

# POLICY ISSUE INFORMATION

December 31, 2009

SECY-09-0188

FOR: The Commissioners

FROM: R. W. Borchardt  
Executive Director of Operations

SUBJECT: ANNUAL REVIEW OF THE NEED FOR RULEMAKING AND/OR  
REGULATORY GUIDANCE ON LOW-LEVEL RADIOACTIVE  
WASTE STORAGE

PURPOSE:

This review reaffirms the staff's previously stated position that rulemaking related to extended interim low-level radioactive waste (LLRW) storage is unnecessary. It also serves to inform and update the Commission regarding the staff's efforts to collect information about extended interim storage of LLRW; the staff's continuing efforts to solicit stakeholder input; and the staff's intention to draft updated storage guidance for all licensees if limitations on LLRW disposal access continue beyond Calendar Year (CY) 2010.

SUMMARY:

As stated in SECY-06-0193, "Annual Review of the Need for Rulemaking and/or Regulatory Guidance on Low-Level Waste Storage," dated September 6, 2006, (ADAMS Accession No. ML061730187), staff considers rulemaking to address extended interim storage of LLRW unnecessary. The current regulatory framework provides an adequate basis for storing radioactive material, including radioactive waste. Staff will continue its efforts, as outlined in last year's annual update, SECY-08-0124, "Annual Review of the Need for Rulemaking and/or Regulatory Guidance on Low-Level Radioactive Waste Storage," dated August 29, 2008, (ADAMS Accession No. ML081970503), to review, update as necessary, and consolidate regulatory guidance related to extended interim storage of waste. There have been several emerging issues during the past year that reinforce the need for this effort. These issues

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include, but are not limited to, the admission of contentions related to the management of LLRW in a number of new reactor licensing proceedings and concerns regarding the financial viability of some materials licensees with stored radioactive material that has no disposal pathway.

#### BACKGROUND:

In a Staff Requirements Memorandum for SECY-03-0223, "Rulemaking Plan: Assured Isolation Facilities," dated January 29, 2004, (ADAMS Accession No. ML040290568), the Commission directed staff to provide an annual update on the need for regulations or regulatory guidance related to extended interim storage of LLRW. In 2005, staff advised the Commission that regulations specific to extended interim storage of LLRW were unnecessary and that existing guidance was sufficient. In SECY-06-0193, staff maintained its position that the U.S. Nuclear Regulatory Commission's (NRC's) regulatory framework was sufficient for regulation of LLRW storage. However, the staff informed the Commission of its intention to review and possibly update storage guidance. Staff cited the age of the guidance and the increased likelihood that storage issues were likely to become more relevant to many licensees due to the likely loss of access to the Barnwell Low-Level Radioactive Waste Disposal Facility (LLRWDF) as of July 2008, as reasons for revisiting NRC's LLRW guidance. Staff also advised the Commission that the initial focus would be on updated guidance for fuel cycle and materials licensees, which may be forced to store waste designated Class B, C, or Greater than Class C (GTCC). Staff noted that while utility licensees would be dealing with larger volumes of this type of waste, they already had the infrastructure and resources in place to manage extended interim storage so the need for updated guidance was less acute. Further, the staff was aware of an effort by the Electric Power Research Institute (EPRI), on behalf of the Nuclear Energy Institute (NEI), to develop guidelines for operating interim on-site LLRW storage facilities.

In its 2007 annual report, SECY-07-0183, "Annual Review of the Need for Rulemaking and/or Regulatory Guidance on Low-Level Radioactive Waste Storage," dated October 22, 2007, (ADAMS Accession No. ML072500106), staff outlined its process for reviewing, updating and vetting guidance for extended interim storage of LLRW for fuel cycle and materials licensees. Additionally in 2007, the Advisory Committee on Nuclear Waste issued a white paper, NUREG-1853, "History and Framework of Commercial Low-Level Radioactive Waste Management in the United States" (ADAMS Accession No. ML0706006848). The NUREG provides a concise history of the genesis of radioactive waste disposal and the issues that are still extant.

