



Low-Level Waste Disposal Facility Federal Review Group

AUTHORITY

The *Atomic Energy Act of 1954*, as amended, authorizes the Department of Energy (DOE) to possess and use special nuclear material, source material, and byproduct material. Pursuant to its authority under the Atomic Energy Act, DOE has issued DOE Order 435.1, *Radioactive Waste Management*, Manual (M) 435.1-1, *Radioactive Waste Management Manual*, and DOE-STD-5002-2017, *Disposal Authorization Statement and Tank Closure Documentation*.

ORIGINS AND MEMBERSHIP

The DOE M 435.1-1 provides that the DOE Office of Environmental Management (EM) is responsible for DOE complex-wide waste management programs, including DOE low-level radioactive waste (LLW) disposal facilities and the closure of certain deactivated facilities.

DOE has established the Low-Level Waste Disposal Facility Federal Review Group (LFRG), comprised of Federal employees and led by EM. The LFRG is “responsible for the independent regulatory review of [Disposal Authorization Statement] technical basis documents”¹ and other documents concerning DOE LLW disposal facilities under DOE M 435.1-1 and DOE-STD-5002-2017. LFRG members are nominated by DOE Program Secretarial Offices and DOE Sites that have responsibilities for disposal facilities.

The LFRG is an integral part of DOE’s oversight of its disposal facilities. The LFRG ensures compliance with DOE M 435.1-1 requirements and consistency in the approach and application of facility design, construction, operation, and closure². The LFRG protects the public and environment through reviews of DOE LLW disposal facilities, tank closures, and technical basis documentation. LFRG uses DOE M 435.1-1 and DOE-STD-5002-2017 as the basis for its reviews.



Review Process

1. Site submits technical basis document(s)
2. LFRG Co-chairs appoint Review Team Lead
3. Team Lead identifies team members and develops review plan
4. Co-chairs approve review team
5. LFRG approves review plan
6. Site conducts self-assessment against technical standard review criteria
7. Team reviews technical basis documents and receives site presentations on specific topics
8. Team conducts on-site review
9. Team develops Draft Review Report
10. Site reviews report for factual accuracy
11. Team finalizes Review Report with recommendations to LFRG
12. LFRG votes on recommendations
13. LFRG tracks site completion of any corrective actions

LFRG Members

Program Secretarial Offices

- Office of Environmental Management (EM)
- Office of Environment, Health, Safety, and Security (AU)
- Office of Nuclear Energy (NE)
- Office of Science (SC)
- National Nuclear Security Administration (NNSA)
- Office of Legacy Management (LM)

DOE Sites

- Hanford Site
- Idaho National Laboratory
- Los Alamos National Laboratory
- Nevada National Security Site
- Oak Ridge Reservation
- Portsmouth Paducah Project Office
- Savannah River Site

LFRG REVIEWS

Before a disposal facility is designed/constructed, the appropriate Program Secretarial Office must issue a disposal authorization statement (DAS).

The LFRG conducts a review to determine if DOE M 435.1-1 required performance objectives and performance measures have a reasonable expectation to be met by the disposal facility and if a DAS should be issued. The LFRG reviews the underlying technical basis documentation for the facility. The LFRG also provides expert technical and regulatory oversight recommendations.

¹ DOE STD 5002-2017 at 1-11.

² If the facility or waste is subject to other regulations such as the Comprehensive Environmental Response, Compensation, and Liability Act, Resource Conservation and Recovery Act, or Toxic Substance Control Act, coordination between DOE and other regulatory agencies may be needed to ensure all regulatory requirements and agreements are met.



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TECHNICAL BASIS DOCUMENTATION

DOE M. 435.1-1 and DOE-STD-5002-2017 identify the documents, reviewed by LFRG, required for DAS issuance or tank closure, including:

- Performance Assessment (PA)
- Composite Analysis (CA)
- PA/CA Maintenance Plan
- Preliminary Closure Plan
- Preliminary Monitoring Plan
- Change Control Process

Additionally, for certain wastes and Tank Closures:

- Waste Incidental to Reprocessing (WIR) Evaluation and a WIR Determination under DOE M. 435.1-1, or a Basis Document and a Secretarial Determination under Section 3116 of the *Ronald W. Reagan National Defense Authorization Act for Fiscal Year 2005*, as applicable
- Technical Evaluation Report issued by the Nuclear Regulatory Commission (NRC), as applicable



DOE Order 435.1, Radioactive Waste Management, and DOE Manual 435.1-1, Radioactive Waste Management Manual lists radioactive waste disposal facilities requirements for:

- Site Design
- Facility Evaluation
- Construction
- Operations
- Closure
- Oversight

DOE-STD-5002-2017, Disposal Authorization Statement and Tank Closure Documentation:

- Identifies documents for issuance of disposal or tank closure authorization, including content and formatting guidance
- The approval and issuance process, and
- Maintenance and reporting requirements

PERFORMANCE ASSESSMENT (PA)

The DOE Site develops and maintains a site-specific radiological PA. The PA is an analysis conducted to demonstrate there is a reasonable expectation that performance objectives and performance measures established for the long-term protection of the public and the environment will not be exceeded following closure of the facility. The PA is used to:

- Develop Waste Acceptance Criteria – waste forms, radionuclide content, etc.
- Estimate health effects associated with leaving different amounts of waste in tanks or different levels of contamination in facilities
- Evaluate health effects associated with different remediation options
- Develop Maintenance and Monitoring Plans



COMPOSITE ANALYSIS (CA)

The DOE Site prepares and maintains a CA. The CA evaluates all sources of radioactive material that may contribute to the long-term dose projected to a hypothetical member of the public from an active or planned LLW disposal facility.

The CA is used for planning radiation protection activities and future use commitments to minimize the need for future corrective action.