



Hot Topics In Commercial Low-Level Waste Management

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Waste Management Symposia

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Topics

- 10 CFR Part 61 Low-Level Waste (LLW) Disposal Rulemaking
- Revision to Concentration Averaging and Encapsulation Branch Technical Position
- Revisions to NUREG/BR-0204 (Uniform Waste Manifest)
- Greater-Than-Class C (GTCC) LLW Waste
- Update of the NRC's LLW Programmatic Assessment

In March 2009, the Commission Direction in SRM-SECY-08-0147 identified two tasks:

- Specify a requirement for a site-specific analysis, technical parameters (i.e., new definitions and performance period) to support such analysis, and develop a guidance document
- “...in a future budget request, the staff should propose the necessary resources for a comprehensive revision to risk-inform the Part 61 waste classification framework, with conforming changes to the regulations as needed, using updated assumptions and referencing the latest ICRP methodology...”
“...This effort should explicitly address the waste classification of depleted uranium....”

In January 2012, Commission Redirection in SRM-COMWDM-11-0002/ COMGEA-11-0002 directed staff to:

- Ensure flexibility for the use current International Commission on Radiological Protection (ICRP) dose methodologies
- Use a two-tiered period of performance:
 - Tier 1: Compliance period covering reasonably foreseeable future
 - Tier 2: Longer period based on site characteristics and peak dose to a designated receptor, that is not a priori
- Ensure flexibility to establish site-specific waste acceptance criteria based on the results of the site's performance assessment and intruder assessment
- Balance Federal-State alignment and flexibility

2014 Commission Direction SRM-SECY-13-0075 told staff to:

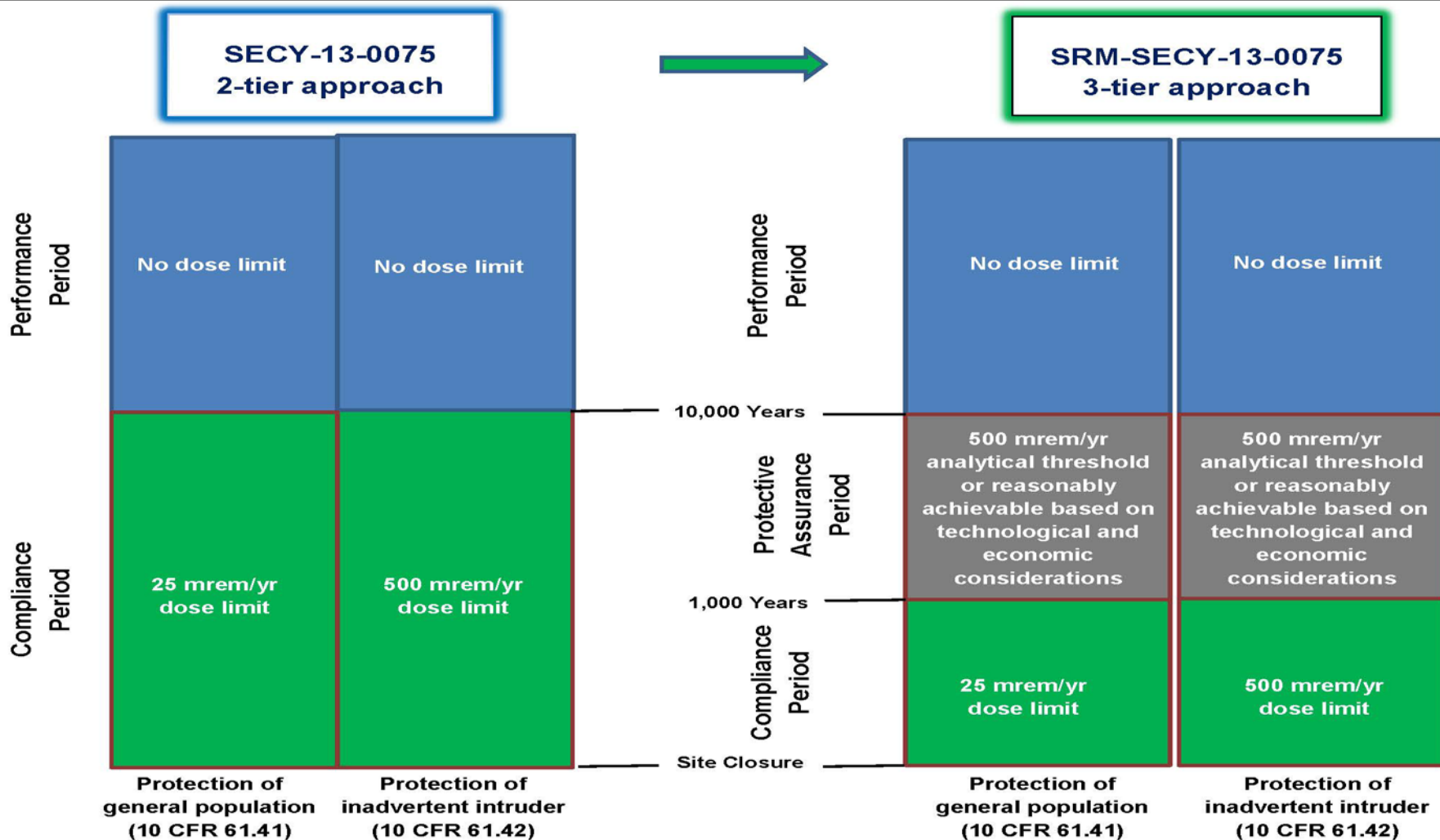
- Include a regulatory compliance period of 1,000 years with a specific dose limit of 25 mrem/yr
- Publish the proposed rule with a compatibility category “B” applied to the most significant provisions of the revised rule, including the:
 - Compliance Period
 - Protective Assurance Period and its analytical threshold
 - Waste Acceptance Criteria
- Require a 10,000 year intruder assessment analysis, built upon the same assumptions as the compliance and protective assurance analyses contained in the rule

