

# **Startup Readiness Guidance**

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**Topic: Operations**

# Startup Readiness Guidance

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**NOTE:** “**Bolded**” words contain hyperlinks to their definitions.

**NOTE:** Referenced documents without a revision number refer to the latest version.

## 1.0 PURPOSE

This document provides guidance for facility management to assist them in achieving and verifying readiness to obtain authorization to safely start or restart a facility or program work (activities/processes [henceforth called activity]) within the facility. The basic process to prepare an activity for startup or restart is outlined in the Activity Readiness Plan and its purpose is to ensure all programmatic work (new or restarted) is ready, properly reviewed and approved before the authorization of operations. The contents of the Activity Readiness Plan include the [Activity Readiness Checklist](#), [Activity Readiness Checklist Affidavits](#), and [Readiness Self-Assessments](#) (RSA). Completion of the RSA documents the completion of the [Management Self-Assessment](#) (MSA) required by [HNF-PRO-055, Startup Readiness](#).

Authorization to commence the operations follows validation and demonstration of the following:

1. There is an agreed-upon set of requirements that has been formalized with DOE and that are implemented,

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2. The equipment, personnel and procedures are prepared,
3. Sufficient experience has been gained to assure the proposed operations will be conducted in a safe manner,
4. The facility will be maintained and operated by trained and qualified personnel, and
5. Operations will be maintained within the approved safety basis.

Validation is completed by the conduct of a readiness review (Operational Readiness Review [ORR] or Readiness Assessment [RA]) or, in the event a readiness review is not required, a Management Assessment. Guidance for the generation of the necessary documents for the readiness reviews is included in this document.

This document works hand-in-hand with the requirements of [HNF-PRO-055](#).

### 2.0 SCOPE

This guidance applies to non-reactor nuclear facilities defined in [10 CFR 830.3](#) managed by Fluor Hanford (FH) or FH contractors. This document may also be used by any organization preparing for startup or restart of an activity. This document includes guidance for development of the Plan of Action (POA) ([Appendix A](#)), documenting the readiness preparation ([Appendix B](#)), development of the Declaration of Readiness/Readiness to Proceed Memorandum ([Appendix C](#)), development of the Implementation Plan (IP) ([Appendix D](#)), development of the Final Report ([Appendix E](#)), Finding closure ([Appendix F](#)) and the [Startup Plan](#) ([Appendix G](#)). Definitions pertaining to this document are in [Appendix H](#).

### 3.0 IMPLEMENTATION

This document is effective upon publication.

### 4.0 APPROACH AND EXPECTATIONS

#### 4.1 Approach

The path to readiness is usually arduous, with many obstacles for management to run into. Proper planning will identify many of those obstacles, allowing management to be proactive. The information contained within this document will assist facility management in that planning. Because the facility management is most familiar with the project, the details necessary for a complete plan are up to them.

A key to the successful startup of new or restart of existing program work is the upfront effort in preparing the activity. To be successful in preparing the activity, one of the first actions is to develop a plan or path to readiness. Proper planning (consisting, in part, of detailed-resource loaded schedule), implementation and execution will enhance satisfactory startup or restart.

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Proper planning starts with defining the Environmental, Safety and Health (ES&H) Policy for the activity; followed by clear definition of the scope of work; identifying the hazards and requirements; analyzing the hazards and implementing controls; performing work within those controls; providing feedback and continuous improvement; and management review.

[HNF-PRO-055](#) requires an Activity Readiness Plan for the startup or restart of new or changed activities within non-reactor nuclear facilities with U. S. Department of Energy (DOE) as the Authorization Authority and recommends an Activity Readiness Plan for the startup or restart of new or changed activities within non-reactor nuclear facilities with FH as the Authorization Authority. The Activity Readiness Plan may also be used to prepare any activity for startup or restart.

### 4.2 Expectations for Readiness

#### 1. Establish ES&H Policy

All new or restarted work must ensure the ES&H Policy is clearly documented and communicated to all workers. Management must ensure the ES&H Policy covers the activity. The highest priority of Fluor Hanford is to achieve daily excellence in protection of the employees and the public, and in stewardship of the environment both on and off the Hanford Site. FH has established an Environmental Policy ([HNF-5054](#)) and a Safety and Health Policy ([HNF-5053](#)), both are located within the Project Hanford Management System. [HNF-MP-003](#), *Integrated Environment, Safety, and Health Management System Description*, defines the core functions and guiding principles of the Integrated Safety Management System (ISMS).

#### 2. Identification of Scope

When the startup or restart of an activity has been identified, line management should identify all the work necessary to make the activity ready to operate. This requires the responsible manager (typically the Operations or Facility Manager) to identify all equipment, supporting analysis, implementing documents, people, and organizations that should function and be ready to support the activity. As stated in the DOE-STD-3006, *Planning and Conduct of Operational Readiness Reviews (ORR)*, the identification of scope may be accomplished in a project plan. This work scope identification should be done early, and should involve operations and support organizations to ensure all interfaces (equipment, documentation, and organizations) are identified. This should also include the interfaces considered “operational” at the time of defining the scope, since these operational systems should be reviewed to ensure they can support the activity being started or restarted (e.g. utility systems, operational hoods, etc.).

#### 3. Analyzing Hazards

All new or modified activities should have the hazards identified and the analysis to support the work. This should be completed at a Safety Basis level (i.e., documented safety analysis

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[DSA]), and at a job specific level (i.e., job hazard identification, job hazard analysis). The performance of a [High Level Review](#), identified in HNF-PRO-055, and/or the Enhanced ALARA Committee is beneficial for identifying hazards and controls.

#### 4. Develop and Implement Controls

Project controls should be developed and implemented, prior to declaring readiness to operate, to ensure the hazards identified during the hazard identification and analysis phase will protect the worker and the environment. These controls will be in safety basis documents and implemented in procedures. The controls should be verified as operational and effective.

#### 5. Perform Work/Operations

After the identification of Scope, Hazards, Controls and the Implementation of those controls, the Perform Work portion of ISMS is next. Perform Work consists of the construction activities, preparation activities, the [Management Self-Assessment](#) (MSA) and the “Operations” is following authorization to start operations. As the preparatory activities are completed, the MSA is performed (using RSA documents for criteria). Below is a sample of activities needed to be completed:

- Program implementation.
- Engineering processes.
- Construction.
- Testing (OTP, ATP, etc.).
- Procedures (Operations, maintenance, surveillance, emergency response, programs, etc.).
- Training personnel.
- Performance of dry-runs.

The [Activity Readiness Plan](#) (ARP) documents the process for verifying an activity is ready for startup or restart. The ARP consists of three sets of documents: 1) [Activity Readiness Checklist](#) (ARC); 2) [Activity Readiness Checklist Affidavit](#) (ARCA); and 3) [RSA](#). Completing the first two sections of the ARC (“Establish ES&H Policy” and “Define the Scope of Work”) is the first part of the readiness verification process. The second part is the completion of the ARCA, which includes completion of the RSAs. The final part of the readiness verification process is completion of the [MSA](#). This is accomplished by completing the RSAs. The results of the MSA should not be a list of findings, but a confirmation that readiness has been achieved.

As part of line management completing the work necessary to get ready, equipment and processes should be functionally and operationally tested (individual system testing and integrated process testing) to ensure the equipment operates to design specifications. To assist in verification of proper and adequate testing, a [Joint Test Group](#), per [HNF-PRO-286](#) could be appointed. As part of verification of equipment operability, the interface systems should also be reviewed to ensure equipment certifications and operational requirements are

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current. Operational documentation (procedures, drawings, round sheets, criticality safety evaluations, requirements, and postings, etc.) should be walked down and exercised to ensure they can be performed as written and match field conditions.

Personnel should complete a formal qualification and/or certification process, and undergo the necessary level of operational evaluation to verify their qualifications (provisional qualification may be necessary due to operational restrictions related to the shutdown). Upon completion of the equipment readiness, operational documentation, and personnel qualifications, it is expected the operation be exercised in an integrated manner that more closely resembles the actual expected operational conditions. This means using mock up materials to the maximum extent possible to demonstrate the operators are knowledgeable of the task using operational documentation, and the equipment functions as designed and credited in the activity hazard and safety analysis.

There are three major purposes for the RSAs:

- a. Provide Facility Management with the objective evidence their part of the activity is ready to safely commence operations,
- b. Provide the Facility Manager with the objective evidence the prerequisites are met and the Management Self-Assessment is completed, and
- c. Provide the Review team the objective evidence the prerequisites are met to commence the review.

The Activity Readiness Plan should be comprehensive enough to document the above with sufficient detail to withstand the scrutiny of an ORR or RA. The expectations of the management team should be that the RSA packages accurately document the state of readiness and could be presented to external observers.

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### 6. Feedback and Improvement, Management Review

The final phase of achieving readiness can also be considered the first phase of verification of readiness. The DOE standard (DOE-STD-3006) identifies the need to perform a rigorous [MSA](#) to ensure the activity is ready to operate. The DOE standard does *not* define how to perform the MSA, only that the MSA should evaluate the prerequisites for the independent contractor review have been completed and the activity is ready to operate. The MSA is an integral part of the [Activity Readiness Plan](#). The Activity Readiness Plan defines the path to readiness and is the documented evidence the activity is ready to operate. It is expected the MSA be the responsibility of the facility's line management and line personnel, and is a tool for the facility's line managers to evaluate their overall readiness to operate. Line managers should use the MSA to identify and correct shortcomings in equipment, procedures, and personnel preparedness. The MSA should be used to satisfy line management the activity can and will be operated safely. The result of the MSA should not be a list of findings, but a confirmation to line managers that operational readiness has been achieved. Use [Issue Identification Form \(IIF\)](#) to document programmatic issues (i.e., those issues, if identified at another project would require evaluation) identified during the MSA.

