ORDER

DOE O 425.1D

Approved: 4-16-2010

VERIFICATION OF READINESS TO START UP OR RESTART NUCLEAR FACILITIES

U.S. DEPARTMENT OF ENERGY
Office of Health, Safety and Security

VERIFICATION OF READINESS TO START UP OR RESTART NUCLEAR FACILITIES

1. PURPOSE. Establish the requirements for the Department of Energy (DOE), including the National Nuclear Security Administration (NNSA), for verifying readiness for startup of new Hazard Category 1, 2, and 3 nuclear facilities, activities, and operations, and for the restart of existing Hazard Category 1, 2, and 3 nuclear facilities, activities, and operations that have been shut down. The readiness reviews [Operational Readiness Reviews (ORRs) or Readiness Assessments (RAs)] are not intended to be line management tools to achieve readiness. Rather, the readiness reviews provide an independent verification of readiness to start or restart operations.

2. CANCELLATION. DOE O 425.1C, *Startup and Restart of Nuclear Facilities*, dated 3-13-03. Cancellation of an Order does not, by itself, modify or otherwise affect any contractual or regulatory obligation to comply with the Order. Contractor Requirements Documents (CRDs) that have been incorporated into a contract remain in effect throughout the term of the contract unless and until the contract or regulatory commitment is modified to either eliminate requirements that are no longer applicable or substitute a new set of requirements.

3. APPLICABILITY

   a. Departmental Applicability. This Order is applicable to DOE within the provisions and restrictions of the National Nuclear Security Administration Act (NNSA Act), found at Title XXXII of P.L. 106-65, National Defense Authorization Act for Fiscal Year 2000. This Order applies to all nuclear facilities, activities, and operations as defined in Title 10 of the Code of Federal Regulations (CFR), Part 830, Nuclear Safety Management, that are classified as Hazard Category 1, 2, or 3 nuclear facilities. This Order does not apply to the following:

      (1) Activities regulated through a license by the Nuclear Regulatory Commission (NRC) or a state under an agreement with NRC, including activities certified by NRC under section 1701 of the Atomic Energy Act.

      (2) In accordance with the responsibilities and authorities assigned by Executive Order 12344, codified at 50 USC sections 2406 and 2511 and to ensure consistency throughout the joint Navy and DOE organization of the Naval Nuclear Propulsion Program, the Deputy Administrator for Naval Reactors (Director) will implement and oversee all requirements and practices pertaining to this DOE Order for activities under the Director's cognizance, as deemed appropriate.

      (3) Activities regulated by the Department of Transportation; and transportation of on-site transportation packages authorized by 49 CFR,

Part 173, Subpart I. On-site transportation activities may be excluded with PSO approval and CTA concurrence.

(4) Activities in the Transportation Safeguards System in NNSA.

The Administrator of the National Nuclear Security Administration will assure that NNSA employees comply with their respective responsibilities under this Order. Nothing in this Order will be construed to interfere with the NNSA Administrator's authority under section 3212(d) of Public Law (P.L.) 106-65 to establish Administration-specific policies, unless disapproved by the Secretary.

b. Contractors. The Contractor Requirements Document (CRD) sets forth requirements of this Order that will apply to contracts for the operation and management of a DOE-owned or -leased facility, including NNSA facilities.

c. Government-Owned, Government-Operated Facilities. The CRD, Attachment 1, sets forth requirements to also be applied to DOE government-owned, government-operated facilities. Government-operators shall comply with the requirements in Attachment 1.

d. Equivalencies and Exemptions. Equivalencies and exemptions to this Order are processed in accordance with DOE O 251.1C, *Departmental Directives Program*. Central Technical Authority (or designee) concurrence is required for both exemptions and equivalencies to this Order for nuclear facilities.

4. REQUIREMENTS. For NNSA facilities, the term "NNSA line management" is applied wherever the term "DOE line management" or a similar phrase is invoked in conjunction with a requirement or action. Direction and control of requirements pertinent to NNSA facilities, activities, or operations must fall under cognizant NNSA management, organizations, and activities, consistent with the NNSA Act. DOE Standard (STD) 3006-2010, *Planning and Conducting Readiness Reviews*, provides guidance on approaches and methods approved as acceptable for implementing the requirements of this Order. Other approaches and methods may be used provided they are documented, and approved by DOE Line Management as being in accordance with the requirements of this Order. Definitions of terms used in this Order are found in the definition section of DOE STD 3006-2010.

The readiness review process must, in all cases, demonstrate there is a reasonable assurance for adequate protection of workers, the public and the environment from adverse consequences from the start (or restart) of a Hazard Category 1, 2, or 3 nuclear facility, activity, or operation.

Hazard Category 1, 2, and 3 nuclear facilities, activities, or operations may be started (or restarted) only after readiness reviews have been conducted and the approvals specified in this Order have been received.

DOE line management must develop procedures that define the processes that will be utilized to implement the responsibilities of this Order. On-site transportation activities are subject to this order unless an alternate process is identified with PSO approval and CTA concurrence.

a. Determining the Level of Readiness Review. DOE line management must evaluate the need to perform a Readiness Review prior to the startup and restart of Hazard Category 1, 2, and 3 nuclear facilities, activities, or operations.

(1) DOE line management must ensure that a properly scoped Readiness Review is planned and conducted to verify readiness for the restart of Hazard Category 1, 2, and 3 nuclear facilities, activities, or operations unless both of the following conditions are met:

(a) The restart is a resumption of routine operations after a short interruption (such as maintenance activities governed by existing maintenance procedures and processes) as defined in local procedures. (Note: 'short' may be defined as up to 6 months for Hazard Category 1 facilities, activities, or operations unless with PSO approval and CTA concurrence, this may be adjusted up to a maximum of twelve months. 'Short' may be defined as up to 12 months for Hazard Category 2 facilities, activities, or operations); and

(b) The restart is conducted using contractor approved operating procedures that provide specific direction for operating systems and equipment during normal conditions.

(2) A DOE ORR must be conducted for any of the following:

(a) Initial startup of a newly constructed nuclear facility. For the purpose of this criterion, a newly constructed nuclear facility refers to a new facility (not operation or activity) with a new Documented Safety Analysis (DSA) and associated Technical Safety Requirements (TSRs);

(b) Initial startup after conversion of an existing facility to a new nuclear mission with a new DSA and associated TSRs;

(c) Restart of a nuclear facility, activity, or operation that has upgraded its hazard categorization to Hazard Category 1, 2, or 3;

(d) Restart after a DOE management official directs the shutdown of a nuclear facility, activity, or operation for safety reasons;

(e) Restart of a nuclear facility, activity, or operation after violation of a Safety Limit, as defined in 10 CFR Section 830.3, *Definitions;* or,

(f) Any situation deemed appropriate by DOE line management.

