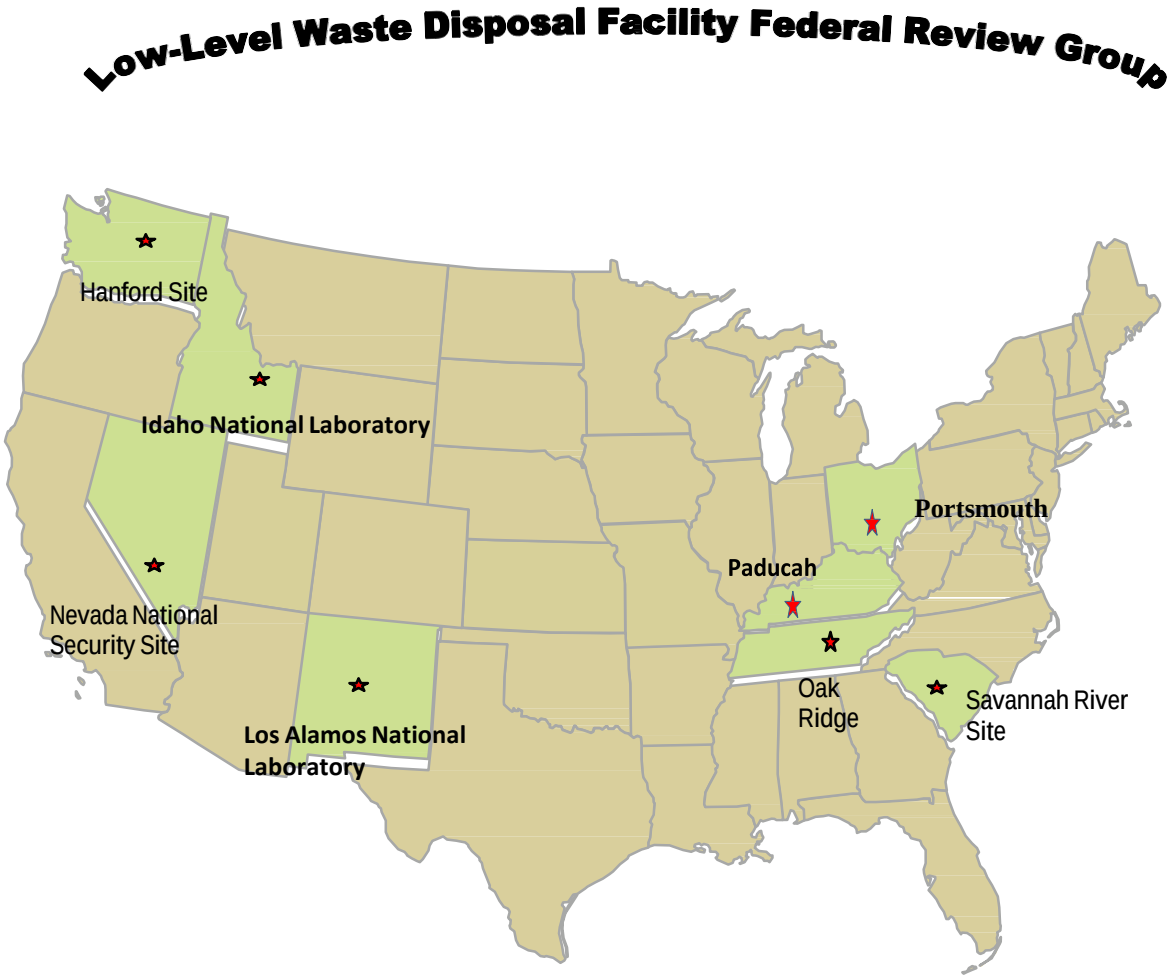
LOW-LEVEL WASTE DISPOSAL FACILITY FEDERAL REVIEW GROUP EXECUTION PLAN



Revision 2
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This Low Level Disposal Facility Federal Group Execution Plan is approved for use:

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LFRG Co-Chair

2/2/18
Date

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Date

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ACRONYMS

AEA	Atomic Energy Act
ALARA	As Low As Reasonably Achievable
APDAS	Associate Principal Deputy Assistant Secretary for Regulatory & Policy Affairs
ASR	Annual Summary Report
AU	Office mail stop designation for all Environment, Health, Safety, and Security (EHSS) Offices
CA	Composite Analysis
CE	Compliance Evaluation
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act CP Closure Plan
DAS	Disposal Authorization Statement
DASWMM	Deputy Assistant Secretary for Waste and Material Management
DAS&TC	Disposal Authorization Statement and Tank Closure Documentation
DNFSB	Defense Nuclear Facilities Safety Board
DRISE	Director Regulatory Intergovernmental and Stakeholder Engagement
DOE	U.S. Department of Energy
EM	Office of Environmental Management
EP	Execution Plan
EPA	U.S. Environmental Protection Agency
FE	Field Element
G	Guide
HQ	Headquarters
EHSS	Office of Environmental, Health, Safety and Security
LFRG	Low-Level Waste Disposal Facility Federal Review Group
LLW	Low-level waste
M	Manual
MonP	Monitoring Plan
MP	Maintenance Plan
NE	Nuclear Energy
NNSA	National Nuclear Security Administration
NRC	Nuclear Regulatory Commission
O	Order
ODAS	Operating Disposal Authorization Statement
PA	Performance Assessment
PDAS	Preliminary Disposal Authorization Statement
PMP	Program Management Plan
PSO	Program Secretarial Office
RCRA	Resource Conservation and Recovery Act
RWMB	Radioactive Waste Management Basis SA Special Analysis
SC	Office of Science
TRU	Transuranic waste
TSCA	Toxic Substances Control Act
UCAQE	Unreviewed Composite Analysis Question Evaluation
UDQE	Unreviewed Disposal Question Evaluation

1 Introduction

Section 161 of the *Atomic Energy Act of 1954*, as amended, authorizes the U.S. Department of Energy (DOE) to promulgate rules for governing the possession and use of special nuclear material, source material, and byproduct material. DOE Order (O) 435.1, *Radioactive Waste Management*, and DOE Manual (M) 435.1-1, provide the requirements for design, construction, operations, closure and oversight of radioactive waste disposal facilities. In addition, DOE uses the *Disposal Authorization Statement and Tank Closure Documentation* (DOE-STD-5002-2017, May 2017) to provide federal and contractor personnel a standardized method of implementing the requirements for radioactive waste disposal and tank closure. DOE utilizes the Low-Level Waste Disposal Facility Federal Review Group (LFRG) as well as other groups at Headquarters and at the Sites to fulfill the self-regulatory oversight requirement.

The LFRG is comprised of federal employees from DOE-Headquarters (HQ), the National Nuclear Safety Administration (NNSA) and Field Elements (FE) with radioactive waste disposal facility responsibilities. The LFRG organization is led by Co-Chairs from the Office of Regulatory Intergovernmental & Stakeholder Programs (EM-4.3) and the Office of Waste and Materials Management (EM-4.2), within the Office of Regulatory and Policy Affairs (EM-4).

2 Purpose

This Execution Plan (EP) provides guidance for performing LFRG member duties and responsibilities supporting DOE M 435.1-1, and the Disposal Authorization Statement and Tank Closure Documentation (DAS&TC) Technical Standard and in fulfilling DOE's Atomic Energy Act (AEA) authority for self-regulation. This EP details the framework within which the LFRG performs its regulatory oversight responsibilities. The EP identifies: the qualifications and responsibilities of LFRG members and support personnel; the LFRG regulatory oversight; and that LFRG business is properly conducted and documented. The EP documents and updates the processes and workings of the LFRG to reflect lessons learned and best practices.

This EP will be evaluated annually and updated, if necessary, by the LFRG Co-Chairs. The LFRG members are encouraged to provide input to ensure the responsibilities, duties, qualifications and processes are up-to-date with DOE Orders and direction from management.

3 Background

In July 1999, the DOE O 435.1, Radioactive Waste Management, and associated Manual (M) and Guide (G) were issued. The DOE M 435.1-1 establishes the process and roles relevant to the self-regulatory oversight provided by the LFRG for radioactive waste disposal and closure of liquid waste tanks. Prior to construction, a low-level radioactive waste (LLW) disposal facility must obtain a Preliminary Disposal Authorization Statement (PDAS) issued by EM HQ management[1] or other Program Secretarial Offices as appropriate. The Manual designates the

[1]A PDAS/ODAS is issued under signature of the Associate Principal Deputy Assistant Secretary for the Office of Regulatory and Policy Affairs. The LFRG confirms the final facility design and the PA design assumption are in

establishment of a review panel, LFRG, to recommend whether or not compliance has been demonstrated by a disposal facility and, therefore, whether a PDAS should be issued based on a review of the underlying technical basis.2 The DAS&TC Technical Standard provides a standard format, content and review criteria for developing and reviewing the DAS and technical basis documents. The technical basis may include, for example: disposal facility performance assessments (PAs) and composite analyses (CAs), appropriate Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) documentation, and other technical basis documentation (e.g., monitoring plan and closure plan). The LFRG also assesses the continuing Operating Disposal Authorization Statement (ODAS) compliance for operating DOE LLW disposal facilities and the closure of liquid tanks through Tier I Closure Authorizations.

This document and the DAS&TC Technical Standard fully replaces and supersedes existing LFRG guidance and supporting documents. DOE O 435.1 is currently under revision. This EP will be revised to align with the new requirements when the Order is updated and approved, if necessary.

4 Goal and Objectives

Goal: The LFRG provides regulatory oversight, identified in DOE M 435.1-1, to confirm that the disposal of low-level radioactive waste in DOE facilities is conducted in a manner that is protective of public health and safety and the environment.

Objectives:

- Provide site and HQ management with expert technical and regulatory oversight recommendations concerning the design, construction, operation, and closure (e.g., PDAS) of low-level radioactive waste disposal facilities, in terms of compliance with the requirements of DOE M 435.1-1.
- Establish well trained and experienced LFRG members responsible for the oversight of radioactive waste disposal facility design, construction, operations and closure.
- Establish experienced, qualified, independent review teams, with the necessary technical expertise, to provide high quality peer reviews, recommendations, and reports of PDAS and ODAS technical basis documentation.
- Provide reviews, findings, and recommendations on Annual Summary Reports from operating and closed (under DOE O 435.1) DOE radioactive waste disposal facilities regarding continued compliance with the requirements of DOE M 435.1-1.
- Confirm the consistent approach and application of DOE M 435.1-1 requirements through monthly and semi-annual LFRG meetings for discussing disposal facility status, lessons learned, issues, and action items.
- Support the sites, when requested, in the performance of oversight; DOE Order, Manual and DAS Technical Standard interpretations; communication with other regulatory agencies and stakeholders; and other radioactive waste disposal activities as requested.

agreement prior to issuance of the PDAS/ODAS. See Section 9.1 Self-Regulatory Oversight Process.
[2] See DOE M 435.1-1, Section I.2.E (1)(a).

