fir Point (navigational marker 82 line) to a boundary marker on the Washington shore approximately 4,000 feet below the fish ladder at the powerhouse, south to the downstream end of Cascade Island, and across to the Oregon angling boundary on Bradford Island (the Cascade Island-Bradford Island line):
- (i) Open September 1 through April 30: Catch and release only when season is open for salmon or game fish.
- (ii) May 1 through August 31: Closed.
- (c) From a boundary marker on the Washington shore approximately 4,000 feet below the fish ladder at the new powerhouse, south to the downstream end of Cascade Island, and across to the Oregon angling boundary on Bradford Island (the Cascade Island-Bradford Island line) to the Bonneville Dam: Closed.
- (d) From Bonneville Dam to a line from the east (upstream) dock at the Port of The Dalles boat ramp straight across to a marker on the Washington shore:
- (i) Open January 1 through April 30 for retention: Minimum fork-length 38 inches and maximum fork-length 54 inches.
- (ii) Open May 1 through December 31: Catch and release only when season is open for salmon or game fish.
- (e) From a line from the east (upstream) dock at the Port of The Dalles boat ramp straight across to a marker on the Washington shore to The Dalles Dam:
- (i) Open January 1 through April 30 for retention: Minimum fork-length 38 inches and maximum fork-length 54 inches.
- (ii) May 1 through August 31: Closed.
- (iii) Open September 1 through December 31: Catch and release only when season is open for salmon or game fish.
- (f) From The Dalles Dam to a line crossing the Columbia River at a right angle to the thread of the river located at the west end of the grain silo at Rufus, Oregon:
- (i) Open January 1 through April 30 for retention: Minimum fork-length 43 inches and maximum fork-length 54 inches.
- (ii) Open May 1 through December 31: Catch and release only when season is open for salmon or game fish.
- (g) From a line crossing the Columbia River at a right angle to the thread of the river located at the west end of the grain silo at Rufus, Oregon to John Day Dam:
- (i) Open January 1 through April 30 for retention: Minimum fork-length 43 inches and maximum fork-length 54 inches.

(ii) May 1 through August 31: Closed.

(iii) Open September 1 through December 31: Catch and release only when season is open for salmon or game fish.

(h) From John Day Dam to a line from the grain elevators at Patterson Ferry Road on the Oregon shore, straight across to a marker on the Washington shore at the west end of the old concrete foundation:

(i) Open January 1 through April 30 for retention: Minimum fork-length 43 inches and maximum fork-length 54 inches.

(ii) Open May 1 through December 31: Catch and release only when season is open for salmon or game fish.

(i) From a line from the grain elevators at Patterson Ferry Road on the Oregon shore, straight across to a marker on the Washington shore at the west end of the old concrete foundations to McNary Dam:

(i) Open January 1 through April 30 for retention: Minimum fork-length 43 inches and maximum fork-length 54 inches.

(ii) May 1 through August 31: Closed.

(iii) Open September 1 through December 31: Catch and release only when season is open for salmon or game fish.

(j) From McNary Dam to Vernita Bridge: Open year-round catch and release only when season is open for salmon or game fish.

(k) From Vernita Bridge to Priest Rapids Dam:

(i) Open September 1 through April 30: Catch and release only when season is open for salmon or game fish.

(ii) May 1 through August 31: Closed.

(l) From Priest Rapids Dam to Chief Joseph Dam: Open year-round catch and release only when season is open for salmon or game fish.

(m) From Chief Joseph Dam to Grand Coulee Dam and tributaries: Closed.

(n) Roosevelt Lake ((and tributaries: Closed.)):

(i) Open September 16 through November 30 for retention: Minimum fork-length 53 inches and maximum fork-length 63 inches.

(ii) Anglers must cease fishing for the day after obtaining a daily limit and for the season after the annual limit has been taken.

(iii) December 1 through September 15: Closed.

(iv) Roosevelt Lake tributaries: Closed.

(16) Snake River and tributaries:

(a) From the Snake River mouth (from the Burbank to Pasco railroad bridge) upstream to the downstream end of Goose Island: Open year-round catch and release only when season is open for salmon or game fish.

(b) From the downstream end of Goose Island upstream to Ice Harbor Dam:

(i) Open September 1 through April 30: Catch and release only when season is open for salmon or game fish.

(ii) May 1 through August 31: Closed.

(c) From Ice Harbor Dam upstream to the border with Oregon: Open year-round catch and release only when season is open for salmon or game fish.

(17) A violation of this section is an infraction, punishable under RCW 77.15.160, unless the person has harvested sturgeon. If the person has harvested sturgeon, the violation is punishable under RCW 77.15.380 Unlawful recreational fishing in the second degree—Penalty, unless the sturgeon are taken in the amounts or manner to constitute a violation of RCW 77.15.370 Unlawful recreational fishing in the first degree—Penalty—Criminal wildlife penalty assessment.



(18) It is unlawful to possess sturgeon taken with gear in violation of the provisions of this section. Possession of sturgeon while using gear in violation of the provisions of this section is a rebuttable presumption that the sturgeon were taken with such gear. Possession of such sturgeon is punishable under RCW 77.15.380 Unlawful recreational fishing in the second degree—Penalty, unless the sturgeon are taken in the amounts or manner to constitute a violation of RCW 77.15.370 Unlawful recreational fishing in the first degree—Penalty—Criminal wildlife penalty assessment.

[Statutory Authority: RCW 77.04.012, 77.04.055, and 77.12.047. WSR 20-05-022 (Order 20-23), § 220-316-010, filed 2/7/20, effective 3/9/20. Statutory Authority: RCW 77.04.012, 77.04.013, 77.04.020, 77.04.055, and 77.12.047. WSR 17-05-112 (Order 17-04), amended and recodified as § 220-316-010, filed 2/15/17, effective 3/18/17. Statutory Authority: RCW 77.04.012 and 77.12.047. WSR 16-06-073 (Order 16-30), § 220-56-282, filed 2/26/16, effective 7/1/16. Statutory Authority: RCW 77.04.012, 77.04.013, 77.04.020, 77.04.055, and 77.12.047. WSR 15-13-081 (Order 15-177), § 220-56-282, filed 6/12/15, effective 7/13/15. Statutory Authority: RCW 77.04.012, 77.04.013, 77.04.055, and 77.12.047. WSR 15-06-065 and 15-06-006 (Order 15-033), § 220-56-282, filed 3/4/15 and 2/20/15, effective 7/1/15; WSR 14-04-120 (Order 14-26), § 220-56-282, filed 2/4/14, effective 3/7/14. Statutory Authority: RCW 77.04.012 and 77.12.047. WSR 13-11-125 (Order 13-105), § 220-56-282, filed 5/21/13, effective 6/21/13. Statutory Authority: RCW 77.04.020, 77.12.045, and 77.12.047. WSR 12-18-006 (Order 12-190), § 220-56-282, filed 8/23/12, effective 9/23/12. Statutory Authority: RCW 77.04.012 and 77.12.047. WSR 12-05-082 (Order 12-17), § 220-56-282, filed 2/16/12, effective 3/18/12. Statutory Authority: RCW 77.12.047. WSR 08-05-039 (Order 08-23), § 220-56-282, filed 2/13/08, effective 1/1/09; WSR 07-05-051 (Order 07-22), § 220-56-282, filed 2/16/07, effective 3/19/07; WSR 06-09-021 (Order 06-67), § 220-56-282, filed 4/11/06, effective 5/12/06; WSR 05-05-035 (Order 05-15), § 220-56-282, filed 2/10/05, effective 5/1/05; WSR 04-07-009 (Order 04-39), § 220-56-282, filed 3/4/04, effective 5/1/04; WSR 03-21-133 (Order 03-273), § 220-56-282, filed 10/21/03, effective 4/1/04; WSR 03-18-006 (Order 03-209), § 220-56-282, filed 8/20/03, effective 9/20/03; WSR 02-08-048 (Order 02-53), § 220-56-282, filed 3/29/02, effective 5/1/02; WSR 01-06-036 (Order 01-24), § 220-56-282, filed 3/5/01, effective 5/1/01. Statutory Authority: RCW 75.08.080. WSR 95-04-066 (Order 95-10), § 220-56-282, filed 1/30/95, effective 5/1/95; WSR 91-08-054 (Order 91-13), § 220-56-282, filed 4/2/91, effective 5/3/91; WSR 90-06-026, § 220-56-282, filed 2/28/90, effective 3/31/90; WSR 89-07-060 (Order 89-12), § 220-56-282, filed 3/16/89.]

WSR 23-15-099  
PROPOSED RULES  
DEPARTMENT OF  
NATURAL RESOURCES

[Filed July 18, 2023, 2:08 p.m.]

Original Notice.

Preproposal statement of inquiry was filed as WSR 23-11-161.

Title of Rule and Other Identifying Information: Relative accuracy statement; requirement for reporting the mathematical analysis method used to achieve a stated accuracy.

Hearing Location(s): On August 23, 2023, at 10:00 a.m., at the Department of Natural Resources (DNR), Tumwater Compound, 801 88th Avenue S.E., Main Conference Room, Tumwater, WA 98501-7019.

Date of Intended Adoption: August 30, 2023.

Submit Written Comments to: Patrick J. Beehler, PLS, 1111 Washington Street S.E., Mailstop 47030, Olympia, WA 98504-7030, email pat.beehler@dnr.wa.gov, fax 360-902-1778, 360-902-1181, by August 23, 2023.

Purpose of the Proposal and Its Anticipated Effects, Including Any Changes in Existing Rules: Revision to reporting of the method for relative accuracy. Changes the permissive "should" to the mandatory "must."

Reasons Supporting Proposal: This change is needed to provide information on the face of the recorded land survey map that will support the relative accuracy claimed.

Statutory Authority for Adoption: RCW 58.24.040(1).

Statute Being Implemented: RCW 58.24.040(1).

Rule is not necessitated by federal law, federal or state court decision.

Name of Proponent: DNR, governmental.

Name of Agency Personnel Responsible for Drafting: Patrick J. Beehler, PLS, Natural Resources Building, 1111 Washington Street S.E., Olympia, WA 98504-7030, 360-902-1181; Implementation and Enforcement: David Icenhower, PLS, DNR Tumwater Compound, 801 88th Avenue S.E., Tumwater, WA 98501-7019, 360-902-1190.

A school district fiscal impact statement is not required under RCW 28A.305.135.

A cost-benefit analysis is not required under RCW 34.05.328.

This rule proposal, or portions of the proposal, is exempt from requirements of the Regulatory Fairness Act because the proposal:

Is exempt under RCW 19.85.025(3) as the rules adopt, amend, or repeal a procedure, practice, or requirement relating to agency hearings; or a filing or related process requirement for applying to an agency for a license or permit.

July 10, 2023

Dale Mix

Acting Deputy Supervisor State Uplands

[AMENDATORY SECTION (Amending WSR 22-04-049, filed 1/27/22, effective 2/27/22)]

**WAC 332-130-080 Relative accuracy—Principles.** The following principles of relative accuracy are provided to guide those who may be analyzing their work by these procedures.

(1) Relative accuracy means the theoretical uncertainty in the location of any point or corner relative to other points or corners set, found, reestablished, or established. A standard of relative accuracy can be achieved by using appropriate equipment and implementing field and office procedures that will result in a 95 percent probability of achieving the accuracy required.

(2) In the application of a relative accuracy standard, the surveyor must consider the established land use patterns, land values of and in the vicinity of the surveyed parcel, and the client's intended use of the property. Higher levels of precision are expected to be used in situations necessitating higher accuracy.

(3) Each land boundary survey ~~should~~ analyzed using relative accuracy must contain a statement reporting the relative accuracy achieved and identifying the method of mathematical analysis used in achieving a stated relative accuracy.

[Statutory Authority: RCW 58.24.030, 58.24.040, 58.09.050, and 58.17.160. WSR 22-04-049, § 332-130-080, filed 1/27/22, effective 2/27/22. Statutory Authority: RCW 58.24.040(1). WSR 90-06-028 (Order 568), § 332-130-080, filed 3/1/90, effective 4/1/90; WSR 89-11-028 (Order 561), § 332-130-080, filed 5/11/89; Order 275, § 332-130-080, filed 5/2/77.]

**Reviser's note:** The bracketed material preceding the section above was supplied by the code reviser's office.

## WSR 23-15-102

## PROPOSED RULES

## DEPARTMENT OF HEALTH

[Filed July 18, 2023, 4:04 p.m.]

Original Notice.

Preproposal statement of inquiry was filed as WSR 22-01-170.

Title of Rule and Other Identifying Information: The department of health (department) is proposing amendments to rules about safe medication return to update rules about multiple program operators. The proposed amendments to WAC 246-480-050, 246-480-070, and 246-480-080 ensure a consistent statewide safe medication return system and allow the department to accurately analyze data. Proposed amendments to WAC 246-480-990 set a fee for proposal review as required by RCW 69.48.120 and provide transparency for the department's method of calculating program operator annual fees. The department is proposing deletion of WAC 246-480-010 in its entirety, as the purpose and scope of chapter 246-480 WAC is clear in statute.

Hearing Location(s): On August 29, 2023, at 11:00 [a.m.] A virtual public hearing, without a physical meeting space, is being offered. We invite you to participate in our public rules hearing using your computer, tablet, or smartphone. Register in advance for this webinar [https://us02web.zoom.us/webinar/register/WN\\_LCQnBG7ASkSOQUIQIwVvg](https://us02web.zoom.us/webinar/register/WN_LCQnBG7ASkSOQUIQIwVvg). After registering, you will receive a confirmation email containing information about joining the webinar.

Date of Intended Adoption: September 5, 2023.

Submit Written Comments to: Mary Kellington, P.O. Box 47852, Olympia, WA 98504-7852, email <https://fortress.wa.gov/doh/policyreview>, by August 29, 2023.

Assistance for Persons with Disabilities: Contact Mary Kellington, phone 360-236-2988, TTY 711, email [SafeMedReturn@doh.wa.gov](mailto:SafeMedReturn@doh.wa.gov), by August 15, 2023.

Purpose of the Proposal and Its Anticipated Effects, Including Any Changes in Existing Rules: 2SHB 1161 (chapter 155, Laws of 2021) amended chapter 69.48 RCW to allow the department to approve multiple safe medication return program operators, added a requirement for program operators to coordinate to present a consistent statewide system, and directed the department to set a proposal review fee.

The department is proposing to repeal WAC 246-480-010 Purpose and scope, since the purpose and scope is clearly identified in the statute and therefore this section is not needed.

The proposed amendments to WAC 246-480-050 clarify the process for applying to the department.

