

Chapter 246-247 WAC
RADIATION PROTECTION—AIR EMISSIONS

Last Update: 11/12/19

WAC

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DISPOSITION OF SECTIONS FORMERLY CODIFIED IN THIS CHAPTER

246-247-045	Where to find technical references. [Statutory Authority: RCW 70.98.050. WSR 04-18-094, § 246-247-045, filed 9/1/04, effective 10/2/04.] Repealed by WSR 18-01-083, filed 12/15/17, effective 1/15/18. Statutory Authority: RCW 70.98.050 and 70.98.080.
246-247-050	Registration. [Statutory Authority: RCW 43.70.040. WSR 91-02-049 (Order 121), recodified as § 246-247-050, filed 12/27/90, effective 1/31/91. Statutory Authority: Chapter 70.98 RCW. WSR 88-17-060 (Order 2671), § 402-80-060, filed 8/17/88. Statutory Authority: RCW 70.98.080. WSR 87-01-031 (Order 2450), § 402-80-060, filed 12/11/86.] Repealed by WSR 94-07-010, filed 3/4/94, effective 4/4/94. Statutory Authority: Chapters 70.98 and 70.94 RCW and chapter 173-480 WAC.
246-247-070	New and modified sources. [Statutory Authority: RCW 43.70.040. WSR 91-02-049 (Order 121), recodified as § 246-247-070, filed 12/27/90, effective 1/31/91. Statutory Authority: RCW 70.98.080. WSR 87-01-031 (Order 2450), § 402-80-070, filed 12/11/86.] Repealed by WSR 94-07-010, filed 3/4/94, effective 4/4/94. Statutory Authority: Chapters 70.98 and 70.94 RCW and chapter 173-480 WAC.
246-247-090	Special reports. [Statutory Authority: RCW 43.70.040. WSR 91-02-049 (Order 121), recodified as § 246-247-090, filed 12/27/90, effective 1/31/91. Statutory Authority: RCW 70.98.080. WSR 87-01-031 (Order 2450), § 402-80-090, filed 12/11/86.] Repealed by WSR 94-07-010, filed 3/4/94, effective 4/4/94. Statutory Authority: Chapters 70.98 and 70.94 RCW and chapter 173-480 WAC.

WAC 246-247-001 Purpose. The purpose of this chapter is to establish application requirements and procedures for the issuance of a radioactive air emissions license and for the regulation of those emissions by the department of health (hereinafter referred to as "the department") to assure compliance with the standards for radioactive air emissions set by the department of ecology pursuant to RCW 70.94.331, promulgated in chapter 173-480 WAC, and with the rules and regulations of this chapter.

[Statutory Authority: Chapters 70.98 and 70.94 RCW and chapter 173-480 WAC. WSR 94-07-010, § 246-247-001, filed 3/4/94, effective 4/4/94. Statutory Authority: RCW 43.70.040. WSR 91-02-049 (Order 121), recodified as § 246-247-001, filed 12/27/90, effective 1/31/91. Statutory Authority: RCW 70.98.080. WSR 87-01-031 (Order 2450), § 402-80-010, filed 12/11/86.]

WAC 246-247-002 Authority. (1) Rules and regulations set forth herein are adopted and enforced by the department pursuant to the provisions of chapter 70.98 RCW which:

(a) Designate the department as the state's radiation control agency having sole responsibility for the administration of the regulatory, licensing, and radiation control provisions of chapter 70.98 RCW;

(b) Vest in the department the authority to formulate, adopt, promulgate, and repeal codes, rules, and regulations related to the control of sources of ionizing radiation;

(c) Authorize the department to implement an independent state-wide program to monitor radioactive air emissions from sources within the state;

(d) Authorize the department to conduct inspections of facilities, both private and public, to determine whether or not there is compliance with or violation of the provisions of chapter 70.98 RCW and rules and regulations issued thereunder; and

(e) Authorize the department to require registration of sources of ionizing radiation.

(2) In addition, RCW 70.94.422 (Washington Clean Air Act) grants to the department the enforcement powers contained in that chapter.

[Statutory Authority: Chapters 70.98 and 70.94 RCW and chapter 173-480 WAC. WSR 94-07-010, § 246-247-002, filed 3/4/94, effective 4/4/94.]

WAC 246-247-010 Applicability. (1) The standards and requirements of this chapter apply statewide at the following types of facilities that emit radionuclides to the air:

(a) Facilities licensed by the department or by the United States Nuclear Regulatory Commission (NRC);

(b) United States Department of Energy (DOE) facilities;

(c) Non-DOE federal facilities;

(d) Uranium fuel cycle facilities;

(e) Uranium mills that are processing material; and

(f) Any other facility that the department determines emits or has the potential to emit radionuclides to the ambient air.

(2) The standards and requirements of this chapter apply to point sources, nonpoint sources, and fugitive emissions.

(3) The standards and requirements of this chapter apply to stationary and mobile emission units, whether temporary or permanent.

(4) The control technology standards and requirements of this chapter apply to the abatement technology and indication devices of facilities and emission units subject to this chapter. Control technology requirements apply from entry of radionuclides into the ventilated vapor space to the point of release to the environment.

(5) In accordance with RCW 70.94.161(10), air operating permits issued under chapter 173-401 WAC shall incorporate all applicable requirements of this chapter. Therefore, all facilities listed in subsection (1) of this section that are also subject to the operating permit regulations in chapter 173-401 WAC shall be considered in compliance with the requirements of this chapter if they comply with all the applicable requirements of the air operating permit issued under chapter 173-401 WAC. These applicable requirements shall be contained in the radioactive air emissions license which shall be incorporated as part of the air operating permit. In accordance with RCW 70.94.422(1), the department shall enforce all the requirements contained in the radioactive air emissions license.

(6) Should any of the federal regulations that have been adopted by reference in this chapter be rescinded, the affected facilities shall nonetheless comply with all other applicable requirements of this chapter.

(7) An applicant may view any document referenced in this chapter by contacting the department's office of radiation protection, radio-

active air emissions section at 509-946-0363. Mail reports, applications, and other written correspondence to the Radioactive Air Emissions Section at 309 Bradley Boulevard, Suite 201, Richland, Washington, 99352. An applicant may send reports, applications, and other written correspondence to AIRRichland@doh.wa.gov.

[Statutory Authority: RCW 70.98.050 and 70.98.080. WSR 18-01-083, § 246-247-010, filed 12/15/17, effective 1/15/18. Statutory Authority: RCW 70.98.050. WSR 04-18-094, § 246-247-010, filed 9/1/04, effective 10/2/04; WSR 98-13-037, § 246-247-010, filed 6/8/98, effective 7/9/98. Statutory Authority: Chapters 70.98 and 70.94 RCW and chapter 173-480 WAC. WSR 94-07-010, § 246-247-010, filed 3/4/94, effective 4/4/94. Statutory Authority: RCW 43.70.040. WSR 91-02-049 (Order 121), recodified as § 246-247-010, filed 12/27/90, effective 1/31/91. Statutory Authority: RCW 70.98.080. WSR 87-01-031 (Order 2450), § 402-80-020, filed 12/11/86.]