2014 Commission Direction SRM-SECY-13-0075 told staff to:

- Ensure that the intruder scenarios are based on expected activities on and around the disposal site at the time of closure
- Ensure that licensing decisions are based on defense-in-depth protections (e.g. siting, waste forms) and performance assessment goals/insights, the safety case for licensing
- Ensure that the LLW community has the opportunity to thoroughly review the associated guidance
- Perform a protective assurance analysis for the period covering the end of the compliance period through 10, 000 years which should reflect changes in features, events and processes of the natural environment as such information is available

Commission Direction

SRM-SECY-13-0075



Next Steps:

- Proposed rule was published for public comment in February 2015 along with the associated guidance document
- A public meeting will be held on this Friday, after the Waste Management Symposium
- We also plan to conduct additional public meetings in the coming months to facilitate public comments on the proposed rule and guidance document.
- After a 120 day comment period, the staff will consider the comments received and make a recommendation to the Commission on the final rule wording.
- The Commission will then vote on the staff's proposed final rule language

Revision of the BTP: Concentration Averaging and Encapsulation

- **CA BTP provides guidance concerning the averaging allowed by 10 CFR Part 61 by recommending limits on the size and intensity of hot spots**
- **Improvements in the May 2012 Revised Draft BTP were:**
 - Performance-based and Risk-informed
 - Blended LLW
 - Encapsulation of sealed sources
 - Cartridge Filters

Revision of the BTP: Concentration Averaging and Encapsulation

Major Changes in the CA BTP:

- Reorganized, added background material and glossary of terms and expanded technical basis
- Changed the Cs-137 sealed source limit from 30 Ci to 130 Ci
- Implemented the Commission's direction on LLW blending by specifying how homogeneity of blended waste should be demonstrated
- New Alternative Approaches section that Improves the process for use of site- and waste-specific averaging approaches
- Revised the Factor of 2 and 10 averaging constraints for discrete items

Revision of the BTP: Concentration Averaging and Encapsulation

Next Steps:

- Staff issued the BTP in February 2015 and is currently working on an implementation plan
- Staff has had several interactions with Sited Agreement States
- Staff anticipates conducting BTP training workshops through webinars and also having separate onsite workshops on the West coast and one possibly on the east coast
- Staff plans to provide an update on the status of the BTP at the Low-Level Waste Forum Meeting in Alexandria, VA

Proposed Revisions to NUREG/BR-0204: Uniform Waste Manifest (UWM)

- **10 CFR Part 20 Appendix G requires that an NRC UWM be prepared for waste intended for ultimate disposal at a licensed LLW land disposal facility:**
 - Requires separate manifest totals for H-3, C-14, Tc-99, and I-129 (the Phantom 4) to be reported on UWM
 - Does not state how these activities are derived
- **NUREG/BR-0204 provides the following instructions for completing NRC's UWM:**
 - If these radionuclides are present in a shipment at levels less than the Lower Limit of Detection (LLD), the LLD value *must* be reported