(3) A DOE RA must be conducted for any of the following:

(a) Initial startup of a new Hazard Category 1 or 2 activity or operation with a new Documented Safety Analysis (DSA) and associated Technical Safety Requirements (TSRs);

(b) Restart after an extended shutdown for a Hazard Category 1 or 2 nuclear facility, activity, or operation. (Extended shutdown for a Hazard Category 1 nuclear facility, activity, and operation is six months, unless, with PSO approval and CTA concurrence, this is adjusted up to a maximum of twelve months. For a hazard category 2 nuclear facility, activity, and operation an extended shutdown is 12 months);

(c) Startup or restart of a Hazard Category 1 or 2 nuclear facility, activity, or operation after substantial process, system, or facility modification. Local site implementing procedures must provided a process for determining whether a modification is substantial, based on the impact of the changes in the safety basis, equipment, operating procedures, training, or staffing, and the extent and complexity of these changes, whether or not these changes resulted in a positive Unreviewed Safety Question (USQ) determination; or,

(d) Any situation deemed appropriate by DOE line management.

b. Determining the Startup Authorization Authority (SAA). For nuclear facility, activity, or operation startup or restart actions, the SAA must be determined using the following criteria:

(1) For initial startup of a newly constructed Hazard Category 1 or 2 nuclear facility (not activity or operation) with a new DSA and associated TSRs, the Secretary of Energy (or designee) must approve startup. For initial startup of a newly constructed Hazard Category 3 nuclear facility (not activity or operation) with a new DSA and associated TSRs, the Cognizant Secretarial Officer (CSO) (or designee) must approve startup. If other DOE Orders require a higher level of startup authorization than this Order, the official described in this Order will recommend startup to the higher-level official. For initial startup of a newly constructed Hazard Category 1, 2, or 3 nuclear activity or operation with a new DSA and

associated TSRs, approval to start must be granted by an official of a level commensurate with the DSA Approval Authority.

(2) For initial startup after conversion of an existing facility to a Hazard Category 1 or 2 nuclear facility with a new DSA and associated TSRs, the Secretary of Energy (or designee) must approve startup. For initial startup after conversion of an existing facility to a new Hazard Category 3 nuclear facility with a new DSA and associated TSRs, the CSO (or designee) must approve startup. If other DOE Orders require a higher level of startup authorization than this Order, the official described in this Order will recommend startup to the higher-level official.

(3) For restart of a nuclear facility, activity, or operation that has upgraded its Hazard Categorization to Hazard Category 1 or 2, the Secretary of Energy (or designee) must approve startup. For the restart of a nuclear facility, activity, or operation that has upgraded its Hazard Categorization to Hazard Category 3, the CSO (or designee) must approve restart.

(4) For a shutdown directed by a DOE management official for safety reasons, approval to restart must be granted by an official of a level commensurate with the official ordering the shutdown, unless a higher level is designated by the CSO.

(5) For a shutdown following violation of a Safety Limit, approval to restart must be granted by an official of a level commensurate with the Approval Authority for the Safety Limit. If the Safety Limit was approved by a Headquarters official, the CSO (or designee) must approve restart. If the Safety Limit was approved by a field official, the field element manager (or designee) must approve restart.

(6) For an extended shutdown of a Hazard Category 1 nuclear facility, activity, or operation, the CSO must approve restart. For an extended shutdown of a Hazard Category 2 nuclear facility, activity, or operation, the CSO (or designee) must approve restart.

(7) For a shutdown because of substantial process, system, or facility modifications to a Hazard Category 1 nuclear facility, activity, or operation, the CSO (or designee) must approve restart. For a shutdown because of substantial process, system, or facility modifications to a Hazard Category 2 nuclear facility, activity, or operation, the CSO (or designee) must approve restart.

(8) For startup or restart of a nuclear facility, activity, or operation for which Readiness Reviews were required because a DOE official deemed it appropriate, the official approving startup or restart must be at a level commensurate with the official directing the review be conducted.

(9) In all other cases, as specified in the approved Startup Notification Report (SNR). The SAA may be a senior contractor official if so designated in the SNR.

c. Startup Notification Report. DOE line management procedures concerning the SNR prepared by the contractor in accordance with Attachment 1 must address the following:

(1) DOE line management must ensure that SNRs are submitted quarterly or on a periodicity as defined by the PSO.

(2) DOE line management must ensure that SNRs project ahead at least one year, update information from previously approved SNRs for startups and restarts that have not yet occurred, and add information for each startup or restart that has been identified since the last approved SNR.

(3) DOE line management must ensure that every startup or restart determined to require a Readiness Review is included in the SNR.

(4) Each SNR must be reviewed and approved by DOE field element management. When the SNR includes activities for which the startup authorization authority resides at headquarters the field element management must approve or reject the activities on the SNR for which the field element is the SAA and must comment and make a recommendation regarding approval for those activities requiring headquarters approval.

(5) Each SNR, including field element approval and/or recommendations, must be forwarded to the PSO, the site Lead PSO or CSO, as appropriate, the appropriate Central Technical Authority (CTA), and the Office of Health, Safety, and Security (HSS) for information.

(6) Contractor and DOE Readiness Reviews must not commence until DOE has approved the SNR.

d. Requirements Applicable to DOE Operational Readiness Reviews.

(1) DOE line management must develop a plan of action (POA), which describes the scope of the ORR. The POA must provide a clear discussion of the physical or geographic scope of the ORR and a clear description of the structures, systems, and components (SSCs), individual processes, and programs that are within the scope of the ORR. The POA must also designate the proposed ORR team leader.

(a) All core requirements identified in section 4.f, below, must be addressed when developing the breadth of the ORR. The POA may

also define the depth or tailoring for each core requirement to more fully describe the total required scope of the ORR.

(b) In order to justify not performing evaluation of a core requirement, or portion thereof, the POA must reference a timely, independent review that addressed a core requirement in a technically satisfactory manner, provided the review being referenced determined the requirements were successfully implemented.

(c) The POA must include the prerequisites for starting the DOE ORR. The prerequisites must define measurable actions or deliverables for each DOE specific core requirement that is to be reviewed in the ORR. Prerequisites must also address DOE oversight of contractor preparations and DOE readiness to oversee contractor operations within the scope of the ORR.

(d) DOE line management must forward the DOE POA to the SAA. DOE line management must also forward the DOE POA to the PSO, the site Lead PSO or CSO, as appropriate, the appropriate CTA, and HSS for information.

(e) The DOE POA must be approved by the SAA prior to the start of the review. The SAA provides the POA to the designated team leader.

(2) The ORR team leader must select the DOE ORR team members.

(a) Team members must meet the following qualification and training requirements:

1 Technical knowledge of the area assigned for evaluation, including experience working in the technical area;

2 Knowledge of performance-based assessment processes and methods; and

3 Knowledge of facility, activity, or operation-specific information.

(b) The ORR team must not include as senior members (i.e., team leader, subteam leader, senior advisor) individuals from offices that are assigned direct line management responsibility for the work being reviewed. Any exceptions require SAA approval.

Additionally, an ORR team member must not review work for which he or she is directly responsible.

(c) The ORR team leader must determine and document the qualifications of the team members and their freedom from a conflict of interest in the areas they are assigned to review.

(d) DOE line management must support the DOE ORR team leader in staffing the DOE ORR team.

Note: DOE-HDBK-3012, *Guide to Good Practices for Operational Readiness Reviews, Team Leader's Guide*, provides information useful to team leaders in preparing for and conducting Readiness Reviews.

(3) The ORR team must develop an ORR Implementation Plan (IP). The ORR IP documents the evaluation criteria and the review approaches based on the scope defined in the ORR POA. The ORR team leader approves the ORR IP.

(4) DOE line management must forward the DOE IP to the SAA, site Lead PSO or CSO, as appropriate, the appropriate CTA, and HSS for information.

(5) Prior to starting the ORR:

(a) DOE line management has received a Readiness to Proceed Memorandum from the responsible contractor certifying that the facility, activity, or operation is ready for startup or restart and this has been verified by the contractor ORR.

