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Appendix F

Identification of Potential Applicable or Relevant and Appropriate Requirements and To Be Considered Criteria for the 200-WA-1 and 200-BC-1 Operable Units

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Terms

ACM	asbestos-containing material
ALARA	as low as reasonably achievable
ARAR	applicable or relevant and appropriate requirement
BACT	best available control technology
CERCLA	<i>Comprehensive Environmental Response, Compensation, and Liability Act of 1980</i>
DOE	U.S. Department of Energy
EPA	U.S. Environmental Protection Agency
FS	feasibility study
IDW	investigation-derived waste
NESHAP	“National Emission Standards for Hazardous Air Pollutants” (40 CFR 61)
OU	operable unit
PCB	polychlorinated biphenyl
ppm	parts per million
RI	remedial investigation
RTD	removal, treatment, and disposal
TBC	to be considered

F1 Introduction

This appendix presents potential applicable or relevant and appropriate requirements (ARARs) that may apply to 200-WA-1 and 200-BC-1 investigative and portential remediation activities. Only the substantive portions of requirements in the listed ARARs may apply. Table F-1 presents potential federal ARARs and to be considered (TBC) criteria. Table F-2 presents potential State of Washington ARARs and TBC criteria.

Table F-1. Identification of Potential Federal Applicable or Relevant and Appropriate Requirements and To Be Considered Criteria for the 200-WA-1 and 200-BC-1 OUs

Citation	Description of Requirement	Rationale for Use	Potential Relevancy	Possible Application
Chemical-Specific ARARs and TBCs—Vadose Zone Soil				
OSWER Directive 9285.7-55, <i>Guidance for Developing Ecological Soil Screening Levels</i>	Provides a set of risk-based soil screening levels for several soil contaminants that are of ecological concern for terrestrial plants and animals at hazardous waste sites. Also describes the process used to derive these levels and provides guidance for their use.	Target analytes detected in soil and vadose zone soil includes constituents that could pose ecological risks.	TBC	Assistance in the identification of areas, contaminants, and conditions that may require further RI.
EPA, 2016, “Regional Screening Levels for Chemical Contaminants at Superfund Sites”	Provides a set of risk-based screening levels; the regional screening levels provide tables of human health risk-based screening levels calculated using the latest toxicity values, default exposure assumptions, and physical and chemical properties. Risk-based screening levels may help determine whether levels of contamination found at CERCLA hazardous waste sites may warrant further investigation or site cleanup, or whether no further investigation or action may be required.	Target analytes detected in soil and vadose zone soil includes constituents that could pose risks to human health.	TBC	Assistance in the identification of areas, contaminants, and conditions that may require further RI.
<i>Toxic Substances Control Act of 1976 (15 USC 2601, et seq.); 40 CFR 761, “Polychlorinated Biphenyls (PCB) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions”</i>				
40 CFR 761.50(b)1, 2, 3, 4, and 7, “Applicability,” “PCB Waste” 40 CFR 761.50(c), “Applicability,” “Storage for Disposal”	Establishes general PCB disposal requirements for the storage and disposal of PCB wastes including liquid PCB wastes, PCB items, PCB remedial waste, PCB bulk product wastes, and PCB/radioactive wastes at concentrations greater than 50 ppm.	PCB wastes greater than 50 ppm may be encountered or generated during the RI and subsequent remediation.	ARAR	Soil and vadose zone excavation and RI; equipment and debris handling and disposal; IDW management.

Table F-1. Identification of Potential Federal Applicable or Relevant and Appropriate Requirements and To Be Considered Criteria for the 200-WA-1 and 200-BC-1 OUs

Citation	Description of Requirement	Rationale for Use	Potential Relevancy	Possible Application
40 CFR 761.60(a), (b), and (c), "Disposal Requirements"	Establishes requirements applicable to the handling and disposal of PCB liquids, PCB articles, and PCB containers.	PCB liquids, articles, or containers may be encountered or generated during the RI and subsequent remediation.	ARAR	Equipment and debris handling, storage, and disposal; IDW management and disposal.
40 CFR 761.61, "PCB Remediation Waste"	Provides cleanup and disposal options for PCB remediation waste based on the concentration at which the PCBs are found.	PCB remediation wastes may be encountered or generated during the remedial actions for the 200-WA-1 or 200-BC-1 OUs.	ARAR	Soil remediation; RTD; and IDW management and disposal.
<i>Clean Air Act of 1977; 40 CFR 60, "Standards of Performance for New Stationary Sources"</i>				
40 CFR 60, Subpart IIII, "Standards of Performance for Stationary Compression Ignition Internal Combustion Engines" 40 CFR 60, Subpart JJJJ, "Standards of Performance for Stationary Spark Ignition Internal Combustion Engines" 40 CFR 63, Subpart ZZZZ, "National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines"	Establishes substantive requirements for stationary engines.	Stationary engines (e.g., used to support lighting poles) may be used during the RI and subsequent remedial actions.	ARAR	During RI activities and subsequent remedial actions.

