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DOE STANDARD

FACILITY REPRESENTATIVE 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 Capability Program (FTCP) Panel consists of senior U.S. Department of Energy (DOE) managers responsible for overseeing the FTCP. This Panel is responsible for reviewing and approving the qualification standard for Department-wide application. Approval of this qualification standard by the FTCP Panel is indicated by signature below.

Karen L. Boardman 5.20.19

Karen L. Boardman, Chairperson
Federal Technical Capability Program Panel

Date

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The Department of Energy's Office of Enterprise Assessments National Training Center (NTC, EA-50), in support of the FTCP Panel and the Department of Energy (DOE) Headquarters (HQ) Facility Representative (FR) Program Manager, facilitated the development of the revision of the FR Functional Area Qualification Standard (FAQS).

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DOE-STD-1151-2019

U.S. DEPARTMENT OF ENERGY
FUNCTIONAL AREA QUALIFICATION STANDARD

FACILITY REPRESENTATIVE (FR)

PURPOSE

The primary purpose of the Technical Qualification Program (TQP) is to ensure employees have the requisite technical competency to support the mission of the Department of Energy (DOE). The TQP forms the basis for the development and assignment of DOE personnel responsible for ensuring the safe operation of defense nuclear facilities. The Functional Area Qualification Standards (FAQS) are not intended to replace the U.S. Office of Personnel Management (OPM) qualifications standards or other departmental personnel standards, rules, plans, or processes. However, the FAQS should be referred to when developing vacancy announcements, crediting plans, interview questions, and other criteria associated with the recruitment, selection, and internal placement of technical personnel.

APPLICABILITY

The Facility Representative (FR) FAQS establishes common performance competencies for all DOE FR personnel who perform duties and responsibilities that could impact the safe operation of DOE's defense nuclear facilities. This FAQS has been developed as a tool to assist DOE Program and Field Offices in the development and implementation of the TQP in their organization. For ease of transportability of qualifications between DOE elements, Program and Field Offices must use this FAQS without modification or addition to the performance competency knowledge requirements. Satisfactory and documented attainment of the performance competencies contained in this FAQS ensures personnel possess the minimum requisite knowledge and skills to perform functional area duties and tasks common to the DOE enterprise. Additionally, needed organization specific qualification standards, handled separately, supplement this FAQS and establish unique performance competencies at the organization (headquarters, field element, site, or facility) level.

IMPLEMENTATION

This FAQS identifies the minimum performance competencies for DOE FRs. These performance competencies and related tasks were derived from an integrated nuclear facility federal oversight duty area analysis. Oversight duty areas where the FR was considered the lead or provided major support to other federal oversight positions were included in this FAQS. These performance competencies include DOE unique knowledge requirements that the candidate must attain and then apply to satisfactorily complete the job tasks that are identified as mandatory performance activities (MPAs) in this FAQS. The DOE National Training Center (NTC) developed evaluation guides to support attainment of the performance competencies in this FAQS. These evaluation guides provide the expected level of knowledge for each knowledge requirement and are available for personnel assigned this FAQS, and qualifying officials (QO) responsible for verifying the attainment of performance competency knowledge requirements.

An FR candidate needs to have system and related engineering principles knowledge to support the performance of their oversight duties at DOE defense nuclear facilities. Appendix A, *Required Technical Knowledge Areas*, includes the system and related engineering principles knowledge that an FR must demonstrate they have attained in areas that are common across most DOE defense nuclear facilities.

An FR candidate may have attained the expected level of knowledge in Appendix A in a portion of or all of the technical areas through previous education and or experience such as commercial or Navy Nuclear power programs. The expected level of knowledge for the technical areas in listed in Appendix A is described in the archived DOE engineering fundamentals handbooks. The engineering fundamentals handbooks and supporting training materials are available for self-study as a refresher for any of the technical knowledge areas, and as an additional reference for technical areas in which a candidate has not previously attained the required knowledge. The evaluation guides, engineering fundamentals handbooks, and other supporting training materials for this FAQS are available through the NTC Technical Qualification Program (TQP) support site at: https://ntc.doe.gov/student/stp/techqualprogram.

Since attainment of the knowledge in Appendix A is considered a prerequisite for completing the performance competencies identified in this FAQS, a designated qualifying official must verify attainment of the knowledge in Appendix A through one of the following methods:

- Satisfactory completion of a comprehensive exam covering an appropriate sample of all the technical knowledge areas

- Oral interviews, knowledge quizzes, documented equivalent experience and/or education, or a combination of these covering all of the technical knowledge areas.

Appendix B, *Site Specific Technical Knowledge Areas*, is provided as a tool to support development of organization specific qualification standards. The system and related engineering knowledge in this appendix was not included in Appendix A because the related systems are not common to a majority of DOE nuclear facilities. If a supervisor determines that any of the knowledge in Appendix B is needed for an FR assigned to a specific site or facility to perform their oversight duties, the applicable knowledge from Appendix B should be included in the organization specific qualification standard. Additionally, if an FRs has organization specific oversight responsibilities in areas not addressed in this FAQS, any knowledge requirements and performance activities associated with these responsibilities should be included in the organization specific qualification standards.

The MPAs listed in this FAQS are required to be satisfactorily performed only once. If during a performance of the MPA any of the evaluation criteria are not satisfactorily met, the qualifying official may require the candidate to perform the MPA again. In these cases satisfactory completion of the MPA only needs to be documented once. It is also recognized that some of the MPAs in this FAQS may already be included in organization specific qualification standards. In these cases the designated QO only needs to sign verifying completion of the MPA once as part of this FAQS or during completion of the organization specific qualification standard.

Also, the intent is for FR candidates to perform the MPAs as written in the site or facility that they are assigned. However, in cases where the MPAs cannot be performed exactly as written in the FRs assigned facility within the required qualification timeframe, supervisors may use other options to complete the MPA requirements. This could include performance of the MPA in a simulated environment or by making minor modifications to the MPA or MPA evaluation

criteria to fit local conditions. The reason for any changes in the MPA or MPA evaluation criteria (e.g. simulate or use of exercise materials instead of performing) must be documented by the designated qualification official with approval of the supervisor and local FTCP agent.

EVALUATION CRITERIA

Attainment of the performance competency knowledge requirements and MPAs listed in this FAQS must be documented per the TQP plan or policy of the specific organization qualifying the individual and the requirements in DOE O 426.1A, *Federal Technical Capability Program*.

Each performance competency includes knowledge requirements that need to be completed in order to demonstrate the performance competency has been met. Attainment of the performance competency knowledge requirements listed in this FAQS must be verified by a designated QO using one or a combination of the following methods:

- Satisfactory completion of a written examination
- Satisfactory completion of an oral examination
- Documented evaluation of equivalencies

Equivalencies should be used with the utmost rigor and scrutiny to maintain the spirit and intent of the TQP. Equivalencies may be granted for specific knowledge requirements and/or MPAs based on objective evidence of previous experience. Objective evidence includes a combination of transcripts, certifications, or completed work products. Equivalencies must be granted in accordance with the TQP plan of the organization qualifying the individual.