(b) DOE line management must verify that the contractor's preparations for startup or restart have been completed with the exception of a manageable list of open prestart issues. The prestart issues must have a well-defined schedule for closure to allow the DOE ORR team to review the closure process.

(c) DOE line management must verify that the DOE ORR POA prerequisites have been met.

(d) In the verification process, DOE Field Element line management must document their actions to verify Field Element and contractor readiness, including:

1 Review of closure of the contractor's ORR findings,

2 Assessment of completion of defined prerequisites; and

3 Other assessments performed to ascertain readiness.

(6) Specific events significant to the startup and restart process that occur prior to the formal commencement of the DOE ORR; e.g., site emergency response drills, may be reviewed by the DOE ORR team at the time they are conducted.

(7) Upon direction of the SAA, the ORR may commence. The ORR team must use the IP to conduct the ORR.

(8) Upon completion of the DOE ORR, the DOE ORR team leader, with support from individual team members, must prepare, approve, and submit a final report to the SAA.

(a) The final report must document the results of the ORR and make a conclusion as to whether startup or restart of the nuclear facility, activity, or operation can proceed safely. The ORR final report must state whether the contractor has established the following:

1 An agreed-upon set of requirements to govern safe operations of the facility, activity, or operation;

2 That this set of requirements has been formalized with DOE through the contract or other enforceable mechanism;

3 That these requirements have been appropriately implemented in the facility, activity or operation, or appropriate compensatory measures, formally approved by DOE, are in place during the period prior to full implementation; and that,

4 In the opinion of the DOE ORR team, adequate protection of the public health and safety, worker safety, and the environment will be maintained.

The final report must be of adequate detail to support its conclusion, such that a knowledgeable reader would reasonably be expected to draw the same conclusions.

(b) The final report should include a statement regarding the team leader's assessment of the adequacy of the implementation of the core functions and guiding principles of Integrated Safety Management (ISM) at the facility undergoing the review.

(c) There must be a lessons learned section of the final report that may relate to design, construction, operation, and decommissioning of similar facilities, activities or operations and to help guide future Readiness Review efforts.

(d) The team leader must approve the final report, and each team member must approve the section of the final report for which he or she was responsible. There will be a provision for dissenting professional opinions if agreement cannot be achieved.

(9) The final report must be submitted to the SAA as a basis for approving the startup or restart of the nuclear facility, activity, or operation. A copy of the final report must be forwarded to the PSO, the site Lead PSO or CSO, as appropriate, the appropriate CTA, and HSS for information.

(10) Closure of DOE ORR findings must include:

(a) Development of corrective action plans approved by DOE to correct the findings. Action plans must provide evaluation of, and address, any overall programmatic deficiencies and causes.

(b) Creation of a finding closure package which must include a brief description of actual corrective actions taken, evidence of completion, and reasons for concluding that closure has been achieved.

(c) DOE verification of closure of prestart findings. The organization verifying the closure must be designated by the SAA.

(11) DOE line management must ensure that the contractor and DOE have satisfactorily resolved all prestart findings of the DOE and contractor ORRs prior to startup or restart of the facility, activity, or operation. The SAA may approve startup or restart after prestart findings are resolved.

e. Requirements Applicable to DOE Readiness Assessments.

The requirements for performing readiness assessments as described below may be tailored with approval of the PSO and concurrence from the CTA.

(1) The DOE RA must use a graded approach to the tenets of ORR requirements specified in this Order. An RA may be as short and simple as a checklist, or may approach the breadth and depth of an ORR, depending on the causes and duration of the shutdown and the modifications accomplished during the shutdown. In view of the flexibility to fit the rigor of the RA to the circumstances of the startup/restart situation, DOE must not develop readiness review processes similar to RAs but called something different.

(2) DOE line management must develop a POA, which describes the scope of the RA. The POA must provide a clear discussion of the physical or geographic scope of the RA and a clear definition of the SSCs, individual

processes, and programs that are within the scope of the RA. The POA must also designate the proposed RA team leader.

(a) All core requirements identified in section 4.f, below, must be evaluated for applicability for inclusion in the scope of the RA. The POA for the RA must provide a basis for justifying the exclusion of any core requirement that will not be assessed during the RA. The level of detail provided in the justification should be commensurate with the complexity of the review and of the operation, such that a knowledgeable reader would reasonably be expected to draw the same conclusions. The POA may also discuss the depth or tailoring for each core requirement to more fully describe the total required scope of the RA. The development of the scope must be based, in part, on the status of and changes to the facility, operating procedures, safety basis documents, hazards, operational conditions, and personnel.

(b) The POA for the DOE RA must include the prerequisites for starting the DOE RA. Prerequisites define measurable actions or deliverables that, when completed, provide assurance that readiness has been achieved for each DOE specific core requirement that is to be reviewed in the RA. Prerequisites must also address DOE oversight of contractor preparations and DOE's readiness to oversee contractor operations within the scope of the RA.

(c) DOE line management must forward the DOE POA to the SAA, DOE line management must also forward the DOE POA to the PSO, the site Lead PSO or CSO, as appropriate, the appropriate CTA, and HSS for information.

(d) The DOE POA must be approved by the SAA prior to the start of the review. The SAA provides the POA to the designated team Leader.

(3) The RA team leader must select the DOE RA team members.

(a) Team members must meet the following qualification and training requirements:

1 Technical knowledge of the area assigned for evaluation, including experience working in the technical area;

2 Knowledge of performance-based assessment processes and methods; and

3 Knowledge of facility, activity, or operation-specific information.

(b) An RA team member must not review work for which she or he is directly responsible.

(c) The RA team leader must determine and document the qualification of RA team members and their freedom from a conflict of interest in the areas they are assigned to review.

(d) DOE line management must support the DOE RA team leader in staffing the DOE RA team.

NOTE: DOE-HDBK-3012, *Guide to Good Practices for Operational Readiness Reviews, Team Leader's Guide*, provides information useful to team leaders in preparing for and conducting Readiness Reviews.

(4) The DOE RA team must develop an RA IP. The DOE RA IP documents the evaluation criteria and the review approaches based on the scope given in the DOE RA POA. The DOE RA team leader approves the RA IP. A DOE RA IP that is developed by the DOE RA team and approved by the team leader may be as short and simple as a restart check procedure, or may approach the breadth and depth of an ORR IP. The IP must include the full RA scope defined in the DOE POA.

(5) DOE line management must forward the DOE RA IP to the SAA, cognizant PSO, the site Lead PSO or CSO, as appropriate, the appropriate CTA, and HSS for information.

(6) Prior to starting the DOE RA:

(a) DOE line management has received a Readiness to Proceed Memorandum from the responsible contractor certifying that the facility, activity, or operation is ready for startup or restart.

(b) DOE line management must verify that the contractor's preparations for startup or restart have been completed with the exception of a manageable list of open prestart issues. The prestart issues must have a well-defined schedule for closure to allow the DOE RA team to review the closure process.

(c) DOE line management must verify that the DOE RA Plan of Action prerequisites have been met.

(d) In the verification process, DOE field element line management must document their actions to verify field element and contractor readiness, including;

1 Review of the closure of the contractor's RA findings,

2 Assessment of completion of defined prerequisites, and

3 Other assessments performed to ascertain readiness.

(7) Specific events significant to the startup and restart process that occur prior to the formal commencement of the DOE RA; e.g., site emergency response drills, may be reviewed by the DOE RA team at the time they are conducted.

(8) Upon direction of the SAA, the RA may commence. The RA team must use the IP to conduct the RA.