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Table F-1. Identification of Potential Federal Applicable or Relevant and Appropriate Requirements and To Be Considered Criteria for the 200-WA-1 and 200-BC-1 OUs

Citation	Description of Requirement	Rationale for Use	Potential Relevancy	Possible Application
<i>Clean Air Act of 1977; 40 CFR 61, "National Emission Standards for Hazardous Air Pollutants"</i>				
40 CFR 61.140, "Applicability" 40 CFR 61.145, "Standard for Demolition and Renovation"	Defines regulated ACM and the substantive requirements for removal and handling. Specifies sampling, inspection, handling, and disposal requirements for regulated sources having the potential to emit asbestos. Specifically, no visible emissions are allowed during handling, packaging, and transport of ACM.	Encountering ACM (e.g., on pipelines or buried asbestos) is possible during the RI or during remedial activities.	ARAR	Site investigation and remedial activities that include demolition or renovation and associated handling, packaging, and transportation of ACM including IDW management and disposal.
40 CFR 61.150, "Standard for Waste Disposal for Manufacturing, Fabricating, Demolition, Renovation, and Spraying Operations"	Identifies requirements for the removal and disposal of asbestos from demolition and renovation activities.	Encountering ACM on pipelines or buried asbestos is possible during the RI or during remedial activities.	ARAR	Site investigation and remedial activities that include demolition or renovation and associated handling, packaging, and transportation of ACM, including IDW management and disposal.
Radionuclide ARAR Dose Compliance Concentrations for Superfund				
Luftig and Weinstock, 1997, "Establishment of Cleanup Levels for CERCLA Sites with Radioactive Contamination" EPA 540/R/99/006, <i>Radiation Risk Assessment At CERCLA Sites: Q & A</i> (Directive 9200.4-31P)	This memorandum presents clarification for establishing protective cleanup levels in media for radioactive contamination at CERCLA sites. EPA has determined that the dose limits established by the U.S. Nuclear Regulatory Commission (62 FR 39058, "Radiological Criteria for License Termination") of 25 mrem/yr, which is equivalent to 5×10^{-4} increase lifetime risk, will not provide a protective basis for establishing preliminary remedial goals under CERCLA. Instead, EPA has identified a 15 mrem/yr effective dose (approximately equivalent to 3×10^{-4} increase lifetime risk), which is preferred as the	Target analytes detected in soil and vadose zone soil contain radioactive contaminants that may pose unacceptable risk to human health.	TBC	Development of media cleanup levels for remediation and verification.

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Table F-1. Identification of Potential Federal Applicable or Relevant and Appropriate Requirements and To Be Considered Criteria for the 200-WA-1 and 200-BC-1 OUs

Citation	Description of Requirement	Rationale for Use	Potential Relevancy	Possible Application
	<p>maximum dose limit for humans. (However, depending upon the radionuclide involved, a 15 mrem/yr effective dose equivalent could represent a significantly higher or lower lifetime cancer risk than 3×10^{-4}.)</p> <p>The EPA guidance further clarifies that 15 mrem/yr is not a presumptive cleanup level under CERCLA. Rather, site decision makers should continue to use the CERCLA risk range when ARARs are not used to set cleanup levels because using dose-based guidance would result in unnecessary inconsistency in how radiological and nonradiological (chemical) contaminants are addressed at CERCLA sites.</p>			
Location-Specific ARARs and TBCs				
<i>Archeological and Historic Preservation Act of 1974</i>				
<i>Archeological and Historic Preservation Act of 1974</i>	Requires that the remedial actions do not cause the loss of any archaeological or historic data. This act mandates preservation of data; it does not require protection of the actual site or facility.	Archaeological and historic sites have been identified within the 200-WA-1 and 200-BC-1 OUs.	ARAR	Investigation and remedial activities that occur in or near archaeological or historic sites.
<i>National Historic Preservation Act of 1966 (16 USC 470, et seq.)</i>				
<p>36 CFR 800, "Protection of Historic Properties"</p> <p>36 CFR 65, "National Historic Landmarks Program"</p> <p>36 CFR 60, "National Register of Historic Places"</p>	Requires federal agencies to consider the impacts of their undertaking on cultural properties through identification, evaluation, mitigation processes, and consultation with interested parties.	Cultural and historic sites have been identified within the 200-WA-1 and 200-BC-1 OUs.	ARAR	Investigation and remedial activities that affect cultural or historic sites. Regulations implementing Section 106 of the <i>National Historic Preservation Act</i> will be followed.

