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DOE STANDARD

LOW-LEVEL WASTE DISPOSAL FACILITY FEDERAL REVIEW GROUP (LFRG) FUNCTIONAL AREA QUALIFICATION STANDARD

DOE Defense Nuclear Facilities Technical Personnel



**U.S. Department of Energy
Washington, D.C. 20585**

AREA TRNG

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DOE-STD-8004-2024

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DOE-STD-8004-2024

APPROVAL

The Federal Technical Capabilities (FTC) Panel is responsible for reviewing and approving Functional Area Qualification Standards (FAQSs) for Department-wide application. Approval of this FAQS from the FTCP is indicated by the signature below.

Gabriel Pugh Digitally signed by Gabriel Pugh
Date: 2024.10.08 08:41:53 -06'00'

Gabriel Pugh, Chairperson
Federal Technical Capabilities Panel

Date

TABLE OF CONTENTS

APPROVAL	iii
ACKNOWLEDGMENT	v
ACRONYM LIST	vi
PURPOSE.....	1
APPLICABILITY	1
IMPLEMENTATION.....	1
EVALUATION CRITERIA.....	2
INITIAL QUALIFICATION AND CONTINUING TRAINING	3
DUTIES AND RESPONSIBILITIES	3
BACKGROUND AND EXPERIENCE	3
REQUIRED PERFORMANCE COMPETENCIES.....	4
APPENDIX A	9
INITIAL QUALIFICATION TRAINING RECOMMENDATIONS	9
APPENDIX B	10
CONTINUING TRAINING RECOMMENDATIONS.....	10

DOE-STD-8004-2024

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The following LFRG professionals participated in the development of this FAQs:

Chris Kemp (Team Leader)	DOE-EM-4.22, LFRG Co-Chair
Tom Carver	EHSS-22, LFRG Member
Chase Hartzell	NE-ID, LFRG Member
Jayashree Jayaraj	DOE-SC-OSS, LFRG Member
R. Daphne Larsen	EM-ID, LFRG Member
Quaneca (Victoria) Little	EM-3.11, EM TQP Coordinator
Rodrigo Lobos	DOE-EM-4.13 LFRG Co-Chair
Melissa A. Otero	EA-50, National Training Center

DOE-STD-8004-2024

ACRONYM LIST

ASR	Annual Summary Report
CA	Composite Analysis
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
DAS	Disposal Authorization Statement
DOE	U.S. Department of Energy
EA	Enterprise Assessments
eTQP	electronic Technical Qualification Program
FTC	Federal Technical Capabilities
FTCP	Federal Technical Capabilities Panel
FY	Fiscal Year
FAQS	Functional Area Qualification Standard
GTB	General Technical Base
JTA	Job Task Analysis
LFRG	Low-Level Waste Disposal Facility Federal Review Group
M	Manual
MPA	Mandatory Performance Activity
NEPA	National Environmental Policy Act
NTC	National Training Center
O	Order
ODAS	Operating Disposal Authorization Statement
PA	Performance Assessment
PRG	Preliminary Remediation Goal
PDAS	Preliminary Disposal Authorization Statement
PFAS	per- and polyfluoroalkyl substances
QO	Qualifying Official
QS	Qualification Standard
RCRA	Resource, Conservation, and Recovery Act
RESRAD	Residual Radioactivity
RWMB	Radioactive Waste Management Basis
SA	Special Analysis
TSCA	Toxic Substances Control Act
TQP	Technical Qualification Program
UDQE	Unreviewed Disposal Question Evaluation
WAC	Waste Acceptance Criteria

**U.S. DEPARTMENT OF ENERGY
FUNCTIONAL AREA QUALIFICATION STANDARD**

PURPOSE

Functional area qualification standards (FAQSs) establish common performance competencies in key nuclear facility functional areas for personnel in the U.S. Department of Energy (DOE) Technical Qualification Program (TQP).

This FAQS establishes performance competencies to ensure designated personnel have the technical competency to perform the duties and responsibilities of a(n) LFRG participant.

The content of this FAQS should be referenced and used, as appropriate, to develop vacancy announcements, interview questions, and other criteria associated with the recruitment, selection, and placement of personnel assigned to this FAQS.