(9) Upon completion of the DOE RA, the DOE RA team leader must prepare, approve, and submit a final report to the SAA. The final report is approved by the team leader and each team member approves the section of the final report for which he or she was responsible. There will be a provision for dissenting professional opinions if agreement cannot be achieved.

(a) The final report must document the results of the RA and make a conclusion as to whether startup or restart of the nuclear facility, activity, or operation can proceed safely. The final report must be adequately detailed to support its conclusion, such that a knowledgeable reader would reasonably be expected to draw the same conclusions.

(b) There must be a lessons learned section of the final report that may relate to design, construction, operation, and decommissioning of similar facilities, activities, or operations and future Readiness Review efforts.

(10) The final report must be submitted to the SAA to be used as a basis for approving the startup or restart of the nuclear facility, activity, or operation. A copy of the final RA report must be forwarded to the PSO, the site Lead PSO or CSO, as appropriate, the appropriate CTA, and HSS for information.

(11) Closure of DOE RA findings must include:

(a) Development of corrective action plans approved by DOE to correct the findings. Action plans must provide evaluation of, and address any overall programmatic deficiencies and causes.

(b) Creation of a finding closure package which must include a brief description of actual corrective actions taken, evidence of

completion, and reasons for concluding that closure has been achieved.

(c) DOE verification of closure of prestart findings. The organization verifying the closure must be designated by the SAA.

(12) DOE line management must ensure that the contractor and DOE have satisfactorily resolved all prestart findings of the contractor and DOE RAs prior to startup or restart of the facility, activity, or operation. The SAA may approve startup or restart after prestart findings are resolved.

f. Core Requirements. Core requirements verify the readiness of personnel, procedures, programs, and equipment within the scope of the Readiness Review to safely start nuclear operations. These core requirements are directly related to the seven guiding principles of ISM.

(1) Line management has established Safety Management Programs (SMPs) to ensure safe accomplishment of work:

(a) Contract requirements for the SMPs have been flowed down into facility-specific procedures;

(b) SMP implementing procedures have been effectively implemented in support of the facility;

(c) A sufficient number of qualified personnel is available to effectively implement the SMPs in support of the facility; and

(d) Adequate facilities and equipment are available to ensure that SMP support and services are adequate for safe facility operation.

The following SMPs are identified in 10 CFR Section 830.204, *Documented Safety Analysis*:

- Quality Assurance Programs
- Procedures Management
- Maintenance Management
- Personnel Training Program
- Conduct of Operations
- Emergency Preparedness
- Fire Protection Program

- Waste Management Program
- Radiation Protection
- Criticality Safety Program

The SAA should designate and approve via the POA those specific SMPs to be included in the breadth of the readiness review and should specify the scope of the desired review of each designated SMP. Additional support programs may be specified in the POA if required to ensure safety of nuclear operations.

(2) Functions, assignments, responsibilities, and reporting relationships, including those between the line operating organization and environment, safety and health support organizations, are clearly defined, understood, and effectively implemented, with line management responsibility for control of safety.

(3) The selection, training, and qualification programs for operations and operations support personnel have been established, documented, and effectively implemented.

Training and qualification requirements for each position encompass the range of assigned duties and activities.

The selection process and applicable position-specific training for managers ensures competence commensurate with their responsibilities.

Modifications to the facility have been reviewed for potential impacts on training and qualification. Training has been performed to incorporate all aspects of these changes.

(4) Level of knowledge of managers, operations, and operations support personnel is adequate based on reviews of examinations and examination results, selected interviews of managers, operations, and operations support personnel, and observations of operational demonstrations.

(5) Personnel exhibit an awareness of public and worker safety and health and environmental protection requirements and, through their actions, demonstrate a high-priority commitment to comply with these requirements. Worker safety and health requirements of 10 CFR Part 851, *Worker Safety and Health Program,* have been implemented within the facility.

(6) Facility safety documentation (normally DSA and TSRs) is in place that describes the "safety envelope" of the facility.

(a) The safety documentation characterizes the hazards/risks associated with the facility and identifies preventive and mitigating measures (systems, procedures, administrative controls, etc.) that protect workers and the public from those hazards/risks.

(b) Facility safety documentation is approved and has been implemented.

(c) Implementation of facility safety documentation has been verified and is current.

(d) SSCs are defined.

(e) A system to maintain control over facility design with emphasis on Vital Safety Systems (VSS) is established.

(f) Procedures for maintaining the safety documentation have been adequately defined and implemented and provide for required updates.

(g) A DOE-approved USQ procedure has been effectively implemented.

(7) A program is in place to confirm and periodically reconfirm the condition and operability of VSS. This includes examinations of records of tests and calibration of these systems.

The material condition of all safety, process, and utility systems is adequate to support the safe conduct of work.

(8) The facility systems and procedures, as affected by facility modifications, are consistent with the description of the facility, procedures, and accident analysis and assumptions included in the safety documentation.

A formal program is defined and implemented to control facility modifications. Authorized modifications within the scope of the Readiness Review have been completed and fully closed, or evaluated and determined not to affect the ability to safely start nuclear operations.

(9) Adequate and accurate procedures and safety limits are approved and in place for operating the process systems and utility systems. The procedures include necessary revisions for all modifications that have been made to the facility. Facility processes ensure that only the most current revision to each procedure is in use.

(10) A routine operations drill program and an emergency management drill and exercise program have been established and implemented. Records for

each program are adequate to demonstrate the effectiveness of completed drills and exercises as well as planning for future drills and exercises.

(11) An adequate startup or restart program has been developed that includes plans for graded operations and testing after startup or resumption to simultaneously confirm operability of equipment, the viability of procedures, and the performance and knowledge of the operators.

The plans should indicate validation processes for equipment, procedures, and operators after startup or resumption of operations, including any required restrictions and additional oversight.

Any compensatory measures required during the approach to full operations are described.

(12) The formality and discipline of operations are adequate to conduct work safely, and programs are in place to maintain this formality and discipline (e.g., DOE O 5480.19, *Conduct of Operations Requirements for DOE Facilities*).

Sufficient numbers of qualified personnel are available to conduct operations.

(13) Formal agreements between the operating contractor and DOE have been established via the contract or other enforceable mechanism to govern safe facility operations.

A systematic review of the facility's conformance to these requirements has been performed.

These requirements have been implemented in the facility, or compensatory measures are in place during the period of implementation. The compensatory measures and the implementation period are approved by DOE.

(14) An effective feedback and improvement process (i.e., Contractor Assurance System) has been established to identify, evaluate, and resolve deficiencies and recommendations made by contractor line management and independent contractor audit and assessment groups. The process also provides for resolution of issues and recommendations by external official review teams and audit organizations. (e.g., DOE O 226.1A, *Implementation of Department of Energy Oversight Policy*, dated 7-31-07)

(15) The breadth, depth, and results of the responsible contractor Readiness Review, including corrective actions, is adequate to verify the readiness of

hardware, personnel, and management programs to support nuclear operations. The Readiness Review scope met the requirements of the approved POA.

(16) The technical and managerial qualifications and competence of those personnel at the DOE field element and at DOE Headquarters assigned responsibilities for providing direction and guidance to the contractor, and those assigned oversight responsibilities within the scope of the Readiness Review, including the facility representatives, are commensurate with the assigned responsibilities.

