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NATIONAL NUCLEAR SECURITY ADMINISTRATION
NEVADA SITE OFFICE

MANUAL

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NUCLEAR FACILITY SAFETY MANAGEMENT

INITIATED BY:
Office of the Assistant Manager for Safety Programs

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1. OBJECTIVE.

   a. This Manual implements the regulatory requirements of Title 10 Code of Federal Regulations (CFR), Part 830, Subpart B, and supplements DOE O 425.1C at all nuclear and radiological facilities under the cognizance of the National Nuclear Security Administration (NNSA) Nevada Site Office (NNSA/NSO).

   b. This Manual provides requirements and processes for:

      (1) Development, submittal, independent review, and approval of Safety Basis (SB) documentation for nuclear facilities and activities.

      (2) Development of NNSA/NSO Authorization Agreements (AA) for Categories 1 and 2 nuclear facilities and/or operations.

      (3) Operational readiness to ensure that nuclear facilities, Nuclear Explosive Operations (NEO), and on-site transportation of nuclear materials will be operated safely within its approved safety envelope as defined by the SB.

      (4) An Unreviewed Safety Question (USQ) process for nuclear facilities.

2. POLICY. It is the policy of NNSA/NSO that the risks of operating nuclear facilities under the cognizance of the Manager are authorized in NNSA-approved SB documentation. SB documentation will be developed, submitted, and approved in accordance with all applicable laws, regulations, and Department of Energy (DOE) and NNSA guidance. AAs are established for Categories 1 and 2 nuclear facilities in order to specify the terms and conditions for which the contractor is authorized to perform work. Starting or restarting nuclear and radiological facilities/activities will be authorized only after readiness to operate has been verified and documented by the contractor and NNSA/NSO as indicated in this Manual. NNSA/NSO will verify safe operations within SB in accordance with applicable DOE and NNSA Directives, laws, and regulations using trained and qualified personnel. Contractor, laboratory, and DOE and NNSA readiness reviews will be conducted to ensure effective hazard controls, including appropriate administrative control programs, are in place to protect the workers, the public, and the environment. A DOE- or NNSA-approved USQ process ensures work is performed within DOE- or NNSA-approved SB and provides operational flexibility in performance of nuclear facility operations.

3. CANCELLATION. NSO M 421.X, NUCLEAR FACILITY SAFETY MANAGEMENT, dated 8-23-03.

4. APPLICABILITY.

   a. NNSA/NSO Organizational Elements. The provisions of this Manual apply to all NNSA/NSO organizational elements.

   b. Contractors. The requirements applicable to nuclear and radiological facilities operated by NNSA/NSO contractors, National Laboratories, and other user organizations of DOE or NNSA are set forth in the Contractor Requirements Document (CRD), Attachment 1. Compliance with the CRD is required to the extent set forth in a DOE or NNSA contract.

   c. Exclusions.

      (1) Subcritical Experiments (SCE) safety reviews and approval processes are covered by NSO O 450.X6. SCE operations are excluded from this Manual.

      (2) Radiological facilities are excluded from Chapter I (NNSA/NSO SB review and approval process) and Chapter III (NNSA/NSO USQ process) as defined by this Manual.

5. REQUIREMENTS.

   a. NNSA/NSO line management will ensure nuclear and radiological facilities' safety management programs (SB, AAs, readiness review, and USQ) under their cognizance are established and operated in accordance with regulatory requirements, DOE and NNSA Directives, and this implementing Manual.

   b. NNSA/NSO support organizations will ensure their functional managers and subject matter experts are technically qualified under the NNSA/NSO Technical Qualification Program and available to provide support to nuclear facilities in accordance with regulatory requirements and this implementing Manual.

   c. NNSA/NSO line management, as delegated, will review and approve SB documentation, which includes AAs, Documented Safety Analysis (DSA)

(preliminary and final), Technical Safety Requirements (TSR), and positive USQ Determinations (USQD). Evaluation of SB documentation adequacy and approval will be in the form of a Safety Evaluation Report (SER).

d. AAs will be established and maintained by NNSA/NSO for Categories1 and 2 hazard nuclear facilities and operations conducted within a defined facility or site boundary, and signed by the Manager and the designated representatives of the contractor/user organizations that are parties to the agreement.

e. An AA will reference the SB documents and SER applicable to the facility/operation, systems, and controls to govern the work, and the documented basis of NNSA/NSO's determination that the contractor/user organization authorized to operate meets established requirements.

f. NNSA/NSO AAs will contain information and signatures as specified in Attachment 2. Changes to the AAs will be by modification to the agreement and signed by the parties to the original agreement. The designation of specific personnel to be assigned to positions identified in AAs will be documented.

6. RESPONSIBILITIES.

a. Manager.

(1) Approves nuclear facility SB documentation as delegated by DOE or NNSA. When approval authority is not delegated, the Manager and staff serve in a support role to Department processes. This documentation includes:

(a) Nuclear and radiological facility hazard categorization level performed per DOE-STD-1027-92 pursuant to DOE M 411.1-1C.

(b) DSA pursuant to 10 CFR 830.202(c)(2), Preliminary DSA (PDSA) pursuant to 10 CFR 830.206(b)(2), nuclear facility safety design criteria pursuant to 10 CFR 830.206(b)(1), and NNSA/NSO-issued SERs for nuclear facilities.

(c) TSRs pursuant to 10 CFR 830.205(a)(2) for nuclear facilities.

(d) AAs for Categories 1 and 2 nuclear facilities pursuant to DOE M 411.1-1C.

(2) Approves startup and restart of nuclear facilities pursuant to DOE O 425.1C, as delegated by DOE or NNSA. This also includes Plans of Action (POA) for both contractor and NNSA/NSO readiness reviews. When approval authority is not delegated, the Manager and staff serve in a support role to Department processes.

(3) Approves startup of new radiological facilities where deemed appropriate.

(4) Appoints SB Review Team (SBRT) and Readiness Review Team (RRT) leaders and members as recommended by the Office of the Assistant Manager for Safety Programs (AMSP).

(5) Approves contractor USQ procedures pursuant to 10 CFR 830.203.

(6) Approves contractor positive USQDs pursuant to 10 CFR 203(e) and 203(g)(4).