The MSA should include a series of reviews upon completion of the initially defined work to get the activity ready (using the RSA documents for criteria), and should provide for an integrated review at the end of all work being completed. The MSA should have the largest scope of any review being conducted, and should ensure all equipment, operational documentation, and personnel are ready. An initial walk-down to identify the scope of work to get ready is the first phase of the MSA. Upon completion of the scope of work identified, a verification the work was completed is another phase of the MSA. The final phase of the MSA is a performance-based review, which includes an integrated operational demonstration and interviews of personnel. Establishing this assessment environment is necessary to ensure personnel have been exposed to, and will be more comfortable with the intense scrutiny that occurs during the subsequent independent reviews. The more critical the MSA, the better prepared the activity and facility/project will be.

The documents collected during the performance of the MSA generate the objective evidence needed to verify the criteria are met and result in RSA packages. These RSA packages are reviewed by the [RSA Review Board](#), identified in HNF-PRO-055 and may be reviewed by independent groups, both internal and external to the project, and management's expectations should be that the RSA packages contain the details necessary to convince a skeptical reviewer that the requisite information is available to meet the criteria.

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### 7. Certification of Readiness

Line management must certify they are ready to operate. This certification is the acknowledgment they have completed all the work necessary to operate the activity in a safe manner. The prerequisites to that certification should be measurable, and represent some activity that provides evidence readiness has been achieved. The completion of the MSA is a mechanism to confirm the prerequisites have been met. The Declaration of Readiness is the vehicle to certify readiness and should be made only when the Facility Manager has completed a review to ensure the activity is ready to operate and all prerequisites have been completed. Making this declaration, the facility's line management should be convinced the facility is prepared to operate safely within the authorization basis.

### 5.0 ROLES AND RESPONSIBILITIES

Prior to initiating a new activity or modifying an existing activity, personnel involved should read and become familiar with this document. The facility management's roles and responsibilities are the same as the assignments in [HNF-PRO-055](#). The roles and responsibilities identified are for guidance only. Startup Mentors are usually sub-contractors and their contract specifies their responsibilities and deliverables.

#### 1. Facility Manager may be responsible for:

- Developing the Plan of Action.
- Developing and approving the Activity Readiness Plan.
- Preparing for and obtaining facility readiness.
- Approving the [Startup Plan](#) (if applicable).
- Completion of the Activity Readiness Checklist.
- Providing the Declaration of Readiness and the Readiness to Proceed Memorandum to the Authorization Authority.
- Correcting Findings from the readiness review.
- Approving Corrective Actions Plans for post-start findings and post-start actions for pre-start findings.

#### 2. Responsible Managers may be responsible for:

- Assisting the Facility Manager with development of the Activity Readiness Plan.
- Ensuring the completion of the Activity Readiness Checklist Affidavits for activities assigned to their organization.
- Approving safety and hazard assessments and analyses, and ensuring appropriate controls are implemented.
- Developing the Startup Plan to transition to unrestricted operations (if applicable).
- Ensuring equipment, program and personnel readiness for startup or restart through performance-based demonstrations of all tasks under each activity before declaration of readiness and submittal of the completed Activity Readiness Plan for readiness review.



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- Addressing and ensuring closure of pre-start issues from the Management Self-Assessment (documented in the Readiness Self-Assessments) before work release or Readiness to Proceed.
  - Addressing closure of pre-start findings from the readiness review.
  - Developing Corrective Action Plans for post-start findings and post-start actions from pre-start finding from the readiness review.
  - Incorporating compensatory measures into the Startup Plan to address post-start issues as appropriate.
  - Correcting Findings from the readiness review.
  - Approving Corrective Actions Plans for post-start findings and post-start actions for pre-start findings.
  - Ensuring post-start issues (from the MSA) and post-start findings (from the readiness review) are corrected to enable transition to unrestricted operations.
3. The Startup Mentor may be responsible for the following:
- Mentoring designated Project Manager(s) to ensure this guidance document is effectively implemented to improve confidence in startup preparations.
  - Interfacing with the Startup Readiness Program Manager to resolve issues of interpretation or tailoring.
  - Collaborating with other Startup Readiness Mentors to identify process improvements for incorporation within FH guidance.
  - Assist in the development of a [continuous readiness model](#) for each assigned startup.
    - Deliverable: Continuous Readiness Model.
  - Develop a mentoring plan to provide improved confidence in the effectiveness of scheduled Startup Readiness activities (to include the Activity Readiness Plan).
    - Deliverable: Mentoring Plan.
  - Mentor readiness preparations as specified in the mentoring plan.
    - Deliverable: Workplace discussions, written recommendations and mock interviews.
  - Participate in the development of a Plan of Action for each assigned startup.
    - Deliverable: Written comments to improve the effectiveness of the Plan of Action.
  - Participate in the development and approval of an Activity Readiness Plan.
    - Deliverable: Written comments to improve the effectiveness of the Activity Readiness Plan.
  - Mentor the management team on Readiness Self-Assessments completion as specified in the Activity Readiness Plan.
    - Deliverable: Workplace discussions and written recommendations.
  - Review completed Readiness Self-Assessments for completeness and accuracy.
    - Deliverable: Evidence of completed Readiness Self-Assessments for activity and for those Readiness Self-Assessments field verified, a memorandum documenting results of field verification.
  - Be present in the field (field verification and validation of procedures [surveillance, maintenance and operational] and observation of activities [operations, maintenance and surveillance])
    - Deliverable: Written bi-weekly reports.

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- Generate lessons learned from those activities conducted to mentor startup preparations.
  - Deliverable: Lessons Learned Document.
- Meet regularly with facility manager responsible for starting up or restarting the activity to provide feedback and improvement opportunities associated with the Activity Readiness Plan. Discuss the results of mentoring activities.
  - Deliverable: NA.
- Provide input for the quarterly report describing the effectiveness of the organization's Startup activities to the organization's Vice President and Vice President, Regulatory Compliance.
  - Deliverable: Written quarterly report input.

### 6.0 READINESS GUIDANCE

Getting an activity ready is potentially a long and arduous process that can be minimized by the proper, up front planning. [HNF-PRO-24889](#), *Project Initiation and Execution*, provides several project plans. These plans address the potential need for a readiness review for startup or restart, but the reference to readiness is late in the process and does not provide any details. Readiness planning for the startup or restart of processes, needs to start during the design phase of the project and continue through construction, testing and dry run phases, while readiness planning for Deactivation and Decommissioning activities needs to start at the beginning of the Transition Phase and continue through to the end of the Surveillance and Maintenance phase. Planning this far in advance provides sufficient time to prepare for all aspects of the activity, whether it is starting, restarting, decommissioning or deactivation.

#### 6.1 Key Documents

1. Project Plan (described in [HNF-PRO-24889](#))

The detail of this plan depends upon the type and size of the project. HNF-PRO-24889 contains the guidance for generating the Project Plan. Section 5.1 is for Decommissioning Projects that are Tri-Party Agreement (TPA) milestones. Section 5.2 is for Engineering, Procurements, Construction (or De-Construction) Activities. Section 5.3 is for Resource Conservation and Recovery Act (RCRA) and Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) activities. Each section identifies the need to determine a readiness strategy.

2. Project Schedule

This document varies from project to project. Key readiness elements of the Project Schedule should include readiness activities (e.g., activities needed to satisfactorily complete the applicable Readiness Self-Assessments), resource loading, achievable time frames and schedule ties from readiness activities to declaration of readiness. Experience has shown that it takes approximately six months following construction completion to gain the experience necessary to successfully complete a readiness review.

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### 3. Plan of Action

The POA defines the activity being started or restarted, the physical and administrative boundaries, prerequisites to start the review and the schedule for the review. The POA is submitted to the Authorization Authority for approval.

Guidance for the POA is given in [Appendix A](#).

### 4. Activity Readiness Plan

The Activity Readiness Plan documents the actions necessary to prepare an activity to demonstrate an adequate state of readiness to 1) safely startup and 2) satisfactorily demonstrate to an independent team that the activity:

- Is constructed in accordance with the approved design;
- Can be operated safely;
- Will be or is operated, maintained, and supported by trained and competent personnel;
- Is designed and operated in conformance with applicable DOE Orders and regulatory requirements;
- Will be or is operated so that no undue risk to employees, the public, or the environment results; and
- The above items are properly and adequately documented.