5 Membership

5.1 Co-Chairs

The LFRG Co-Chairs and alternates are federal employees appointed by and report to the Deputy Assistant Secretary for Waste and Materials Management (DASWMM) and Director, Regulatory Intergovernmental and Stakeholder Engagement (DRISE) or their designees. The appointment documentation will be filed as an LFRG record and contain the individual's biography or resume.

5.1.1 Responsibilities

The Co-Chairs are responsible for managing and leading LFRG operations. Organizational responsibilities include:

- Establishing and maintaining LFRG membership
- Establishing operating procedures and data bases
- Conducting meetings
- Promoting timely completion of LFRG activities
- Informing management of LFRG activities

Maintaining membership includes identifying and recommending prospective LFRG members to site/HQ management as appropriate, regularly reviewing LFRG affiliations to ensure representation of the major affected organizations, and encouraging active participation by members.

In addition, the Co-Chairs are responsible for:

- Communicating results of LFRG deliberations to affected sites and to upper-level managers
- Determining if issues require full LFRG review
- Guiding the preparation of LFRG documentation
- Planning and scheduling LFRG meetings and conference calls
- Selecting review team leaders
- Approving review team members nominated by the review team leader
- Approving and recommending documents on behalf of the LFRG
- Ensuring that the PDAS and ODAS and technical basis document review schedule is maintained through coordination with LFRG site members
- Ensuring oversight reviews (e.g., ODAS implementation, PA/CA reviews) are coordinated and scheduled with the site
- Ensuring that action items, identified during LFRG meetings, are tracked and resolved

- Ensuring that key and secondary issues identified during PDAS and ODAS technical documentation reviews are tracked and properly closed.

LFRG Co-Chairs are responsible for working with management at HQ and Sites to establish a succession plan to ensure the LFRG continues to have qualified individuals for regulatory oversight. In addition, the LFRG Co-Chairs are responsible for ensuring that training opportunities and mentoring are accessible to support the progression of technical staff and experts in order to ensure that a cadre of qualified and trained support personnel are available to perform various technical reviews across the complex. The LFRG Co-Chairs have established a "mentor" program (Attachment 2) where inexperienced personnel (federal and support personnel) are teamed with experienced personnel to gain the necessary experience to meet LFRG member responsibilities.

5.2 Members

The LFRG members (including alternates) are federal employees from HQ and Field Element organizations with one or more of the following disposal facility responsibilities: low-level radioactive (includes mixed waste), transuranic waste (TRU) (other than WIPP) and/or CERCLA. Members may also have waste tank closure responsibilities.

The LFRG membership (Attachment 5) is made up of the following organizations that have radioactive waste disposal responsibilities: Office of Environmental Management (EM), Office of Environment, Health, Safety, and Security (AU), National Nuclear Security Administration (NNSA), Office of Science (SC) and Office of Nuclear Energy (NE). Each LFRG member will have an alternate who will assume the member's responsibilities and duties in their absence.

5.2.1 Responsibilities

The LFRG members are responsible for participating in LFRG meetings and other activities as requested by the Co-Chairs. LFRG members are responsible for bringing issues, documents, etc. before the LFRG for discussion, consideration, or voting (see Section 9.5.3, Voting Process).

Members should be adequately prepared through document reviews or subject matter expert inquiries for these discussions and to participate when a vote is scheduled. If the LFRG member, because of a highly unusual circumstance, has not adequately prepared for a vote, they will either recuse themselves or request a delay until able to review the necessary information.

A responsibility of the LFRG member, at the request of the LFRG Co-Chairs, is to participate in radioactive waste disposal facility's PDAS and ODAS technical basis document reviews as a review team member. In addition, LFRG members will participate in developing reports and recommendations to management concerning these reviews.

Members are responsible for obtaining commitments from their management to support LFRG time and travel requirements including attending, in person, the annual meeting. LFRG members should notify the LFRG Co-Chairs of any problems or issues in obtaining this commitment.

LFRG members as a body have the responsibility to identify, develop, and implement procedures and documents, as necessary, to carry out their regulatory responsibilities (e.g. LFRG EP). The LFRG approves the following types of documents:

- LFRG procedures/plans
- LFRG Review Team Plans
- LFRG Meeting Minutes
- Recommendations to the APDAS for draft PDAS/ODAS, compliance evaluation (CE), Tier I Closure Authorizations, and LFRG candidates
- LFRG Review Team Reports (only that the report satisfies LFRG review scope).

LFRG members are responsible for alerting management of the responsibility for establishing a succession plan to ensure the LFRG continues to have qualified individuals for regulatory oversight (see Attachment 3).

5.2.1.1 LFRG Site Members

Each LFRG site member is responsible for ensuring oversight of disposal operations at their site are being conducted in accordance with Radioactive Waste Management Basis (RWMB). This includes the approved PDAS and ODAS and any other compliance document that may affect the performance or compliance of the disposal facility. Site members perform this responsibility by: direct observation, reviews, surveillances, audits, and meeting attendance. They will review the disposal facility's RWMB, including change control processes (e.g. any positive[3] unreviewed disposal question evaluation (UDQE)) to determine if LFRG notification is required (see section 9.4, LFRG Notification). Site members will also review and concur with the site Annual Summary Report (ASR) prior to Field Element Manager (FEM) or delegated authority submittal of the document to the DASWMM and DRISE with a copy to the LFRG Co-Chairs and the LFRG Secretariat. The LFRG site member will notify site management and the LFRG of any issues or discoveries associated with the facility's performance that may significantly impact the implementation of the PDAS or ODAS and/or associated technical basis documentation (see section 9.4, LFRG Notifications). In this capacity, the LFRG site member serves as part of the regulating body in the field. An LFRG site member may use other resources (federal or contractor not associated with the site) in the performance of their duties.

LFRG site members will ensure that management is aware of the applicable radioactive disposal requirements and conversely ensure that they (LFRG members) are well-informed on the activities and positions of their respective site management and can effectively articulate them in LFRG venues.

LFRG site members are responsible for formally identifying any site related LFRG review schedule need with the LFRG Co-Chairs.

[3] A positive UDQE is an identified change that results in additional evaluations and possibly a LFRG notification.

LFRG site members are involved in the internal review of their own site PA/CA and technical basis documents and in presenting the results to the LFRG. However, they cannot participate as a review team member in the LFRG review of their own site. In this case, they will act as a liaison to assist the review team in obtaining the necessary information, facility accessibility, and in interfacing with site technical personnel during the review. The site members are also responsible for performing oversight of the implementation of site specific PDAS or ODAS and associated technical basis documents.

5.2.1.2 LFRG HQ Members

LFRG HQ members perform their DOE M 435.1-1 regulatory oversight responsibilities by participating in LFRG reviews, utilizing their particular expertise in: evaluating regulatory issues; participating in monthly conference calls and semi-annual business meetings; and developing recommendations and reports for and to management. LFRG HQ members may use other resources (federal or contractors not associated with the review site) to assist them in the performance of their duties. EM is the office of primary interest in the administration of DOE O 435.1 and the lead LFRG organization. However, other organizations have responsibility for radioactive waste disposal management or oversight and are included as LFRG members. Other organizations that have radioactive disposal facilities include: NNSA, SC, and NE. These organizations should have LFRG members representing their respective organizations.

AU is responsible for providing assistance in the review of DOE radioactive waste management facilities, operations, and activities to determine compliance with DOE radioactive waste management, health, safety, environmental, and security requirements. An AU representative serves as an LFRG member.

5.3 Qualifications, Training Requirements, and Appointment

The LFRG Co-Chairs and members will meet the following minimum criteria:

- DOE federal employee
- Bachelor of Arts or Bachelor of Science degree in science, engineering or closely related field or equivalent
- Minimum of 5 years working in the waste management or related field with oversight and/or implementation of DOE M 435.1-1 requirements
- Completion of the Technical Qualification Program for Waste Management, Environmental Compliance or Environmental Restoration or an LFRG Technical Competencies Assessment in Attachment 4 within one year of nomination letter acceptance as appropriate
- Completion of the LFRG Specific Proficiency Checklist in Attachment 2 within one year of nomination letter acceptance
- Completion of a formal DOE M 435.1-1 training course within one year of nomination letter acceptance.

Note: Existing members, including alternates, of the LFRG prior to the approval of the September 2015 EP are not required to meet the qualification, training and appointment criteria.

The respective HQ or FE Manager will formally nominate (see Attachment 3 example memo) a candidate for LFRG membership (includes LFRG member and alternate) to the DASWMM and DRISE. The DASWMM and DRISE will forward the nomination to the LFRG Co-Chairs requesting a recommendation to approve or not approve the candidate. The approval documentation will be filed as an LFRG record and contain the individual's biography or resume.

LFRG members participating in PA/CA or other technical basis reviews will meet the following requirements:

LFRG Review Team Lead

- LFRG Member
- Meet the LFRG Member Qualifications and Training requirements and
- Participated in at least two PA/CA reviews – one of which has to be assisting the review team leader.

LFRG Review Team Member

- Meet the LFRG Member Qualifications and Training requirements and
- Participated in at least 1 PA/CA review as a trainee.

Note: other federal experts, contractors and/or subcontractors not associated with the review site may participate as an LFRG Review Team Member if they have the requisite education, training and experience and are approved by the LFRG Review Team Lead.

6 LFRG Executive Secretariat

The LFRG Executive Secretariat is appointed by the appropriate HQ manager and is responsible for:

- Maintaining the LFRG administrative record including maintaining complete, up- to-date files of LFRG meetings, conference calls, and other deliberations provided by the LFRG Co-Chairs
- Maintaining the membership roster and review schedule
- Making arrangements for meetings, conference calls, and other activities maintaining the action item and issues data base provided by the LFRG Co-Chairs performing accounting and contracting activities.

7 Support Personnel

The LFRG may request or contract with federal or contractor personnel not associated with the site under review to support performance of LFRG duties. Training and experience needs will be determined by the LFRG Co-Chairs or LFRG members, as appropriate, on an individual basis.

8 Interacting Organizations

When a disposal facility is constructed and operated as an on-site disposal cell/facility for radioactive mixed waste under the provisions of the AEA and other requirements (CERCLA, Resource Conversation and Recovery Act (RCRA), Toxic Substances Control Act (TSCA)), there may be a need for coordination between the LFRG and other regulatory groups (e.g. Environmental Protection Agency (EPA), cognizant host state agencies and Nuclear Regulatory Commission (NRC)) and the site to confirm all regulatory requirements are met. This coordination is normally by the LFRG site member; however, the LFRG Co-Chairs may provide this coordination as required. The LFRG is only responsible for evaluating compliance with DOE M 435.1-1 disposal/closure requirements.