The proposed amendments to WAC 246-480-070 clarify program operator requirements for coordinating to present a consistent statewide safe medication return system as required by RCW 69.48.050(12) and 69.48.070 (1) and (2). We anticipate this will make program operator coordination more efficient, increase public understanding of why and how to dispose of unwanted medication appropriately, increase use of safe medication return, and decrease inappropriate disposal of unwanted covered drugs.

The proposed amendments to WAC 246-480-080 clarify and identify additional requirements for program operator annual reports to ensure reporting consistency amongst program operators and ensure the department receives information necessary to allow for appropriate evaluation and enforcement. We anticipate that this will allow the department to accurately analyze data, improve the accuracy of program and

system evaluation, ensure the department can enforce chapter 69.48 RCW, and provide the public consistent information related to program operations.

The proposed amendments to WAC 246-480-990 Fees, set a proposal review fee as required by RCW 69.48.120, clarify that approved program operators do not submit a proposal review fee, and clarify how the department will calculate approved program operator annual operating fees. We anticipate that defining the department's method of calculating approved program operator annual operating fees will make this process more efficient for the department and transparent for program operators and the public.

Reasons Supporting Proposal: Current chapter 246-480 WAC establishes minimal requirements for implementing a secure drug take-back system (safe medication return) with a single program operator. 2SHB 1161 (chapter 155, Laws of 2021) amended chapter 69.48 RCW to allow multiple program operators.

Current rules do not allow for program proposals from potential safe medication return program operators or review fees associated with those proposals. They do not describe coordination and performance requirements necessary for the department to accurately analyze data to ensure program operator compliance within a multiple program operator system and to ensure a consistent statewide safe medication return system that allows the public to easily identify, understand, and access services and information provided by any approved program operator.

The proposed rules clarify requirements for coordination of promotion amongst program operators, including coordination related to the single website and single toll-free telephone number required by RCW 69.48.070. The proposed rule identifies and clarifies elements related to program operator annual reporting, establishes a proposal review fee for future program proposals, and provides transparency regarding how the department calculates program operator annual operating fees.

Statutory Authority for Adoption: RCW 69.48.180, 69.48.050, and 69.48.120.

Statute Being Implemented: 2SHB 1661 (chapter 155, Laws of 2021).

Rule is not necessitated by federal law, federal or state court decision.

Name of Proponent: Department of health, governmental.

Name of Agency Personnel Responsible for Drafting and Implementation: Mary Kellington, 111 Israel Road S.E., Tumwater, WA 98501, 360-236-2988; Enforcement: Samantha Zeller, 111 Israel Road S.E., Tumwater, WA 98501, 360-236-2847.

A school district fiscal impact statement is not required under RCW 28A.305.135.

A cost-benefit analysis is required under RCW 34.05.328. A preliminary cost-benefit analysis may be obtained by contacting Mary Kellington, P.O. Box 47852, Olympia, WA 98504-7852, phone 360-236-2988, TTY 711, email mary.kellington@doh.wa.gov.

This rule proposal, or portions of the proposal, is exempt from requirements of the Regulatory Fairness Act because the proposal:

Is exempt under RCW 19.85.025(4).

Explanation of exemptions: RCW 19.85.025(4) exempts rules where the department is able to demonstrate that the proposed rule does not affect small businesses. Proposed rule affects two program operators, Inmar Intelligence, Inc. and MED-Project. Both of these organizations operate in multiple states and employ more than 50 employees each. In-

mar Intelligence, Inc. and MED-Project are program operators approved under chapter 69.48 RCW (safe medication return). Future safe medication return program operators would also be affected by this rule. The department does not anticipate any small business will apply to become a program operator due to the scope and nature of required program activities.

Scope of exemption for rule proposal:  
Is fully exempt.

July 18, 2023  
Kristin Peterson, JD  
Chief of Policy  
for Umair A. Shah, MD, MPH  
Secretary

## OTS-4504.2

AMENDATORY SECTION (Amending WSR 19-14-090, filed 7/1/19, effective 8/1/19)

**WAC 246-480-050 Program application.** (1) A potential drug take-back program operator (~~must~~) shall submit to the department:

(a) Its (~~program~~) proposal (~~and~~) to be an approved program in the format provided by the department; and

(b) The proposal review fee in WAC 246-480-990.

(2) An approved drug take-back program operator shall submit to the department:

(a) Any substantial changes to an approved program (~~on forms~~) in the format provided by the department;

(b) The annual operating fee in WAC 246-480-990; and

(c) By July 1, 2024, and every four years thereafter, an updated proposal in the format provided by the department.

~~((2))~~ (3) If the department takes enforcement action as provided in RCW 69.48.050 (3)(c)(iv), the applicant through its authorized representative may request an adjudicative proceeding under chapter 246-10 WAC. A request for an adjudicative proceeding must be in writing, state the basis for contesting the adverse action, include a copy of the adverse notice and be served on and received by the department within ~~((twenty-eight))~~ 28 days of the program operator's receipt of the adverse notice. If a request for adjudicative proceeding is not received by the department within ~~((twenty-eight))~~ 28 days of the date of the program operator's receipt of the adverse notice, the secretary's decision is final.

[Statutory Authority: RCW 69.48.180 and 69.48.120. WSR 19-14-090, § 246-480-050, filed 7/1/19, effective 8/1/19.]

AMENDATORY SECTION (Amending WSR 19-14-090, filed 7/1/19, effective 8/1/19)

**WAC 246-480-070 Promotion, education, and public outreach.**

~~((Approved program operators must update their list of authorized collectors, collection sites, locations to receive mailers, and locations for drug take-back events at least quarterly on their website.))~~

(1) Program operators shall coordinate to present a consistent statewide drug take-back system as described in RCW 69.48.050 and 69.48.070.

(2) Each program operator is independently responsible for complying with all requirements of chapter 69.48 RCW and this chapter. Each program operator is responsible for their own promotional material.

(3) Collection sites at long-term care facilities and substance use disorder treatment programs are not available to the general public. Program operators shall exclude these collection sites from public promotional material.

(4) For the purpose of this section:

(a) "Promotional material" means promotion, education, and outreach material about the safe storage and secure collection of covered drugs and includes, but is not limited to: Websites; telephone numbers; secure collection receptacle (kiosk) signage; posters; brochures; mailer instructional inserts; advertising for drug take-back events; media material; and information for authorized collectors, collection sites, mail-back distribution locations, and take-back event partners.

(b) Public promotional material means promotional material focused on increasing understanding and use of safe medication return.

(c) Partner promotional material means promotional material focused on recruiting and educating authorized collectors, collection sites, mail-back distribution locations, and take-back event partners.

(5) Each program operator shall ensure their public promotional materials are easy for people to use and understand. This includes people with limited-English proficiency and people with disabilities including, but not limited to, people who are deaf or blind.

(6) Each program operator shall ensure their public promotional material describes how to access all collection sites, mail-back distribution locations, and take-back events regardless of program operator.

(7) Each program operator shall refer to the statewide drug take-back system as "Safe Medication Return" on all their promotional material. Program operators shall not use any other name to refer to their drug take-back program. Nothing in this section prohibits inclusion of program operator name in or on promotion, education, or outreach material.

(8) Program operators shall coordinate to develop a safe medication return logo or mark and shall use the logo or mark to promote safe medication return as the statewide drug take-back system.

(a) The logo or mark must be approved by the department prior to use by any program operator.

(b) The logo or mark must be included on all promotional material.

(9) Program operators shall ensure the single website required by RCW 69.48.070 presents a consistent statewide drug take-back system.

(a) The single website domain name must be descriptive of safe medication return, Washington's drug take-back system, and must not appear specific to any program operator.

(b) The single website must describe the statewide safe medication return system including, but not limited to, information on:

(i) Why and how to safely store and securely dispose of medication, including discouraging disposal of medication down drains or in the garbage;

(ii) What safe medication return accepts and does not accept; and

(iii) The single toll-free telephone number.

(c) The single website must display all collection sites and mail-back distribution locations available to the general public for all program operators on one map and in one table. The single website must display all drug take-back events for all program operators in one table. This information must be searchable by zip code and city and must display all options regardless of program operator.

(d) Each program operator shall update their collection sites, mail-back distribution locations, and locations and dates for drug take-back events on the single website at least quarterly.

(e) The single website must include, in a prominent place, links to the department's safe medication return website and contact information. The single website must inform the public that the department welcomes comments, questions, and concerns. The department shall provide program operators the appropriate URL and contact information.

(10) Program operator specific websites must present a consistent statewide drug take-back system.

(a) Program operator specific websites must include links to the single website described in subsection (9) of this section.

(b) Program operator specific websites must present all collection sites, mail-back distribution locations, and take-back events for all program operators whenever presenting information about any collection site, mail-back distribution location, or take-back event. Information about other program operator's collection sites, mail-back distribution locations, and take-back events must be at least as current as single website.

(c) Program operators shall not include program operator specific websites in any public promotional material.

(11) Program operators may include program operator specific email address on secure collection receptacles (kiosks) and mailer instructional inserts to inform the public how to receive support or provide comments about secure collection receptacle (kiosk) or mailer. Program operator specific email addresses must not be included on any other public promotional material.

(12) Program operators shall ensure the single toll-free telephone number required by RCW 69.48.070(2) and all call centers accessed through that single toll-free telephone number present a consistent statewide drug take-back system. The single toll-free telephone number and all call centers accessed through it must:

(a) Answer calls 24 hours a day, seven days a week;

(b) Allow callers to access information about the statewide safe medication return system including, but not limited to:

(i) Why and how to safely store and securely dispose of medication, including discouraging disposal of medication down drains or in the garbage;

(ii) What safe medication return accepts and does not accept; and

(iii) The single website.



(c) Provide callers with all collection sites, mail-back distribution locations, and drug take-back events available to the general public for all program operators based on location criteria provided by the caller. Callers shall not be required to choose between program operators to receive this information;

(d) Allow callers to order mail-back supplies; and

(e) Provide the department's contact information to callers who would like to provide feedback, including comments, questions, and concerns. The department shall provide program operators the appropriate contact information.

(13) Program operator specific telephone numbers and call centers must present a consistent statewide drug take-back system.

(a) Program operator specific telephone numbers and call centers must present all collection sites, mail-back distribution locations, and take-back events available to the general public for all program operators whenever presenting information about any collection site, mail-back distribution location, or take-back event.

(b) Program operators shall not include program specific telephone numbers in any public promotional material, except on secure collection receptacles (kiosks) and mailer instructional inserts to inform the public how to receive support and provide comments about secure collection receptacle (kiosk) or mailer.

(14) Current program operators shall coordinate with newly approved program operators to ensure subsections (1), (9), and (12) of this section are met within 180 days of the department's approval of a new program operator's proposal.

(15) Requirements of this section must be implemented by program operators within 180 days of the date the rule is adopted.

[Statutory Authority: RCW 69.48.180 and 69.48.120. WSR 19-14-090, § 246-480-070, filed 7/1/19, effective 8/1/19.]

AMENDATORY SECTION (Amending WSR 19-14-090, filed 7/1/19, effective 8/1/19)

**WAC 246-480-080 Program operator annual report.** (1) ~~((To comply with RCW 69.48.100(1),))~~ Each program operator shall submit an annual report to the department by July 1st ((on a form developed)) in the format provided by the department.

~~(2) ((In addition to the elements identified and described in RCW 69.48.100, the report must include a summary of the program's annual expenditures organized using the same criteria as described in WAC 246-480-040(5).))~~ To ensure consistency of program operator reporting and ensure the department can accurately analyze the data, the annual program report must include the following:

(a) A list of covered manufacturers participating with the program operator.

(b) The amount, by weight, of covered drugs collected, including the amount by weight from each collection method used.

(c) The list of collection sites with addresses must:

(i) Indicate collection sites added since previous annual report was submitted to the department;

(ii) Also be provided as a map; and

(iii) Identify any retail pharmacy, hospital or clinic with an on-site pharmacy, or law enforcement agency that offered to partici-

pate and was not included as an authorized collector within 90 days of the program operator receiving offer.

(A) If potential authorized collector was included later, describe reason for delay.

(B) If potential authorized collector was not included, describe reason for exclusion.

(d) A description of prompt collection, maintenance, and kiosk inner liner supply requests.

(i) Describe whether agreements with collection sites include requirement for collection site to report need for prompt collection, maintenance, or inner liner supplies.

(ii) Describe any instances where program operator identified issues related to collection receptacle (kiosk) not being available to accept covered drugs when collection site was open for business, including issues identified during program operator inspection of receptacles; number of requests for prompt collection, maintenance, or inner liner supplies; and average number of days between request and collection or response.

(iii) Describe any instances where requests for prompt collection, maintenance, or inner liner supplies were not provided by the program operator as described in their approved plan. The description shall include the reason prompt collection, maintenance, or inner liner supplies were not provided and the number of days between request and collection or response.

(e) The number of mailers provided must be reported by zip code and must include the number of mailers provided for each of the following categories:

(i) Directly to individuals as the result of requests made through website or toll-free telephone number;

(ii) Directly to households without anyone requesting them;

(iii) To retail pharmacies that are not mail-back distribution locations;

(iv) To other businesses or organizations that are not mail-back distribution locations; and

(v) To mail-back distribution locations.

(f) The locations where mailers were provided must include a list of:

(i) Population centers where individuals requested mailers from website or toll-free telephone number;

(ii) Population centers where households were sent mailers directly without requesting them. This list shall indicate percentage of population center households that were sent mailers;

(iii) Nonresidential locations that are not mail-back distribution locations with addresses; and

(iv) Mail-back distribution locations with addresses.

(g) Dates and locations of collection events held.

(h) A description of collection sites, mail-back distribution locations, take-back events, and other methods for accessing safe medication return in areas outside of population centers.

(i) List all law enforcement, retail pharmacies, and hospitals or clinics with on-site pharmacies on islands and outside population centers and indicate whether they are authorized collectors.

(ii) For each law enforcement facility, retail pharmacy, and hospital or clinic with on-site pharmacy that is not an authorized collector, describe the reason they are not participating. Include recruitment efforts and the result of those efforts.

(i) Transporters and disposal facilities used.