The Activity Readiness Plan consists of three parts: Activity Readiness Checklist, Activity Readiness Checklist Affidavits, and Readiness Self-Assessments. The checklist and affidavits are high-level documents that help the management team and Facility Manager keep track of the readiness process. The Management Self-Assessment is performed by completing the Readiness Self-Assessment documents. Being critical during the performance of the MSA will greatly increase the preparedness of the activity. Satisfactory completion of a Management Self-Assessment documents the readiness of the activity (plant, people and paper). The Facility Manager should be able to answer yes to the following questions prior to declaring readiness:

- a. Is the Documented Safety Analysis approved, signed and implemented?
- b. Is construction complete and has all testing been satisfactorily completed and documented?
- c. Does the system configuration match the system documentation (e.g., Drawings, specifications, procedures ...) and align with the design requirements (e.g., Design Criteria, Laws, Orders ...)?
- d. Are personnel trained and qualified or certified to support all shifts of operations?
- e. Are all operations and maintenance procedures that implement the safety basis requirements written, verified and approved and have they been performed in an integrated operation?
- f. Are all Emergency Procedures written, verified and approved and have they been performed?

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- g. Are all Alarm Response Procedures written, verified and approved and have they been performed?
- h. Are “off normal” operations drills written, verified and approved and have they been performed?
- i. Is Conduct of Operations implemented per the matrix of applicability?
- j. Are all required Environmental permits, NOCs, etc., in place?
- k. Has the plan to transition from “cold standby” to “hot operations” been written and approved and is it ready to be implemented?
- l. Has Management verified readiness?

The Readiness Self-Assessments contain the details to obtain the objective evidence to the management team that they and the activity are ready. Guidance for the Activity Readiness Plan is contained in [Appendix B](#).

### 5. Startup Plan

The [Startup Plan](#) is a stand-alone document which clearly delineates the graded and systematic approach to full operations. This plan includes the additional oversight directed by Facility Management while the operators gain the necessary experience with the procedures and equipment to transition to full unrestricted operation. If the activity is divided into phases, this plan should include how the activity will transition from one phase to another. Not all activities will need a Startup Plan, but if Core Requirement 12, of DOE O 425.1C, is applicable to the review, then a Startup Plan is required. Activities that may not require a Startup Plan are activities with an experienced crew and minimal changes from the last operation.

The Startup Plan may contain the following elements:

- Applicable Oversight
- Initial operations validation process for
  - Equipment
  - Procedures
  - Operators
- Transition to full operations
  - Through limitations (or restrictions)
  - To the next phase
- Plan Administration

Guidance for the Startup Plan is given in [Appendix G](#).

### 6. Declaration of Readiness

Following completion of the Management Self-Assessment and approval of the POA, the Facility Manager generates the Declaration of Readiness document, which certifies the activity is ready and identifies a Manageable List of Open Items (if required), and forwards to the Project Vice President for concurrence and submittal to the Authorization Authority.

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Guidance for the Declaration of Readiness is contained in [Appendix C](#).

### 7. Implementation Plan (IP)

Prior to the start of the readiness review, the review team develops the Implementation Plan (IP). The IP defines the scope of the review (breadth and depth) based upon the boundaries identified in the POA, provides the team makeup and assignments, and the Criteria and Review Documents. The Team Leader approves the IP and submits it to the Facility Manager. For reviews with DOE as the Authorization Authority, the Facility Manager submits the IP to DOE for information.

Guidance for the IP is contained in [Appendix D](#).

### 8. Final Report (FR)

Following the completion of the readiness review, the review team develops the Final Report (FR). The FR documents the results of the review, both in a summary level and the details (contained in Forms 1), identifies findings (detailed in Forms 2) and makes a recommendation to the readiness of the facility to safely start the activity. The final report must document the results of the ORR, make a conclusion as to whether startup or restart of the nuclear facility can proceed safely, and state whether the facility has established the following:

- An agreed-upon set of requirements to govern safe operations of the facility;
- That this set of requirements has been formalized with DOE through the contract or other enforceable mechanism;
- That these requirements have been appropriately implemented in the facility, or appropriate compensatory measures, formally approved, are in place during the period prior to full implementation; and
- That, in the opinion of the ORR team, adequate protection of the public health and safety, worker safety, and the environment has been maintained. This conclusion must be based on:
  - a. Review of the program to document conformance with the agreed-upon set of requirements, including a process to address new requirements, and
  - b. Extensive use of references to the established requirements in the ORR documentation.

Final Report guidance is provided in [Appendix E](#).

### 9. Readiness to Proceed Memorandum

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Prior to authorization to start, the findings must be addressed. The pre-start actions for the pre-start findings must be completed, a corrective action plan for post-start findings and post-start actions for pre-start findings needs to be developed and submitted to the Authorization Authority. The Facility Manager performs this action by developing the Readiness to Proceed Memorandum. The Readiness to Proceed Memorandum consists of the following: Certification the activity is ready to start; Closure of pre-start actions for pre-start findings; and Corrective Action Plans. If the Readiness to Proceed Memorandum is prior to the commencement of the DOE review, there may be a Manageable List of Open Items included.

Guidance for the Readiness to Proceed Memorandum is contained in [Appendix C](#).

### 7.0 FORMS

**NOTE:** The form titles below are hyperlinked to the form. To obtain a MS Word template, open MS Word, click on file, click on new, click on the FH tab, click on the form you need and it will open. Instructions are included with the form template. To obtain a form from Site Form, on the FH intranet, double click on “Project Hanford Management Contractor”, then click on “General Information” and then “Site Forms”; in the “Search by Form No.”, type the form number and press enter, or; in the “Search by Title”, type the title or a portion of the title and press enter.

Issue Identification Form, [A-6002-898](#)

Startup Review Appraisal Form, Form 1, [A-6002-568](#)

Startup Review Finding Form, Form 2, [A-6002-569](#)

Startup Review Team Member Qualification Summary, Form 4, [A-6002-571](#)

Corrective Action Management, [A-6002-971](#)

### 8.0 RECORD IDENTIFICATION

**Records Capture Table**

Name of Document	Submittal Responsibility	Retention Responsibility
Plan of Action	Facility Management Responsible Project Vice President/Senior Director	LMIT/RIM
Activity Readiness Plan	Facility Manager	Per Facility Procedures
Implementation Plan	Review Team Leader Responsible Project Vice President/Senior Director	LMIT/RIM
Final Report	Review Team Leader Responsible Project Vice President/Senior Director	LMIT/RIM
Startup Review Finding Resolution and closure packages	Facility Management Responsible Project Vice	LMIT/RIM

**NOTE:** Before each use, check PHMS Docs Online to ensure this copy is current.

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	President/Senior Director	
Corrective Action Management Form	Controlled by <a href="#">HNF-PRO-052</a>	

## 9.0 REFERENCES

### 9.1 Working References

[10 CFR 830.3](#), *Definitions*

[DOE O 425.1C](#), *Startup and Restart of Nuclear Facilities*

[DOE-STD-3006](#), *Planning and Conduct of Operational Readiness Reviews (ORR)*

[HNF-5053](#), *Fluor Hanford Safety and Health Policy*

[HNF-5054](#), *Fluor Hanford Environmental Policy*

[HNF-5173](#), *PHMC Radiological Control Manual*

[HNF-MP-003](#), *Integrated Environment, Safety, and Health Management System Description*

[HNF-PRO-052](#), *Corrective Action Management*

[HNF-PRO-055](#), *Startup Readiness*

[HNF-PRO-246](#), *Management Assessment*

[HNF-PRO-286](#), *Testing of Equipment and Systems*

[HNF-PRO-8366](#), *Facility Hazard Categorization*

[HNF-PRO-24889](#), *Project Initiation and Execution*,

[HNF-RD-9390](#), *Fire Hazard Analysis Requirements*

[HNF-RD-9717](#), *Fire Prevention for Construction/Occupancy/Demolition Activities*

# Startup Readiness Guidance

## APPENDIX A Plan of Action Guidance

### 1.0 Plan of Action

[HNF-PRO-055](#) identifies the contents of the Plan of Action (POA). The DOE standard DOE-STD-3006, *Planning and Conduct of Operational Readiness Reviews (ORR)*, contains additional guidance for Operational Readiness Reviews and Readiness Assessments. As required by [HNF-PRO-055](#) a Plan of Action (POA) is required for all activities that require an ORR or RA. The details of the plan should be commensurate with the activity hazards and complexity and a graded approach should be applied.

### 2.0 Format and Content

**NOTE:** [Click here to access Plans of Action from previous Operational Readiness Reviews.](#)

The format for the POA is contained in [HNF-PRO-055](#). The elements identified in Section 3.0 below should be considered as guidance for the necessary details of the POA. Additional guidance may be found in DOE-STD-3006.

The amount of detail in each POA varies with the complexity of the activity and the situation. As a rule of thumb, the level of detail must be adequate to justify to a skeptical reviewer the decisions being proposed. The detail must be adequate for preparers, reviewers, and the Team Leader to defend the decisions being made. Additionally, the POA defines the review boundaries, both physically and administratively. This means the boundaries should be specific, such as a specific valve for water or air systems or a specific breaker for an electrical system; or a listing of the applicable documents.

The POA content for Operational Readiness Reviews or Readiness Assessments is identified in [HNF-PRO-055](#). The POA and Implementation Plan may be combined for a RA with FH as the Authorization Authority.

### 3.0 Development of the Plan of Action

The following paragraphs provide guidance for generating a Plan of Action for an Operational Readiness Review or a DOE Readiness Assessment.

1.0 Name of the Facility and /or Activity Being Started. The name must be specific to what is to be evaluated and started. For example, if a single process within a building is to be restarted, the activity name would be the process name. On the other hand if the process encompasses several buildings and an area, the name would be the encompassing process name.