WAC 246-247-020 Exemptions. (1) The following types of facilities or sources of radiation are exempt from the requirements of this chapter because they release no airborne radioactivity, or they prima facie comply with the standards in WAC 246-247-040, or they are already adequately regulated under other requirements:

- (a) Users of only sealed sources;
- (b) Sealed sources;
- (c) Accelerators less than 200 MeV;
- (d) Nuclear-powered vessels underway or moored dockside unless under a maintenance condition with a potential-to-emit;
- (e) Uranium mill tailings piles disposed of under 40 C.F.R. Part 192 (effective July 1, 2017).

(2) Exemption determinations.

(a) Any exemptions shall be consistent with 40 C.F.R. 61. No exemptions from the standards in WAC 246-247-040 will be granted.

(b) A nonfederal facility may request exemption from some of the requirements of WAC 246-247-060 and 246-247-075 if the potential-to-emit, for the emission unit(s) under consideration, results in compliance at level I of the COMPLY computer code or level I of the NCRP's Commentary No. 3, or equivalent as approved by the department.

(c) A federal facility may request exemption from some of the requirements of WAC 246-247-060 and 246-247-075 if the potential-to-emit, for the emission unit(s) under consideration, results in a TEDE to the MEI from all pathways less than 0.1 mrem/yr.

(d) The facility shall submit all the data necessary to make the exemption determinations of (b) and (c) of this subsection. The department shall determine if any exemptions apply.

(e) Commercial nuclear power plants may request exemption from some of the requirements of this chapter in order to minimize dual regulation with the NRC.

(3) The department may require a facility with exempt emission units to submit a radioactive air emissions report to confirm compliance with applicable standards. The department reserves the right to conduct inspections and audits of the facility to confirm the status of its exempt emission units.

(4) Naturally occurring airborne radionuclides are exempt from the requirements of this chapter unless the concentrations or rates of emissions have been enhanced by industrial processes.

[Statutory Authority: RCW 70.98.050 and 70.98.080. WSR 18-01-083, § 246-247-020, filed 12/15/17, effective 1/15/18. Statutory Authority: Chapters 70.98 and 70.94 RCW and chapter 173-480 WAC. WSR 94-07-010, § 246-247-020, filed 3/4/94, effective 4/4/94. Statutory Authority: RCW 43.70.040. WSR 91-02-049 (Order 121), recodified as § 246-247-020, filed 12/27/90, effective 1/31/91. Statutory Authority: RCW 70.98.080. WSR 87-01-031 (Order 2450), § 402-80-030, filed 12/11/86.]

WAC 246-247-030 Definitions, abbreviations, and acronyms. The definitions, abbreviations, and acronyms in this section and WAC 246-220-010, apply throughout this chapter unless the context clearly indicates otherwise.

(1) "Abatement technology" means any mechanism, process or method that has the potential to reduce public exposure to radioactive air emissions. Abatement control features include automatic mechanisms and administrative controls used in the operation and control of abatement technology from entry of radionuclides into the ventilated vapor space to release to the environment.

(2) "Administrative control" means any policy or procedure that limits the emission of radionuclides.

(3) "ALARA" means as low as reasonably achievable making every reasonable effort to maintain exposures to radiation as far below the dose standards in this chapter as is practical, consistent with the purpose for which the licensed activity is undertaken, taking into account the state of technology, the economics of improvements in relation to the state of technology, the economics of improvements in relation to benefits to the public health and safety, and other socioeconomic considerations, and in relation to the utilization of nuclear energy, ionizing radiation, and radioactive materials in the public interest. See WAC 246-220-007.

(4) "As low as reasonably achievable control technology" (ALARACT) means the use of radionuclide emission control technology that achieves emission levels that are consistent with the philosophy of ALARA. ALARACT compliance is demonstrated by evaluating the existing control system and proposed nonsignificant modifications in relation to applicable technology standards and other control technologies operated successfully in similar applications. In no event shall application of ALARACT result in emissions of radionuclides that could cause exceedance of the applicable standards of WAC 246-247-040. See the definition of ALARA in this section. Note that ALARACT is equivalent to, but replaces, RACT in the May 7, 1986, version of chapter 173-480 WAC.

(5) "Annual possession quantity" means the sum of the quantity of a radionuclide on hand at the beginning of the calendar year and the quantity of that radionuclide received or produced during the calendar year.

(6) "Best available radionuclide control technology" (BARCT) means technology that will result in a radionuclide emission limitation based on the maximum degree of reduction for radionuclides from any proposed newly constructed or significantly modified emission units that the licensing authority determines is achievable on a case-by-case basis. A BARCT compliance demonstration must consider energy, environmental, and economic impacts, and other costs through examination of production processes, and available methods, systems, and techniques for the control of radionuclide emissions. A BARCT compli-

ance demonstration is the conclusion of an evaluative process that results in the selection of the most effective control technology from all known feasible alternatives. In no event shall application of BARCT result in emissions of radionuclides that could exceed the applicable standards of WAC 246-247-040. Control technology that meets BARCT requirements also meets ALARACT requirements. See WAC 173-480-030 and 246-247-120.

(7) "Committed effective dose equivalent" (CEDE) means the sum of the products of absorbed dose from internally deposited radionuclides and appropriate factors to account for differences in biological effectiveness due to the quality of radiation and its distribution in the body of reference man over a fifty-year period.

(8) "Construction" means fabrication, erection, or installation of a new building, structure, plant, process, or operation within a facility that has the potential to emit airborne radionuclides. Construction includes activities of a permanent nature aimed at completion of the emission unit, such as pouring concrete, putting in a foundation, or installing utilities directly related to the emission unit. It does not include preliminary activities such as tests to determine site suitability, equipment procurement and storage, site clearing and grading, and the construction of ancillary buildings.

(9) "Decommissioning" means actions taken to reduce or eliminate the potential public health and safety impacts of a building, structure, or plant that has permanently ceased operations, including, but not limited to, actions such as decontamination, demolition, and disposition.

(10) "Emission unit" means any single location that emits or has the potential to emit airborne radioactive material. This may be a point source, nonpoint source, or source of fugitive emissions.

(11) "Facility" means all buildings, structures, plants, processes, and operations on one contiguous site under control of the same owner or operator.

(12) "Fugitive emissions" are radioactive air emissions which do not and could not reasonably pass through a stack, vent, or other functionally equivalent structure, and which are not feasible to directly measure and quantify.

(13) "Indication device" means any method or apparatus used to monitor, or to enable monitoring, the operation of abatement controls or the potential or actual radioactive air emissions.

(14) "License" means a radioactive air emissions license issued by the department with requirements and limitations listed therein. Compliance with the license requirements are determined and enforced by the department. The license will be incorporated as an applicable requirement in the air operating permit issued by the department of ecology or a local air pollution control authority when the department of ecology or a local air pollution control authority issues an air operating permit.

