U.S. DEPARTMENT OF ENERGY | OFFICE OF ENVIRONMENTAL MANAGEMENT

DOE Order 435.1 Revision Update

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Presented to Savannah River Site Citizens Advisory Board
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Purpose

Response to CAB Recommendation 304 "Revising DOE Order 435.1"

1. Identify to the CAB by the September 2013 the proposed changes to DOE Order 435.1 that would help implement sensible change for site cleanup and waste disposition and will help save scarce resources and time at SRS.

2. Provide to the CAB by January 2014 a summary of the Energy Facilities Contractors Group (EFCOG) Working Group decisions and recommendations concerning the proposed changes to DOE Order 435.13.

3. This recommendation should be included in public comments on DOE Order 435.1.

Acronyms

CA	Composite Analysis
CAB	Citizens Advisory Board
CRWM	Office of Civilian Radioactive Waste Management
DAS	Disposal Authorization Statement
DOE	Department of Energy
EFCOG	Energy Facilities Contractors Group
HQ	Department of Energy - Headquarters
HLW	High Level Waste
HSS	Office of Health, Safety and Security (DOE)
IAEA	International Atomic Energy Agency
LFRG	Low Level Waste Federal Review Group
LLW	Low Level Waste
PA	Performance Assessment
RWMB	Radioactive Waste Management Basis
TRU	Transuranic
WAC	Waste Acceptance Criteria

History

- DOE Order 5820 was written and revised several times in the 1980s. Continuously improved and moved towards greater control over radioactive wastes but increasingly risk-informed
- Defense Nuclear Facilities Safety Board recommended several improvements in 1994
- First Complex-Wide Review conducted
  - Outcome was DOE Order 435.1 in 1999
- Second Complex-Wide Review conducted in 2010
  - Identify improvements needed based on over 10 years of implementing DOE Order 435.1
  - Outcome is ongoing revision to Order

DOE Manual 435.1 Overview

- **Four Chapters**
  - General Requirements
  - High Level Waste
  - Transuranic Waste
  - Low Level Waste
- **Requirements for:**
  - Generation
  - Characterization
  - Certification
  - Treatment
  - Storage
  - Disposal

Overview of Revision

- DOE Order 435.1 specifies new format
  - Standard format for Orders changed – streamlining and no Manual (just Order/guidance)
  - Contractor Requirements Document to identify requirements to include in contracts
- Added new requirements since 1999
  - National Defense Authorization Act for 2005, Section 3116
  - New DOE offices – Legacy Management, new Health, Safety and Security (HSS) Office

Revision Teams

- Established Chapter Specific Core Teams
  - General Requirements – Linda Suttora
  - LLW – Frank DiSanza
  - HLW – Joel Case
  - TRU – J.R. Stroble/Alton Harris
- Teams composed of HQ, DOE Field, Field Contractors

General Requirements

- Clarifying strategic planning
- Strengthening the Radioactive Waste Management Basis
- Clarifying Change control processes
- Added one-touch philosophy
- Clarifying characterization for storage and classification for disposal
- Clarifying uses of consolidating waste (worker safety, efficiency)

High Level Waste

- Improving guidance and examples (primarily waste incidental to reprocessing examples since they now exist)
- Moving non-HLW specific requirements to General Requirements
- Incorporating National Defense Authorization Act for FY 2005 Section 3116
- Deleting references to non-existent DOE Organizations and documents from Office of Civilian Radioactive Waste Management (CRWM)

Transuranic Waste

- Improving guidance and examples (packaging and transportation, site TRU certification)
- Moving non-TRU specific requirements to General Requirements, including corrective actions and monitoring

Low Level Waste

- Developing new required Disposal Authorization Statement Technical Standard
- Improving guidance and examples (including guidance on the technical standard)
- DOE has successfully implemented an integrated protection system for near surface disposal for more than 25 years:
  - DOE Radioactive Waste Management Basis (RWMB) is similar to the IAEA Safety Case approach
  - Defense-in-depth and total systems perspective
  - Maintaining consistency with other promulgated Federal requirements for near-surface disposal