2.0 Description of Activity. This includes buildings, systems, and processes included in the startup or restart. The description may be instrumental in defining the scope of the review.



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For example, if most support functions and procedures were outside the boundary of the activity being started up, the review scope would focus on interfaces with existing programs. This section of the POA defines the physical scope of the review. The physical scope may include systems, structures, and/or processes.

3.0 Identification of the Responsible Contractor. This is the contractor who certifies readiness of the activity to operate. It is normally the contractor who submits the responsible contractor review POA.

4.0 Designation of Action as a New Start or Restart. Identify whether the activity is being started for the first time or being restarted. A new process within an existing activity would be a New Start, while resumption of a process would constitute a Restart. If a Restart, identify the following: cause for and duration of shutdown (include the date of last operation), repairs accomplished during the shutdown (if applicable), modification accomplished during the shutdown period and effect on the Authorization Basis (if applicable), and any process changes (if applicable). If the determination is a Restart and is based upon similar work, identify what the basis for similarity is (e.g., hazards, procedures, work steps, and/or type of material involved).

New Start Discussion. The following details of the activity should be included to support or create the basis for the recommended decisions:

- Hazard categorization for new activity and basis for the designation (criticality, explosive, chemical, environmental, etc). This should be based upon [HNF-PRO-8366](#), *Facility Hazard Categorization*

**OR**

Restart Discussion. If the action is a restart of an existing activity or process, the following information should be provided to support the follow on decisions:

- Hazard categorization of the activity once restarted and basis for determination (criticality, explosive, chemical, environmental, etc.). In the event a formal hazard categorization was not made, a discussion of the relative hazard is appropriate;
- Cause for shutdown;
- Duration of shutdown;
- Repairs accomplished during shutdown period;
- Modifications accomplished during shutdown period and affect on the approved safety basis; and,
- Any anticipated process changes following restart.

5.0 Proposed Breadth for the Review. This is a key section of the POA. The breadth is the top tier core requirements. The breadth should be derived starting with the minimum core requirements listed in HNF-PRO-055 and the physical scope in the activity description. The

## Startup Readiness Guidance

discussion should support the decision to eliminate any core requirements based on recent, independent appraisals in the excluded areas.

The discussion of the breadth of the review in the POA supports the development in the Implementation Plan of the depth of each aspect of the review. In support of this function of the POA, and to ensure maximum understanding regarding the intention of the restart authority as to what should be reviewed, care and attention to detail are important in the development of the breadth section of the POA. The breadth should start with a clear discussion of the physical or geographic scope of the review. A clear definition of the structures, systems, and components, as well as the individual processes or activities within the scope of the review should be provided. Experience indicates clarity can be best achieved when each core requirement is discussed individually. The discussion should include justification for those core requirements that may not be included in the review. For those core requirements to be included, the discussion should clearly describe the detail or depth to which each is to be reviewed. In some cases, only the interface with site infrastructure programs needs to be included. In other cases, the entire site wide program should be evaluated. The discussions should include reference to site wide, as well as activity specific, reviews that provide a basis for the review.

Evaluations such as previous ORRs, ISMS verifications, independent DOE or contractor reviews, or similar reviews may reduce the necessary depth of review for individual core requirements. Similarly, the recent history of the facility, site, or activity may be important in defining the level of detail or depth of individual portions of the review. Conditions such as recent occurrences, investigations, or systemic issues identified within the site may be the basis for an increase in the breadth or depth of the review of individual core requirements.

**6.0 Prerequisites.** Defining the prerequisite conditions to be met by the facility management prior to the start of the review is an important element of a successful review. The process the contractor uses to separate gaining readiness through management actions and confirming readiness through the review process should be reflected in the prerequisite requirements. The contractor POA prerequisites should address each core requirement of DOE O 425.1C, determined to be applicable to the scope of the review. Adequate detail should be included to permit an understanding of exactly which programs and personnel are considered essential for adequate oversight of the activity for startup or restart. The prerequisite section of the contractor POA should refer to specific items such as a project management plan, Readiness Self-Assessments, a compliance assessment program, safety documentation such as SAR, TSR, etc., or environmental assessments or impact studies. The prerequisites should be described in terms of specific measurable items.

Examples of acceptable prerequisites include:

- Procedures have been approved, exercised utilizing mock up material, and have been demonstrated to prove they can be performed as written. Equipment has been functionally and operational tested to be operable utilizing the site program for testing. Support equipment has been reviewed to ensure they can perform their intended function,

## Startup Readiness Guidance

calibrations are current, and the equipment has been determined to support the new activity startup.

- Safety Basis controls and assumptions have been captured in operating procedures, annotated as Safety Basis controls, and placed under configuration management control.
- Material Handling Operators and Chemical Operators have completed their qualifications and certifications; Operators have completed their qualifications, and have demonstrated hands on proficiencies during an operational performance demonstration.
- National Electric and NFPA code deficiencies have been identified and corrected. Verify a Fire Hazard Analysis has been performed.
- Modifications to the activity have been completed, change packages closed, documentation updated, and post modification testing completed. Field conditions have been verified by hand over hand field walk down to ensure they are consistent with process descriptions and drawings.

The criterion identified in the Readiness Self-Assessments could be used as the list of prerequisites for the POA. Completion of the Readiness Self-Assessments will result in the verification package for each POA prerequisite.

7.0 Estimated Start Date and Duration. The date is for planning purposes only and should be the best estimate. Identification of a date is not to infer the review start is schedule driven rather than readiness driven. The DOE review start dates, as well as the contractor schedule, should be provided for information in the Contractor POA to assist DOE management in planning for the DOE review.

8.0 Proposed Team Leader. The individual must have the necessary independence, the required experience and technical background consistent with the complexity of the activity and the specific review, and meet the criteria defined in HNF-PRO-055.

9.0 Official to Approve Start of the Review. Designation of the Authorization Authority is made in accordance with the requirements of HNF-PRO-055. For the contractor review, the official designated to approve the start of the review should be a line manager senior to the manager responsible for achieving overall readiness to start operations.

10.0 Official to Approve Startup or Restart of the Activity. This is the individual specified in DOE O 425.1C based on a new start or restart circumstances. The specific Authorization Authority is listed in the Startup Notification Report.

11.0 Reviewers' Approval. List the individuals by name and title that prepared and reviewed this document. The signature indicates they have reviewed the document and recommend approval by the Authorization Authority listed.

## Startup Readiness Guidance

12.0 Distribution. This is a listing of the individuals and organizations that receive copies of the POA following approval. Individuals and organizations are listed who have either responsibilities or interests in the new start or restart process.

### 4.0 FH RA PLAN OF ACTION

The level of detail for a FH RA is dependent upon the complexity and hazards of the activity being started. Some activities will only require a checklist to verify readiness of a few core requirements (e.g., CR-4, CR-10, CR-11, CR-13), while other activities will require the details of a DOE RA, evaluating most of the core requirements. In either case, there should be sufficient detail to define the activity being started and the corresponding physical, personnel and administrative boundaries.

1.0 Name and description of the Facility/Activity Being Started. The name defines what is to be evaluated and started. For example, if a single process within a building is to be restarted, the activity name would be the process name. On the other hand if the process encompasses several buildings and an area, the name would be the encompassing process name. Also, this includes buildings, systems, and processes included in the startup or restart. The description may be instrumental in defining the scope of the review. For example, if most support functions and procedures were outside the boundary of the activity being started up, the review scope would focus on interfaces with existing programs. This section of the POA defines the physical scope of the review. The physical scope may include systems, structures, and/or processes.

2.0 Proposed Breadth for the Review. This is a key section of the POA. The breadth is the top tier core requirements. The breadth should identify the applicable HNF-PRO-055 core requirements and the physical scope in the activity description. A clear definition of the structures, systems, and components, as well as the individual processes or activities within the scope of the review should be provided. Experience indicates clarity can be best achieved when each core requirement is discussed individually. For those core requirements to be included, the discussion should clearly describe the detail or depth to which each is to be reviewed. In some cases, only the interface with site infrastructure programs needs to be included. In other cases, the entire site wide program should be evaluated. The discussions should include reference to site wide, as well as activity specific, reviews that provide a basis for the review.

3.0 Prerequisites. Defining the prerequisite conditions to be met by the facility management prior to the start of the review is an important element of a successful review. The process the contractor uses to separate gaining readiness through management actions and confirming readiness through the review process should be reflected in the prerequisite requirements. The contractor POA prerequisites should address each applicable HNF-PRO-055 core requirement. Adequate detail should be included to permit an understanding of exactly which programs and personnel are considered essential for adequate oversight of the activity for startup or restart. The prerequisites should be described in terms of specific measurable items.

## Startup Readiness Guidance

4.0 Estimated Review Start Date and Duration. The date is for planning purposes only and should be the best estimate. Identification of a date is not to infer the review start is schedule driven rather than readiness driven. The contractor schedule should be provided for information in the Contractor POA to assist DOE management in planning.

5.0 Proposed Team Leader. The individual must have the necessary independence, the required experience and technical background consistent with the complexity of the activity and the specific review, and meet the criteria defined in HNF-PRO-055.

An Activity Readiness Plan should be developed as required by HNF-PRO-055 for the startup or restart of activities with DOE as the Authorization Authority. Guidance for the Activity Readiness Plan is located in [Appendix B](#).