APPLICABILITY

The DOE Order (O) 426.1, *Federal Technical Capabilities*, requires FAQS to be developed for DOE employees whose duties and responsibilities could affect the safe operation of defense nuclear or high hazard facilities to assist DOE Program, Field Offices, and Sites with implementation of their organization specific TQP.

This FAQS establishes common performance competencies for DOE personnel who perform the duties and responsibilities of an LFRG participant. For ease of transportability of qualifications between DOE elements, Program and Field Offices must use this FAQS without modification or addition to the competency requirements.

Satisfactory and documented attainment of the competencies in this FAQS ensures personnel possess the minimum requisite knowledge and skills to perform LFRG participant duties and tasks. To supplement this FAQS, DOE O 426.1 requires organization-specific qualification standards to establish unique organization (headquarters, field element, site, or facility) level competencies.

IMPLEMENTATION

This FAQS, derived from an LFRG Job Task Analysis (JTA), is comprised of performance competencies based on task performances. Each performance competency includes knowledge requirements and, if necessary, Mandatory Performance Activities (MPAs). The objective of the MPA(s) is to demonstrate the competency has been met by having the Participant apply the related knowledge to satisfactorily perform the associated job task.

An evaluation guide has been developed for this FAQS detailing the expected level of knowledge required to obtain qualification and assist the Qualifying Officials (QOs)

DOE-STD-8004-2024

responsible for verifying the attainment of the knowledge. The evaluation guide is available through the National Training Center (NTC) FTCP SharePoint site at: <https://ntc.doe.gov/sites/tqp/SitePages/Home.aspx>.

For initial qualification, Participants assigned this FAQS must demonstrate attainment of the knowledge in the “Required Performance Competencies” section.

The MPAs listed in this FAQS must be satisfactorily performed and documented once. If any of the evaluation criteria are not satisfactorily met, the designated QO may require the Participant to reperform the MPA. Some MPAs may be duplicated in other qualification standards. In these cases, the designated QO must verify and document the satisfactory completion of each MPA required by the applicable standards in eTQP.

Participants should perform the MPAs in their assigned work area(s). When Participants cannot perform the MPAs as written in their assigned work area(s) or within the required qualification timeframe, Supervisors may use other options to facilitate completion. These options include performance in a simulated environment or making minor accommodations to either the MPA or the evaluation criteria. Justification(s) for the accommodation(s) must be documented by the QO, with approval of the Supervisor and the FTCP Agent.

This FAQS contains optional Appendices Supplemental Specialty Qualification(s) with topical area competencies. Upon completion of the “Required Performance Competencies” of this FAQS, Participants may be assigned one or more Supplemental Specialty Qualification. Each assigned Supplemental Specialty Qualification must be completed as written by the Participant.

EVALUATION CRITERIA

Attainment of the performance competency knowledge requirements and MPAs listed in this FAQS must be documented in accordance with the qualifying organization TQP Plan (or Policy) and the requirements in DOE O 426.1.

Each performance competency includes knowledge requirements and/or MPAs designed to demonstrate attainment of the competency. The QO verifies the evaluation criteria, including organization-specific requirements, were satisfactorily met during observation of the MPA and/or review of the MPA results. Attainment of competency knowledge or MPAs must be verified by a designated QO using one (or a combination) of the following methods listed in DOE O 426.1:

- Satisfactory completion of a written examination
- Satisfactory completion of an oral evaluation
- Documented evaluation of equivalencies
- Completion of approved training courses that confirm attainment of specific knowledge requirements

Satisfactory attainment of the competency knowledge requirements and MPAs contained in this FAQS must be documented in the electronic Technical Qualification Program (eTQP) at <https://etqp.ntc.doe.gov>.

DOE-STD-8004-2024

Once the attainment of the performance competency knowledge requirements and the MPAs in this FAQS has been verified by a QO, the Participant must satisfactorily complete final qualification activity requirements identified in DOE O 426.1B and/or any applicable organization-specific requirements before being designated as a Qualified LFRG participant.