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Table F-1. Identification of Potential Federal Applicable or Relevant and Appropriate Requirements and To Be Considered Criteria for the 200-WA-1 and 200-BC-1 OUs

Citation	Description of Requirement	Rationale for Use	Potential Relevancy	Possible Application
<i>Native American Graves Protection and Repatriation Act of 1990; 43 CFR 10, "Native American Graves Protection and Repatriation Regulations"</i>				
43 CFR 10, "Native American Graves Protection and Repatriation Regulations"	Establishes federal agency responsibility for discovery of human remains, associated and unassociated funerary objects, sacred objects, and items of cultural patrimony. Requires Native American Tribal consultation in the event of discovery.	Native American archaeological, cultural, and historic sites have been identified within the 200-WA-1 and 200-BC-1 OUs; Native American remains and associated objects may be present.	ARAR	Investigation and remedial activities that affect Native American archaeological and cultural areas and historic sites that contain associated remains and objects.
<i>Endangered Species Act of 1973 (16 USC 1531, et seq., Subsection 16 USC 1536(c))</i>				
50 CFR 402, "Interagency Cooperation—Endangered Species Act of 1973, as Amended"	Prohibits actions by federal agencies that are likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of habitat critical to them. Mitigation measures must be applied to actions that occur within critical habitats or surrounding buffer zones of listed species, in order to protect the resource.	Federal endangered and/or threatened species including plants and animals are found within the 200-WA-1 and 200-BC-1 OUs.	ARAR	Remedial actions and investigation activities that occur within critical habitats or designated buffer zones of federally listed species.
<i>Migratory Bird Treaty Act of 1918</i>				
<i>Migratory Bird Treaty Act of 1918</i>	Protects all migratory bird species and prevents "take" of protected migratory birds, their young, or their eggs.	Migratory birds occur within the 200-WA-1 and 200-BC-1 OUs.	ARAR	Investigation and remediation activities that have the potential to kill migratory birds or destroy their eggs or nests.

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Table F-1. Identification of Potential Federal Applicable or Relevant and Appropriate Requirements and To Be Considered Criteria for the 200-WA-1 and 200-BC-1 OUs

Citation	Description of Requirement	Rationale for Use	Potential Relevancy	Possible Application
Land Use and Exposure Scenarios				
<p>DOE/EIS-0222-F, <i>Final Hanford Comprehensive Land-Use Plan Environmental Impact Statement</i></p> <p>DOE/EIS-0222-SA-01, <i>Supplement Analysis: Hanford Comprehensive Land-Use Plan Environmental Impact Statement</i></p>	<p>Establishes DOE reasonably anticipated future land use projections for the Inner Area.</p>	<p>Reasonably anticipated future land use as stated in the Hanford Comprehensive Land Use Plan for the Inner Area of the Central Plateau is industrial exclusive.</p>	<p>TBC</p>	

**Table F-2. Identification of Potential State of Washington Applicable and Relevant or Appropriate Requirements To Be Considered
Criteria for the 200-WA-1 and 200-BC-1 OUs**

Citation	Description of Requirement	Rationale for Use	Relevancy	Possible Action(s)
Chemical-Specific ARAR				
WAC 173-340-745(5) and (6), "Model Toxics Control Act—Cleanup," "Soil Cleanup Standards for Industrial Properties"	Establishes soil chemical cleanup levels where industrial land use represents the reasonable maximum exposure under both current and reasonably anticipated future land use conditions. Cleanup standards require specification of the following: hazardous chemical substance concentrations that protect human health and the environment (cleanup levels), the location of the site where cleanup levels must be attained (points of compliance), and other regulatory requirements that apply to the cleanup action because of the type of action or location of the site. These requirements are specified in the applicable state and federal laws and are generally established in conjunction with the selection of a specific cleanup action.	Soil in the 200-WA-1 and 200-BC-1 OUs contains chemical contaminants that require remediation. The human health conceptual exposure model for the current and reasonably anticipated future land use for these OUs is industrial.	ARAR	Soil chemical cleanup actions where concentrations of hazardous substances in the soil exceed Method C cleanup levels.
WAC 173-340-747(3) through (8), "Deriving Soil Concentrations for Groundwater Protection"	Establishes soil chemical concentrations that will not cause contamination of groundwater at levels that exceed the groundwater cleanup levels established under WAC 173-340-720, "Groundwater Cleanup Standards."	Soil in the 200-WA-1 and 200-BC-1 OUs contains chemical contaminants that require remediation to protect groundwater. The requirements corresponding to soil cleanup levels may be used to calculate cleanup levels to ensure protection of groundwater. Although groundwater is not currently used for drinking water, it is a potential drinking water source.	ARAR	Soil cleanup actions where concentrations of hazardous chemical substances in the soil exceed soil concentrations for protection of groundwater. As allowed, WAC 173-340-747(8), Alternative fate and transport models, one of the seven allowable methods under WAC 173-340-747, will be used to determine appropriate cleanup levels.