Successful completion of the MPAs in this FAQS must also be verified by a designated qualifying official (QO). The QO must verify that the evaluation criteria, including any organization specific requirements, were satisfactorily met during observation of the MPA and/or review of the results of the MPA. Satisfactory attainment of the performance competency knowledge requirements and MPAs contained in this FAQS must be documented using the FR FAQS qualification card in the Electronic Technical Qualification Program at https://etqp.ntc.doe.gov.

After verification of attainment of all the performance competency knowledge requirements and the MPAs in this FAQS, an FR candidate must satisfactorily complete the final qualification activity requirements identified in DOE O 426.1A, the FR Program Standard, and any other applicable organization specific requirements before being designated as a Qualified FR.

INITIAL QUALIFICATION AND TRAINING

Initial training and qualification of FRs shall be conducted in accordance with the requirements of DOE O 426.1A and DOE-STD-1063-2017. Appendix C, *Initial and Continuing Training Recommendations*, contains training recommendations and supporting courses that cover the knowledge requirements and MPAs in this FAQS for personnel completing initial qualifications. Courses from this list should have first priority in meeting the continuing training requirements in DOE O 426.1A for FRs following initial qualification. Additional continuing training requirements are outlined in DOE-STD-1063-2017, *Facility Representatives.*

DUTIES AND RESPONSIBILITIES

The typical duties and responsibilities expected of personnel assigned to the FR functional area are found in DOE-STD-1063-2017. This FAQS includes performance competencies and related tasks that were derived from an integrated nuclear facility federal oversight duty area analysis. Oversight duty areas where the FR was considered the lead or provided major support to other federal nuclear facility oversight positions were included in this FAQS. This FAQS requires satisfactory completion of MPAs (specific operations awareness activities) in the oversight areas where the FR was considered the lead or provided major support to another federal oversight position, such as nuclear safety specialists (NSS) or Safety System Oversight (SSO). Appendix D, *Integrated Nuclear Facility Oversight Duty Area Analysis*, includes the duty areas and oversight topic/subject areas applicable to the FR role that were included in the scope of this FAQS.

Position-specific duties and responsibilities for FRs should be included in organization specific qualification standards and position descriptions. The organization specific QS should also contain any oversight related duties and responsibilities assigned to FRs that are not identified as FR lead or major support in Appendix D.

BACKGROUND AND EXPERIENCE

The background and experience criteria for entry into the FR Program are found in DOE-STD-1063-2017. The immediate supervisor or other designated person should verify that any prospective FR candidate meets the background and experience requirements of DOE-STD-1063, *Facility Representatives*, before being assigned this FAQS.

REQUIRED PERFORMANCE COMPETENCIES

The performance competencies contained in this standard include knowledge requirements that are distinct from knowledge requirements contained in DOE-STD-1146-2007, *General Technical Base (GTB) Part A and B Qualification Standard (QS).* All FR personnel must satisfy the knowledge requirements of the GTB Part A QS and the knowledge requirements and MPAs in the GTB Part B QS, prior to or in parallel with obtaining the knowledge requirements for the performance competencies contained in this FAQS. Each performance competency defines the expected level of knowledge an individual must attain to meet the intent of this standard. Following the performance competencies is the list of MPAs that must be completed to verify the candidate can apply the knowledge in this FAQS to satisfactorily perform specific nuclear facility operational awareness and assessment activities.

Note: When regulations, DOE directives, or other industry standards are referenced in the FAQS, the most recent revision should be used. However, some FRs may oversee facilities that utilize predecessor documents to those identified in this FAQS. In these cases, FR candidates and QOs should reference the versions of the applicable requirements document included in local contracts during the attainment and verification of the related knowledge requirements.

1. A facility representative must demonstrate knowledge of the purpose, scope, and application of applicable Nuclear Safety Federal Regulations to include:

A. 10 CFR Part 820, *Procedural Rules for DOE Nuclear Activities*

B. 10 CFR Part 830, *Nuclear Safety Management*

C. 10 CFR Part 835, *Occupational Radiation Protection*

Knowledge Requirements

A. Discuss the purpose, scope, and application of each of the listed Federal Regulations.

B. Discuss the key terms, essential elements, and responsibilities and authorities for each of the listed Federal Regulations.

C. Describe the methods by which noncompliance to the listed Federal Regulations is determined and communicated to contractor and DOE management.

2. A facility representative must demonstrate knowledge of the purpose, scope, and application of applicable DOE Orders to include:

A. DOE O 151.1D, *Comprehensive Emergency Management System*

B. DOE O 231.1B Chg. 1, *Environment, Safety and Health Reporting*

C. DOE O 420.1C Chg.1, *Facility Safety*

D. DOE O 225.1B, *Accident Investigations*

E. DOE O 435.1 Chg. 1, *Radioactive Waste Management*

F. DOE O 451.1B Chg. 3, *National Environmental Policy Act Compliance Program*

G. DOE O 460.1C, *Packaging and Transportation Safety*

Knowledge Requirements

A. Discuss the purpose, scope, and objectives of the listed DOE Orders.

B. Identify any associated regulations, invoked DOE or Industry Standards, and any required contractor deliverables for the listed DOE Orders.

C. Discuss the DOE Field element manager responsibilities and requirements for the listed DOE Orders.

D. Describe the key elements [1] in the applicable contractor requirements document (CRD) and how meeting these requirements should result in acceptable contractor work performance.

3. A facility representative must demonstrate knowledge of DOE- STD-1063-2017, *Facility Representatives*.

[1] In the context of evaluating program performance, ***key elements*** are those attributes of a program that either significantly contribute to achieving the desired result of the program or if they fail will lead to a failure in meeting the overall objective of the program. ***Key elements*** are typically associated with requirements in the Contract Requirements Document (CRD) for the applicable program.

Knowledge Requirements

A. Discuss the purpose, scope, and application. Include in this discussion the key terms, essential elements, and personnel responsibilities and authorities.

B. Discuss the process by which DOE line management determines an appropriate level of coverage by a facility representative. Include in this discussion factors that may be considered to adjust the established level of coverage.

C. Describe the facility representative's role with respect to performance of oversight of government-owned, contractor-operated facilities.

D. Describe the assessment requirements and limitations associated with the facility representative's interface with contractor employees.

E. Describe the relationship and interface of facility representatives with other DOE oversight personnel.

F. Describe the facility representative's role in contractor oversight.

4. A facility representative must demonstrate knowledge of event investigation principles and techniques

Knowledge Requirements

A. Discuss the techniques associated with identifying the events, facts, and conditions (known and assumed) necessary to perform causal analysis.

B. Discuss the principles and techniques associated with the following root cause analytical techniques:

1) Events and causal factors analysis
2) Barrier analysis
3) Change analysis
4) 5 Why analysis

C. Discuss the process associated with forming conclusions based on the results of the analytical process.

D. Discuss the process associated with developing judgments of need.

E. Explain the necessity for and differences between the immediate, short-term, and long-term actions taken as the result of a problem identification or occurrence.

F. Describe the following criteria that must be considered to determine whether any accident resulting from DOE, contractor, or subcontractor operations requires the appointment of an Accident Investigation Board:

1) Human Effects
2) Loss of Radioactive Material
3) Environmental Release of Radioactive Material
4) Property Effects

5. A facility representative must demonstrate knowledge of conduct of maintenance principles and Department of Energy requirements.