In the report last year, SECY-08-0124, staff informed the Commission of the completion and dissemination of Regulatory Issue Summary (RIS) 2008-12, "Extended Interim Storage of Low-Level Radioactive Waste by Fuel Cycle and Materials Licenses" (ADAMS Accession No. ML073330725), as well as ongoing efforts to update two Inspection Procedures for fuel cycle and materials licensees related to low-level waste storage. These procedures, Inspection Procedure (IP) 84850, "Radioactive Waste Management-Inspection of Waste Generator Requirements of 10 CFR Part 20 and 10 CFR Part 61" (ADAMS Accession No. ML080720528) and IP 84900, "Low-Level Waste Storage" (ADAMS Accession No. ML080710243) were revised in December 2008. Staff also informed the Commission of continuing dialogue with internal and external stakeholders that are interested in the technical and regulatory aspects of extended

interim storage of low-level radioactive waste. The purpose of this dialogue is to collect information necessary to help update and consolidate guidance related to extended interim storage of LLRW.

#### DISCUSSION:

In light of the closure of the Barnwell, South Carolina (SC) LLRWDF to LLRW generators in the 36 States (plus the District of Columbia and Puerto Rico) that are outside of the Atlantic LLRW Compact, nuclear utilities, fuel cycle facilities, and radioactive materials users have had to find storage solutions for their Class B and C LLRW. Generators in 11 States that comprise the Northwest and Rocky Mountain Compacts can dispose of Class A, B, and C LLRW at the Richland, Washington (WA) LLRWDF. While the loss of access to the Barnwell facility has resulted in a gradual increase in the volume of Class B and C LLRW requiring storage, both NRC and Agreement State licensees have continued to meet the challenge of safely and securely storing waste. The Energy Solutions, Clive, Utah LLRWDF continues to accept Class A LLRW from States not served by LLRW Compact facilities in SC and WA.

Of the 104 operating nuclear power plant units, 14 are located in states within compacts with a LLRWDF that will continue to accept Class B and C waste. (This number will increase to 19 when the newly licensed Waste Control Specialists disposal facility becomes operational to serve the Texas LLRW Compact (Texas and Vermont).) Plants that do not have a disposal outlet for Class B and C waste are likely to continue to accumulate waste at an annual rate of up to 200-250 ft<sup>3</sup>/ per unit. This figure may be reduced over time as initiatives to reduce the volume of Class B and C waste produced during operations are implemented.

On December 30, 2008, NRC staff issued RIS 2008-32 "Interim LLRW Storage at Reactor Sites," (ADAMS Accession No. ML082190768), which both summarizes and reaffirms earlier guidance related to LLRW storage. The RIS also acknowledges a document prepared by the EPRI entitled "Guidelines for Operating an Interim On-Site Low-Level Waste Storage Facility", Final Draft April 2008 (available ADAMS Accession No. ML081580270). The staff found the EPRI guidelines to be consistent with other NRC guidance, such as NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: Light Water Reactor Edition- Chapter 11, Radioactive Waste Management," March 2007 (ADAMS Accession No. ML070660036). In RIS 2008-32, the staff states that the EPRI guidelines report provides an acceptable method for recordkeeping, determining waste forms and waste containers, as well as monitoring and inspecting the extended long-term storage (herein referred to as extended interim storage) of LLRW. As noted previously, guidance for fuel cycle and materials licensees was issued in RIS 2008-12.

The lack of disposal access has recently become an issue in the licensing of new reactors. Intervenor contend that uncertainties regarding the availability of disposal of Class B and C LLRW will require new facilities to provide for storage of LLRW for far longer than anticipated in Safety Analyses. Both safety and environmental concerns are cited. In one case, the Commission reversed an Atomic Safety and Licensing Board order to admit such a contention (i.e., CLI-09-03 (ADAMS Accession No. ML090480541)). But in several recent orders (e.g., CLI-09-16 (ADAMS Accession No. ML092120239)), such contentions have been admitted

without reversal<sup>1</sup>, while others have been largely rejected with only narrow scope to those portions admitted. While it is outside the applicant's purview to "solve" the LLRW disposal issue, it is becoming clear that the applicants' management of Class B and C LLRW for significant time periods is an appropriate issue for consideration by the staff and the applicants. As the majority of recent combined license applications have no clearly defined disposal pathway for Class B and C LLRW, it will be important for the staff to monitor this issue and determine if additional guidance may be needed.

