

# Integrated Low- Level Radioactive Waste Disposal Proposed Rule

**Daniel B. Shrum P.G.  
Low-Level Waste  
Forum**

## Public Meeting - Integrated Low- Level Radioactive Waste Disposal Rulemaking

January 23, 2024

# Integrated Low- Level Radioactive Waste Disposal Proposed Rule

Shrum, LLWF



SECRETARY

UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

MEMORANDUM TO:

Daniel H. Dorman  
Executive Director for Operations

FROM:

Brooke P. Clark, Secretary   Brooke P. Clark

Digitally signed by Brooke P.  
Clark  
Date: 2022.04.05 13:14:18 -04'00'

SUBJECT:

STAFF REQUIREMENTS – SECY-20-0098 – PATH FORWARD  
AND RECOMMENDATIONS FOR CERTAIN LOW-LEVEL  
RADIOACTIVE WASTE DISPOSAL RULEMAKINGS

The Commission has approved the staff's recommended Option 1, to issue a new proposed rule that consolidates and integrates criteria for licensing the disposal of greater-than-Class C (GTCC) waste and Title 10 of the *Code of Federal Regulations* (10 C.F.R.) Part 61, "Low-Level Radioactive Waste Disposal," rulemaking activities, and provides for Agreement State licensing of those GTCC waste streams that meet the regulatory requirements for near-surface disposal and do not present a hazard such that the NRC should retain disposal authority. Additionally, for GTCC waste streams containing strategic special nuclear material, the Commission has approved the staff's recommendation to explore regulatory approaches that would allow for a single regulator for an Agreement State licensee disposing of GTCC waste in a land disposal facility, including potential amendment to 10 C.F.R. §§ 150.14 and 150.15.

The staff should take another look at the technical basis for the performance objectives in Part 61 and ensure that the compliance period is based on scientific data. Rather than using the same compliance period for disposal sites containing significant amounts of depleted uranium, GTCC, or transuranic waste, the staff should consider a site-specific, graded approach based on when the peak dose is projected to occur or establish a longer compliance period for disposal sites containing significant quantities of mobile, long-lived radionuclides.

If during its development of the new proposed rule the staff determines that provisions in the final rule provided to the Commission in SECY-16-0106 are protective of public health and safety, including for long-lived radionuclides, the staff should propose those provisions to the Commission.

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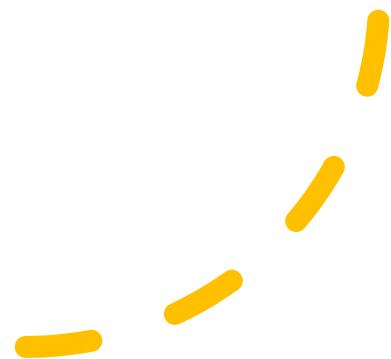
- GTCC – what will the rule encompass?
- Compliance Period – just a comment and a question
- Intruder Analysis – Why do a PA?
- Exception Clause – Need for change?
- SRM SECY-16-0106 – Regulatory analysis was not sufficient

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## Greater than Class C

Disposal is preferable to Storage



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## GTCC (NRC Background)

- The Low-Level Radioactive Waste Policy Amendments Act of 1985 (Amendments Act) states that GTCC waste, "result[ing] from activities licensed by the [NRC] . . . shall be disposed of in a facility licensed by the [NRC]." DOE was assigned responsibility for disposal of GTCC low-level radioactive waste (LLRW). The Act does not address Agreement State regulation of the disposal of GTCC waste generated as a result of [Agreement State] licensed activities. Also, Section 274 of the AEA provides for Agreement State licensing of disposal of byproduct material (i.e., GTCC waste) unless the Commission finds that "because of the hazards" or "potential hazards" it should be licensed by the Commission.

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## GTCC

- § 61.55.a.2.(iv) Waste that is not generally acceptable for near-surface disposal is waste for which form and disposal methods must be different, and in general more stringent, than those specified for Class C waste. In the absence of specific requirements in this part, such waste must be disposed of in a geologic repository as defined in part 60 or 63 of this chapter unless proposals for disposal of such waste in a disposal site licensed pursuant to this part are approved by the Commission.

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## GTCC

- Will all agreement states assume regulatory authority over GTCC? (dual licensing at ISFSI facilities)
- Will Compacts have authority over the movement of GTCC consistent with the LLRWPA?
- Will Compacts have authority over the disposal of commercial GTCC if waste is going to an agreement state licensed facility?