INITIAL QUALIFICATION AND CONTINUING TRAINING

Appendix A, *Initial Qualification Training Recommendations*, includes a list of NTC and external training courses supporting the attainment of the required performance competencies for LFRG Participants.

Appendix B, *Continuing Training Recommendations*, outlines courses for LFRG Participants to participate in as part of the continuing training program.

DUTIES AND RESPONSIBILITIES

The following are typical duties and responsibilities expected of LFRG site member:

- Analyze documents related to radioactive waste disposal.
- Monitor day-to-day program activities to support periodic contractor performance evaluations.
- Conduct oversight activities to evaluate contractor compliance to the applicable requirements and regulations.
- Provide subject-matter expertise, as requested.
- Overseeing and ensuring disposal operations are conducted in accordance with requirements and regulations.
- Serves as the DOE O 435.1, *Radioactive Waste Management*, regulator at their site disposal facility.

Technical support duties are dependent on the organizational needs and the Participant's level of subject-matter expertise and will not be addressed by the competencies in this FAQS. Position-specific duties and responsibilities for LFRG participant should be included in position descriptions and other qualification standards, as applicable.

BACKGROUND AND EXPERIENCE

The preferred education and experience for an LFRG participant are as follows:

1. **Education:** Bachelor's degree in engineering or a science-related field or meeting the alternative requirements specified for engineers or scientists in the Qualifications Standards Handbook. An advanced technical degree and/or a professional or industry certification is considered to be an advantage. Specific membership requirement details are listed in the LFRG Execution Plan.

And/or

DOE-STD-8004-2024

Experience: Industrial, military, Federal, state, or other directly related background providing specialized experience in radioactive waste management. Specialized experience can be demonstrated through possession of the competencies outlined in this standard. **Additionally, previously qualified employees in the following functional areas may have some of the skills and experience LFRG requires: waste management, environmental compliance, environmental restoration, environmental protection, radiation protection, and facility representative.**

The knowledge requirements and associated MPAs identified in this FAQS were developed with the supposition that Participants have the above preferred education and experience. The supervisor and QO will determine if Participants assigned this FAQS need additional developmental assignments and supporting training.

REQUIRED PERFORMANCE COMPETENCIES

Each competency defines the expected level of knowledge and performance the Participant must attain. The performance competencies contained in this FAQS include additional knowledge requirements distinct from the knowledge requirements contained in the General Technical Base (GTB) Part A and B Qualification Standard (QS). Prior to (or in parallel with) initial qualification to this FAQS, Participants must satisfy the requirements of the GTB Part A and GTB Part B QS.

Note 1: When regulations, DOE directives, or other industry standards are referenced in this FAQS, the most recent revision should be used. However, LFRG Participants and QOs should also refer to the versions of requirements included in the local contract during qualification. Applicable knowledge requirements in predecessor documents not included in this FAQS should be included in the organization-specific QS or continuing training program.

Note 2: If specific evaluation criteria are not identified for any of the MPAs in this FAQS, the following generic evaluation criteria should be used in conjunction with local requirements:

Generic MPA Evaluation Criteria:

- Identify criteria for the specific activity.
- Compare results to the criteria and document conclusions.
- Document identified issues or recommendations.
- Discuss, if applicable, how to communicate results to appropriate Federal and/or contractor personnel.

LFRG Origin, Authority, and History

1. LFRG participant will demonstrate an understanding of the LFRG origin, authority, and history.

Knowledge Requirements:

- A. Describe the relationship of Atomic Energy Act of 1954, section 161 to the origin of LFRG.
- B. Discuss purpose, scope, and applicability of DOE O 435.1 and DOE M 435.1-1, *Radioactive Waste Management Manual*.

DOE-STD-8004-2024

- C. Discuss why LFRG was initiated, regulation authority, and how it was derived.
- D. Discuss the purpose, scope, and applicability of DOE O 458.1, *Radiation Protection of the Public and the Environment*.

LFRG Key References

- 2. LFRG participant will demonstrate an understanding of key radioactive waste management documents.