Closure of decommissioned liquid waste tanks requires a performance assessment and composite analysis reviewed by the LFRG and approved by the DASWMM and DRISE. In addition, the Nuclear Regulatory Commission (NRC) in consultation with DOE, may review and comment on the PA/CA at DOE's request. In this case, the LFRG site member will participate and have cognizance of any reviews or activities between the NRC and DOE.

9 LFRG Management Process

9.1 Self-Regulatory Oversight Process

Radioactive waste is generated and disposed at various facilities across the DOE complex. Each site is responsible for establishing and planning the life-cycle (cradle to grave) strategy of waste streams generated at their site. Some sites have the capability of disposing waste onsite while other sites will send their waste to other DOE or commercially operated radioactive waste disposal facilities. Waste that is disposed of at DOE facilities must meet the requirements of DOE M 435.1-1, Radioactive Waste Management Manual. This Directive implements DOE's self-regulatory authority for managing radioactive waste identified in the Atomic Energy Act of 1954 as amended. In addition, the LFRG will use the DAS&TC Technical Standard as a guide to ensure sites are complying with DOE M 435.1-1 disposal requirements.

9.1.1 Disposal Authorization Statement/Tier I Closure Authorization

The PDAS and ODAS is a similar document to the "license" issued by NRC or the "permit" issued by EPA/state regulators from the standpoint that the facility cannot operate until it receives the PDAS or ODAS (including any conditions or limitations). The PDAS and ODAS is approved by the APDAS, appropriate PSO, or NNSA, and becomes an integral part of the RWMB. The RWMB is the Field Element Manager's authorization to operate the facility under the requirements and conditions identified in the RWMB. If at any time the facility fails to

comply with the PDAS or ODAS requirements, operations may be suspended. The PDAS and ODAS review and approval process is detailed in the DAS&TC Technical Standard. The Standard provides the format, content and review criteria for technical information and analyses documents needed for compliance with the Order. DOE O 435.1 is currently under revision. This EP and the DAS&TC Technical Standard will be revised to align with the new requirements of the revised DOE O 435.1 when the Order is updated and approved.

The PDAS is based upon the following DAS&TC Technical Standard approved technical basis documents which are also included in the RWMB:

- Performance assessment (PA)
- Composite analysis (CA) – only from the standpoint of ensuring the 100 mrem/yr performance measure will be meet. A complete CA is not required at this point
- Disposal change control process (e.g. unreviewed disposal question evaluation (UDQE)).

The ODAS is based upon the following DAS&TC Technical Standard approved technical basis documents which are also included in the RWMB:

- Performance assessment (PA)
- Composite analysis (CA)
- Closure plan (CP)
- Monitoring plan (MonP)
- Waste acceptance criteria (WAC)
- Maintenance plan (MP)
- Disposal change control process (e.g. unreviewed disposal question evaluation (UDQE)).

The Tier I Closure Authorization for liquid tanks is similar to the ODAS process (DAS&TC Technical Standard) mentioned above and includes the same documents except that a WAC is not required. In addition, a waste incidental to reprocessing (WIR) for DOE M 435.1-1 activities or a Waste Determination (WD) for activities under the Ronald W. Reagan National Defense Authorization Act for Fiscal Year 2005 (Public Law 108-375) (Section 3116) must be approved.

The disposal facility contractor is responsible for developing, implementing and controlling the above PDAS/ODAS/Tier I Closure Authorization documents. The LFRG site member is responsible for reviewing these documents, as appropriate, using additional resources to assist in the review, and declaring these documents ready for LFRG review. The sites should follow protocols for correspondence transmittals to DOE-HQ.

9.1.2 LFRG Technical Review Team

The LFRG establishes a review team when:

- The site is seeking approval to construct and operate a new low-level radioactive waste disposal facility or close existing liquid waste tanks

  - An initial PA, CA and change control process has been developed and
  - The site requests LFRG review
- The site requests LFRG review of a revision to the PA, CA or other technical basis documents.

The LFRG Co-Chairs select a team lead who establishes a team of technical experts to review the technical basis documents and present a formal report with any issues and/or recommendations to the full LFRG. The initial PA and CA review normally takes approximately 3-4 months to complete including about a week long onsite review. The LFRG Review Team will complete an "Issue Closure Documentation form (attachment 1) for each key/secondary issue identified. The site will document the corrective action and send a copy of the forms to the LFRG Co-Chairs and Executive Secretariat (see section 9.2.3, Issue Tracking Data Base for details). If possible, the LFRG Review Team will leave a draft report for a site accuracy review at the conclusion of the onsite review. There should generally be an expectation that there will be a period of time following the on-site review where the site addresses and closes as many of the issues as possible. However, if that is not possible, the report will be sent to the LFRG site member as soon as possible after the onsite review for the factual accuracy review. The LFRG site member acts as a liaison to the LFRG review team during this process.

9.1.3 LFRG Evaluation

The LFRG considers the LFRG review team's report, site responses to direct inquiries or any other information necessary to make their recommendation in a Compliance Evaluation (CE) report to the DASWMM and DRISE to approve, disapprove, or approve with conditions the award of a disposal facility PDAS, ODAS or Tier I Closure Authorization. To support its recommendation, the LFRG Co-Chairs present the DASWMM and DRISE with the LFRG Review Team Report, the CE, and a draft PDAS/ODAS/Tier I Closure Authorization. The APDAS decides to either issue the PDAS/ODAS/Tier I Closure Authorization or require the site to resolve issues that impact the documents. If NNSA or a PSO other than EM is responsible for the disposal facility, the APDAS will forward their recommendation, along with the LFRG Review Report and the draft PDAS and ODAS, for their consideration. The PSO will then approve, approve with conditions, or disapprove the PDAS/ODAS/Tier I Closure Authorization.

9.1.4 LFRG Site Member Oversight

The RWMB, required by DOE M 435.1-1, comprises information and documents that define the physical and administrative controls for proper operation of the disposal facility to protect the workers, the public, and the environment. The RWMB consists of both short and long term controls and analyses such as a facility PDAS or ODAS, waste certification programs, facility waste acceptance requirements, low-level waste disposal facility or liquid tank closure plans, performance assessments, composite analyses, safety basis documents, radiological control documents and other facility-specific processes, procedures, and analyses made to comply with DOE M 435.1-1. The RWMB is developed by the facility contractor, reviewed by the LFRG site member to confirm compliance with the PDAS/ODAS/Tier I Closure Authorization and

technical basis documents, reviewed by other DOE staff as appropriate, and approved by the DOE FE Manager or designee. Once the RWMB has been approved, the contractor must operate/close the facility within these bounds or constraints[4].

The LFRG site member is responsible for the regulatory oversight of the contractor meeting the PDAS/ODAS/Tier I Closure Authorization. Specifically, the LFRG site member is responsible for being aware of any issues that may affect the PDAS/ODAS/Tier I Closure Authorization including the PA, CA, or other technical basis documents and ensuring these issues are formally evaluated and resolved, as necessary. The LFRG site member performs these regulatory oversight duties by:

- Direct observation
- Reviews
- Surveillance
- Attendance at operational meetings.

LFRG site members may utilize the site's process and procedures to formally document oversight activities. In addition, members may utilize Environmental Management Headquarters Waste Management Program Implementation Plan (9/5/17) to fulfill their oversight responsibilities. This plan was written to fulfill EM's responsibility for performing oversight of DOE O 435.1 as required by DOE O 226.1, Implementation of DOE Oversight Policy. The plan identifies oversight functions in the form of assessments and assists. Assessments are independent reviews that may result in findings and assists are reviews performed by HQ and site personnel working as a team that may result in observations that the members can use to improve their operations, procedures and processes. The plan also has lines of inquiry the members may use in oversight activities.

The LFRG site member is responsible for notifying the LFRG when issues arise that either directly affect the PDAS/ODAS/Tier I Closure Authorization or technical basis documents or have a high potential of affecting the validity, assumptions, or conclusions of these documents.

The facility contractor develops and implements a UDQE or change control process procedure to evaluate any changes or discoveries to facility operations that may affect the PDAS/ODAS/Tier I Closure Authorization and/or technical basis documents (PA, CA, MP, CP, WAC, and MonP). The contractor informs and/or provides the documentation of the need for additional evaluations (completed positive UDQE or its equivalent) to the LFRG site member for review. The LFRG site member evaluates positive[5] UDQEs or its equivalent results to determine if any notification thresholds (see section 9.4, LFRG Notification) have been exceeded. The LFRG site member is encouraged to utilize other members of the LFRG as "consultants" in making this decision. The LFRG site member then makes a decision to:

- Inform the LFRG immediately

[4] This assumes that all other DOE requirements have been met.
[5] Positive UDQE is an identified change that results in additional evaluations or LFRG notification.

- Inform the LFRG of the situation at the next monthly conference call, or
- Inform the LFRG of the situation during the semi-annual business meeting depending upon the urgency of the situation

Note: The LFRG site member is to ensure that these notifications are included in the minutes of any meeting that this information was included.

The LFRG site member informs site management and one or both of the LFRG Co-Chairs explaining:

- The current situation
- Immediate corrective actions (e.g. suspension of operations) that have been or will be instituted in the short term long-term corrective actions (e.g. increasing monitoring activities or frequencies) if appropriate.

The LFRG Co-Chairs will decide if the situation warrants involvement by the full LFRG and/or DASWMM and DRISE. The LFRG Co-Chairs may recommend additional actions for the LFRG site member. The LFRG site member should be prepared to explain to the LFRG the details of the situation or request resources be available to answer any questions that might arise during the discussion. The LFRG may decide:

- That no further action is warranted
- Request additional information
- Establish a team, not associated with the site, to further investigate, or
- Recommend to the DASWMM and DRISE that:
  - FEM should be contacted immediately and,
  - Operation/closure at the facility should be limited or cease until the issue is resolved.

9.1.5 Annual Summary Report

The disposal site operations contractor has the responsibility to develop an Annual Summary Report (ASR) of disposal facility operations that documents facility compliance with the PDAS or ODAS and DOE M 435.1-1 requirements using the format and content provided by the DAS&TC Technical Standard. The ASR assessment period corresponds to the government fiscal year (October 1-September 30). The ASR will be submitted to the DASWMM and DRISE by the Field Element Manager or designee no later than the last working day of March of the subsequent fiscal year unless an extension is requested by the site and approved by the Co-Chairs in advance.