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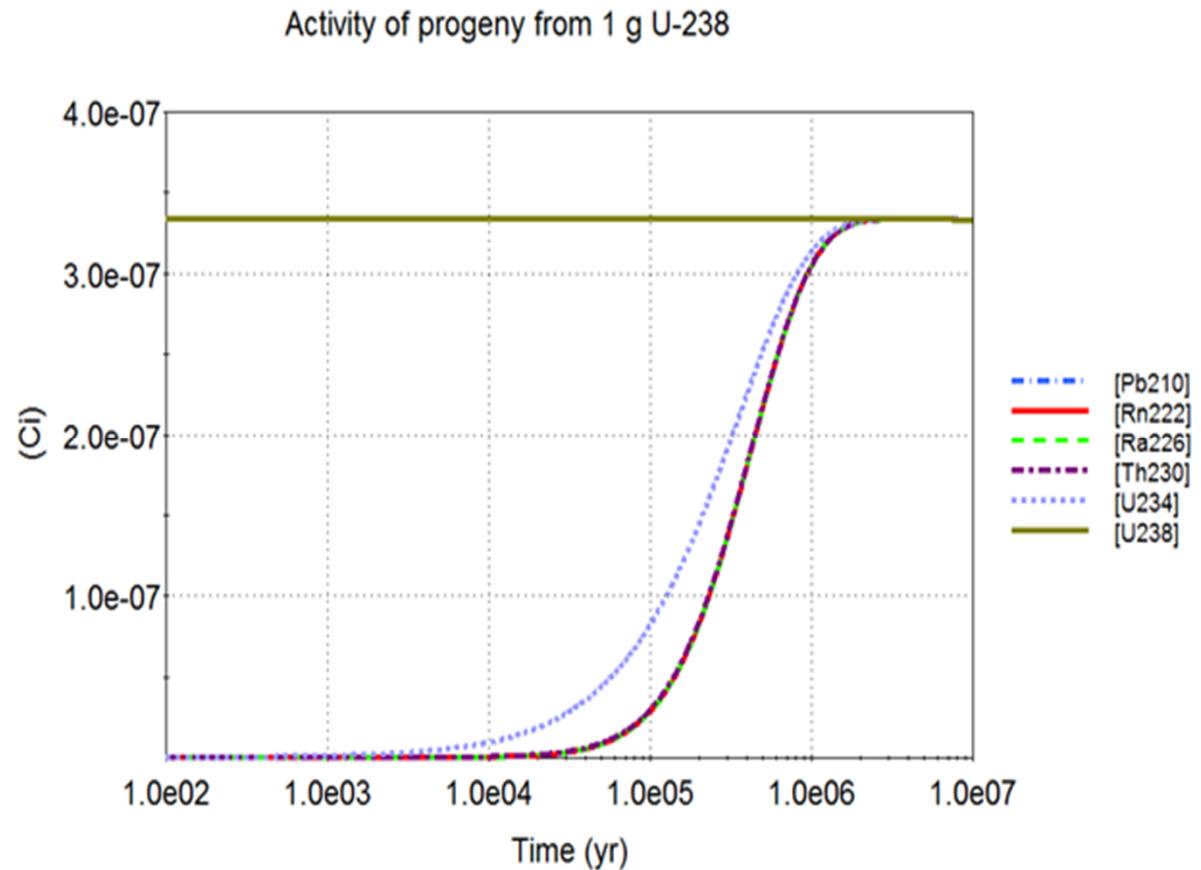
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## Compliance Period

- Commission direction has two options
  - Peak dose or
  - Use different compliance periods depending on the long-lived component of the waste
- Staff is considering the latter option – flexible and site-specific
- Compliance period of 1,000 years without significant quantities of long-lived radionuclides otherwise 10,000 years and performance period