Knowledge Requirements:

- A. Discuss LFRG execution plan sections:
 - 1. Delegations
 - 2. Purpose
 - 3. Goals and objectives
 - 4. Membership and responsibilities
 - 5. Qualifications, training requirements, and appointment
 - 6. Interacting organizations
 - 7. LFRG management process
- B. Define tank closure requirements as listed in DOE STD 5002 Current Version
- C. Define radioactive waste management listed in DOE STD 5002 Current Version.
- D. Define disposal requirements listed in DOE M 435.1-1.
- E. Define the purpose, scope, and contents of a performance assessment (PA).
- F. Define the purpose, scope, and contents of a composite analysis (CA).
- G. Discuss the purpose, scope, and content of the Derived Concentration technical standard, DOE STD 1196-Current Version.
- H. Define the purpose, scope, and contents of a closure plan.
- I. Define the purpose, scope, and contents of a monitoring plan.
- J. Define the purpose, scope, and contents of a maintenance plan.
- K. Define the purpose, scope, and contents of a waste acceptance criteria (WAC).
- L. Define the purpose, scope, and contents of a disposal authorization statement (DAS).
- M. Define the purpose, scope, and contents of a radioactive waste management basis (RWMB).
- N. Define the purpose, scope, and contents of an unreviewed disposal question evaluation (UDQE) or change control process.
- O. Define the purpose, scope, and contents of an annual summary report (ASR).
- P. Discuss purpose, scope, and applicability of 10 CFR 830
- Q. Discuss purpose, scope, and applicability of 10 CFR 835

LFRG Roles & Responsibilities

- 3. LFRG participant shall demonstrate an understanding of LFRG roles and responsibilities.

Knowledge Requirements:

- A. Discuss LFRG composition and structure.
- B. Describe LFRG co-chair responsibilities.
- C. Describe LFRG member responsibilities.
- D. Describe LFRG site representative and alternate site representative responsibilities.
- E. Define LFRG member training and qualification requirements.
- F. Define LFRG review team member training and qualification requirements.

DOE-STD-8004-2024

- G. Define LFRG review team lead training and qualification requirements.
- H. Define LFRG notification requirements.
- I. Describe LFRG voting requirements.
- J. Describe LFRG monthly and semi-annual meeting purposes and attendance requirements.
- K. Describe other LFRG roles, such as site and support contractors.
- L. Describe site assist visits and compliance reviews.

Mandatory Performance Activity (MPA)

MPA 3.1: Perform site compliance evaluation(s).

LFRG Definitions

4. LFRG participant shall demonstrate an understanding of key terms, documents, and items, and regulations.

Knowledge Requirements:

- A. Define LFRG issue types.
- B. Discuss use of preliminary remediation goal (PRG) and residual radioactivity (RESRAD).
- C. Describe concepts of modeling tools.
- D. Describe the purpose, scope, and applicability of EP att 1, section 5.0.
- E. Describe the purpose, scope, and applicability of the following regulations as they apply to low-level waste management:
 - 1. Resource, Conservation, and Recovery Act (RCRA)
 - 2. Comprehensive Environmental Response Compensation and Liability Act (CERCLA.)
 - 3. Clean Water Act.
 - 4. Clean Air Act.
 - 5. 40 CFR 191.
 - 6. Safe Drinking Water Act.
 - 7. DOE O 458.1, Radiation Protection of the Public and the Environment.
 - 8. Toxic Substances Control Act (TSCA).
- F. Describe purpose, scope, and applicability of Section 3116 of the NDAA for fiscal year 2005.
- G. Discuss awareness of DOE per- and polyfluoroalkyl substances (PFAS).
- H. Describe purpose, scope, and applicability of National Environmental Policy Act (NEPA.)

Mandatory Performance Activity (MPA)

MPA 4.1: Observe and document modeling activities at a site. Preferably at your site if possible.

