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Shutdown Facility Risk Management Criteria and Review Approach Document		
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1.0 PURPOSE

The mission of the U.S. Department of Energy (DOE) Office of Environment, Safety and Health Assessments (EA-30) is to assess the effectiveness of safety and emergency management systems and practices used by line and contractor organizations and to provide clear, concise, rigorous, and independent evaluation reports of performance in protecting workers, the public, and the environment from the hazards associated with DOE activities.

In addition to the general independent oversight requirements and responsibilities specified in DOE Order 227.1A, Independent Oversight Program, this criteria and review approach document (CRAD), in part, fulfills the responsibility assigned to EA in DOE Order 226.1B, *Implementation of Department of Energy Oversight Policy*, to conduct independent oversight and appraisals of high consequence activities.

The CRADs are available to DOE line and contractor assessment personnel to aid them in developing effective DOE oversight, contractor self-assessment, and corrective action processes. The current revision of EA's CRADs are available at <http://www.energy.gov/ea/criteria-and-review-approach-documents>.

2.0 APPLICABILITY

The following CRAD is approved for use by the Office of Nuclear Safety and Environmental Assessments (EA-31) at DOE Hazard Category 1, 2, and 3 facilities.

3.0 FEEDBACK

Comments and suggestions for improvements on this CRAD can be directed to the Director, Office of Environment, Safety and Health Assessments.

4.0 CRITERIA AND REVIEW APPROACH

The review of shutdown facility risk management will evaluate the effectiveness of programs and processes for fire protection, surveillance, and maintenance of permanently shutdown facilities that still contain material at risk greater than the hazard category 3 threshold. The following functional areas are designed as stand-alone sections to be used in any combination based on the need of the specific appraisal. Although the criteria refer to standards and regulations, verify the applicability of those references for each facility.

OBJECTIVES

SF.1: The safety basis for the facility has been updated to keep it current and to reflect changes in the facility, the work, and the hazards as they are analyzed in the documented safety analysis (DSA). (10 CFR 830 Section 830.202.c)

Criteria:

1. The DSA for a hazard category 1, 2, or 3 DOE nuclear facility must, as appropriate for the complexities and hazards associated with the facility, provide a systematic identification of both natural and man-made hazards associated with the facility. (10 CFR 830 Section 830.204.b.2)
2. The hazard evaluation shall provide (a) an assessment of the facility hazards associated with the full scope of planned operations covered by the DSA, and (b) the identification of controls that can prevent or mitigate these hazards or hazardous conditions. (DOE-STD-3009-2014, Section 3.1.3 or DOE-STD-3011-2016, Section 3.1.3 or DOE-STD-1120, Section 3.1.3 as appropriate)
3. The DSA for a hazard category 1, 2, or 3 DOE nuclear facility must, as appropriate for the complexities and hazards associated with the facility, derive the hazard controls necessary to ensure adequate protection of workers, the public, and the environment, demonstrate the adequacy of these controls to eliminate, limit, or mitigate identified hazards, and define the process for maintaining the hazard controls current at all times and controlling their use. (10 CFR 830 Section 830.204.b.4)
4. When an administrative control is identified in the DSA as a control needed to prevent or mitigate an accident scenario, and has a safety function that would be safety significant (SS) or safety class (SC) if the function were provided by a structure, system or component (SSC), that control is designated as a specific administrative control (SAC). (DOE-STD-1186, Section 1.2)