There are approximately 19,600 materials licensees in 37 Agreement States and 3,000 materials licensees in 13 non-Agreement States and other U.S. territories and possessions under NRC jurisdiction. While most of these licensees generate only Class A waste, a significant number do generate Class B and C LLRW and will be required to deal with the loss of disposal capacity for their Class B and C waste. The most likely waste streams appear to be radioactive sealed sources and liquids containing relatively long-lived isotopes resulting from radiochemical production. Total annual volumes are approximately 1,000 ft<sup>3</sup>.

It is anticipated that fuel cycle facility and materials licensees can effectively manage extended interim storage of Class B and C LLRW for the near-term. Fuel cycle facilities have the infrastructure and resources to do this, while materials licensees produce a much smaller volume of Class B and C LLRW. But licensees that produce liquid Class B or C waste, licensees undergoing decommissioning, or licensees relocating their facilities may have difficulties managing their Class B and C LLRW.

The NRC staff continues to be involved in the discussion of sealed source disposal and security. The staff continues to interact with the Group on Recovery and Disposition Options for Disused Radioactive Sealed Sources, Activation/Reconstitution of Radiation Source Security Task Force and GCC Focus Group on Recovery and Disposition Options for Disused Radioactive Sealed Sources. The working groups and task force participation provides an opportunity for the staff to be continuously engaged with the issues. Also, the National Nuclear Security Agency is in the process of collecting and storing certain radioactive sealed sources as part of its off-site source recovery program. This provides an avenue to retrieve sealed sources.

The NRC staff has prepared a communication plan that discusses some of the challenges and cites the guidance associated with the extended interim storage of Class B and C LLRW. The plan was provided to all State Radiation Control Program Directors and State Liaison Officers on November 19, 2008.

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<sup>1</sup> In CLI-09-03 the Commission's decision to reverse the Licensing Board dealt with the contention that focused on the regulations in 10 CFR Part 61 that govern LLRW disposal, whereas the contention at issue in CLI-09-6 concerned 10 CFR Parts 20 and 53. See CLI-09-16, fn.8.

The staff also developed a work plan which identified several issues (discussed below) related to extended interim LLRW storage that may be included in future guidance. The work plan also discussed the need for continuing dialogue with both internal and external stakeholders. The work plan was distributed to other affected headquarters and regional offices in February 2009.

On October 7, 2009, the Office of Federal and State Materials and Environmental Management Programs (FSME) staff held a meeting to gather stakeholder comments about the effect of the loss of LLRW disposal access on radioactive material users in academic and medical research. While no one cited the need for additional guidance on aspects of storage, some participants did express concerns about the cost and inconvenience of extended interim LLRW storage. Some also cited the need to convert facilities earmarked for other, more productive uses into LLRW storage facilities. Participants also cited security and worker exposure concerns. A summary of the October 7 meeting is available for review (ADAMS Accession No. ML092880748).

FSME staff will continue to coordinate with headquarters offices including the Offices of Nuclear Material Safety and Safeguards, Nuclear Reactor Regulation, and New Reactors to ensure the identification and dissemination of any common issues associated with extended interim storage of LLRW. If security issues are identified, the Office of Nuclear Materials and Incident Response will be consulted. Staff will continue to seek input from regional inspection personnel regarding LLRW storage issues.

The staff will continue to interact with Agreement State radiation control program officials to remain informed of any incremental problems or concerns arising from extended interim storage of LLRW by state radioactive materials licensees. This will be accomplished by participation in periodic Agreement State conference calls, as well as interaction with State officials at various annual conferences.

The staff will also maintain a dialogue with representatives from key industry groups, such as the Council on Radiological and Radiopharmaceutical Manufacturers, NEI, Campus Radiation Safety Officers, and other representatives of medical and academic research interests.