(17) DOE field element management systems for DOE oversight of facility operations, such as oversight and assessment programs, occurrence reporting, facility representatives, corrective actions, and quality assurance programs, are adequate.

g. DOE Field Element Line Management Oversight of the Process for Verifying Readiness to Start Up or Restart Nuclear Facilities.

(1) DOE field element line management must review and concur with contractor procedures for implementing the requirements of the CRD. Forward contractor's procedures, for implementing the requirements of the CRD with comment to the appropriate PSO and CTA as well as HSS.

(2) DOE field element line management must ensure that the contractor properly implements the requirements of the CRD of this Order. Key elements of an oversight program include:

(a) Ensuring that the contractor prepares and submits quarterly SNRs that accurately reflect all Readiness Reviews required for startup or restart of nuclear facilities, activities, or operations.

(b) Ensuring that the contractor develops a POA that adequately defines the scope of the Readiness Review appropriate for the circumstances associated with the startup or restart.

(c) Ensuring that the contractor POA appropriately specifies the prerequisites for starting the contractor's Readiness Review.

(d) Evaluating the adequacy of the qualifications of contractor Readiness Review team members.

(e) When SAA resides with DOE, review and approve the contractor's POA. If SAA does not reside with field element line management, forward the contractor's POA onto the SAA with recommendation for disposition.

(f) Evaluating the adequacy of the contractor Readiness Review.

(g) Evaluating that the contractor Readiness Review final report adequately describes the review and contains sufficient detail to support its conclusion.

(h) Ensuring the contractor and DOE have satisfactorily resolved all prestart findings of the contractor and DOE Readiness Reviews (if applicable) prior to startup or restart of the facility, activity, or operation.

(i) When applicable, forward, with comment, the contractor's Readiness to Proceed Memorandum to the SAA.

(j) Ensuring that the contractor and DOE have developed and implemented approved corrective action plans for post-start findings.

h. DOE Headquarters Line Management Oversight of the DOE Field Process for Verifying Readiness to Startup and Restart Nuclear Facilities.

DOE Headquarters line management must oversee DOE field processes for verifying readiness to startup and restart nuclear facilities in accordance with DOE O 226.1A, *Implementation of Department of Energy Oversight Policy,* and DOE-STD-3006, *Planning and Conducting Readiness Reviews.*

i. Records Management Program. Requirements for maintenance and disposition of Federal records, such as those pertaining to ORRs or RAs, are provided under the general guidance of DOE O 243.1, *Records Management Program.* The disposition, including destruction, of Federal records must be in accordance with:

(1) the General Records Schedules, as published by the National Archives and Records Administration (NARA) or

(2) DOE records disposition authority (Standard Form 115, *Request for Records Disposition Authority*), as approved by NARA.

Consult the cognizant field element records officer for guidance.

j. Implementation. Implementation of this Order for DOE Line management must be completed in 180 days from the issuance of the Order, unless a different schedule is approved by the PSO with concurrence of the CTA. Those previously identified and defined readiness activities scheduled to be completed within one year of the issuance of the Order must be subject to the former version of the Order unless approved otherwise by the PSO with concurrence of the CTA.

5. RESPONSIBILITIES.

a. DOE and NNSA Line Management.

(1) Establish procedures as necessary to manage the verification of readiness to start up or restart nuclear facilities, activities, or operations in accordance with the requirements of this Order. Forward procedures to the appropriate PSO and CTA as well as HSS for information.

(2) Exercise delegation of authority and document all delegations of authority made under the provisions granted by this Order.

b. Office of Health, Safety and Security.

(1) In coordination with the PSO, perform independent reviews of startup and restart activities as appropriate and provide results of these reviews to CSOs for information.

(2) Review and comment, as appropriate, on the procedures developed by PSOs, field element offices, and contractors for verifying readiness to start up or restart nuclear facilities, activities, or operations, and provide the results of these reviews to CSOs for information.

(3) Review and comment as appropriate on SNRs, contractor and DOE POAs, IPs, and ORR or RA final reports for verifying readiness to start up or restart nuclear facilities, activities, or operations, and provide the results of these reviews to CSOs for information.

6. REFERENCES.

a. Title 10, Code of Federal Regulations (CFR), Part 830, Nuclear Safety Management.

b. 10 CFR Part 851, Worker Safety and Health Program.

c. 49CFR, Part 173, Subpart I, Class 7 (Radioactive Materials)

d. DOE O 226.1A, *Implementation of Department of Energy Oversight Policy*, dated 7-31-07.

e. DOE O 243.1, *Records Management Program*, dated 2-3-06.

f. DOE O 251.1C, *Departmental Directives Program*, dated 1-15-09.

g. DOE O 5480.19, *Conduct of Operations Requirements for DOE Facilities*, dated 10-23-01.

h. DOE Standard (STD) 3006-2010, *Planning and Conducting Readiness Reviews*.

i. DOE-Handbook (HDBK) 3012, *Guide to Good Practices for Operational Readiness Reviews, Team Leader's Guide*.

7. CONTACT. Questions concerning this Order should be referred to the Director, Office of Nuclear Safety Policy and Assistance, at 301-903-3331.

BY ORDER OF THE SECRETARY OF ENERGY

DANIEL B. PONEMAN
Deputy Secretary

CONTRACTOR REQUIREMENTS DOCUMENT

DOE O 425.1D, *VERIFICATION OF READINESS TO START UP OR RESTART NUCLEAR FACILITIES*

1. DEPARTMENT OF ENERGY (DOE) INCLUDING THE NATIONAL NUCLEAR SECURITY ADMINISTRATION (NNSA) CONTRACTOR RESPONSIBILITIES. This Contractor Requirements Document (CRD) applies to all nuclear facilities, activities, and operations classified as Hazard Categories 1, 2, or 3, including NNSA facilities, as defined in 10 CFR Part 830. Contractors must establish procedures to manage startup and restart actions in accordance with this CRD. Definitions of terms used in this CRD are found in the definition section of DOE STD 3006-2010.

   Regardless of the performer of the work, the contractor is responsible for complying with the requirements of this Contractor Requirements Document (CRD) and flowing down CRD requirements to subcontractors at any tier to the extent necessary to ensure contractor compliance.

2. CONTRACTOR REQUIREMENTS. DOE Standard (STD) 3006-2010, *Planning and Conduct of Readiness Reviews,* provides guidance on approaches and methods approved as acceptable for implementing the requirements of this CRD. Other approaches and methods may be used provided they are documented, and approved by DOE Line Management as being in accordance with the requirements of this CRD.

   Contractor line management must develop procedures to define the processes that will be used to implement the responsibilities of this CRD. These procedures must be submitted to DOE line management for concurrence. On-site transportation activities are subject to this order unless an alternate process is identified with PSO approval and CTA concurrence.

   a. Determining the Level of Readiness Review. Contractor line management must evaluate the need to perform a Readiness Review [Operational Readiness Review (ORR) or Readiness Assessment (RA)] prior to the startup and restart of Hazard Category 1, 2, and 3 nuclear facilities, activities, or operations.

      (1) Contractor line management must ensure that a properly scoped Readiness Review is planned and conducted to verify readiness for the startup and restart of Hazard Category 1, 2, and 3 nuclear facilities, activities, or operations, unless both of the following conditions are met:

         (a) The restart is a resumption of routine operations after a short interruption (such as maintenance activities governed by existing maintenance procedures and processes) as defined in local procedures. (Note: 'short' may be defined as up to 6 months for Hazard Category 1 facilities, activities, or operations unless with PSO approval and CTA concurrence, this may be adjusted up to a maximum of twelve months. 'Short' may be defined as up to 12

months for Hazard Category 2 facilities, activities, or operations); and

(b) The restart is conducted using contractor-approved operating procedures that provide specific direction for operating systems and equipment during normal conditions.

