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# BWXT Y-12, L.L.C.
# Management Requirements



BWXT Y-12
Procedure

Subject: Readiness Manual

John A. Raulston /s/ — 2/8/07
Written By/Signature/Printed Name — Date

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2/28/07
Effective Date

**Concurrence**:

This document has completed the management requirements process.

S. G. Brown /s/ 2/21/07
Requirements Management

This document has been reviewed by a Derivative Classifier and UCNI Reviewing Official and has been determined to be UNCLASSIFIED and contains no UCNI. This review does not constitute clearance for public release
Tom Paul /s/ 2/8/07
Signature and Date

**REVISION LOG**
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| Revision Date | Description of Change | Pages Affected |
|---|---|---|
| 01/09/07 | DMR-2006-026, intent modification to Introduction/Glossary, volume I, Chapters 1 through 8, Volume II, chapters 1-4 and 6. Volume I, Chapter 2 will be eliminated, but the shell left as a place holder. Volume I, Chapter 1 is rewritten to correspond to UCN-21679, Applicability and Review Level Determination, Chapter 3 incorporates Chapter 2 information, Chapter 4 SNR is updated based on DNFSB input, Chapters 5 through 8 have minor changes and are in APAT format. Volume II Chapters 1-4 have minor changes and are converted to APAT, Chapter 6 has additional guidance and APAT format. | All |
| 12/20/06 | DMR-2006-024, intent modification to revise Y15-190, Vol. I, Chp. 9 and Vol. II, Chp. 5, to incorporate changed requirements issued in YSO-CRD-03-01, Revision 3, and to reflect new Operational Readiness evaluation process. | Vol. I, Chp. 9, 4-13, 15-22<br><br>Vol. II, Chp. 5, 4, 7-13, 21-24 |
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| 03/15/02 | ON RECORD | |
| 05/29/01 | ON RECORD | |
| 04/06/01 | ON RECORD | |
| 12/01/00 | ON RECORD | |
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| 03/16/98 | ON RECORD | |
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| 09/03/96 | ON RECORD | |

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## PURPOSE

BWXT Y-12 has developed this Manual in response to the requirements of the U. S. Department of Energy (DOE) Order 425.1. It is not intended for this manual to be a comprehensive step-by-step guide for every requirement involved in preparing a FACILITY, ACTIVITY or OPERATION for startup or restart. In the process of developing and updating this Manual, Lessons Learned from other readiness activities are incorporated to aid in the process for attaining operational readiness such that the results reflect the desired expected standard of performance. The following executive overview discusses the guiding principles utilized in the development of the BWXT Y-12 readiness process and the fundamental elements detailed in Volume I of this manual. In addition, a flow chart is provided in Figure 1-ES to capture the sequencing of the readiness preparation and confirmation processes. The executive overview is not intended to establish requirements for the readiness process.

This Manual defines the Y-12 process for the preparation, conduct, and support of readiness assessments and reviews that confirm that a FACILITY, ACTIVITY, or OPERATION has achieved a satisfactory state of operational readiness and can be safely, securely, and compliantly started or restarted. In order to achieve this state of operational readiness the applicable elements and requirements (including safeguards and security) from the Y-12 management requirements must be applied through an overall project management approach.

## APPLIES TO

This Manual applies to the startup or restart of FACILITIES, ACTIVITIES or OPERATIONS that are either located in or are hazard category 2 and 3 nuclear FACILITIES or hazardous non-nuclear FACILITIES administratively controlled by the Y-12 National Security Complex. (See Y14-001, “Conduct of Operations Manual” Chapter 1.0, “Organization and Administration”)

## EXECUTIVE OVERVIEW

### A. Guiding Principles of the Process for Attaining Operational Readiness

The Guiding Principles for attaining operational readiness is based on the evaluation of readiness related Lessons Learned and Integrated Safety Management (ISM). The Guiding Principles are:

- Line Management Responsibility
- Clear Roles and Responsibilities
- Adequate Resources Identified and Assigned
- Competence Commensurate with Responsibilities
- Project Management Planning and Controls
- Process tailored to the operations or activities being performed.