- Does the methodology include characterization of hazardous materials (radiological and non-radiological) and energy sources, in terms of quantity, form, and location?
- Is the hazard analysis based on the currently approved scope of work at the facility?
- Does the hazard analysis identify preventive and mitigative features for the spectrum of events examined using a proper hierarchy?
- Have the initial conditions and assumptions for the analysis been documented and evaluated to determine if controls are needed to maintain the validity of the evaluation?
- Has the presence of any passive SSC, which prevents significant consequences, been assumed? If so, has it been classified as either SS or SC?
- Are the selected hazard controls, both individually and collectively, adequate to prevent or mitigate the accidents for which they are credited as a control?
- Was a system evaluation performed to assure that the safety functions of an SSC can be performed when called upon under accident conditions?
- Are codes and standards appropriately specified and tailored, as necessary, based on functional classification and safety function?
- Are the identified safety SSCs adequate to mitigate or prevent the analyzed accidents with potential to exceed evaluation guidelines?
- Does the suite of safety controls provide multiple layers of protection to prevent or mitigate the unintended release of radioactive materials?
- Do the descriptions of the SACs contain sufficient detail to understand their safety functions and the relationship to the safety analysis?
- Does the DSA identify the appropriate performance criteria necessary to provide reasonable assurance that selected SAC functional requirements will be met?
- Do the SAC evaluations contain appropriate analysis (i.e., human reliability analysis) of human performance factors that affect task performance and human factors engineering?
- Do the SACs appropriately reflect assumptions of facility configuration and human performance of safety functions, operational parameters, and key programmatic elements?
- Are specific aspects of safety management programs identified in the hazard and accident analysis included in the discussion of the programs in the DSA?

SF.2: Engineering design documents and analyses are technically adequate and implement the requirements of the documented safety analysis such that adequate protection of the public, the workers, and the environment from facility hazards is demonstrated. (DOE-STD-3009-1994 CN 3, 10 CFR 830.122)

Criteria:

1. The approved safety analysis provides descriptions of attributes (i.e., functional requirements and performance criteria) required to support the safety functions identified in the hazard and accident analyses and to support subsequent derivation of technical safety requirements (TSRs). (DOE-STD-3009-1994 CN 3 Chapter 4)
2. Engineered SSCs and processes are designed using sound engineering/ scientific principles and appropriate standards. (10 CFR 830.122 Criterion 6)
3. Engineering design incorporates applicable requirements and design bases in design work and design changes (e.g., design calculations). (10 CFR 830.122 Criterion 6)
4. The adequacy of design products is verified or validated by individuals or groups other than those who performed the work. (10 CFR 830.122 Criterion 6)
5. Verification and validation work is completed before approval and implementation of the design. (10 CFR 830.122 Criterion 6)

6. Key design documents, including design basis and supporting documents, are identified and consolidated to support facility safety basis development and implementation. (DOE O 420.1B Chapter 5 (or DOE O 420.1C as applicable to the facility)).

- Does the documented safety analysis (DSA) identify the appropriate performance criteria necessary to provide reasonable assurance that selected system functional requirements will be met?
- Do authorization basis documents identify and describe the system safety functions?
- Does the definition/description of the safety functions of the system include:
 - Specific role of the system in detecting, preventing, or mitigating analyzed events?
 - The associated conditions and assumptions concerning system performance?
 - System requirements and performance criteria for the system and active components, including essential supporting systems for normal, abnormal, and accident conditions relied upon in the hazard or accident analysis?
- Are applicable regulations, DOE directives, and industry standards (such as applicable National Fire Protection Association and American National Standards Institute standards) incorporated into the program?
- Are the system design basis and supporting documents identified and consolidated in documentation consistent with DOE-STD-3024 on system design descriptions?
- Has the completed design been recorded in design output documents, such as drawings, specifications, test/inspection plans, maintenance requirements, and reports?
- Does the documentation include system requirements, basis for the system requirements, essential performance criteria, and a description of how the current system configuration satisfies the specified requirements and performance criteria?
- Do the bases for technical safety requirements (TSRs) for the system appropriately reflect assumptions of facility configuration and performance of safety functions, operational parameters, and key programmatic elements?
- Have technical and administrative design interfaces been identified and methods been established for their control?
- Is the safety classification of the system (or credited structures and components of the system) commensurate with the level of consequence and consistent with DOE guidance?
- Have the design bases and design assumptions identified in the safety analysis been appropriately translated into design calculations and procedures?
- Are acceptance criteria for tested parameters supported by calculations or other engineering documents to ensure that design bases assumptions are met?
- Verify, by walkdown or other means, that system installed configuration will support system function under accident/event conditions.
- Are operation and system alignments consistent with design basis assumptions?
- Verify that all energy sources (e.g., electric power, diesel fuel, compressed air, etc.) relied on for accident mitigation, including those used for control functions, will be available and adequate during accident/event conditions.
- Verify that potential/actual system degradation is monitored and/or prevented to ensure continued system functionality/operability.
- Verify that equipment is qualified for the environment expected under all conditions.
- Verify equipment is adequately protected from natural external events.
- Verify that safety margins have been maintained.