The contractor will identify any changes to facility design, PA/CA assumptions and conclusions, operations, etc. in the report. The LFRG site member will review and concur with the ASR before the FE Manager or delegated authority sends the ASR to the DASWMM and DRISE with a copy to the LFRG Co-Chairs and the Executive Secretariat for review.

The LFRG site member, working with the facility contractor, is responsible for developing and presenting the salient points of the ASR to the LFRG at one of the semi-annual business meetings. The summary level presentation shall follow the standard format provided by the LFRG Co-Chairs. The LFRG site member shall present the information to the LFRG with the assistance of contractor personnel as necessary. The LFRG is responsible for confirming the site is meeting the requirements of the DOE M 435.1-1 and other requirement documents (technical standards) based upon the information provided by the LFRG site member. This presentation and discussion will serve as the LFRG ASR review unless:

- The LFRG elects to review the details of the sites ASR or
- Have a subgroup of the LFRG review the site's ASR.

These reviews will be documented and may result in the LFRG, LFRG Co-Chairs or the ASR review group requesting additional information or resolution of specific issues identified through these reviews.

HQ personnel, with disposal facility responsibility, may also review the ASR as directed by management. This review ideally should occur before the LFRG site member's presentation to the LFRG. The LFRG Co-Chairs may assign an LFRG member to participate in an ASR review group consisting of an EM-HQ person(s), the LFRG member, and other individuals as assigned. The LFRG Co-Chairs consider the input from these individuals and the full LFRG in making a recommendation for continued operations of the facility, imposing limitations/conditions on the facility, or to cease operations at the facility. The LFRG Co-Chairs make their recommendation to the DASWMM and DRISE through the drafting of a memo to the respective EM disposal facility FE Manager (or delegated authority) or appropriate PSO. If the DASWMM and DRISE agrees with the recommendation, they will approve the memo and send it to the appropriate EM disposal facilities or to NNSA, SC, and NE for facilities under their cognizance for a final decision.

9.1.6 PDAS/ODAS Implementation Onsite Reviews

The LFRG site member has the regulatory duty to perform onsite facility reviews of PDAS or ODAS and technical basis documentation implementation identified in section 9.1.4 above. In addition, the LFRG at large has a responsibility to perform oversight activities of the implementation of the PDAS/ODAS. The LFRG may utilize the Environmental Management Headquarters Waste Management Program Implementation Plan (9/5/17) to fulfill their oversight responsibilities as identified in section 9.1.4 above.

The LFRG site member may:

- Perform this regulatory oversight function
- Request other LFRG members to assist
- Request that the LFRG Co-Chairs sanction a review team of technical experts, not associated with the site, perform this review.

These reviews, including any findings and recommendation, shall be documented. The LFRG site member shall include the results of these reviews in the Annual Summary Report.

9.1.7 LFRG Meetings

The LFRG normally meets on a monthly basis utilizing conference calls, webinars, and/or video conferencing to facilitate communication. These meetings serve to:

- Communicate changes or potential changes to DOE orders
- Confirm consistent application of requirements
- Inform members of programmatic or administrative issues
- Review scheduled events (e.g. PA/CA reviews) provide PDAS or ODAS and technical basis documentation review results
- Provide action item status
- Provide key and secondary issue status
- Vote on various PDAS or ODAS technical basis documents or other issues
- Discuss any issues or topics of concern of the Co-Chairs or members.

The LFRG also has face to face meetings periodically (normally semi-annually) to:

- Review and discuss ASR presentations
- Address specific topics of interest
- Vote on PDAS or ODAS technical basis documentation
- Network with other LFRG members
- Provide training on various topics to the LFRG members, contractors and subcontractors that support the LFRG.

Telephone, video, and/or webinar conferencing are also made available for LFRG members unable to attend face to face meetings although having the LFRG member or alternate from each site attending in person is strongly recommended.

9.2 Task Management

Three basic tools are used in LFRG operations:

1. A schedule of upcoming events/reviews
2. Action item tracking data base to ensure action items identified during LFRG meetings are tracked to closure
3. Issue tracking data base to ensure issues identified during LFRG PDAS or ODAS technical basis document reviews are tracked to closure.

9.2.1 Schedule

A rolling two-year schedule for upcoming PDAS/ODAS/Tier I Closure Authorization technical basis documentation reviews will be maintained by the Executive Secretariat. LFRG site members will provide schedule review dates as soon as possible for proper resource planning. If schedule changes occur, the LFRG site member will notify the Executive Secretariat to make the appropriate changes to the LFRG Schedule.

9.2.2 Action Item Tracking Data Base

Action items are issues, questions or comments identified during LFRG meetings that are identified as needing a formal response. These items are tracked in the action item tracking data base maintained by the Executive Secretariat. The Co-Chairs will identify the responsible person for completing each action item, assign a completion due date, and ensure the item is included in the action item data base. Action items status will be discussed during the LFRG monthly and semi-annual business meetings. Action items can be closed through discussion as documented in meeting minutes or other documentation as determined by the LFRG Co-Chairs. The action item data base will document the closure response and completion date. LFRG Co-Chairs are responsible for determining if an action item can be closed.

9.2.3 Issue Tracking Data Base

PDAS/ODAS/Tier I Closure Authorization technical basis documentation reviews may result in key and secondary issues6 that will be tracked and closed to meet the DOE M 435.1-1 radioactive waste disposal requirements. These issues and their status are delineated in the site ASR. The LFRG Co-Chairs are responsible for ensuring these issues are tracked in the issue tracking data base until closed and in determining who has access to the data base. Discussion and documentation reviews can be used by the LFRG Co-Chairs and members for determining if an issue can be closed. The Executive Secretariat is responsible for updating the data base including the referenced issue closure documentation.

The FEM or delegated authority will send a formal letter to the DASWMM and DRISE documenting resolution of key issues that remain outstanding after issuance of the PDAS or ODAS. Key and secondary issues are closed by formal documentation (Issue Closure Documentation, Attachment 2) from the site to the LFRG Co-Chair(s) and discussed by the LFRG membership. Key/secondary issue closure documentation will include the following:

- Site name
- Issue number – from LFRG Review Report
- Issue Date – LFRG Review Report Date
- Owner – name of LFRG Site Member
- Title – review criteria name (e.g. conceptual model)
- Statement – description of the issue

6 Key and secondary issues are defined in the DAS &TC Technical Standard.

- Basis – description of the basis used to classify as a key/secondary issue (e.g. definition of secondary issue plus any additional information)
- Corrective action/resolution - detailed description of corrective actions including references of all back-up information and supporting reports and analyses (e.g. revised wording in the PA Section 3.3, Institutional Control, to support the use of 200 yrs. vs 100 yrs.)
- Name of contractor submitting closure documentation
- LFRG Site Member concurrence
- A list of completed corrective action documentation (attach to closure document form)
- Independent verification of closure by the LFRG Review Team Lead, if required
- Approval/disapproval of LFRG Co-Chairs.

LFRG Co-Chairs may assign LFRG members or support personnel to evaluate the closure response to key or secondary issues. The responsible individual(s) will provide the LFRG Co-Chairs the evaluation results in a formal document. The evaluation results will be discussed during LFRG meetings, documented in the meeting minutes, and referenced in the issues data base.

9.3 Document Review and Request Process

A critical LFRG activity is to develop and implement a formal process for reviewing PDAS/ODAS/Tier I Closure Authorization technical basis documentation (e.g. PA, CA, and CP) and Annual Summary Reports. LFRG site members requesting a PDAS/ODAS/Tier I Closure Authorization technical basis document review will submit a formal request to the LFRG Co-Chairs. The request will state what document(s) is being submitted for review and any commitments to DOE management or federal/state regulators regarding the document or schedule. In addition, the site LFRG member and the LFRG Co-Chairs will work together to establish the cost for the review and utilizing existing funds transfer mechanisms, as necessary. Once the request has been received, the review will be placed on the LFRG schedule. The LFRG Co-Chairs will begin the process of selecting a review team leader and members as identified in the DAS&TC Technical Standard. The review process typically takes approximately 3-4 months to complete.

9.4 LFRG Notifications

An important continuing LFRG activity is to review active disposal facilities operations or tank closure to determine whether the technical basis documentation supporting the PDAS/ODAS/Tier I Closure Authorization, including the conclusions and assumptions of the PA/CA remain current and valid. This activity is promoted by timely notification from the LFRG site member to the LFRG of changes in design, construction, operation, maintenance, and closure. The notification mechanisms used may include the ASR and presentations by LFRG members during meetings and conference calls. The summaries and presentations will serve as the formal notification documentation. If the LFRG site member determines that the LFRG Co-Chairs should be notified immediately, they should call the Co-Chairs and follow the notification up with an email documenting the notification. The LFRG will examine operational data, review documentation, and other evidence as necessary to determine if technical basis documentation remains current and valid.

In developing a UDQE/UCAQE/SA, the LFRG should be notified upon the occurrence of one of the following events:

- Any violation or potential violation of the performance objective
- If the new PA forecasted dose is above 50 percent of any performance objective. (e.g. projected all pathway dose is above 12.5 mrem/yr)
- Any fundamental change in the PA conceptual model
- Any fundamental change in the disposal methodology (e.g., changing from vault to trench disposal)
- The new CA dose is greater than the administrative dose limit of 30 mrem/yr
- Disposal of a waste type (hazardous, mixed, transuranic or high level waste) that the facility is not authorized to dispose.