## A. Guiding Principles of the Process for Attaining Operational Readiness (cont.)

**Line Management Responsibility** - The RESPONSIBLE MANAGER is the line manager directly responsible for the FACILITY to be started or restarted or in which the ACTIVITY or OPERATION will be started or restarted. Project managers are often assigned to projects where new facilities or processes and supporting equipment are being installed or where more complex changes to existing FACILITIES, ACTIVITES or OPERATIONS and supporting equipment are planned. When assigned the project manager is responsible for the completion of the project activities needed to complete the project and attain operational readiness. The project manager is matrixed to the RESPONSIBLE MANAGER, and is alternately accountable for project completion and achievement of operational readiness. The department and senior manager, for whom the RESPONSIBLE MANAGER works, retain responsibility and accountability for the *oversight* of the process taking place in their facilities. The level of line management involvement in the preparations for operation follows this Manual's graded process with the most involvement being applied to the more complex and/or hazardous startup or restarts requiring a higher level Readiness Assessment (RA) or an Operational Readiness Review (ORR). Where a project manager is assigned they have overall responsibility for achieving operational readiness with senior management oversight. Where a project manager is not assigned, the RESPONSIBLE MANAGER may delegate responsibility for completion of the actions needed to achieve operational readiness, however, the RESPONSIBLE MANAGER still retains accountability for attaining overall operational readiness. As an integral member of the startup or restart team, it is expected that the RESPONSIBLE MANAGER or his delegate will participate throughout the preparation process and is responsible *to ensure* that the startup or restart will meet operational and production requirements when operational readiness preparations are completed and operational readiness is declared.

## A. Guiding Principles of the Process for Attaining Operational Readiness (cont.)

1. **Clear Roles and Responsibilities** - The team that will support the startup or restart should be identified early and the expectations set for their individual roles and what they will be responsible for contributing to the startup or restart process. Where the startup or restart is a project and a project manager is assigned, then these roles and responsibilities are defined in the Project Execution Plan (PEP) that is prepared in accordance with Y13-007 and Y13-87-004. Where the startup or restart does not involve a project manager, then the roles and responsibilities can be defined in the Readiness Plan or other appropriate documentation. Personal accountability and expectations for competence and compliance with site requirements (including safeguards and security) are crucial to successful preparations.

2. **Adequate Resources Identified and Assigned** - Many of the individuals who will play a key role in achieving operational readiness will have other responsibilities, so conflicting resource priorities should be addressed as early as possible in the planning process and continually addressed throughout the preparations. Failure to gain needed resource commitments and to retain these resources throughout the preparations is a significant contributor to missed milestones and delayed startups or restarts. Where conflicting priorities are identified, the RESPONSIBLE MANAGER or designee and where assigned, the project manager, should work closely with the functional organizations and sponsoring program organization to reach resolution early.

   Operational Safety Boards (OSBs) are established at Y-12 as part of the ISM (Y15-636) implementation to provide technical support and advice to the Facility Operations Manager. OSB technical support might be direct or matrix from functional area support managers.

   The same technical support requirements exist for the Readiness Leader of a startup or restart to support the planning, and achievement of operational readiness. In identifying required personnel, include workers and supervisors that will be responsible for actual operations after startup or restart. This Manual identifies the parts of the readiness confirmation process (e.g., defining the scope of the readiness confirmation review, level of review, Readiness Plan development, etc.), requiring technical support from the OSB or the project team. Commensurate with the graded level of the preparations, the RESPONSIBLE MANAGER and, where assigned the project manager, ensures that adequate technical support is in place to support requirements for attaining operational readiness.

## A. Guiding Principles of the Process for Attaining Operational Readiness (cont.)

3. **Competence Commensurate with Responsibilities**- Appropriate training for personnel participating in the preparation process is required. The Readiness Assurance Manager working with the RESPONSIBLE MANAGER and, when assigned, the project manager ensures the individual serving as the Readiness Leader has the required experience and the project team members are aware of the process requirements for achieving operational readiness.