Knowledge Requirements

A. Discuss the application of DOE O 433.1B, *Maintenance Management Program for DOE Nuclear Facilities*, and DOE O 430.1B Chg. 1, *Real Property Asset Management*.

B. Define each of the following maintenance related terms and explain their relationship to each other:

1) Corrective
2) Preventive
3) Predictive
4) Periodic
5) Planned
6) Reliability-centered
7) Troubleshooting

C. Explain the purpose and content of a master equipment list.

D. Explain the purpose of post-maintenance testing (PMT) and the relationship between PMT and system operability.

E. Explain the purpose of maintaining good facility condition and housekeeping.

F. Describe configuration control and its relationship to the maintenance work control process and the maintenance history file.

G. Explain the process for developing, maintaining, and communicating performance measures to identify maintenance issues requiring corrective action and lessons learned.

H. Explain facility management's role in facility maintenance.

I. Describe the principles of instrument calibration to ensure safe and efficient operation.

6. A facility representative must demonstrate knowledge of the Occurrence Reporting and Processing System (ORPS) in accordance with DOE O 232.2A, *Occurrence Reporting and Processing of Operations Information*.

Knowledge Requirements

A. Define the term reportable occurrence.

B. Discuss the FR and operating contractor's (facility manager) responsibilities.

C. Discuss the intent and contents of DOE O 232.2A requirements for occurrence reporting including the following:

1) Reporting philosophy, including the purpose of the occurrence reporting model
2) Event or condition discovery
3) Event or condition categorization
4) Process for DOE notifications
5) Written notification report
6) Occurrence investigation and analysis, including the purpose of the causal analysis tree
7) Occurrence report closure
8) Training

D. Discuss information security requirements for ORPS Reports.

E. Discuss how DOE and contractors should utilize reportable occurrence information, particularly as a feedback mechanism.

F. Explain the difference between the ORPS notification requirements and emergency management systems event classification and notification requirements.

7. A facility representative must demonstrate knowledge of the Department's philosophy and approach to implementing quality assurance programs.

Knowledge Requirements

A. Discuss the Purpose, Scope, and Regulatory and/or DOE Directive requirements for a Nuclear Facility Quality Assurance (QA) Program.

B. Describe the relationship between 10 CFR 830, DOE O 414.1D, *Quality Assurance*, and NQA-1 for implementing a nuclear facility QA program.

C. Describe the key elements of a nuclear facility QA program and the related performance measures for measuring the effectiveness of the implementation of the overall program.

D. Contrast quality assurance and quality control.

E. Explain the factors applicable to and methods of implementing the graded approach to quality.

F. Explain facility management's and the individual's role in quality assurance.

8. A facility representative must demonstrate a knowledge of worker safety and health programs

Knowledge Requirements

A. Discuss the purpose, scope and applicability of the following:

1) 10 CFR 851, *Worker Safety and Health Program*
2) 29 CFR 1910, *Occupational Safety and Health Regulations*
3) 29 CFR 1926, *Safety and Health Regulations for Construction*
4) DOE O 440.1B, Work*er Protection Program for DOE*
5) DOE O 442.1A, *DOE Employee Concerns Program*
6) DOE O 422.2, *Differing Professional Opinions for Technical Issues Involving Environment, Safety, and Health Technical Concerns*

B. Discuss the processes that ensure flow down of safety and health requirements from DOE to major contractors and their subcontractors.

C. Discuss the function and typical content of a worker safety and health program that meets 10 CFR 851 and OSHA.

D. Identify common worker safety program performance indicators.

E. Describe the hierarchy of hazard control methods.

F. Discuss common types of engineering and administrative controls and discuss the applicability and relationships of each.

G. Discuss general personal protective equipment (PPE) requirements, functionality and effects of PPE on safety and worker performance for industrial operations.

H. Describe the hazards and general safety precautions for the following:

1) Operation and maintenance of pressurized air systems
2) Operation and maintenance of electrical systems and components
3) Use and storage of lead-acid storage batteries
4) Use, handling, storage, and disposal of corrosives (acids and alkalis)
5) Use of pyrophorics
6) Use of toxic compounds
7) Use, handling, and storage of compressed gases, including specifically hydrogen, oxygen, and nitrogen
8) Operation and maintenance of cryogenic liquids
9) Use, handling, and storage of flammable and combustible liquids
10) Operations that generate non-ionizing radiation (e.g., lasers, accelerators, pulse power machines)
11) Confined space entry
12) Operations involving Hoisting and Rigging

I. Describe the criteria used to determine if a compound is a health hazard and discuss the methods by which toxic compounds may enter the body.

J. Explain the difference between a flammable liquid and a combustible liquid.

K. Discuss the information provided by and the appropriate use of the Safety Data Sheet (SDS).

L. Discuss application of requirements related to basic design principles in the National Fire Protection Association 101, *Life Safety Code*, including emergency egress, evacuation, and other related program elements.

M. Discuss the differences between the Employee Concerns Program and the Differing Professional Opinions process.

9. A Facility Representative must demonstrate knowledge of the requirements for developing a documented safety analyses (DSAs) for DOE Hazard Category 1, 2, or 3 nuclear facilities as required by 10 CFR 830 Subpart B, Safety Basis Requirements.

Knowledge Requirements

A. Discuss the following related to 10 CFR 830, *Nuclear Safety Management:*

1) The applicability of 10 CFR 830 Subpart A, *Quality Assurance Requirements,* to the requirements of 10 CFR 830 Subpart B
2) The requirements in sections of 10 CFR 830 Subpart B, Safety Basis Requirements, Sections 830.200 through 830.207
3) The content of 10 CFR 830, Appendix A to 10 CFR Subpart B, *General Statement of Safety Basis Policy*

B. Identify the four main components of the safety basis and discuss the purpose and relationship of these components to the ISM core functions.

C. Describe the major steps in developing the documenting safety analysis.

D. Describe the following related to hazard categorization in DOE-STD-1027-92, *Hazard Categorization and Accident Analysis Techniques for Compliance with DOE Orders 5480.23, Nuclear Safety Analysis Reports,* Change Notice No. 1.

1) The purpose of DOE-STD-1027-92

2) The process for determining the initial hazard categorization of a DOE nuclear facility

3) The process for determining the final hazard categorization of a DOE nuclear facility

E. Discuss the purpose, scope, inputs and outputs of safety control selection and classification.

F. Describe how to determine if safety class controls are required.

G. Describe how to determine if safety significant controls are required.

H. Describe how other hazard controls documented in hazard evaluations are maintained in the DSA.

I. Describe how criticality safety controls are identified and documented in the DSA.

J. Discuss the control selection hierarchy provided in DOE-STD-3009-2014, *Preparation of Nonreactor Nuclear Facility Documented Safety Analysis*.

K. Describe the purpose of Safety Management Programs (SMPs).

L. Describe how Specific Administrative Controls (SACs) are identified.

M. Identify how safety functions, functional requirements, and performance criteria for safety controls are developed, documented, and how DOE O 420.1C requirements apply.

10. A Facility Representative must demonstrate knowledge of Technical Safety Requirements (TSRs) for DOE Hazard Category 1, 2, or 3 nuclear facilities as required by 10 CFR 830 Subpart B, Safety Basis Requirements.