(15) "Maximally exposed individual" (MEI) means any member of the public (real or hypothetical) who abides or resides in an unrestricted area, and may receive the highest TEDE from the emission unit(s) under consideration, taking into account all exposure pathways affected by the radioactive air emissions.

(16) "Modification" means any physical change in, or change in the method of operation of, an emission unit that could increase the amount of radioactive materials emitted or may result in the emission of any radionuclide not previously emitted. This definition includes the cleanup of land contaminated with radioactive material, the decom-

missioning of buildings, structures, or plants where radioactive contamination exists, and changes that will cause an increase in the emission unit's operating design capacity. This definition excludes routine maintenance, routine repair, replacement-in-kind, any increases in the production rate or hours of operation, provided the emission unit does not exceed the release quantities specified in the license application or the operating design capacity approved by the department, addition of abatement technology as long as it is not less environmentally beneficial than existing, approved controls, and changes that result in an increase in the quantity of emissions of an existing radionuclide that will be offset by an equal or greater decrease in the quantity of emissions of another radionuclide that is deemed at least as hazardous with regard to its TEDE to the MEI.

(17) "Monitoring" means the measurement of radioactive material released to the ambient air by means of an in-line radiation detector, or by the withdrawal of representative samples from the effluent stream. Ambient air measurements may be acceptable for nonpoint sources and fugitive emissions.

(18) "Nonpoint source" is a location at which radioactive air emissions originate from an area, such as contaminated ground above a near-surface waste disposal unit, whose extent may or may not be well-defined.

(19) "Notice of construction" (NOC) is an application submitted to the department by an applicant that contains information required by WAC 246-247-060 for proposed construction or modification of a registered emission unit(s), or for modification of an existing, unregistered emission unit(s).

(20) "Point source" is a discrete, well-defined location from which radioactive air emissions originate, such as a stack, vent, or other functionally equivalent structure.

(21) "Potential-to-emit" means the rate of release of radionuclides from an emission unit based on the actual or potential discharge of the effluent stream that would result if all abatement control equipment did not exist, but operations are otherwise normal. Determine the potential-to-emit by one of the following methods:

(a) Multiply the annual possession quantity of each radionuclide by the release fraction for that radionuclide, depending on its physical state. Use the following release fractions:

(i) 1 for gases;

(ii) 10^{-3} for liquids or particulate solids; and

(iii) 10^{-6} for solids.

Determine the physical state for each radionuclide by considering its chemical form and the highest temperature to which it is subjected. Use a release fraction of one if the radionuclide is subjected to temperatures at or above its boiling point; use a release fraction of 10^{-3} if the radionuclide is subjected to temperatures at or above its melting point, but below its boiling point. If the chemical form is not known, use a release fraction of one for any radionuclide that is heated to a temperature of one hundred degrees Celsius or more, boils at a temperature of one hundred degrees Celsius or less, or is intentionally dispersed into the environment. Other release fractions may be used only with the department's approval; or

(b) Perform a back-calculation using measured emission rates and *in situ* measurements of the control equipment efficiencies, as approved by the department; or

(c) Measure the quantities of radionuclides captured in each control device, coupled with *in situ* measurements of the control equipment efficiencies, as approved by the department; or

(d) Sample the effluent upstream from all control devices, as approved by the department; or

(e) Use an alternative method approved by the department.

(22) "Replacement-in-kind" means the substitution of existing systems, equipment, components, or devices of an emission unit's control technology with systems, equipment, components, or devices with equivalent, or better, performance specifications that will perform the same function(s).

(23) "Routine" means:

(a) Maintenance, repair, or replacement-in-kind performed on systems, equipment, components, or devices of an emission unit's abatement technology as a planned part of an established inspection, maintenance, or quality assurance program that does not increase the emission unit's operating design capacity; or

(b) Normal, day-to-day operations of a facility.

(24) "Sealed source" means radioactive material that is permanently bonded or fixed in a capsule or matrix, or radioactive material in airtight containers, designed to prevent release and dispersal of the radioactive material under the most severe conditions encountered in normal use and handling.

(25) "Significant" means the potential-to-emit airborne radioactivity at a rate that could increase the TEDE to the MEI by at least 1.0 mrem/yr as a result of a proposed modification.

(26) "Total effective dose equivalent" (TEDE) means the sum of the dose equivalent due to external exposures and the CEDE due to internal exposures.

(27) "Uranium fuel cycle" means the operations of milling uranium ore, chemical conversion of uranium, isotopic enrichment of uranium, fabrication of uranium fuel, generation of electricity in a nuclear power plant that uses uranium fuel, and reprocessing of spent uranium fuel, to the extent that these operations solely support the production of electrical power for public use. Excluded are mining operations, waste disposal sites, transportation of any radioactive material, and the reuse of recovered nonuranium special nuclear and by-product materials from the cycle.

[Statutory Authority: RCW 70.98.050 and 70.98.080. WSR 18-01-083, § 246-247-030, filed 12/15/17, effective 1/15/18; WSR 14-11-012, § 246-247-030, filed 5/8/14, effective 6/8/14. Statutory Authority: Chapters 70.98 and 70.94 RCW and chapter 173-480 WAC. WSR 94-07-010, § 246-247-030, filed 3/4/94, effective 4/4/94. Statutory Authority: RCW 43.70.040. WSR 91-02-049 (Order 121), recodified as § 246-247-030, filed 12/27/90, effective 1/31/91. Statutory Authority: Chapter 70.98 RCW. WSR 88-17-060 (Order 2671), § 402-80-040, filed 8/17/88. Statutory Authority: RCW 70.98.080. WSR 87-01-031 (Order 2450), § 402-80-040, filed 12/11/86.]

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, 2019, 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 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.]

WAC 246-247-040 General standards. (1) Standards for radioactive air emissions in the state of Washington are contained in WAC 173-480-040, 173-480-050, and 173-480-060. Additional standards for emissions of radionuclides other than radon from United States Department of Energy facilities and for radionuclide emissions from federal facilities other than United States Nuclear Regulatory Commission (NRC) licensees are contained in 40 C.F.R. Part 61, subparts H and I. Additional standards for NRC licensees are contained in 10 C.F.R. 20.1101 (effective August 24, 1998). In accordance with WAC 173-480-050(2), the department shall enforce the most stringent standard in effect, notwithstanding any agreement between EPA and any other agency, including those agreements made pursuant to 42 U.S.C. 7412 (d) (9).

(2) In addition to the radioactive air emission standards of subsection (1) of this section, the department's radioactive materials

licensees shall comply with the limitations on radioactive air emissions contained in WAC 246-221-070.

(3) All new construction and significant modifications of emission units commenced after August 10, 1988 (the date this chapter originally became effective) shall utilize BARCT (see Appendix B).

(4) All existing emission units and nonsignificant modifications shall utilize ALARACT (see Appendix C).