(j) Safety or security problems including, but not limited to, all instances where collection, transportation, or disposal did not follow processes described in the approved plan, including processes for prompt collection and maintenance. Safety and security problems described must include any instances where a secure collection receptacle (kiosk) is opened for a reason other than packaging the inner liner for shipping or installing a new inner liner. The description of whether safety or security problems occurred during collection, transportation, or disposal of covered drugs must include:

(i) Whether the problem occurred during collection, transportation, or disposal;

(ii) Whether the problem met criteria for reporting to law enforcement, Washington state pharmacy quality assurance commission, United States Drug Enforcement Administration, or other entity and whether the operator can confirm that the reporting happened;

(iii) If covered drugs were lost during transportation, whether transporter has policies for safely managing undeliverable packages that might include drugs;

(iv) If transporter delivered covered drugs to the wrong address, description of attempts to retrieve covered drugs and whether those attempts were successful;

(v) Program operator actions to ensure problem was reported, if required; appropriate investigation occurred; and risk of similar problem occurring in the future was minimized; and

(vi) Changes to policies, procedures, or tracking mechanisms to address the problem and improve safety and security.

(k) Description of public education, outreach, and evaluation activities implemented shall include the following. "Promotional material" shall have the same definition as in WAC 246-480-070(4):

(i) List of languages that printed or downloadable public promotional material are available in, with description of any printed or downloadable promotional material not available in these languages. List or description of languages used in any television, radio, social media, or other nonprint promotional material;

(ii) List or description of languages available on single website and program operator specific website and single toll-free telephone number and program operator specific telephone number and all call centers associated with these telephone numbers, including name of language service provider, if applicable;

(iii) Description of how these languages or language services meet the language needs of people in Washington;

(iv) Copies of all promotional material, including signage and changes to websites and telephone number scripts, developed since last annual report;

(v) Description of how education and outreach efforts were implemented including:

(A) Date, type, and description of all social media and email promotion activity;

(B) Date, frequency, reach, and description of outreach for radio, television, print, and digital media platforms;

(C) List of brochures and posters available from single website and program operator specific website, number of times each was viewed, and number of times each was downloaded;

(D) Name, address, facility type, and date of email or hard copy distribution of brochures and posters to nonresidential entities; and

(E) Total number of views and number of unique visitors for each page of single website and program operator specific website.

(vi) Description of evaluation activities shall include:

(A) Evaluation of comments, questions, and concerns received from the public including evaluation of feedback themes and actions program operator has implemented or planned in response to feedback; and

(B) Evaluation of public education and outreach efforts, including evaluation of education and outreach implementation described in (g)(v) of this subsection.

(l) Description of how collected packaging was recycled to the extent feasible.

(m) Summary of the program's goals for collection amounts and public awareness shall include:

(i) Description of goals for the reporting year;

(ii) Description of goals for the following year, including identification of any unmet goals carried forward; and

(iii) Description of how program operator calculates or quantifies progress toward goals, including any percentages included in goals.

(n) Summary of degree of success in meeting goals shall include description of why goals were not met and what effort program operator will make to achieve those goals the following year.

(o) The program's annual expenditures, itemized by program category shall be organized using the criteria described in WAC 246-480-040(5).

[Statutory Authority: RCW 69.48.180 and 69.48.120. WSR 19-14-090, § 246-480-080, filed 7/1/19, effective 8/1/19.]

AMENDATORY SECTION (Amending WSR 19-14-090, filed 7/1/19, effective 8/1/19)

**WAC 246-480-990 Fees.** ((This section establishes the initial and annual fees for a program operator implementing a drug take-back program under chapter 69.48 RCW and this chapter.

~~(1) Initial fee. By no later than October 1, 2019, a program operator shall submit to the department an initial fee of seven hundred thousand dollars.~~

~~(2) Renewal fee.~~

~~(a) By August 1, 2020, and each August 1st thereafter, the department shall notify a program operator the amount of its annual renewal fee as determined according to RCW 69.48.120. Renewal fees will reflect the department's actual administrative, oversight, enforcement, and contractual costs for that fiscal year, or not more than ten percent of the program operator's annual expenses as reported on July 1st of each year, whichever amount is smaller.~~

~~(b) By October 1, 2020, and each October 1st thereafter, a program operator shall submit to the department the renewal fee.)~~ (1) Until January 1, 2024, a potential program operator applicant submitting a proposal in accordance with RCW 69.48.050(8) shall submit a nonrefundable proposal review fee of \$157,000 to the department when they submit their proposal.

(2) After January 1, 2024, a potential program operator applicant shall submit a nonrefundable proposal review fee of \$63,000 to the department when they submit their proposal in accordance with RCW 69.48.050(1). Approved program operators submitting updated proposals to the department do not submit a proposal review fee.

(3) All program operators' annual operating fees shall be identical. Each program operator's annual operating fee shall not exceed the lesser of:

(a) The department's estimated actual administrative, oversight, enforcement, and contractual costs for that fiscal year divided by the number of approved program operators; or

(b) Ten percent of the lowest annual expenditures reported to the department in any program operator's annual report and determined by the department.

(4) Annually, on or before September 1st, the department shall notify each program operator the amount of the program operator's annual operating fee.

(5) Each program operator shall submit their annual operating fee to the department by October 1st each year.

[Statutory Authority: RCW 69.48.180 and 69.48.120. WSR 19-14-090, § 246-480-990, filed 7/1/19, effective 8/1/19.]

#### REPEALER

The following section of the Washington Administrative Code is repealed:

WAC 246-480-010          Purpose and scope.

**WSR 23-15-104**  
**PROPOSED RULES**  
**DEPARTMENT OF**  
**CHILDREN, YOUTH, AND FAMILIES**

[Filed July 18, 2023, 4:27 p.m.]

Original Notice.

Preproposal statement of inquiry was filed as WSR 23-11-033.

Title of Rule and Other Identifying Information: WAC 110-745-0020 Notification to juvenile, 110-745-0030 Composition of board, 110-745-0040 Attendance at hearing, 110-745-0050 Consideration of evidence, and 110-745-0060 Record of decision.

Hearing Location(s): On August 22, 2023, telephonic. Make oral comments by calling 360-972-5385.

Date of Intended Adoption: August 23, 2023.

Submit Written Comments to: Department of children, youth, and families (DCYF) rules coordinator, email [dcyf.rulescoordinator@dcyf.wa.gov](mailto:dcyf.rulescoordinator@dcyf.wa.gov), <https://dcyf.wa.gov/practice/policy-laws-rules/rule-making/participate/online>, by August 22, 2023.

Assistance for Persons with Disabilities: Contact DCYF rules coordinator, phone 360-902-7956, email [dcyf.rulescoordinator@dcyf.wa.gov](mailto:dcyf.rulescoordinator@dcyf.wa.gov), <https://dcyf.wa.gov/practice/policy-laws-rules/rule-making/participate/online>, by August 17, 2023.

Purpose of the Proposal and Its Anticipated Effects, Including Any Changes in Existing Rules: DCYF is amending these rules to provide governance when transferring individuals convicted as adults to the department of corrections.

Reasons Supporting Proposal: See purpose.

Statutory Authority for Adoption: RCW 13.40.280, 72.01.410.

Statute Being Implemented: RCW 13.40.280, 72.01.410.

Rule is not necessitated by federal law, federal or state court decision.

Name of Proponent: DCYF, governmental.

Name of Agency Personnel Responsible for Drafting: Andrea Ruiz, Olympia, Washington, 360-764-0221; Implementation and Enforcement: DCYF, statewide.

A school district fiscal impact statement is not required under RCW 28A.305.135.

A cost-benefit analysis is not required under RCW 34.05.328. DCYF is not among the agencies listed as required to comply with RCW 34.05.328 (5)[(a)](i). Further, DCYF does not voluntarily make that section applicable to the adoption of this rule.

This rule proposal, or portions of the proposal, is exempt from requirements of the Regulatory Fairness Act because the proposal:

Is exempt under RCW 19.85.025(3) as the rules relate only to internal governmental operations that are not subject to violation by a nongovernment party.

Is exempt under RCW 19.85.025(4).

Scope of exemption for rule proposal:

Is fully exempt.

July 18, 2023  
Brenda Villarreal  
Rules Coordinator

OTS-4727.4

**Chapter 110-745 WAC**  
**TRANSFER OF ((JUVENILE-OFFENDER)) INDIVIDUAL TO THE DEPARTMENT OF COR-**  
**RECTIONS**

NEW SECTION

**WAC 110-745-0010 Applicable transfers.** WAC 110-745-0020 through 110-745-0060 apply only to transfers pursuant to RCW 13.40.280.

[]

AMENDATORY SECTION (Amending WSR 19-14-079, filed 7/1/19, effective 7/1/19)

**WAC 110-745-0020 Notification to ((juvenile)) proposed transfer-red individual.** ((A juvenile)) (1) Individuals in the custody of the department being considered for transfer to DOC ((shall)) must be notified in writing at least ((five)) seven calendar days in advance of the review board hearing convened to consider the matter.

(2) The written notification ((to the juvenile offender will)) must include the reasons the transfer is being considered and a copy of the rules pertaining to the review board hearing.

(3) Prior to any review board hearing, ((the juvenile)) individuals being considered for transfer to DOC, or ((the juvenile's)) their attorney, ((shall)) will have the right ((of)) to access ((to, and adequate opportunity to)) and examine any department files or records ((of the department)) pertaining to the proposed transfer of the ((juvenile)) individual to the ((department of corrections)) DOC.

[WSR 19-14-079, recodified as § 110-745-0020, filed 7/1/19, effective 7/1/19. WSR 00-16-078, recodified as § 388-745-020, filed 7/28/00, effective 7/28/00. Statutory Authority: RCW 13.40.280. WSR 84-10-032 (Order 2097), § 275-33-020, filed 4/30/84.]

AMENDATORY SECTION (Amending WSR 19-14-079, filed 7/1/19, effective 7/1/19)

**WAC 110-745-0030 Composition of board.** The review board will be composed of the ((director of DJR)) assistant secretary of juvenile rehabilitation division (JRD) or designee who will serve as the chairperson, and two ((other juvenile rehabilitation)) JRD administrators appointed by the ((chairman)) chairperson. The chairperson may also appoint up to three members of the department's legal office to serve on the review board. In the event of a tie vote, the chairperson or designee will act as the tiebreaker.

[WSR 19-14-079, recodified as § 110-745-0030, filed 7/1/19, effective 7/1/19. WSR 00-16-078, recodified as § 388-745-030, filed 7/28/00, effective 7/28/00. Statutory Authority: RCW 13.40.280. WSR 84-10-032 (Order 2097), § 275-33-030, filed 4/30/84.]

AMENDATORY SECTION (Amending WSR 19-14-079, filed 7/1/19, effective 7/1/19)

**WAC 110-745-0040 (~~(Attendance at)~~) Conduct of hearing.** (1) Attendance at a review board (~~(shall)~~) hearing will be limited to parties directly concerned.

(2) The chairperson may exclude unauthorized persons unless the parties agree to their presence.

(3) Parties (~~(shall)~~) will have the right to present evidence, cross-examine witnesses, and make recommendations to the board.

(~~(All relevant and material evidence is admissible which, in the opinion of the chairperson, is the best evidence reasonably obtainable, having due regard for its necessity, availability and trustworthiness.)~~) (4) The hearing must be recorded manually or by a suitable recording device.

[WSR 19-14-079, recodified as § 110-745-0040, filed 7/1/19, effective 7/1/19. WSR 00-16-078, recodified as § 388-745-040, filed 7/28/00, effective 7/28/00. Statutory Authority: RCW 13.40.280. WSR 84-10-032 (Order 2097), § 275-33-040, filed 4/30/84.]

AMENDATORY SECTION (Amending WSR 19-14-079, filed 7/1/19, effective 7/1/19)

**WAC 110-745-0050 Consideration of evidence.** (1) The review board must consider all evidence presented at the hearing by assessing the relevance, credibility, and usefulness of the evidence.

(2) At the conclusion of the hearing, the review board will consider all evidence presented and (~~(make a decision)~~) decide whether continued placement of the (~~(juvenile offender in an)~~) individual in a juvenile rehabilitation institution (~~(for juvenile offenders)~~) presents a continuing and serious threat to the safety of others in the institution.

[WSR 19-14-079, recodified as § 110-745-0050, filed 7/1/19, effective 7/1/19. WSR 00-16-078, recodified as § 388-745-050, filed 7/28/00, effective 7/28/00. Statutory Authority: RCW 13.40.280. WSR 84-10-032 (Order 2097), § 275-33-050, filed 4/30/84.]

AMENDATORY SECTION (Amending WSR 19-14-079, filed 7/1/19, effective 7/1/19)

**WAC 110-745-0060 Record of decision.** The (~~(chair of the)~~) review board will prepare a written record of the decision and reasons (~~(therefore)~~) no later than seven calendar days after the hearing, un-



less extended by the secretary. (~~The review board shall be recorded manually, or by mechanical, electronic, or other device capable of transcription.~~)

[WSR 19-14-079, recodified as § 110-745-0060, filed 7/1/19, effective 7/1/19. WSR 00-16-078, recodified as § 388-745-060, filed 7/28/00, effective 7/28/00. Statutory Authority: RCW 13.40.280. WSR 84-10-032 (Order 2097), § 275-33-060, filed 4/30/84.]

**WSR 23-15-106**  
**PROPOSED RULES**  
**DEPARTMENT OF**  
**NATURAL RESOURCES**

[Filed July 18, 2023, 5:28 p.m.]

Original Notice.

Preproposal statement of inquiry was filed as WSR 23-11-070.

Title of Rule and Other Identifying Information: WAC 332-120-060 and 332-120-070; monument preservation clarification of process and revision of existing requirements for creating a public record.

Hearing Location(s): On August 23, 2023, at 9:00 a.m., at the Department of Natural Resources (DNR) Tumwater Compound, 801 88th Avenue S.E., Conference Room, Tumwater, WA 98501-7019.

Date of Intended Adoption: August 30, 2023.

Submit Written Comments to: Patrick J. Beehler, PLS, 1111 Washington Street S.E., Mailstop 47030, Olympia, WA 98504-7030, email pat.beehler@dnr.wa.gov, fax 360-902-1778, 360-902-1181, by August 23, 2023.

Purpose of the Proposal and Its Anticipated Effects, Including Any Changes in Existing Rules: Revision to the monument removal and replacement rules to make the process more efficient and lower the cost to the applicant.

Reasons Supporting Proposal: Monument preservation.

Statutory Authority for Adoption: RCW 58.24.030(2) and 58.24.040(8).

Statute Being Implemented: RCW 58.24.030(2) and 58.24.040(8).

Rule is not necessitated by federal law, federal or state court decision.

Name of Proponent: DNR, governmental.

Name of Agency Personnel Responsible for Drafting: Patrick J. Beehler, PLS, Natural Resources Building, 1111 Washington Street S.E., Olympia, WA 98504-7030, 360-902-1181; Implementation and Enforcement: David Icenhower, PLS, DNR Tumwater Compound, 801 88th Avenue S.E., Tumwater, WA 98501-7019, 360-902-1190.