Knowledge Requirements

A. Describe the purpose and scope of TSRs.

B. Describe the inputs from the DSA in the development of the TSRs.

C. Discuss the definition for each type of TSR listed in Appendix A to Subpart B of 10 CFR 830.

D. Discuss the general principles of SSC Operability in the TSRs.

E. Describe the importance of facility modes and how they relate to limiting conditions for operability (LCOs).

F. Discuss where minimum staffing levels are defined in the TSRs.

G. Discus where procedure requirements are defined in the TSRs.

H. Describe how DOE O 420.1C requirements relate to TSR development such as the development of surveillance requirements based on national codes and standards.

I. Discuss the different types of administrative controls (ACs) in the TSRs.

J. Discuss the concept of key elements of safety management programs (SMPs) and how

they relate to ACs.

K. Describe the guidance provided in DOE-STD-1186, *Specific Administrative Controls*, and the two different formats for writing the SAC in the TSRs.

L. Describe how MAR limits developed per DOE-STD-1027 are treated in the TSRs.

M. Discuss how design features are treated in the TSRs.

N. Describe the four circumstances of TSR violations that can occur and associated reporting requirements.

O. Describe how general LCO Surveillance Requirements (SRs) are used in the TSRs.

P. Using the guidance in DOE G 423.1-1B, *Implementation Guide for Use in Developing Technical Safety Requirements*, discuss the following:

1) The purpose of IVRs (Federal and Contractor)

2) The timing of a Federal IVR

3) Considerations in the application of the graded approach when conducting IVRs

11. A facility representative must demonstrate knowledge of the requirements for operability of structures, systems, and components (SSCs).

Knowledge Requirements

A. Discuss structure, system, and component (SSC) reliability including the definition of reliability and how system reliability relates to system performance and operability.

B. Discuss SSC availability including the definition of availability and how system availability relates to system performance and operability.

C. Discuss the attributes of SSC maintainability and how SSC maintainability may impact system availability and reliability.

D. Describe how to determine if a given SSC meets system safety functional requirements and design performance criteria.

E. Describe the basic elements used to perform an operability determination as related to limiting conditions for operation (LCOs).

F. Describe DOE expectations for contractor system health reports and how the information in these reports should be used as part of an FR's oversight activities.

G. Describe how to perform system walk downs and how system walk downs relate to configuration management and ensuring the operability of safety SSCs.

12. A Facility Representative must demonstrate knowledge of the Unreviewed Safety Question (USQ) process.

Knowledge Requirements

A. Discuss the purpose, scope, and basic steps of the USQ process.

B. Discuss the guidance and related requirements provided in DOE G 424.1-1B, *Implementation Guide for Addressing Unreviewed Safety Question (USQ) Requirements* for the following topics:

1) The types of changes that apply to the USQ process
2) Integration of the USQ process into the facility's change control process
3) USQ screening
4) Use of categorical exclusions
5) USQ Contractor Procedures
6) Training and Qualification of various roles in the USQ process

C. Discuss the following guidance and related requirements in DOE G 424.1-1B for performing USQ Determinations (USQDs):
   1) The questions that need to be addressed when performing a USQD and the two potential results
   2) Potential outcomes from a positive USQD

D. Discuss the following guidance and related requirements in DOE G 424.1-1B for Potentially Inadequate Safety Analyses (PISAs) and Justification for Continued Operation (JCO).
   1) The initial confirmatory process including timelines for declaring a PISA provided in DOE G 424.1-1B
   2) DOE's responsibilities/authorities in resolving a PISA
   3) The purpose and content of an ESS
   4) The purpose and content of a JCO

E. Discuss the FRs roles and responsibilities for providing oversight of the implementation of the USQ process including the following.
   1) Proper screening of changes
   2) Proper completion of USQDs
   3) Prompt identification and evaluation of PISAs
   4) Verification of proper implementation of new safety basis controls resulting from PISAs in ESSs and JCOs

13. Facility Representatives must demonstrate knowledge of the requirements for implementing and maintaining configuration management.

Knowledge Requirements

A. Discuss the concept of configuration management and its importance in ensuring operational safety.

B. Describe the DOE directives or technical standards that pertain to configuration management.

C. Describe how effective configuration management protects the design basis of a nuclear facility while supporting mission.

D. Discuss in general, the following engineering principles:
   1) Design items and processes are developed using engineering principles and appropriate technical standards

2) Appropriate technical and industrial standards are incorporated into the design work or changes

3) Design interfaces, including organizational and design product interfaces, are identified and controlled

4) Changes to the original design receive reviews and approval comparable to the reviews and approvals of the original design considering the scope of the change

E. Describe a typical document control and records management system.

F. Discuss general requirements for inspection and acceptance testing.

G. Describe the roles and responsibilities of the *design authority* position.

H. Discuss the purpose of *change control boards*.

I. Describe the relationship of configuration management to safety basis documentation and requirements (DSAs and TSRs, including system design description documents [SSDs]).

J. Describe how change control is related to the USQ process.

14. A facility representative must demonstrate knowledge of on-shift/on-the-job training requirements for nuclear facility operational personnel.

Knowledge Requirements

A. Discuss the expectation for a successful on-shift/on-the-job (OJT) training evolution as described in DOE-STD-1070-94, *Guidelines for Evaluation of Nuclear Facility Training Programs*.

B. Discuss key elements of an effective on-shift training program as are described in DOE O 422.1 Chg. 2, *Conduct of Operations* and DOE-HDBK-1226-2019, *Conduct of Operations Implementation*.

C. Discuss the expectations for conducting successful operational drills as described in DOE-HDBK-1214-2014, *Conduct of Operations Assessment Field Handbook, Part II, Section U, Observing/Assessing Drills.*

D. Discuss how the requirements and objectives for on-shift/on-the-job training are identified and implemented, how these requirements flow down from DOE O 426.2 to contractor implementing procedures, and how on-shift/on-the-job training and on-the-job evaluation is used to support operator qualification.

15. A Facility Representative must demonstrate knowledge of the requirements for implementing and maintaining activity level work planning and control (WP&C).

Knowledge Requirements

A. Explain the WP&C drivers (regulations and directives, including their relationship) for implementing activity-level WP&C.

B. Using DOE-HDBK-1211-2014, *Activity-Level Work Planning and Control Implementation*, explain the basic elements of the WP&C implementation process.

C. Discuss the basic roles and responsibilities of key personnel involved in the WP&C process.

D. Explain the application of tailoring and the graded approach to WP&C.

E. Apply the basic elements used to develop the work scope of an activity-level task.

F. Explain the importance of identifying and screening impacts on technical safety requirements (TSRs), changing modes of facility operation, and entrances to limiting controls for operations (LCOs) during the early planning of work activities.

G. Explain the purpose of general hazard analysis.

H. Explain the basic process for developing a job hazards analysis (JHA) or job safety analysis (JSA).

I. Explain the concept of skill of the worker/craft and how it may be applied in the WP&C process.

J. Explain the considerations necessary to ensure that work activities are scheduled and authorized according to priorities and available resources.

K. Explain the hierarchy of controls.

L. Explain the steps involved in the preparation and release/authorization of work.

M. Explain the purpose and scope of pre-job briefings and post-job reviews.

N. Explain the purpose and scope of documenting and accepting the results of performing activity-level work for a work activity performed in a virtual facility.