The LFRG site member will identify any occurrence event that has been triggered and report the situation to the LFRG Co-Chairs as warranted by the significance of the information. The following are examples illustrating the application of the thresholds:

Notification Threshold Example #1: *LFRG notification should be immediate if the groundwater monitoring of the radioactive disposal facility at the compliance point indicates a potential realized dose of 5 mrem/yr. beta gamma in the downstream monitoring well which exceeds the 4 mrem/yr. beta gamma groundwater dose performance objectives.*

Notification Threshold Example #2: *A site develops a Special Analysis on a new LLW stream a generator has requested to be disposed onsite. Once the analysis has been completed, the projected all pathway dose after closure of the facility is 15 mrem/yr which is greater than 50% of the 25 mrem/yr performance objective. The LFRG site member informs the LFRG of the basis for the change at the monthly LFRG call.*

Notification Threshold Example #3: *The site is revising the current PA and has decided to change the conceptual model by including all the disposal trenches as one footprint instead of using individual trench footprints. The LFRG site member informs the LFRG of the change at the monthly LFRG call and discusses why the site decided to take this approach and the predicted effect of the change.*

Notification Threshold Example #4: *An operating disposal site performs an SA that evaluates the protectiveness and cost of changing the current disposal containers from carbon steel to stainless steel. The site analysis indicates the change would be consistent with ALARA principles and cost effective. The LFRG site member informs the LFRG of the change at the monthly LFRG call.*

Notification Threshold Example #5*: The site discovers five additional sources that were not included in the original CA. An SA is performed and the results indicate that the projected dose to a member of the public is now 35 mrem/yr. Since the dose is still below the 100 mrem limit, there is no reason for immediate LFRG notification. However, the new dose is above the 30 mrem administrative dose constraint requiring an ALARA analysis, the LFRG is informed at the monthly LFRG call.*

Notification Threshold Example #6: *The site discovers that several waste containers, which were disposed in the LLW disposal facility approximately one year ago, were misclassified. The initial characterization classified the waste as LLW; however, a thorough review of the characterization data showed the waste contained sufficient quantities of plutonium to be classified as TRU. Operations at the facility are suspended pending further investigation. The LFRG site member informs the LFRG immediately of the situation and suspension of operations. The LFRG member also informs the LFRG as new information is available and of any correction action that has been or will be completed.*

The LFRG site member should provide the LFRG with supporting documentation, if available, when an occurrence event is exceeded. This may include a monitoring report, a positive UDQE, SA, stop work, etc. All DOE and contractor employees have the right and responsibility to stop work if conditions pose a risk to health and safety and/or the environment or if the condition may/does violate a regulation. This stop work does not have to be approved by site management. An example would be disposal of liquids in a facility not approved for that type of disposal. The LFRG site member should be cognizant of the issue and be able to explain the situation to the LFRG and/or have supporting personnel available familiar with the details of the situation. The LFRG may decide that:

- The change or discovery is insignificant compared to the PA/CA conclusions and assumptions and no further action by the LFRG is necessary, other than documentation in the meeting minutes
- Additional detail is needed from the site before a decision can be made
- A review team should be assembled to review the issue or discovery and provide the LFRG with a recommendation
- The situation warrants an operational suspension (or other controls initiated) until more information is provided. If the LFRG site member agrees, they will work through site management to suspend operations. If the LFRG site member disagrees, the LFRG will work through the DASWMM and DRISE, Cognizant Associate Administrator of the NNSA, or appropriate NE, SC PSO to resolve the issue.

The sites should use the UDQE or change control process in evaluating the significance of the discovery or change. Most cases will probably result in a LFRG site level UDQE review or SA approval by the FE Manager or delegated authority. In these cases, the change will not affect the conclusions of the PA/CA or require a PDAS/ODAS/Tier I Closure Authorization modification.

Changes that trigger occurrence events will be reviewed to determine whether revisions to the PA/CA or PDAS/ODAS/Tier I Closure Authorization are required and what, if any, restriction may be recommended to the APDAS or Cognizant Associate Administrator of the NNSA or appropriate NE or SC PSO responsible for the facility.

9.5 Meeting and Conference Call Process

The proceedings used by the LFRG to conduct business are the semi-annual business meetings and monthly meetings. These meetings will use a combination of face to face, conference calls, video, or webinar communication techniques to ensure full LFRG membership participation.

Special proceedings may be called by the LFRG Co-Chairs when significant, time-consuming actions such as discussion of a review team report are required. The procedures for conduct of meetings include:

9.5.1 Semi-Annual Meetings

- The LFRG Co-Chairs will convene at least two face to face LFRG meetings annually for deliberations on key documents such as ASR, PDAS/ODAS technical basis documentation reviews and for training. Meetings may also be conducted at the discretion of the Co-Chairs. These face to face meetings are normally held at a location identified by the Co-Chairs. Video, conference calls, or webinars can be used for individuals who cannot travel to the face to face meetings.
- A meeting agenda, prepared by the Executive Secretariat and approved by the Co- Chairs, will be distributed approximately one month prior to the meeting date. Anyone requesting an agenda item should contact the Executive Secretariat prior to the agenda distribution date.
- Roll call will be taken at each meeting to ensure enough LFRG members are present for a quorum if a vote is necessary. The voting process is detailed in section 9.5.3, Voting Process, if a vote by the membership is necessary.
- The Executive Secretariat is responsible for obtaining a conference number, video, or webinar connections and distributing notification to the LFRG members.
- Action items status will be discussed and any new action items will be documented in the minutes and added to the action item data base by the Executive Secretariat.
- The final meeting minutes will be approved by the Co-Chairs and placed in the permanent records of the LFRG web based system where documents are shared and stored (e.g. LiveLink). The minutes are considered approved by the Co-Chairs when they are placed on the web-based sharing site. LFRG Co-Chairs will determine who has access to meeting minutes.

9.5.2 Monthly Meetings

- Monthly meetings by conference call or webinar are normally conducted for information exchanges, discussion of upcoming reviews, policy changes, review report results, etc. However, the LFRG Co-Chairs may call for ad hoc meetings to discuss specific topics or situations
- Roll call will be taken at each meeting to ensure enough LFRG members are present for a quorum if a vote is necessary. The voting process is detailed in section 9.5.3, Voting Process, if a vote by the membership is necessary
- A meeting agenda, prepared by the Executive Secretariat and approved by the Co-Chairs, will be distributed approximately one week prior to the meeting date. Agenda items should be submitted to the Executive Secretariat prior to the agenda distribution date
- The Executive Secretariat is responsible for obtaining a conference number, tele-video, or webinar connections and distributing notification to the LFRG members
- Action items status will be discussed and any new action items will be documented in the minutes and added to the action item data base by the Executive Secretariat

- The final meeting minutes will be approved by the Co-Chairs, and placed in the permanent records of the LFRG web-based record system where documents are shared and stored (e.g. LiveLink). The minutes are considered approved by the Co-Chairs when they are placed on the web-based sharing site. LFRG Co-Chairs will determine who has access to meeting minutes

9.5.3 Voting Process

LFRG normally votes on the following items with the results of the vote documented in the meeting minutes:

- LFRG Review Team Plans - approval
- LFRG Review Team Reports - (only that it satisfies LFRG review scope)
- Draft Compliance Evaluations - approve draft to be sent to APDAS
  - Includes corrective actions for key and secondary issues
- Draft PDAS/ODAS - approve draft to be sent to APDAS
  - Includes limits and conditions
- Draft Tier I Closure Authorization - approve draft to be sent to APDAS.

A quorum to conduct a vote shall be established by a simple majority of the LFRG voting members (e.g., LFRG has 15 voting members. A minimum of 8 members must be present for a quorum). A voting member is the LFRG Co-Chairs, LFRG member or their designated alternate. The LFRG Secretariat maintains the official list of LFRG members and alternates and non-voting technical support personnel. LFRG Site members may not vote on LFRG documents pertaining to their site but will be counted in establishing a quorum. The alternate will assume the full duties and responsibilities in the member's absence.

If a quorum is not achieved, the LFRG Co-Chairs may by joint action, move an action forward by obtaining the votes of the members present and documenting the decision in the LFRG meeting minutes. The Co-Chairs will inform the LFRG members of the action.

A consensus of the membership (i.e. unanimous positive vote) is desired for all actions; however, if a consensus cannot be reached, a two thirds majority of the quorum can move the action forward. A minority position, if identified, will be included in the record.

Voting may be conducted during face to face meetings, via telephone, or video conferences. However, voting by email is acceptable at the discretion of the Co-Chairs if the LFRG members are familiar enough with the subject or issue to make an informed decision.

9.6 Administrative Record

The LFRG will maintain a formal administrative record. The formal records are to be managed by the Executive Secretariat and include the following:

- Digital copies of LFRG correspondence

- Digital copies of PDAS/ODAS/Tier I Closure Authorization and technical basis documentation including: CE, PA, CA, CERCLA crosswalk, SA, MP, CP, MonP, WAC, UDQE, ASR, LFRG review team plans (including team member credentials) and reports, and other documents that demonstrate compliance with the DOE M 435.1-1
- Digital copies of administrative documentation such as: LFRG Co-Chairs and LFRG member credentials and approvals, meeting minutes, LFRG membership list, issue tracking and action item tracking data bases, and work breakdown structure filing system.

The LFRG business management process will include a web based platform for documentation storage. The website contains a folder for all LFRG documentation and is broken down into a work breakdown structure for ease of filing and for user access. The system requires individuals to acquire an access identification and password for entry. Contact the Executive Secretariat for more information in accessing the LFRG's documentation filing system. Other web sites that may contain information that could assist the LFRG membership are:

- EM Homepage – http://energy.gov/em. This site has links to directives, other references and requirements, RevCom, news and updates, etc.
- LFRG Homepage— http://energy.gov/em/low-level-waste-disposal-facility-federal-review-group-lfrg. LFRG site with contact information and LFRG documents.
- DOE Directives Homepage--https://www.directives.doe.gov/. This site hosts DOE directives.
- DOE Radiation Protection of the Public and the Environment - http://energy.gov/ehss/services/environment/radiation-protection-public-and- environment. This site provides direct access to DOE O458.1, *Radiological Protection of the Public and the Environmental*, as well as access to other guides, tools (Residual Radiation family of codes, Clean Air Act Assessment Package-1988, National Emission Standards for Hazardous Air Pollutants, and Annual Site Environmental Reports) and training related to the radiation protection of the public and the environment from DOE activities.
- AU Homepage – http://energy.gov/ehss/environment-health-safety-security. This site has links to environmental reports, sustainability, environmental compliance, worker health and safety, training, tools, National Environmental Policy Act, etc.

10 References

DOE Order 435.1, Radioactive Waste Management
DOE Manual 435.1-1, Radioactive Waste Management Manual
DOE Guide 435.1-1, Radioactive Waste Management Low-Level Waste Requirements Guide
DOE-STD-5002-2017, Disposal Authorization Statement and Tank Closure Documentation, May 2017
LFRG Manual, Rev 3, June 2008
LFRG Program Management Plan, September 18, 2000
LFRG Charter, 2012
Memorandum, Robert Seifert & Mark Senderling, LFRG Co-Chairs to LFRG Members and Alternates, dated October 1, 2015 with cc to Mark Gilbertson and Frank Marcinowski
Office of Environmental Management, Headquarters Waste Management Oversight Program Implementation Plan.

11 Attachments

Attachment 1 - Issue Closure Documentation
Attachment 2 - Mentoring Program and Succession Planning
Attachment 3 - Recommendation Memo from Field Element Manager to Associate Principal Deputy Assistant -Secretary Example
Attachment 4 - LFRG Technical Competencies Assessment
Attachment 5 - LFRG Membership List

Attachment 1 – Issue Closure Documentation

Issue Form	Key ☐ Secondary ☐ Observation ☐ BMP ☐	
Site:		
Issue Number:		**Issue Date:**
Issue Owner:		
Issue Title:		
Issue Statement:		
Issue Basis:		
Corrective Action / Resolution:		
Submitted by: (Site Contractor)		**Date:**
Concurrence: (LFRG Site Member)		**Date:**
Completed corrective action documentation (list and attach):		
Verification/Recommendation: (LFRG Review Team Lead, as applicable		**Date:**
Closure Approval: (LFRG Co-Chair)		**Date:**
Closure Approval: (LFRG Co-Chair)		**Date:**

Attachment 2 - Mentoring Program and Succession Planning

Purpose

The purpose of the mentoring program is to ensure that personnel performing LFRG functions are properly trained and equipped to perform those duties and responsibilities. The purpose of succession planning is to ensure resources are in place with the appropriate qualifications and experience to replace LFRG members as they move into other positions or retire.