A school district fiscal impact statement is not required under RCW 28A.305.135.

A cost-benefit analysis is not required under RCW 34.05.328. Cost savings is anticipated due to setting up reporting systems and requiring a better system for completion reports. This revision will make the monument removal permits more efficient and lower participants' cost.

This rule proposal, or portions of the proposal, is exempt from requirements of the Regulatory Fairness Act because the proposal:

Is exempt under RCW 19.85.025(3) as the rules adopt, amend, or repeal a procedure, practice, or requirement relating to agency hearings; or a filing or related process requirement for applying to an agency for a license or permit.

July 10, 2023

Dale Mix

Acting Deputy Supervisor State Uplands

[AMENDATORY SECTION (Amending WSR 20-10-003, filed 4/23/20, effective 5/24/20)]

**WAC 332-120-060 Project completion—Perpetuation of the original position.** (1) After completion of the activity that caused the removal or destruction of the monument, a land surveyor ~~or engineer shall~~ must, unless specifically authorized otherwise:

(a) Reset a suitable monument at the original survey point or, if that is no longer feasible;

(b) Establish permanent witness monuments easily accessible from the original monument to perpetuate the position of the preexisting monument.

(2) Land boundary survey monumentation required by this chapter must ~~shall~~ meet the requirements of the RCW 58.09.120 and 58.09.130.

(3) After completion of the remonumentation, the land surveyor ~~or engineer shall~~ must complete the report form required by this chapter and forward it to the department.

(4) A record of survey or land corner record shall be completed ~~as required by the Survey Recording Act~~ to document the remonumentation in the public record. The department must index the completion report in its land survey records database and make a copy available to the public online.

(5) A land corner record must be completed as required by the Survey Recording Act, RCW 58.09.040(2), to document the remonumentation of a general land office corner.

[Statutory Authority: RCW 58.24.040(8). WSR 20-10-003, § 332-120-060, filed 4/23/20, effective 5/24/20; WSR 94-06-034 (Order 617), § 332-120-060, filed 2/25/94, effective 3/28/94.]

**Reviser's note:** The bracketed material preceding the section above was supplied by the code reviser's office.

[AMENDATORY SECTION (Amending WSR 10-09-011, filed 4/9/10, effective 5/10/10)]

**WAC 332-120-070 Application and completion ~~/permit forms~~.** All applications and completion reports must be ~~completed~~ on forms provided by the department and follow ~~the ing~~ instructions provided by the department. ~~Completed applications shall be filed at the department.~~

[Statutory Authority: RCW 58.24.030, 58.24.040, 58.09.050, and 58.17.160. WSR 10-09-011, § 332-120-070, filed 4/9/10, effective 5/10/10. Statutory Authority: RCW 58.24.040(8). WSR 94-06-034 (Order 617), § 332-120-070, filed 2/25/94, effective 3/28/94.]

**Reviser's note:** The bracketed material preceding the section above was supplied by the code reviser's office.

## WSR 23-15-107

## PROPOSED RULES

## DEPARTMENT OF HEALTH

[Filed July 18, 2023, 7:06 p.m.]

## Original Notice.

Preproposal statement of inquiry was filed as WSR 23-01-076.

Title of Rule and Other Identifying Information: Health equity continuing education (CE) for optometrists. The board of optometry (board) is proposing new WAC 246-851-225 to establish health equity CE to implement ESSB 5229 (chapter 276, Laws of 2021).

Hearing Location(s): On September 8, 2023, at 10:00 a.m., at the Olympia City Center, 222 Columbia Street N.W., Room 100, Olympia, WA 98501; or virtual meeting [https://teams.microsoft.com/l/meetup-join/19%3ameeting\\_ODQ3NzA2NDEtNDI5Yi00ZTYyLThiODctMmVkMDU3ZmE2OTkx%40thread.v2/0?](https://teams.microsoft.com/l/meetup-join/19%3ameeting_ODQ3NzA2NDEtNDI5Yi00ZTYyLThiODctMmVkMDU3ZmE2OTkx%40thread.v2/0?context=%7b%22Tid%22%3a%2211d0e217-264e-400a-8ba0-57dcc127d72d%22%2c%22Oid%22%3a%22b0a413cc-861e-438f-ad33-52df6d9a4283%22%7d)

[context=%7b%22Tid%22%3a%2211d0e217-264e-400a-8ba0-57dcc127d72d%22%2c%22Oid%22%3a%22b0a413cc-861e-438f-ad33-52df6d9a4283%22%7d](https://teams.microsoft.com/l/meetup-join/19%3ameeting_ODQ3NzA2NDEtNDI5Yi00ZTYyLThiODctMmVkMDU3ZmE2OTkx%40thread.v2/0?context=%7b%22Tid%22%3a%2211d0e217-264e-400a-8ba0-57dcc127d72d%22%2c%22Oid%22%3a%22b0a413cc-861e-438f-ad33-52df6d9a4283%22%7d).

Date of Intended Adoption: September 8, 2023.

Submit Written Comments to: Kristina Bell, Program Manager, Department of Health, P.O. Box 47852, Olympia, WA 98504-7852, email <https://fortress.wa.gov/doh/policyreview>, fax 360-236-2901, by August 30, 2023.

Assistance for Persons with Disabilities: Contact Kristina Bell, Program Manager, phone 360-236-4841, fax 360-236-2901, TTY 711, email [Kristina.bell@doh.wa.gov](mailto:Kristina.bell@doh.wa.gov), by September 1, 2023.

Purpose of the Proposal and Its Anticipated Effects, Including Any Changes in Existing Rules: RCW 43.70.613 (3)(b) directs the rule-making authority for each health profession licensed under Title 18 RCW that is subject to CE to adopt rules requiring a licensee to complete health equity CE training at least once every four years. The statute also directs the department of health (department) to create model rules establishing the minimum standards for health equity CE programs. The department filed model rules for health equity CE minimum standards on November 23, 2022, under WSR 22-23-167. Any rules developed for optometrists must meet or exceed the minimum standards in the model rules in WAC 246-12-800 through 246-12-830.

The board is proposing new WAC 246-851-225 to implement ESSB 5229 requiring health equity CE hours. The board is proposing to adopt the health equity model rules WAC 246-12-800 through 246-12-830 for optometrists to comply with RCW 43.70.613.

The proposed rule adds two hours of health equity education to be completed as part of the current CE requirements every four years.

Reasons Supporting Proposal: The goal of health equity CE is to equip health care workers with the skills to recognize and reduce health inequities in their daily work. The content of health equity trainings include implicit bias trainings to identify strategies to reduce bias during assessment and diagnosis in an effort to address structural factors, such as bias, racism, and poverty, that manifests as health inequities.

Two hours of training allows individuals to gain a foundation in health equity that can have an immediate positive impact on the professional's interaction with those receiving care. Health equity training enables health care professionals to care effectively for patients from diverse cultures, groups, and communities, varying race, ethnicity, gender identity, sexuality, religion, age, ability, socioeconomic status, and other categories of identity. The two hours of

health equity CE credits may be earned as part of the health professional's existing CE requirements, therefore not requiring completion of additional CE hours.

Statutory Authority for Adoption: RCW 18.54.070, 43.70.613, 43.70.040, 18.130.040.

Statute Being Implemented: ESSB 5229 (chapter 276, Laws of 2021), codified as RCW 43.70.613.

Rule is not necessitated by federal law, federal or state court decision.

Name of Proponent: Governmental.

Name of Agency Personnel Responsible for Drafting, Implementation, and Enforcement: Kristina Bell, Program Manager, 111 Israel Road S.E., Tumwater, WA 98501, 360-236-4841.

A school district fiscal impact statement is not required under RCW 28A.305.135.

A cost-benefit analysis is required under RCW 34.05.328. A preliminary cost-benefit analysis may be obtained by contacting Kristina Bell, Program Manager, Department of Health, P.O. Box 47852-7852, Olympia, WA 98507, phone 360-236-4841, fax 360-236-2901, TTY 711, email Kristina.bell@doh.wa.gov.

This rule proposal, or portions of the proposal, is exempt from requirements of the Regulatory Fairness Act because the proposal:

Is exempt under RCW 19.85.025(4).

Scope of exemption for rule proposal:

Is fully exempt.

March 10, 2023

William J. Prothero, OD, Chair  
Board of Optometry

## OTS-4448.1

### NEW SECTION

**WAC 246-851-225 Optometrist health equity continuing education training requirements.** (1) Optometrists must complete a minimum of two hours in health equity continuing education training every four years by complying with WAC 246-12-800 through 246-12-830.

(2) This training must be completed by the end of the second full continuing education reporting period after January 1, 2024, or the second full continuing education reporting period after initial licensure, whichever is later.

(3) The hours spent completing health equity continuing education under this section count toward meeting applicable continuing education requirements for optometrist license renewal.

(4) The board may randomly audit up to 25 percent of licensed optometrists every two years for compliance after the license is renewed as allowed by WAC 246-12-190.

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**WSR 23-15-114**  
**PROPOSED RULES**  
**DEPARTMENT OF**  
**SOCIAL AND HEALTH SERVICES**  
(Aging and Long-Term Care Administration)  
[Filed July 19, 2023, 9:32 a.m.]

Original Notice.

Preproposal statement of inquiry was filed as WSR 22-13-097.

Title of Rule and Other Identifying Information: Wage equity funding; rules establishing department procedures for reviewing the spending of wage equity funding for nursing facilities.

Hearing Location(s): On August 22, 2023, at 10:00 a.m., virtual via Microsoft Teams or call in. Please see the department of social and health services (DSHS) website for the most up-to-date information.

Date of Intended Adoption: Not earlier than August 23, 2023.

Submit Written Comments to: DSHS Rules Coordinator, P.O. Box 45850, Olympia, WA 98504-5850, email DSHSRPAURulesCoordinator@dshs.wa.gov, fax 360-664-6185, by 5:00 p.m. on August 22, 2023.

Assistance for Persons with Disabilities: Contact DSHS rules consultant, phone 460-664-6036 [360-664-6036], fax 360-664-6185, TTY 711 relay service, email Shelley.Tencza@dshs.wa.gov, by 5:00 p.m. on August 8, 2023.

Purpose of the Proposal and Its Anticipated Effects, Including Any Changes in Existing Rules: New rule. Legislature directed DSHS to implement rules outlining the procedure to review the spending of wage equity funding by nursing facilities and recoup funding as necessary.

Reasons Supporting Proposal: See purpose above.

Statutory Authority for Adoption: RCW 74.46.800; biennial budget 2021-2023 ESSB 5693 (204) (53).

Statute Being Implemented: Biennial budget 2021-2023, ESSB 5693 (204) (53).

Rule is not necessitated by federal law, federal or state court decision.

Name of Proponent: DSHS, governmental.

Name of Agency Personnel Responsible for Drafting: Elizabeth Pashley, P.O. Box 45600, Olympia, WA 98504-5600, 360-995-2807; Implementation and Enforcement: Peter Graham, P.O. Box 45600, Olympia, WA 98504-5600, 360-725-2499.

A school district fiscal impact statement is not required under RCW 28A.305.135.

A cost-benefit analysis is required under RCW 34.05.328. A preliminary cost-benefit analysis may be obtained by contacting Elizabeth Pashley, P.O. Box 45600, Olympia, WA 98504-5600, phone 360-995-2807, fax 1-877-905-0454, TTY 711 relay service, email Elizabeth.Pashley@dshs.wa.gov.

This rule proposal, or portions of the proposal, is exempt from requirements of the Regulatory Fairness Act because the proposal:

Is exempt under RCW 19.85.030 (1) (a).

Explanation of exemptions: Rule requires a small business economic impact statement if it imposes more-than-minor costs. This proposed rule does not.

Scope of exemption for rule proposal:

Is fully exempt.

July 14, 2023

Katherine I. Vasquez  
Rules Coordinator

**SHS-4992.1**NEW SECTION

**WAC 388-96-918 Wage equity funding.** (1) The contractor must submit a report of wage equity funding costs in a standardized manner and in accordance with this chapter and chapter 74.46 RCW on the dates specified in this section.

(2) The department will review the contractor's costs of the wage equity funding in accordance with the methodology effective at the time the services were rendered as described in this chapter and session laws of Washington state 2022 c297 §204(53).

(3) No later than September 1, 2023, each contractor must submit to the department a wage equity worksheet for the period of July 1, 2022, through June 30, 2023.

(4) Wage equity worksheets for new contractors must be submitted for the period covering their date of contract through June 30, 2023.

(5) A terminating or assigning contractor must submit to the department a wage equity worksheet for the period from July 1, 2022, through the date the contract was terminated or assigned.

(6) To properly complete the wage equity worksheet, the contractor must submit the wage equity worksheet, including the completed certification page to the document electronically.

(7) If the contractor does not properly complete the wage equity worksheet or the department does not receive it by the due date established in this section, the department may recoup any wage equity funding received by the contractor.

(8) The department may impose civil fines or take adverse rate action against contractors and former contractors who do not submit properly completed wage equity worksheets by the applicable due date established in this section.

(9) The department will review the wage equity worksheet to ensure the contractor has used its wage equity funding to increase wages for low-wage workers by up to four dollars per hour.

(10) The department will recover any funding difference between each contractor's wage equity funding and the amount of wage equity funding that the provider utilizes to increase low-wage worker wages.

(11) The department will separate the settlement amount into the funds attributable to direct care employees and funds attributable to indirect care employees. The direct care portion will be divided into two. One half may be used to offset any direct care final settlement monies owed for the 2022 cost report year. One half may be used to offset any direct care preliminary settlement monies owed for the 2023 cost report year. For partial worksheets due to new contractors, or terminating or assigning contractors, the direct care portion may be offset against the applicable cost report's direct care settlement to the appropriate proportionality.

(12) The verification process must use wages paid as of December 31, 2021, as the base wage to compare contractors' wage spending in the designated job categories to the facility-specific amounts of wage

equity funding provided, excluding any amounts adjusted by settlement. If a facility did not have a particular category of staff on December 31, 2021, to set a baseline wage, wages from comparable facilities may be used.

(13) The verification and recovery process in this section is a distinct and separate process from the settlement process described in RCW 74.46.022 and elsewhere described in this chapter.

(14) The provisions of 388-96-901 and 388-96-904 apply to this section.

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**WSR 23-15-122**  
**PROPOSED RULES**  
**DEPARTMENT OF**  
**RETIREMENT SYSTEMS**

[Filed July 19, 2023, 10:47 a.m.]

Original Notice.

