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U.S. Nuclear Regulatory Commission (NRC)

GTCC Draft Regulatory Basis Decoupled from Part 61 Rulemaking

On October 23, 2018, a Staff Requirements Memorandum (SRM) was issued that directs U.S. Nuclear Regulatory Commission (NRC) staff to "decouple to the extent practicable the issuance of the draft Regulatory Basis directed in SRM-SECY-15-0094, 'Historical and Current Issues Related to Disposal of Greater-than-Class C Low-Level Radioactive Waste,' from Commission action on Part 61."

The SRM states, "This decoupling would allow for earlier public engagement on staff's analysis of any potential regulatory barriers to the disposal of Greater-than-Class C waste."

The SRM was issued following a staff briefing for the Commission on topics associated with the decommissioning and low-level radioactive waste, as well as spent fuel storage and transportation business lines.

Overview

In SRM–SECY–15–0094, which was issued on December 22, 2015, the Commission directed the NRC staff to develop a regulatory basis for disposal of Greater-than-Class C (GTCC) and transuranic waste through means other than a deep geologic disposal (including near surface disposal) within six months of the completion of the final rule for Part 61 of title 10 of the *Code of Federal Regulations,* "Low-Level Radioactive Waste Disposal." (See *LLW Notes,* January/February 2017, p. 26.) The Commission also directed the staff to conduct a public workshop during the development of the regulatory basis to receive input from stakeholders. On September 8, 2017, in SRM–SECY–16–0106, "Final Rule: Low- Level Radioactive Waste Disposal," the Commission revised its earlier directions regarding the development of the GTCC and transuranic waste regulatory basis. (See *LLW Notes,* September/October 2017, pp. 1, 21-23.) Specifically, the Commission directed the staff to develop the regulatory basis six months after the publication of the supplemental proposed rule for the 10 CFR Part 61 rulemaking.

The NRC staff is in the initial phase of implementing the Commission's directions in SRM–SECY–15–0094 and SRM–SECY–16–0106. Accordingly, on February 14, 2018, NRC issued a *Federal Register* notice announcing that the agency is seeking stakeholder participation and involvement in identifying the various technical issues that should be considered in the development of a regulatory basis for the disposal of GTCC and transuranic radioactive waste through means other than a deep geologic disposal, including near surface disposal. (See 83 *Federal Register* 6,475 dated February 14, 2018.)

According to the NRC, "[t]he process of potentially amending the NRC's regulations is very thoughtful and deliberative because it can have significant impacts on members of the public, [s]tates, licensees and other stakeholders." The regulatory basis describes the various scientific, technical and legal issues associated with a potential rulemaking. Therefore, as a part of the initial steps in implementing the Commission's directions, the staff held a public meeting with stakeholders on February 22, 2018 to identify the various technical issues that should be considered in the development of a regulatory basis for the disposal of GTCC and transuranic waste. The staff also requested that stakeholders respond to specific listed questions contained in the *Federal Register* notice that was issued on February 14, 2018. Stakeholder comments were accepted through April 16, 2018. (See *LLW Notes,* January/February 2018, pp. 29-33.)

When this initial phase is completed, staff plans to develop a regulatory basis, which will be provided for public review. Staff plans to hold public meetings on the draft regulatory basis as well. Once all of the foregoing is completed, the staff will develop a final regulatory basis.

Background

The NRC's "Licensing Requirements for Land Disposal of Radioactive Waste" are provided in 10 CFR Part 61. Section 10 CFR 61.2, "*Definitions,*" provides that waste as used in Part 61 means those low-level radioactive wastes containing source, special nuclear or byproduct material that are acceptable for disposal in a land disposal facility. The definition also indicates that low-level radioactive waste means radioactive waste not classified as high-level radioactive waste, transuranic waste, spent nuclear fuel or byproduct material as defined in paragraphs (2), (3), and (4) of the definition of byproduct material in § 20.1003.

The Statements of Consideration (SOC) for the 10 CFR Part 61 proposed rule explained that not all waste may be suitable for disposal in the near surface. Specifically, Section IV, "*Purpose and Scope,"* of the SOC indicates that, while 10 CFR Part 61 was intended to deal with the disposal of most low-level radioactive waste defined by the Low-Level Radioactive Waste Policy Act, the 10 CFR Part 61 waste classification system identified some low-level radioactive wastes that are not suitable for disposal under its regulatory framework, and alternative methods would have to be used.

In § 61.55, "*Waste classification,*" the NRC developed a classification system for waste for near surface disposal, which categorizes waste as Class A, B or C. This provision also describes waste that is not generally acceptable for near-surface disposal, whose disposal methods must be more stringent than those specified for Class C waste. This waste is referred to as GTCC waste.

Nuclear power reactors, facilities supporting the nuclear fuel cycle and other facilities and licensees outside of the nuclear fuel cycle generate the GTCC waste. This class of wastes include:

- plutonium- contaminated nuclear fuel cycle wastes;
- activated metals;
- sealed sources; and,
- radioisotope product manufacturing wastes – i.e., wastes "occasionally generated as part of manufacture of sealed sources, radiopharmaceutical products and other materials used for industrial, education, and medical applications."

Transuranic waste is not included in the § 61.2 definition of low-level radioactive waste. In a 1988 amendment to the Atomic Energy Act of 1954, as amended, a definition for transuranic was added. Transuranic waste is defined as "material contaminated with elements that have an atomic number greater than 92, including neptunium, plutonium, americium, and curium, and that are in concentrations greater than 10 nanocuries per gram [(nCi/g)], or in such other concentrations as the [U.S.] Nuclear Regulatory Commission may prescribe to protect the public health and safety." Transuranic waste is a byproduct of nuclear research and power production and is primarily produced from spent fuel recycling, medical isotope production or nuclear weapons fabrication. The waste may consist of rags, tools and laboratory equipment contaminated with organic and inorganic residues.

The identification and evaluation of regulatory concerns associated with land disposal of GTCC and transuranic waste will largely depend on the characteristics of the wastes – i.e., isotopes; concentrations and volumes of waste; and, physical and chemical properties. The variable characteristics of the waste can influence the decision regarding the appropriate regulatory approach to use for management and disposal of these wastes. Overly conservative assumptions for the inventory and characteristics could significantly limit disposal options, whereas, overly optimistic assumptions with respect to characteristics could lead to a disposal facility that may not provide adequate protection of public health and safety and security.

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