(7) Concurs and transmits to DOE or NNSA nuclear facility alternative safety analysis methodology pursuant to 10 CFR 830.204(a).

b. Assistant Managers for National Security (AMNS) and Environmental Management (AMEM).

(1) Ensure line management requirements described in Section 5 of this Manual are met.

(2) Receive and coordinate with AMSP the review of nuclear or radiological facility hazard categorization and forward to the Manager for approval.

(3) Establish in coordination with AMSP SBRTs for review of nuclear facilities SB documentation (DSA and TSR or PDSA/nuclear safety design criteria). Forward SBRT appointment and SBRT review plan to the Manager for approval.

(4) Ensure documents submitted to the SBRT for review meet in-process review requirements as defined by SBRT review plans.

(5) Develop with AMSP and facility management AAs for Categories 1 and 2 nuclear facilities. Forward AAs for Manager’s approval.

(6) Develop NNSA/NSO POAs for readiness reviews to be conducted at facilities under their cognizance (see Table 1). Submit to AMSP for review and concurrence and subsequent Manager's approval.

(7) Ensure, through contractual mechanisms, development and implementation of contractor POA for readiness reviews to be conducted at facilities under their cognizance (see Table 1). Coordinate POA review with AMSP and recommend Manager's approval.

(8) Coordinate reviews of Startup/Restart Notification Reports (SNR) with AMSP for pending readiness reviews and forward to the Manager for approval. Transmit a copy of the SNRs to the contractor and a copy to DOE Headquarters or NNSA Headquarters Program Senior Official (PSO), Lead PSO, and Deputy Assistant Secretary for Corporate Safety and Assurance for information or for approval for those items for which the PSO is the approval authority.

(9) Ensure timely closure of DOE and NNSA readiness review findings.

(10) Receive and coordinate with AMSP the review of nuclear facility USQ procedures or proposed changes to DOE- and NNSA-approved procedures. Forward USQ procedure to the Manager for approval.

(11) Receive and coordinate with AMSP the review of nuclear facility annual USQD reports pursuant to 10 CFR 830.203(f).

(12) Receive and coordinate with AMSP the review of positive USQDs. Forward the positive USQD and subsequent NNSA/NSO evaluation for Manager's approval.

(13) Receive and coordinate with AMSP and NNSA/NSO Price-Anderson Amendment Act (PAAA) coordinator, the review of proposed nuclear facility exemptions to 10 CFR 830, Subpart B. Forward exemptions to DOE Headquarters or NNSA Headquarters as appropriate with Manager's concurrence.

(14) Receive and coordinate with AMSP the review of proposed nuclear facility alternative safety analysis methodology. Forward proposed methodology to DOE Headquarters or NNSA Headquarters as appropriate with Manager's concurrence.

(15) Consistent with DOE or NNSA oversight policy, conduct validations of nuclear facility safety management programs for SB documentation, USQ process, and readiness review activities to ensure effective implementation.

c. Assistant Manager for Safety Programs.

(1) Ensures support requirements described in Section 5 of this Manual are met.

(2) Provides independent evaluation and recommendation(s) to NNSA/NSO line management on the adequacy of nuclear and radiological facilities' safety management programs inclusive of SB documentation, readiness review, and USQ processes.

(3) Provides guidance and technical support to NNSA/NSO line management (AMNS and AMEM) for SB review, readiness reviews, and USQ process. This support includes but is not limited to:

(a) Technical review of facility hazard categorization.

(b) Recommending SBRT members for the independent technical review of SB documentation.

(c) Providing SBRT Leaders and team member candidates for Manager's approval. Provide senior technical advisors to the SBRT as required.

(d) Technical review of proposed AAs.

(e) Supporting line organizations in the development of POAs.

(f) Recommending RRT members for the independent technical review of facility readiness.

(g) Providing RRT Team Leaders and team member candidates for Manager's approval. Provide senior technical advisors to the RRT as required.

(h) Providing support to line organizations for closure of readiness review findings.

(i) Evaluating new USQ procedures and proposed changes to NNSA/NSO-approved procedures.

(j) Reviewing nuclear facility positive USQDs.

(k) Reviewing nuclear facility annual USQD reports.

(l) Assessing the technical adequacy of proposed nuclear facility alternative safety analysis methodology.

(4) Ensures the adequacy of the SB process and readiness review process through concurrence on SERs and review of RRT reports.

(5) Manages lessons learned from readiness reviews and SB documentation reviews to ensure they will be integrated into current and future processes.

(6) Reviews SNRs in coordination with AMNS and/or AMEM.

7. REFERENCES.

a. DOE O 226.1, IMPLEMENTATION OF DEPARTMENT OF ENERGY OVERSIGHT POLICY, dated 9-15-05.

b. DOE M 411.1-1C, SAFETY MANAGEMENT FUNCTIONS, RESPONSIBILITIES, AND AUTHORITIES MANUAL, dated 12-31-03.

c. DOE O 414.1C, QUALITY ASSURANCE, dated 6-17-05.

d. DOE O 420.1B, FACILITY SAFETY, dated 12-22-05.

e. DOE O 425.1C, STARTUP AND RESTART OF NUCLEAR FACILITIES, dated 3-13-03.

f. DOE M 440.1-1A, DOE EXPLOSIVES SAFETY MANUAL, dated 1-9-06.

g. DOE P 450.4, SAFETY MANAGEMENT SYSTEM POLICY, dated 10-15-96.

h. DOE G 450.4-1B, INTEGRATED SAFETY MANAGEMENT SYSTEM GUIDE FOR USE WITH SAFETY MANAGEMENT SYSTEM POLICIES, dated 3-1-01.

i. NSO M 111.XE, FUNCTIONS, RESPONSIBILITIES, AND AUTHORITIES MANUAL, dated 5-27-05.

j. NV O 151.1, COMPREHENSIVE EMERGENCY MANAGEMENT SYSTEM, dated 12-26-00.

k. NV M 220.XC, NNSA/NSO OVERSIGHT MANAGEMENT SYSTEM, dated 12-16-03.

l. NSO O 231.X, OCCURRENCE REPORTING AND PROCESSING OF OPERATIONS INFORMATION, dated 5-07-04.