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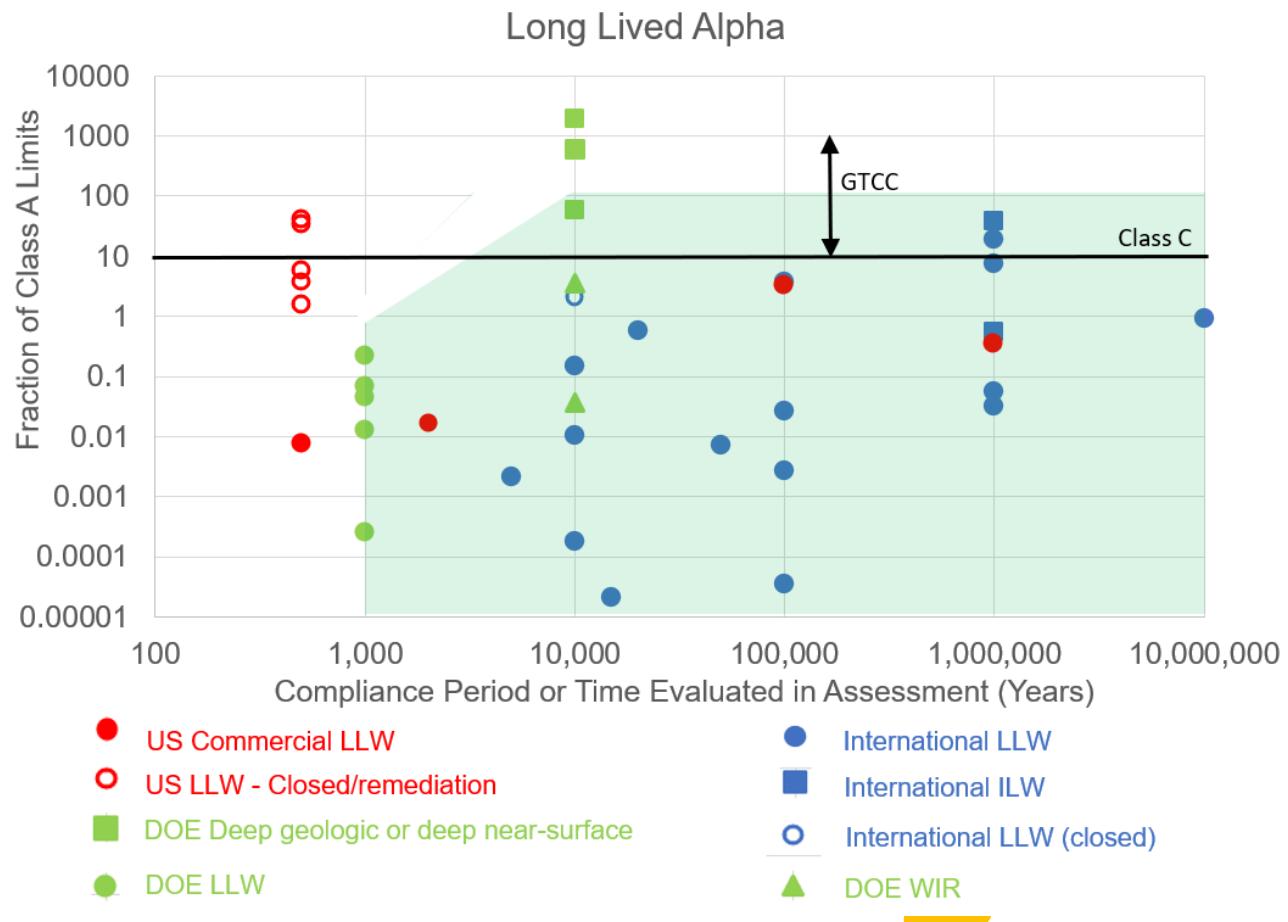
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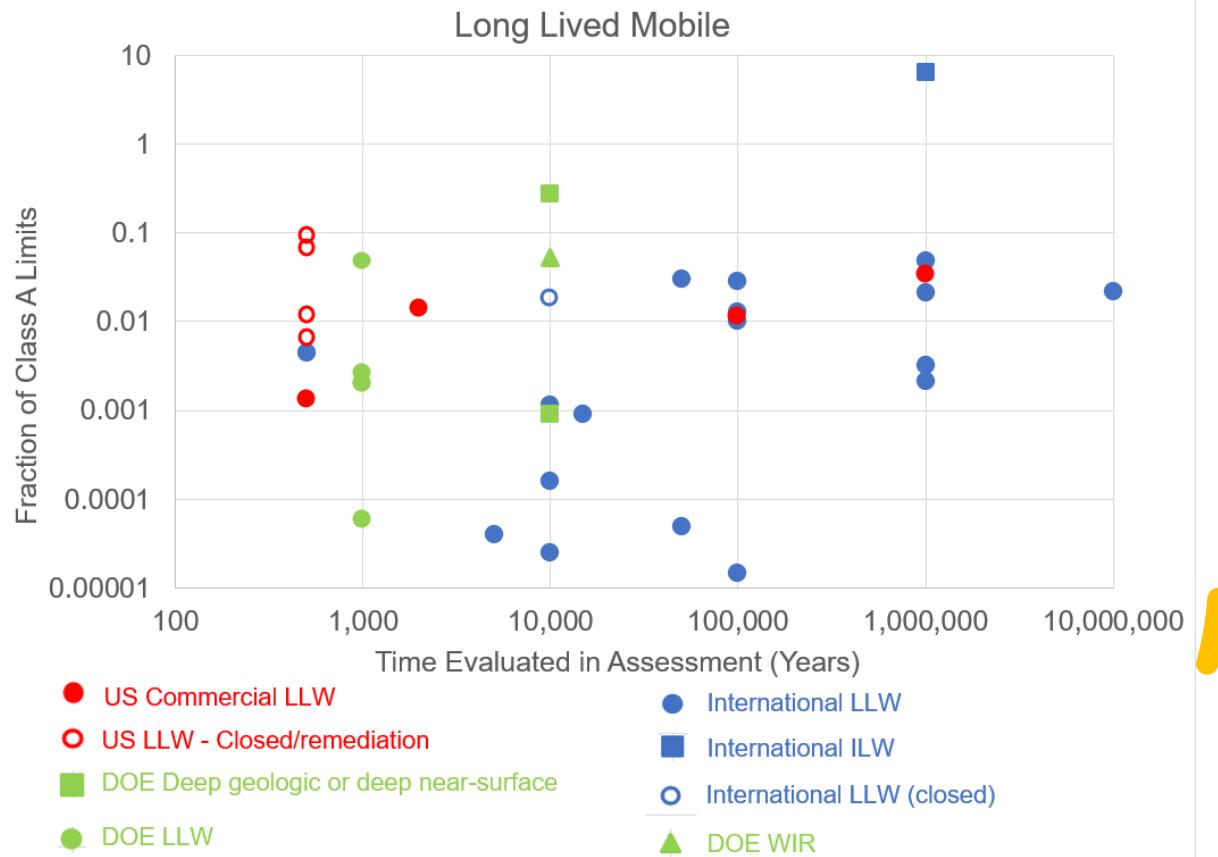
## Compliance Period