Consistent with International Approaches

- Integrated approach to safety using defense-in-depth principles (similar to Safety Case)
- Highlights links among modeling, design and waste acceptance criteria
- Performance Assessments (PAs) are one part of the integrated approach
- Consistency with other regulations for near-surface disposal and consideration of international recommendations

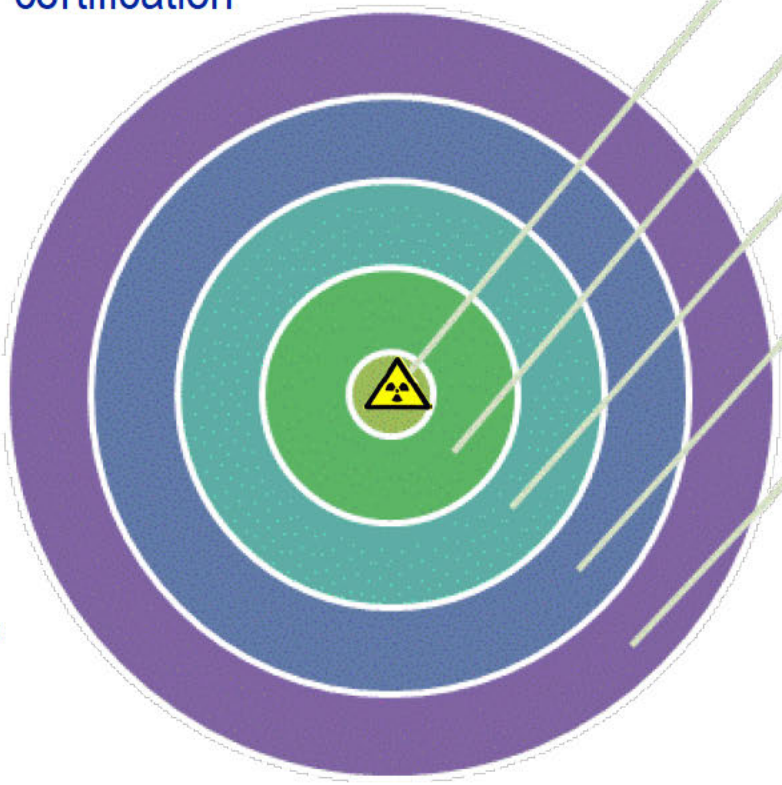
IAEA Safety Case Concept

Technical Standard

- Will be the core of LLW disposal at USDOE
- Identifies both requirements and guidance for attaining authorization to dispose
- Provides example of best practices and lessons learned
- Clarifies that sites must have a suite of analyses prior to initiating disposal
- Identifies necessary analyses for continued disposal authorization

Defense-in-Depth

- Multiple layers of protection
- Site-specific waste acceptance criteria (WAC) and rigorous waste generator certification
- WAC can also be specific to facility design, container and waste forms
- Federal ownership and necessary buffer zones until site can be released
- Commitment to continuous improvement with PA reviews and maintenance, including monitoring