m. NV M 412.X1C, REAL ESTATE/OPERATIONS PERMIT, dated 10-10-02, and Changes thereto.

n. NSO M 450.3X-1D, WORK SMART STANDARDS MANUAL, dated 9-21-05.

o. NV P 450.4B, SAFETY MANAGEMENT SYSTEM POLICY, dated 8-24-00.

p. NV O 450.4, SAFETY MANAGEMENT SYSTEM MAINTENANCE, dated 8-22-00.

q. NSO M 450.X2, UNDERGROUND NUCLEAR TESTING, TEST READINESS, AND THRESHOLD TEST BAN TREATY VERIFICATION, dated 5-19-04.

r. NSO O 450.X6, SUBCRITICAL EXPERIMENTS SAFETY PROGRAM, dated 8-20-03.

s. NSO O 452.1C, NUCLEAR EXPLOSIVE AND WEAPON SURETY PROGRAM, dated 1-11-05.

t. NV O 452.2B, SAFETY OF NUCLEAR EXPLOSIVE OPERATIONS, dated 4-18-02.

u. 10 CFR 830, *Nuclear Safety Management*, Subpart B, *Safety Basis Requirements*.

v. 10 CFR 835, *Occupational Radiation Protection*.

w. 48 CFR 970.5204-2, *Laws, Regulations, and DOE Directives*.

x. DOE Acquisition Regulation (DEAR) 970.5204-2, *Laws, Regulations, and DOE Directives*.

y. DEAR 970.5223-1, *Integration of Environment, Safety, and Health Into Work Planning and Execution*.

z. DOE-STD-1027-92 Change Notice 1, *Hazard Categorization and Accident Analysis Techniques for Compliance With DOE Order 5480.23, NUCLEAR SAFETY ANALYSIS REPORTS*.

aa. DOE-STD-1104-96 Change Notice 1, *Review and Approval of Nuclear Facility Safety Basis Documents (Documented Safety Analysis and Technical Safety Requirements)*.

bb. DOE-STD-3006-2000, *Planning and Conduct of Operational Readiness Reviews*.

cc. DOE-STD-3009-94, *Preparation Guide for U.S. Department of Energy Nonreactor Nuclear Facility Safety Analysis Reports*.

dd. DOE-STD-3011-2002, *Guidance for Preparation of Basis for Interim Operations (BIO) Documents*.

ee. DOE-HDBK-3012-2003, *Guide to Good Practices for Operational Readiness Reviews (ORR), Team Leaders Guide*.

ff. DOE-STD-3015-2004, *Nuclear Explosive Safety Evaluation Process*.

8. DEFINITIONS.

a. Authorization Agreements. An documented agreement between NNSA/NSO and the contractors and/or user organizations for Categories 1 and 2 nuclear facilities and operations as determined by the Manager in accordance with DOE-STD-1027-92 Change Notice 1.

b. Basis for Interim Operations (BIO). The documented establishment of an SB for current facility operations and operational controls until more detailed

documentation fully compliant with 10 CFR 830 is developed and approved by DOE or NNSA. An approved BIO for a specified time period serves as the interim DOE or NNSA SB until the upgraded safety documentation is developed and approved. BIOs are typically prepared per the guidance in DOE-STD-3011-2002.

c. Facility. Buildings and other structures, their functional systems and equipment, and other fixed systems and equipment installed therein, including site development features outside the plant such as landscaping, roads, walks, parking areas, outside lighting, and communications systems.

d. Facility/Operations Manager. An individual designated by the management of a contractor, National Laboratory, other federal agency, or user organization to control overall operations and safety of personnel within a defined facility/site boundary.

e. Hazardous Material. Any material that is toxic, explosive, flammable, corrosive, or otherwise physically or biologically threatening to health.

f. Justification for Continued Operations (JCO). A JCO provides a formal means for a contractor to obtain DOE or NNSA approval for operation of a facility on a temporary or interim basis when the current authorization requirements cannot be fully met. JCOs may modify the existing SB documentation during periods of approval. However, any long-term operations should require a permanent change to the SB documentation. Needs for JCOs are established on a case-by-case basis and for extraordinary situations.

g. Radiological Facility.

(1) A facility that does not meet or exceed the Hazard Category 3 threshold quantity values published in DOE-STD-1027-92, but still contains some quantity of radioactive materials.

(2) For the purposes of this Manual, radiological facilities are included in the definition of a nuclear facility in 10 CFR 830, however, the radiological facility SB is authorized in the manner required for the nonnuclear facilities. SB requirements of 10 CFR 830, Subpart B, do not apply to radiological facilities. The quality requirements of 10 CFR 830, Subpart A, and requirements of 10 CFR 835, “Occupational Radiation Protection,” apply to radiological facilities and are enforced under the PAAA.

h. Readiness Review. A disciplined, systematic, documented, performance-based process to ensure a facility/activity will be operated safely within its approved SB. This is a generic term that encompasses Operational Readiness Reviews (ORR) and Readiness Assessments (RA).

i. Safety Analysis. A documented process to:

(1) Provide systematic identification of hazards within a given operation.

(2) Describe and analyze the adequacy of measures taken to eliminate, control, or mitigate identified hazards.

(3) Analyze and evaluate potential accidents and their associated risks.

j. Significant Modifications. Changes to facilities, systems, components, and/or operations that have a potential for:

(1) Increasing risk from a hazard beyond that previously analyzed and reviewed.

(2) Reducing the reliability of any item for which credit has been taken for reduction or control of a hazard.

(3) Introducing a new hazard, application of new regulations, or receipt of new information indicating an increased hazard associated with an existing operation. The restart authority determines if the modifications are significant based on the impact of the changes on the SB and the extent and complexity of changes; this would not necessarily be determined by the USQ process.

k. USQ Determination. A documented evaluation that involves a potentially positive USQ performed pursuant to 10 CFR 830.203(d), (f), and (g) to record the scope and logic for determining whether or not a USQ exists.

l. Work Scope. A specific documented scope of work, as mutually agreed to by NNSA/NSO and the performing organization, which is formally authorized by NNSA/NSO.