(2) An ORR must be conducted for any of the following:

(a) The initial startup of a newly constructed nuclear facility. For the purpose of this criterion, a newly constructed nuclear facility refers to a new facility (not operation or activity) with a new Documented Safety Analysis (DSA) and associated Technical Safety Requirements (TSRs);

(b) Initial startup after conversion of an existing facility to a new nuclear mission with a new DSA and associated TSRs;

(c) The restart of a nuclear facility, activity, or operation that has upgraded its hazard categorization to Hazard Category 1, 2, or 3;

(d) Restart after a DOE management official directs the shutdown of a nuclear facility, activity, or operation for safety reasons;

(e) Restart of a nuclear facility, activity, or operation after violation of a Safety Limit, as defined in 10 CFR Section 830.3, *Definitions;* or

(f) Any situation deemed appropriate by DOE or contractor line management officials.

(3) An RA must be conducted for startup or restart of a Hazard Category 1, 2, or 3 nuclear facility, activity, or operation except as discussed in paragraphs (1) and (2) above, or when deemed appropriate by DOE or contractor line management officials.

b. Determining the SAA. For nuclear facility, activity, or operation startup or restart actions, the SAA must be determined using the following criteria:

(1) For initial startup of a newly constructed Hazard Category 1 or 2 nuclear facility [not activity or operation] with a new DSA and associated TSRs, the Secretary of Energy (or designee) must approve startup. For initial startup of a newly constructed Hazard Category 3 nuclear facility [not activity or operation] with a new DSA and associated TSRs, the Cognizant Secretarial Officer (CSO) (or designee) must approve startup. If CRDs to other DOE directives require a higher level of startup authorization than this CRD, the official described in this CRD will recommend startup to the higher-level official. For initial startup of a newly constructed Hazard

Category 1, 2, or 3 nuclear activity or operation with a new DSA and associated TSRs, approval to start must be granted by an official of a level commensurate with the DSA Approval Authority.

(2) For initial startup after conversion of an existing nuclear facility to a new Hazard Category 1 or 2 nuclear facility with a new DSA and associated TSRs, the Secretary of Energy (or designee) must approve startup. For initial startup after conversion of an existing facility to a new Hazard Category 3 nuclear facility with a new DSA and associated TSRs, the CSO (or designee) must approve startup. If CRDs to other DOE directives require a higher level of startup authorization than this CRD, the official described in this CRD will recommend startup to the higher-level official.

(3) For restart of a nuclear facility, activity, or operation that has upgraded its hazard categorization to Hazard Category 1 or 2, the Secretary of Energy (or designee) must approve startup. For the restart of a nuclear facility, activity, and operation that has upgraded its hazard categorization to Hazard Category 3, the CSO (or designee) must approve restart.

(4) For a shutdown directed by a DOE management official for safety reasons, approval to restart must be granted by an official of a level commensurate with the official ordering the shutdown, unless a higher level is designated by the CSO.

(5) For a shutdown following a violation of a Safety Limit, approval to restart must be granted by an official of a level commensurate with the Approval Authority for the Safety Limit. If the Safety Limit was approved by a Headquarters official, the CSO (or designee) must approve restart. If the Safety Limit was approved by a field official, the field element manager (or designee) must approve restart.

(6) For an extended shutdown of a Hazard Category 1 nuclear facility, activity, or operation, the CSO (or designee) must approve restart. For an extended shutdown of a Hazard Category 2 nuclear facility, activity, or operation, the CSO (or designee) must approve restart.

(7) For a shutdown because of substantial process, system, or facility modifications to a Hazard Category 1 nuclear facility, activity, or operation, the CSO must approve restart. For a shutdown because of substantial process, system, or facility modifications to Hazard Category 2 nuclear facility, activity, or operation, the CSO (or designee) must approve restart.

(8) For startup or restart of a nuclear facility, activity, or operation for which Readiness Reviews were required because a DOE official deemed it

appropriate, the official approving startup or restart must be of a level commensurate with the official directing the review be conducted.

(9) In all other cases as specified in the approved Startup Notification Report (SNR). The SAA may be a senior contractor official if so designated in the SNR.

c. Startup Notification Report. Contractor procedures must provide for SNRs.

(1) SNRs must be submitted to DOE quarterly or on a periodicity as defined by the PSO.

(2) SNRs must project ahead at least one year, updating information from previously approved SNRs for startups and restarts that have not yet occurred, and adding information for each startup or restart that has been identified since the last approved SNR.

(3) The SNR is to be forwarded to DOE line management for approval.

(4) Information to be included in the SNR for each startup or restart must be accurate and adequate to fully support the recommended actions and permit an informed decision by DOE. The SNR must include, at a minimum:

(a) A brief description of the facility or program work including Hazard Categorization, to be started or restarted;

(b) The reason for non-operation (e.g., maintenance or modification outage, no program work, new facility, shutdown for safety concerns, etc);

(c) The approximate date that operations were last conducted (for restarts) and the projected date for the startup;

(d) The proposed type of readiness review, including whether a DOE Readiness Review is required;

(e) The basis or justification for the proposed type of Readiness Review;

(f) The proposed SAA; and

(g) The projected date for the submittal of the associated Plan of Action (POA).

(5) Contractor Readiness Reviews must not commence until the SNR and POA have been approved.

(6) Every startup or restart determined to require a Readiness Review must be included in the SNR. Readiness for these startups and restarts must be verified using an ORR or properly scoped RA as appropriate. Contractor routine procedures must not be developed for the purpose of avoiding a properly scoped RA.

d. Requirements Applicable to Operational Readiness Reviews.

(1) Contractor line management must develop a POA, which describes the scope of the ORR. The POA must provide a clear discussion of the physical or geographic scope of the ORR and a clear description of the structures, systems, and components (SSCs), individual processes, and programs that are within the scope of the ORR. The POA must also designate the proposed ORR team leader.

(a) All core requirements identified in section 2.f, below, must be addressed when developing the breadth of the ORR. The POA may also define the depth or tailoring for each core requirement to more fully describe the total required scope of the ORR.

(b) In order to justify not performing evaluation of a core requirement, or portion thereof, the POA must reference a timely, independent review that addressed a core requirement in a technically satisfactory manner provided the review being referenced determined the requirements were successfully implemented.

(c) The POA must include the prerequisites for starting the ORR. The prerequisites must define measurable actions or deliverables that, when completed, provide assurance that readiness has been achieved for each core requirement of paragraph 2.f determined to be applicable when developing the scope of the ORR.

(d) Contractor line management must forward the POA to local DOE line management.

(e) The POA must be approved by the SAA.

(2) The ORR team leader must select the ORR team members.

(a) Team members must meet the following qualification and training requirements:

1 Technical knowledge of the area assigned for evaluation, including experience working in the technical area;

2 Knowledge of performance-based assessment processes and methods; and

3 Knowledge of facility, activity, or operation-specific information.

(b) The ORR team must not include as senior members (i.e., team leader, sub-team leader, senior advisor) individuals from organizations that are assigned direct line management responsibility for the work being reviewed. Any exceptions require SAA approval. Additionally, an ORR team member must not review work for which he or she is directly responsible.