Scope

The mentoring program consists of pairing experienced LFRG members with individual's assigned LFRG member functions but who do not have all the requisite training and skills to perform all of the LFRG duties and responsibilities. The mentoring program is an important part of succession planning to ensure the LFRG has qualified resources to perform their regulatory oversight role.

The LFRG also utilizes contractors and subcontractors to support LFRG functions in specific areas (e.g. modeling). The mentoring program may be used to supplement the contractors/ subcontractors expertise at the discretion of the LFRG Co-Chairs.

Succession Planning

The LFRG plays a vital role in DOE's self-regulation of LLW, TRU disposed onsite and CERCLA waste disposal. LFRG duties and responsibilities require a well-trained and qualified work force to confirm disposal facilities are meeting DOE M 435.1-1 requirements and are protective of public health and the environment. Succession planning is a process to replace individuals, as they move to another position or retire, with another individual who can meet the qualifications to be an LFRG member in a relatively short period of time. The LFRG meets this requirement by having an LFRG member and an alternate. When the LFRG member is not present or has been reassigned, the alternate can perform the duties and responsibilities of the member. The mentoring program is used to ensure LFRG members and alternates possess the necessary training and experience.

Process

The mentoring process is a proven method to get individuals to a level of performance that is required to adequately perform the duties of an LFRG member. The mentoring program is designed to be completed within one year, however, past experience and training of the individual may shorten the timeframe at the discretion of the mentor.

The mentoring process consists of:

- An individual being assigned the responsibility to become an LFRG member by management at a specific site or from an HQ organization (e.g. Office of Science,

Environmental Management). (See Attachment 4 for an example recommendation memo).

- Once the individual has been approved by the Associate Principal Deputy Assistant Secretary, the LFRG assigns an experienced LFRG member(s), with at least 5-year experience as an LFRG member, to mentor the individual.
- The LFRG Technical Competencies Checklist in Attachment 5, LFRG Technical Competencies Assessment, is used to assess the individual technical strengths and weaknesses if they have not been qualified to one of the following Technical Qualifications: Waste Management, Environmental Compliance or Environmental Restoration. This process identifies areas where the mentee may need a training course, self-study or discussion with the Mentor to become proficient.
- The mentor and mentee communicate on a regular basis to discuss technical and LFRG membership activities, roles and responsibilities concentrating on areas that the mentee needs additional instruction.
- The LFRG Specific Proficiency Checklist in Attachment 3, Mentoring Program and Succession Planning, is used to assess the mentee knowledge of the LFRG's: activities, roles and responsibilities; role in DOE's self-regulation authority; management processes and DOE M 435.1-1, *Radioactive Waste Management Manual*, disposal requirements.
- Once both checklist are completed and signed by the mentor, the mentee is presented to the LFRG and the checklists filed as an LFRG administrative record as applicable.

LFRG Specific Proficiency Checklist

The LFRG Specific Proficiency Checklist is used to document the competencies and tasks necessary to ensure the LFRG member has an understanding of the regulatory duties and responsibilities of the LFRG. The competencies include:

1. **Demonstrate a working level knowledge of the LFRG** – this competency includes: a clear understanding of the roles and responsibilities of the LFRG at-large and individual LFRG members; qualification and training requirements for LFRG Co-Chairs, members, review team leads and review team members; management process such as PA/CA review schedules, action item tracking; notification requirements; and conduct of and participation in the monthly and annual meetings.

2. **Demonstrate a working level knowledge of the LFRG's role in DOE's self-regulation under AEA** – this competency includes: DOE's role and responsibilities under AEA of 1954, as amended and the implementation through DOE M 435.1-1; HQ, Field Element and LFRGs role in the oversight and self-regulation of radioactive waste disposal facilities; and purpose, scope, content and review of:

    a. Independent reviews of the PDAS/ODAS and technical basis documents
    b. LFRG Review Team Plan and Report
    c. Disposal sites Annual Summary Report
    d. Independent reviews of PDAS/ODAS and technical basis documentation implementation.

3. **Demonstrate a working level knowledge of disposal requirements delineated in DOE M 435.1-1, *Radioactive Waste Management* *Manual*-** this competency includes: purpose, scope, content and review criteria for: PDAS/ODAS, PA, CA, CP, MP, MonP, WAC, UDQE, ASR & RWMB.

4. **Demonstrate a working level knowledge of the site's disposal facility (site member) -** this competency includes: description and design of the facility; facility's PDAS/ODAS including any limitation and condition; specific technical basis documents requirements; latest Annual Summary Report including operational data versus PA conclusions and major assumptions; purpose, scope and content of the facility's RWMB.

5. **Demonstrate a working level knowledge of the following regulations** – this competency includes the regulations outside of DOE M 435.1-1 that the disposal/closure facilities are required to meet. They include: RCRA, CERCLA, NRC, Clean Air, Clean water, 40CFR191, as applicable.

   Note: Working level is defined as the knowledge required to monitor and assess operations/activities, to apply standards of acceptable performance, and to reference appropriate material and/or expert advice as required to confirm the safety of Departmental activities.

The LFRG will identify a primary mentor who is responsible for working with the mentee to ensure they have a working level knowledge of each competency and signing the checklist attesting to this fact. Other mentors may be assigned responsibility for working with the mentee on specific competencies or tasks. The primary mentor will coordinate with other mentors to discuss the mentees working level knowledge of the competency or task and initial and date the checklist. This will serve as a progress report for the mentor and mentee.

LFRG SPECIFIC PROFICIENCY CHECKLIST

Name: _____

Primary Mentor: _____

Date Entering Mentor Program: _____

Mentee Competencies	Mentor	Primary Mentor Initial and Date
1.0 Demonstrate a working level knowledge of the LFRG		
1.1 Discuss the responsibilities of the LFRG Co-Chairs		
1.2 Discuss the responsibilities of the LFRG Members		
1.3 Discuss the training and qualification requirements for: an LFRG member; LFRG Review Team leader and member		
1.4 Discuss the LFRG management process; schedule, action item tracking and issue tracking		
1.5 Discuss LFRG notifications		
1.6 Discuss the intent of the monthly and annual business meetings		
1.7 Discuss the LFRG voting process		
1.8 Participate in 6 LFRG monthly conference calls and 1 semi-annual meeting		
2.0 Demonstrate a working level knowledge of the LFRG's role in DOE's self-regulation under AEA		
2.1 Discuss DOE's responsibilities under the AEA of 1954 as amended and how DOE M 435.1-1 implements those responsibilities for radioactive waste management		
2.2 Discuss the self-regulatory roleand responsibilities as defined in DOE M 435.1-1 of: HQ, Field Element & LFRG		
2.3 Discuss the review of the PDAS/ODAS & associated Technical Basis Documents and establishment of review teams		
2.4 Discuss the purpose, scope and content of LFRG Review Team Plan and Report		
2.5 Discuss the oversight role of the LFRG site member for onsite disposal facilities; including the importance and implementation of the radioactive waste management basis (RWMB)		

Mentee Competencies	Mentor	Primary Mentor Initial and Date
2.6 Discuss the interface and notification requirements between the LFRG, LFRG site member and management		
2.7 Discuss the purpose and review of Annual summary Report		
2.8 Discuss the purpose and scope of P DAS/ODAS and technical basis document implementation reviews (after initial issuance or revision to PDAS/ODAS or technical basis documents)		
3.0 Demonstrate a working level knowledge of disposal requirements delineated in DOE M 435.1-1, Radioactive Waste Management and the Disposal Authorization Statement and Tank Closure Documentation Technical Standard		
3.1 Discuss the purpose, scope and content of the Disposal Authorization Statement		
3.2 Discuss the purpose, scope and content requirements of a Performance Assessment		
3.3 Discuss the purpose, scope and content requirements of a Composite Analysis		
3.4 Discuss the purpose, scope and content requirements of a Closure Plan		
3.5 Discuss the purpose, scope and content requirements of a Maintenance Plan		
3.6 Discuss the purpose, scope and content requirements of a Monitoring Plan		
3.7 Discuss the purpose, scope and content requirements of an unreviewed disposal question evaluation or change management process		
3.8 Discuss the purpose, scope and content requirements of waste acceptance criteria		
3.9 Discuss the purpose, scope and content requirements of a radioactive waste management basis (RWMB)		
3.10 Visit one other disposal facility		
3.11 Participate or observe in one onsite PA/CA review		
4.0 Demonstrate a working level knowledge of the site's disposal facility (site member)		
4.1 Discuss facility description, design and operations		
4.2 Discuss the disposal facility's P DAS/ODAS including the requirements, conditions and limitations		

Mentee Competencies	Mentor	Primary Mentor Initial and Date
4.3 Discuss the disposal facility's technical basis documents		
4.4 Discuss the latest disposal facility's Annual Summary Report		
4.5 Discuss disposal facility's RWMB		
5.0 Demonstrate a working level knowledge of the following Regulations:		
5.1 RCRA		
5.2 CERCLA		
5.3 Clean Water Act		
5.4 Clean Air Act		
5.5 40 CFR 191		

(Mentees name) has successfully completed the LFRG mentor program.

_____

Mentor's signature and date

_____

Attachment 3 - Recommendation Memo from Field Element Manager to Deputy Assistant Secretary Example

To: Associate Principal Deputy Assistant Secretary for
Regulatory and Policy Affairs

From: Manager, Site X Operation Office

Subject: Low Level Waste Disposal Facility Federal Review Group (LFRG) Member Recommendation

I am nominating John Disposal as the Site X LFRG member for your consideration. Mr. Disposal meets or exceeds all the qualifications listed in the LFRG Execution Plan. His qualifications are:

- "X" years as a DOE federal employee
- A BS degree in Chemical Engineering
- "X" years of experience in low-level waste management with:
  - "X" years of experience implementing DOE M 435.1-1 requirements
  - "X" years of experience developing, reviewing, or approving Disposal Authorization Statement technical basis documents under the direction of Mr. Waste an LFRG member
- Qualified for the past "X" years in Technical Qualification Program for Waste Management
- Completed a formal DOE M 435.1-1 training course

Mr. Disposal has not completed the LFRG Mentor Program, however, with his background and experience he should complete the program in a "X" amount of time. Mr. Disposal will be a valuable asset to the Department and the LFRG.