   **Project Management Planning and Controls** - Startups and restarts should implement project management processes that will result in the mobilization of the knowledge, skills, tools, experience, and techniques required: (1) to execute the specific scope of work within an established budget and schedule, and (2) to meet the needs and expectations of the program sponsor and National Nuclear Security Administration (NNSA). Project management is a combination of disciplined management techniques, training, and effective leadership of the collective efforts of others aimed at achieving project objectives and goals. The goal of any startup or restart project is to attain operational readiness so the project can be safely and compliantly conducted. Depending on the risk of the project and the cost or production impact, project management processes are applied in a graded manner to BWXT Y-12 startup or restarts. Project Managers are assigned to manage the entire project through the completion of the readiness confirmation reviews typically for large projects requiring higher level reviews, Level II RA or an ORR. In all cases the RESPONSIBLE MANAGER and where applicable the Production Manager is responsible for first use operations. When used, the Startup Plan is implemented by the RESPONSIBLE MANAGER and Production Manager after the successful completion of the required readiness confirmation reviews and startup authorization is obtained. A key project management tool is the generation of the project schedule. Planning, Integration, and Control (PI&C) should provide the experienced resources needed to support the development and maintenance of the startup or restart schedule. Startups or restarts undergoing a readiness confirmation review must have schedules prepared that are approved by the RESPONSIBLE MANAGER and when assigned, the Project Manager. For the more complex projects, these schedules first appear in the initial Project Execution Plan (PEP) for approval by management. The project schedule must include the steps required to attain operational readiness and the type of readiness confirmation review.

**A. Guiding Principles of the Process for Attaining Operational Readiness (cont.)**

Once developed the resource loaded, integrated schedule defines the path to attaining operational readiness and will be used by the project team to complete the multitude of tasks that must be performed in a logical, sequential, and disciplined manner to ensure success. Changes to the scope, budget or schedule, regardless of how minor, should be evaluated for impact on the overall schedule. For larger projects it is recommended that changes be processed through a change control board for approval to minimize unnecessary impacts on the overall project activities. The Readiness Leader, as a member of the project team, is responsible for ensuring that requested changes are evaluated for impacts on the readiness confirmation review level and, as needed, changes to the Readiness Plan are documented, evaluated, and submitted for approval. The Project Manager is responsible for assuring that the preparation, approval, and maintenance of the integrated resource loaded baseline schedule is implemented by the PI&C member of the project team.

**Readiness process tailored to the tasks being performed** - This Manual provides readiness preparation guidance in a graded manner covering startups or restarts from the highest hazard, risk, complexity and cost to the simplest. Formal readiness confirmation reviews associated with the readiness confirmation process are done by both Y-12 and NNSA depending on the levels of these formal reviews. Readiness confirmation reviews include:

a. Level I Readiness Assessment (RA) (least complex)

b. Level II RA

c. Operational Readiness Review (ORR) (most complex)

The three levels of readiness confirmation represent the graded approach to confirming the readiness of a startup or restart. It is important to note that the grading is done not on the rigor or formality of the actual review, but rather on the breadth and depth of the objectives and criteria that are being evaluated. The Level I RA is the simplest and uses a checklist as the basis for the review criteria. This Level is appropriate for the less complex startups or restarts. The Level II RA is for the more complex or hazardous projects that involve new hazards or more significant changes to equipment, process, procedures, etc. The ORR is typically applied for the most complex and hazardous of changes, such as a new Nuclear FACILITY or a major new nuclear ACTIVITY. ORRs are not typically done for Hazardous Non-Nuclear FACILITIES.

## A. Guiding Principles of the Process for Attaining Operational Readiness (cont.)

Table 1-ES provides a summary of the review levels and the elements of the readiness program that typically apply for each of these levels. When none of the listed review levels apply, the process for standard operations startup or restarts described in Volume I, Chapter 3 is applied. The initial part of the readiness preparation process is an evaluation of the startup or restart to determine if it is a nuclear startup or restart in a nuclear or hazardous non-nuclear FACILITY. Where this situation does not exist then the standard operation startup process described in Volume I, Chapter 3 of this Manual is applied. To assist in determining the applicability of the readiness process and the level of readiness confirmation review required, the individual serving as the Readiness Leader develops information to be used to support the grading of the startup or restart for the level of readiness confirmation review required. The determination of the required review level is accomplished by the FACILITY OSB and must be approved by BWXT Y-12 senior manager and submitted on the Startup Notification Report (SNR) for approval by NNSA. Where an RA (Level I or II) or an ORR is determined to be required, the review may not start until NNSA Approval of the review level is received. While the readiness confirmation review requirements may be used as an input to determine the level of detail and resources required to support the preparations for operation, the level of the review typically does not have a major impact on the actual tasks needed to attain operational readiness.