O. Discuss examples of post-job feedback.

16. A facility representative must demonstrate knowledge of conduct of operations principles and Department of Energy requirements.

Knowledge Requirements

A. Explain the Department of Energy's role in the oversight and implementation of the contractor's conduct of operations program.

B. Describe the FR's role relative to conduct of operations at DOE facilities as is provided in DOE O 422.1, *Conduct of Operations*.

C. Describe contractor responsibilities associated with implementing the conduct of operations at DOE facilities.

D. Explain the general and specific requirements of conduct of operations in DOE O 422.1 and DOE-HDBK-1226-2019, *Conduct of Operations Implementation,* for the following:

1) Organization and administration
2) Shift routines and operating practices
3) Control area activities
4) Communications
5) On Shift Training
6) Investigation of abnormal events, conditions, and trends
7) Notifications
8) Control of equipment and system status
9) Lockout and tagouts
10) Independent verification
11) Log keeping
12) Turnover and assumption of responsibilities

13) Control of interrelated processes
14) Required Reading
15) Timely instructions/orders
16) Procedures
17) Operator aid postings
18) Component labeling

17. A Facility Representative Must Demonstrate Knowledge of the readiness review requirements in DOE O 425.1D, Change 1, *Verification of Readiness to Start Up or Restart Nuclear Facilities*.

Knowledge Requirements

A. Discuss the following from DOE O 425.1D:
   1) Describe the purpose and scope of the Order.
   2) Identify the requirements used to determine the need for a Readiness Review.
   3) Define Readiness Review and identify the types of Readiness Reviews.
   4) Identify the requirements for conducting a federal readiness review.

B. Explain the objectives and overall process for achieving and verifying readiness in DOE-STD-3006-2010, *Planning and Conducting Readiness Reviews.*
   1) Explain the use of the startup notification report.
   2) Explain the key elements of the Plan of Action (POA) and the importance of the POA to the overall process of verifying readiness.
   3) Explain the terms declaration of readiness and readiness to proceed, and how FR may interact with these process steps.

C. Explain the Federal and Contractor Line Management's responsibilities for achieving and verifying readiness.
   1) Describe what is meant by achieving Readiness and the difference between achieving and verifying readiness.
   2) Identify the Contractor Line Management actions during a Readiness Review.
   3) Identify the DOE Federal Line Management actions during a Readiness Review.
   4) Identify the DOE Federal Line Management actions to oversee the contractor's achievement of readiness.
   5) Identify the DOE Federal Line Management actions to achieve DOE readiness.

MANDATORY PERFORMANCE ACTIVITIES

18. Facility Representatives must satisfactorily complete the following Mandatory Performance Activities (MPAs) in the listed oversight duty areas.

Evaluation Criteria

The following evaluation criteria are applicable to all MPAs. MPAs should be performed in assigned facilities. Additional evaluation criteria, if applicable, are included for each set of

MPAs. Expectations for evaluating observed activities should be based on both local implementing procedures and DOE Order requirements.

A. Identify expectations (i.e., criteria) for the specific operational awareness activity

B. Compare results of operational awareness activity to expectations (criteria) and draw conclusions

C. Document results using local procedures for an operational awareness activity

1) SSC Operability

MPA #1. Review a contractor SSC Operability Determination

2) Configuration Management

MPA #2. Perform a safety system walk down using applicable system engineering drawings (e.g., mechanical, electrical, instrumentation and control) and verify the following:

a. "As designed" versus "as found" physical configuration
b. Identification of interfaces with non-safety systems
c. Material condition and general housekeeping

3) Activity Level Work Planning and Control

MPA #3. Evaluate a contractor maintenance activity (corrective, preventive, or predictive) including as a minimum the following elements:

a. Review the associated contractor work package (or equivalent) for the selected maintenance activity
b. Observe the pre-job briefing for the selected maintenance activity
c. Observe the selected maintenance activity work tasks
d. Observe the post maintenance testing and post job briefing for the selected maintenance activity

4) Safety Basis (DSA, TSR, and USQ)

MPA #4. Observe a facility operational TSR daily, weekly, or monthly surveillance activity.

MPA #5. Review the implementation of the USQ process for an operational procedure change.

MPA #6. Review TSR SR completion status board or other tracking tool.

MPA #7. Review the facility logs and verify compliance with the following sections of the facility TSRs:

a. Mode Change
b. Use of General LCO and SR
c. Entry/Exit from a specific SSC LCO action statement

5) On shift/On-the-Job Training

MPA #8. Observe a contractor on-shift/on-the-job training evolution.

6) Conduct of Operations

MPA #9. Observe contractor staff performing an operational activity and evaluate implementation of the applicable conduct of operations attributes.

a. Identify the conduct of operations key elements and associated attributes applicable to the selected operational activity.
b. Evaluate whether the expectations for implementing the selected attributes are sufficiently documented in the Conduct of Operations applicability Matrix.

MPA #10. Perform a review of a contractor initial notification and final occurrence report and evaluate the following:

a. The timeliness of the initial notification based on date and time of discovery
b. The accuracy of the reporting level and categorization
c. The effectiveness of the contractor's evaluation of the extent of condition and any immediate actions to contain the direct cause

MPA #11. Conduct an assessment of a selected portion of the implementation of the Conduct of Operations program using the criteria in DOE-HDBK-1214-2014, *Conduct of Operations Assessment Field Handbook*.

7) Contractor Assurance System (CAS)

MPA #12. Attend facility issues management review board.

MPA #13. Review Conduct of Operations performance related information provided by CAS.

APPENDIX A

Required Technical Knowledge Areas

1. Pump components and characteristics

a. Discuss the principles of operation for centrifugal pumps, including series and parallel pump operation.

b. Define the following terms and discuss their relationship:
- Shutoff head
- Net positive suction head
- Cavitation
- Pump run-out

c. Discuss the principles of operations for positive displacement pumps, and discuss the importance of not operating against a closed valve on the discharge side of the pump.

2. Valve construction, operation, and application

a. Describe the operation of the following valve classifications to include purpose, construction and application:
- Ball
- Check
- Diaphragm
- Gate
- Globe
- Relief
- Safety

b. Given the specific valve below, match the valve to the applicable classification:
- Butterfly
- Lift check
- Needle
- Pinch
- Plug
- Pressure reducing
- Stop check
- Swing check

c. Given a drawing of a gate, globe or check valve, identify the following parts, as applicable:
- Actuator
- Ball
- Body
- Bonnet
- Disk
- Packing
- Packing gland
- Packing nuts
- Plug
- Stem

- Seat

d. Describe the principle of operation, construction, and application for the following types of valve actuators:
   - Manual
   - Electric motor
   - Pneumatic
   - Hydraulic
   - Solenoid

e. State the purpose and location of body markings (bridge wall markings, flow arrows, etc.).

f. Given a process or system, explain what type of valve is best suited for the application, what type of valve should not be used for the application, and why the valve(s) should or should not be used.

g. Discuss the various methods that can be used to determine and verify valve position. Include in your discussion operation and location of position indicators.

h. Describe the proper method to lockout valves using the valve actuators below:
   - Manual
   - Electric motor
   - Pneumatic
   - Hydraulic
   - Solenoid

3. Compressed air systems

a. Discuss the basic operation of the following types of air compressors:
   - Reciprocating
   - Centrifugal
   - Rotary

b. Discuss the uses of pressurized air systems.