9. CONTACT. Questions concerning this Manual should be directed to AMSP at (702) 295-0892.

NNSA Jay H. Norman
Acting Manager

CHAPTER I

SB REVIEW AND APPROVAL

1. OBJECTIVE. This chapter describes the NNSA/NSO processes and expectations for providing oversight, review, and approval of SB documentation for nuclear facilities/operations. The intent of this Manual is to ensure adequate independent safety evaluations are conducted on SB documentation. For the purposes of this Manual, SB documentation are inclusive of (but are not limited to): DSA, PDSA, TSR, BIO, and JCOs submitted by DOE or NNSA contractors to NNSA/NSO for approval. Nuclear facility SB documents submitted for review and approval will include the appropriate level of rigor and consistency and meet the requirements of 10 CFR 830, Subpart B. When documenting an SER on nuclear facilities, this Manual supplements and adopts DOE-STD-1104-96 as a guide. Where differences exist, this Manual takes precedence over DOE-STD-1104-96.

2. RESPONSIBILITIES.

   a. SBRT Leader.

      (1) Leads independent technical reviews of contractor-submitted SB documentation for nuclear and NEOs as appointed by the Manager.

      (2) Prepares the SBRT review plan and schedule for approval by the Manager.

      (3) Assembles qualified SBRT members.

      (4) Through the SBRT review plan and team review, provides an independent assessment of the technical adequacy of the SB documentation.

      (5) Prepares, obtains team concurrence, and submits the final SER and conditions of approval to the Manager.

   b. SBRT Members.

      (1) Support the assigned SB documentation reviews and SBRT review plan.

      (2) Provide technical comments on SB documents.

(3) Support the timely resolution of technical comments by the contractor.

(4) Concur or nonconcur with SER. Minority opinions will be issued to provide the basis for SER nonconcurrence.

3. SBRT PROCESS.

a. General. The SB documents for a nuclear facility or operation are developed by the responsible DOE or NNSA contractor or laboratory. After the subset of SB documents that constitute the DSA and TSR are formally submitted to NNSA/NSO for approval, NNSA/NSO line management in consultation with the AMSP, determines the type of review that will be required. In support of the review, an independent SBRT is established to review the adequacy of DSA documentation. The purpose of the SBRT review is to provide the Manager the SER and conditions of approval to make a determination that a nuclear facility or operation presents no undue risk to the worker, public, or the environment. Figure 1 shows the general process flow for the various SB reviews conducted by the SBRT.

b. SB Review Process.

(1) SBRT Leader Appointed. NNSA/NSO line management (AMNS and AMEM) determines when an SBRT should be convened. When it is determined that an SBRT is to be convened, the Manager appoints an SBRT Leader. The SBRT Leader identifies team members and coordinates to ensure technical resources are made available. The Team Leader will conduct planning of schedules to ensure deliverables are met. The NNSA/NSO line management and the SBRT Leader will plan SBRT activities such that there is minimal impact to facility or process specific schedules and sufficient review time is allotted for SB reviews.

(2) SBRT Established. Team members can be representatives from within NNSA/NSO, DOE and NNSA and their other Field Organizations, or other DOE or NNSA contractors or subcontractors. Examples of expertise that may be required are fire protection, engineering, criticality analysis, explosives, SB requirements, lightning analysis, and radiation protection.

(3) SBRT Review Plan Developed. The SBRT Leader will prepare a review plan to assess the technical adequacy of the proposed SB documentation using the appropriate requirements. In developing the plan, the guidance provided in DOE-STD-1104-96 will be used. The review plan will be

signed by the SBRT Leader, concurred with by AMSP, and approved by the Manager or delegated to cognizant line management (AMNS or AMEM).

(4) Executing the SBRT Review Plan.

- In-Process Reviews. Where possible, in order to maximize efficiency, the SBRT will conduct reviews of SB documentation as it is being developed. These reviews provide the contractor or NNSA/NSO Project Teams (PT) with high level comments regarding the adequacy of the analysis. These in-process SBRT reviews should take place at various intervals of document completion as specified by the SBRT review plan. Line management will ensure the documents submitted to the SBRT meet the expectations for the incremental in-process reviews. In each incremental review, a formal comment and resolution process will be used and documented. An example of what may be expected for an in-process facility DSA review is as follows:

  - Thirty percent review will be accomplished when:

    -- Hazards Analysis (HA) raw tables are completed.

    -- Chapters 1 and 2 of the DSA are completed.

    -- Chapter 3 sections on HA, defense-in-depth, and worker safety are in draft form.

    -- Safety significant Structures, Systems, and Components (SSC) are proposed as appropriate.

    -- Candidate accidents for accident analysis are proposed.

  - Seventy percent review will be accomplished when:

    -- Chapter 3 accident analysis is completed for review.

    -- Programmatic chapters in rough draft.

    -- Safety Class SSCs proposed, if applicable.

-- Potential functional requirements proposed.

-- Chapters 4 and 5 are in draft form.

-- TSRs are in draft form.

-- Fire Hazards Analysis is complete.

-- Comments from the initial review are addressed.

- Ninety percent review when:

  -- The document includes all the review teams' input; it is referred to as the 90 percent draft review. All chapters of the DSA are ready for technical review.

- Review teams should attempt to follow the above process for their particular program or facility and type of review, and use the basic framework so that the authorization authority, program managers, contractor facility managers, and contractors' PTs can benefit from the results of in-process reviews. However, it would also be acceptable for the SBRT to modify the process to better reflect the needs of a particular review. The specifics of the review for the particular facility or process will be documented in the SBRT review plan.

- During these in-process reviews, the SBRT may interact with the facility contractor or also with the contractor PT. However, the SBRT Leader is the focal point for all formal communications between the SBRT and NNSA/NSO line management organization.

  -- The SBRT will perform a comprehensive review of final SB documentation only after formal submittal by the NNSA/NSO line management organization. The final review will consider the extent to which the DSA adequately addresses the criteria set forth in 10 CFR 830.202 and 10 CFR 830.204, and

satisfies the provisions of the methodology used to prepare the DSA as discussed in DOE-STD-1104-96. The evaluation will address the following approval bases:

--- Base information.

--- Hazard and accident analyses.

--- Safety SSCs.