## B. Fundamental Elements of the Readiness Preparation Process

The flow chart (Fig. 1-ES, Planning and Managing the Operational Readiness Process) provides the road map of key milestones in the preparation process along with the critical elements that support milestone completion. The goal of the preparation process is to ensure that the authorizations, facilities, personnel, equipment, and procedures are ready to support the startup or restart. The preparation process can be broken into three segments:

- Planning (defining the level of readiness confirmation, and scope of tasks needed to attain operational readiness)
- Managing/Conducting the process for attaining operational readiness (execution of the project plan and application of the pertinent site management requirements)
- Confirming the readiness to operate (conducting the readiness confirmation reviews at the end of the preparation process)

The processes described in this Manual provide the guidance and readiness program requirements to allow the RESPONSIBLE MANAGER and when assigned the Project Manger to prepare a FACILITY, ACTIVITY or OPERATION for startup or restart. To accomplish a successful preparation the detailed schedule and overall planning must receive early and adequate management attention, direction, and approval.

**B. Fundamental Elements of the Readiness Preparation Process (cont.)**

**Planning the Startup or Restart**

The proper level of involvement of a knowledgeable and complete project team is essential to the planning and development of the schedule detail needed for success. This is dependent on an early and adequate definition of the scope of work including the non-capital elements like procedures and training. The project scope must be developed based on what is needed to provide a fully functioning project and must not be based on funding source. A successful startup or restart requires that the management and technical resources, such as construction, design authorities, process and system engineers, maintenance, utilities, procedures, procurement, training, safety analysis, nuclear criticality safety, and environmental, safety, health, and security functions are represented on the project team and available and used for defining the scope of work. Once the scope of the startup or restart is well understood it is vital that the requirements, e.g. engineering, testing, environmental, radiological, criticality, safety basis, industrial safety, industrial hygiene, security, procurement (including the procurement strategy including quality requirements and responsibilities), applicable to that scope of work be identified and documented. Early identification of requirements is critical to minimizing late surprises.

Facility and system walk downs by a multi-discipline planning team is an essential and integral part of defining the work scope and must be done in detail as part of the work scope definition process. If the startup or restart is not already part of the FACILITY'S safety basis, particular attention and effort must be dedicated during work scope definition to estimate the impact of change to the existing Documented Safety Analysis (DSA) and the time and resources required to develop and implement the DSA changes. Since the DSA revision relies on completing other input documents such as the Process Description (PD), Hazardous Materials Identification Document (HMID), Criticality Safety Evaluation (CSE), and Fire Hazard Analysis (FHA) it can often be on the critical path to attaining operational readiness. The DSA implementation will also impact other activities in the schedule and project plan, such as procedure development and personnel training requirements, scheduling DSA resource requirements and integration of all these dependencies needs special attention and capture in the logic of the project schedule. Developing the work scope for startup or restart will encompass addressing requirements for:

- Identifying and analyzing the hazards
- Developing appropriate controls
- Updating the DSA
- Determining the required or impacted system, structures and components (SSCs)
- Identifying the personnel required along with their training requirements
- Developing technical procedures including surveillance procedures
- Ensuring adequate nuclear safety management systems and controls are in place to integrate with ongoing operations.

Once the scope of the startup or restart is identified, the RESPONSIBLE MANAGER should review this information and through the OSB determine and approve the level for the readiness confirmation review that will be required to confirm that operational readiness has been attained and the startup or restart can be safely and compliantly started or restarted.

**B. Fundamental Elements of the Readiness Preparation Process (cont.)**

The Project Manager, Readiness Leader, and appropriate technical and operational resources should develop the integrated schedule and project plan. In developing the details of the scope to support planning, additional walk downs might be required to ensure all aspects of the work scope are identified. Too often assumptions are made about expected support or coverage for a startup or restart without considering needed resources or changes to the FACILITY infrastructure and programs. The schedule should include the details for the various readiness confirmation reviews that will be needed to support the identified review level. In identifying system and equipment startup elements, ensure their physical, technical baseline, configuration control, and corrective/preventive maintenance status is thoroughly understood including supporting utility systems such as ventilation. Analysis of the system/equipment information will then allow *realistic* system repair and testing activities to be identified and scheduled. The startup or restart schedule must address requirements for practice evolutions and sufficient time for these must be included in the integrated schedule. Realistic schedule estimates for the number of and the time and resources needed for the development or revision of operational technical and surveillance procedures is another important element of a successful project. The project schedule has to clearly identify the individual that is responsible for each task. Activities supporting the attaining of operational readiness and completing the required readiness confirmation reviews must be included in the schedule with appropriate resources identified. For example this would include maintaining the integrity of the applicable security plan(s), revising security plans where needed and preparing new plans when required. Don't assume actions will be completed without tracking and don't assume they will get done adequately without verification. The quality with which scheduled tasks get accomplished is a vital element is a successful startup or restart. Poor quality in any phase, (i.e., design, construction, testing, procedure development, training, safety analysis, etc.) will cause significant problems and potential delays at the end of the project. Training activities are typically a key part of the startup or restart. Using historical data or process information, identify the required workers, supervisors and support personnel required to conduct the planned work. Utilize plant-training procedures to identify training requirements such as qualification, certification, etc. An integrated training plan should be developed to indicate what training will be needed for which individuals or positions and how the training will be developed and provided. The Training Plan needs to address each of the disciplines involved and not just the operators (see UCN-21529, *Training Impact Evaluation,* (TIE) form. For more complex startups or restarts a lead training coordinator should be designated and should develop this training plan with input from the training coordinators for each involved organization and from other team members. The importance of supervisors and operators participating in practice evolutions that simulate the actual work performance as much as possible cannot be overemphasized. Such training improves procedures, operator performance and confidence, and eliminates costly delays once operational readiness is achieved.