SF.3: Configuration management programs and processes are adequate to ensure safety systems continue to meet safety basis requirements and changes are properly controlled.

Criteria:

1. The configuration management process adequately integrates the elements of system requirements and performance criteria, system assessments, change control, work control, and documentation control. [DOE Order 413.3B Attachment 2, DOE Order 420.1B Chapter V (or DOE O 420.1C as applicable to the facility), and DOE STD 1073-2003 if applicable].
2. Configuration management is used to develop and maintain consistency among system requirements and performance criteria, documentation, and physical configuration for the SSCs within the scope of the program. (DOE O 420.1B Chapter V)
3. System design basis documentation and supporting documents are kept current using formal change control and work control processes. (DOE O 420.1B Chapter V)
4. Systems must be tested following modification to ensure continued capability to fulfill system requirements. (DOE O 420.1B Chapter V)
5. Applicable requirements and design bases are incorporated in design work and design changes. (10 CFR 830.122 Criterion 6)
6. Changes to system requirements, documents, and installed components are formally designed, reviewed, approved, implemented, tested, and documented. (10 CFR 830.122 Criterion IV)
7. An unreviewed safety question (USQ) process has been established and is being appropriately implemented to control changes to safety systems. (10 CFR 830.203)
8. System piping and instrumentation diagrams have been prepared, are maintained, and reflect the installed configuration of the associated safety system. (DOE-STD-1073-2003 Section 6.4)
 - Have as-built drawings and shop drawings been maintained after production to show actual configuration?
 - Are system P&IDs available for operators and support personnel as necessary for day-to-day operations?
 - Are materials and installation of system components consistent with the requirements and performance criteria for the system, including quality controls and quality assurance and, as appropriate, software quality assurance?
 - Are system components properly labeled to assure proper configuration and operation?
 - Do identified discrepancies (i.e., system changes) potentially impact (1) the operability or reliability of the system; or (2) the adequacy of the change control or document control processes applied to the system (e.g., presence of unauthorized changes or failure to properly document authorized changes)?
 - Are documents affected by the changes appropriately identified?
 - Are changes accurately described and reviewed and approved, as appropriate?
 - Are SSCs affected by the changes identified by facility management, users, operators or others affected by the changes?
 - Do facility procedures ensure that changes to the system requirements, documents, and installed components are adequately integrated and coordinated with those organizations affected by the change?
 - Are changes to the system reviewed to ensure that system requirements and performance criteria are not affected in a manner that adversely impacts the ability of the system to perform its intended safety function?
 - Are installation instructions and post-modification testing instructions and acceptance criteria appropriately specified?
 - Are safety basis and design documents affected by the change revised and kept current using formal change control and work control processes?

- Are new design calculations, tests, or procedures performed as necessary to support the change?
- Is there adequate evidence that the cognizant system engineer (CSE) has reviewed and concurred with design changes and the associated system modification work packages?
- Are engineering (including the design authority and technical disciplines), operations, and maintenance organizations made aware of system changes that affect them and appropriately involved in the change process?
- Are other organizations affected by the change such as training, document control, hazard analysis/safety basis, fire protection, etc., integrated into the change process?
- Have design changes been appropriately evaluated using the USQ process?

SF.4: Surveillance and maintenance activities are properly planned, scheduled, and performed to ensure that safety systems can reliably perform intended safety functions when required.

Criteria:

1. The safety systems are included in the nuclear facility maintenance management program and the DOE-approved Nuclear Maintenance Management Plan required by DOE Order 433.1B.
2. Maintenance processes are in place for corrective, preventive, and predictive maintenance and to manage the maintenance backlog; and the processes consider a system's safety classification. (DOE O 433.1B Attachment 2)
3. The safety systems are periodically inspected in accordance with preventative maintenance requirements.
4. The reliability of SSCs is maintained through performance of vendor recommended preventative maintenance requirements.
5. Maintenance activities associated with safety systems, including work control, post-maintenance testing, material procurement and handling, and control and calibration of test equipment, are formally controlled to ensure that changes are not inadvertently introduced, the system fulfills its requirements, and that system performance is not compromised. (DOE O 420.1B, Chapter V and DOE O 433.1B Attachment 2)
6. Requirements relating to test, calibration, or inspection assure: that the necessary operability and quality of safety SSCs is maintained; that facility operation is within safety limits; and that limiting control settings and limiting conditions for operation are met. (10 CFR 830 Subpart B Appendix A, G.6, Table 4, (5))
7. Instrumentation and measurement and test equipment for the system are calibrated and maintained. (10 CFR 830.122 Criterion 8)
 - Does maintenance for a system satisfy system requirements and performance criteria in safety basis documents or other site maintenance requirements?
 - Does maintenance address age-related system degradation that could affect system reliability or performance?
 - Are conditions that require component replacement identified?
 - Is component aging incorporated into preventive maintenance?
 - Has the system been evaluated for potential inclusion of suspect/counterfeit parts?
 - Is there a DOE-approved nuclear maintenance management program that addresses periodic inspection of components to determine whether degradation threatens performance?
 - Has the responsible DOE line management ensured that sufficient resources are budgeted in a timely manner to accomplish the maintenance program's objective of providing DOE with the highest confidence in the reliable performance of mission-critical, safety systems through proactive maintenance practices?
 - Does the nuclear facility maintenance program include condition assessments, prioritization of maintenance projects, management of deferred maintenance, analyses to determine optimal period

for maintenance actions, and reporting results of condition assessments to DOE, as required by DOE O 433.1B?

- Has the responsible DOE line management ensured that the requirements and standards for maintenance of nuclear facilities are incorporated into contracts and subcontracts, including support services contracts, as appropriate?
- Are maintenance source documents such as vendor manuals, industry standards, DOE orders, and other requirements used as technical bases for development of system maintenance work packages?
- Are vendor recommended preventive and predictive maintenance requirements for SSCs included in the maintenance program?
- Are preventive and predictive maintenance activities completed as scheduled?
- Are predictive maintenance results used to identify and schedule maintenance prior to SSC failure?
- Is the system inspected periodically according to maintenance requirements and are deficient conditions evaluated and/or corrected?
- Are acceptance criteria defined and used for system modification, repair, maintenance and test activities?
- Are excessive component failure rates identified?
- Are failure rates used in establishing priorities and schedules for maintenance or system improvement proposals?
- Has preventive maintenance been performed as prescribed?
- Has the corrective maintenance backlog been effectively managed?
- Is there an accurate maintenance history that compiles maintenance, resource, and cost data in a system which is retrievable and capable of entering required-maintenance costs, actual maintenance costs, and availability data and failure rates for mission-critical and safety systems into the DOE Facility Information Management System?
- Have worker qualification requirements been established in accordance with applicable industry standards and have these requirements been met?
- Does surveillance and testing of the safety systems demonstrate that all required components within the systems are capable of accomplishing their safety functions and continue to meet applicable system requirements and performance criteria?
- Do surveillance and test procedures confirm that key operating parameters for the overall system and its major components remain within safety basis and operating limits?
- Does the procedure contain instructions to perform the test successfully and assure validity of test results?
- Can parameters that demonstrate compliance with the safety basis be measured or physically verified?
- Does the safety system design include provisions necessary for conducting the tests?
- Are personnel knowledgeable and able to satisfactorily perform the test?
- Does the procedure cite applicable safety requirements?
- Are limits, precautions, system and test prerequisite conditions, data required, and acceptance criteria included?
- Are appropriate data recording provisions included or referenced and used to record results?
- Does the procedure include provisions for listing discrepancies?
- Does the procedure require timely notification to facility management about any failure or discrepancy that could impact operability?
- Did appropriate personnel review the test results and take appropriate action?
- Is there a clear linkage between the test acceptance criteria and the safety documentation, and are the acceptance criteria capable of fully confirming that safety/operability requirements are satisfied?

SF.5: Facility condition inspections monitor facility conditions.