(5) In order to implement these standards, the department may set limits on emission rates for specific radionuclides from specific emission units and set requirements and limitations on the operation of the emission unit(s) as specified in a license.

(6) All emissions of radionuclides, including those due to emergency conditions resulting from startup, shutdown, maintenance activities, or process upsets are subject to the standards of this section and, therefore, subject to the enforcement actions of WAC 246-247-100.

[Statutory Authority: RCW 70.98.050 and 70.98.080. WSR 18-01-083, § 246-247-040, filed 12/15/17, effective 1/15/18. Statutory Authority: RCW 70.98.050. WSR 04-18-094, § 246-247-040, filed 9/1/04, effective 10/2/04. Statutory Authority: Chapters 70.98 and 70.94 RCW and chapter 173-480 WAC. WSR 94-07-010, § 246-247-040, filed 3/4/94, effective 4/4/94. Statutory Authority: RCW 43.70.040. WSR 91-02-049 (Order 121), recodified as § 246-247-040, filed 12/27/90, effective 1/31/91. Statutory Authority: RCW 70.98.080. WSR 87-01-031 (Order 2450), § 402-80-050, filed 12/11/86.]

WAC 246-247-060 Applications, registration and licensing. This section describes the information requirements for approval to construct, modify, and operate an emission unit. Any notice of construction (NOC) requires the submittal of the information listed in Appendix A. Complex projects may require additional information. The applicant should contact the department early in the conceptual design phase for guidance on applicable control technologies to consider.

Appendices B and C outline the procedures to demonstrate compliance with the BARCT and ALARACT standards. Based on the Appendix A information provided, the department may advise the applicant which subset of technologies to consider as candidates for meeting BARCT or ALARACT requirements.

For those facilities subject to the operating permit regulations in chapter 173-401 WAC, the radioactive air emissions license will be incorporated as an applicable portion of the air operating permit issued by the department of ecology or a local air pollution control authority. The department will be responsible for determining the facility's compliance with and enforcing the requirements of the radioactive air emissions license.

(1) Requirements for new construction or modification of emission units.

(a) Early in the design phase, the applicant shall submit a NOC containing the information required in Appendix A.

(b) Within thirty days of receipt of the NOC, the department shall inform the applicant if additional information is required. The department may determine, on the basis of the information submitted, that the requirements of BARCT or ALARACT have been met, or may require the applicant to submit a BARCT or ALARACT demonstration compatible with Appendix B or C, respectively.

(c) Within sixty days of receipt of all required information, the department shall issue an approval or denial to construct. The department may require changes to the final proposed control technology.

(d) The applicant may request a phased approval process by so stating and submitting a limited application. The department may grant a conditional approval to construct for such activities as would not preclude the construction or installation of any control or monitoring equipment required after review of the completed application.

(e) The department shall issue a license, or amend an existing license, authorizing operation of the emission unit(s) when the proposed new construction or modification is complete. For facilities subject to the air operating permit requirements of chapter 173-401 WAC, the license shall become part of the air operating permit issued by the department of ecology or a local air pollution control authority. For new construction, this action shall constitute registration of the emission unit(s).

(2) Requirements for modification of unregistered emission units that are not exempt from these regulations.

(a) The applicant shall submit an application containing the information required in Appendix A.

(b) Within thirty days of receipt of the application, the department shall inform the applicant if additional information is required. The department may determine, on the basis of the information submitted, that the requirements of BARCT or ALARACT have been met, or may require the applicant to submit a BARCT or ALARACT demonstration compatible with Appendix B or C, respectively.

(c) Within sixty days of receipt of all required information, the department shall issue or amend the license. For facilities subject to the air operating permit requirements of chapter 173-401 WAC, the license shall become part of the air operating permit issued by the department of ecology or a local air pollution control authority. This action shall constitute registration of the emission unit(s). A determination of noncompliance may result in the issuance of a notice of violation.

(d) The department reserves the right to require the owner of an existing, unregistered emission unit to make modifications necessary to comply with the applicable standards of WAC 246-247-040.

(3) If an emission unit is in violation of any standards contained in WAC 246-247-040, the facility shall either submit a compliance plan which describes how it intends to achieve compliance with the standards, or cease operation of the emission unit(s). The facility shall submit the compliance plan within forty-five days of the notice of violation. The cessation of operation of the emission unit(s) shall not necessarily exempt the facility from the requirements of this chapter if active or passive ventilation and radioactive air emission controls will still be required. The department reserves the right to take further enforcement action, if necessary, in accordance with WAC 246-247-100.

(4) The facility shall notify the department at least seven calendar days prior to any planned preoperational tests of new or modified emission units that involve emissions control, monitoring, or containment systems of the emission unit(s). The department reserves the right to witness or require preoperational tests involving the emissions control, monitoring, or containment systems of the emission unit(s).

(5) The license shall specify the requirements and limitations of operation to assure compliance with this chapter. The facility shall comply with the requirements and limitations of the license.

(6) All radioactive air emissions licenses issued by the department, except those issued to radioactive materials licensees, shall have an expiration date of five years from date of issuance or as specified in the air operating permit. For radioactive material licensees, the requirements and limitations for the operation of emission units shall be incorporated into their radioactive materials license, and shall expire when the radioactive materials license expires.

(7) Each federal facility that comes under the authority of this chapter shall hold one license for each site, base, or installation. When applicable, the license shall be part of the facility's air operating permit.

(8) Facilities may request a single categorical license which identifies limits and conditions of operation for similar multipurpose temporary or portable emission units. When applicable, the license shall be part of the facility's air operating permit.

(9) All facilities with licensed emission units, except for radioactive materials licensees, shall submit a request to the department for renewal of their radioactive air emissions license at least sixty days prior to expiration of the license or as required by the air operating permit. All renewal requests shall include a summary of the operational status of all emission units, the status of facility compliance with the standards of WAC 246-247-040, and the status of any corrective actions necessary to achieve compliance with the requirements of this chapter. Facilities with licensed emission units that also hold a radioactive materials license issued by the department shall submit this information along with their radioactive material license renewal submittal. If the department is unable to renew a radioactive air emissions license before its expiration date, the existing license, with all of its requirements and limitations, remains in force until the department either renews or revokes the license.

(10) For commercial nuclear power plants or any other thermal energy facility subject to chapter 80.50 RCW and to the requirements of this chapter, the radioactive air emissions license and amendments thereto shall be issued pursuant to a memorandum of agreement between the energy facility site evaluation council (EFSEC) and the department.

[Statutory Authority: RCW 70.98.050 and 70.98.080. WSR 18-01-083, § 246-247-060, filed 12/15/17, effective 1/15/18. Statutory Authority: Chapters 70.98 and 70.94 RCW and chapter 173-480 WAC. WSR 94-07-010, § 246-247-060, filed 3/4/94, effective 4/4/94. Statutory Authority: RCW 43.70.040. WSR 91-02-049 (Order 121), recodified as § 246-247-060, filed 12/27/90, effective 1/31/91. Statutory Authority: Chapter 70.98 RCW. WSR 88-17-060 (Order 2671), § 402-80-065, filed 8/17/88.]