Preproposal statement of inquiry was filed as WSR 23-09-057.

Title of Rule and Other Identifying Information: Roth for deferred compensation program (DCP).

Hearing Location(s): On August 22, 2023, at 3:00 p.m., virtually through [Microsoft] Teams, <https://www.drs.wa.gov/sitemap/rules/#proposed-rule-hearings>, ID 289 830 267 574, Passcode 5hkZDA; or dial-in number 833-322-1218, ID 426 127 880#.

Date of Intended Adoption: August 25, 2023.

Submit Written Comments to: Bianca Stoner, Department of Retirement Systems (DRS), P.O. Box 48380, Olympia, WA 98504-8380, email [drs.rules@drs.wa.gov](mailto:drs.rules@drs.wa.gov), by August 17, 2023.

Assistance for Persons with Disabilities: Contact Bianca Stoner, phone 360-664-7291, TTY 711, email [drs.rules@drs.wa.gov](mailto:drs.rules@drs.wa.gov), by August 17, 2023.

Purpose of the Proposal and Its Anticipated Effects, Including Any Changes in Existing Rules: In accordance with EHB 1752 from the 2022 legislative session, DRS is required to offer a Roth option within DCP no later than December 2023. Chapters 415-02 and 415-501 WAC require changes to clarify how DRS will administer DCP once Roth is included. DRS must also make additional changes to implement the requirements of Section 603 of the federal SECURE Act 2.0.

Reasons Supporting Proposal: Implementing EHB 1752 and Section 603 of the SECURE Act 2.0.

Statutory Authority for Adoption: RCW 41.50.050, 41.50.770; and Section 603 of the SECURE Act 2.0.

Statute Being Implemented: RCW 41.50.770; and Section 603 of the SECURE Act 2.0.

Rule is necessary because of federal law, SECURE Act 2.0 of 2022, part of the Consolidated Appropriations Act of 2023 (P.L. 117-328).

Name of Proponent: DRS, governmental.

Name of Agency Personnel Responsible for Implementation: Seth Miller, DRS, P.O. Box 48380, Olympia, WA 98504-8380, 360-664-7304.

A school district fiscal impact statement is not required under RCW 28A.305.135.

A cost-benefit analysis is not required under RCW 34.05.328. RCW 34.05.328 (5)(a)(i) does not apply to this proposed rule and DRS is not voluntarily making it applicable to the agency.

This rule proposal, or portions of the proposal, is exempt from requirements of the Regulatory Fairness Act because the proposal:

Is exempt under RCW 19.85.025(4).

Explanation of exemptions: Rules from DRS only affect members and beneficiaries of the state retirement systems and participating public employers. As a result, the rules do not affect small businesses.

Scope of exemption for rule proposal:

Is fully exempt.

July 19, 2023  
Bianca Stoner  
Rules Coordinator

OTS-4567.1

AMENDATORY SECTION (Amending WSR 18-01-020, filed 12/8/17, effective 1/8/18)

**WAC 415-02-177 May I purchase additional service credit? (1)**

**What is the option for purchasing additional service credit?** The following statutes provide an option for eligible members to purchase additional service credit that provides a guaranteed, lifetime increase to their monthly retirement benefit:

- (a) RCW 41.26.199 for LEOFF Plan 1 members;
- (b) RCW 41.26.432 for LEOFF Plan 2 members;
- (c) RCW 41.40.034 for PERS Plan 1, 2, and 3 members;
- (d) RCW 41.37.265 for PSERS Plan 2 members;
- (e) RCW 41.35.183 for SERS Plan 2 and 3 members;
- (f) RCW 41.32.066 for TRS Plan 1, 2, and 3 members; and
- (g) RCW 43.43.233 for WSPRS Plan 1 and 2 members.

**(2) Am I eligible to purchase additional service credit?**

(a) You may purchase additional service credit if you are eligible to retire from one or more of the following plans and you elect a monthly benefit rather than a lump sum payment:

- (i) LEOFF Plan 1 or 2 under RCW 41.26.090 or 41.26.430;
- (ii) PERS Plan 1, 2, or 3 under RCW 41.40.180, 41.40.630, or 41.40.820;
- (iii) PSERS Plan 2 under RCW 41.37.210;
- (iv) SERS Plan 2 or 3 under RCW 41.35.420 or 41.35.680;
- (v) TRS Plan 1, 2, or 3 under RCW 41.32.480, 41.32.765, or 41.32.875; or
- (vi) WSPRS Plan 1 or 2 under RCW 43.43.250.

(b) If you retire as a result of a disability, you may purchase additional service credit if you meet the requirements in (a) of this section.

**(3) How much additional service credit may I purchase?** If you are eligible, you may purchase from one to (~~sixty~~) 60 months of additional service credit in whole month increments.

**(4) May I use the additional purchased service credit to qualify for normal retirement or an early retirement?** No. You may not use the purchased service credit to qualify for normal retirement or to qualify for an early retirement.

**(5) When must I apply to purchase additional service credit?** You must submit your request to purchase additional service credit to the department at the same time you submit your application for retirement.

**(6) How much will my monthly retirement benefit increase if I purchase additional service credit?** The increase in your monthly retirement benefit will be calculated using the benefit formula for your system and plan, with a reduction for early retirement, if applicable.

**Example 1 (PERS Plan 2):** John is a member of PERS Plan 2. He applies for retirement, effective the first month after his 62nd birthday and chooses to purchase an additional (~~sixty~~) 60 months (five years) of service credit. His average final compensation (AFC) is \$4,000 per month. For illustration purposes in this example only, we will use .7240000 as the corresponding early retirement factor (ERF) for retiring three years early (actuarial factors change periodically). As a result, John's monthly benefit will increase by \$289.60 per month, calculated as follows:

$$\begin{aligned}
 \text{Amount of increase} &= 2\% \times \text{additional service credit years} \times \text{AFC} \times \text{ERF} \\
 &= 2\% \times 5 \text{ years} \times \$4,000 \times .7240000 \\
 &= \$289.60
 \end{aligned}$$

**Example 2 (TRS Plan 3):** Jane is a member of TRS Plan 3. She applies for retirement, effective the first month after her 62nd birthday and chooses to purchase an additional (~~sixty~~) 60 months (five years) of service credit. Her AFC is \$4,000 per month. For illustration purposes in this example only, we will use .7240000 as the corresponding ERF for retiring three years early (actuarial factors change periodically). As a result, Jane's monthly retirement benefit will increase by \$144.80 per month, calculated as follows:

$$\begin{aligned}
 \text{Amount of increase} &= 1\% \times \text{additional service credit years} \times \text{AFC} \times \text{ERF} \\
 &= 1\% \times 5 \text{ years} \times \$4,000 \times .7240000 \\
 &= \$144.80
 \end{aligned}$$

**Example 3 (LEOFF Plan 2):** Jim is a member of LEOFF Plan 2. He applies for retirement, effective the first month after his 53rd birthday and chooses to purchase an additional (~~sixty~~) 60 months (five years) of service credit. His final average salary (FAS) is \$4,000 per month. No ERF is needed for this calculation as Jim has already reached normal retirement age for LEOFF Plan 2. Jim's monthly retirement benefit will increase by \$400 per month, calculated as follows:

$$\begin{aligned}
 \text{Amount of increase} &= 2\% \times \text{additional service credit years} \times \text{FAS} \\
 &= 2\% \times 5 \text{ years} \times \$4,000 \\
 &= \$400
 \end{aligned}$$

**(7) How is the cost of the additional purchased service credit calculated?** The cost to purchase additional service credit is calculated by dividing the amount of the increase in subsection (6) of this section by the age-based annuity factor in effect at the time of retirement. (See WAC 415-02-340 for more information.)

**Example.** In subsection (6) of this section, Example 1, it was determined that John's retirement benefit would increase by \$289.60 per month. For illustration purposes in this example only, we will use .0065016 as the annuity factor for John's retirement date (actuarial factors change periodically). As a result, John's cost to purchase the five years of additional service credit would be \$44,542.88, calculated as follows:

$$\begin{aligned}
 \text{Cost} &= \text{Amount of increase} \div \text{age-based annuity factor} \\
 &= \$289.60 \div .0065016 \\
 &= \$44,542.88
 \end{aligned}$$

**(8) How and when do I pay for the additional service credit?** The department will generate a bill to you for the cost of the additional service credit.

(a) Payment may be made with an eligible rollover, a direct rollover or a trustee-to-trustee transfer, if allowed by the transferring plan. Payment may also be made with after-tax dollars, such as money from a personal savings account. (~~However, IRS regulations limit the amount of after-tax dollars you may use to purchase additional service credit.~~)

(b) DRS can accept a rollover of pretax dollars from your DCP account. To purchase additional service credit with Roth dollars, you must request a distribution first, then pay the bill with a check.

(c) Payment must be made in full within (~~ninety~~) 90 days after the bill issue date.

(9) **When will my benefit increase be effective?** The increase in your benefit will be effective the day after the department receives your full payment.

**Example 1:** If your full payment is received on August 31st, your benefit increase will be effective for the entire month of September and every month thereafter.

**Example 2:** If your full payment is received August 13th, your August benefit payment will be prorated to provide an increase for the days from August 14th through August 31st. Your September benefit and future monthly payments will reflect the entire monthly increase from purchasing the additional service credit.

(10) **If I choose a benefit option with a survivor feature, will my survivor's monthly benefit reflect the additional purchased service credit?** Yes. Depending upon the rules for your retirement system and plan and the benefit option you choose at retirement, your survivor's monthly benefit will be a percentage of the gross monthly retirement benefit you were receiving at the time of your death. Since the additional service you purchased is included in the calculation of your monthly benefit, the survivor option you designate for your monthly benefit will also be applied to the benefit from the purchased service credit. You cannot choose a different survivor. If you choose a benefit option with a survivor feature and your survivor dies before you, your monthly retirement benefit will increase to the amount it would have been had you not selected a survivor option.

(11) **Will I receive a cost of living adjustment (COLA) on the portion of my benefit that is based on the additional purchased service credit?**

(a) For all systems and plans, except as noted in (b) of this subsection, your COLA will be based on your gross monthly retirement benefit, including the increase due to the purchased service credit.

(b) If you retire from PERS Plan 1 or TRS Plan 1 and you do not elect the optional auto COLA, you will not receive a COLA on the additional purchased service credit amount.

(12) **If I purchase additional service credit and then return to work, how will my retirement benefit be affected?** Your entire retirement benefit, including the amount attributable to purchased service credit, is subject to the return to work provisions of your system and plan. The following rules describe the impact on your benefit if you return to work as a retiree of the referenced systems and plans:

PERS Plans 1, 2, and 3:	WAC 415-108-710
TRS Plan 1:	WAC 415-112-541
TRS Plans 2 and 3:	WAC 415-112-542
SERS Plans 2 and 3:	WAC 415-110-710
PSERS Plan 2:	WAC 415-106-700
LEOFF Plan 2:	WAC 415-104-111

(13) **If I retire and purchase less than (~~sixty~~) 60 months of additional service credit, may I purchase more at a later time?** No. You may not purchase additional months of service credit from the same plan unless you return to membership and retire again from the same system and plan. You must meet the eligibility requirements provided in subsection (2) of this section at the time you retire again. You may not purchase more than a total of (~~sixty~~) 60 months of service

credit regardless of how many times you retire again from the same system and plan.

**(14) May I purchase service credit from more than one retirement plan?**

(a) If you are a dual member under chapter 415-113 WAC, Portability of public employment benefits, and you combine service credit to retire as a dual member, you may purchase up to (~~sixty~~) 60 months of additional service credit from each of your dual member plans.

(b) If you retire from more than one plan, but are not a dual member under chapter 415-113 WAC, you may purchase up to (~~sixty~~) 60 months of additional service credit from each plan in which you meet the eligibility requirements in subsection (2) of this section.

**(15) How are the funds I paid to purchase the additional service credit treated upon my death (and the death of my survivor, if applicable)?**

(a) Plans 1 and 2. The amount paid to purchase the additional service credit is credited to your individual account as part of your accumulated contributions. Distribution of accumulated contributions after your death (and the death of your survivor, if any) is governed by the statutes and rules applicable to your plan. See:

- (i) WAC 415-108-326 for PERS Plan 1 and 2;
- (ii) WAC 415-112-504(9) for TRS Plan 1;
- (iii) WAC 415-112-505(7) for TRS Plan 2;
- (iv) WAC 415-110-610(7) for SERS Plan 2;
- (v) WAC 415-106-600(7) for PSERS Plan 2;
- (vi) WAC 415-103-215 for WSPRS Plan 1;
- (vii) WAC 415-103-225(7) for WSPRS Plan 2;
- (viii) WAC 415-104-202 for LEOFF Plan 1; or
- (ix) WAC 415-104-215(7) for LEOFF Plan 2.

(b) Plan 3. If you and your survivor (if you selected a survivor option) die before the amount of your purchased service credit has been paid back to you in your monthly retirement benefit, the difference will be refunded to your designated beneficiary.

[Statutory Authority: RCW 41.50.050. WSR 18-01-020, § 415-02-177, filed 12/8/17, effective 1/8/18. Statutory Authority: RCW 41.50.050(5). WSR 16-04-048, § 415-02-177, filed 1/27/16, effective 2/27/16; WSR 13-18-034, § 415-02-177, filed 8/28/13, effective 10/1/13; WSR 13-06-025, § 415-02-177, filed 2/27/13, effective 4/1/13; WSR 10-16-086, § 415-02-177, filed 7/30/10, effective 9/1/10. Statutory Authority: RCW 41.50.050(5), 2006 c 214, and RCW 41.26.432. WSR 06-16-043, § 415-02-177, filed 7/26/06, effective 8/26/06.]

AMENDATORY SECTION (Amending WSR 21-22-047, filed 10/28/21, effective 11/28/21)

**WAC 415-02-178 May I purchase an annuity? (1) Am I eligible to purchase an annuity?** You are eligible to purchase a defined benefit plan annuity at the time of retirement if you are a member of TRS (RCW 41.32.067), WSPRS (RCW 43.43.315), LEOFF Plan 1 (RCW 41.26.105), LEOFF Plan 2 (RCW 41.26.463), PERS (RCW 41.40.131), SERS (RCW 41.35.235), or PSERS Plan 2 (RCW 41.37.295). This annuity provides a lifetime increase to your monthly benefit. (For purchasing an annuity from your Plan 3 defined contribution account, refer to WAC 415-111-320.)

(2) **Can I purchase an annuity if I take a lump sum payment?** You may not purchase an annuity if you elect a lump sum payment instead of a monthly benefit.