Criteria:

1. Conduct and implement routine assessments of facilities to identify issues related to operability, reliability, housekeeping, and general condition. (DOE O 433.1B Chg. 1, Attachment 2, Section 2.p)
2. Inspections evaluate aging-related degradation and technical obsolescence to determine whether the performance of SSCs is threatened. (DOE O 433.1B Chg. 1, Attachment 2, Section 2.m)
3. System assessments must include periodic reviews of system operability, reliability, and material condition. (DOE 420.1C Chapter V, Section 3.c.(3))
4. Facility Condition Inspections are integrated with the Condition Assessment Program of real property assets. (DOE O 430.1B, 4.c.(9) (e)) [only if in contract]
 - Does the organization plan, conduct, and trend periodic inspections of the material condition of facilities to support safe and reliable plant operation?
 - Does the organization identify material deficiencies and log them into a work-control system for correction?
 - During facility condition inspections, do maintenance personnel identify technical obsolescence of parts and equipment that could threaten SSC design performance?
 - Does the NMMP delineate how maintenance personnel coordinate and address issues associated with aging and degradation inspections?
 - Do facility managers integrate Facility Condition Inspections with the Condition Assessment Program of real property so that identified repairs can be included as part of Deferred Maintenance reporting?

SF.6: Site contractor line management has established requirements for comprehensive Fire Protection Programs (FPPs) in the shutdown facilities to ensure effective implementation and control of all fire protection activities. (10 CFR Part 830; 10 CFR Part 851; DOE O 420.1C, Attachment 2, Chapter II, *Fire Protection*)

Criteria:

1. FPP Programmatic Elements. A documented FPP exists as required by applicable safety criteria and includes the elements and requirements for design and operations, emergency response, fire analysis and assessments, wildland fire, and site-specific fire protection criteria. (10 CFR Part 830; 10 CFR Part 851; DOE O 420.1C, Attachment 2, Chapter II)
 - Does the fire protection program use DOE STD-1066-2016 as the basis for the program or an approved alternate approach?
 - Does the FPP identify approved equivalencies along with references providing the bases for such equivalencies?
 - Do safety basis accident analyses clearly identify and describe the fire protection system's credited functional requirements and are they consistent with the Fire Hazards Analysis (FHA)?
 - Are procedures to implement the FHA/DSA controls adequately written, reviewed, approved, controlled, maintained, and fully performed?
 - Are documented reviews of plans, specifications, procedures, and acceptance tests conducted by a fire protection engineer?
 - Are record retention requirements to support the FPP identified and adequately implemented?
 - Is the process for developing and requesting DOE approval of fire protection equivalencies and exemptions to fire protection requirements documented and effectively implemented?

- If the fire protection authority having jurisdiction (AHJ) is delegated to the contractor, is the level of authority documented in the FPP?
 - Where criticality safety restrictions apply, is the technical justification for the use of water for fire suppression when no alternative exists fully documented and implemented?
2. FHA and Building Fire Protection Assessments. An FHA has been prepared for each nuclear facility and for facilities that represent unique fire safety risks. (DOE O 420.1C, Attachment 2, Chapter II, NFPA 801)
- Does a Fire Protection Engineer (FPE) perform a review of the FHA on a regular basis but not less than every 3 years and revise as appropriate?
 - Does the FHA address all essential elements for a complete analysis of fire hazards as delineated in DOE O 420.1C and DOE-STD-1066, Appendix B.
 - Does the FHA list approved equivalencies and exemptions including the documented basis supporting each equivalency and exemption?
 - Are the equivalencies and exemptions reviewed during each FHA update to verify conditions have not changed and that the justifications remain valid?
 - Have FHAs been adequately revised to accommodate changes to the facility, processes (operations), occupancy, safety basis, or BNA; or when new fire safety risks are introduced?
 - Does the FHA specify adequate mitigation strategies for fire and related events, including isolation, segregation, or special fire control systems?
 - Does the FHA analyze the spread paths and impacts (radiological, toxic, or biological) where smoke or contamination spread may be a special concern for the safety of the workers?
 - Have external fire exposures been addressed with an evaluation of the potential for fire and smoke spread from one fire area to another, as well as an evaluation of external smoke or water damage to safety systems and equipment?
5. Building Fire Protection Assessments. Facility fire protection assessments are conducted annually for facilities with a replacement value in excess of that permitted by DOE Orders and Standards, facilities considered a high hazard, or those with vital programs; or at least every three years for low and ordinary hazard facilities; or at a frequency with appropriate justification approved by the DOE head of field element. (DOE O 420.1C, Attachment 2, Chapter II)
- Are facility/building fire protection assessments conducted at the appropriate frequency for the recognized hazards within the facilities?
 - Are facility/building fire protection assessments performed under the supervision of a qualified FPE?
 - Do the assessments comprehensively address the topics identified in DOE-STD-1066?
 - Do the facility workers have an appropriate understanding of the building fire protection systems?