WAC 246-247-065 Fees. (1) All facilities under the authority of this chapter shall submit fees in accordance with WAC 246-254-160.

(2) Those facilities required by WAC 246-254-160(2) to submit an application fee, shall submit the fee with the application.

[Statutory Authority: Chapters 70.98 and 70.94 RCW and chapter 173-480 WAC. WSR 94-07-010, § 246-247-065, filed 3/4/94, effective 4/4/94.]

WAC 246-247-075 Monitoring, testing, and quality assurance. (1)

The department may, upon request by a nonfederal licensee, authorize provisions specific to that nonfederal licensee, other than those already set forth in WAC 246-247-075 for nonfederal emission unit monitoring, testing, or quality assurance, so long as the department finds reasonable assurance of compliance with the performance objectives of this chapter.

(2) Equipment and procedures used for the continuous monitoring of radioactive air emissions shall conform, as applicable, to the guidance contained in ANSI N13.1, ANSI N42.18, ANSI N323, ANSI N317, reference methods 1, 1A, 2, 2A, 2C, 2D, 4, 5, and 17 of 40 C.F.R. Part 60, Appendix A, 40 C.F.R. Part 52, Appendix E, and any other methods approved by the department.

(3) The operator of an emission unit with a potential-to-emit of less than 0.1 mrem/yr TEDE to the MEI may estimate those radionuclide emissions, in lieu of monitoring, in accordance with 40 C.F.R. 61 Appendix D, or other procedure approved by the department. The department may require periodic confirmatory measurements (e.g., grab samples) during routine operations to verify the low emissions. Methods to implement periodic confirmatory monitoring shall be approved by the department.

(4) The department may allow a nonfederal facility to use alternative monitoring procedures or methods if continuous monitoring is not a feasible or reasonable requirement.

(5) The following types of facilities shall determine radionuclide emissions in accordance with either a methodology referenced in subsections (1) through (4) of this section or the respective document referenced below:

(a) Nuclear power reactors licensed by the NRC: Offsite Dose Calculation Manual;

(b) Fuel fabrication plants licensed by the NRC: NRC's Regulatory Guide 4.16, dated December 1985;

(c) Uranium mills that are processing material: NRC's Regulatory Guide 4.14, dated April 1980.

(6) Licensed facilities shall conduct and document a quality assurance program. Except for those types of facilities specified in subsection (5) of this section, the quality assurance program shall be compatible with applicable national standards such as ANSI/ASME NQA-1-1988, ANSI/ASME NQA-2-1986, QA/R-2, and QA/R-5.

(7) Those types of facilities specified in subsection (5) of this section shall conduct and document a quality assurance program compatible with either the applicable national standards referenced in subsection (6) of this section or the NRC's Regulatory Guide 4.15, dated February 1979.

(8) Facilities shall monitor nonpoint and fugitive emissions of radioactive material.

(9) The department may conduct an environmental surveillance program to ensure that radiation doses to the public from emission units are in compliance with applicable standards. The department may require the operator of any emission unit to conduct stack sampling, ambient air monitoring, or other testing as necessary to demonstrate compliance with the standards in WAC 246-247-040.

(10) The department may require the owner or operator of an emission unit to make provision, at existing emission unit sampling stations, for the department to take split or collocated samples of the emissions.

(11) The planning for any proposed new construction or significant modification of the emission unit must address accidental releases with a probability of occurrence during the expected life of the emission unit of greater than one percent.

(12) All facilities must be able to demonstrate that appropriate supervisors and workers are adequately trained in the use and maintenance of emission control and monitoring systems, and in the performance of associated test and emergency response procedures.

(13) All facilities must be able to demonstrate the reliability and accuracy of the radioactive air emissions monitoring data.

(14) A facility owner or operator, or any other person may not render inaccurate any monitoring device or method required under chapter 70.98 RCW, or any ordinance, resolution, regulation, permit, or order in force pursuant thereto.

[Statutory Authority: RCW 70.98.050, 70.98.080(5) and 40 C.F.R. 63.91. WSR 19-04-042, § 246-247-075, filed 1/29/19, effective 3/1/19. Statutory Authority: RCW 70.98.050 and 70.98.080(5). WSR 12-01-071, § 246-247-075, filed 12/19/11, effective 1/19/12. Statutory Authority: RCW 70.98.050. WSR 04-18-094, § 246-247-075, filed 9/1/04, effective 10/2/04. Statutory Authority: Chapters 70.98 and 70.94 RCW and chapter 173-480 WAC. WSR 94-07-010, § 246-247-075, filed 3/4/94, effective 4/4/94.]

WAC 246-247-080 Inspections, reporting, and recordkeeping. (1)

The department reserves the right to inspect and audit all construction activities, equipment, operations, documents, data, and other records related to compliance with the requirements of this chapter. The department may require a demonstration of ALARACT at any time.

(2) All reporting and recordkeeping requirements of 40 C.F.R. 61, subparts H and I, are adopted by reference, as applicable as specified by the referenced subparts. The department may, upon request by a non-federal licensee, authorize provisions specific to that nonfederal licensee, other than those already set forth in WAC 246-247-080 for non-federal emission unit inspections, reporting, or recordkeeping, so long as the department finds reasonable assurance of compliance with the performance objectives of this chapter.

(3) The facility shall annually submit to the department the information requirements adopted in subsection (2) of this section, as applicable, along with the following additional information, as applicable:

- (a) The results of emission measurements for those emission units subject only to periodic confirmatory measurements;
- (b) Wind rose or joint frequency table;
- (c) Annual average ambient temperature;
- (d) Annual average emission unit gas temperature, if available;
- (e) Annual total rainfall;
- (f) Annual average emission unit flow rate and total volume of air released during the calendar year.

If this additional information is available in another annual report, the facility may instead provide a copy of that report along with the information requirements in this subsection. Annual reports are due by June 30th for the previous calendar year's operations.

(4) Any report or application that contains proprietary or procurement-sensitive information shall be submitted to the department with those portions so designated. The department shall hold this in-

formation confidential, unless required to release the information pursuant to laws, regulations, or court order.

(5) The facility shall notify the department within twenty-four hours of any shutdown, or of any transient abnormal condition lasting more than four hours or other change in facility operations which, if allowed to persist, would result in emissions of radioactive material in excess of applicable standards or license requirements. If requested by the department, the facility shall submit a written report within ten days including known causes, corrective actions taken, and any preventive measures taken or planned to minimize or eliminate the chance of recurrence.

(6) The facility shall file a report of closure with the department whenever operations producing emissions of radioactive material are permanently ceased at any emission unit (except temporary emission units) regulated under this chapter. The closure report shall indicate whether, despite cessation of operations, there is still a potential for radioactive air emissions and a need for an active or passive ventilation system with either an emission control or monitoring devices. If decommissioning is planned and will constitute a modification, a NOC is required, as applicable, in accordance with WAC 246-247-060.