--- Derivation of TSRs.

--- Safety management program characteristics.

-- Specifically the review should include:

--- Reviewing the technical adequacy of the safety analysis methodology and results using technical judgment, applicable technical support documentation, and walkdowns of the facility and operations.

--- Reviewing the adequacy of safety analysis by reviewing the assumptions used, ensuring all hazards relevant scenarios and controls are identified, and reasonable and conservative likelihood of occurrence estimates have been applied to unmitigated accident scenarios.

--- Reviewing the proposed controls for the prevention or mitigation of potential accident scenarios and the designation of their importance to safety.

(5) Issue the SER.

(a) The SBRT issues the SER to present the results of the review to the Manager. Preparation of the SER should include:

1 The SER content described in DOE-STD-1104-96 for nuclear facilities.

2 Categorization of SBRT findings based on significance to safety, to clearly distinguish those that are considered as conditions of approval.

(b) The SBRT provides the SER and any associated conditions of approval to the Manager as follows:

1 The SBRT will provide a copy of SER to AMSP for review and concurrence.

2 The Manager will formally document approval of the DSA and associated TSRs for those facilities/activities under her/his cognizance in a letter to the operating contractor or laboratory and/or PT.

3 AMSP will maintain records of the SER and approval correspondence from the authorization authority.

(6) Review of SB Documentation Updates, BIOs, JCOs, and USQDs. SBRTs may be formed to perform reviews of SB documentation updates, BIOS, JCOs, or positive USQDs. This process is expected to follow the administrative protocols used for the review and approval of SB documentation.

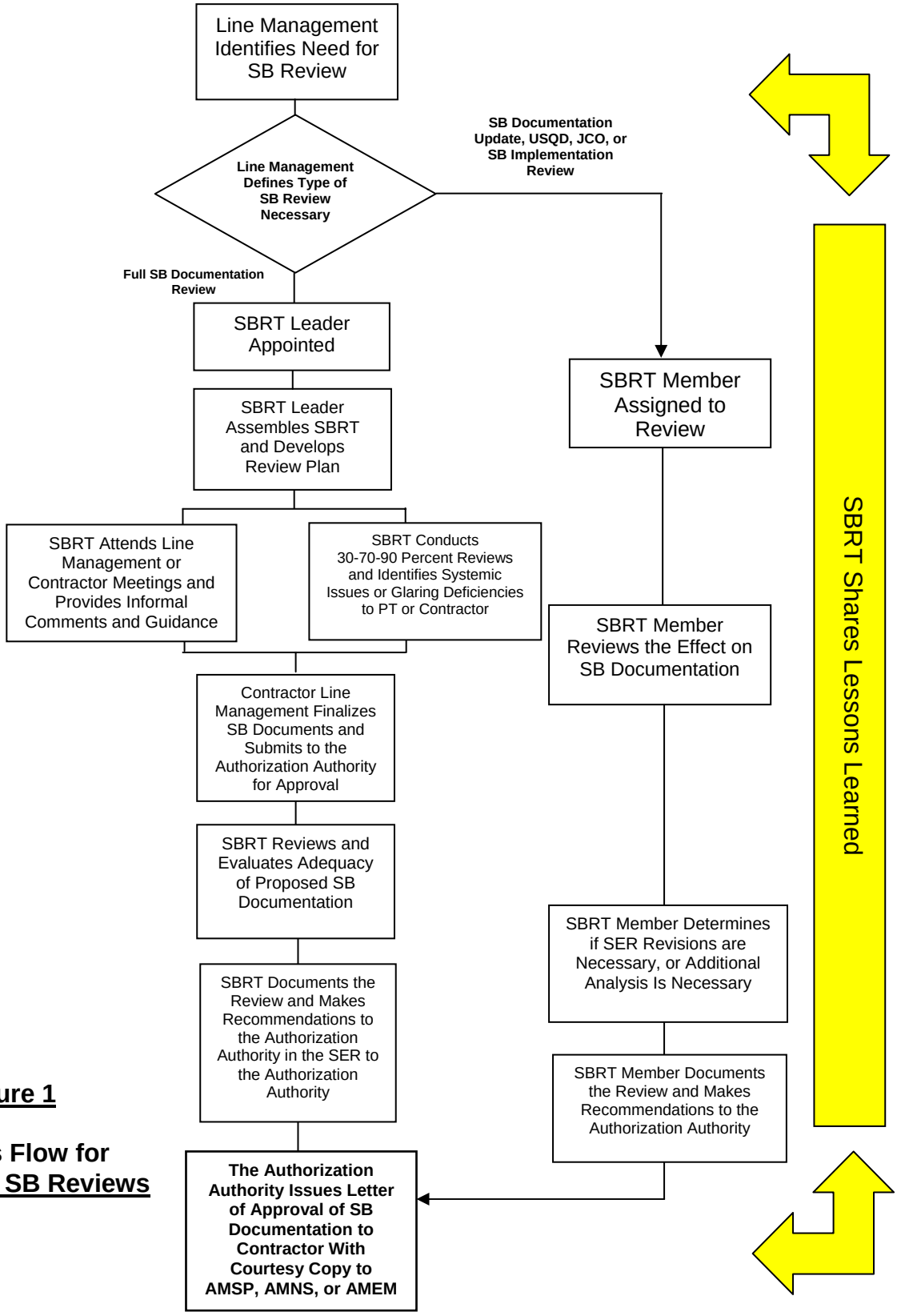

Figure 1

Process Flow for NNSA/NSO SB Reviews

CHAPTER II

READINESS REVIEW

1. PURPOSE.

   a. This section is a supplement to DOE O 425.1C. DOE O 425.1C provides requirements for Hazard Categories 1, 2, and 3 nuclear facilities. It does not change any of the Order's requirements, but it does establish supplemental requirements for:

      (1) RAs for restart of Hazard Category 3 nuclear facilities/activities.

      (2) Conducting RAs for startup or restart of NEOs.

      (3) SNR content and format for the startup/restart of all nuclear facilities/ activities as defined in Table 1.

   b. It sets forth policy and objectives, and delineates responsibilities and authorities for determining readiness to restart nuclear facilities/activities.