**Table F-2. Identification of Potential State of Washington Applicable and Relevant or Appropriate Requirements To Be Considered
Criteria for the 200-WA-1 and 200-BC-1 OUs**

Citation	Description of Requirement	Rationale for Use	Relevancy	Possible Action(s)
<p>WAC 173-340-7490(2), "Terrestrial Ecological Evaluation Procedures" WAC 173-340-7493(3), "Site-Specific Terrestrial Ecological Evaluation Procedures" WAC 173-340-7494, "Priority Contaminants of Ecological Concern"</p>	<p>Defines administrative goals and procedures for determining whether a release of hazardous substances to soil and vadose zone soil may pose a threat to the terrestrial environment; characterizes existing or potential threats to terrestrial plants or animals exposed to hazardous substances in soil and vadose zone soil; and establishes site-specific cleanup standards for the protection of terrestrial plants and animals. WAC 173-340-7494 provides for numeric concentrations of hazardous substances determined to persist, bioaccumulate, or be highly toxic to terrestrial ecological receptors.</p>	<p>Soil and vadose zone soil in the 200-WA-1 and 200-BC-1 OUs contain contaminants that require evaluation to determine whether ecological exposures have the potential to cause significant adverse effects.</p>	<p>TBC</p>	<p>Soil and vadose zone soil remedial activities (e.g., containment or RTD) that may pose risks to terrestrial ecological plants and animals.</p>
Action-Specific ARAR				
RCW 70.105, "Hazardous Waste Management;" WAC 173-303, "Dangerous Waste Regulations"				
<p>WAC 173-303-016, "Identifying Solid Waste" WAC 173-303-017, "Recycling Processes Involving Solid Waste"</p>	<p>Establishes criteria for solid and recycled solid wastes.</p>	<p>Solid wastes and/or recycled solid wastes may be generated during the RI and the implementation of the remedial action.</p>	<p>ARAR</p>	<p>Investigative and remedial activities that generate solid wastes, (e.g., drums, barrels, tanks, containers, bulk wastes, debris, contaminated soil, and vadose zone soil).</p>
<p>WAC 173-303-070 (1,3), "Designation of Dangerous Waste"</p>	<p>Establishes the method for determining whether a solid waste is a dangerous waste (or an extremely hazardous waste).</p>	<p>Dangerous/hazardous waste may be generated during the RI and the implementation of the remedial action.</p>	<p>ARAR</p>	<p>Investigative and remedial (including waste treatment) activities that generate solid wastes that may be dangerous waste.</p>

**Table F-2. Identification of Potential State of Washington Applicable and Relevant or Appropriate Requirements To Be Considered
Criteria for the 200-WA-1 and 200-BC-1 OUs**

Citation	Description of Requirement	Rationale for Use	Relevancy	Possible Action(s)
WAC 173-303-077, "Requirements for Universal Waste"	Identifies those wastes exempted from regulation under WAC 173-303-140, "Land Disposal Restrictions," and WAC 173-303-170, "Requirements for Generators of Dangerous Waste" through 173-303-9907, "Reserved" (excluding WAC 173-303-960, "Special Powers and Authorities of the Department"). These wastes are subject to regulation under WAC 173-303-573, "Standards for Universal Waste Management."	Universal wastes may be generated during the RI and implementation of the remedial action.	ARAR	Investigative and remedial activities (disposal, storage, recycling, and onsite treatment) that manage universal wastes consistent with <i>Washington Administrative Code</i> requirements.
WAC 173-303-120 (3) and (5), "Recycled, Reclaimed, and Recovered Wastes"	These regulations define the requirements for the recycling of materials that are solid and dangerous waste. Specifically, WAC 173-303-120(3) provides for the management of certain recyclable materials, including spent refrigerants, antifreeze, and lead acid batteries. WAC 173-303-120(5) provides for the recycling of used oil.	Recycled, reclaimed, and recovered wastes may be generated during the RI and implementation of the remedial action.	ARAR	RI/FS recycling activities are consistent with the requirements of the <i>Washington Administrative Code</i> and are not otherwise subject to CERCLA as hazardous substances.
WAC 173-303-140, "Land Disposal Restrictions"	This regulation establishes treatment requirements and disposal prohibitions for land disposal of dangerous waste and incorporates, by reference, the federal land disposal restrictions of 40 CFR 268, "Land Disposal Restrictions," that are applicable to solid waste that is designated as dangerous or mixed waste in accordance with substantive portions of WAC 173-303-070(3).	Onsite land disposal may be needed of dangerous waste and debris during the RI phase and during implementation of the remedial action.	ARAR	Investigative and remedial wastes destined for onsite land disposal.