SF.7: Installation and operation of fire protection SSCs, and implementation of the FPP controls and procedures ensures the safety systems are available to perform their intended safety functions when required. Inspections, testing, and maintenance activities are properly planned, scheduled, and performed to ensure that fire protection systems can reliably perform their intended safety functions when required. (DOE O 420.1C)

Criteria:

1. Fire Safety Systems Installation, Operation, Testing and Maintenance. All fixed fire protection features (e.g., appropriate construction types, fire barriers, fire alarm and signaling systems, manual and automatic fire suppression systems), that are required by authorization basis documents and FHAs, have been installed and are tested and maintained, as required by applicable fire safety criteria. (DOE O 420.1C, Attachment 2, Chapter II; applicable NFPA codes and standards from the site-specific contract)
 - Have required fire safety features (including those associated with emergency notification and egress) been confirmed in accordance with authorization basis documents, FHAs, DOE directives, and NFPA standards?
 - Are fire and related hazards that are unique to DOE and not addressed by industry standards protected by isolation, segregation, or special fire control systems (e.g., inert gas, explosion suppression)?
 - Do fire protection system inspection, testing, and maintenance programs (scope and frequencies) conform to NFPA 25, *Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems*, and NFPA 72?
 - Are appropriate fire safety systems and features maintained operable for facilities undergoing decontamination and decommissioning? If not, are compensatory measures being adequately implemented?
 - Is an effective corrective maintenance program established to ensure the timely repair of defective systems, support systems, and equipment?
 - Is an effective preventive maintenance program in place to ensure the reliability of systems and equipment?
 - Are system or equipment outages for maintenance, testing, or special operations appropriately approved and communicated to impacted groups?
 - Are compensatory measures implemented as needed, and restored to normal operations in a timely manner?
 - Are fire impairments, including compensatory actions, for planned, unplanned and emergency impairments clearly identified and communicated?
 - Is post maintenance or repair testing effectively utilized to assure the adequacy of preventive or corrective maintenance and the operability of the system or equipment? Is the testing appropriately performed and documented to satisfy NFPA standards and quality assurance requirements?
2. Surveillance and testing of the fire protection system demonstrates that the system is capable of accomplishing its safety functions and continues to meet applicable system requirements and performance criteria. (DOE O 420.1C, Attachment 2, Chapter II; applicable NFPA codes and standards from the site-specific contract)
 - Are surveillance tests adequately performed to demonstrate the safety-related performance requirements of all fire protection SSCs?
 - Is safety basis TSR surveillance testing performed in the SSC's as found condition and separately from testing required by NFPA 25 to assure the SSC being tested is not preconditioned?
 - Does the fire protection system design include provisions necessary for conducting the tests?
 - Is there a clear association between test acceptance criteria and the safety documentation?