For some reviews it is appropriate to include the documentation for an Implementation Plan as part of the POA. The checklist and or lines of inquiry should be added as an attachment. For guidance on the Implementation Plan, go to [Appendix D](#).

# Startup Readiness Guidance

## APPENDIX B Activity Readiness Plan Guidance

### 1.0 PURPOSE

[HNF-PRO-055](#) documents the requirements for and the basic contents of the Activity Readiness Plan. The plan is the document used to assist the facility's management team in preparing the activity to be started. As defined in HNF-PRO-055, the plan consists of three parts, the Activity Readiness Checklist, the Activity Readiness Checklist Affidavits and the Readiness Self-Assessments. These documents identify the actions to get the activity ready to safely operate. The scope of the Activity Readiness Plan should include the scope of the Plan of Action as well as those existing activities required for the safe startup and operation that may be outside the scope of the Plan of Action.

### 2.0 PREPARING FOR READINESS

Readiness starts in the design and planning stage of the project, long before the construction activity begins. Project Plans, described in [HNF-PRO-24889](#), should include sufficient time, following completion of construction and testing to allow the Operations and Operations Support organizations to get ready and to gain proficiency at operations, not only stable-routine operations but upset and casualty actions as well. Most project plans contain the steps and processes necessary to get construction completed and will typically include construction testing and field validation. The actions necessary to complete the Activity Readiness Plan should be included within the Project Plan.

### 3.0 ACTIVITY READINESS PLAN

**NOTE:** *Clicking on the **BOLDED** titles in this section will send you to the definitions.*

HNF-PRO-055 identifies the [Activity Readiness Plan](#) as the document that encompasses the entire readiness process. The Facility Manager uses the Activity Readiness Plan to assign actions to the responsible managers, document progress towards readiness, document the validation of readiness, develop evidence that verifies the prerequisites are met, document the authorization to startup, and document feedback and improvements. The HNF-PRO-055 Activity Readiness Plan has three parts: Activity Readiness Checklist; Activity Readiness Checklist Affidavits; and Readiness Self-Assessments. The following sections provide guidance for each part.

**NOTE:** [Click here to link to a generic Activity Readiness Plan](#)

#### 3.1 Activity Readiness Checklist

The [Activity Readiness Checklist](#) is a checklist, used by the Facility Manager or delegate, to document the preparation, verification, certification, authorization to start, the transition from startup through full operations using the startup plan, and feedback (lessons learned). [Click here](#)

## Startup Readiness Guidance

[to link to the Activity Readiness Checklist](#), which is located on the Startup Readiness Home Page under “Activity Readiness Plan.” Completion of the Activity Readiness Checklist Affidavits and the Readiness Self-Assessments feed into the completion of the Activity Readiness Checklist.

### 3.2 Activity Readiness Checklist Affidavits

The [Activity Readiness Checklist Affidavits](#) are assigned by the Facility Manager or delegate to the responsible managers. [Click here to link to the set of Activity Readiness Checklist Affidavits](#), which are located on the Startup Readiness Home Page under “Activity Readiness Plan.” The affidavits are based upon Integrated Safety Management System Core Functions and the numbers correlate to the Activity Readiness Checklist numbers. Completing the work documented in the affidavit constitutes readiness, not just the completed document.

### 3.3 Readiness Self-Assessments

The [Readiness Self-Assessments](#) are based upon the core requirements of [HNF-PRO-055](#), the same core requirements that will be used by the Readiness Review Team to verify your readiness. [Click here to link to the generic set of Readiness Self-Assessments](#). The generic set of RSA is appropriate for the startup of a new activity or the restart of an existing activity. In some cases the generic set of Readiness Self-Assessments may be decreased, based upon the scope of the startup, but, it is still the Responsible Manager’s responsibility to ensure all actions necessary to operate safely have been completed. The Readiness Self-Assessments consist of criterion and review approaches, that when verified complete becomes the manager’s objective evidence the area is ready. It must be noted, completing the work to meet the criterion constitutes readiness, not completing the RSA document.

The RSA are used as the criteria for a [Management Self-Assessment](#) (MSA). The MSA is the process facility management uses to confirm readiness and obtain the objective evidence that the activity is ready to safely operate.

HNF-PRO-055 requires Responsible Managers to complete the tutorial in HNF-PRO-246 prior to commencement of the MSA. For Responsible Managers lacking experience in completing the RSA documents, training is recommended. If the Responsible Manager has not participated in an Operational Readiness Review or Readiness Assessment as the “one being evaluated,” it is recommended he or she completes the following briefing: *Managing the Readiness Process*, provided by the Director, Quality Assurance. Additionally, if the managers actually gathering and verifying the criterion have not completed a readiness review within the last year, they too, should complete the training.

# Startup Readiness Guidance

## APPENDIX C

### Declaration of Readiness and Readiness to Proceed Memorandum Guidance

#### 1.0 PURPOSE

The Declaration of Readiness, as defined in [HNF-PRO-055](#), is to request, from the “Official” identified in the Plan of Action, authorization to start the contractor review and to document the following:

- The activity is ready to safely commence operations
- The prerequisites are met, and
- The Manageable List of Open Items

The Readiness to Proceed Memorandum, as defined in HNF-PRO-055, is to request the start of the DOE review or authorization to commence operations. The Readiness to Proceed Memorandum for the start of the DOE review also documents the following:

- A certification statement that the facility is in a state of readiness to commence operations,
- A statement that pre-start items have been completed and appropriately closed, a manageable list of open item may exist,
- Identification of the recommended date for startup, and
- Identification of any circumstances internal to the facility or external to the facility’s cognizance that could impact the recommended startup date and any compensatory measures that the facility plans to take that would allow startup by the recommended date.

The Readiness to Proceed Memorandum requesting authorization to commence operations also documents the following:

- Completion of all startup reviews,
- Correction of pre-start actions,
- Post-start Corrective Action Plans,
- Request authorization to commence operations,
- Identification of the recommended date for startup, and
- Identification of any circumstances internal to the facility or external to the facility’s cognizance that could impact the recommended startup date and any compensatory measures that the facility plans to take that would allow startup by the recommended date.

#### 2.0 DECLARATION OF READINESS

The Declaration of Readiness is the document the Facility Manager uses to declare readiness to commence the contractor readiness review. The document is concurred with by the responsible Project Vice President/Senior Director. The Declaration of Readiness content is identified in HNF-PRO-055. Below is guidance for completing each section.

##### A statement of readiness



## Startup Readiness Guidance

The facility manager makes a statement the activity is ready to commence operations, with the exception of a manageable list of open items (if applicable). This statement should be based upon the results of a Management Self-Assessment.

### **A declaration that the prerequisites have been met**

The prerequisites are identified in the applicable Plan of Action. The Declaration of Readiness should identify the prerequisites and make a statement justifying why/how each prerequisite is met. The satisfactory completion of the Management Self-Assessment (using the Activity Readiness Plan) should provide the objective evidence needed to justify the prerequisites are met.

### **The manageable list of open items (if applicable)**

In some cases everything necessary to commence operations is not ready, but, there is enough to be able to demonstrate the ability to operate safely. In these cases a manageable list of open items should be included in the Declaration of Readiness. This is a list representing the pre-start work necessary for completion between the declaration of readiness (i.e., the end of the Management Self-Assessment) and the start of the activity. This work should have a well defined plan and schedule for closure and there should be no unresolved issues in the path towards closure of these pre-start items. Also, this list should not include items such as programs needing to be implemented or permits requiring approval.

### **The authorization to commence the review**

The Declaration of Readiness should direct the Contractor review team to commence the readiness review.

## **3.0 READINESS TO PROCEED MEMORANDUM**

Upon completion of the contractor review, closure of pre-start findings and the development CAPs for the post-start findings; a Readiness to Proceed Memorandum is developed and transmitted to the Authorization Authority.

The Readiness to Proceed Memorandum is the formal communications between the Facility Manager and the Authorization Authority declaring the activity has been brought to a state of readiness to commence the DOE review or to commence operations. Facility Manager prepares the Readiness to Proceed Memorandum forwards it to the Authorization Authority. If the Readiness to Proceed Memorandum is requesting authorization to commence operations, there should not be a “Manageable List of Open Items.” The Readiness to Proceed Memorandum is concurred with by the responsible Project Vice President/Senior Director. Approval of the Readiness to Proceed Memorandum provides formal approval for the facility to start operations.

The Readiness to Proceed Memorandum should not be submitted until all actions required for startup or restart have been completed, with the exception of a manageable list of open items that have a well defined plan and schedule for closure. There should be no unresolved items in the path toward safe startup or closure of open items.

## Startup Readiness Guidance

### 3.1 Contents of Readiness to Proceed Memorandum for Readiness to Commence the DOE Review

#### **Statement of Certification**

The Facility Manager certifies that the facility is in a state of readiness to commence operations and therefore ready to commence the DOE review. This certification should be based upon the satisfactory completion of the contractor review.

#### **Statement of Pre-Start Finding Completion**

The Facility Manger states that pre-start items have been corrected and appropriately closed (a manageable list of open items may exist). The pre-start finding closure form(s) should be enclosed as an attachment.