2. SCOPE. This Manual supplements DOE O 425.1C. The main focus of this Manual is to add supplemental requirements for conducting RAs for startup and/or restart of Hazard Categories 2 and 3 nuclear facilities/activities and to define how NNSA/NSO implements the existing requirements specified in DOE O 425.1C.

3. APPLICABILITY. This Manual applies to all offices and elements of NNSA/NSO, and all other personnel involved in the readiness review process for startup or restart of DOE and NNSA nuclear facilities under the cognizance of NNSA/NSO.

4. RESPONSIBILITIES. Roles and responsibilities for planning and implementing reviews involving ORRs and RAs are delineated in DOE O 425.1C, DOE-STD-3006-2000, and DOE-HDBK-3012-2003. The same roles and responsibilities identified for the Manager are extended to the RA process for Hazard Category 3 nuclear facilities/activities. Additional responsibilities are described in the following:

- NNSA/NSO RRT Leader.

  - Develops an implementation plan in conjunction with the RRT Members.

  - Conducts readiness review activities in accordance with DOE O 425.1C, this Manual, and applicable procedures using DOE-STD-3006-2000 and DOE-HDBK-3012-2003, as appropriate.

  - Conducts and documents the results of the readiness review.

  - Works with the Authorization Authority, the applicable Line Manager, and the NNSA/NSO Readiness Review Program Manager concerning any conflict resolution that may arise during the readiness review that would have an adverse impact on the outcome or continuation of the readiness review.

  - Recommends to the Authorization Authority readiness to startup or restart the applicable facility/activity. AMSP and the applicable Line Manager will be informed of the outcome.

  - Conducts lessons learned meetings when deemed appropriate.

5. GENERAL. It is NNSA/NSO policy that starting or restarting nuclear facilities/ activities will be authorized only after readiness to operate has been verified and documented. Verifications will, in all cases, demonstrate safe operation within the SB in accordance with applicable DOE and NNSA Directives, laws, and regulations using trained and qualified personnel. This is accomplished by a contractor line management evaluation (or other similar process defined in the contractor procedures) and by contractor independent confirmation of readiness (i.e., a contractor Readiness Review). Contractor line management is responsible for establishing and declaring readiness and utilizing appropriate tools in accomplishing these goals. DOE and NNSA independent confirmation of readiness is also required when a DOE or NNSA official is the Authorization Authority for startup or restart of a nuclear and radiological facility/activity.

6. REQUIREMENTS.

   a. In accordance with DOE O 425.1C, there are two types of review processes for verifying readiness to startup or restart facilities/activities:

(1) Operational Readiness Reviews.

(2) Readiness Assessments.

b. These processes vary in applicability and approach, and the process required depends on the nature and magnitude of the hazards of the facility/activity and the requirements of DOE O 425.1C.

c. Criteria to be used for determining the appropriate readiness review process for nuclear facilities/activities are delineated in DOE O 425.1C (Reference: NNSA Memorandum, L. Brooks to Distribution, Clarification of Roles and Responsibilities in Critical Functional Area, dated 1-2-03). NNSA/NSO further extends the requirements in DOE O 425.1C, Section 4a (as it applies to Hazard Category 2 nuclear facilities/activities), to the restart of Hazard Category 3 nuclear facilities/activities. See Table 1 below:

Table 1. Authorization Authority for Startup/Restart Readiness Reviews

Hazard Category		New Facility	Basis for Shutdown			
			DOE or NNSA Directed	Extended Shutdown*	Significant Modifications	Operation Outside SB
Category 1 Nuclear Facility	Authorization Authority	S-1 or Designee	Shutdown Official	*Six Months Cognizant Secretarial Officer (CSO)	CSO	SB Approval Authority
	Review Type[1]	ORR	ORR	ORR	ORR	ORR
Category 2 Nuclear Facility	Authorization Authority	S-1 or Designee	Shutdown Official	*12 Months CSO or Designee	CSO	SB Approval Authority
	Review Type[1]	ORR	ORR or RA	ORR or RA	ORR or RA	ORR or RA
Category 3 Nuclear Facility	Authorization Authority	S-1 or Designee	Shutdown Official	*12 Months Manager	Manager	SB Approval Authority
	Review Type[1]	ORR	ORR or RA	RA	RA	ORR
Radiological Facility	Authorization Authority	NNSA/NSO or Contractor	Shutdown Official	*12 Months NNSA/NSO Project Manager	Start-Up Authority	SB Approval Authority
	Review Type[1]	RA	RA	RA	RA	RA
NEO[2]	Authorization Authority	NNSA/NSO	NNSA/NSO	*12 Months NNSA/NSO	NNSA/NSO	NNSA/NSO
	Review Type[1]	RA	RA	RA	RA	RA

[1] Contractor and Federal.

[2] Conducted at the direction of the Manager and does not cover the facility.

d. NNSA/NSO requires the contractor to formally certify to NNSA/NSO line management that the facility/activity is ready to startup or restart. This certification is supported by the contractor readiness review.

e. Startup/Restart Notification Reports.

(1) An SNR for startup/restart of Hazard Categories 1, 2, and 3 nuclear facilities/activities will be issued by the contractor to the NNSA/NSO line organization in accordance with DOE O 425.1C, paragraph 4a(4). The SNR will be provided by the NNSA/NSO line organization to AMSP for review and Manager's approval.

(2) SNRs will be provided to the responsible NNSA/NSO organization on a quarterly basis and updated if a change has been made to the readiness review schedule or review type.

(3) The actions, reviews, and approvals for the SNR delineated in this section should be accomplished within ten working days of receipt of the SNR by the NNSA/NSO line organization.

f. A graded approach to RAs described in this Manual may be used based on hazard category and type of start/restart. Regardless of the level of the graded approach, the formality and documentation will be as described in this Manual or the applicable contractor procedures.

g. DOE or NNSA RA and Nuclear Explosive Safety Study (NESS) Coordination. When a NESS is conducted for a specific NEO, the need for a RA of the NEO and associated facility will be determined on a case-by-case basis by NNSA/NSO management. If the RA is deemed necessary, then the following NESS RA coordination protocols should be followed:

(1) The DOE or NNSA RA (if required) and NESS, where possible, should be conducted in the same time frame for specific NEOs. The DOE or NNSA RA Team Leader will manage the review in accordance with the geographic and technical scope defined in the DOE or NNSA POA. The NESS Group (NESSG) Chairperson should manage the scope of the study to adequately cover the proposed NEO in accordance with NV O 452.2B.