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**Table F-2. Identification of Potential State of Washington Applicable and Relevant or Appropriate Requirements To Be Considered
Criteria for the 200-WA-1 and 200-BC-1 OUs**

Citation	Description of Requirement	Rationale for Use	Relevancy	Possible Action(s)
WAC 173-303-170 (1) and (3), "Requirements for Generators of Dangerous Waste"	Establishes the requirements for dangerous waste generators. WAC 173-303-170(3) includes the substantive provisions of WAC 173-303-200, "Accumulating Dangerous Waste Onsite," by reference. WAC 173-303-200 further includes certain substantive standards from WAC 173-303-630, "Use and Management of Containers," and WAC 173-303-640, "Tank Systems," by reference. Specifically, the substantive standards for management of dangerous or mixed waste are relevant and appropriate to the management of dangerous waste that will be generated during the remedial action.	Dangerous wastes may be generated during the RI phase and during implementation of the remedial action.	ARAR	IDW and remedial wastes (e.g., contaminated soil, vadose zone soil, IDW, treatment chemicals).
WAC 173-303-200, "Accumulating Dangerous Waste Onsite"	Establishes the requirements for accumulating wastes onsite. WAC 173-303-200 further includes certain substantive standards from WAC 173-303-630 and WAC 173-303-640, by reference.	Dangerous waste may be generated from the RI phase and during implementation of the remedial action.	ARAR	Management of dangerous waste during remedial and investigative actions.
RCW 18.104, "Water Well Construction;" WAC 173-160, "Minimum Standards for Construction and Maintenance of Wells"				
WAC 173-160-460, "What Is the Decommissioning Process for Resource Protection Wells?"	Identifies the requirements of the decommissioning process for resource protection wells.	Wells and borings for soil and vadose zone characterization may occur in the 200-WA-1 or 200-BC-1 OUs.	ARAR	Investigative and remedial activities that require siting, installation, construction, operation, maintenance, and decommissioning of wells and borings.

**Table F-2. Identification of Potential State of Washington Applicable and Relevant or Appropriate Requirements To Be Considered
Criteria for the 200-WA-1 and 200-BC-1 OUs**

Citation	Description of Requirement	Rationale for Use	Relevancy	Possible Action(s)
RCW 70.95, "Solid Waste Management—Reduction and Recycling;" WAC 173-350, "Solid Waste Handling Standards"				
WAC 173-350-025, "Owner Responsibilities for Solid Waste" WAC 173-350-040, "Performance Standards" WAC 173-350-300, "On-Site Storage, Collection and Transportation Standards" WAC 173-350-900, "Remedial Action"	Establishes minimum substantive requirements for the proper handling and disposal of solid waste materials originating from residences; commercial, agricultural, and industrial operations; and other sources.	Solid, nondangerous waste may be generated during the implementation of the RI process and remedial action.	ARAR	Investigative and remedial actions that generate solid, nondangerous waste.
RCW 70.94, "Washington Clean Air Act;" WAC 173-400, "General Regulations for Air Pollution Sources"				
WAC 173-400, "General Regulations for Air Pollution Sources"	Defines requirements of the methods of control to be employed to minimize the release of air pollutants associated with fugitive emissions resulting from materials handling, construction, demolition, or other operations. Emissions are to be minimized through application of BACT.	Soil and vadose zone remedial actions implemented in the 200-WA-1 or 200-BC-1 OUs have the potential to emit air pollutants because contaminants detected in the 200-WA-1 or 200-BC-1 OUs include regulated pollutants subject to these standards.	ARAR	Actions performed such as decontamination, demolition, and excavation activities that have the potential to emit visible, particulate, fugitive, or gaseous forms of hazardous criteria, and toxic or nuisance air pollutants.
WAC 173-400-040, "General Standards for Maximum Emissions"	All sources and emissions units are required to meet the general emission standards unless a specific source standard is available. General standards apply to visible emissions, particulate fallout, fugitive emissions, odors, emissions detrimental to health and property, sulfur dioxide, and fugitive dust.	Soil and vadose zone remedial actions implemented have the potential to emit air pollutants because contaminants detected in the 200-WA-1 or 200-BC-1 OUs include regulated pollutants subject to these standards.	ARAR	Remedial actions that have the potential to release air pollutants subject to these regulations.