(3) **Are there limits to the annuity amount I may purchase?** There is no maximum limit on the purchase amount. If you are a LEOFF or WSPRS member the minimum purchase amount is \$25,000. If you are a PERS, SERS, or PSERS member, the minimum purchase amount is \$5,000. There is no minimum required for TRS members.

(4) **When can I apply to purchase an annuity?** You must submit your request to purchase an annuity to the department at the time you apply for retirement.

(5) **How much will my monthly benefit increase if I purchase an annuity?** The increase in your monthly benefit will be calculated using the following formula:

$$\text{Purchase Annuity Amount} \times \text{Annuity Factor} = \text{Increase to Monthly Benefit}$$

The annuity factor is determined by your age on the later of your retirement date or the date your retirement application is submitted to the department.

**Example:** John is a member of LEOFF Plan 2. He applies for retirement and requests to purchase an annuity for \$45,000. For illustration purposes in this example only, we will use 0.0051025 as the corresponding annuity factor (factors change periodically). John's monthly benefit will increase by \$229.61 per month, calculated as follows:

$$\text{Purchase Annuity Amount} \times \text{Annuity Factor} = \text{Increase to Monthly Benefit}$$

$$\$45,000 \times 0.0051025 = \$229.61$$

(6) **How and when do I pay for the annuity?** The department will generate a bill to you for the cost of the annuity after we receive your request to purchase.

(a) For all TRS members, payment may be made by making a one-time personal payment (however, IRS regulations limit the amount of after-tax dollars you may use); ~~((€))~~ and you may roll over funds from another tax-deferred retirement account. To purchase the annuity with Roth dollars, you must request a distribution first, then pay the bill with a check.

(b) For LEOFF, WSPRS, PERS, SERS, and PSERS members, the annuity must be purchased by rolling over funds from an "eligible retirement plan" which is a tax qualified plan offered by a governmental employer (like the state of Washington's deferred compensation program) or rolling over tax-deferred funds that originated with a governmental employer. You cannot use a Roth balance (if applicable) for this payment. You can only use dollars from your pretax balance. The annuity payment is taxable income when you receive it.

(c) For PERS Plan 1 or TRS Plan 1 members, ~~((post-thirty))~~ Post-30 year contributions withheld under the provisions of RCW 41.40.191 or 41.32.4986 respectively, may not be used to purchase the annuity.

(d) Payment must be made in full by ~~((ninety))~~ 90 days after the later of your retirement date or bill issue date. Your annuity will begin once your payment is received and your retirement is processed. The effective date for the start of this benefit is the later of your retirement date or the payment in full date plus one day.

(7) **What are the survivor options for my annuity?** The survivor option you designate for your retirement benefit will also be used for

your annuity purchase, with the exception of WSPRS Plan 1 Option A and LEOFF Plan 1.

If you are a WSPRS Plan 1 member who chose Option A or you are a LEOFF Plan 1 member, your annuity will be paid for your lifetime only. Under these two survivor options, even though the retirement benefit may be paid over two lifetimes, there is no actuarial reduction. No actuarial reduction can be applied to the annuity, therefore the annuity can only be treated as if a single life option was chosen.

If you choose a benefit option with a survivor feature and your survivor dies before you, your monthly annuity payment will increase to the amount it would have been had you not selected a survivor option.

**(8) Will I receive a cost of living adjustment (COLA) on the portion of my benefit that is based on the purchased annuity?** If you are eligible for an annual COLA adjustment on your monthly benefit, you will receive the same COLA percentage on this annuity.

**(9) If I purchase an annuity and then return to work, how will the annuity portion of my benefit be affected?** You will continue to receive the annuity portion of your monthly benefit payment even if you return to work, or return to membership.

**(10) If I retire then return to membership and reretire, may I purchase another annuity?** Yes. You may purchase another annuity when you reretire provided you are reretiring from an eligible plan that allows an annuity purchase.

**(11) May I purchase an annuity from more than one retirement plan?**

(a) If you are a dual member under chapter 415-113 WAC, Portability of public employment benefits, and you combine service credit to retire as a dual member, you may purchase an annuity from each dual member plan that allows an annuity purchase.

(b) If you are not a dual member and retire separately from more than one plan you may purchase an annuity from each eligible plan that allows an annuity purchase.

**(12) What happens to my annuity upon my death (and the death of my survivor, if applicable)?**

System Plan	Benefit Option	Annuity Payment Upon Death
TRS 1	Maximum Option	At the time of your death the annuity payment stops.
TRS 1, TRS 2, TRS 3, LEOFF 2, WSPRS 2, PERS 1, PERS 2, PERS 3, SERS 2, SERS 3, and PSERS 2	Option 1 (single life)	At the time of your death the annuity payments stop. The original amount you paid for your annuity, less any payments you have received, will be paid to your designated beneficiary.
WSPRS 1	Option A	
LEOFF 1	Automatic Survivor	
TRS 1, TRS 2, TRS 3, LEOFF 2, WSPRS 2, PERS 1, PERS 2, PERS 3, SERS 2, SERS 3, and PSERS 2	Option 2, 3, 4 (joint life)	At the time of your death, payments will continue to your survivor. At the time of your survivor's death, the original amount you paid for your annuity, less any payments you and your survivor have received, will be paid to your designated beneficiary.
WSPRS 1	Option B (joint life)	

[Statutory Authority: RCW 41.50.050. WSR 21-22-047, § 415-02-178, filed 10/28/21, effective 11/28/21; WSR 20-01-145, § 415-02-178, filed 12/17/19, effective 1/17/20. Statutory Authority: RCW 41.50.050(5). WSR 17-07-021, § 415-02-178, filed 3/7/17, effective 4/7/17; WSR 16-04-048, § 415-02-178, filed 1/27/16, effective 2/27/16.]

OTS-4568.4

AMENDATORY SECTION (Amending WSR 16-24-013, filed 11/28/16, effective 1/1/17)

**WAC 415-501-110 Definitions.** (1) **Accumulated deferrals.** Compensation deferred under the plan, adjusted by income received, increases or decreases in investment value, fees, and any prior distributions made.

(2) **Automatic enrollment.** A process of enrolling newly hired full-time employees as of January 1, 2017. See WAC 415-501-400 for details.

(3) **Beneficiary.** The person or entity entitled to receive benefits under the plan after the death of a participant.

(4) **Compensation.** All payments made to a participant by the employer as remuneration for services rendered.

(5) **Contributions.** The amount of deferred compensation that you contribute monthly, which can be pretax, taxed, or a combination of both.

(6) **Deferred compensation.** The amount of the participant's compensation that is deferred. Pretax and taxed contributions are both considered deferred compensation. See WAC 415-501-400, 415-501-410, and 415-501-450.

~~((6))~~ (7) **Deferred compensation program or plan.** A plan that allows employees of the state of Washington and approved political subdivisions of the state of Washington to defer a portion of their compensation according to the provisions of Section 457(b) of the Internal Revenue Code.

~~((7))~~ (8) **Department.** The department of retirement systems created by RCW 41.50.020 or its designee.

~~((8))~~ (9) **Eligible employee.** Any person who is employed by and receives any type of compensation from a participating employer for whom services are provided, and who is:

(a) A full-time, part-time, or career seasonal employee of Washington state, a county, a municipality, or other political subdivision of the state, whether or not covered by civil service;

(b) An elected or appointed official of the executive branch of the government, including a full-time member of a board, commission, or committee;

(c) A justice of the supreme court, or a judge of the court of appeals or of a superior or district court; or

(d) A member of the state legislature or of the legislative authority of a county, city, or town.

~~((9))~~ (10) **Eligible rollover distribution.** A distribution to a participant of any or all funds from an eligible retirement plan unless it is:

(a) One in a series of substantially equal annuity payments;

(b) One in a series of substantially equal installment payments payable over ~~((ten))~~ 10 years or more;

(c) Required to meet minimum distribution requirements of the plan; or

(d) Distributed for hardship or unforeseeable emergency from a 457 plan.

~~((10))~~ (11) **Employer.**

(a) The state of Washington; and

(b) Approved political subdivisions of the state of Washington.



~~((11))~~ (12) In-plan conversion. Allows you to take all or a portion of the funds in your pretax account and convert it to a Roth account.

(13) Normal retirement age. An age designated by the participant for purposes of the three-year catch-up provision described in WAC 415-501-430(2). The participant may choose a normal retirement age between:

(a) The earliest age at which an eligible participant has the right to receive retirement benefits without actuarial or similar reduction from his/her retirement plan with the same employer; and

(b) Age ~~((seventy and one-half))~~ 70 1/2.

~~((12))~~ (14) Participant. An eligible employee who:

(a) Is currently deferring compensation under the plan; or

(b) Has previously deferred compensation and has not received a distribution of his/her entire benefit under the plan.

~~((13))~~ (15) Participation agreement. The agreement executed by an eligible employee to enroll in the plan through methods established by the department. Includes the participant's authorization to defer compensation through payroll deductions pursuant to WAC 415-501-410 and 415-501-450.

~~((14))~~ (16) Qualified distribution. A distribution of funds from a designated Roth account that is not subject to further taxation. A qualified distribution may only occur:

(a) After a five-taxable-year period of participation in the Roth account; and

(b) If the distribution is made: (i) On or after attainment of age 59 1/2, (ii) becoming permanently disabled, or (iii) death.

(17) Roth account. A form of deferred compensation in which funds are subject to federal income tax at the time of contribution.

(18) You, as used in this chapter, means a participant as defined in subsection ~~((12))~~ (14) of this section.

[Statutory Authority: RCW 41.50.050(5). WSR 16-24-013, § 415-501-110, filed 11/28/16, effective 1/1/17; WSR 16-12-050, § 415-501-110, filed 5/25/16, effective 6/25/16; WSR 14-10-045, § 415-501-110, filed 4/30/14, effective 6/1/14. Statutory Authority: RCW 41.50.050(5), 41.50.780(10), and 41.50.770. WSR 05-15-045, § 415-501-110, filed 7/11/05, effective 8/11/05; WSR 04-22-053, § 415-501-110, filed 10/29/04, effective 11/29/04. Statutory Authority: RCW 41.50.050(5), 41.50.030(2), 41.50.088(2), 41.50.770, and 41.50.780, 26 U.S.C. (Internal Revenue Code) and related tax regulations. WSR 02-01-121, § 415-501-110, filed 12/19/01, effective 1/1/02. Statutory Authority: RCW 41.50.770, [41.50.]780 and 41.50.050. WSR 00-11-104, amended and recodified as § 415-501-110, filed 5/18/00, effective 6/18/00. Statutory Authority: RCW 41.50.050 and 41.50.780(11). WSR 96-16-020, § 415-504-010, filed 7/29/96, effective 7/29/96.]

AMENDATORY SECTION (Amending WSR 16-24-013, filed 11/28/16, effective 1/1/17)

**WAC 415-501-315 What are my employer's responsibilities?** An employer has responsibilities including, but not limited to, determining employees' eligibility to participate, reporting and paying deferrals to the department, and monitoring for deferral limits. Employer con-

tributions must be reported to the department separately from employee contributions.

The department's administration of the plan does not replace the employer's responsibilities.

[Statutory Authority: RCW 41.50.050(5). WSR 16-24-013, § 415-501-315, filed 11/28/16, effective 1/1/17. Statutory Authority: RCW 41.50.050(5), 41.50.780(10), and 41.50.770. WSR 04-22-053, § 415-501-315, filed 10/29/04, effective 11/29/04. Statutory Authority: RCW 41.50.770, [41.50.]780 and 41.50.050. WSR 00-11-104, § 415-501-315, filed 5/18/00, effective 6/18/00.]

AMENDATORY SECTION (Amending WSR 16-24-013, filed 11/28/16, effective 1/1/17)

**WAC 415-501-400 What is automatic enrollment?** Effective January 1, 2017, state agencies and higher education employers must automatically enroll new full-time employees into the deferred compensation program (DCP). Students who work at a college or university and retirees who return to employment are exempt from automatic enrollment. Local employers, including school districts, may use the automatic enrollment provisions by submitting a resolution to the department.

For state employees and some higher education employees, full-time status is defined in WAC 357-01-174. For employees not covered under WAC 357-01-174, the definition of "full time" is at the employer's discretion.

The default deferral amount is pre-tax with a rate of three percent of your taxable compensation (~~(, but)~~). You may change (~~(your deferral amount)~~) these at any time (see WAC 415-501-450 for details).

The default investment is the Retirement Strategy Fund that assumes (~~(retirement)~~) you will retire at age (~~(sixty-five)~~) 65. You may change your investments at any time (see WAC 415-501-475 for details).

If you are automatically enrolled in DCP, you will receive a mailed notification of automatic enrollment. If you want to alter your automatic enrollment, here are some actions you can take:

(1) Opt out: To prevent the three percent deferral from being deducted from your paycheck, opt out within (~~(thirty)~~) 30 days of the date on the automatic enrollment notification. To do so, change the three percent default deduction to zero through your established on-line account or by contacting the DCP record keeper.

(2) Suspend enrollment and remove your contributions: Following your automatic enrollment, you may withdraw DCP deferrals that have been taken from your paycheck. To do so, change the three percent default deduction to zero and request a permissible withdrawal request form. The completed withdrawal request must be received by the DCP record keeper within (~~(ninety)~~) 90 days of your first payroll contribution under this section. You will receive a distribution of your contributions, plus or minus earnings. These distributions are not eligible for rollover. If you do not request a permissible withdrawal within (~~(ninety)~~) 90 days from your first payroll contribution, your contributions will be subject to the provisions for distributions described in WAC 415-501-485.

(3) Change your contribution: Adjust your contributions to a smaller or larger whole percentage or select a specific whole dollar amount. With DCP, you may change your contribution amount at any time.

Changing your contribution within the first ((~~ninety~~)) 90 days of automatic enrollment verifies your participation in the program, making you no longer eligible for permissible withdrawal.

(4) Change your investment selection: Select another DCP investment option. With DCP, you can change your investment options at any time.

(5) Reenroll: If you opt out, you may reenroll in DCP at any time (see WAC 415-501-410).

[Statutory Authority: RCW 41.50.050(5). WSR 16-24-013, § 415-501-400, filed 11/28/16, effective 1/1/17.]

AMENDATORY SECTION (Amending WSR 16-12-050, filed 5/25/16, effective 6/25/16)

**WAC 415-501-410 How do I enroll in the plan?** (1) As an eligible employee, you may enroll in the plan by executing a participation agreement according to methods established by the department.

(2) By executing the participation agreement, you authorize your employer to reduce your gross compensation each month by a specific amount. This amount will be contributed to your deferred compensation account. Your employer will reduce your compensation by the specified amount until you change the amount (WAC 415-501-450).