Proposed Revisions to NUREG/BR-0204: Uniform Waste Manifest (UWM)

- **Suggested revisions to NUREG/BR-0204:**
 - Removal of the word “must” from the document
 - Allow use of indirect methods (e.g. scaling factors) for reporting Phantom 4 activities on UWM
 - Revision of certification statement to address shipments to processors
- **Staff issued a Regulatory Issue Summary (RIS) in the interim which:**
 - Informs addressees of the option to use indirect methods to determine the activity of H-3, C-14, Tc-99 and I-129 for reporting on the manifest when the radionuclide concentration present is less than the LLD

Proposed Revisions to NUREG/BR-0204: Uniform Waste Manifest (UWM)

- **Path Forward for the NUREG:**
 - Part 61 rulemaking also requires changes to the UWM
 - For efficiency, NUREG revision is currently tied to the Part 61 rulemaking
 - If Part 61 delayed, NUREG/UMW changes will proceed
 - NUREG and UWM forms will be published for public comment

Greater Than Class C Low-Level Radioactive Waste

- **Section 3(b)(2) of the LLRWPA states that:**
 - *GTCC waste resulting from activities licensed by the NRC under the Atomic Energy Act of 1954, as amended, which is also referred to as commercially generated waste, must be disposed of in a facility licensed by the NRC based on the Agency's determination that the facility is adequate to protect public health and safety*
- **NRC staff is reviewing the Texas Commission on Environmental Quality's request for clarification on the State of Texas' jurisdiction to license the disposal of GTCC, GTCC-like and transuranic waste**

Greater Than Class C Low-Level Radioactive Waste

- **NRC staff is preparing a Commission paper which is scheduled to be completed in May 2015 that will:**
 - Provide legislative and regulatory history on GTCC waste disposal
 - Discuss disposal challenges of GTCC waste
 - Provide plans to develop technical requirements
 - Discuss staff analysis of State of Texas's request on its jurisdiction to license the disposal of GTCC, GTCC-like and transuranic waste
 - Provide recommendations based on staff analysis

Low-Level Waste Strategic Assessment

- **A total of twelve submittals were received in response to the FRN postings for comments. These submittals were from:**
 - NGOs
 - State Regulators
 - LLW Compacts
 - Industry Organizations
 - Licensees
 - one anonymous commenter
- NRC staff also considered the comments received during public meetings and webinars
- Staff has evaluated the comments and a Federal Register Notice will be issued in March which will present an updated prioritized list of LLW activities

Questions/Comments



Backup Slides

Content of Part 61 Proposed Rule

SECY-13-0075


Publication


- Analysis Time Frames (2 – tier)
- Performance Assessment
- Intruder Assessment

- Analysis Timeframes (3 – tier)
- Performance Assessment
- Intruder Assessment
- Explicit Description of Safety Case
- Defense In Depth Analysis
- Site Stability Analysis

- Waste Acceptance Criteria
- Updated ICRP Dosimetry Modeling
- Compatibility Category C

- Waste Acceptance Criteria
- Updated ICRP Dosimetry Modeling
- Compatibility Category B

 = Minor change resulting from SRM Direction

 = Major change resulting from SRM Direction

Waste Acceptance Criteria

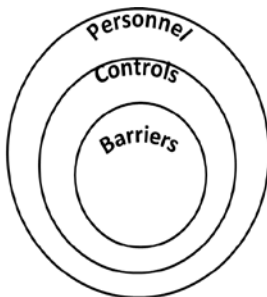


- SRM-COMWDM-11-0002/COMGEA-11-0002 directed staff to include flexibility to establish site specific WAC
- SECY-13-0075 approach replaces 61.58 with new requirements for developing WAC using either:
 - 61.55 waste classification system, or
 - site-specific WAC
- New 61.58 focuses on three areas:
 - WAC
 - Waste Characterization
 - Waste Certification