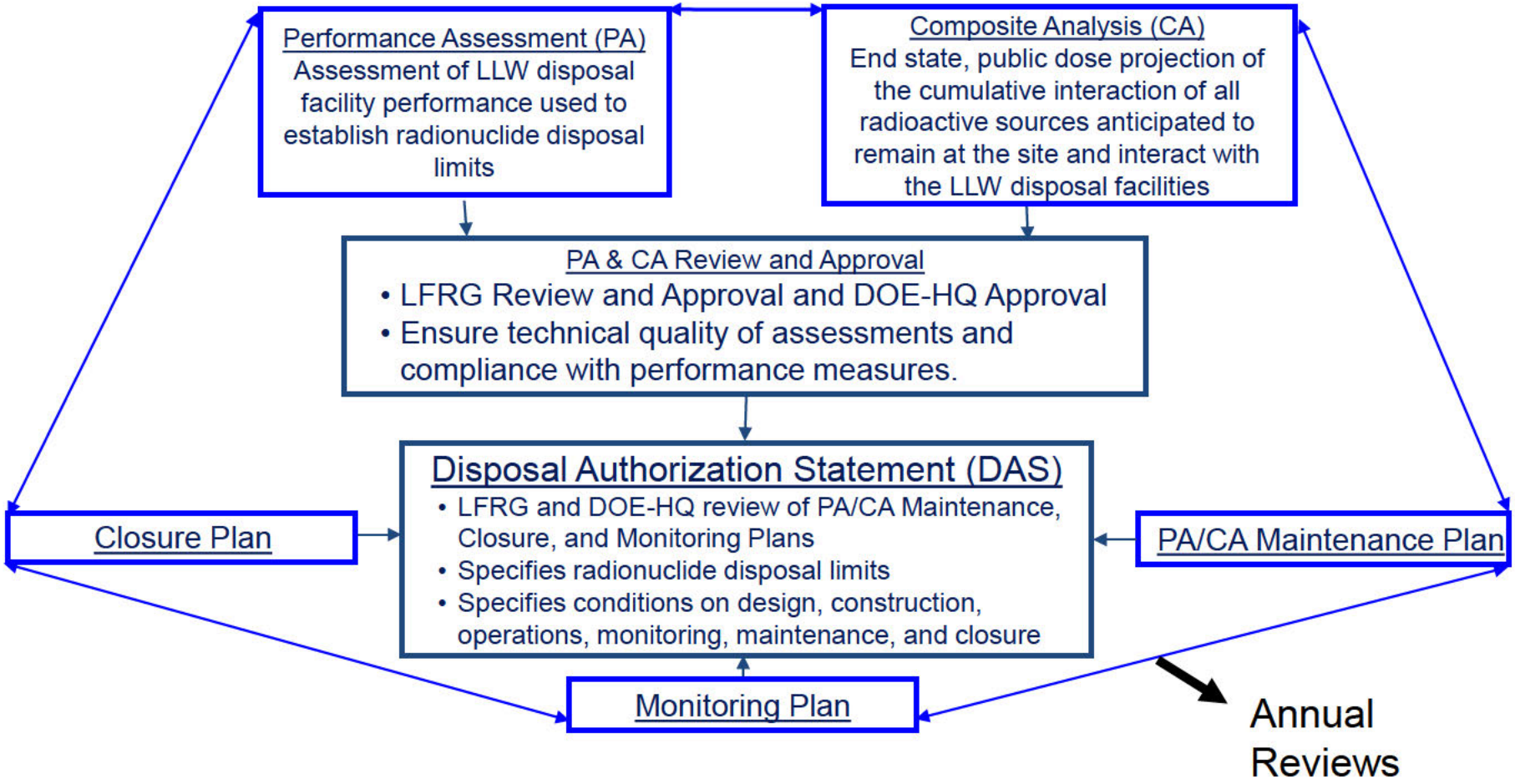


Technical Standard Contents

- Performance Assessment
- Composite Analysis (CA)
- Waste Acceptance Criteria
- Monitoring
- Maintenance (management of uncertainties throughout the process – R&D, Testing)
- Closure (pre and post closure)
- Unreviewed Disposal (or CA) Question Evaluation and Special Analysis
- Annual Summaries

RWMB Requirement for a LLW Disposal Facility

An Integrated & Iterative Regulatory Framework



Risk-Informed, Performance Based Regulatory Basis

Next Steps

- Complete Headquarters review
- Field review (DOE and contractor implementers)
- Public review – 60 days (notice in Federal Register)
- Revise per public comments
- Input into DOE Order process
- Issue and Implement