_____/_____ Manager, Site X Operations Office

cc: LFRG Co-Chairs
Executive Secretariat

Attachment 4 - LFRG Technical Competencies Assessment

Purpose

The purpose of assessing LFRG candidate (includes Co-Chair) technical competencies is to ensure that personnel performing LFRG functions possess the appropriate technical competencies to perform those duties and responsibilities.

Scope

This assessment applies to all LFRG candidates. All members of the LFRG are required to possess a minimum set of technical competencies in order to serve on the LFRG. It is also expected that the technical competencies of all LFRG candidates will be verified by appropriate personnel prior to being nominated to serve on the LFRG.

Process

LFRG candidates that have been qualified per any of the following technical qualification standards shall be considered qualified to serve on the LFRG:

- Environmental Compliance Functional Area Qualification Standard (DOE-STD-1156)
- Environmental Restoration Functional Area Qualification Standard (DOE-STD-1157)
- Waste Management Functional Area Qualification Standard (DOE-STD-1159).

LFRG candidates may also be considered qualified by completion of the LFRG Technical Competencies Checklist at the end of this attachment.

LFRG Technical Competencies Assessment Checklist

In lieu of documented qualification to any of the following standards (DOE-STD-1156, DOE-STD-1157 or DOE-STD 1159), the LFRG Technical Competencies Assessment Checklist provides a list of the technical subject matter competencies required for LFRG membership and examples of the knowledge and skills associated with each competency. Some competencies may be considered complete by: verifying successful completion of a college level course identified on the individual's college transcript; or successful completion of a DOE approved training course.

LFRG members will have a familiarity level of competency in all technical subject matter areas, as a minimum, and at least a working level of competency in at least two technical subject matter areas from the LFRG Technical Competencies Assessment Checklist. Verification of the LFRG candidate competencies is required by one or more of the following:

- Immediate supervisor
- LFRG member

- Qualifying individual

The competencies are identified as: familiarity level; working level, or expert level of knowledge; or they require the individual to demonstrate the ability to perform a task or activity. These levels are defined as follows:

- Familiarity level is defined as basic knowledge of or exposure to the subject or process adequate to discuss the subject or process with individuals of greater knowledge

- Working level is defined as the knowledge required to monitor and assess operations/activities, to apply standards of acceptable performance, and to reference appropriate material and/or expert advice as required to confirm the safety of Departmental activities

- Expert level is defined as comprehensive, intensive knowledge of the subject or process sufficient to provide advice in the absence of procedural guidance

- Demonstrate the ability is defined as the actual performance of a task or activity accordance with policy, procedures, guidelines, and/or accepted industry or Department practices.

LFRG TECHNICAL COMPETENCIES ASSESSMENT CHECKLIST

Mentee Name: _____

Competencies verified by:_____

Check one: Immediate supervisor_____ LFRG member_____ Qualifying individual_____

Date:_____

Competencies		
Qualified in one of the following DOE Technical Qualifications		
Waste Management		
Environmental Compliance		
Environmental Restoration		
1.0 Chemistry fundamentals	Familiarity/Working/Expert	Verified by: (initials)
1.1 Discuss the following types of chemical bonds: ionic, covalent, metallic		
1.2 Discuss how elements combine to form chemical compounds		
1.3 Define the following terms: mixture, solvent, solubility, solute, solution, equilibrium, density, molarity, parts per million (ppm), acid, base, salt, pH		
Note: this competency may be verified by a college transcript showing successful completion of a college level chemistry course.		
2.0 Probability and statistics	Familiarity/Working/Expert	Verified by: (initials)
2.1 Define the following terms: mean, variance, standard deviation of the mean, median, mode, standard deviation, nonparametric		
2.2 Explain the structure and function of distributions		
2.3 Discuss how to calculate the mathematical mean of a data set		
2.4 Discuss how to calculate the standard deviation of a data set		
2.5 Discuss how to calculate the probability of an event		
2.6 Discuss how samples are used to estimate population parameters through statistical inference		
2.7 Discuss Type I and Type II decision errors and the relationship to sampling and confidence levels		

	Familiarity/Working/Expert	Verified by: (initials)
2.8 Discuss the similarities and differences between probabilistic and deterministic analyses		
2.9 Discuss uncertainty and sensitivity analyses		
Note: this competency may be verified by a college transcript showing successful completion of a college level statistic course.		
3.0 Basic principles and concepts of hydrology, geology and soil science	Familiarity/Working/Expert	Verified by: (initials)
3.1 Discuss the different soil textures (compositions) and soil structures		
3.2 Discuss humus and its role in chemical reactions in soil		
3.3 Discuss erosion and describe the characteristics and effects of water and wind erosion		
3.4 Describe the following processes and explain how water and soil interact in each: infiltration and percolation, groundwater recharge, runoff, evapotranspiration		
3.5 Discuss how soil characteristics, slope factors, and land cover conditions impact the detachment and transport processes of pollution		
3.6 Discuss pollutant loading and the pollutant delivery ratio		
3.7 Discuss the use of soil survey maps		
3.8 Discuss the cation and anion exchange capacity of soils		
3.9 Describe the hydrologic cycle		
3.10 Define the following hydrologic terms and describe the relationships between them: stream flow, evaporation, transpiration, sedimentation, capillary water, zone of saturation, specific yield, hydraulic conductivity, transmissivity, vadose zone, mass curve, frequency analysis, watershed,		
3.11 Discuss the composition and identification of the following types of rocks and cite examples of each: igneous, sedimentary, metamorphic		
3.12 Describe the geometry and properties of the following rock structures or features: folds, faults, structural discontinuities, residual stress, sheet joints, structural discontinuities, shear strength of discontinuities		
3.13 Discuss the use of geological and geotechnical maps		
3.14 Describe the geologic considerations, criteria and procedures used to evaluate the following: relief, slope stability, flood plains, karst terrain		
3.15 Discuss weathering and its significance in geotechnical engineering		
3.16 Discuss tests that assess weatherability		

	Familiarity/Working/Expert	Verified by: (initials)
3.17 Discuss the process for interpreting rock cores		
3.18 Describe how different soil types can affect contaminant transport		
3.19 Describe the effect partition coefficients can have on contaminant transport		
Note: this competency may be verified by a college transcript showing successful completion of a college level hydrology, geology and soil science course.		
4.0 Basic principles of meteorology	Familiarity/Working/Expert	Verified by: (initials)
4.1 Discuss the meteorological conditions associated with the occurrence of maximum ground level concentrations for elevated releases of pollution, and for ground releases		
4.2 Describe the classes of atmospheric stability in the atmospheric dispersion system developed by Pasquill, Gifford and Turner		
4.3 Describe the role of lapse rate in determining dispersion coefficients		
4.4 Describe how buildings and terrain affect the diffusion of gases		
4.5 Describe the most important parameters that affect the calculation of dose from an airborne radioactive plume		
4.6 Describe the kind of information given by a wind rose		
Note: this competency may be verified by a college transcript showing successful completion of a college level meteorology course.		
5.0 Basic terms and concepts of environmental biology	Familiarity/Working/Expert	Verified by: (initials)
5.1 Define the following terms: ecosystem, biota, community, habitat, species, pathways analysis, bioaccumulation, bioconcentration, biotoxicity, biodiversity, population, threatened and endangered species, allotmetric relationships, dose rate, radioecology, conceptual model, ecological risk assessment, radiation effects of biota, ecological benchmarks		
5.2 Define synergism and discuss our ability to quantify cause and effect relationship for multiple chemical and radiological stressors to biota		
5.3 Discuss spatial and temporal considerations in evaluating chemical and radiological impacts to biota		
5.4 Discuss some of the internal and external exposure pathways to biota in evaluating chemical and radiological stressors		

Note: this competency may be verified by a college transcript showing successful completion of a college level environmental biology course.		
6.0 Monitoring techniques related to environmental compliance	Familiarity/Working/Expert	Verified by: (initials)
6.1 Describe the types of equipment used to monitor a site for the following: ambient air quality, emissions, groundwater contamination, meteorological factors, stream and river contamination, soil and sediment contamination, wildlife contamination		
6.2 Describe the standard methods for the examination of water and wastewater		
6.3 Given a sampling parameter/equipment, describe the standard sampling methods and protocols		
Note: this competency may be verified by a college transcript showing successful completion of a college level environmental monitoring course.		
7.0 Purpose and usage of environmental sampling and measurement equipment	Familiarity/Working/Expert	Verified by: (initials)
7.1 Explain the reason for measuring emissions, meteorological factors and ambient air quality under various operation conditions (e.g., routine and emergency).		
7.2 Describe the purpose and limitations of the following air quality measurement instruments: high volume particulate sampler, liquid bubbler (e.g. sulfur dioxide), infrared spectrometer		
7.3 Describe the purpose and types of material collected by the following sampling media: high efficiency glass fiber filter, activated charcoal cartridge, silica gel		
7.4 Describe the purpose for measuring each of the following parameters during field surveys of water quality: temperature, dissolved oxygen, conductivity, pH		
7.5 Discuss the factors that can affect readings and the preservation methods for the field measurements listed above		
7.6 Describe how trace toxic organics in water are assayed by gas chromatography		
7.7 Describe how heavy metals in water are measured using atomic absorption spectrophotometry		
7.8 Describe how volatile organics are measured		
Note: this competency may be verified by a college transcript showing successful completion of a college level environmental sampling and measuring and test equipment course.		

8.0 Radiation protection concepts and dose assessment	Familiarity/Working/Expert	Verified by: (initials)
8.1 Define the following radiation protection related terms: absorbed dose, collective dose equivalent, collective effective dose equivalent, committed dose equivalent, deep dose equivalent, dose equivalent, effective dose equivalent, weighting factor, reference man		
8.2 Discuss the three basic elements of radiation protection in context of DOE low-level waste disposal (justification, dose limitation and optimization)		
8.3 What information are contained in Federal Guidance Reports #11, #12, and #13 and their application to dose and risk assessment		
8.4 Discuss internal and external exposure and associated pathways		
8.5 Discuss some of the factors that should be considered regarding the use and interpretation of national vs. regional/site-specific environmental parameter distributions and their application in Monte Carlo analysis to support probabilistic dose or risk assessments		
Note: this competency may be verified by successful completion of an approved DOE basic Radiation course.		
9.0 Principles, concepts and requirements of environmental risk assessment.	Familiarity/Working/Expert	Verified by: (initials)
9.1 Define risk assessment, risk management, and risk communication		
9.2 Describe the four steps of a risk assessment		
9.3 Describe how risk assessment helps in site decision-making		
9.4 Define the term "Baseline Risk Assessment"		
9.5 Describe the process for a Toxicity Assessment		
9.6 Describe the process for an Exposure Assessment		
9.7 Describe the process used to characterize risk		
Note: this competency may be verified by successful completion of an approved DOE basic risk course.		