Table F-2. Identification of Potential State of Washington Applicable and Relevant or Appropriate Requirements To Be Considered Criteria for the 200-WA-1 and 200-BC-1 OUs

Citation	Description of Requirement	Rationale for Use	Relevancy	Possible Action(s)
WAC 173-400-075, "Emission Standards for Sources Emitting Hazardous Air Pollutants"	Establishes national emission standards for hazardous air pollutants. Adopts, by reference, 40 CFR 61 and appendices.	Soil and vadose zone remedial actions implemented have the potential to emit air pollutants because contaminants detected in the 200-WA-1 or 200-BC-1 OUs include regulated pollutants subject to these standards.	ARAR	Actions performed that could result in the emission of hazardous air pollutants, including decontamination, demolition, and excavation activities implemented during the RI/FS that have the potential to release air pollutants subject to these regulations.
RCW 70.94; WAC 173-460, "Controls for New Sources of Toxic Air Pollutants"				
WAC 173-460-060, "Control Technology Requirements" WAC 173-460-070, "Ambient Impact Requirement" WAC 173-460-080, "First Tier Review" WAC 173-460-150, "Table of ASIL, SQER and de Minimis Emission Values"	Establishes requirements for control of new sources emitting toxic air pollutants to prevent air pollution, reduce emissions to the extent reasonably possible, and maintain such levels of air quality as will protect human health and safety. Toxic air pollutants include carcinogens and noncarcinogens listed in WAC 173-460-150. Three major requirements of this regulation include implementation of BACT for toxics, quantification of toxic air pollutant emissions, and health and safety protection demonstration.	Hazardous contaminants detected in soil in the 200-WA-1 or 200-BC-1 OUs include constituents that would constitute toxic air pollutants if released to the air.	ARAR	Soil remediation activities such as treatment systems that have the potential to emit toxic air emissions and would be considered a new source.
RCW 70.94, "Washington Clean Air Act;" WAC 173-480, "Ambient Air Quality Standards and Emission Limits for Radionuclides"				
WAC 173-480-040, "Ambient Standard"	Requires that emissions of radionuclides in the air will not cause a maximum effective dose equivalent of more than 10 mrem/yr to the whole body to any member of the public.	Hazardous contaminants detected in soil in the 200-WA-1 or 200-BC-1 OUs include radionuclides that could be emitted to ambient air during remedial actions.	ARAR	Investigative and remediation activities (e.g., excavation, RTD, demolition, ventilation, and vacuuming/exhaust) that have the potential to emit radionuclides above maximum acceptable levels.

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**Table F-2. Identification of Potential State of Washington Applicable and Relevant or Appropriate Requirements To Be Considered
Criteria for the 200-WA-1 and 200-BC-1 OUs**

Citation	Description of Requirement	Rationale for Use	Relevancy	Possible Action(s)
WAC 173-480-050, "General Standards for Maximum Permissible Emissions"	At a minimum, all emission units will make every reasonable effort to maintain radioactive materials in effluents to unrestricted areas, ALARA.* Control equipment requirements for sites operating under ALARA will be defined as reasonably available control technology and ALARA control technology.	The potential for fugitive and diffuse emissions resulting from demolition, excavation, and related activities will require efforts to minimize those emissions. This requirement is action specific.	ARAR	Investigative and remediation activities (e.g., excavation, RTD, demolition, ventilation, and vacuuming/exhaust) that have the potential to emit radionuclides above maximum acceptable levels.
WAC 173-480-060, "Emission Standards for New and Modified Emission Units"	Requires that construction, installation, or establishment of a new air emission control units will use best available retrofit control technology.	Hazardous contaminants detected in soil in the 200-WA-1 or 200-BC-1 OUs include radionuclides that could be emitted to the ambient air during remedial actions.	ARAR	Investigative and remediation activities (e.g., excavation, RTD, demolition, ventilation, and vacuuming/exhaust) that require air pollution control equipment or other methods to best control emissions and have the potential to emit airborne radionuclides.
WAC 173-480-070, "Emission Monitoring and Compliance Procedures"	Requires that procedures specified in WAC 246-247, "Radiation Protection—Air Emissions," will be used to determine emissions compliance with the 10 mrem/yr standard for dose to any member of the public. Compliance is determined by calculating the dose to members of the public at the point of maximum annual air concentration in an unrestricted area where any member of the public may be.	Hazardous contaminants detected in soil in the 200-WA-1 or 200-BC-1 OUs include radionuclides that could be emitted to unrestricted areas during remedial actions and, therefore, could require monitoring.	ARAR	Investigative and remediation activities (e.g., excavation, RTD, demolition, ventilation, and vacuuming/exhaust) that have the potential to emit radionuclides to the ambient air.

**Table F-2. Identification of Potential State of Washington Applicable and Relevant or Appropriate Requirements To Be Considered
Criteria for the 200-WA-1 and 200-BC-1 OUs**

