

TABLE 1.—CURRENT EPA AND NRC RADIATION DOSE LIMITS—Continued

Individual-Protection Standard for Disposal of SNF and HLW at Yucca Mountain, NV (40 CFR 197.20).	15 mrem CEDE/year.
National Emission Standards for Hazardous Air Pollutants (40 CFR part 61).	10 mrem EDE/year.
SNF and HLW Disposal Limit for Underground Sources of Drinking Water (40 CFR 191.24, 197.30).	4 mrem/year for manmade beta- and photonemitting radionuclides whole body or any internal organ, 15 pCi/l alpha 197.30) 5 pCi/l radium.
Maximum Contaminant Levels for Community Drinking Water systems (40 CFR 141.16).	4 mrem/year for manmade beta- and photonemitting radionuclides whole body or any internal organ, 15 pCi/l alpha, 5 pCi/l radium, 30 micrograms/liter uranium.

Our analysis of our 40 CFR part 191 standard for disposal of spent nuclear fuel and high-level waste found that, for the radionuclides and conditions associated with disposal of those wastes, 15 mrem/year under the more recent effective dose method carries a risk roughly equivalent to a 25 mrem/year dose using the whole body method.¹⁵

As noted above, facilities licensed under 10 CFR part 61 must limit all-pathways exposures to the public (as calculated through long-term performance assessment) to 25 mrem/year (whole body), and facilities requesting license termination without restrictions on future site use must satisfy the licensing authority that doses will not exceed 25 mrem/yr total effective dose equivalent (TEDE) from all potential pathways. However, in both of these situations dose assessments are typically well below these regulatory thresholds. In selecting a reference exposure that would be used to derive concentration limits and allow for a simpler regulatory approach, we believe it would be appropriate for facilities operating under such a simplified approach to consider doses as being at or below the level applicable to other types of licensed facilities.

When compared to public exposures, there may be some additional flexibility in selecting a reference exposure level for the worker exposure scenario. For one thing, pathways such as inhalation and direct radiation, rather than ground water, would be expected to predominate. An evaluation of worker exposures will also consider the fact that these doses would not be to the broader public from radionuclides in the environment, but generally would be limited to a fairly small group of individuals. It may also be that workers would not expect to receive consistent annual exposures for a period of years because certain exposure scenarios might not occur regularly. Nevertheless, workers may be examined in the context of both maximally exposed members of

the public and as workers under NRC exposure regulations (workers handling AEA material are subject to NRC occupational requirements even if the facility is not licensed). The goal is to coordinate the selection of a level that provides appropriate protection and will not cause NRC to require significant additional worker protection requirements.

We request comment on the appropriate level of protection to use in our analyses (e.g., on a dose basis, 1 mrem, 10, 15, 25; on a risk basis, 10^{-4} , 10^{-5} , 10^{-6} ; lifetime or annual exposure). We would like commenters to address whether the same level(s) should apply to all analyses, or whether specific types of modeling (e.g., long-term performance or worker protection) should be based on different exposures, and if so, why. Would it depend on when the exposures would occur? The predominant pathways? Who the exposed person would be?

On a related issue, some of the radionuclides we examine may also have toxic effects separate from their radioactive properties. Many of these elements, such as lead, have already been evaluated within the RCRA framework. Others have not. Uranium, for example, is known to have effects on kidney function that may be of more concern than its radiation effects. The drinking water MCL in Table 1 did consider these toxic effects. How should we address such situations? Are there other elements that would be of particular concern?

E. What Legal Authority Does EPA Have Under the AEA?

The crux of our approach would be to provide an additional regulatory avenue for expanding the availability of mixed and other low-activity radioactive waste disposal options. Typically, when EPA establishes radiation protection standards, the statutory authority is the Atomic Energy Act of 1954, as amended,¹⁶ and Reorganization Plan

No. 3 of 1970 (the Plan).¹⁷ The Plan transfers to EPA the “functions of the Atomic Energy Commission (AEC) [now the NRC and the DOE] under the Atomic Energy Act” to the extent that those functions consist of establishing “generally applicable environmental standards for the protection of the general environment from radioactive material.”¹⁸ The Plan defines standards as “limits on radiation exposures or levels, or concentrations or quantities of radioactive material, in the general environment outside the boundaries of locations under the control of persons possessing or using radioactive material.”¹⁹ The functions of the AEC under the AEA include the authority to “establish by rule, regulation, or order, such standards and instructions to govern the possession and use of special nuclear material, source material, and byproduct material as the Commission may deem necessary or desirable to promote the common defense and security or to protect health or to minimize danger to life or property. * * * 42 U.S.C. 2201(b). To the extent that such rulemaking activity involves the establishment of generally applicable environmental standards this authority is vested in the Administrator of the EPA.

F. What Regulatory Approaches Could NRC Take With Respect to Disposal of LAMW?

NRC has provided us with general information on regulatory approaches it would consider for low-activity mixed waste disposal. These are:

1. Regulatory Approaches that Could Apply to RCRA Facilities

- **Specific License for RCRA—C Disposal Facility**—In this case, NRC would modify its regulations to allow a RCRA—C landfill facility wanting to accept for disposal LAMW meeting the

¹⁷ Reorganization Plan No. 3 of 1970. 35 FR 15623 (1970). Published October 6, 1970; effective December 2, 1970. 84 Stat. 2086 (1970) (codified at 5 U.S.C. App. 1).

¹⁸ *Id.* at section 2(a)(6).

¹⁹ *Id.*

¹⁵ 58 FR 66402, December 20, 1993.

¹⁶ 42 U.S.C. 2011 *et seq.* (1994).