(7) The facility shall maintain a log for each emission unit that has received categorical approval under WAC 246-247-060(8). The log shall contain records of important operations parameters including the date, location, and duration of the release, measured or calculated radionuclide concentrations, the type of emissions (liquid, gaseous, solid), and the type of emission control and monitoring equipment.

(8) The facility shall maintain readily retrievable storage areas for all records and documents related to, and which may help establish compliance with, the requirements of this chapter. The facility shall keep these records available for department inspection for at least five years.

(9) The facility shall ensure all emission units are fully accessible to department inspectors. In the event the hazards associated with accessibility to a unit require training, restrictions, or other requirements for entry, the facility owner or operator shall inform the department, prior to arrival, of those restrictions or requirements. The owner or operator shall be responsible for providing the necessary training, escorts, and support services to allow the department to inspect the facility.

(10) The facility shall make available, in a timely manner, all documents requested by the department for review. The facility shall allow the department to review documents in advance of an inspection. The facility shall allow access to classified documents by representatives of the department with the appropriate security clearance and a demonstrable need-to-know.

(11) The facility shall respond in writing in a timely manner, or within a time limit set by the department, to inspection results which require the facility to implement corrective actions or any other actions so directed by the department.

(12) A facility owner or operator, or any other person may not make any false material statement, representation, or certification in any form, notice, or report required under chapter 70.98 RCW, or any ordinance, resolution, regulation, permit, or order in force pursuant thereto.

[Statutory Authority: RCW 70.98.050 and 70.98.080. WSR 18-01-083, § 246-247-080, filed 12/15/17, effective 1/15/18. Statutory Authority:

RCW 70.98.050 and 70.98.080(5). WSR 12-01-071, § 246-247-080, filed 12/19/11, effective 1/19/12. Statutory Authority: RCW 70.98.050. WSR 04-18-094, § 246-247-080, filed 9/1/04, effective 10/2/04. Statutory Authority: Chapters 70.98 and 70.94 RCW and chapter 173-480 WAC. WSR 94-07-010, § 246-247-080, filed 3/4/94, effective 4/4/94. Statutory Authority: RCW 43.70.040. WSR 91-02-049 (Order 121), recodified as § 246-247-080, filed 12/27/90, effective 1/31/91. Statutory Authority: RCW 70.98.080. WSR 87-01-031 (Order 2450), § 402-80-080, filed 12/11/86.]

WAC 246-247-085 Compliance determination for existing emission units and facilities. (1) All procedures for determining compliance with the dose equivalent standards of 40 C.F.R. 61, subparts H and I, are adopted by reference, as applicable as specified by the referenced subparts. The department may, upon request of a nonfederal licensee, authorize provisions specific to that nonfederal licensee, other than those already set forth in WAC 246-247-085 for determining compliance with appropriate dose equivalent standards by nonfederal emission units, so long as the department finds reasonable assurance of compliance with the performance objectives of this chapter.

(2) Facilities subject to 40 C.F.R. 61 shall use computer codes or procedures approved by the EPA to determine the TEDE to the MEI; all other facilities shall use computer codes or procedures approved by the department.

(3) The determination of compliance with the dose equivalent standard of WAC 246-247-040 shall include all radioactive air emissions resulting from routine and nonroutine operations for the past calendar year.

[Statutory Authority: RCW 70.98.050 and 70.98.080. WSR 18-01-083, § 246-247-085, filed 12/15/17, effective 1/15/18. Statutory Authority: RCW 70.98.050. WSR 04-18-094, § 246-247-085, filed 9/1/04, effective 10/2/04. Statutory Authority: Chapters 70.98 and 70.94 RCW and chapter 173-480 WAC. WSR 94-07-010, § 246-247-085, filed 3/4/94, effective 4/4/94.]

WAC 246-247-100 Enforcement actions. (1) In accordance with RCW 70.94.422, the department may take any of the following actions to enforce compliance with the provisions of this chapter:

(a) Notice of violation and compliance order (RCW 70.94.332).

(b) Restraining order or temporary or permanent injunction (RCW 70.94.425; also RCW 70.98.140).

(c) Penalty: Either fine or imprisonment, or both, for each separate violation (RCW 70.94.430).

(d) Civil penalty: Up to ten thousand dollars for each day of continued noncompliance (RCW 70.94.431 (1) through (7)).

(e) Assurance of discontinuance (RCW 70.94.435).

(2) The department, in accordance with RCW 70.98.050 (4)(1), may issue subpoenas in order to compel either the attendance of witnesses or production of records, or both, in connection with any adjudicative or other administrative proceeding.

(3) The department, in accordance with RCW 70.98.160, may impound sources of ionizing radiation.

(4) The secretary of the department, in accordance with RCW 43.70.190, is authorized to bring an action to prohibit a violation or

a threatened violation of any department rules or regulation, or to bring any legal proceeding authorized by law to a county superior court.

(5) Any party, against which an enforcement action is brought by the department, has the right to submit an application for the adjudicative process in accordance with chapter 246-10 WAC and chapter 34.05 RCW.

[Statutory Authority: RCW 70.98.050 and 70.98.080. WSR 18-01-083, § 246-247-100, filed 12/15/17, effective 1/15/18. Statutory Authority: Chapters 70.98 and 70.94 RCW and chapter 173-480 WAC. WSR 94-07-010, § 246-247-100, filed 3/4/94, effective 4/4/94. Statutory Authority: RCW 43.70.040. WSR 91-02-049 (Order 121), recodified as § 246-247-100, filed 12/27/90, effective 1/31/91. Statutory Authority: RCW 70.98.080. WSR 87-01-031 (Order 2450), § 402-80-100, filed 12/11/86.]

WAC 246-247-110 Appendix A—Application information requirements. (1) Name and address of the facility, and location (latitude and longitude) of the emission unit(s).

(2) Name, title, address, and phone number of the responsible manager.

(3) Identify the type of proposed action for which this application is submitted:

(a) Construction of new emission unit(s);

(b) Modification of existing emission unit(s); identify whether this is a significant modification;

(c) Modification of existing unit(s), unregistered.

(4) If this project is subject to the requirements of the State Environmental Policy Act (SEPA) contained in chapter 197-11 WAC, provide the name of the lead agency, lead agency contact person, and their phone number.

(5) Describe the chemical and physical processes upstream of the emission unit(s).

(6) Describe the existing and proposed (as applicable) abatement technology. Describe the basis for the use of the proposed system. Include expected efficiency of each control device, and the annual average volumetric flow rate(s) in meters³/sec for the emission unit(s).

(7) Provide conceptual drawings showing all applicable control technology components from the point of entry of radionuclides into the vapor space to release to the environment.

(8) Identify each radionuclide that could contribute greater than ten percent of the potential-to-emit TEDE to the MEI, or greater than 0.1 mrem/yr potential-to-emit TEDE to the MEI.

