

concentrations of short-lived and/or long-lived radionuclides. Class B waste contains low concentrations of long-lived radionuclides but larger concentrations of short-lived radionuclides; in addition to the requirements of § 61.56(a), Class B waste must meet the stability requirements of § 61.56(b). Class C waste contains the largest concentrations of long-lived radionuclides and/or short-lived radionuclides that are acceptable for near surface disposal, meets the same waste characterization requirements as Class B waste (minimum requirements and stability requirements), plus Class C waste requires additional measures to protect against inadvertent intrusion as listed in § 61.52(a). LLRW whose concentrations exceed the highest values in Table 1 or Table 2 is GTCC and not generally suitable for near-surface disposal.

Numerous studies and surveys have shown that Class A comprises the largest volume of LLRW compared to Classes B, C, and GTCC. For example, a nationwide assessment of LLRW received at commercial disposal facilities revealed that 97.6% (by volume) of the LLRW disposed was Class A. Class B and Class C comprised only 1.5% and 0.9%, respectively. ("1998 State-by-State Assessment of Low-Level Radioactive Wastes Received at Commercial Disposal Sites," May 1999, DOE/LLW-252.) For example, the 1996 survey of LLRW shipped from Connecticut to disposal facilities reports that Class A contributed only 8.9% of the total radioactivity in LLRW disposed in 1996; in 1999, Class A LLRW represented only about 2% of the total activity. For the period 1995–1999, Class A LLRW made up about 14% of the total activity. ("Low-Level Radioactive Waste Management in Connecticut—1996," prepared by the Connecticut Hazardous Waste Management Service, December 1997; figures for 1999 can be found in the October 2000 report.) A comprehensive analysis of the nationwide characteristics of commercial LLRW shipped for disposal between 1987 and 1989 indicated that Class A represented from 3.3% to 10.9% of the total radioactivity in LLRW disposed in any given year and 96.4% to 97.4% of the total volume in any given year. ("Characteristics of Low-Level Radioactive Waste Disposed During 1987 through 1989," NUREG-1418, December 1990.) Thus, while Class A LLRW may predominate the volume of waste sent to LLRW disposal facilities, Class A typically contributes only a small percentage of the total

radioactivity disposed. Class A LLRW is limited to the lowest concentrations of short-lived and long-lived radionuclides in the NRC's waste classification system in 10 CFR 61.55, and much of the waste in Class A LLRW is incidentally contaminated trash. Class A LLRW with radionuclide concentrations at some fraction of the Class A limits, so-called low-activity LLRW may represent an acceptable candidate for disposal by alternative means, such as disposal in an RCRA Subtitle C landfill.

4. Decommissioning Wastes

When facilities that use or process radioactive materials are closed, they go through a process of decontamination and decommissioning to reduce the amount of residual radioactivity left at the site. The extent and type of contamination depends on the kind of work done at the facility, the length of time the facility operated, and the operational practices employed at the facility. For example, facilities that processed uranium or thorium ore, such as those involved in FUSRAP, will have a relatively narrow range of radionuclides (uranium, thorium, radium, and their decay products), but also tend to have contaminated soils from managing the processing wastes. Nuclear power plants, on the other hand, typically have to address a much wider spectrum of radionuclides generated by the fission process, but much waste will primarily consist of contaminated equipment. Because of its widely varied operations, the scope of contamination at DOE facilities and sites is likely to encompass that found at commercial facilities. The decontamination process also produces waste, such as the removal of surface contamination from buildings using high-pressure sprays.

Waste volumes from decommissioning vary widely. Some contaminated facilities lie unused for years before decommissioning, and a number of DOE sites are being evaluated for accelerated decommissioning schedules. The scope of waste from decommissioning can change during the process. For example, some buildings that are expected to be lightly contaminated, and therefore amenable to surface decommissioning, can be found to be more extensively contaminated, thereby affecting the decommissioning procedure. Similarly, soil contamination is often found to be more prevalent than anticipated. Another uncertainty at present surrounds the decommissioning of nuclear power plants. A few years ago, it appeared that nearly all reactors would be decommissioned at the end of

their current licenses (a few have decommissioned in the past decade). Now, however, some utilities are pursuing license renewals. Assuming they operate to the end of the renewed license, that would push the major wave of decommissioning farther into the future.

In addition, technological advances in either decommissioning practices, radioactive waste treatment, or waste disposal could significantly affect the volumes and characteristics of these wastes. While we can say with certainty that some, and possibly a large percentage, of these wastes would be "low-activity," we have no way of projecting the proportion that would be mixed waste or the actual waste characteristics. For purposes of modeling, we request information that would help us describe the wastes resulting from decommissioning.

E. Questions for Public Comment: Disposal of Other LARW in Hazardous Waste Landfills

1. Should a rule include pre-UMTRCA byproduct material, such as that generated by FUSRAP cleanups? Are there remaining public health or environmental concerns over management of this material? (section III.B.2.a)

2. What authorities are most appropriate to regulate disposal of pre-UMTRCA byproduct material?

3. Are there significant sources of pre-UMTRCA byproduct material, other than FUSRAP cleanups?

4. How does pre-UMTRCA byproduct material resemble or differ from 11e.(2) byproduct material regulated by NRC?

5. What Federal or State authorities presently regulate TENORM? What Federal or State authorities might be used to regulate TENORM?

6. What regulatory standards do State authorities apply to TENORM disposal? How might a rule simplify TENORM disposal?

7. What approach to managing similar TENORM wastes is most appropriate? Are there particular waste streams that need immediate attention (based on risk or occurrence)? (III.B.2.b)

8. Should volume averaging or "blending" be allowed for TENORM and other LARW? Under what conditions?

9. Should a rule include low-activity LLRW that is not mixed waste? What about source material exempted by NRC? Under what conditions? (III.B.3)

10. What issues are associated with siting new disposal facilities for these other LARW? How might they be alleviated? (III.B.4)