- Does maintenance for fire protection systems satisfy system requirements and performance criteria in safety basis documents and FPP requirements?
 - Does maintenance address age-related system degradation and component aging that could affect system reliability or performance?
 - Are conditions that require component replacement identified?
 - Have systems been evaluated for potential inclusion of suspect/counterfeit parts?
 - Are maintenance source documents such as vendor manuals, NFPA codes and standards, DOE orders, and other requirements used as technical bases for development of system maintenance work packages?
 - Are vendor recommended preventive and predictive maintenance requirements for SSCs included in the inspection, testing, and maintenance program?
 - Are preventive and predictive maintenance activities adequately completed as scheduled?
 - Is the system adequately inspected periodically according to maintenance requirements and are deficient conditions evaluated and/or corrected?
 - Are acceptance criteria defined and used for system modification, repair, maintenance and test activities?
 - Are predictive maintenance results used to identify and schedule maintenance prior to SSC failure?
 - Are excessive component failure rates identified?
 - Are failure rates used in establishing priorities and schedules for maintenance or system improvement proposals?
 - Has preventive maintenance been performed as prescribed?
 - Is the corrective maintenance backlog being effectively managed?
 - Is there an accurate maintenance history that compiles maintenance, resource, and cost data in a system which is retrievable and capable of entering required-maintenance costs, actual maintenance costs, and availability data and failure rates for mission-critical and safety systems into the DOE Facility Information Management System?
3. Surveillance and test procedures confirm that key operating parameters for the overall fire protection system and its major components remain within safety basis, NFPA, and applicable consensus standards operating limits. (DOE O 420.1C, Attachment 2, Chapter II; applicable NFPA codes and standards from the site-specific contract)
- Do results of testing demonstrate that adequate safety margins are maintained?
 - Are appropriate data recording provisions included or referenced and used to record results?
 - Do fire protection test procedures include provisions for listing discrepancies?
 - Is there an effective identification and tracking system for fire protection impairments?
 - Do fire protection test procedures require timely notification to facility management on any failure or discrepancy that could impact operability?
 - Are acceptance criteria capable of confirming that safety/operability requirements are satisfied?
4. The acceptance criteria from the surveillance tests used to confirm fire protection system operability are consistent with the safety basis. (DOE O 420.1C, Attachment 2, Chapter II)
- Can parameters that demonstrate compliance with the safety basis and applicable NFPA codes and standards be measured or physically verified?

SF.8: Federal safety oversight programs are established and use a graded approach to oversight of shutdown facilities. (DOE O 226.1B)

Criteria:

1. All applicable DOE organizations must: (1) establish and implement an effective oversight program consistent with DOE P 226.1B and the requirements of this Order, and (2) maintain sufficient technical capability and knowledge of site and contractor activities to make informed decisions about hazards, risks, and resource allocation; provide work direction to contractors; and evaluate contractor performance. (DOE O 226.1B Section 4)
 - Has the site office developed an adequate plan and schedule for periodic assessments of all the different nuclear facilities within its purview?
 - Are the functions, roles, and responsibilities of facility representatives clearly defined?
 - Is site office oversight of the facilities effective in identifying and correcting deficient conditions?
 - Do site office safety system oversight personnel and/or facility representatives ensure that operations are consistent with the safety basis document?

REVIEW APPROACH

Record Review:

- Safety basis documents, system design descriptions and supporting documents (e.g., system diagrams, pipe and instrumentation drawings, calculations).
- Engineering and configuration management processes and procedures, particularly those supporting technical product development, design changes, and document control.
- Surveillance and Maintenance Plans
- Maintenance records, plans, and schedules for aging system equipment and components.
- Maintenance work backlogs and deferrals.
- Procedure and process for performing inspections of the facility, including interviews with personnel performing the inspections.
- Surveillance and/or testing procedures for SSCs and a sample of the test results.
- CSE system notebook/logs, system health reports, system assessment reports, and observations/findings from oversight activities.
- System modification, maintenance, and procurement work packages.
- Sample database records of system deficiencies, problems, engineering issues, and corrective actions.
- Previous and present federal and contractor oversight assessment plans
- Schedules of planned surveillance and assessment activities.
- Trend analysis and performance indicator reports.
- Sample of corrective actions covering deficiencies identified in assessments, daily activities and CSE reviews.
- Nuclear Maintenance Management Program Description Document
- Deactivation project plans
- Fire Protection Program Plan
- Fire Hazards Analysis
- Calculations, reports, and other supporting documentation pertaining to fire protection systems performance criteria
- Real Property Asset Management Program condition assessment surveys
- Documented Safety Analysis
- Technical Safety Requirements

Interviews:

- Cognizant System Engineer(s) who support the facility
- Surveillance and Testing Personnel
- Engineering Management
- Configuration Management Subject Matter Expert
- Fire Protection Coordinator
- Fire Protection Engineer
- Maintenance Manager
- Maintenance Personnel
- Work Control Manager
- Operations Personnel
- Real Property Asset Management Program Manager
- Facility Manager
- Facility Representative

Observations:

- Walkdown of shutdown facilities to the extent practical, and supplement with reviews of video or pictures taken during inspections.
- TSR/SSC surveillances if available
- Normal maintenance activities if available
- In-service Inspections of TSR design features if available
- Operator rounds if applicable