(c) The ORR team leader must determine and document the qualifications of ORR team members and their freedom from a conflict of interest in the areas they are assigned to review.

(d) Contractor line management must support the ORR team leader in staffing the ORR team.

Note: DOE-HDBK-3012, *Guide to Good Practices for Operational Readiness Reviews, Team Leader's Guide*, provides information useful to team leaders in preparing for and conducting Readiness Reviews.

(3) The ORR team must develop an ORR Implementation Plan (IP). The ORR IP documents the evaluation criteria and the review approaches based on the scope defined in the ORR POA. The ORR team leader approves the ORR IP.

(4) Contractor line management must forward the ORR IP to local DOE line management for information.

(5) Prior to starting the ORR:

(a) Contractor line management has received a formal written Readiness to Proceed Memorandum certifying that the facility, activity or operation is ready for startup or restart.

(b) Contractor line management has verified that the preparations for startup or restart have been completed with the exception of a manageable list of open prestart issues. The prestart issues must have a well-defined schedule for closure to allow the ORR team to review the closure process.

(c) Contractor line management has verified that the ORR POA prerequisites are met.

(6) Specific events significant to the startup and restart process that occur prior to the formal commencement of the ORR; e.g., site emergency

response drills, may be reviewed by the ORR team at the time they are conducted.

(7) Upon direction of contractor line management, the ORR many commence. The ORR team must use the IP to conduct the ORR.

(8) Upon completion of the ORR, the ORR team leader, with support from the team members, must prepare, approve, and submit a final report.

(a) The final report must document the results of the ORR and make a conclusion as to whether startup or restart of the nuclear facility, activity, or operation can proceed safely. The ORR final report must state whether facility management has established the following:

1 An agreed-upon set of requirements to govern safe operations of the facility, activity, or operation;

2 That this set of requirements has been formalized with DOE through the contract or other enforceable mechanism;

3 That these requirements have been appropriately implemented in the facility, activity or operation, or appropriate compensatory measures, formally approved by DOE, are in place during the period prior to full implementation; and that,

4 In the opinion of the ORR team, adequate protection of the public health and safety, worker safety, and the environment has been maintained.

The final report must be of adequate detail to support its conclusion, such that a knowledgeable reader would reasonably be expected to draw the same conclusions.

(b) The final report should include a statement regarding the team leader's assessment of the adequacy of the implementation of the core functions and guiding principles of Integrated Safety Management (ISM) at the facility undergoing the review.

(c) There must be a lessons learned section of the final report that may relate to design, construction, operation, and decommissioning of similar facilities, activities or operations and to help guide future Readiness Review efforts.

(d) The team leader must approve the final report, and each team member must approve the section of the final report for which he

or she was responsible. There will be a provision for dissenting professional opinions if agreement cannot be achieved.

(9) A copy of the final ORR report must be forwarded to cognizant contractor and DOE line management.

(10) The closure of ORR findings must include:

(a) Development of corrective action plans to correct the findings. Action plans must provide evaluation of, and address any overall programmatic deficiencies and causes.

(b) Creation of a finding closure package which must include a brief description of actual corrective actions taken, evidence of completion, and reasons for concluding that closure has been achieved.

(11) Following completion of the contractor ORR, the contractor will prepare and forward to DOE Line Management a Readiness to Proceed Memorandum indicating that readiness to start up or restart nuclear operations has been achieved. A manageable list of open prestart issues may exist provided that the issues have a well-defined schedule for closure.

(12) Contractor line management must satisfactorily resolve all prestart findings from the DOE and contractor ORRs prior to startup or restart of the facility, activity, or operation. The SAA may approve startup or restart after prestart findings are resolved.

e. Requirements Applicable to Readiness Assessments.

The requirements for performing readiness assessments as described below may be tailored with approval of the PSO and concurrence from the CTA.

(1) The contractor RA must use a graded approach to the tenets of ORR requirements specified in this CRD. An RA may be as short and simple as a check list, or may approach the breadth and depth of an ORR, depending on the causes and duration of the shutdown and the modifications accomplished during the shutdown. In view of the flexibility to fit the rigor of the RA to the circumstances of the startup/restart situation, contractors must not develop readiness review processes similar to RAs but called something different.

(2) Contractor line management must develop a POA, which describes the scope of the RA. The POA must provide a clear discussion of the physical or geographic scope of the RA and a clear description of the SSCs,

individual processes, and programs that are within the scope of the RA. The POA must also designate the proposed RA team leader.

(a) All core requirements identified in section 2.f, below, must be evaluated for applicability for inclusion in the scope of the RA. The POA for the RA must provide a basis for justifying the exclusion of any core requirement that will not be assessed during the RA. The level of detail provided in the justification should be commensurate with the complexity of the review and of the operation, such that a knowledgeable reader would reasonably be expected to draw the same conclusions. The POA may also discuss the depth or tailoring for each core requirement to more fully describe the total required scope of the RA. The development of the scope must be based, in part, on the status of and changes to the facility, operating procedures, safety basis documents, hazards, operational conditions, and personnel.

(b) The POA for the RA must include the prerequisites for starting the RA. Prerequisites define measurable actions or deliverables that, when completed, provide assurance that readiness has been achieved for each specific core requirement that is to be reviewed in the RA.

(c) Contractor line management must forward the RA POA to local DOE line management.

(d) The POA must be approved by the SAA.

(3) The RA team leader must select the RA team members, if needed.

(a) Team members must meet the following qualification and training requirements:

1 Technical knowledge of the area assigned for evaluation, including experience working in the technical area;

2 Knowledge of performance-based assessment processes and methods; and

3 Knowledge of facility, activity, or operation-specific information.

(b) An RA team member must not review work for which she or he is directly responsible.

(c) The RA team leader must determine and document the qualification of RA team members and their freedom from a conflict of interest in the areas they are assigned to review.

(d) Contractor line management must support the RA team leader in staffing the RA team.

Note: DOE-HDBK-3012, *Guide to Good Practices for Operational Readiness Reviews, Team Leader's Guide*, provides information useful to team leaders in preparing for and conducting Readiness Reviews.

(4) The RA team must develop an RA IP. The RA IP documents the evaluation criteria and the review approaches based on the scope given in the RA POA. The RA team leader approves the RA IP. An RA IP that is developed by the RA team and approved by the team leader may be as short and simple as a check list, or may approach the breadth and depth of an ORR IP. The IP must include the full RA scope defined in the POA.

(5) Contractor line management must forward the RA IP to local DOE line management for information.

(6) Prior to starting the contractor RA:

(a) Contractor line management has issued a formal written Readiness to Proceed Memorandum certifying that the facility is ready for startup or restart.

(b) Contractor line management must verify that the preparations for startup or restart have been completed with the exception of a manageable list of open prestart issues The prestart issues must have a well-defined schedule for closure to allow the RA team to review the closure process.

(c) Contractor line management must verify that the contractor RA POA prerequisites have been met.

(7) Specific events significant to the startup and restart process that occur prior to the formal commencement of the RA; e.g., site emergency response drills, may be reviewed by the RA team at the time they are conducted.

(8) Upon direction from contractor line management, the RA may commence. The RA team must use the IP to conduct the RA.

(9) Upon completion of the RA, the RA team leader must prepare, and approve a final report. The final report is approved by the team leader and each team member approves the section of the final report for which he or

she was responsible. There will be a provision for dissenting professional opinions if agreement cannot be achieved.