LFRG Membership & Requirements

5. LFRG participant shall demonstrate an understanding of membership and requirements.

Knowledge Requirements:

- A. Discuss different types of reviews routinely performed by the LFRG.
- B. Discuss process to build a review plan and required approvals (i.e., Performance

DOE-STD-8004-2024

- Assessment (PA), Composite Analysis (CA), Special Analysis (SA).
- C. Discuss execution of review plan and documentation of results.
 - D. Discuss management of issues identified during reviews.
 - E. Discuss communication process of review results and findings.
 - F. Describe site representative periodic deliverables and oversight expectations.
 - G. Review and discuss your site's (or relative assignment's) disposal facility's description, design, and operations.
 - H. Review and discuss your site's (or relative assignment's) Preliminary Disposal Authorization Statement (PDAS)/ Operating Disposal Authorization Statement (ODAS.)
 - I. Review and discuss your site's (or relative assignment's) disposal facility's technical basis documents.
 - J. Review and discuss your site's (or relative assignment's) disposal facility's most recent ASR.
 - K. Review and discuss your site's (or relative assignment's) Radioactive Waste Management Basis (RWMB.)

Mandatory Performance Activity (MPA)

MPA 5.1: Complete the DOE O 435.1 *Radioactive Waste Management* training course or equivalent.

MPA 5.2: Participate in 6 LFRG monthly conference call(s) and one LFRG semi-annual meeting.

MPA 5.3: Obtain access to and upload documents to LFRG server and Kiteworks.

MPA 5.4: Participate in an LFRG review as a review team member.

MPA 5.5: Participate in the review of an annual summary report for another site.

➤ **NOTE:** At the LFRG co-chair discretion.

MPA 5.6: Visit an offsite disposal facility.

LFRG Authorization Basis Documentation

6. LFRG participant shall demonstrate an understanding of Documented Safety Analyses as described in 10 CFR 830, Subpart B, Nuclear Safety Management.

Knowledge Requirements:

- A. Discuss the basic purposes and objectives of Nuclear Safety Hazard Categorization for radioactive waste disposal facilities and (if applicable) the hazard categorization for the LFRG participant at a waste disposal facility under DOE-STD-1027.
- B. Describe the responsibilities of contractors authorized to operate radioactive waste disposal facilities operated under a Nuclear Safety Analysis Report.
- C. Define at an awareness level the following terms and discuss the purpose of each:
 - 1. Design basis
 - 2. Authorization basis
 - 3. Engineered safety features
 - 4. Safety analysis
 - 5. Safety systems

DOE-STD-8004-2024

- D. Discuss at an awareness level the ways that contractor management makes use of Nuclear Safety Analysis Reports. DOE-STD-1159 is relevant to the RWMB and/or the ODAS/PDAS documentation compliance.
- E. Discuss the transportation safety requirements of 10 CFR 830 Subpart B or radioactive waste shipments to a disposal facility with a RWMB and PDAS/ODAS.

APPENDIX A

INITIAL QUALIFICATION TRAINING RECOMMENDATIONS

Technical education and/or training may include courses/training provided by the DOE, other government agencies, outside vendors, or local educational institutions. Training topics should also address identified weaknesses in the knowledge and/or skills of the Participant and current technical issues related to the associated FAQs.

Table 1: Initial Qualification Training Recommendations	
(Performance competency category)	(training course, link, etc.)
(origin, documents, definitions, roles, requirements, etc.)	DOE O 435.1 Rad Waste Management

NOTE: Courses will be included as they are recommended and approved by the FTCP Agents.

APPENDIX B

CONTINUING TRAINING RECOMMENDATIONS

LFRG personnel shall participate in a continuing training and qualification program that includes the following elements:

1. Continuing technical education and/or training covering topics directly related to LFRG, as determined appropriate by management. This may include courses/training provided by DOE, other government agencies, outside vendors, or local educational institutions.
2. Continuing training topics should address identified weaknesses in the knowledge or skills of the Participant.
3. Specific continuing training requirements shall be documented in an Individual Development Plan.
4. Regular attendance at monthly and semi-annual LFRG meetings.
5. Mentoring new LFRG personnel.
6. Attending Radioactivity for Engineers and Scientists course.
7. Attending DOE Residual Radioactivity (RESRAD) software course.
8. Attending DOE Consolidated Audit Program (DOECAP) auditor course.
9. Attending Performance Assessment PA-101 course updates.
10. Participate in or lead LFRG site review.