**B. Fundamental Elements of the Readiness Preparation Process (cont.)**

The Readiness Leader, RESPONSIBLE MANAGER, Production Manager, and Project Manager (where assigned) need to develop the Readiness Plan. One key component of the Readiness Plan should be the establishment by the Readiness Leader of a Management Self-Assessment (MSA) or a Readiness Assistance Team (RAT) plan. This should be an integral part of the Readiness Plan and project schedule, with the objective of providing the RESPONSIBLE MANAGER, project manager, Production Manager, and Readiness Leader with timely information on the performance status of critical processes, execution, and the effectiveness of corrective actions taken to resolve long standing issues that could impact attaining operational readiness. Early identification of issues through a focused MSA/RAT applied early in the preparation process could prevent costly delays and schedule impacts which heretofore have been the result of identifying issues at the end of the preparation period via the Performance Self-Assessment (PSAs) or worse yet the RA or ORR. The detail and scope of the MSA/RAT plan should be tailored to the scope and level of review required for the startup or restart and the MSA/RAT team should be considered as an “assist team” to the project. The MSA plan is typically a combination of formal management assessments, and informal reviews, surveillance’s, and inspections as appropriate, while the RAT approach consists of similar reviews, but not the formality. The MSA/RAT plan should reflect starting focused evaluations early and as particular stages of preparations are completed. The MSA/RAT does not need to be a continuous review and does not need to wait until the end of the preparation process. In developing the MSA/RAT plan, the RESPONSIBLE MANAGER, Production Manager, Project Manager, and Readiness Leader should pick areas for evaluation based on lessons learned from recent startups, historical issues on processes that will be used during preparation (e.g. design, welding, startup testing, procedure files, training, security plans, etc.), and other areas as appropriate. Once promulgated the MSA/RAT plan should remain a flexible tool with changes made as appropriate by the Readiness Leader to reflect new issues or concerns.

**B. Fundamental Elements of the Readiness Preparation Process (cont.)**

For startups or restarts where NNSA is the Startup/Restart (Authorization) Authority (typically for ORRs or where NNSA has decided to conduct a separate RA) a joint scoping meeting is required to be held. This is typically held after the Readiness Plan and integrated schedule are approved and provided to NNSA. A scoping meeting may be held for startups or restarts where BWXT Y-12 is the Startup/Restart Authority as determined by the responsible senior manager. The scoping meeting provides an excellent opportunity for joint walk downs of the area involved in the startup or restart, identifying systems and equipment to be used and interfaces with other equipment. This meeting should discuss the scope of activities associated with the startup or restart as well as the planned scope of what will be covered in the readiness confirmation review. NNSA typically documents any comments on what is presented in a scoping letter. Any changes identified as a result of the scoping meeting should be added to the integrated schedule. This information then becomes the basis for finalizing the Plan of Action (POA) which should be drafted in parallel with the Readiness Plan.

1. **Managing and Conducting the Process to Achieve Operational Readiness**- Once the integrated schedule, project execution plan and/or the Readiness Plan are developed and approved by the appropriate mangers including the RESPONSIBLE MANAGER, the schedule requires focused attention with continual review to determine opportunities for improvement and early identification of problems. The project should establish an early discipline of expecting that schedule dates will be met. Often early in a project the individual tasks are viewed as having a lot of float and the discipline of meeting schedules can be lax. This leads to a lack of clear expectations that will be hard to reestablish later in the project. This is where for the more complex projects, the project manager benefits from having an assigned Readiness Leader. Working together with the rest of the project team, the Readiness Leader supports the project manager's goal to reduce the potential vulnerabilities to a successful startup or restart by identifying these vulnerabilities early and working with the project team to get them resolved.