c. Discuss the following major components of air compressors:
   - Low pressure stages
   - Intercooler
   - High pressure stages
   - After cooler
   - Moisture separators
   - Receivers
   - Dryers

d. State the reason for using cooling systems in air compressors.

e. Describe the safety aspects and typical interlocks associated with air compressors, including:
   - Low oil pressure
   - High compressor discharge pressure
   - High compressor discharge temperature
   - High cooling water outlet temperature
   - Oil in breathing air
   - Moisture in both breathing and control systems

4. Heating, ventilation, and air conditioning systems

a. Describe the following heating, ventilation, and air conditioning system evolutions and associated precautions and hazards:
   - Start-up and shutdown

b. Normal operation
   - HEPA filter maintenance and testing
   - Ventilation system balancing

c. Describe the purpose of the HVAC system in the following applications:
   - Hoods
   - Gloveboxes
   - Hot cells
   - Confinement systems

d. Discuss the reason for and significance of the following system parameters:
   - Positive vs. negative system pressure
   - Differential pressure across filters
   - Differential pressure across components

5. Electrical systems

Terminology and Theory

a. Discuss the following terms:
   - Electrostatic force
   - Electrostatic field
   - Conductor
   - Insulator
   - Resistor

b. Discuss the following parameters and their relationship:
   - Voltage
   - Current
   - Resistance
   - Ohm's Law
   - Power
   - Inductance
   - Capacitance

Direct Current

a. Discuss the basic principle by which the following components produce DC:
   - Battery
   - DC generator
   - Thermocouple

b. Discuss the purpose of a rectifier.

c. Discuss the following terms:
   - Resistivity
   - Electric circuit
   - Series circuit
   - Parallel circuit

d. Discuss the following terms:
   - Battery
   - Electrode

- Electrolyte
- Specific gravity
- Ampere-hour

e. Discuss in basic terms what happens when a lead-acid battery is charged and discharged.

f. Discuss the relationship between voltage and current-carrying capacity for series-connected versus parallel-connected batteries.

Alternating Current (AC)

a. Discuss the basic theory of operation of an AC generator.

b. Discuss the reasons that three-phase power systems are used in industry.

c. Discuss the basic theory of operation of an AC motor.

d. Discuss the basic theory of operation of a transformer.

Electrical Distribution Systems

a. Describe the following electrical circuits:
- Series
- Parallel
- Multi-wire Branch (Edison)

b. Explain the following terms as they apply to electrical distribution systems:
- Single-line diagram
- Neutral grounding
- Protective relays
- Uninterruptible power supply
- Automatic transfer switch
- Diesel-generator

d. Describe the protection provided by fuses and circuit breakers.

e. Describe the purpose and functions of a motor controller.

f. Describe the purpose and functions of a variable frequency drive controller.

6. Process instrumentation

a. List the three basic functions that temperature, pressure, flow, and fluid level detectors provide.

b. For the temperature detection devices listed, discuss how the instrument provides an output representative of the temperature being measured:
- Thermocouple (TC)
- Resistance temperature detector (RTD)

c. For the pressure detection devices listed, discuss how the instrument provides an output representative of the pressure being measured:
- Bellows type
- Bourdon tube type

d. For the fluid level detection devices listed, discuss how the instrument provides an output representative of the level being measured:
- Gauge-glass type

- Conductive probe type
- Magnetic bond type
- Differential pressure type
- Ball float type
- Sonic type
- Radar type

e. For the flow detection devices listed, discuss how the instrument provides an output representative of the flow being measured:
- Orifice plate type
- Venturi tube type
- Pitot tube type
- Displacement type
- Dall flow tube type
- Ultrasonic type
- Electromagnetic

f. For the position detection devices listed, discuss how the detector provides an output representative of the position being represented:
- Synchronous type
- Limit switches
- Reed switches
- Potentiometer
- Linear variable differential transformer types

7. Control systems

a. Define and discuss the application of each of the following:
- Control system
- Control system input
- Control system output
- Open-loop control system
- Closed-loop control system
- Control system feedback

b. Referring to a basic block diagram, describe an automatic control system, including the four functions required for an automatic control system to operate.

c. Discuss the following associated with programmable logic controllers (PLCs):
- Purpose
- Advantages of a PLC system
- Components and their functions
- Basic sequence of operation
- Input/output addressing
- Equipment used to program the PLC

d. Discuss the following associated with distributed control systems (DCSs):
- Purpose
- Components and their functions
- Functions of DCS consoles
- Basic operation of components
- Error indications (DCS and/or component)

8. Corrosion and water treatment

a. Discuss the process of general corrosion of iron and steel when exposed to water.

b. Discuss the two conditions that can cause galvanic corrosion.

c. Discuss the following types of specialized corrosion:
- Pitting
- Stress corrosion cracking
- Crevice

d. Discuss the reasons for removing impurities from water prior to use in nuclear and non-nuclear systems.

e. Discuss the ion exchange process.

9. Heat transfer and fluid flow

a. Using the ideal gas law, discuss the relationship between pressure, temperature, and volume.

b. Discuss when a fluid may be considered to be incompressible.

c. Discuss the effects of pressure and temperature changes on confined fluids.

d. Discuss the difference between heat and temperature, and heat and work.

e. Discuss the three modes of heat transfer.

f. Discuss how the density of a fluid varies with temperature.

g. Discuss the relationship between the pressure in a fluid column and the density and depth of the fluid.

h. Discuss the terms mass flow rate and volumetric flow rate.

i. Discuss the characteristics and flow velocity profiles of laminar flow and turbulent flow.

j. Discuss the property of viscosity.

k. Discuss the terms head, head loss, and frictional loss with respect to its use in fluid flow.

10. Engineering prints and drawings

a. Given an engineering print, read and interpret the following information:
- Title block
- Notes
- Legend
- Revision block
- Drawing grid

b. Given an engineering piping and instrument drawing, identify the symbols used for:
- Types of valves
- Types of valve operators
- Types of eductors and ejectors
- Basic types of instrumentation
- Types of instrument signal controllers and modifiers
- Types of system components (pumps, etc.)
- Types of lines

c. Demonstrate or explain how to determine if the print in hand is the current revision.

d. Identify the symbols used on engineering piping and engineering diagrams (P&IDs) to denote the location of instruments, indicators, and controllers.

e. Identify how valve conditions are depicted.

f. Determine system flow path(s) for a given valve lineup.

11. Electrical prints, diagrams and schematics

a. Identify the symbols used on engineering electrical drawings.

b. Identify the symbols and/or codes used on engineering electrical drawings to depict the relationship between components.

c. State the conditions in which electrical devices are shown, unless otherwise noted on the diagram or schematic.

d. Identify the power sources and/or loads and their status, given simple electrical schematics and initial conditions.

12. Engineering fabrication, construction, and architectural drawings

a. State the purpose of engineering fabrication, construction, and architectural drawings.

b. Given an engineering fabrication, construction, or architectural drawing, identify the specified dimensions of an object.

c. Discuss the methods used to specify a dimension’s allowable tolerance.

d. Given an engineering fabrication, construction, or architectural drawing, identify the specific dimension’s allowable tolerance.