(2) The DOE or NNSA RA Team Leader and NESSG Chairperson should manage their respective reviews in coordination to the extent practicable relative to the following:

(a) Ensure any issues or concerns identified by one review team that could potentially impact the other review team are effectively communicated and follow-up action assigned.

(b) Ensure the effective utilization of contractor support resources for needed review team briefings, performance-based demonstrations, and needed documentation.

(c) Ensure findings (pre-start and post-start) are communicated between the DOE or NNSA RA Team Leader and NESSG Chairperson during the course of the reviews.

h. Lessons Learned. AMSP should have a lessons learned meeting following each review (after the review report has been signed and the Authorization Authority has been briefed). The minutes of the meeting will be kept as part of the review file and the lessons learned documented on the AMSP lessons learned database. This lessons learned meeting and the minutes of the meeting would be in addition to the lessons learned section of the readiness review report.

i. Training and Qualification for DOE and NNSA RRT Leaders. DOE and NNSA RRT Leaders will meet the training, qualifications, and certification prescribed in the NNSA/NSO ORR Team Leaders Qualification Standard, dated April 2002.

CHAPTER III

USQ PROCESS

1. PURPOSE. This chapter provides pertinent information regarding the NNSA/NSO oversight of the USQ process.

2. USQ PROCESS.

   a. USQ Process Review.

      (1) The USQ processes are developed by each organization (contractor and/or laboratory) responsible for the operation of NNSA/NSO Categories 1, 2, or 3 nuclear facilities, with input as necessary from other organizations. After the documents (process or procedure) that define the USQ processes are developed and formally submitted to the NNSA/NSO for approval, AMSP will assign a team to review the contractors' or laboratories' process.

      (2) AMSP will periodically conduct validation assessments of contractors' or the laboratories' DOE- or NNSA-approved USQ process in accordance with DOE or NNSA policy.

      (3) AMSP will review any changes to the contractors' or the laboratories' USQ process in support of NNSA/NSO line management.

   b. Positive USQD Review and Approval for Categories 1, 2, and 3 Nuclear Facilities. Upon receipt of a positive USQD and proposed actions submitted by the contractor for NNSA/NSO approval, AMSP in consultation with DOE or NNSA line management will determine the rigor of the review process required and assign appropriate resources to perform the review. The review and approval process are prescribed in Chapter I of this Manual.

CONTRACTOR REQUIREMENTS DOCUMENT

Contractors, National Laboratories, other federal agencies, and other site users must:

1. Use DOE-STD-1027-92 Change Notice 1, *Hazard Categorization and Accident Analysis Techniques for Compliance With DOE O 5480.23, NUCLEAR SAFETY ANALYSIS REPORTS*, to categorize facilities that use or will use radioactive materials.

2. All facilities must be categorized using the steps in Table 1.

Table 1

Step 1	Define facility boundaries and identify facility activities.
Step 2	Identify hazards associated with facility activities.
Step 3	Determine facility categorization.

   a. Step 1: Define Facility Boundaries and Identify Facility Activities. The scope and boundaries of the facility must be clearly defined, and the activities conducted in the facility must be clearly identified. The level of detail must depend on the complexity of the work and hazards, but in all cases, it must contain the detail required to categorize the facility. Affected secondary Real Estate/Operations Permit (REOP) holders must be involved in determining the facility boundary and in identifying activities and hazards.

   b. Step 2: Identify Hazards Associated With the Activities of a Facility. The hazards associated with facility activities must be clearly identified. The level of detail for this step must again depend on the complexity of the work and the hazards, but in all cases, it must contain the detail required to categorize the facility.

   c. Step 3: Determine Facility Categorization. Categorization must be determined using DOE-STD-1027-92 for nuclear facilities. Facility categorization must be documented in a technical and justifiable manner. The documentation must provide the technical justification that forms the basis of the hazard category. Documentation for initial categorization, and any changes in category, must be transmitted to the National Nuclear Security Administration (NNSA) Nevada Site Office (NNSA/NSO) for approval.

3. Submit documentation to support categorizing nuclear facility/activity as Hazard Categories 1, 2, or 3 nuclear facility to the cognizant NNSA/NSO line organization.

4. Submit proposed Safety Basis (SB) documentation for nuclear facilities to the NNSA/NSO line organization for NNSA/NSO review.

5. Ensure SB documentation is reviewed annually and revised if necessary. Formal communication of a review with no required changes will be submitted to the cognizant NNSA/NSO line organization. Changes to NNSA/NSO-approved SB documents will require re-approval by the NNSA/NSO management chain that approved them initially.

6. Prepare and implement procedures that comply with DOE O 425.1C, STARTUP AND RESTART OF NUCLEAR FACILITIES, this Manual, and ensure these procedures use, through extraction or reference, the guidance provided in DOE-STD-3006-2000, *Planning and Conduct of Operational Readiness Reviews*.

7. Prepare and submit to NNSA/NSO; Startup/Restart Notification Reports of pending readiness reviews in accordance with DOE O 425.1C and this Manual.

8. Prepare and submit to NNSA/NSO for approval, the contractor Plan of Action and Declaration of Readiness for which the Department of Energy or NNSA is the Authorization Authority.

9. Ensure facility/activity readiness is achieved prior to directing the start of any readiness review.

10. Ensure personnel conducting readiness reviews are qualified as required by DOE O 425.1C and as described in the contractor readiness review program.

11. Contractors, National Laboratories, other federal agencies, and other user/organizations must:

    a. Participate in the development and approval of (signed) Authorization Agreements (AA) when NNSA/NSO facilities or operations are classified Hazard Categories 1 or 2 nonreactor nuclear facilities as determined by the NNSA/NSO Manager to warrant preparation and execution of a specific AA.

    b. Designate facilities or operations requiring NNSA/NSO AA.

c. Include a reference or list of signed AAs in their Integrated Safety Management System description.

d. Conduct facility/operations in accordance with the requirements of Department of Energy Acquisition Regulation (DEAR) 970.5223-1, *Integration of Environment, Safety, and Health Into Work Planning and Execution*, and DEAR 970.5204-2, *Laws, Regulations, and DOE Directives*, when the contract includes the clauses.

e. Designate individuals to serve in the capacity of Facility/Operations Manager and must obtain NNSA/NSO Manager's approval in writing prior to the organization authorizing the individual to control the facility/operations.