#### **Recommended Startup Date and Startup Date Impacts**

The Facility Manager should recommend the date for startup based upon the anticipated completion date of the DOE review and completion of the pre-start findings. The Facility Manager should identify any circumstances, internal or external, that could impact the recommended startup date. This should include any compensatory measures the facility plans to take that would allow startup by the recommended date.

### 3.2 Contents of Readiness to Proceed Memorandum for Readiness to Commence Operations

#### **Statement of Review Completion and Approval of the Corrective Action Plans**

The Facility Manager states that readiness reviews have been satisfactorily completed and requests approval of the post-start corrective action plans. The corrective action plans for post-start finding should be included in an attachment.

#### **Statement of Pre-Start Finding Completion**

The Facility Manager makes a statement that pre-start findings have been corrected, appropriately closed and approved by DOE, or requests DOE approval (if necessary). The closure form(s) should be enclosed as an attachment.

#### **Authorization to Commence Operations and Recommended Startup Date**

The Facility Manager should request authorization to commence operations and the recommend the date for startup. The Facility Manager should identify any circumstances, internal or external, that could impact the recommended startup date. This should include any compensatory measures the facility plans to take that would allow startup by the recommended date.

# Startup Readiness Guidance

## APPENDIX D Implementation Plan Guidance

### 1.0 Implementation Plan

An IP is a document that is consistent with the breadth defined in the Plan of Action and the specific facility involved, a structured review plan should be prepared and implemented that identifies the necessary criteria and review approach required for the determination of readiness to safely startup and operate the specified facility. The IP defines the review depth to be consistent with the breadth and conditions of the restart. If a previous ORR has been completed for the facility being reviewed, the OP and subsequent review should stress the operations that have changed since the last review, as well as the effectiveness of corrective actions for any findings. This plan should be specifically developed using a graded approach and could range from a single statement defining a specific process or item to be checked prior to operation to a complex plan for implementing a formal ORR. The intent is to ensure that prudent performance-based operational checks, meeting any new engineering requirement or guidance, are conducted prior to authorization of operation. The IP should flow logically from the applicable POA (these take the form of Criteria Reviews and Approach Documents [CRADs] as described in DOE-STD-3006 for an ORR) and from the project execution plans. Where an activity does not warrant these levels of planning and documentation, the IP should contain the specified scope of review with an appropriate statement of justification so it is clear the 15 core requirements of [HNF-PRO-055](#) have been considered.

The team responsible for conducting the review is responsible for developing the IP. The IP should document the process the team will use to conduct the review and defines the rationale for that process. The Team Leader, designated in the Plan of Action (POA), approves the IP. The documentation should include the selection of criteria and review approaches. The IP is the document providing the depth of evaluation of the breadth and execution of other details in the approved POA. The IP should provide sufficient detail to serve as both information to management and guidance to the team members. The team preparing the IP requires a thorough understanding of the facility and its associated issues. Pre-development on-site facility visits and interviews may be required before the IP can be adequately developed.

The Implementation Plan (IP) also provides a standardized method to identify findings to the requirements identified within the criteria. Criteria for determining whether a finding should be resolved prior to startup should be published in the IP. It may also be appropriate to identify the level of management (i.e. contractor, DOE Field, or DOE HQ) at which the finding should be closed. While the review team may assist management in reviewing the action taken on a finding, responsibility for closure should reside with line management. The IP should describe the closure process and include the form of the closure documentation.

### 2.0 Content of the Implementation Plan

**NOTE:** [Click here for access to Implementation Plans from previous Readiness Assessments.](#)

## Startup Readiness Guidance

The content of the IP for an Operational Readiness Review or a Readiness Assessment is identified in HNF-PRO-055 and guidance is provided below. The content of an IP for an activity requiring review with FH as the Authorization Authority (FH RA) may be included in the POA and should address those activities important to safety to verify the facility is capable of operating the activity safely and within the Authorization Basis. Guidance for the FH RA IP is provided below.

### 3.0 Development of the Implementation Plan for Reviews with DOE as Authorization Authority

The following paragraphs provide guidance for generating the Implementation Plan for an Operational Readiness Review or a DOE Readiness Assessment.

1.0 Introduction/Background: Describes the activity to be reviewed and the reason for shutdown (if a restart). This section provides background information concerning the basic process, hazards, and issues associated with the activity to be reviewed.

2.0 Purpose: Describes the reasons why the review will be conducted, and provides the basic insights for the defined scope of the review.

3.0 Scope: The scope defines the physical and administrative boundaries of the facility, and justifies those defined boundaries and support function review relative to each of the following:

- Plant and equipment (hardware) readiness;
- Management and personnel readiness; and,
- Management programs (procedures, plans, etc.) readiness.

The scope section of the IP describes the approved breadth from the approved POA. Each breadth element required by the POA should be incorporated into the IP. The depth to which each scope element is evaluated is specified and quantified by the IP criteria and review approaches to be consistent with the discussion in the approved POA.

The scope section should define the major objectives of the review. These objectives define the discipline or areas selected for review and define the approach and guidelines, which should be implemented for an organization to achieve a state of operational readiness. This section also defines the physical scope including facilities, systems, and processes. In addition, it describes the level of review of the various site infrastructure programs that make up the site's Integrated Safety Management System.

4.0 Review Prerequisites: The IP should summarize the prerequisites specified in the approved POA. It is not the responsibility of the review team to develop the prerequisites but they should understand them and be prepared to verify the prerequisites have been achieved at the start of the review.

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5.0 Overall Approach: Defines the generic approach by which the review is conducted, and provides an introduction to the process. The Criteria and Review Approaches (CRAs) are defined by the processes described in this section. How findings are classified as pre-start and post-start should be defined here, as should the method for report preparation, finding resolution and methods of closure.

6.0 Review Preparations: Describes any preparations, including team pre-review site visits, document reviews, etc., to be undertaken prior to the on-site review. A discussion of qualifications and training considerations for review team members could appear here.

7.0 Review Process: Describes the actual Criteria and Review Approaches (CRAs) to be used to review the defined core requirements of the review. These CRAs should be developed in a Criteria and Review Approach Document (CRAD) to include the following items:

- A. Core Requirement – Identification of the requirement that will be verified as having been achieved by the readiness process;
- B. Criteria – Specifically how the core requirements/core objectives will be measured, which may include regulatory requirements, etc. References for these requirements should be cited;
- C. Review Approach – A definition of the combination of documentation review, personnel interviews, systems walkdowns, and exercises and/or drills observed that will be conducted to derive objective evidence the team will use to measure the defined criteria and assess the readiness of the particular objective or sub-objective.

8.0 Administration: Describes the mechanism for the ORR-related meetings, correspondence, communications, team structure, etc. of the review. The review team composition/organization, interface requirements, any oversight groups, and DOE organizations to be involved in the review should be discussed in this section.

9.0 Reporting and Resolutions: The section should detail the methods the review team will use to report review results. Elements described in Sections 5.5, 5.8, and 5.9.3 of the guidance should be included.

10.0 Schedule: A discussion of the proposed schedule for any preparation, pre-review site visits, on-site review, conduct of review, report preparation, and closeout.

11.0 Appendices: The appendices should include items such as the CRADs to be utilized by the team members to conduct the individual assessments, reporting forms, writing guides, team resumes, and other sections appropriate to stand alone in an appendix. The appendices of this guidance, as well as the Team Leader's Guide and ORR Home Page, contain information and examples, which may be useful during development of the appendices for the IP.

### List of Appendices

## Startup Readiness Guidance

Criteria and Review Approach Documents  
Team Assignments and Qualifications Summaries  
Finding Classification Criteria

### Criteria and Review Approach Documents

This appendix contains the Criteria and Review Approach Documents (CRAD) for the applicable core requirements identified in the POA. Each CRAD consists of the core requirement or portion of core requirement, criteria, and review approaches. The development of the CRADs is the means through which the graded approach is applied to the scope of the review. Those areas significant to the startup or significant to the shutdown should be assessed to a greater depth than other areas.

Each CRAD should start with the core requirement or portion of core requirement. This ensures all core requirements are addressed by criteria. The criteria are developed from applicable State and Federal Laws, DOE Orders, contracts or facility-specific procedures. The criteria should be specific and as objective as possible. The specific criteria should follow and should be related to the requirement. There are three basic approaches used during a review: Document Reviews; Interviews; and Observations.

#### Document Review

This section lists the types of documents being reviewed.

#### Interview

This section identifies the type of personnel to be interviewed.

#### Observation

This section identifies the type of activities to be observed.

These CRADs become the start of the Forms 1 and are the road map the reviewer follows to document their review.

### Team Assignments and Qualifications Summaries

This section identifies the areas each reviewer is reviewing and consists of a cross reference between functional areas and core requirements to ensure all applicable core requirements are reviewed. Additionally, this section contains the qualification summary, which documents the qualifications and experience for each team member. The Startup Review Team Member Qualification Summary purpose is to provide a consistent consolidated record of the team qualifications for inclusion in the record of the ORR and assist the team leader in the selection process. Form 4 is Site Form [A-6002-571](#).