APPENDIX B

Site-Specific Technical Knowledge Areas

1. Steam systems

a. Discuss the application of the following concepts to steam systems:
- Enthalpy
- Saturation
- Superheat
- Steam quality
- Moisture content
- Condensation
- Sensible heat
- Carryover
- Thermal expansion
- Thermal contraction

b. Discuss steam tables and the Mollier diagram and demonstrate their use.

c. Describe the following steam system evolutions and associated precautions:
- Pressurization and warm-up of a cold steam system
- Initiation of steam flow in a stagnant, but pressurized steam system
- Isolation of a portion of a steam system
- Pressurization and warm-up of an isolated portion of a steam system
- Isolation and de-pressurization of an in-service steam system

d. Discuss the function/application of the following steam system components and describe how the components contribute to steam system operation:
- Isolation valves
- Isolation valve bypass valves
- Vent valves
- Drain valves
- Safety/Relief valves
- Flow control valves
- Steam trap bypass valves
- Expansion joints
- Pressure control valves
- Moisture separators
- Pipe hangers/supports
- Mist eliminators
- Evaporators
- Condensers
- Boilers
- Reboilers
- Steam traps (mechanical, impulse, thermostatic)

e. Describe condensation-induced water hammer and its potential impact on steam systems.

f. Describe the expected operator response to, and where possible how to prevent, the following steam system abnormal conditions. Include a discussion of associated hazards:

- Water hammer during pressurization/warm-up of a cold steam system
- Water hammer during initiation of flow in an in-service steam system
- Seat leakage of an isolation valve
- Steam leakage to atmosphere
- Steam header rupture

2. Pneumatic and hydraulic systems

a. Discuss the following terms:
- Force
- Pressure
- Pneumatic
- Hydraulic

b. Describe the following pneumatic and hydraulic system evolutions and associated precautions and hazards:
- Start-up and shutdown
- Normal operation
- System rupture or leakage

3. Heat exchangers

a. Discuss the following types of heat exchanger construction:
- Shell and tube
- Plate

b. Discuss hot and cold fluid flow in parallel flow, counter flow, and cross flow heat exchangers.

c. Discuss the following heat exchanger applications:
- Air conditioner evaporator
- Air conditioner condenser
- Preheater
- Radiator
- Cooling tower

d. Describe the following heat exchanger system evolutions and associated precautions and hazards:
- Start-up and shutdown
- Normal operation
- System rupture or leakage

4. Lasers

a. Describe types and classifications of lasers (ANSI Z136.1, *Safe Use of Lasers*).

b. Describe engineering controls and use of personnel protective equipment for laser safety:
- Laser control area
- Protective housing, barriers and curtains
- Beam attenuators and stops
- Interlocks
- Key control
- Eyewear

c. Describe administrative controls and roles of the laser safety officer:

- Training
- Authorized personnel
- Operating and alignment procedures

d. Describe requirements of laser warning signs, labels and postings.

5. Chemistry theory

a. Discuss the four possible states of matter.

b. Discuss the structure of the Bohr atom.

c. Discuss the following terms:
- Element
- Molecule
- Avogadro's Number
- Mole

d. Discuss the following types of chemical bonds:
- Ionic
- Covalent
- Metallic

e. Discuss how elements combine to form chemical compounds.

f. Discuss the following terms:
- Mixture
- Solvent
- Solubility
- Solute
- Solution
- Equilibrium
- Normality
- Density
- Molarity
- Parts per million (ppm)

g. Define the following terms:
- Acid
- Base
- Salt
- pH
- pOH

6. Thermodynamics

a. Define the following terms:
- Specific volume
- Density
- Specific gravity
- Mass
- Weight

b. Discuss the thermodynamic properties of temperature and pressure.6.

c. Discuss the Fahrenheit, Celsius, Kelvin, and Rankine temperature scales, and discuss the concept of absolute zero.

d. Discuss the relationship between absolute pressure, gauge pressure, and vacuum.

e. Discuss the following and describe their relationship:
- Energy
- Potential energy
- Kinetic energy
- Work
- Heat

f. Discuss the following types of thermodynamic systems:
- Isolated
- Open
- Closed

g. Discuss the First Law of Thermodynamics.

h. Discuss the Second Law of Thermodynamics.

7. Material science

a. State the five types of bonding that occur in materials and their characteristics.

b. Discuss the characteristics of the following crystal structures:
- Body-centered cubic
- Face-centered cubic
- Hexagonal close-packed

c. Identify and discuss the crystalline structure of a metal.

d. Define the following terms:
- Grain
- Grain structure
- Grain boundary
- Creep
- Polymorphism
- Alloy

e. Discuss the three possible alloy microstructures and their two main characteristics as compared to pure metals.

f. Compare and contrast the properties, characteristics and applications of stainless steel to those of carbon steel.

g. Identify the three types of microscopic imperfections found in crystalline structures.

h. Discuss the following terms:
- Compressibility
- Stress
- Shear stress
- Tensile stress
- Compressive stress

i. Define the following terms:
- Strain
- Proportional limit
- Plastic deformation

j. Identify the two common forms of strain and discuss the differences.

k. Discuss Hooke's Law.

l. Discuss what is meant by the terms “bulk modulus” and “fracture point.”

m. Given the stress-strain curves for ductile and brittle material, identify the following points on the curve:
- Proportional limit
- Ultimate strength
- Yield point
- Fracture point

n. Discuss the following terms:
- Strength
- Malleability
- Ductility
- Toughness
- Yield strength
- Hardness
- Ultimate tensile strength

o. Discuss the adverse effects of welding on metal including the types of stress.

p. Discuss the phenomenon of thermal shock.

q. Discuss the following terms and discuss their relationship to material failure:
- Ductile fracture
- Brittle fracture
- Nil-ductility transition (NDT) temperature

r. Discuss the phenomenon of brittle fracture.

s. Discuss fatigue failure and work hardening with respect to material failure.

t. Discuss the effects of the following types of radiation on the structural integrity of metals:
- Alpha
- Beta
- Gamma
- Fast neutron
- Slow neutron

APPENDIX C

INITIAL AND CONTINUING TRAINING RECOMMENDATIONS

For FR personnel completing initial qualification Table 1 provides a list of NTC training courses that support attainment of the performance competency knowledge requirements in this FAQS and provide an opportunity for FR candidates to practice performance of the MPAs in this FAQS. Following initial qualification FR personnel should maintain proficiency in the performance of the MPAs identified in this FAQS through satisfactory performance of normally assigned job tasks. For tasks that are infrequently performed or where there are no organization specific opportunities for actual performance, personnel may use exercises conducted by the NTC during formal classroom training or use locally developed exercises as part of an assigned continuing training program to maintain proficiency. The list of courses in Table 1 should also be referred to for identifying courses as part of the continuing training program for FR personnel.

Note: Refer to the NTC safety training course catalog at https://ntc.doe.gov/student/stp to verify the currently available courses and their titles.