(3) Deferrals from your compensation will start during the calendar month after the month your participation agreement is approved by the department.

(4) Reenrollment. If you transfer from a state agency to another state agency without a separation of employment, your deferred compensation program (DCP) enrollment will be automatically transferred to the new state agency. Your contributions will automatically continue. For nonstate participants, if you separate from employment with a DCP employer (break in service) and return to employment with a DCP employer, you must reenroll in the program if you want to resume contributions to DCP. Depending on the employer you return to, you may be subject to the automatic enrollment under WAC 415-501-400.

[Statutory Authority: RCW 41.50.050(5). WSR 16-12-050, § 415-501-410, filed 5/25/16, effective 6/25/16; WSR 14-10-045, § 415-501-410, filed 4/30/14, effective 6/1/14. Statutory Authority: RCW 41.50.050(5), 41.50.780(10), and 41.50.770. WSR 04-22-053, § 415-501-410, filed 10/29/04, effective 11/29/04. Statutory Authority: RCW 41.50.770, [41.50.]780 and 41.50.050. WSR 00-11-104, amended and recodified as § 415-501-410, filed 5/18/00, effective 6/18/00. Statutory Authority: RCW 41.50.050 and 41.50.780(11). WSR 96-16-020, § 415-512-010, filed 7/29/96, effective 7/29/96.]

AMENDATORY SECTION (Amending WSR 20-24-108, filed 12/1/20, effective 1/1/21)

**WAC 415-501-415 May I move funds into the plan from an eligible retirement plan?** (1) **Rollover.** If you established your deferred compensation account through your own employment with a participating employer, you may roll pretax contributions into the plan from an indi-

vidual retirement account (IRA) or from another eligible retirement plan. Your DCP account also accepts rollovers-in from designated Roth accounts within eligible retirement plans, but not from Roth IRAs. If your account was established as a beneficiary following the original account owner's death, or as a result of a domestic relations order as described in WAC 415-501-495, you are not eligible to roll additional funds into the account.

(a) The plan will keep a separate accounting of all funds rolled into the plan.

(b) Distributions of money rolled into the plan may be subject to an additional (~~ten~~) 10 percent tax on early distributions.

(2) **Plan-to-plan transfer.** You may transfer money into the plan from another eligible governmental Section 457(b) plan maintained by a political subdivision, subject to the following conditions:

(a) The political subdivision also participates in DCP;

(b) The transferor plan allows direct plan-to-plan transfers; and

(c) You are employed by the political subdivision at the time of the transfer.

(3) **Rollover/transfer application.** You must complete the appropriate form to transfer or roll money into your deferred compensation account. Forms are available through the department or on its website.

[Statutory Authority: RCW 41.50.050. WSR 20-24-108, § 415-501-415, filed 12/1/20, effective 1/1/21. Statutory Authority: RCW 41.50.050(5), 41.50.780(10), and 41.50.770. WSR 04-22-053, § 415-501-415, filed 10/29/04, effective 11/29/04. Statutory Authority: RCW 41.50.050(5), 41.50.030(2), 41.50.088(2), 41.50.770, and 41.50.780, 26 U.S.C. (Internal Revenue Code) and related tax regulations. WSR 02-01-121, § 415-501-415, filed 12/19/01, effective 1/1/02. Statutory Authority: RCW 41.50.770, [41.50.]780 and 41.50.050. WSR 00-11-104, amended and recodified as § 415-501-415, filed 5/18/00, effective 6/18/00. Statutory Authority: RCW 41.50.050. WSR 98-20-047, § 415-512-015, filed 9/30/98, effective 10/31/98. Statutory Authority: RCW 41.50.050 and 41.50.780(11). WSR 96-16-020, § 415-512-015, filed 7/29/96, effective 7/29/96.]

AMENDATORY SECTION (Amending WSR 04-22-053, filed 10/29/04, effective 11/29/04)

**WAC 415-501-416 May I move funds from the plan into another eligible retirement plan?** (1) **Rollover.** Subject to the rules of the receiving plan, you may roll pretax contributions into an individual retirement account (IRA) or another eligible retirement plan after separation from service. You also have the option of rolling out dollars from your Roth 457(b) account to a Roth IRA or another employer plan with designated Roth accounts (such as a 457, 401(k), or 403(b) that accepts Roth rollovers).

(2) **Plan-to-plan transfer.** You may transfer money:

(a) Through a plan-to-plan transfer into another eligible governmental Section 457(b) plan after you terminate employment, if the receiving plan allows the transfer and you are employed by the sponsor of the receiving plan.

(b) Through a plan-to-plan transfer into another eligible governmental Section 457(b) plan maintained by a political subdivision if

the receiving plan allows the transfer and you are employed by the political subdivision both before and after the transfer.

(c) Through a plan-to-plan transfer to purchase service credit in a governmental Section 401(a) plan.

Transferred funds are governed by the rules of the receiving plan.

(3) Subject to the rules of the receiving plan, if your spouse becomes eligible to receive a distribution as beneficiary, your spouse may roll an eligible rollover distribution from his/her deferred compensation account into an eligible retirement plan in which he or she is a member.

(4) **Rollover/transfer application.** You or your spouse must complete the appropriate form to transfer or roll money over from your deferred compensation account. Forms are available through the department or on its website.

[Statutory Authority: RCW 41.50.050(5), 41.50.780(10), and 41.50.770. WSR 04-22-053, § 415-501-416, filed 10/29/04, effective 11/29/04. Statutory Authority: RCW 41.50.050(5), 41.50.030(2), 41.50.088(2), 41.50.770, and 41.50.780, 26 U.S.C. (Internal Revenue Code) and related tax regulations. WSR 02-01-121, § 415-501-416, filed 12/19/01, effective 1/1/02.]

#### NEW SECTION

**WAC 415-501-418 May I transfer pretax and Roth balances within the plan?** An in-plan conversion allows you to convert your pretax balance to your Roth account within the plan. This conversion results in the amount being reported as income in the year of conversion which may result in a tax liability for you. There are no taxes withheld by the recordkeeper at the time of the in-plan conversion. Once it is completed, the in-plan conversion cannot be reversed. There is no limit to the number of times an in-plan conversion can be done.

[ ]

AMENDATORY SECTION (Amending WSR 16-24-013, filed 11/28/16, effective 1/1/17)

**WAC 415-501-420 What are the deferral limits?** (1) The minimum deferral for DCP is:

(a) Thirty dollars per month ((~~or one percent~~)); or

(b) A whole percentage of monthly compensation for each deferral type (Roth and pretax). This means if you were contributing to both options, you would be contributing at least one percent to Roth and one percent to pretax, or at least \$30 as a combined minimum for both.

(2) Except as provided in WAC 415-501-430 (catch-up provisions) and WAC 415-501-435 (uniformed service make-up contributions), the maximum annual deferral limit is the smaller of:

(a) One hundred percent of your (~~includible~~) includable compensation as defined in IRC Section 457 (e) (5), and Treasury Regulation 1.457.2(g), and determined without regard to community property laws; or

(b) The annual deferral limit established each year by the Internal Revenue Service. The annual deferral limit is published on the department's deferred compensation program website.

[Statutory Authority: RCW 41.50.050(5). WSR 16-24-013, § 415-501-420, filed 11/28/16, effective 1/1/17; WSR 14-10-045, § 415-501-420, filed 4/30/14, effective 6/1/14. Statutory Authority: RCW 41.50.050(5), 41.50.780(10), and 41.50.770. WSR 04-22-053, § 415-501-420, filed 10/29/04, effective 11/29/04. Statutory Authority: RCW 41.50.050(5), 41.50.030(2), 41.50.088(2), 41.50.770, and 41.50.780, 26 U.S.C. (Internal Revenue Code) and related tax regulations. WSR 02-01-121, § 415-501-420, filed 12/19/01, effective 1/1/02. Statutory Authority: RCW 41.50.770, [41.50.]780 and 41.50.050. WSR 00-11-104, amended and recodified as § 415-501-420, filed 5/18/00, effective 6/18/00. Statutory Authority: RCW 41.50.050. WSR 98-20-047, § 415-512-020, filed 9/30/98, effective 10/31/98. Statutory Authority: RCW 41.50.050 and 41.50.780(11). WSR 96-16-020, § 415-512-020, filed 7/29/96, effective 7/29/96.]

AMENDATORY SECTION (Amending WSR 14-10-045, filed 4/30/14, effective 6/1/14)

**WAC 415-501-430 Are there exceptions to the annual deferral limits?** As allowed by the Internal Revenue Service, you may defer more than the annual deferral limit if you qualify to use one of the "catch up" provisions described in this section. You may not use both catch-up provisions during the same taxable year. The same annual limits apply for both Roth and pretax deferrals. These limits are combined to totals even if you contribute to both.

(1) **Age ((fifty)) 50 and over:** You may defer a higher amount ((during)) in any year ((in which)) that you are age ((fifty)) 50 or older. The maximum you may defer each year is the sum of the annual deferral amount for the current taxable year plus the ((over fifty)) age 50 and over catch up amount established by the IRS under 26 U.S.C. Section 414(v). Beginning January 2024, the catch-up amounts must be contributed to a Roth account if you made more than \$145,000 in wages from your DCP employer in the prior calendar year. If you made \$145,000 or less in wages from your DCP employer in the prior calendar year, then you have the option to contribute the catch-up amounts as Roth deferrals. Beginning January 2025, the \$145,000 amount will be adjusted annually for inflation.

(2) **Three years before normal retirement age:** You may defer a higher amount during a period of three consecutive years immediately preceding the taxable year in which you reach normal retirement age as defined in WAC 415-501-110 (10). The maximum you may defer during each of the three years is the lesser of:

(a) Twice the annual deferral limit; or

(b) The sum of the annual deferral limit for the applicable years, plus the portion of the annual deferral limit for any prior taxable year that you have not previously used.

(i) For years prior to 2002, amounts you deferred under certain other plans must be considered in determining the unused amount, consistent with Treasury Regulation 1.457-4 (c) (3) (iv).

(ii) A prior taxable year may be taken into account only if:

(A) It begins after December 31, 1978;

(B) You were eligible, during any portion of the taxable year, to participate in the plan; and

(C) Compensation deferred under the plan during that year, if any, was subject to a deferral limit under WAC 415-501-420.

Three-year catch-up example one: At age 64, Pat, a PERS 2 member, declares their normal retirement age of 66 and begins deferring the higher annual limit. Pat's intention is to retire at age 65 so that they can use the higher catch-up amounts in their final year of employment.

After a year, at age 65, Pat decides that they would like to work another year until age 66. Since Pat already declared age 66, the higher limit amount cannot be used beyond the year they turn 65. They cannot change their declared normal retirement age to 67 and continue with the higher deferral amounts for a third year.

Though Pat cannot change the normal retirement age once declared, there is no issue with working beyond the normal retirement age. They will only be able to defer the standard limit amount for their age, not the special three-year catch-up amounts in the year of their declared normal retirement age or beyond.

Three-year catch-up example two: At age 60, Alex has 30 years of service and declares their normal retirement age of 63 and begins to defer the higher annual limit. At age 62, they decide to retire and at the time of retirement defer their vacation leave cash out. This is acceptable as long as their deferrals for the year are not in excess of the catch-up limit. The declared age of 63 allows for catch-up deferrals in the calendar years that Alex was 60, 61, and 62; retiring prior to age 63 does not affect the years the higher deferral amounts are allowed.

[Statutory Authority: RCW 41.50.050(5). WSR 14-10-045, § 415-501-430, filed 4/30/14, effective 6/1/14. Statutory Authority: RCW 41.50.050(5), 41.50.780(10), and 41.50.770. WSR 04-22-053, § 415-501-430, filed 10/29/04, effective 11/29/04. Statutory Authority: RCW 41.50.050(5), 41.50.030(2), 41.50.088(2), 41.50.770, and 41.50.780, 26 U.S.C. (Internal Revenue Code) and related tax regulations. WSR 02-01-121, § 415-501-430, filed 12/19/01, effective 1/1/02. Statutory Authority: RCW 41.50.770, [41.50.]780 and 41.50.050. WSR 00-11-104, amended and recodified as § 415-501-430, filed 5/18/00, effective 6/18/00. Statutory Authority: RCW 41.50.050. WSR 98-20-047, § 415-512-030, filed 9/30/98, effective 10/31/98. Statutory Authority: RCW 41.50.050 and 41.50.780(11). WSR 96-16-020, § 415-512-030, filed 7/29/96, effective 7/29/96.]

AMENDATORY SECTION (Amending WSR 14-10-045, filed 4/30/14, effective 6/1/14)

**WAC 415-501-435 May I make deferrals that were missed during periods of uniformed service?** (1) **Does the plan have a military make-up provision?** Participants meeting certain eligibility requirements are allowed to make up contributions that were missed during periods of absence from employment due to uniformed service, based on federal laws and regulations of the Uniformed Services Employment and Reemployment Rights Act of 1994 (USERRA, 38 U.S.C. Sections 4301 through 4335).

(2) **What constitutes uniformed service?** For the purposes of this rule, uniformed service includes: The Army, Navy, Air Force, Marines, Coast Guard, the commissioned corps of the Public Health Service, the reserve components of the foregoing services, the National Guard, the National Disaster Medical System, and any other category of persons designated as such by the President in a time of war or emergency. Service includes active duty, active duty for training, initial active duty for training, inactive duty training, examination to determine fitness for duty, funeral honors duty, and full-time National Guard duty. Service may be voluntary or involuntary.

(3) **What is the time limit for making up missed deferrals?** Make-up deferrals must be made within a period not exceeding three times the period of uniformed service, but in no case more than five years. This is referred to as the statutory period. The period begins the day you return to work. Missed deferrals can only be made while you are employed by your original employer. If you leave that employer but return to that employer within the statutory period, you may continue to make up deferrals until the end of the statutory period.

(4) **What is the limit on military make-up contributions?** You may contribute up to the maximum contributions for each calendar year that included absence from employment for uniformed service. In addition, you may contribute up to the maximum for the current calendar year.

**EXAMPLE:**

John is employed from January to June 2008, and defers \$5,000 into his DCP account during that time. John is on leave for uniformed service from July 2008 through December 2009, one and one-half years. He returns to employment with this original employer in January 2010.

The deferral limits for this period are as follows: **2008** - \$15,500; **2009** - \$16,500; **2010** - \$16,500; **2011** - \$16,500; **2012** - \$17,000; **2013** - \$17,500; and **2014** - \$17,500. John's statutory period for make-up contributions is four and one-half years (through June 2014).