The staff will continue dialogue with large institutions that have unique storage issues related to the production of medical isotopes.

There will also be a continuing dialogue at public meetings with licensees, industry representatives, state radiation control officials, and other stakeholders. The staff anticipates holding a number of meetings in Fiscal Year (FY) 2010; staff will also participate in other related meetings held by other government agencies and outside organizations.

#### Staff Plans for Consolidation of Existing and Development of Supplemental Guidance:

In the near term, the staff is preparing a vote paper to the Commission on the blending of low-level waste. The recommendations from the blending paper could determine a new direction in forming guidance or rulemaking on the blending of low-level waste. Addressing the blending issue could also lead the staff to update policy statements, such as the Policy Statement on Low-Level Waste Volume Reduction and further changes to the overall guidance associated with the management of LLRW.

The Conference of Radiation Control Program Directors has surveyed its member States regarding the disposition of radioactive sealed sources. Results of this survey are likely to provide some additional insight and perspective related to the need for additional guidance related to storage of LLRW.

Officials from several States have expressed the need for the development of centralized LLRW storage facilities. These facilities would allow regulatory authorities to store unwanted or “orphan” radioactive sources or material that would otherwise not be under regulatory control. It is likely that such facilities would be licensed and regulated by Agreement States, with possible technical assistance provided by NRC through extended interim storage guidance.

State officials have expressed concern about decommissioning of facilities with LLRW for which there is no disposal access. This suggests that a radioactive waste “possession only” license may be needed following decommissioning, to provide a means for continued regulatory oversight of LLRW requiring extended interim storage.

For licensees that will continue operations, but that possess radioactive material for which future use is questionable, it may be necessary to more clearly distinguish between useable radioactive material and material for which the licensee has no further use nor identifiable disposition pathway. For radioactive sources to which it applies, the National Source Tracking System may be helpful in addressing this issue.

State officials have raised concerns about the capability of some licensees to provide financial assurance for end-of-useful-life disposition of their licensed materials. This has been the subject of a Financial Assurance Working Group that evolved from the implementation plan for the “2006 Radiation Source Protection and Security Task Force Report,” August 2006 (ADAMS Accession No. ML062190349). While the focus of the working group is on Category 1 and 2 radioactive sealed sources, it is likely that the results of its efforts could inform guidance related to adequacy of financial assurance for other categories of stored LLRW.

There has been recent anecdotal evidence that a few licensees are encountering financial difficulties for reasons other than radioactive waste management. But no matter the reason, licensee financial difficulties can create the potential for a licensee to lose control of radioactive material. Supplemental guidance may be necessary to train inspectors to recognize and identify problems regarding timeliness, overall business viability, and financial capability to manage and dispose of LLRW.

The staff anticipates that continuing dialogue with stakeholders, as discussed above, may lead to other issues to be addressed in future LLRW storage guidance.

COMMITMENTS:

The staff has committed to the following actions in this paper:

1. Continue stakeholder interaction regarding any emerging issues that may result from the need for extended interim storage of Class B and C low-level radioactive waste.
2. Continue to develop and compile detailed guidance related to extended interim storage of LLRW. This guidance could be integrated into a comprehensive NUREG on extended interim storage of LLRW. If the NUREG is deemed necessary, it will contain guidance for all licensees in one document. Preparation of the NUREG would be predicated on the current challenges related to access to LLRW disposal continuing throughout CY 2010.

RESOURCES:

The staff's commitments in this paper are consistent with SECY-07-0180, "Strategic Assessment of Low-Level Radioactive Waste Regulatory Program," dated October 17, 2007, (ADAMS Accession No. ML071350299). Staff estimates that approximately 0.3 FTE will be required for the effort discussed in this paper; these resources are included in the FY 2010 budget. If during implementation staff identifies the need for additional resources beyond those already budgeted, then the staff will estimate the resources needed and consider them within the overall context of the add/shed process.

COORDINATION:

The Office of General Counsel has reviewed this paper and has no legal objection. The Office of the Chief Financial Officer has determined that its concurrence is not required.

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