Citation	Description of Requirement	Rationale for Use	Relevancy	Possible Action(s)
RCW 70.98, "Nuclear Energy and Radiation;" WAC 246-247, "Radiation Protection—Air Emissions"				
<p>WAC 246-247-035(1)(a)(i), "National Standards Adopted by Reference for Sources of Radionuclide Emissions" (adopts, by reference, 40 CFR 61, Subpart A, "General Provisions")</p>	<p>Requires the owner or operator of each stationary source of hazardous air pollutants subject to a national emission standard for a hazardous air pollutant to determine compliance with numerical emission limits in accordance with emission tests established in NESHAP (40 CFR 61.13, "Emission Tests and Waiver of Emission Tests"), or as otherwise specified in an individual subpart. Compliance with the requirements of design, equipment, work practice, or operational standards shall be determined as specified in the individual subpart. Also, maintain and operate the source, including associated equipment for air pollution control, in a manner consistent with good air pollution control practice for minimizing emissions.</p>	<p>Substantive requirements of this standard are applicable because the remedial actions in the 200-WA-1 and 200-BC-1 OUs would be subject to NESHAP Radionuclides Air Pollutant Standards and resultant requirements. The radionuclide hazardous air pollutants have the potential to be detected in and emitted from structures, components, debris, or soilr involved in the remedial action.</p>	<p>ARAR</p>	<p>Investigative and remedial actions involve stationary sources that provide a potential to emit regulated hazardous air pollutants (e.g., vapor extraction systems, decontamination stations, deactivation, demolition, or waste removal or storage activities). Associated design, equipment, work practice, or air emissions controls may be maintained and operated.</p>

**Table F-2. Identification of Potential State of Washington Applicable and Relevant or Appropriate Requirements To Be Considered
Criteria for the 200-WA-1 and 200-BC-1 OUs**

Citation	Description of Requirement	Rationale for Use	Relevancy	Possible Action(s)
WAC 246-247-035(1)(a)(i) (adopts, by reference, 40 CFR 61.12, "Compliance with Standards and Maintenance Requirements")	Requires the owner or operator of each stationary source of hazardous air pollutants subject to a national emission standard for a hazardous air pollutant to determine compliance with numerical emission limits in accordance with emission tests established in NESHAP (40 CFR 61.13), or as otherwise specified in an individual subpart. Compliance with the substantive portions of design, equipment, work practice, or operational standards shall be determined as specified in the individual subpart. Also, maintain and operate the source, including associated equipment for air pollution control, in a manner consistent with good air pollution control practice for minimizing emissions.	Hazardous radionuclide contaminants that would be subject to NESHAP Air Pollutant Standards and resultant requirements have the potential to be detected in and emitted from structures, components, debris, or soil, involved in the remedial actions in the 200-BC-1 and 200-WA-1 OUs. Associated design, equipment, work practice, or equipment for radionuclide air pollution control may also be maintained and operated.	ARAR	Investigative and remedial actions involve stationary sources that provide a potential to emit regulated hazardous air pollutants (e.g., vapor extraction systems, decontamination stations, deactivation, demolition, waste removal, or storage activities). Associated design, equipment, work practice, or air emissions controls may be maintained and operated.
WAC 246-247-035(1)(a)(i) (adopts, by reference, 40 CFR 61.14, "Monitoring Requirements")	Requires the owner or operator to maintain and operate each monitoring system as specified in the applicable subpart, and in a manner consistent with good air pollution control practice for minimizing emissions.	Hazardous radionuclide contaminants that would be subject to NESHAP Air Pollutant Standards and resultant requirements have the potential to be detected in and emitted from structures, components, debris, or soil involved in the remedial actions in the 200-BC-1 and 200-WA-1 OUs. The hazardous contaminants will be monitored as identified under each applicable NESHAP subpart.	ARAR	Investigative and remedial soil, air, decontamination, and stabilization of contaminated structures, treatment of sludge, and operation of exhausters and vacuums, that may produce airborne emissions of hazardous pollutants to residential areas.

**Table F-2. Identification of Potential State of Washington Applicable and Relevant or Appropriate Requirements To Be Considered
Criteria for the 200-WA-1 and 200-BC-1 OUs**

Citation	Description of Requirement	Rationale for Use	Relevancy	Possible Action(s)
<p>WAC 246-247-035(1)(a)(ii) and (iii), "National Standards Adopted by Reference for Sources of Radionuclide Emissions" (adopts by reference 40 CFR 61, Subpart H, "National Emission Standards for Emissions of Radionuclides Other than Radon," and 40 CFR 61, Subpart I, "National Emission Standards for Radionuclide Emissions from Federal Facilities Other Than Nuclear Regulatory Commission Licensees and Not Covered by Subpart H)</p>	<p>Requires the owner or operator to maintain and operate each monitoring system as specified in the applicable subpart, and in a manner consistent with good air pollution control practice for minimizing emissions. Requires that emissions be controlled to ensure that ALARA based and BACT standards are not exceeded.</p>	<p>Hazardous radionuclide contaminants that would be subject to NESHAP Air Pollutant Standards and resultant requirements have the potential to be detected in and emitted from structures, components, debris, soil, or groundwater involved in the remedial actions in the 200-DV-1 OU. The hazardous contaminants will be monitored as identified under each applicable NESHAP system.</p>	<p>ARAR</p>	<p>Investigative and remedial soil, air, and groundwater monitoring systems and decontamination and stabilization of contaminated structures, treatment of sludge, and operation of exhausters and vacuums, that may produce airborne emissions of hazardous pollutants to residential areas.</p>
<p>WAC 246-247-035(1)(a)(ii) (adopts, by reference, 40 CFR 61, Subpart H)</p>	<p>Establishes emission standards for radionuclides equivalent to NESHAP (40 CFR 61, Subpart H, "National Emission Standards for Emissions of Radionuclides Other than Radon from Department of Energy Facilities") by reference. DOE Hanford Site radionuclide airborne emissions shall be controlled so as not to exceed amounts that would cause an exposure to any member of the public of greater than 10 mrem/yr effective dose equivalent.</p>	<p>Hazardous radionuclide contaminants that would be subject to NESHAP; Radionuclide Air Pollutant Standards and resultant requirements have the potential to be detected in and emitted from, structures, components, debris, or soil, involved in the remedial actions in the 200-BC-1 and 200-WA-1 OUs.</p>	<p>ARAR</p>	<p>Investigative and remedial soil, air, decontamination, and stabilization of contaminated structures, treatment of sludge, and operation of exhausters and vacuums, that may produce airborne emissions of hazardous radionuclide pollutants to residential areas.</p>

