

Subtitle D landfill. (See 66 FR 63567–63568, December 7, 2001.) Other States have also determined that Subtitle D facilities may offer sufficient protection for certain types of radioactive material.² Therefore, we request comment on the suitability of Subtitle D facilities for low concentrations of radionuclides, under what conditions such disposal would be appropriate, and how comparable Subtitle D and Subtitle C facilities should be considered. We also request comment on the suitability of other types of disposal facilities not mentioned above.

a. RCRA Subtitle C Land Disposal. The design requirements for RCRA Subtitle C hazardous waste landfills include engineered barriers (e.g., liners, see 40 CFR part 264, subpart N) while the hazardous waste itself must be treated to meet the land disposal restriction (LDRs) requirements. (See 40 CFR part 268.) Determining when disposal of LAMW at Subtitle C landfills is appropriate could involve deriving limiting radionuclide concentrations in the waste through modeling the performance of these disposal cells. We would consider the effectiveness of the RCRA-permitted landfill disposal cells under a variety of performance and release scenarios. These performance scenarios would take these design and waste treatment requirements into account and would anticipate the range of site-specific conditions at disposal sites that may occur in practice. The scenarios could assess performance of the RCRA Subtitle C design with respect to ground-water contamination under various climatic and hydrogeological conditions.

Scenarios could also evaluate worker exposure situations, including both the worker at the disposal site and the transportation worker. RCRA facilities are highly regulated and implement measures to protect workers against associated hazards. The personal protective equipment provided to RCRA workers might be expected to offer some protection against radiological constituents. Presuming low concentrations of radionuclides (which we would expect would keep exposures

well below those allowable for workers at AEA-licensed disposal facilities), these workers might not need to be considered as occupational workers for the purposes of a radiation protection program under NRC regulations. Indeed, if the benchmark for exposure is low enough, from a radiological perspective, these workers would be more like members of the general public in the exposures they would be likely to receive (requirements related to RCRA hazardous waste would still apply). Other scenarios could also be considered as appropriate to assure the protection of the public health and the environment. Consequently, this approach would establish concentration limits appropriate for RCRA Subtitle C landfills accepting LAMW without requiring site-specific performance assessments. As a point of reference, consistent with the concept of LAMW (and “low-activity” waste in general), radionuclide concentration limits would not exceed the values NRC has established for Class A radioactive waste, as described in 10 CFR 61.55. (See 47 FR 57473, December 27, 1982.) See section II.D for a more detailed discussion of our concept for modeling.

b. Establish a Risk or Dose Basis for Allowable Concentrations. The basic modeling scenarios provide a method for identifying appropriate risk-or dose-based concentration limits on radionuclides in LAMW.³ However, we still must consider the appropriate level of risk or dose on which the concentrations would be based. We are considering a number of factors in selecting an appropriate level, including other risk management decisions for radiation protection. In this regard, we are also working with NRC to understand how risk considerations will be incorporated into NRC’s selection of a regulatory approach. We give more detail on these factors in section II.D.4.

3. Coordination With the Nuclear Regulatory Commission

Because a significant purpose of our proposed approach is to address low-activity mixed waste generated by NRC licensees, we and NRC will work closely together in modifying the existing regulatory structure to encourage more flexibility in LAMW disposal. The lack of facilities to treat and dispose of mixed waste has been the subject of Congressional hearings and EPA and

NRC were encouraged to devote resources to develop a strategy to address these issues.⁴ Concern was also expressed to the Council on Environmental Quality about this problem, which “has persisted for over 11 years [with] no resolution in sight.”⁵ The Council was asked what action was being taken to create alternatives for dealing with these waste streams.⁶ We and NRC have worked together in the past to develop guidance and regulatory solutions for certain broad mixed waste issues.⁷

In that vein, EPA and NRC view the disposal of LAMW in a Subtitle C RCRA landfill as a viable approach deserving further examination through a public notice and comment process. EPA and NRC believe this approach has the potential to offer needed flexibility in the regulation of mixed waste and be fully protective of the public health and the environment. This approach would also be consistent with actions taken by both agencies to address specific situations. Note that the NRC, in consultation with us, has issued guidance such that, under certain conditions, radioactively contaminated electric arc furnace dust containing cesium-137 below specified levels—the result of accidental melting of sealed sources by steel mills—appropriately may be disposed of in commercially operated RCRA hazardous waste facilities (62 FR 13176, March 19, 1997).

We anticipate that implementing the disposal option discussed in today’s action for all low-activity radioactive waste, including those waste streams discussed in section III, will require regulatory action by both agencies (although our respective responsibilities clearly vary for the different waste streams). We invite commenters to provide their perspective on the appropriate roles of the two agencies in developing regulatory standards and implementing them for waste generators

⁴ Hearing Before the Subcommittee on Energy and Power of the Committee on Commerce, House of Representatives, 104th Cong., 2d Sess., Sept. 5, 1996, Serial Number 104–114.

⁵ Hearing Before the Subcommittee on Oversight and Investigations, of the Committee on Energy and Natural Resources, United States Senate, 104th Cong., 2d Sess., Sept. 26, 1996, Serial Number 104–775, at 71.

⁶ *Id.*

⁷ EPA and NRC have issued joint guidance on mixed waste testing (“Joint EPA/NRC Guidance on Testing Requirements for Mixed Radioactive and Hazardous Waste,” 62 FR 62079, November 20, 1997) and disposal (“NRC/EPA Siting Guidelines for Disposal of LLMW,” OSWER Directive 9480.00–14, June 1987; “Joint NRC/EPA Guidance on a Conceptual Design Approach for Commercial LLMW Disposal Facilities,” OSWER Directive 9487.00–8, August 3, 1987). These documents are available at <http://www.epa.gov/radiation/mixed-waste>.

² The State of Texas allows certain radioactive material with half-life less than 300 days to be disposed in solid waste landfills. (See Texas Administrative Code, Title 25, Chapter 289, Section 202(fff).) In 2001, the Radiation Focus Group of the Association of State and Territorial Solid Waste Management Officials (ASTSWMO) stated “Currently, prohibitions against all radioactive materials are too broad” and that “the list of radioactive materials that should be excluded from landfills * * * should include only wastes that are long-lived, and/or soluble, or otherwise pose a significant hazard.” (“Detection and Response to Radioactive Materials at Municipal Solid Waste Landfills,” Final Report, July 18, 2001.)

³ A “risk-based” limit would consider the probability that a person being exposed to radiation would develop a health effect. A “dose-based” limit would consider the amount of radiation exposure that person could receive. The correlation between risk and dose is not the same for every radionuclide.