   Implementation of the Readiness Plan requires the close coordination of the Project Manager, Readiness Leader, Production Manager, the RESPONSIBLE MANAGER of the startup or restart, and the lead for the technical support organizations. This group needs to continuously review the progress of the completion of deliverables and identification of new issues to ensure the tasks are meeting quality, operational, safety, security, and technical requirements.

**B. Fundamental Elements of the Readiness Preparation Process (cont.)**

Special attention must be given to the use of Functional Area Manager's through-out the process for achieving operational readiness in activities involving their organizations. Limited resources, integrated activities, and production requirements make it important that the functional support requirements are fully defined and completed on time and in a quality manner. Often the quality element associated with verification that the completion of activities fully meets expectations is overlooked. Project management issues must also be properly evaluated and updated in the schedule and associated plans, when required. Changes to these plans and schedules should be reviewed and approved by the RESPONSIBLE MANAGER as well as the Project Manager. The Project Manager is responsible to frequently determine the true status of all aspects of the Project. Planned events or deliverables must be completed on time. Do not permit a "bow wave" to develop when individual elements are not completed on time. Do not permit "punch list" items to lose visibility. Hold managers of support organizations supporting the project accountable for finished deliverables of expected quality on time, according to the agreed schedule. The successful Project Manager will facilitate development of a comprehensive plan and then diligently manage to that plan changing it after using work-a-rounds as circumstances dictate.

2. **Develop the Plan of Action** - Once the schedule, project plan, and Readiness Plan have been developed and line management and NNSA have agreed on the level of readiness confirmation review [this is accomplished through updates of the Startup Notification Report] and its scope [this is accomplished through the Scoping Meeting when required], it is then appropriate to develop or finalize the Plan of Action (POA) for the review. The timing for development of the POA should permit final approval early in the preparations for achieving operational readiness, but after the scope is well understood. This will enhance the clarity of the expectations for what is needed to start the readiness confirmation reviews, i.e. the prerequisites, and when coupled with a well planned MSA/RAT can accelerate the start of the PSA or RA. The POA is a critical plan that defines the *scope and prerequisites* for the start of the readiness confirmation review. The POA should be specific as to the scope that will be reviewed. The prerequisites should also be specific, measurable, and achievable, and include the planned documentation that will support evidence that the prerequisite has been met. Several prerequisites may be needed to define the actions required to satisfy the associated core requirement. Typically each applicable core requirement should have at least one prerequisite.

**B. Fundamental Elements of the Readiness Preparation Process (cont.)**

The development of the POA can identify additional project needs or evolutions to be demonstrated during the review that may cause schedule changes as well as changes to the project plan or Readiness Plan. Since the POA defines the scope of the final readiness confirmation review that will evaluate the completeness and the adequacy of the project's achievement of operational readiness, it is appropriate that the POA receive a careful review by the entire project team. If the project review of the POA identifies a difference between the schedule, project plan, Readiness Plan, and the POA, the reasons for the differences should be understood and the plans brought into agreement. A critical task is to ensure that the actions specified in the schedule, project plan, and Readiness Plan will fully meet POA prerequisites, or that either the POA prerequisites or the appropriate plans are changed.

For Level II RAs and ORRs the PSA is used by line management to verify that operational readiness is achieved prior to the start of the formal readiness confirmation review. The PSA should be viewed as the final "dress rehearsal" prior to the formal confirmation of readiness review. The PSA Implementation Plan (IP) should provide a structured, disciplined, and auditable process through which the RESPONSIBLE MANAGER and Project Manager gain confidence that operational readiness has been fully achieved with the expected level of quality. Typically the RESPONSIBLE MANAGER and/or the Readiness Assurance Manager select an individual to lead the PSA. The PSA Team leader develops the PSA Implementation Plan with the help and input from the PSA team, the Readiness Leader and others. The PSA IP starts with the POA prerequisites and defines the closure criteria for the individual elements of the prerequisites and core requirements and defines the review approach to be used during the actual PSA. The PSA IP also defines the objective evidence that must be available to demonstrate the closure criteria in the Readiness Plan are met. As with the POA, the development of the PSA IP may identify additional elements that should be included in the Readiness Plan. Again it must be stressed that the Readiness Plan should be evaluated for updating in light of the PSA IP and that any resulting changes will be made through the revision process to ensure control of the project including the Readiness Plan. The PSA IP should stress that *only completed items will be evaluated*. The PSA will not be successful until the finished products are evaluated and all aspects of the project are examined. The PSA should be the most comprehensive in both depth and breadth and go beyond the depth and breadth defined in the POA when requested by the RESPONSIBLE MANAGER or Project Manager.