Defense-in-Depth

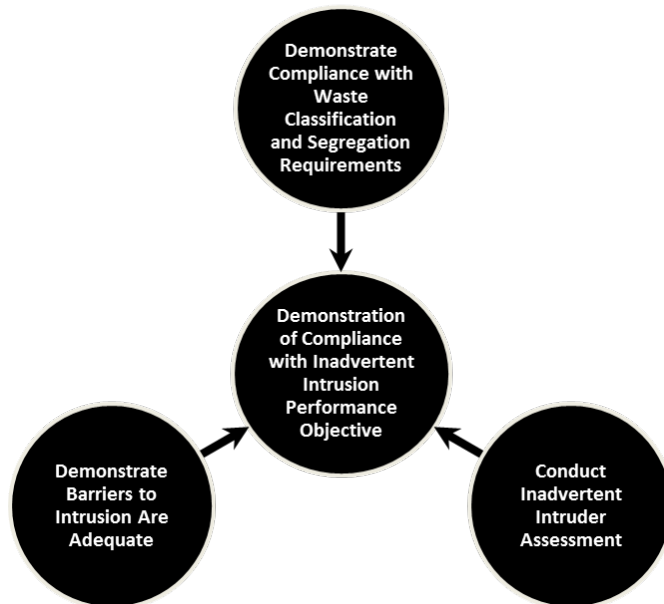
Defense-in-Depth:

The use of multiple, independent, and redundant layers of defense so that no single layer, no matter how robust, is exclusively relied upon for safety.



- SRM-SECY-13-0075 directed rule to specify:
 - Licensing decisions are based on DID protections
 - Combination of DID and PA are “safety case” for licensing
 - Attributes of safety case
- Staff approach
 - Identifies attributes of safety case [61.10(b)]
 - Requires new analysis to demonstrate DID protections [61.13(f)]

Inadvertent Intruder

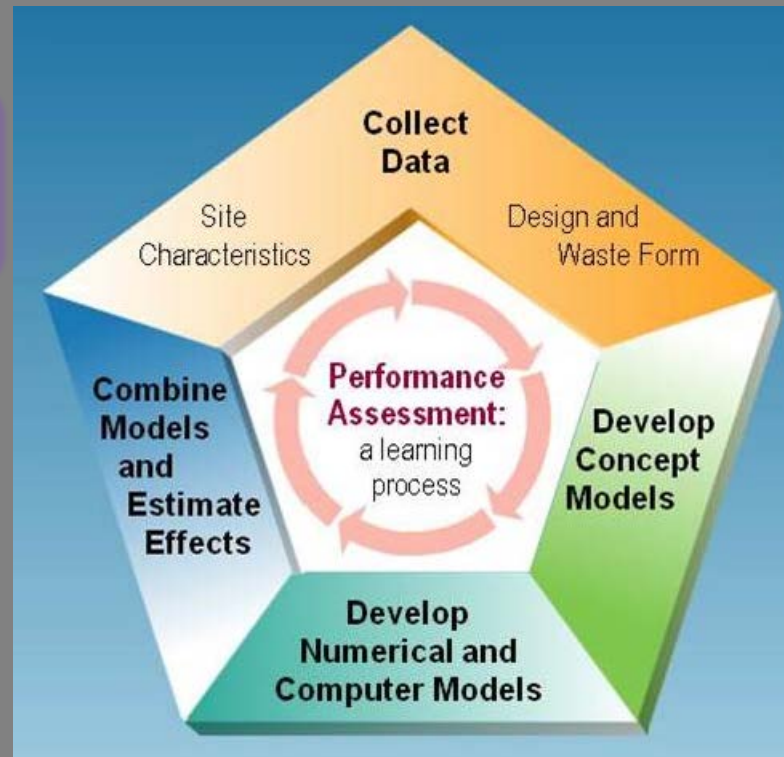


- SRM-SECY-08-0147 directed staff to specify requirements for site-specific analyses
- SECY-13-0075 approach requires intruder assessment to demonstrate 61.42 PO met
- SRM-SECY-13-0075 approved SECY-13-0075 approach, built upon compliance and protective assurance period assumptions.
- SRM-SECY-13-0075 directed intruder assessment to be based on scenarios that are realistic and consistent with expected activities around the site at closure.

61.28: Updated PA at closure

61.50: Modified as a result of PA requirements for long-lived waste disposal

61.13: Provide model support and consider alternative conceptual models



61.58: WAC “or” approach developed that allows the use of PA results

61.13: Features, events, and processes (scope)

61.13: Results of PA used in DID analysis

61.13: Explicit consideration of uncertainty and variability