TABLE 1 - Initial and Continuing Training Course Recommendations

Duty Area	MPA (Task) and related Performance Competency (PC) Knowledge Requirements	Applicable NTC Training Courses	Training Recommendation: Initial and/or Continuing Training (CT)
SSC Operability	**MPA #1.** Review a contractor SSC Operability Determination PC #11	SBA-100DE, *Safety Basis Fundamentals* SBA-230DE, *Accident Analysis and Control Selection Review* SMP-200, *Safety System Oversight Duties and Responsibilities*	INITIAL and CT
Configuration Management	**MPA #2.** Perform a safety system walk down PC #5 PC #13	SBA-100DE, *Safety Basis Fundamentals* SBA-230DE, *Accident Analysis and Control Selection Review* SMP-200, *Safety System Oversight Duties and Responsibilities* FOO-230, *Configuration Management*	INITIAL and CT

Activity Level Work Planning and Control	**MPA #3.** Evaluate a contractor maintenance activity PC #5 PC #8 (E-H) PC #13 PC #15	SMP-200, *Safety System Oversight Duties and Responsibilities* FOO- 210, *Conduct of Maintenance* FOO-230, *Configuration Management* FOO-240,*Fundamentals of Work Planning and Control*	INITIAL and CT
Safety Basis	**MPA #4.** Observe a facility operational TSR daily, weekly, or monthly surveillance activity PC #10	SBA -100DE, *Safety Basis Fundamentals* SBA-130DE, *Accident Analysis and Control Selection* SBA-150DE, *TSR Development and Implementation*	INITIAL and CT
	MPA #5. Review the implementation of the USQ process for an operational procedure change PC #12	SBA-160DE, *USQ Process Implementation*	INITIAL and CT
	MPA #6. Review TSR SR completion status board or other tracking tool PC #10 PC #16 (Item D)	SBA-150DE, *TSR Development and Implementation* FOO-230, *Configuration Management*	INITIAL and CT
	MPA #7. Review the facility logs and verify compliance with the TSRs.	SBA-150DE, *TSR Development and Implementation*	INITIAL and CT
On Shift/On the Job Training	**MPA #8.** Observe a contractor on-shift/on-the-job (OJT) training evolution PC #14	FOO-100DE, *Conduct of Operations Applied Fundamentals*	INITIAL

Conduct of Operations	**MPA #9.** Observe contractor staff performing an operational activity PC #16	FOO-100DE, *Conduct of Operations Applied Fundamentals* FOO-205, *Conduct of Operations Case Study Applications* FOO-200*, Conduct of Operations*	INITIAL
	MPA #10. Perform a review of a contractor initial notification and final occurrence report PC #6 PC #16	Organization Specific OJT	NO FORMAL TRAINING
	MPA #11. Conduct an assessment of a selected portion of the implementation of the Conduct of Operations program PC #16	FOO-100DE, *Conduct of Operations Applied Fundamentals* FOO-205*, Conduct of Operations Case Study Applications* FOO-200, *Conduct of Operations*	INITIAL and CT
Contractor Assurance System (CAS)	**MPA #12.** Attend facility issues management review board	Organization Specific OJT	NO FORMAL TRAINING
	MPA #13. Review CONOPs performance related information provided by the Contractor Assurance System PC #16	FOO-100DE, *Conduct of Operations Applied Fundamentals* FOO-205, *Conduct of Operations Case Study Applications* FOO-200, *Conduct of Operations* DOE-310, *Oversight Data Analysis and Reporting*	INITIAL

APPENDIX D

Integrated Nuclear Facility Oversight Duty Area Analysis

Core/Crosscutting Performance Areas	Oversight Topic / Subject Area	FR Role: Primary (P) or Major Support (SM)
SSC Operability	SSC Assessments	SM
	Safety SSC Operability Determinations	SM
	Safety SSC Periodic Health Report Review	SM
	SSC TSR Surveillance Requirements	SM
	System Walk downs	SM
TSR Implementation	Modes and Applicability	P
	Design Features	P
	Use of General LCO and SRs	P
	ACs/SACs	P
	Operations SR and LCO Verification	P
	TSR Violation Reporting	P
Conduct of Operations	Con Ops Matrix Review / Approval	SM
	Event Reporting / Follow Up	P
	Fact Finding/Critique Performance	P
	Operations and Maintenance Testing Interface	P
	SSC Configuration and Status Awareness	P
	Operating Procedure Change Control	P
	CONOPS Program Element Assessments	P
Work Planning and Control (WP&C)	Evaluate WP&C Implementation Procedures	
	Pre Job Briefings	P
	Integrated Scheduling	P
	Defining Work Scope	P
	Hazard Analysis	P
	Hazard Controls	P
	Work Authorization	P
	Post Job Briefing / F&I	P
	Program Assessments	
Conduct of Training	On the Job Training (OJT) and on the Job Evaluation (OJE)	SM
	Classroom Training	
	Qualification Examinations / Evaluations / Oral Boards	SM
	Program Assessments (DOE-STD-1073)	
Conduct of Maintenance	NMMP Description Document	
	NMMP Triennial Assessments	
	Post Maintenance Testing	SM
	Corrective Maintenance	SM
	Preventive Maintenance	SM
	Predictive Maintenance	
	Maintenance Planning and Scheduling	

Core/Crosscutting Performance Areas	Oversight Topic / Subject Area	FR Role: Primary (P) or Major Support (SM)
Conduct of Engineering	Configuration Management	SM
	SSC Modification Design Verification (Design / Drawing / Calculation Change Control)	
	Equivalency Determinations	
	Design Change Control	
	Code of Record Status and Changes	
	Exemption Requests	
	Nonconformance Reviews (NCRs)	SM
	Temporary Modifications	SM
	Cognizant System Engineer Program Assessments	
Quality Assurance	NQA-1 Implementation	SM
	Assessments (Design Control Processes, Procurement Processes, Flow down of Requirements, etc.)	SM
Contractor Assurance System	Self-Assessment Program	
	Causal Analysis and Extent of Condition (EOC) Reviews	
	Issues Management Program	
	Lessons Learned / Feedback and Improvement Program	
	Program Performance Measures (Dashboard)	
Safety Basis	USQ Program Review	
	AC and SAC Program Performance	SM
	USQ Determinations	SM
	PISA Determinations	SM
	IVRs	SM
	ESS/JCO	
	Safety Basis Document Approval	
Readiness Verification	Readiness Review Determinations	SM
	SNR Submittals	
	Readiness Process	SM
Emergency Management Program	Facility Drill Observations	SM
	Annual Site Exercise	SM
	Hazardous Materials Inventory (EPHA)	SM
	Program Assessments	
Other Functional / Topical Areas	Nuclear Safety Culture Evaluations	SM
	Fire Protection Functional Area Assessments	SM
	Criticality Safety Functional Area Assessments	SM
	Radiation Protection Functional Area Assessments	SM
	Nuclear Material Packaging and Storage Functional Area Assessments	SM
	Radioactive Waste Management Functional Area Assessments	SM
	Facility Safety Assessments	
	TQP Implementation	

CONCLUDING MATERIAL

Review Activity:
AU
NE
EM
NNSA
SC
EA

Preparing Activity:
EA-50

Project Number:
TRNG: P1151-2019REV

Field and Operations Offices:
CBFO
CH
ID
OH
OR
ORP
RL
SR

Field or Site Offices:
Argonne Site Office
Brookhaven Site Office
Fermi Site Office
Kansas City Field Office
Livermore Field Office
Los Alamos Field Office
Nevada Field Office
NNSA Production Office
Princeton Area Office
Savannah River Field Office
Sandia Field Office