**Upon his return to employment, during 2010:** For 2010, John may defer \$16,500 out of his regular salary (subject to limitations for includable compensation). During 2010, he may also defer:

- Up to \$10,500 allocable to 2008 (\$15,500 less \$5,000 previously deferred); and
- Up to \$16,500 allocable to 2009.

He decides to contribute \$16,500 for 2010, and \$5,000 for 2008.

**During 2011.** For 2011, John may defer \$16,500 out of his regular salary. During 2011, he may also defer:

- Up to \$5,500 for 2008 (\$15,500 less \$10,000 total previously deferred).
- Up to \$16,500 for 2009.

(5) **How are make-up deferrals made?** Make-up deferrals are made through payroll deductions after you return to employment. Make-up contributions may ~~((not))~~ be paid using ~~((after-tax payments))~~ pretax or Roth dollars.

(6) **What conditions must be met to qualify for this provision?** You must not have been released from the uniformed service under dishonorable or other punitive conditions, as set forth in 38 U.S.C. Section 4304. In addition, you must return to employment with your original employer within the time frame specified in USERRA (38 U.S.C. Section 4312) based on your length of service.



[Statutory Authority: RCW 41.50.050(5). WSR 14-10-045, § 415-501-435, filed 4/30/14, effective 6/1/14.]

AMENDATORY SECTION (Amending WSR 16-24-013, filed 11/28/16, effective 1/1/17)

**WAC 415-501-475 How will my deferred compensation be invested?**

(1) When you enroll, you may select one or more of the investment options offered. Initially, you will need to select the same investment option(s) for both Roth and pretax if you contribute to both at enrollment. After you have enrolled, you may select different investments for your Roth and pretax contributions through your online account.

(2) The department will invest (~~one hundred~~) 100 percent of your future contributions in the Retirement Strategy Fund that assumes you will retire at age (~~sixty-five~~) 65 if any of the following occurs during the enrollment process.

(a) An investment option is not selected.

(b) The total does not equal (~~one hundred~~) 100 percent when multiple investment options are selected.

(c) You are automatically enrolled into DCP.

(3) In general, you may change the investment of your accumulated deferrals, the investment of your future deferrals, or both, through the methods established by the department. However, if necessary to protect the performance results of the DCP program, the department has the right to:

(a) Limit the number of times you change investment options;

(b) Limit the frequency of the changes;

(c) Limit the manner of making changes; or

(d) Impose other restrictions.

In addition, changes must be consistent with any restrictions on trading imposed by the investment options involved.

(4) Beneficiaries over age (~~eighteen~~) 18 and former spouses may change the investment options through the methods established by the department once a separate account has been established for them. The guardian of a minor beneficiary may change the investment options on the minor's account if authorized by the order of guardianship.

[Statutory Authority: RCW 41.50.050(5). WSR 16-24-013, § 415-501-475, filed 11/28/16, effective 1/1/17; WSR 16-12-050, § 415-501-475, filed 5/25/16, effective 6/25/16; WSR 14-10-045, § 415-501-475, filed 4/30/14, effective 6/1/14. Statutory Authority: RCW 41.50.050(5), 41.50.780(10). WSR 05-22-109, § 415-501-475, filed 11/2/05, effective 12/3/05. Statutory Authority: RCW 41.50.050(5), 41.50.780(10), and 41.50.770. WSR 04-22-053, § 415-501-475, filed 10/29/04, effective 11/29/04. Statutory Authority: RCW 41.50.770, [41.50.]780 and 41.50.050. WSR 00-11-104, amended and recodified as § 415-501-475, filed 5/18/00, effective 6/18/00. Statutory Authority: RCW 41.50.050. WSR 98-20-047, § 415-512-075, filed 9/30/98, effective 10/31/98. Statutory Authority: RCW 41.50.050 and 41.50.780(11). WSR 96-16-020, § 415-512-075, filed 7/29/96, effective 7/29/96.]

AMENDATORY SECTION (Amending WSR 16-24-013, filed 11/28/16, effective 1/1/17)

**WAC 415-501-480 How do I designate my beneficiaries?** You have the right to designate a beneficiary or beneficiaries to receive your accumulated deferrals in the event of your death. You may change your beneficiary designation at any time online, or by filing a beneficiary change form with the department. The change will take effect upon the department's receipt of the beneficiary change form. Your designated beneficiary or beneficiaries must be the same for your entire DCP account (both pretax and Roth balances).

You may name:

(1) An organization or person, including unborn or later adopted children. However, unborn or later adopted children must be specifically designated as beneficiaries on the form. You must indicate the date of birth for any living person you name as a beneficiary.

(2) Your estate.

(3) An existing trust or a trust that is to be established under your last will. For an existing trust, you must provide a copy of the trust document and the name, address and telephone number of the current trustee.

You may name contingent beneficiaries in addition to primary beneficiaries.

[Statutory Authority: RCW 41.50.050(5). WSR 16-24-013, § 415-501-480, filed 11/28/16, effective 1/1/17. Statutory Authority: RCW 41.50.050(5), 41.50.780(10), and 41.50.770. WSR 04-22-053, § 415-501-480, filed 10/29/04, effective 11/29/04. Statutory Authority: RCW 41.50.770, [41.50.]780 and 41.50.050. WSR 00-11-104, amended and recodified as § 415-501-480, filed 5/18/00, effective 6/18/00. Statutory Authority: RCW 41.50.050. WSR 98-20-047, § 415-512-080, filed 9/30/98, effective 10/31/98. Statutory Authority: RCW 41.50.050 and 41.50.780(11). WSR 96-16-020, § 415-512-080, filed 7/29/96, effective 7/29/96.]

AMENDATORY SECTION (Amending WSR 22-17-049, filed 8/11/22, effective 9/11/22)

**WAC 415-501-485 How do I obtain a distribution?** Distribution from the plan is governed by Internal Revenue Code Sections 401 (a) (9) and 457(d); the treasury regulations interpreting these sections; and these rules to the extent they are not inconsistent with the Internal Revenue Code. The options for distribution are available from the department's recordkeeper.

(1) **Date of distribution.** You may choose the date on which to begin distribution from your deferred compensation account, subject to the requirements in (a) through (c) of this subsection; however, in order for earnings on Roth contributions to be tax-free at time of distribution, the requirements for a qualified distribution must be satisfied.

(a) **Earliest date.** You may not begin distribution prior to your termination of employment, with the following exceptions:

(i) A distribution for an unforeseeable emergency under WAC 415-501-510;

(ii) A voluntary in-service distribution under subsection (4) of this section;

(iii) A distribution from funds that were rolled into the deferred compensation account (may be subject to tax penalties); or

(iv) An in-service distribution in any calendar year in which you will reach age 70.5 or more.

(b) **Latest date.** You must begin distribution on or before April 1st of the calendar year following the latter of:

(i) The calendar year in which you reach age 72; or

(ii) The calendar year in which you retire.

(c) If you do not choose a distribution date, the department will begin distribution according to the minimum distribution requirements in IRC Section 401 (a) (9).

(2) **Method of distribution.** Payment options include a lump sum payment, partial lump sum payment, or installment payments.

Beginning at age 72 or when you terminate employment, whichever comes later, payment must be in an amount to satisfy minimum distribution requirements in IRC Section 401 (a) (9).

(3) **Voluntary in-service distribution at any age.** You may choose to withdraw the total amount payable to you under the plan while you are employed if the following three requirements are met:

(a) Your entire account value does not exceed \$5,000;

(b) You have not previously received an in-service distribution; and

(c) You have made no deferrals during the two-year period ending on the date of the in-service distribution.

(4) **Unforeseeable emergencies.** See WAC 415-501-510.

(5) **Rehire.** If you submit an immediate lump sum or partial distribution request and the request is received in good order prior to being rehired, your distribution will be processed even if you become rehired with a DCP employer. If you are receiving installment payments or have requested to receive installment payments and then return to employment with a DCP employer, your payments from your DCP account will cease. You may request a distribution when you are again eligible consistent with these rules.

[Statutory Authority: RCW 41.50.050. WSR 22-17-049, § 415-501-485, filed 8/11/22, effective 9/11/22. Statutory Authority: RCW 41.50.030 and 41.50.050. WSR 21-07-044, § 415-501-485, filed 3/11/21, effective 4/11/21. Statutory Authority: RCW 41.50.050. WSR 20-17-006, § 415-501-485, filed 8/5/20, effective 9/5/20. Statutory Authority: RCW 41.50.050(5). WSR 14-10-045, § 415-501-485, filed 4/30/14, effective 6/1/14. Statutory Authority: RCW 41.50.780(10). WSR 06-04-058, § 415-501-485, filed 1/27/06, effective 2/27/06. Statutory Authority: RCW 41.50.050(5), 41.50.780(10), and 41.50.770. WSR 04-22-053, § 415-501-485, filed 10/29/04, effective 11/29/04. Statutory Authority: RCW 41.50.050(5), 41.50.030(2), 41.50.088(2), 41.50.770, and 41.50.780, 26 U.S.C. (Internal Revenue Code) and related tax regulations. WSR 02-01-121, § 415-501-485, filed 12/19/01, effective 1/1/02. Statutory Authority: RCW 41.50.770, [41.50.]780 and 41.50.050. WSR 00-11-104, amended and recodified as § 415-501-485, filed 5/18/00, effective 6/18/00. Statutory Authority: RCW 41.50.050 and 41.50.780(11). WSR 96-16-020, § 415-512-085, filed 7/29/96, effective 7/29/96.]

AMENDATORY SECTION (Amending WSR 22-17-049, filed 8/11/22, effective 9/11/22)

**WAC 415-501-510 May I withdraw some or all of my accumulated deferrals in the event of an unforeseeable emergency?** (1) Notwithstanding any other provisions in this chapter, you may request all or a portion of your accumulated deferrals if:

(a) You are terminally ill. The department's recordkeeper will arrange for payment to you within 10 business days following application. To be eligible, the department's recordkeeper must receive documentation verifying your terminal illness along with your application.

(b) You have a qualifying unforeseeable emergency. The department's recordkeeper will distribute payment to you typically within 60 business days following application. To be eligible, the department's recordkeeper must receive documentation verifying your unforeseeable emergency, along with your application. The amount paid will be limited strictly to that amount reasonably necessary to satisfy the emergency need.

(c) If you have Roth deferrals, you may be taxed on earnings if the Roth withdrawal does not meet the definition of a qualified distribution (see WAC 415-501-110(16)).

(2) For purposes of this plan, an unforeseeable emergency is severe financial hardship resulting from:

(a) A personal illness or accident or the illness or injury of a spouse or dependent who meets the definition in Section 152(a) of the Internal Revenue Code;

(b) Loss of your property due to casualty, including the need to rebuild a home following damage not otherwise covered by homeowner's insurance, e.g., as a result of natural disaster; or

(c) Other similar extraordinary and unforeseeable circumstances arising as a result of events beyond your control, such as:

(i) The imminent foreclosure of or eviction from your primary residence due to circumstances that were beyond your control;

(ii) The need to pay medical expenses, including nonrefundable deductibles as well as the cost of prescription drug medication; or

(iii) The need to pay funeral expenses of a participant's or beneficiary's spouse or dependent (as defined in Section 152(a) of the Internal Revenue Code without regard to Sections 152 (b) (1), (2), and (d) (1)).

(3) The circumstances that constitute an unforeseeable emergency depend upon the facts of each case, but, in no case will the (~~department~~) department's recordkeeper approve a distribution request if the financial hardship is or may be relieved:

(a) Through reimbursement or compensation by insurance or otherwise; or

(b) By liquidation of your assets, to the extent liquidation of such assets would not itself cause severe financial hardship; or

(c) By cessation of deferrals under the plan.

(4) Examples: The following types of occurrences are not considered unforeseeable emergencies: Sending your child to college or purchasing a home.

(5) If the (~~department~~) department's recordkeeper denies your request for distribution, you may request a review of that decision according to the provisions of WAC 415-08-015.

[Statutory Authority: RCW 41.50.050. WSR 22-17-049, § 415-501-510, filed 8/11/22, effective 9/11/22; WSR 20-17-006, § 415-501-510, filed

8/5/20, effective 9/5/20. Statutory Authority: RCW 41.50.050(5). WSR 14-10-045, § 415-501-510, filed 4/30/14, effective 6/1/14. Statutory Authority: RCW 41.50.050(5), 41.50.780(10), and 41.50.770. WSR 04-22-053, § 415-501-510, filed 10/29/04, effective 11/29/04. Statutory Authority: RCW 41.50.050(5), 41.50.770 and 41.50.780. WSR 02-02-059, § 415-501-510, filed 12/28/01, effective 1/1/02. Statutory Authority: RCW 41.50.770, [41.50.]780 and 41.50.050. WSR 00-11-104, amended and recodified as § 415-501-510, filed 5/18/00, effective 6/18/00. Statutory Authority: RCW 41.50.050. WSR 98-20-047, § 415-524-010, filed 9/30/98, effective 10/31/98. Statutory Authority: RCW 41.50.050 and 41.50.780(11). WSR 96-16-020, § 415-524-010, filed 7/29/96, effective 7/29/96.]

AMENDATORY SECTION (Amending WSR 04-22-053, filed 10/29/04, effective 11/29/04)

**WAC 415-501-600 Is my employer allowed to contribute to my deferred compensation account?** The employer may, pursuant to WAC 415-501-450, add additional deferred compensation for services you provided to the employer during any calendar month, provided:

- (1) You elected to have such additional compensation deferred pursuant to this plan, prior to the calendar month in which the compensation is earned; (~~and~~)
- (2) Such additional deferred compensation, when added to all other deferred compensation under the plan, does not exceed the maximum deferral permitted by this chapter; and
- (3) Your employer's contributions will be pretax.

[Statutory Authority: RCW 41.50.050(5), 41.50.780(10), and 41.50.770. WSR 04-22-053, § 415-501-600, filed 10/29/04, effective 11/29/04. Statutory Authority: RCW 41.50.050(5), 41.50.030(2), 41.50.088(2), 41.50.770, and 41.50.780, 26 U.S.C. (Internal Revenue Code) and related tax regulations. WSR 02-01-121, § 415-501-600, filed 12/19/01, effective 1/1/02. Statutory Authority: RCW 41.50.770, [41.50.]780 and 41.50.050. WSR 00-11-104, amended and recodified as § 415-501-600, filed 5/18/00, effective 6/18/00. Statutory Authority: RCW 41.50.050 and 41.50.780(11). WSR 96-16-020, § 415-556-010, filed 7/29/96, effective 7/29/96.]