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DOE-STD-1150-2026

DOE STANDARD

QUALITY ASSURANCE 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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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.

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ACRONYM LIST

DEAR	Department of Energy Acquisition Regulations
DOE	U.S. Department of Energy
FAQS	Functional Area Qualification Standard
FAR	Federal Acquisition Regulations
FR	Facility representative
FTC	Federal Technical Capabilities
FTCP	Federal Technical Capabilities Panel
G	Guide
ISMS	Integrated Safety Management System
O	Order
QA	Quality Assurance
QA SME	Quality Assurance subject matter expert
QAP	Quality Assurance Program
QAPD	Quality Assurance Program Description
QMS	Quality Management System
QO	Qualifying official
S/CI	Suspect/Counterfeit items
STD	Standard
TQP	Technical Qualification Program

U.S. DEPARTMENT OF ENERGY

FUNCTIONAL AREA QUALIFICATION STANDARD

Quality Assurance Oversight

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 competence to perform the duties and responsibilities of a quality assurance (QA) oversight professional.

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, *Department of Energy 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 quality assurance (QA) personnel. 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 quality assurance oversight 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 a quality assurance professional job task analysis (JTA), is comprised of performance competencies based on task performance. 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) 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.

EVALUATION CRITERIA

Attainment of the performance competency knowledge requirements and MPAs listed in this FAQS must be completed in accordance with the qualifying organization TQP plan (or policy) and the requirements in DOE O 426.1. 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>.

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

Once the performance competency knowledge requirements and the MPAs in this FAQS have been attained by the participant and verified by a QO, the participant must satisfactorily

complete the final qualification activity requirements identified in DOE O 426.1 (and/or any applicable organization-specific requirements) before being designated as a qualified quality assurance oversight professional.

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 quality assurance professional participants.

Appendix B, *Continuing Training Recommendations*, outlines courses for quality assurance professional participants to participate in as part of the continuing training program.

DUTIES AND RESPONSIBILITIES

The following are typical duties and responsibilities expected of quality assurance professionals:

- Conduct oversight and monitoring activities to evaluate both Federal and contractor compliance with the applicable requirements and regulations. This could include, but is not limited to, leading or performing assessments of DOE Federal and contractor quality assurance programs (QAPs) and processes to verify adequacy, effectiveness, and compliance with applicable regulations, standards, and DOE orders.
- Analyze documents related to quality assurance.
- Review, monitor, and evaluate the organization's and the contractor's QAP, plans, and processes to verify compliance with applicable regulations, standards, and DOE orders.
- Obtain and track information concerning QA issues throughout the organization's area of responsibility (e.g., the site) and provide advice and recommendations for corrective and improvement actions to the applicable line management.
- Provide subject-matter expertise as requested.

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 quality assurance should be included in position descriptions and other qualification standards as applicable.

BACKGROUND AND EXPERIENCE

The preferred education and experience for quality assurance are as follows:

1. **Education:** Undergraduate and Graduate: Major Study: Quality assurance, statistics, mathematics, production management, industrial management, computer science, engineering, engineering technology, physical sciences, textiles, or other fields related to the position and meet the Office of Personnel Management's (OPM's) requirements for occupational series 1910 (Quality Assurance) or 801 (General Engineering).

And/or

2. **Experience:** Three to five years' experience in fields such as quality control, quality inspection, contracting and purchasing, supply and storage, industrial or production planning, research and engineering, maintenance, and test and evaluation that provided (1) exposure to quality assurance or related work, (2) pertinent product or process knowledge and skill, (3) the ability to interpret and apply contract requirements and engineering specifications, and (4) professional working relationship skills. Industry certifications such as American Society for Quality (ASQ) Certified Quality Engineer (CQE), Certified Quality Auditor (CQA), American Society of Mechanical Engineers (ASME) Nuclear Quality Assurance-1 (NQA-1) Lead Auditor, or other related certifications may be of benefit to this qualification. Specialized experience can be demonstrated through possession of the knowledge requirements and performance of tasks outlined in this standard.

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. Equivalencies should be used in accordance with DOE Order 426.1.

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 that are 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) the 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, quality assurance oversight 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.