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## Compliance Period



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## Compliance Period

- Will a Compliance Period AND a Performance Period be required? What are the requirements that must be met during the Performance Period?
- A PA helps inform a licensing decision – based on my last several years – the PA IS the licensing decision. PAs have limits in evaluating uncertainty because of inputs – it doesn't mean that sites can't be licensed.
- My goal is to get the next facility licensed - we need to have a reasonable and flexible approach.

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## Performance Assessment

- The technical analyses completed for existing sites for the potential impacts to an offsite member of the public are considered synonymous with a modern performance assessment
- Understanding, tools, and capabilities have improved significantly since the early 1980's – Probabilistic?
- Significant guidance developed to support the proposed requirements for performance assessment (e.g., FEPs, uncertainty, model support)

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## Intruder Assessment

- The basis for § 61.55 in the current regulation is an NRC intruder assessment
- Revised requirements would allow for a site-specific intruder assessment

**This is a flexible and risk-informed approach**



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## Intruder Assessment

- Is mandating a probability of 1 (i.e., requiring that an intruder contact the waste) consistent with a **“flexible and risk-informed approach”?**
- A probability of 1 and a 500 mrem/yr compliance dose is comparing apples and oranges.
- Are we setting this up for never ending, What If scenarios?

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## Exception Criteria

- § 61.1 (a) The regulations in this part establish, for land disposal of radioactive waste, the procedures, criteria, and terms and conditions upon which the Commission issues licenses for the disposal of radioactive wastes containing byproduct, source and special nuclear material received from other persons. Disposal of waste by an individual licensee is set forth in part 20 of this chapter. Applicability of the requirements in this part to Commission licenses for waste disposal facilities in effect on the effective date of this rule will be determined on a case-by-case basis and implemented through terms and conditions of the license or by orders issued by the Commission.

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## 10 CFR Part 61 redline

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## Exception Criteria

- § 61.1 (b) (Purpose and scope)
  - Exception criteria
    - the land disposal facility license was originally issued before the effective date of this rule; **and**
    - the licensee does not accept GTCC or a significant quantity of long-lived radionuclides after the effective date of this rule
  - Licensees who meet these exceptions do not need to comply with revised Technical Analyses (§ 61.13), revised Performance Objectives (§ 61.41 and § 61.42), and WAC (§61.58)
  - Excepted licensees would be required to comply with original Part 61 regulations for these sections above

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## Regulatory Analysis

- SRM SECY-16-16-0106 stated that the Regulatory Analysis (RA) was not sufficient. How is staff addressing direction to develop a broader and more fully integrate RA that includes potential for increased disposal costs, additional costs for generators, a DOE DU disposal option, and impacts to the current regulatory framework?