### Finding Classification Criteria

The purpose of these criteria is to provide a consistent approach for determining whether a finding is required to be corrected prior to startup (Pre-Start) or may be delayed until

## Startup Readiness Guidance

after startup (Post-Start). The screening criteria below were taken from the DOE team leader's guide.

a. Initial Screening

1. Does this finding involve a safety system?
2. Does this finding involve processes, functions, or components identified in the technical Safety Requirements, Operational Safety Requirements or nuclear safety control procedures?
3. Does this finding involve potential adverse environmental impact exceeding regulatory or site specific release limits?
4. Does this finding impact non-safety processes, functions or components that could adversely impact safety related processes, functions or components?
5. Is this finding non-compliant with FH or DOE-RL approved startup documents?
6. Does this finding indicate a lack of adequate procedures or administrative systems?
7. Does this finding indicate operational or administrative non-compliance with procedures or policy?
8. Has this finding occurred with a frequency that indicates past corrective actions have been lacking or ineffective?
9. Does this finding require operator training not specified in existing facility training requirements?
10. Does the finding involve a previously unknown risk to worker or public safety and health or a previously unknown threat of environmental insult or release?

If the response to any of the above is **yes**, further evaluation in accordance with the finding impact criteria below is required.

b. Finding Impact

1. Does the loss of operability of the item prevent safe shutdown, or cause the loss of essential monitoring?
2. Does the loss of operability of the item require operator action in less than ten (10) minutes to prevent or mitigate the consequences of events described in the Safety Analysis?
3. Does the loss of operability of the item cause operations outside the TSR/OSRs or Safety Analysis?
4. Does the loss of operability of the item result in a reduction of the margin of safety as described in the Safety Analysis?
5. Does the finding indicate a lack of control which can have a near term impact on the operability or functionality of safety related systems?
6. Does the finding involve a violation or potential violation of worker safety or environmental protection regulatory requirements, which poses a significant danger to workers, the public, or of environmental insult or release?

## Startup Readiness Guidance

If the response to any of the above questions is **yes**, the item should be considered a **pre-start item**.

### 4.0 Development of the Implementation Plan for Reviews with FH as Authorization Authority

A checklist or Forms 1, based upon the POA, identifying the objectives and criteria to be assessed should be developed that contain sufficient detail to address those activities important to safety to verify the facility is capable of operating the activity safely and within the Authorization Basis. The IP can range in detail from a simple checklist to that of an ORR. The scope of the review is still based upon the applicable core requirements identified in the POA. Those areas significant to the startup or significant to the shutdown should be assessed to a greater depth than other areas.

Team Assignments and Qualifications Summaries.

The size of the team is based upon the complexity of the activity and the experience of the team member (s). For simple activities or a team member with a wide range of experience, the team makeup could be one person. For more complex activities or members with less experience, more team member would be required. The Form 4 could be used to document the team member's qualifications.



# Startup Readiness Guidance

## APPENDIX E Final Report Guidance

### 1.0 FINAL REPORT

As required by [HNF-PRO-055](#), a Final Report will be prepared for readiness reviews. The Report should contain a brief summary of the review activities, the status of ISMS implementation, the conclusions reached, the basis for those conclusions, and the findings identified. The Final Report may also identify observations that would not impact startup, restart or shutdown but, if corrected, could lead to excellence in operations. The Final Report shall make a conclusion as to whether startup or restart of the facility can proceed safely. In addition, there shall be a statement in the Final Report as to whether all identified non-compliances or schedules for gaining compliance with formal agreements between the operating contractor and DOE have been established via the contract or other enforceable mechanism to govern the safe operations of the facility have been identified in writing; have been formally approved; and, in the opinion of the review team maintain adequate protection of the public health and safety, worker safety, or the environment. The Final Report should include a section describing the lessons learned during the review, including a discussion of both the process and the technical issues identified. DOE-STD-3006, Section 5.8 discusses lessons learned.

The Final Report should include a section that provides the review team members the opportunity to discuss differing professional opinions, non-judgmental general comments, and observations. The Final Report is described in more detail in DOE-STD-3006, Section 5.9.3.

### 2.0 FINAL REPORT FORMAT

**NOTE:** [Click here for access to previous Final Reports from Operational Readiness Review.](#)

The Final Report documents the results of the Operational Readiness Review or the Readiness Assessment and makes a conclusion as to whether startup or restart of the nuclear facility can proceed safely. The Final Report should provide opportunity for the team to include general comments, observations, and dissenting opinions. The review conclusion should be based upon review of the program to document conformance with applicable DOE requirements, including a process to address new requirements; and, extensive use of references to DOE requirements in the ORR documentation. The content of the final report for an ORR or RA is identified in HNF-PRO-055.

### 3.0 FINAL REPORT DOCUMENTS

#### 3.1 Startup Review Appraisal, Form 1

As required by HNF-PRO-055, the Form 1 will be used to document the results of the review. The first part of a Form 1, Site Form [A-6002-568](#), is the part of the document used to develop the Criteria Review and Approach Document (CRAD) in the Implementation Plan, which establishes the depth of the review and provides guidance to the review team member for conducting his or

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her review. The last part of the Form 1 is used to document the results of the team member's review. Completed forms are signed by the Team Leader and submitted as part of the Final Report.

The last part of the Form 1 consists of listings of documents, personnel and activities; documentation of the review; conclusions; and any findings or observations identified. Instructions for the Form 1 are available at the same location as the Form 1.

### 3.2 Startup Review Deficiency, Form 2

As required by [HNF-PRO-055](#), the Form 2 is required to document findings and observations. The Form 2 is used to document the findings identified during the criteria evaluation process. A separate form should be generated for each finding related to a particular core requirement. For instance, in reviewing a specific CRA, an inspector will generate a single Form 1 describing the methods used in the investigation. If three distinct findings were discovered, the inspector would then generate three Forms 2 to detail the deficiencies. A single Form 2 may be used to identify a generic problem for which a number of individual examples are listed. Clear communication is the objective and the specific number of Forms 2 used to detail findings will be up to the discretion of the team member and Team Leader.

Instructions for completing the Form 2 are available at the same location as the Form 2. Each finding should be clearly described including examples of the individual issues. The finding should describe what is deficient, the reference to which it is deficient, and be written in a manner permitting correction. Prior to being published, each finding should be identified as to whether or not, in the opinion of the review team leadership, it should be resolved as a prerequisite to start of operations. While the review team may assist management in reviewing the action taken on a finding, responsibility for closure should reside with line management.

During the review issues are identified in the Form 1 and may become a finding. Below identifies criteria for rolling up issues or for dropping issues from the final report.

#### Criteria for Rolling up Issues and for Dropping Issues from the final report

- Rolling up Issues - Criterion: Issues with a similar theme: During the review, multiple issues may be identified that have a similar theme. The Team Leader may roll these issues into one finding and each issue is documented as an issue supporting the similar theme.
- Dropping Issues - Criterion: Issues that have been resolved. During the review issues may be identified requiring additional information to be resolved. If the required information is supplied and satisfies the reviewer the issue is no longer valid.

Form 2 is Site Form [A-6002-569](#).

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## APPENDIX F Finding Closure Guidance

### 1.0 FINDINGS

Findings are identified in the readiness review final report on Forms 2. The facility generates corrective actions and corrective action plans (specific corrective actions, assignees and due dates). These actions and plans are documented in accordance with [HNF-PRO-052](#) and submitted to the Authorization Authority with the Readiness to Proceed Memorandum. Finding closure includes the following:

- All findings in the final report (either the contractor or DOE) require processing per HNF-PRO-052 and require a causal analysis (e.g., root cause and/or apparent cause). During the evaluation process, findings that are evaluated as non-issues (opportunities for improvement, observations) require concurrence of the Authoritative Source, the Functional Area Interpretative Authority and the HNF-PRO-055 Interpretative Authority.
- Identify if actions are pre-start or post-start actions.
- For DOE identified findings, include an action to obtain RL Closure Authority Concurrence for pre-start or post-start actions.
- Closure of actions to be documented on a Corrective Action Management (CAM) evaluation form or Site Form [A-6002-971](#), *Corrective Action Management*, as a minimum.
- Closure Statement and evidence to be provided for actions (i.e., remedial, corrective action and RL Closure Authority Concurrence actions.)

When the corrective actions are completed, the closure packages are retained by the Corrective Action Management organization.

**NOTE:** *Retention of the closure documentation by the CAM organization is sufficient to meet the retention requirements.*

### 2.0 DOE-STD 3006 GUIDANCE

2.1. [DOE-STD-3006-2000](#), Section 5.7.2, *Corrective Action Plan*, identifies the following for both contractor and DOE findings, except as noted:

- 2.1.1. The finding, as written from the report submitted by the review team, and whether the finding is a pre-start or post-start finding.
- 2.1.2. A detailed proposed action plan for addressing the deficiencies identified in that finding. The proposed action plan should provide evaluation of any overall

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programmatic deficiencies or root causes related to a specific finding which may lead to further similar occurrences and include actions addressing such deficiencies or root causes. For findings in the DOE ORR (or DOE RA, if applicable), DOE must approve the contactors proposed corrective action plan.

- 2.1.3. The proposed dates when the action elements will be completed. If the corrective actions for a finding are phased, then the dates for each phase should be detailed.
- 2.1.4. If it is a post-start finding, a description of the risks and mitigation actions, if any, to be taken during the interim that will reduce the risks associated with the finding to an acceptable level before final correction. DOE line management shall verify that the correction action plan has been entered into the appropriate quality program issue management system.