Quality Assurance Fundamentals

1. A quality assurance professional shall demonstrate knowledge of quality assurance concepts and fundamentals.

Knowledge Requirements:

- A. Discuss calibration: standards, timeframes, frequency, and methods.
- B. Discuss the differences between quality assurance and quality control.
- C. Discuss sampling methodology and techniques.
- D. Describe control of nonconforming and suspect/counterfeit items (S/CI).
- E. Discuss application of various statistical concepts to QA, such as:
 - 1. Data analysis for process improvement
 - 2. Standard deviation
 - 3. Probability
 - 4. Bell curve
 - 5. Trending
 - 6. Sampling
 - 7. Control charts
- F. Discuss the overall benefit of performing QA at DOE.
- G. Describe the relationship between the Integrated Safety Management System (ISMS) and QA.

Quality Assurance Oversight Regulatory Requirements

2. A quality assurance professional shall demonstrate knowledge of the requirements for implementing the Quality Assurance Program (QAP) in DOE O 414.1, *Quality Assurance*.

Knowledge Requirements:

- A. Discuss the purpose, scope, and applicability of DOE O 414.1, *Quality Assurance*.
- B. Discuss purpose, scope, and applicability of DOE P 450.4, *Integrated Safety Management Policy* and integration with DOE O 414.1.
- C. Discuss the contractor requirements listed in DOE O 414.1, Attachment 1.
- D. Discuss the QA requirements listed in DOE O 414.1, Attachment 2, including the 10 criteria.
- E. Discuss the items you would expect to see in a QAP to meet Attachment 2, Part B, *Suspect/Counterfeit Item (S/CI) Prevention*.
 - 1. Discuss the purpose and use of DOE-HDBK-1221-2024, *Suspect/Counterfeit Items Resource Handbook* to meet S/CI requirements.
 - 2. Discuss applicable provisions for S/CI reporting, such as:
 - a. DOE O 210.2, *DOE Corporate Operating Experience Program*
 - b. DOE O 221.1, *Reporting Fraud, Waste, and Abuse to the Office of Inspector General*

- c. DOE O 232.2, *Occurrence Reporting and Processing of Operations Information*
- F. Discuss the software quality assurance items you would expect to see in a QAP.
- G. Discuss the applicability of 10 CFR 830, Subpart A, *Quality Assurance Requirements, Nuclear Safety Management*, and how it aligns with DOE 414.1.
- H. Discuss the purpose and use of these related guides and handbooks:
 - 1. DOE G 414.1-1, *Management and Independent Assessments Guide*
 - 2. DOE G 414.1-2, *Quality Assurance Program Guide*
 - 3. DOE G 414.1-4, *Safety Software Guide for Use with 10 CFR 830, Subpart A, Quality Assurance Requirements*, and DOE O 414.1C, *Quality Assurance*
- I. Discuss the integration of DOE O 226.1, *Implementation of Department of Energy Oversight Policy*, to your QAP.
- J. Discuss how a graded approach is used to implement the requirements of the QAP.
- K. List and discuss the consensus standards applicable to your site/contract QAPs.
- L. Review your site's contract, specifically sections C, E, J (list B), H, and I. Discuss how these sections apply to QA oversight.
- M. Describe the flow down of DOE 414.1 requirements into the Quality Assurance Program Description (QAPD).

Mandatory Performance Activities (MPA)

MPA 2.1: Review a QAP, then describe the following:

- How and where the graded approach is applied. Document your results.
- How and where an S/CI would be controlled and reported. Document your results.

Quality Assurance Oversight Program Approval

- 3. A quality assurance professional shall evaluate and recommend approval of a contractor or Federal QA program.

Knowledge Requirements:

- A. Identify and list all QAPs at your site.
- B. Identify and list the relevant consensus standard(s) used in the contractor or federal QAP.
- C. Identify and list the approval authorities for QAP(s) at your site.
- D. Discuss the QAP approval process and cycle timelines.
- E. Discuss your site's procurement and supplier selection process (flow down and supplier approval) and the roles involved.

Mandatory Performance Activities (MPA)

MPA 3.1: Evaluate one currently approved QAP. Identify and document the relevant requirements from DOE O 414.1 and 10 CFR 830, subpart A, if applicable.

MPA 3.2: Review the QAP approval process and document expectations for approval.

MPA 3.3: Participate in one of the following and evaluate requirements of the program:

- Conduct a complete review of an existing annual review or newly submitted QAP.
- Perform a vendor/supplier QAP or quality management system (QMS) review.