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**Table F-2. Identification of Potential State of Washington Applicable and Relevant or Appropriate Requirements To Be Considered
Criteria for the 200-WA-1 and 200-BC-1 OUs**

Citation	Description of Requirement	Rationale for Use	Relevancy	Possible Action(s)
WAC 246-247-035(1)(a)(ii) (adopts, by reference, 40 CFR 61.93, "Emission Monitoring and Test Procedures")	Specifies that radionuclide emissions shall be determined and effective dose equivalent values to members of the public calculated to determine compliance with the 10 mrem/yr effective dose equivalent standard. Radionuclide emissions shall be collected and measured using approved methods. A quality assurance program shall be conducted that meets the performance requirements described in Appendix B, Method 114. Measurement by methods specified in the paragraph (b) shall be made at all release points that have the potential to discharge radionuclides to the air in quantities that cause an effective dose equivalent in excess of 1 percent of the 10 mrem/yr standard. For other release points that have a potential to release radionuclides into the air, periodic confirmatory measurements shall be made to verify the low emissions.	Hazardous radionuclide contaminants that would be subject to NESHAP; Radionuclide Air Pollutant Standards and resultant requirements have the potential to be detected in and emitted from structures, components, debris, or soil involved in the remedial actions in the 200-BC-1 and 200-WA-1 OUs. The hazardous contaminants will be monitored as identified under each applicable NESHAP subpart.	ARAR	Investigative and remedial soil, air, decontamination, and stabilization of contaminated structures, treatment of sludge, and operation of exhausters and vacuums, that may produce airborne emissions of hazardous radionuclide pollutants to residential areas.
WAC 246-247-040(3) and (4), "General Standards"	Requires that emissions be controlled to ensure that ALARA based and BACT standards are not exceeded.	Hazardous contaminants that would be subject to radionuclide air emission standards and resultant requirements have the potential to be detected in and emitted from structures, components, debris, or soil involved in the remedial actions in the 200-BC-1 and 200-WA-1 OUs.	ARAR	Investigative and remedial soil, air, decontamination, and stabilization of contaminated structures, treatment of sludge, and operation of exhausters and vacuums that may produce airborne emissions of hazardous radionuclide pollutants to residential areas.

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**Table F-2. Identification of Potential State of Washington Applicable and Relevant or Appropriate Requirements To Be Considered
Criteria for the 200-WA-1 and 200-BC-1 OUs**

Citation	Description of Requirement	Rationale for Use	Relevancy	Possible Action(s)
WAC 246-247-075, "Monitoring, Testing and Quality Assurance"	Establishes the monitoring, testing, and quality assurance requirements for radioactive air emissions. Requires that emissions from nonpoint and fugitive sources of airborne radioactive material be measured. Measurement techniques may include but are not limited to sampling, calculations, smears, or other reasonable method for identifying emissions as determined by the lead agency.	Hazardous contaminants in the 200-BC-1 and 200-WA-1 OUs waste sites that would be subject to radionuclide air emission standards and resultant requirements have the potential to be detected in and emitted from structures, components, debris, or soil involved in the remedial actions.	ARAR	Investigative and remediation (e.g., RTD, excavation, demolition, and ventilation) that could emit airborne radionuclides.

Note: Acronyms used in this table are presented in the "Terms" front matter portion of this appendix. References listed in this table are cited in Chapter F2 of this appendix.

* ALARA (as low as reasonably achievable) is defined as making every reasonable effort to maintain exposures to radiation as far below the 10 mrem/yr dose standard as practical, consistent with which the 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 use of nuclear energy, ionizing radiation, and radioactive materials in the public interest.

F2 References

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