**Conduct of the Performance Self-Assessment (PSA)** - The final crucial activity by line management to ensure that operational readiness is fully achieved is the PSA. The PSA must be objective and evaluate finished items and performance in the field only after an adequate level of operational proficiency is attained. Efforts should be made to not have individuals evaluate their own work. The evidence to demonstrate that the closure criteria from the Readiness Plan are met should be objectively and critically evaluated. To the degree possible, elements required to demonstrate closure must be completed and reviewed. The report of the PSA should support the needs of line management. The level of detail is that which is required by the RESPONSIBLE MANAGER or Project Manager and should not be driven by an artificial external standard.

**B. Fundamental Elements of the Readiness Preparation Process (cont.)**

The PSA is not a deliverable to the readiness confirmation process, but only to line management to help in ensuring that the expectations for operational readiness have been met. The PSA must be complete and issues clearly resolved before a declaration of readiness is made. Experience indicates that if there is not time to complete a full scope PSA prior to start of the readiness confirmation review, the readiness confirmation review will be a very high-risk action with the potential for more significant findings that will take longer to fully resolve. In the final analysis, the PSA should be the most critical, in-depth, and demanding review conducted prior to the declaration of readiness. The success of the processes outlined in this executive summary is dependent on line management, project management, and functional area support management taking the responsibility to apply both the startup/restart requirements and the other applicable site requirements in a graded manner for operational preparations and holding themselves and their teams accountable to meet those requirements with quality products. It is important to note that where the set of management requirements create barriers to success, it is incumbent on the project team and functional area managers to look for ways to change the management requirements to allow for a more efficient process. It is not acceptable that any management requirements be ignored simply because they present a barrier.

The flow chart (Fig. 1-ES, *Process Planning and Managing the Readiness Process)* provides an overview of the process for planning, managing, and achieving operational readiness discussed above.

**Table 1-ES**
**Typical Review Level Requirements**

| Requirement | Level I | Level II | ORR |
|---|---|---|---|
| **Planning for Operational Readiness** | | | |
| UCN-21679, "Readiness Applicability and Review Level Determination" | √ | √ | √ |
| UCN-21664, "Startup/Restart Description" | √ | √ | √ |
| Start-up Notification Input (UCN-21098) | √ | √ | √ |
| Start-up Notification Report Approval | √ | √ | √ |
| UCN-21051, "Level I Readiness Assessment Checklist" | √ | N/R | N/R |
| UCN-21052, "Readiness Activity Checklist" | Can be used | √ | √ |
| Scoping Meeting | N/R | √ * | √ |
| Readiness Plan | N/R | √ | √ |
| Plan of Action | √ | √ | √ |
| Management Self-Assessment (MSA)/ Readiness Assist Team (RAT) | Should be used | Should be used | Should be used |
| Startup Plan ** | √ | √ | √ |
| Evidence Files | √ | √ | √ |
| Declaration of Readiness for Performance Self-Assessment (PSA) | N/R | √ | √ |
| PSA Implementation Plan | N/R | √ | √ |
| PSA Report | N/R | √ | √ |
| Certification of Readiness Letter | Part of Checklist | √ | √ |
| **Readiness Confirmation Reviews** | | | |
| BWXT Y-12 RA or ORR Implementation Plan | (Part of POA) | √ | √ |
| BWXT Y-12 RA or ORR Review Report | √ (if findings) | √ | √ |
| Readiness To Proceed (RTP) Letter | N/R | √ *** | √ |
| NNSA Readiness Implementation Plan | N/R | √ *** | √ |
| NNSA Report | N/R | √ *** | √ |
| Resumption Request Letter | N/R | √*** | √ |
| Startup/Restart (Authorization) Authority (Typical) | Division Manager | Division Mgr. or NNSA**** | NNSA |

* Only required if NNSA is Startup/Restart (Authorization) Authority-Held for others if Senior Management desires.