Quality Assurance Oversight Program Implementation

4. A quality assurance professional shall perform oversight of a contractor's QAP implementation.

Knowledge Requirements:

- A. Discuss the sources of information DOE utilizes to ensure proper implementation of contractor and Federal QAPs.
- B. Describe the various QA-focused oversight activities you can perform to verify Federal and contractor implementation.
- C. Discuss how the contractor assurance system (CAS) is integrated with the quality assurance oversight process.
- D. Review and discuss a Federal QA self-assessment.
- E. Review and discuss a contractor's QA self-assessment.

Mandatory Performance Activities (MPA)

MPA 4.1: Participate in a DOE-led assessment focused on at least one quality assurance criteria from DOE O 414.1. Document the results.

MPA 4.2: Shadow a contractor-led assessment focused on quality assurance. Document the results.

MPA 4.3: Conduct a document review of the flow down of Quality Improvement (Criterion 3) requirements to Federal or contractor program documents (e.g., procedures such as how CAS is utilized). Document your observations.

Quality Assurance Oversight Program Performance

5. A quality assurance professional must evaluate the performance of the QA program by conducting oversight activities and analyzing the results.

Knowledge Requirements:

- A. List and describe the oversight activities you will use to evaluate the QA program's performance. Explain why these activities were chosen.
- B. Discuss how QA oversight activities can help create proactive discussions with contractors.
- C. Discuss the expectations for incorporating quality into the design process for new or major modifications to DOE Hazard Category 1, 2, and 3 facilities by demonstrating knowledge of DOE-STD-1189-2016, *Integration of Safety into the Design Process (Invoked)*.
- D. Discuss different methods of design analysis and design changes, and state how they are documented and controlled.
- E. Identify the methods of design verification and describe their relative advantages and disadvantages.
- F. Discuss the controls, including verification and validation, for computer software used to originate design solutions and design verification.

Mandatory Performance Activities (MPA)

MPA 5.1: Assess a recent QA-related finding.

- A. Determine whether the contractor's issue significance determination meets locally established criteria.
- B. Identify the causal analysis technique(s) used to perform causal factor identification.
- C. Verify the adequacy of a contractor corrective action plan.
- D. Document corrective action plan evaluation results, as appropriate.
- E. Evaluate the adequacy of an issue closure and document the results.

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 identify and address 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	
Quality Assurance Oversight Regulatory Requirements	From Learning Nucleus: SAF-101DE, General Technical Base (GTB 3.0) ASME NQA-1 Lead Auditor Training Commercial Grade dedication Foundations of Project Management SMP-205, Readiness Review SBA-100DE, Nuclear Safety Basis Fundamentals WS&H Webex Series: Integrated Safety Management, Worker Safety and Health Webex Series, and posted annual recordings SCD-100DE, Suspect, Counterfeit, Defective, and Fraudulent Items Awareness Training EHS-SCD-200, Inspecting for Suspect/Counterfeit Items
Quality Assurance Fundamentals	WRIT7010, Fundamentals of Writing at Graduate School USA American Society of Quality (ASQ): Process Auditing Techniques (e-Learning Course) Using Basic Statistics and Graphical Methods in Six Sigma Lean Six Sigma Belt training

Other Resources	Quality Assurance Qualification Standard DOE-STD-1150-2002 July 2012 Reference Guide
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APPENDIX B

CONTINUING TRAINING RECOMMENDATIONS

Quality assurance professional shall participate in a continuing training and qualification programs that include the following elements:

1. Continuing technical education and/or training on topics directly related to quality assurance oversight (as determined by management). This may include courses/training provided by DOE, other government agencies, outside vendors, or local educational institutions. It could also include self-study on QA topics and preparing QA training with supervisor approval.
2. Continuing training topics should address identified weaknesses in the participant's knowledge or skills.
3. Specific continuing training requirements shall be documented in individual development plans.
4. Continuing training may include observation and participation in on- or off-site assessments.
5. The following are training courses that can benefit quality assurance oversight personnel:
 - A. ASQ membership and courses at <https://asq.org/>
 - B. ASME membership and courses at <https://www.asme.org/>
 - C. ISO lead auditor training and others at <https://www.iso.org/>
 - D. NQA-1 lead auditor and others at <https://www.asme.org/>
 - E. QA Scholars series at (coming soon from NTC)
6. Email qualityassurance@hq.doe.gov for additional information about the Quality Assurance Community of Practice.