

1 adopt and implement standards generally consistent with those of the U.S. Nuclear Regulatory  
2 Commission (NRC) for DOE facilities and activities not subject to NRC licensing authority.

- 3
- 4 • DOE Order 5480.20A, *Personnel Selection, Qualification, and Training Requirements for DOE*  
5 *Nuclear Facilities* (DOE 2001c), establishes the selection, qualification, and training requirements for  
6 DOE contractor personnel involved in the operation, maintenance, and technical support of DOE  
7 nuclear reactors and non-reactor nuclear facilities. DOE objectives under this Order are to ensure the  
8 development and implementation of contractor-administered training programs that provide  
9 consistent and effective training for personnel at DOE nuclear facilities. The Order contains  
10 minimum requirements that must be included in training and qualification programs.

## 11

### 12 **6.7 Radiation Protection of the Public and the Environment**

13  
14 DOE standards for radiation protection of the public and the environment are set out in DOE  
15 Order 5400.5 (DOE 1993b). In addition to establishing a general limit for public dose from DOE  
16 activities, the Order requires DOE activities to be conducted in a manner that complies with regulations  
17 issued by other government agencies, as applicable. The Order also specifies standards for radiological  
18 exposures to native aquatic animals. Requirements of the DOE Order and other applicable standards are  
19 discussed in this section.

20  
21 Activities associated with any alternative under consideration in this HSW EIS would be managed in  
22 accordance with Chapter II of DOE Order 5400.5, which provides that DOE activities shall be conducted  
23 so that the exposure of members of the public to radiation sources, as a consequence of all routine DOE  
24 activities, shall not cause an effective dose equivalent exceeding 1 mSv/yr (100 mrem/yr).

25  
26 In addition, radioactive emissions from DOE facilities are subject to the EPA National Emission  
27 Standards for Hazardous Air Pollutants requirements at 40 CFR 61. In particular, Subpart A (General  
28 Provisions), Subpart H (National Emission Standards for Emissions of Radionuclides Other than Radon  
29 from Department of Energy Facilities), and Subpart Q (National Emission Standards for Radon Emissions  
30 from Department of Energy Facilities) are applicable to all alternatives. Air emissions resulting from the  
31 implementation of any alternative would comply with the EPA 0.1 mSv/yr (10 mrem/yr) standard at  
32 40 CFR 61.92. For all new construction or modifications to existing facilities where the estimated  
33 effective dose equivalent could exceed 1 percent of the 0.1 mSv/yr (10 mrem/yr) standard, an application  
34 for approval of construction or modification would be submitted to the appropriate regional EPA office  
35 under the procedures at 40 CFR 61.07 (40 CFR 61.96[b]).

36  
37 New sources of radioactive emissions at Hanford are also subject to the licensing requirements of the  
38 Washington State Department of Health (WDOH) (WAC 246-247). DOE holds a license (No. FF-01)  
39 issued by the WDOH covering airborne radioactive effluents from Hanford operations. The license is  
40 incorporated as Attachment 2 in the Hanford Air Operating Permit (Ecology 2001b). DOE would submit  
41 a Notice of Construction to the WDOH, as required by WAC 246-247-060, before constructing or  
42 modifying any facility associated with any alternative under consideration in this HSW EIS that has  
43 projected radioactive emissions or changes in radioactive emissions. All new construction and significant  
44 modifications of emission units would use best available radionuclide control technology (WAC 246-247-

1 040[3], WAC 173-480-060). Standards and/or permits and license requirements (conditions) for  
2 applicable radiation and non-radiation emission unit compliance are compiled in the Hanford Air  
3 Operating Permit (Ecology 2001b).

4  
5 DOE would ensure that U.S. Department of Transportation (DOT) radiation-level limitations for  
6 packaging in 49 CFR 173.441 are met and that requirements in 49 CFR 173.443 related to radioactive  
7 contamination on the external surfaces of each package offered for shipment are met. Transportation  
8 issues are further discussed in Section 6.11.

9  
10 Chapter II of DOE Order 5400.5 states that it is DOE policy to provide a level of protection for  
11 persons consuming water from a drinking water supply operated by DOE or its contractors that does not  
12 exceed the maximum contaminant levels at 40 CFR 141.15 and 141.16. Specifically, DOE Order 5400.5  
13 states that DOE drinking water systems shall not cause persons consuming the water to receive an  
14 effective dose equivalent greater than 4 mrem (0.04 mSv) in a year. Combined radium-226 and radium-  
15 228 shall not exceed  $5 \times 10^{-9}$   $\mu\text{Ci/mL}$ , and gross alpha activity (including radium-226, but excluding radon  
16 and uranium) shall not exceed  $1.5 \times 10^{-8}$   $\mu\text{Ci/mL}$ .<sup>(a)</sup> The maximum contaminant levels at 40 CFR 141.15  
17 and 141.16 are not directly applicable to groundwater and are used in this HSW EIS solely as a  
18 benchmark for water quality in the Hanford aquifer and the Columbia River for the long-term analysis.

19  
20 DOE has a voluntary consensus technical standard that provides methods, models, and guidance  
21 within a graded approach that DOE personnel and contractors may use to characterize radiation doses to  
22 aquatic and terrestrial biota that are exposed to radioactive materials (DOE 2002b).

## 23 24 **6.8 Occupational Safety and Occupational Radiation Exposure**

25  
26 Section 4(b)(1) of the Occupational Safety and Health Act of 1970 [29 USC 653(b)(1)] exempts DOE  
27 and its contractors from the occupational safety requirements of the U.S. Department of Labor  
28 Occupational Safety and Health Administration (OSHA). However, DOE Order 440.1A, *Worker*  
29 *Protection Management for DOE Federal and Contractor Employees* (DOE 1998), states that DOE will  
30 implement a written worker protection program that

31  
32 (1) provides a place of employment free from recognized hazards that are causing or are likely to  
33 cause death or serious physical harm to their employees, and (2) integrates all requirements  
34 contained in paragraphs 4a to 4l of DOE Order 440.1A; 29 CFR 1960, “Basic Program Elements  
35 for Federal Employee Occupational Safety and Health Programs and Related Matters”; and other  
36 related site-specific worker protection activities.

37  
38 Relevant requirements in OSHA regulations and additional DOE-specified requirements are  
39 mandated by the DOE occupational, safety, and health program (DOE 1998).

40  

---

  
(a) In December 2000, EPA issued revised maximum contaminant levels for radionuclides to be effective in  
December 2003 (65 FR 76708). The new rule includes requirements for uranium.