10.0 PA/CA Development	Familiarity/Working/Expert	Verified by: (initials)
10.1 Contaminant Transport • Describe the Advection Process • Describe the Diffusion and Dispersion Process • Explain the utilization of one, two, and three dimensional modeling • Define the concept of sorption • Identify the factors influencing sorption and the effects on fate and transport of contaminants • Discuss the effects of pH on contaminant transport		
10.2 Flow and Transport • Explain capillary action • Discuss soil-water characteristic curves • Discuss unsaturated hydraulic conductivity • Discuss the use of infiltration models • Explain the transport processes in the unsaturated zone • Discuss the importance of accurate distributive coefficients		
10.3 Numerical modeling • Describe the purpose of numerical modeling • Discuss the use of conceptual models • Identify the source and types of errors associated with modeling • Discuss the fundamental differences between deterministic and probabilistic modeling • Discuss uncertainty analysis • Discuss sensitivity analysis		
10.4 Release of contaminants to the air phase • Describe the mechanisms for transport of radionuclides from disposed waste to the air phase		
10.5 atmospheric transport and dispersion • Describe atmospheric dispersion • Describe models utilized for atmospheric transport		
10.6 Radon emanation • Describe mechanisms that would hinder emanation of radon from disposed waste • Discuss gaseous diffusion in porous media		

10.7 intruder scenarios • Describe the following intruder scenarios: agriculture, construction, drilling • Describe the performance measures for acute and chronic exposure		
11.0 Demonstrate a working level knowledge of the following Regulations:	Familiarity/Working/Expert	Verified by: (initials)
11.1 RCRA		
11.2 CERCLA		
11.3 Clean Water Act		
11.4 Clean Air Act		
11.5 40 CFR 191		

Attachment 5 - LFRG Membership List

Low-Level Waste Disposal Facility Federal Review Group (LFRG) 10/12/17				
Name	**Mailing Address/Parcel Address**	**Phone #**	**E-Mail Address**	**Disposal Facilities**
Ross, Sherri (EM-4.31 Co-Chair)	U.S. Department of Energy, EM-4.31 19901 Germantown Road Germantown, MD 20874-1290	(301)903-2192	sherri.ross@em.doe.gov	
Golian, Steve (EM-4.31 Co-Chair Alternate)	U.S. Department of Energy, EM-4.31 19901 Germantown Road Germantown, MD 20874-1290	(301)903-7791	steven.golian@em.doe.gov	
Marble, Justin (EM-4.22 Co-Chair)	U.S. Department of Energy, EM-4.22 19901 Germantown Road Germantown, MD 20874-1290	(301)903-7210	justin.marble@em.doe.gov	
Gomberg, Steve (EM-4.23 Co-Chair Alternate)	U.S. Department of Energy, EM-4.23 Office of Environmental Management 1000 Independence Avenue, SW Washington, DC 20585	(202)586-6497	steve.gomberg@em.doe.gov	
Wallo, Andy (AU)	U.S. Department of Energy, AU-20 Office of Environmental Protection and ES&H Reporting 1000 Independence Avenue, SW Washington, DC 20585	(202)586-4996	andrew.wallo@hq.doe.gov	
Regnier, Ed (AU Alternate)	U.S. Department of Energy, AU-22 Office of Public Radiation Protection 1000 Independence Avenue, SW Washington, DC 20585	(202)586-5027	edward.regnier@hq.doe.gov	
Longo, Tom (NA)	U.S. Department of Energy, NA-533 19901 Germantown Road Germantown, MD 20874	(301)903-8120	thomas.longo@nnsa.doe.gov	NNSS Area 3; Area 5 NNSS GCD Boreholes LANL Area G
Vacant (NA Alternate)				
Bechtel, Ryan (NE)	U.S. Department of Energy, NE-31 19901 Germantown Road Germantown, MD 20874-1290	(301)903-1167	ryan.bechtel@nuclear.energy.gov	

Low-Level Waste Disposal Facility Federal Review Group (LFRG) 10/12/17				
Name	**Mailing Address/Parcel Address**	**Phone #**	**E-Mail Address**	**Disposal Facilities**
Petry, Kimberly (NE Alternate)	U.S. Department of Energy, NE-83 19901 Germantown Road Germantown, MD 20874-1290	(301)903-5685	kimberly.petry@nuclear.energy.gov	
Michlewicz, David (SC)	U.S. Department of Energy, SC-31.2 Office of Safety, Security and Infrastructure 19901 Germantown Rd. Germantown, MD 20874	(301)903-8432	david.michlewicz@science.doe.gov	
Vacant (SC Alternate)				
Van Vliet, James (ID-EM)	U.S. Department of Energy Idaho Operations Office 1955 Fremont Avenue Idaho Falls, ID 83415-1222	(208)526-7145 (208)881-4958 (c)	vanvlija@id.doe.gov	ID Radioactive Waste Management Complex ID CERCLA Disposal Facility
Vacant (ID-EM Alternate)				
Conner, Julie (ID-NE)	U. S. Department of Energy Idaho Operations Office 1955 Fremont Avenue Idaho Falls, ID 83415-1222	(208)526-9503	connerje@id.doe.gov	RH LLW Disposal Facility
Islas-Rivera, Gerardo (ID-NE Alternate)	U. S. Department of Energy Idaho Operations Office 1955 Fremont Avenue Idaho Falls, ID 83415-1222	(208)526-5971	islasrgj@id.doe.gov	RH LLW Disposal Facility
Maggiore, Pete (LASO)	U.S. Department of Energy Los Alamos Site Office 3747 West Jemez Drive MS-A316 Los Alamos, NM 87544	(505)665-5025	peter.maggiore@nnsa.doe.gov	LANL Area-G

Low-Level Waste Disposal Facility Federal Review Group (LFRG) 10/12/17				
Name	**Mailing Address/Parcel Address**	**Phone #**	**E-Mail Address**	**Disposal Facilities**
Shen, Hai **(LASO Alternate)**	U.S. Department of Energy Los Alamos Site Office 3747 West Jemez Drive MS-A316 Los Alamos, New Mexico 87544	(505)665-5046	hai.shen@em.doe.gov	LANL Area G
Carilli, Jhon **(NSO)**	DOE Nevada Site Office P.O. Box 98518 Las Vegas, NV 89193-8518 232 Energy Way North Las Vegas, NV 89030	(702)295-0672 (702)506-7641 (c)	jhon.carilli@nnsa.doe.gov	NNSS Area 3 NNSS Area 5 NNSS GCD Boreholes
Cabble, Kevin **(NSO Alternate)**	DOE Nevada Site Office P.O. Box 98518 Las Vegas, NV 89193-8518 232 Energy Way North Las Vegas, NV 89030	(702)295-5000	kevin.cabble@nnsa.doe.gov	NNSS Area 3 NNSS Area 5 NNSS GCD Boreholes
DeMonia, Brian **(OREM)**	DOE Oak Ridge Operations Office of Environmental Management P.O. Box 2001 Oak Ridge, TN 37831 or 200 Administration Road Oak Ridge, TN 37831	(865)241-6182	brian.demonia@orem.doe.gov	Oak Ridge Environmental Management Waste Management Facility SWSA 6
White, Aaron **(OREM Alternate)**	DOE Oak Ridge Operations Office of Environmental Management P.O. Box 2001 Oak Ridge, TN 37831 or 200 Administration Road Oak Ridge, TN 37831	(865)574-1986	aaron.white@orem.doe.gov	Oak Ridge Environmental Management Waste Management Facility SWSA 6 Proposed Environmental Management Disposal Facility
Pyles, Gary **(ORP)**	DOE Office of River Protection P.O. Box 450, MS: H6-60 2440 Stevens/Room 2419 Richland, WA 99352	(509)376-2670	gary.pyles@orp.doe.gov	Integrated Disposal Facility

Low-Level Waste Disposal Facility Federal Review Group (LFRG) 10/12/17				
Name	**Mailing Address/Parcel Address**	**Phone #**	**E-Mail Address**	**Disposal Facilities**
Vacant (ORP Alternate)				
Bonczek, Richard (Portsmouth-Paducah Project Office)	U.S. Department of Energy Portsmouth/Paducah Project Office 1017 Majestic Drive Lexington, KY 40513	(859)219-4051 (859)321-7127 (c) (865)548-3577 (c)	rich.bonczek@lex.doe.gov	Paducah Gaseous Diffusion Plant Portsmouth Gaseous Diffusion Plan
Zvonar, Cindy (Paducah Alternate)	U.S. Department of Energy Portsmouth/Paducah Project Office 1017 Majestic Drive Lexington, KY 40513	(859)219-4066 (859)221-5212 (c)	cynthia.zvonar@lex.doe.gov	Paducah Gaseous Diffusion Plant
Bradburne, Joel (Portsmouth Alternate)	U.S. Department of Energy Portsmouth/Paducah Project Office Portsmouth Gaseous Diffusion Plant 3930 US Rt. 23 South Mail Stop: X-1000 Piketon, OH 45661	(740)897-3822 (614)917-8506 (c)	joel.bradburne@lex.doe.gov	Portsmouth Gaseous Diffusion Plant
Reising, Johnny (Portsmouth Alternate)	U.S. Department of Energy Portsmouth/Paducah Project Office Portsmouth Gaseous Diffusion Plant 3930 US Rt. 23 South Mail Stop: X-1000 Piketon, OH 45661	(740)897-5511 (513)200-9676 (c)	johnny.reising@lex.doe.gov	Portsmouth Gaseous Diffusion Plant
Hildebrand, Doug (RL)	DOE Richland Operations Office P.O. Box 550, MS: A6-38 825 Jadwin Avenue Richland, WA 99352	(509)373-9626	doug.hildebrand@rl.doe.gov	Hanford 200 Area East Burial Grounds Hanford 200 Area West Burial Grounds ORP Integrated Disposal Facility Hanford ERDF
Vacant (RL Alternate)				
Vacant (SRS)				

Low-Level Waste Disposal Facility Federal Review Group (LFRG) 10/12/17				
Name	**Mailing Address/Parcel Address**	**Phone #**	**E-Mail Address**	**Disposal Facilities**
Ferguson, Dan (SRS Alternate)	DOE Savannah River Ops Office P.O. Box A, Road 1 Bldg 704-S/WDPD Aiken, SC 29802	(803)208-7821	daniel.ferguson@srs.gov	SRS F-Tank Farm SRS H-Tank Farm SRS Saltstone SRS E-Area LLW Facility SRS Composite Analysis