AUTHORIZATION AGREEMENT (AA) FORMAT

1. SCOPE OF THE AGREEMENT. This section will describe the work being authorized and the facility/operations boundaries within which the work is to be performed. This will be consistent with the work analyzed in the Authorization Basis (AB) and the controls established.

2. PARTICIPANT ROLES AND RESPONSIBILITIES. This section will identify the respective general roles and responsibilities of the organizations involved in the conduct of the scope of work authorized. Latitude is expressly provided to developers of AAs regarding the definition of appropriate facility or operations specific phases, the five core functions of the Integrated Safety Management System, or other unique phases. Flexibility is expressly provided to developers of AAs regarding the definition of roles and responsibilities.

3. NATIONAL NUCLEAR SECURITY ADMINISTRATION (NNSA) NEVADA SITE OFFICE (NNSA/NSO) BASIS FOR APPROVAL. This section will include the basis for NNSA/NSO approval to perform the work and the basis for its conclusion that the work defined in the agreement can be performed without undue risk to the worker, the public, and the environment. This will include the key AB documents, reviews, and assessments that form the basis of NNSA/NSO approval. Typical examples of AB documents, standards, permits, readiness assessment/reviews, and other documents include:

   a. Department of Energy (DOE), NNSA, and NNSA/NSO Environmental Impact Statement, supplemental analysis, and Record of Decision.

   b. NNSA/NSO Environmental Assessment.

   c. NNSA/NSO Finding of No Significant Impact.

   d. Environmental Permits, consent Orders, etc.

   e. Documented Safety Analysis.

   f. Technical Safety Requirements (TSR).

   g. Safety Evaluation Report.

h. Facility Safety Assessment or Bounding Hazard Analysis.

i. Nuclear Explosive Safety Studies/Master Studies.

j. Operational Readiness Reviews or Readiness Assessments.

k. Annual or other major assessment conducted by NNSA/NSO and/or contractors and user organizations.

l. Approved list of requirements (Work Smart Standards) required by the DOE Acquisition Regulation (DEAR) 970.5204-2, *Laws, Regulations, and DOE Directives*.

m. Integrated Safety Management System description established in accordance with the DEAR 970.5223-1, *Integration of Environment, Safety, and Health Into Work Planning and Execution*.

n. Approved implementation plans, schedules, and compensatory measures.

o. Criticality reviews.

p. Containment reviews.

q. Emergency Management Hazards Surveys and Assessments.

4. TERMS AND CONDITIONS. This section will include those specific items the contractor/user commits to perform and follow to ensure NNSA/NSO that the authorized work will be performed safely. Key terms and conditions requiring NNSA/NSO review and approval will be identified, including specific implementation procedures or manuals of practice established and approved by the contractor/user for the performance of work. Terms and conditions that require NNSA/NSO notification and review will be defined, when appropriate. Examples of terms and conditions include the following:

   a. Facility/operation specific controls (facility specific plans and procedures) identified as requirements in TSRs).

   b. Commitments to a configuration management program including an Unreviewed Safety Question process.

5. CONTRACTOR/USER QUALIFICATIONS. This section will make a positive statement with basis about the NNSA/NSO's confidence in the contractor/user organizations' capabilities to safely perform the work identified in the agreement.

6. SPECIAL CONDITIONS. This section will address any special conditions that NNSA/NSO considers necessary to effectively document and communicate expectations. Such conditions may include aspects of environmental management, safeguards and security, protection of property, or the constraints on an experiment/series of experiments.

7. REPORTING OF VIOLATIONS AND INCIDENTS. The process for reporting violations of laws, regulations, AB documents, contracts, and agreements; accidents; unusual occurrences; and near misses will be described and/or referenced. Where more than one contractor/user organization conducts activities at the site of the work, the channels of reporting through the Facility/Operations Manager will be clearly defined.

8. EXCEPTIONS (IF REQUIRED). This section should identify any specific exceptions or unusual circumstances that should be identified, where appropriate.

9. EFFECTIVE DATE AND EXPIRATION DATE (IF IT IS TO EXPIRE). This section will include the effective date and where appropriate, the duration of the agreement, or when it will be renegotiated, reviewed, reevaluated, and updated or extended.

10. STATEMENT OF AGREEMENT. This section would include signatures of the agreeing parties (NNSA/NSO Manager and the designated representatives of contractor/user organizations) and dates with the names typed below the signature line.

ACRONYMS

AA	Authorization Agreement
AB	Authorization Basis
AMEM	Assistant Manager for Environmental Management
AMNS	Assistant Manager for National Security
AMSP	Assistant Manager for Safety Programs
BIO	Basis for Interim Operation
CFR	Code of Federal Regulations
CRD	Contractor Requirements Document
CSO	Cognizant Secretarial Officer
DEAR	DOE Acquisition Regulation
DOE	Department of Energy
DSA	Documented Safety Analysis
HA	Hazards Analysis
JCO	Justification for Continued Operation
NEO	Nuclear Explosive Operation
NESS	Nuclear Explosive Safety Study
NESSG	NESS Group
NNSA	National Nuclear Security Administration
NNSA/NSO	NNSA Nevada Site Office
ORR	Operational Readiness Review
PAAA	Price-Anderson Amendment Act
PDSA	Preliminary DSA
POA	Plan of Action
PSO	Program Senior Official
PT	Project Team
RA	Readiness Assessment
REOP	Real Estate/Operations Permit
RRT	Readiness Review Team
SB	Safety Basis

SBRT	SB Review Team
SCE	Subcritical Experiment
SER	Safety Evaluation Report
SNR	Startup/Restart Notification Report
SSC	Structure, System, and Component
TSR	Technical Safety Requirement
USQ	Unreviewed Safety Question
USQD	USQ Determination