- 2.2. DOE-STD-3006, Section 5.7.3, *Action Tracking/Closure Methodology*, describes the content of the corrective action closure packages.

Monitoring and verification of satisfactory closure of pre-start findings from both the contractor and DOE reviews is a line management responsibility. The review team leader and team members may be requested to assist in the verification or adequate resolution of pre-start findings. DOE O 425.1C defines elements of the required process to close pre-start findings. This is accomplished by development of a closure package that is reviewed and certified by the facility management and further reviewed by DOE management for findings from the DOE ORR or RA. Closure packages should contain the following information:

- 2.2.1. The finding, written verbatim from the original report, and identifying the finding as a pre-start or post-start finding.
- 2.2.2. The actions proposed in the action plan developed, submitted, and approved with the original completion schedule.
- 2.2.3. A brief description of the actual corrective actions taken and reasons for concluding that closure has been achieved and how referenced documents support closure. The referenced documents or objective evidence from these documents illustrating the corrective actions, and the dated of the actions should also be included.
- 2.2.4. Signatures of appropriate line management, as defined by HNF-PRO-052.
- 2.2.5. DOE Verification (DOE ORR findings as a minimum) of the adequacy and completion of the corrective actions.

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## APPENDIX G Startup Plan Guidance

### 1.0 STARTUP PLANS

Core Requirement 12 states, “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.” This requirement was established to provide direction for the period following the ORR or RA and the startup/restart of the facility. It is recognized here that, since operations are not authorized prior to and during the ORR or RA, a line manager cannot validate actual operations or those evaluated by an ORR or RA team.

Hence, to some degree (more for a more complex facility), operators will be operating equipment, using procedures, and handling the hazards for the first time. It is appropriate to establish additional controls, support, and oversight for critical period of the startup process, which is often called the “deliberate operations phase.” Review of the plans for these deliberate operations give the ORR or RA an opportunity to judge the level of complexity of the remaining startup/restart activities, the control to be exercised, and provide an appropriate recommendation to the startup authority, without having actually seen these events. Likewise, the responsible line manager can gain confidence through the plan that operators, procedures, and equipment have gained the requisite readiness to conduct work safely.

Some sites have provided guidelines for the establishment of startup/restart controls that accomplish the objectives outlined above. An example of these guidelines is included here for informational purposes. It is appropriate to note that the detail and magnitude of this plan is largely dependent of the complexity of the activity which is being started or restarted and the degree to which operations can be demonstrated prior to the introduction of hazards. If the majority of operations can be conducted and demonstrated during preparation and review processes, the plan should include those operations which could not be demonstrated, or will be conducted for the first time with the hazard present. Alternatively, an operation where the majority of the preparation must be done through walkthrough and table top, the plan would necessarily be more extensive.

### 2.0 GUIDANCE FOR STARTUP PLAN DEVELOPMENT

The [startup plan](#) should provide for a controlled, deliberate approach to achieving safe, hot operations. Other plans and schedules affecting startup should be summarized in the startup or restart plan such that the startup or restart plan is a complete, stand-alone document which clearly delineates the graded and systematic approach to full operations. The plan should detail implementation of management and facility activities necessary to achieve full operations not merely describe established programs. A key element involves the participation of qualified management personnel in the evaluation of initial operations testing. As such, the plan should

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include specific management observer (oversight) responsibilities associated with each aspect of the plan. The following paragraphs provide further guidance on the plan.

2.1. Identification of facility management observers necessary for initial operations oversight.

- a. List the management personnel assigned for initial operational evaluations of the graded operations testing, including summary level duties, responsibilities, and shift staffing requirements. (Specific duties and responsibilities should be listed in the remaining sections of the plan).
  - Include the specific duration of the initial operational evaluations.
  - Include criteria for termination of oversight
  - Include the specific qualifications of each individual (resumes).
- b. List the management personnel assigned for each phase of the activity (if applicable)

2.2. Joint Test Group

- a. The [Joint Test Group](#) includes the Operations Manager, Design Authority and the Facility Manager. In addition to the scope identified in HNF-PRO-286, the purpose should include facilitation of the resolution of “unknowns” and evaluate “first-use” results.
- b. The group should have approval authority to proceed, once any issues are resolved.

2.3 Equipment operability

- a. Identify and describe the integrated tests planned and required to confirm operability of equipment during initial operations.
  - Include the purpose and a summary of the acceptance criteria of the tests.
- b. List management responsibilities for approval of test commencement and management observer oversight of test performance.
  - Include management approval requirements for key events or progression to the next phase of testing.
- c. Provide a summary level schedule that clearly illustrates the systematic approach to full operations.

2.4. Procedure viability

- a. Identify and describe the mechanism for verification of the viability of procedures during actual performance,
  - Including requirements for management observer participation in the first time execution of procedures.

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- b. Summarize the process for procedure changes as a result of identification of inadequacies in the field.
  - Include any provisions for increased procedure revision support during periods of high levels of first time execution of procedures.

### 2.5. Operator Performance

- a. Identify and describe the mechanism for real time in-plant management observer evaluation of operator performance to verify the adequacy of operator training.
- b. Identify and describe the mechanism established for remediation of any identified weaknesses.

### 2.6. Plan Administration

- a. Identify how changes to the plan are managed
- b. Identify how to resolve deficient conditions

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### APPENDIX H Definitions

**Activity Readiness Checklist:** The checklist that contains the high level checks the Facility Manager uses to document the path to readiness, in an ISMS format. [Click here to link to the Activity Readiness Checklist](#)

**Activity Readiness Checklist Affidavits:** These are the checks the management team uses to document their respective areas are ready. [Click here to link to the set of Activity Readiness Checklist Affidavits](#)

**Activity Readiness Plan:** Set of documents that define the scope of the activity, identify and evaluate hazards, document the controls implemented (procedures, training, unreviewed safety questions, records, etc.), and verifies readiness (i.e., Activity Readiness Checklist, Activity Readiness Checklist Affidavits, and Readiness Self-Assessment). [Click here to link to a generic Activity Readiness Plan](#)

**Continuous Readiness Model:** 1) Breaking work scope into small, manageable segments early in the project's planning process. 2) Taking credit for recently completed reviews and/or assessments that document a facility's readiness to operate and/or document that a facility is operating safely. Therefore, the readiness review scope could be reduced.

**High Level Review:** This is a multi-disciplinary management review of the activity, with the purpose of ensuring that work planning and review is comprehensive; ownership of the planning and review process is clearly established; the work to be performed can be accomplished safely and effectively; the personnel performing the work have the necessary training and experience; and the hazards have been properly identified and mitigated. The focus of this review is the adequacy of work planning and the level of management oversight for the entire work evolution. The High Level Review group should review all work to ensure the work being performed meets project/activity standards.

**Joint Test Group:** An appointed assembly of representatives who review the test documents prepared by the engineering, procurement, and construction activity testing organization and provide approval and acts as the Test Authority for the activity.

**Manageable list of open items:** A list representing the pre-start work necessary for completion between the declaration of readiness (i.e., the end of the Management Self-Assessment) and the start of the activity (Approximate time frames to complete the work for each review: FH RA-1 week, DOE RA-3 weeks, and ORR-6 weeks). This work should have a well defined plan and schedule for closure. There should be no unresolved issues in the path towards closure of these pre-start items.

**Management Self-Assessment:** Assessments conducted by a member of the management team, for the purpose of completing the Readiness Self Assessment (RSA) form, that consists of the act of reviewing, evaluating, inspecting, testing, checking, surveillance, auditing, or otherwise



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determining and documenting whether items, processes, systems, or services meet specified requirements and/or are performing effectively. The following is applicable to this definition:

- 1) The completion of the Readiness Self-Assessment forms by management constitutes completion of a Management Self-Assessment.
- 2) Assessments conducted by independent sources (e.g., contractors, central organizations, etc.) are not considered Management Self-Assessments and are not exempt from [HNF-PRO-052](#) requirements.

**Readiness Self-Assessments:** RSA form: Documents identifying criteria relating to DOE O 425.1 Core Requirements, that provide the objective evidence (through review approaches including documentation review, interviews and/or observation of activities) when confirmed by facility management. RSA package: The documentation, which includes the RSA form, supporting documents and objective evidence. The completion of the set of Readiness Self-Assessment forms constitutes the completion of the Management Self-Assessment. [Click here to link to the generic set of Readiness Self-Assessments.](#)

**Readiness Self-Assessment Review Board:** This is a board convened by senior management to verify the knowledge level of the Responsible Managers and adequacy of the Readiness Self-Assessment packages prior to declaration of readiness. The board consists of the following and must contain a quorum:

- \* Vice President/Director, (Senior Board Member);
- Deputy, (Alternate Senior Board Member);
- \* Regulatory Compliance participant (Non-voting member)
- \* Responsible Manager (for the RSA packages being reviewed);
- Project Manager;
- Operations Manager;
- Engineering Manager;
- Nuclear Safety Manager;
- \* RSA package Independent Reviewer;
- Startup Mentor (RSA package Independent Reviewer);
- Startup Manager (RSA package Independent Reviewer).

A quorum consists of six individuals. An "\*" by the individual indicates a mandatory member.

**Startup Plan:** The management plan developed by the responsible contractor that describes the process of deliberate, controlled operations the contractor will follow after authorization to start or restart nuclear operations following an ORR or RA.