(9) Describe the effluent monitoring system for the proposed control system. Describe each piece of monitoring equipment and its monitoring capability, including detection limits, for each radionuclide that could contribute greater than ten percent of the potential-to-emit TEDE to the MEI, or greater than 0.1 mrem/yr potential-to-emit TEDE to the MEI, or greater than twenty-five percent of the TEDE to the MEI, after controls. Describe the method for monitoring or calculating those radionuclide emissions. Describe the method with detail sufficient to demonstrate compliance with the applicable requirements.

(10) Indicate the annual possession quantity for each radionuclide.

(11) Indicate the physical form of each radionuclide in inventory: Solid, particulate solids, liquid, or gas.

(12) Indicate the release form of each radionuclide in inventory: Particulate solids, vapor, or gas. Give the chemical form and ICRP 30 solubility class, if known.

(13) Release rates.

(a) New emission unit(s): Give predicted release rates without any emissions control equipment (the potential-to-emit) and with the proposed control equipment using the efficiencies described in subsection (6) of this section.

(b) Modified emission unit(s): Give predicted release rates without any emissions control equipment (the potential-to-emit) and with the existing and proposed control equipment using the efficiencies described in subsection (6) of this section. Provide the latest year's emissions data or emissions estimates.

In all cases, indicate whether the emission unit is operating in a batch or continuous mode.

(14) Identify the MEI by distance and direction from the emission unit(s). The MEI is determined by considering distance, windrose data, presence of vegetable gardens, and meat or milk producing animals at unrestricted areas surrounding the emission unit.

(15) Calculate the TEDE to the MEI using an approved procedure (see WAC 246-247-085). For each radionuclide identified in subsection (8) of this section, determine the TEDE to the MEI for existing and proposed emission controls, and without any emission controls (the potential-to-emit) using the release rates from subsection (13) of this section. Provide all input data used in the calculations.

(16) Provide cost factors for construction, operation, and maintenance of the proposed control technology components and system, if a BARCT or ALARACT demonstration is not submitted with the NOC.

(17) Provide an estimate of the lifetime for the facility process with the emission rates provided in this application.

(18) Indicate which of the following control technology standards have been considered and will be complied with in the design and operation of new or modified emission unit(s) described in this application:

ASME/ANSI AG-1, Code on Nuclear Air and Gas Treatment (where there are conflicts in standards with the other listed references, this standard shall take precedence)

ASME/ANSI N509, Nuclear Power Plant Air-Cleaning Units and Components

ASME/ANSI N510, Testing of Nuclear Air Treatment Systems

ANSI/ASME NQA-1, Quality Assurance Program Requirements for Nuclear Facilities

40 C.F.R. 60, Appendix A, Methods 1, 1A, 2, 2A, 2C, 2D, 4, 5, and 17

ANSI/HPS N13.1-1999, Sampling and Monitoring Releases of Airborne Radioactive Substances from the Stacks and Ducts of Nuclear Facilities if the unit's potential-to-emit exceeds 0.1 mrem/yr TEDE to the MEI and the unit is required to meet ANSI/HPS N13.1-1999 under federal regulations.

ANSI N13.1-1969, Guide to Sampling Airborne Radioactive Materials in Nuclear Facilities if the unit's potential-to-emit exceeds 0.1 mrem/yr TEDE to the MEI and the unit is not required to meet ANSI/HPS N13.1-1999 under federal regulations.

For each standard not so indicated, give reason(s) to support adequacy of the design and operation of the emission unit(s) as proposed.

[Statutory Authority: RCW 70.98.050. WSR 04-18-094, § 246-247-110, filed 9/1/04, effective 10/2/04. Statutory Authority: Chapters 70.98 and 70.94 RCW and chapter 173-480 WAC. WSR 94-07-010, § 246-247-110, filed 3/4/94, effective 4/4/94.]

WAC 246-247-120 Appendix B—BARCT compliance demonstration.

Purpose. A BARCT demonstration is used to choose control technologies for the mitigation of emissions of radioactive material from new emission units or significant modifications to emission units. The bases for the BARCT demonstration requirements are the BARCT standard given in WAC 246-247-040, and the definition of BARCT given in WAC 246-247-030. This procedure incorporates certain implementing criteria that enable the department to evaluate a facility's compliance with the BARCT standard. It is the applicant's responsibility to demonstrate the effectiveness of their BARCT determination to the department. The facility should contact the department at the conceptual design phase for guidance on the BARCT demonstration requirements. The department may adjust this demonstration procedure on a case-by-case basis, as needed, to ensure compliance with the substantive standard.

Scope. The BARCT demonstration includes the abatement technology and indication devices that demonstrate the effectiveness of the abatement technology from entry of radionuclides into the ventilated vapor space to release to the environment. The applicant shall evaluate all available control technologies that can reduce the level of radionuclide emissions.

Technology Standards. The BARCT demonstration and the emission unit design and construction must meet, as applicable, the technology standards shown below if the unit's potential-to-emit exceeds 0.1 mrem/yr TEDE to the MEI. If the potential-to-emit is below this value, the standards must be met only to the extent justified by a cost/benefit evaluation.

ASME/ANSI AG-1, Code on Nuclear Air and Gas Treatment (where there are conflicts in standards with the other listed references, this standard shall take precedence)

ASME/ANSI N509, Nuclear Power Plant Air-Cleaning Units and Components

ASME/ANSI N510, Testing of Nuclear Air Treatment Systems

ANSI/ASME NQA-1, Quality Assurance Program Requirements for Nuclear Facilities

40 C.F.R. 60, Appendix A, Methods 1, 1A, 2, 2A, 2C, 2D, 4, 5, and 17

ANSI/HPS N13.1-1999, Sampling and Monitoring Releases of Airborne Radioactive Substances from the Stacks and Ducts of Nuclear Facilities
The following standards and references are recommended as guidance only:

ANSI/ASME NQA-2, Quality Assurance Requirements for Nuclear Facilities

ANSI N42.18, Specification and Performance of On-Site Instrumentation for Continuously Monitoring Radioactivity in Effluents

ERDA 76-21, Nuclear Air Cleaning Handbook

ACGIH 1988, Industrial Ventilation, A Manual of Recommended Practice, 20th ed., American Conference of Governmental Industrial Hygienists

BARCT Demonstration Procedure.

Step 1. **Define facility process variables.** Describe the physical and chemical process. Include the potential radionuclide release rates (by isotope, in units of curies/year), process variables (such as flow rate, temperature, humidity, chemical composition), and other technical considerations. Base the radionuclide release rate on the potential-to-emit.

Radionuclides selected for consideration in the BARCT demonstration shall include those which contribute more than ten percent of the potential TEDE to the MEI or more than 0.1 mrem/yr, and any others which the department determines are necessary.

Step 2. **Gather information on all available control technologies.** Search for all available technologies that can reduce the emissions levels for the radionuclides selected in Step 1. Sources of information shall include previous BARCT demonstrations, regulatory authorities, industry or regulatory agency databases, literature searches, information from technology vendors, research and development reports, and any other means necessary to identify all available technologies. "Available technology" includes any technology that is commercially available. Recently completed searches may be used with department approval.