(a) The final report must document the results of the RA and make a conclusion as to whether startup or restart of the nuclear facility, activity, or operation can proceed safely. The final report must be adequately detailed to support its conclusion, such that a knowledgeable and independent reader would reasonably be expected to draw the same conclusions.

(b) There must be a lessons learned section of the final report that may relate to design, construction, operation, and decommissioning of similar facilities, activities or operations and to help guide future Readiness Review efforts.

(10) For cases where startup or restart authority rests with the contractor, the RA team leader must submit the final RA report to the SAA. Where startup or restart authority rests with DOE, the RA team leader must submit the final RA report to contractor line management.

(11) A copy of the final RA report must be forwarded to local DOE line management.

(12) Closure of RA findings must include:

(a) Development of corrective action plans to correct the findings. Action plans must provide evaluation of, and address any overall programmatic deficiencies and causes.

(b) Creation of a finding closure package which must include a brief description of actual corrective actions taken, evidence of completion, and reasons for concluding that closure has been achieved.

(13) Following completion of the contractor RA, if the DOE is the SAA, the contractor will prepare and forward to DOE a Readiness to Proceed Memorandum indicating that readiness to start nuclear operations has been achieved. A manageable list of open prestart issues may exist provided they have a well-defined schedule for closure.

(14) Contractor line management must satisfactorily resolve all contractor prestart findings prior to startup or restart of the facility, activity, or operation. The SAA may approve startup or restart after prestart findings are resolved.

f. Core Requirements. Core requirements verify the readiness of personnel, procedures, programs, and equipment within the scope of the Readiness Review

to safely start nuclear operations. These core requirements are directly related to the seven guiding principles of ISM.

(1) Line management has established Safety Management Programs (SMPs) to ensure safe accomplishment of work:

(a) Contract requirements for the SMPs have been flowed down into facility-specific procedures,

(b) SMP implementing procedures have been effectively implemented in support of the facility,

(c) A sufficient number of qualified personnel is available to effectively implement the SMPs in support of the facility, and

(d) Adequate facilities and equipment are available to ensure that SMP support and services are adequate for safe facility operations.

The following SMPs are identified in 10 CFR Section 830.204, *Documented Safety Analysis*:

- Quality Assurance Programs
- Procedures Management
- Maintenance Management
- Personnel Training Program
- Conduct of Operations
- Emergency Preparedness
- Fire Protection Program
- Waste Management Program
- Radiation Protection
- Criticality Safety Program

The SAA should designate and approve via the POA those specific SMPs to be included in the breadth of the readiness review and should specify the scope of the desired review of each designated SMP. Additional support programs may be specified in the POA if required to ensure safety of nuclear operations.

(2) Functions, assignments, responsibilities, and reporting relationships, including those between the line operating organization and environment, safety and health support organizations, are clearly defined, understood, and effectively implemented, with line management responsibility for control of safety.

(3) The selection, training, and qualification programs for operations and operations support personnel have been established, documented, and effectively implemented.

Training and qualification requirements for each position encompass the range of assigned duties and activities.

The selection process and applicable position-specific training for managers ensures competence commensurate with their responsibilities.

Modifications to the facility have been reviewed for potential impacts on training and qualification. Training has been performed to incorporate all aspects of these changes.

(4) Level of knowledge of managers, operations, and operations support personnel is adequate based on reviews of examinations and examination results, selected interviews of managers, operating, and operations support personnel, and observations of operational demonstrations.

(5) Personnel exhibit an awareness of public and worker safety and health and environmental protection requirements and, through their actions, demonstrate a high-priority commitment to comply with these requirements. Worker safety and health requirements of 10 CFR Part 851, *Worker Safety and Health Program,* have been implemented within the facility.

(6) Facility safety documentation (normally DSA and TSRs) is in place that describes the safety envelope of the facility.

(a) The safety documentation characterizes the hazards/risks associated with the facility and identifies preventive and mitigating measures (systems, procedures, administrative controls, etc.) that protect workers and the public from those hazards/risks.

(b) Facility safety documentation is approved and has been implemented.

(c) Implementation of facility safety documentation has been verified and is current.

(d) SSCs are defined.

(e) A system to maintain control over facility design with emphasis on Vital Safety Systems (VSS) is established.

(f) Procedures for maintaining the safety documentation have been adequately defined and implemented and provide for required updates.

(g) A DOE-approved Unreviewed Safety Question procedure has been effectively implemented.

(7) A program is in place to confirm and periodically reconfirm the condition and operability of VSS. This includes examinations of records of tests and calibration of these systems.

The material condition of all safety, process, and utility systems is adequate to support the safe conduct of work.

(8) The facility systems and procedures, as affected by facility modifications, are consistent with the description of the facility, procedures, accident analyses, and assumptions included in the safety documentation.

A formal program is defined and implemented to control facility modifications. Authorized modifications within the scope of the Readiness Review have been completed and fully closed, or evaluated and determined not to affect the ability to safely start nuclear operations.

(9) Adequate and accurate procedures and safety limits are approved and in place for operating the process systems and utility systems. The procedures include necessary revisions for all modifications that have been made to the facility. Facility processes ensure that only the most current revision to each procedure is in use.

(10) A routine operations drill program and an emergency management drill and exercise program have been established and implemented. Records for each program are adequate to demonstrate the effectiveness of completed drills and exercises as well as planning for future drills and exercises.

(11) An adequate startup or restart program has been developed that includes plans for graded operations and testing after startup or resumption to simultaneously confirm operability of equipment, the viability of procedures, and the performance and knowledge of the operators.

The plans should indicate validation processes for equipment, procedures, and operators after startup or resumption of operations, including any required restrictions and additional oversight.

Any compensatory measures required during the approach to full operations are described.

(12) The formality and discipline of operations are adequate to conduct work safely, and programs are in place to maintain this formality and discipline (e.g., DOE O 5480.19, Chg 2, *Conduct of Operations Requirements for DOE Facilities*).

Sufficient numbers of qualified personnel are available to conduct operations.

(13) Formal agreements between the operating contractor and DOE have been established via the contract or other enforceable mechanism to govern safe facility operations.

A systematic review of the facility's conformance to these requirements has been performed.

These requirements have been implemented in the facility, or compensatory measures are in place during the period of implementation. The compensatory measures and the implementation period are approved by DOE.

(14) An effective feedback and improvement process (i.e., Contractor Assurance System) has been established to identify, evaluate, and resolve deficiencies and recommendations made by contractor line management and independent contractor audit and assessment groups. The process also provides for resolution of issues and recommendations by external official review teams and audit organizations (e.g., DOE O 226.1A, *Implementation of Department of Energy Oversight Policy*, dated, 7-31-07).

g. Exemptions and Equivalencies. Exemptions and equivalencies may be obtained in accordance with DOE O 251.1C, *Departmental Directives Program*, and DOE O 410.1, *Central Technical Authority Responsibilities Regarding Nuclear Safety Requirements.*

Central Technical Authority (or designee) concurrence is required for both exemptions and equivalencies to this Order for nuclear facilities.

h. Records Management Program. Requirements for maintenance and disposition of Federal records, such as those pertaining to ORRs or RAs, are provided under the general guidance of DOE O 243.1, *Records Management Program*. The disposition, including destruction, of Federal records must be in accordance with:

(1) The General Records Schedules, as published by the National Archives and Records Administration (NARA) or

(2) DOE records disposition authority (Standard Form 115, *Request for Records Disposition Authority*), as approved by NARA.

Consult the cognizant field element office records officer for guidance.