Step 3. **Determine technical feasibility.** Determine technical feasibility by evaluating vendor specifications for available control technologies identified in Step 2 with respect to the process variables identified in Step 1. Evaluate combinations of abatement technology and control devices by component, and the system as a whole.

If a control technology has poor safety, reliability, or control effectiveness as achieved in practice under the proposed process conditions, or the technology is not applicable to the emission unit under consideration, the technology may be eliminated with supporting documentation of the technical infeasibility.

Step 4. **List all feasible control technologies in order of effectiveness.** Evaluate feasible control technologies for efficiency (effectiveness) in reducing the TEDE to the MEI. List them in order, with the most effective first. If the most effective feasible technology is proposed as BARCT, the demonstration is complete at this step.

Step 5. **Evaluate the environmental, energy, and economic impacts.** Evaluate each control technology in succession, beginning with the most effective. Present an objective evaluation considering both beneficial and adverse impacts. Quantify the data where possible. Impact cost and effectiveness evaluations are incremental and include only that portion of the facility which comes under the authority of this chapter. Evaluate at least the following impacts:

Environmental impact - Determine the incremental environmental impact, both beneficial and adverse. Evaluate the beneficial impact of reduction in the TEDE to the surrounding population or, at a minimum, to the MEI due to the abatement of radioactive air emissions. Consider the adverse impacts from waste generation (radioactive and nonradioactive, air and nonair), disposal and stabilization, construction of control equipment, and the health and safety to both radiation workers and the general public.

Energy impact - Determine the incremental energy impact. Include the impact of any resulting need for new services such as energy distribution systems.

Economic impact - Determine the incremental economic impact. Determine capital and expense costs including design, development, procurement, construction, operation, maintenance, taxes, waste disposal, and any other applicable financial components. Base all costs on the expected lifetime of the emission unit and reduce to an annualized cost for evaluation and comparison.

The adverse economic impact compared to the beneficial impact, including reduction in TEDE to the surrounding population or the MEI, is a measure of the cost versus benefit for the control technology evaluated.

The most effective technology may be eliminated from consideration if the applicant can demonstrate to the department's satisfaction that the technology has unacceptable impacts. State clearly the basis for this conclusion and proceed to the next most effective control technology. If the next most effective technology is proposed as BARCT, the demonstration is complete; otherwise, evaluate the control technology for impacts in accordance with this step.

If the control technology cannot be eliminated on the basis of its impacts, it is proposed as BARCT.

Reporting. Prepare a BARCT compliance demonstration report for department review. Provide sufficient information such that the department can validate essential results. If no control technology is feasible, or emissions are unacceptable, the department reserves the right to prohibit the construction and operation of the emission unit(s).

[Statutory Authority: RCW 70.98.050 and 70.98.080. WSR 18-01-083, § 246-247-120, filed 12/15/17, effective 1/15/18. Statutory Authority: RCW 70.98.050. WSR 04-18-094, § 246-247-120, filed 9/1/04, effective 10/2/04. Statutory Authority: Chapters 70.98 and 70.94 RCW and chapter 173-480 WAC. WSR 94-07-010, § 246-247-120, filed 3/4/94, effective 4/4/94.]

WAC 246-247-130 Appendix C—ALARACT compliance demonstration.

Purpose. An ALARACT demonstration is used for inspection or audit purposes, and to demonstrate compliance with the substantive ALARACT technology standard as required by this chapter. An ALARACT demonstration is used to evaluate the adequacy of control technology on existing emission units and to choose control technologies for proposed nonsignificant modifications of emission units. The bases for the ALARACT demonstration requirements are the ALARACT standards given in WAC 246-247-040 and the definition of ALARACT given in WAC 246-247-030. It is the applicant's responsibility to demonstrate the effectiveness of their ALARACT determination to the department. The department may adjust this demonstration procedure on a case-by-case basis, as needed, to ensure compliance with the substantive standard.

Scope. The ALARACT demonstration includes the abatement technology and indication devices, from entry of radionuclides into the ventilated vapor space to release to the environment. The facility shall evaluate the existing control system in relation to applicable technology standards, and other control technologies that have been successfully operated for similar applications.

Technology Standards. The ALARACT demonstration and the emission unit design and construction must meet, as applicable, the technology standards shown below if the unit's potential-to-emit exceeds 0.1

mrem/yr TEDE to the MEI. If the potential-to-emit is below this value, the standards must be met only to the extent justified by a cost/benefit evaluation.

ASME/ANSI AG-1, Code on Nuclear Air and Gas Treatment (where there are conflicts in standards with the other listed references, this standard shall take precedence)

ASME/ANSI N509, Nuclear Power Plant Air-Cleaning Units and Components

ASME/ANSI N510, Testing of Nuclear Air Treatment Systems

ANSI/ASME NQA-1, Quality Assurance Program Requirements for Nuclear Facilities

40 C.F.R. 60, Appendix A, Methods 1, 1A, 2, 2A, 2C, 2D, 4, 5, and 17

ANSI/HPS N13.1-1999, Sampling and Monitoring Releases of Airborne Radioactive Substances from the Stacks and Ducts of Nuclear Facilities (for emission units constructed or significantly modified after October 15, 2004).

The following standards and references are recommended as guidance only:

ANSI/ASME NQA-2, Quality Assurance Requirements for Nuclear Facilities

ANSI N42.18, Specification and Performance of On-Site Instrumentation for Continuously Monitoring Radioactivity in Effluents

ERDA 76-21, Nuclear Air Cleaning Handbook

ACGIH 1988, Industrial Ventilation, A Manual of Recommended Practice, 20th ed., American Conference of Governmental Industrial Hygienists

ALARA References. "Health Physics Manual of Good Practice for Reducing Radiation Exposure to Levels that are As Low As Reasonably Achievable (ALARA)," PNL-6577, June, 1988; prepared for the USDOE by Pacific Northwest Laboratories (Battelle Memorial Institute).

"A Guide to Reducing Radiation Exposure to As Low As Reasonably Achievable (ALARA)," DOE/EV/1830-T5, April, 1980, R.L. Kathren and J.M. Selby; prepared for the USDOE by Pacific Northwest Laboratories (Battelle Memorial Institute).

"A Practical Method of Performing Cost-Benefit Analysis of Occupational and Environmental Protective Measures," WHC-SA-0484-FP, March, 1989, G.F. Boothe and D.E. Webb; prepared for the USDOE by Westinghouse Hanford Company.

[Statutory Authority: RCW 70.98.050. WSR 04-18-094, § 246-247-130, filed 9/1/04, effective 10/2/04. Statutory Authority: Chapters 70.98 and 70.94 RCW and chapter 173-480 WAC. WSR 94-07-010, § 246-247-130, filed 3/4/94, effective 4/4/94.]