** Required if Core Requirement 12 is within scope. Need for a Startup Plan is determined by nature of activity, extent of simulation, training, and/or testing that can only be done after start-up, etc.

*** Only required when a separate NNSA RA is conducted.

**** NNSA is typically the Startup/Restart (Authorization) Authority only if NNSA will be conducting a separate NNSA RA.

**Figure 1-ES**
**Planning and Managing the Readiness Process**
**Page 1 of 6**

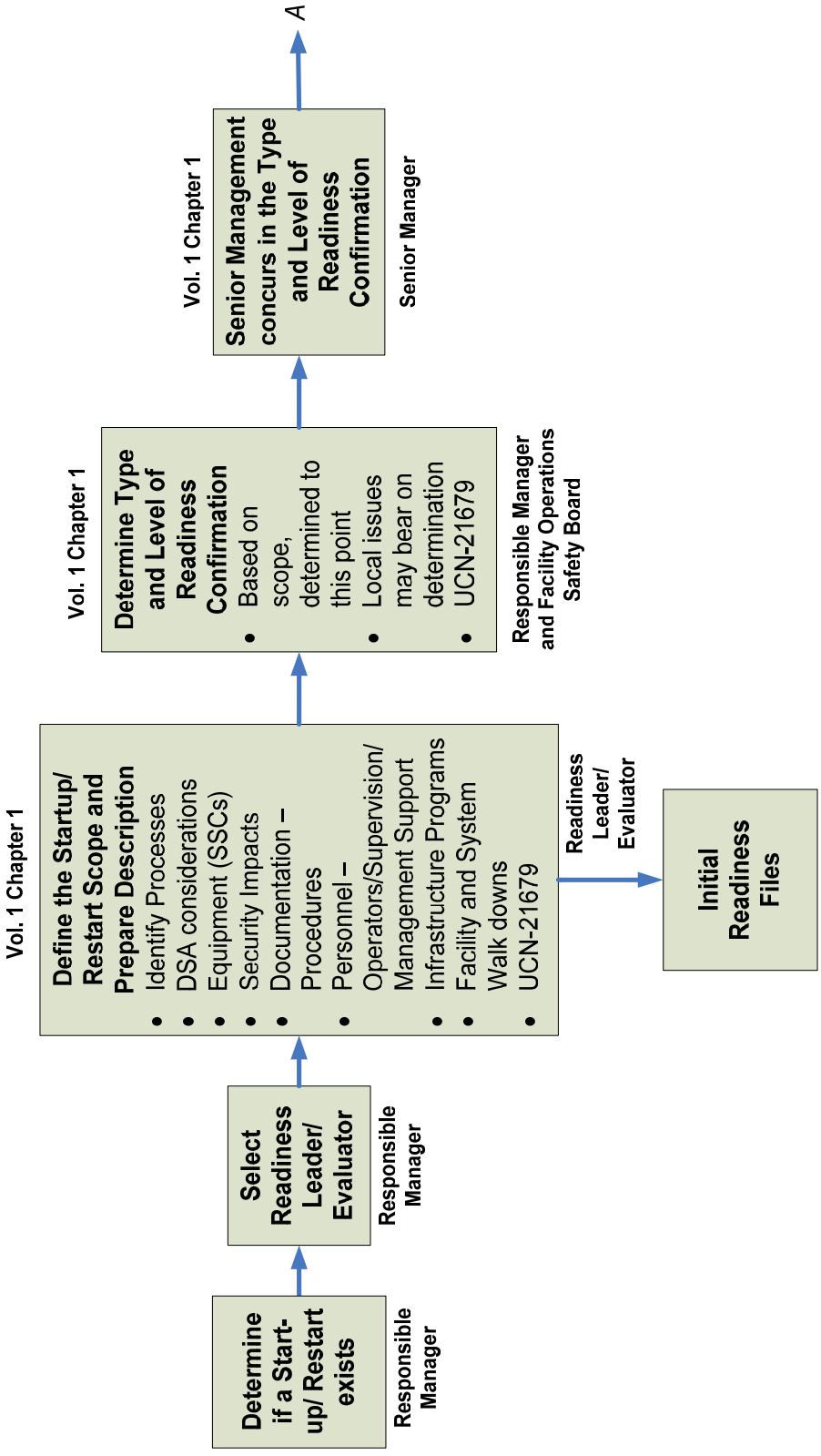
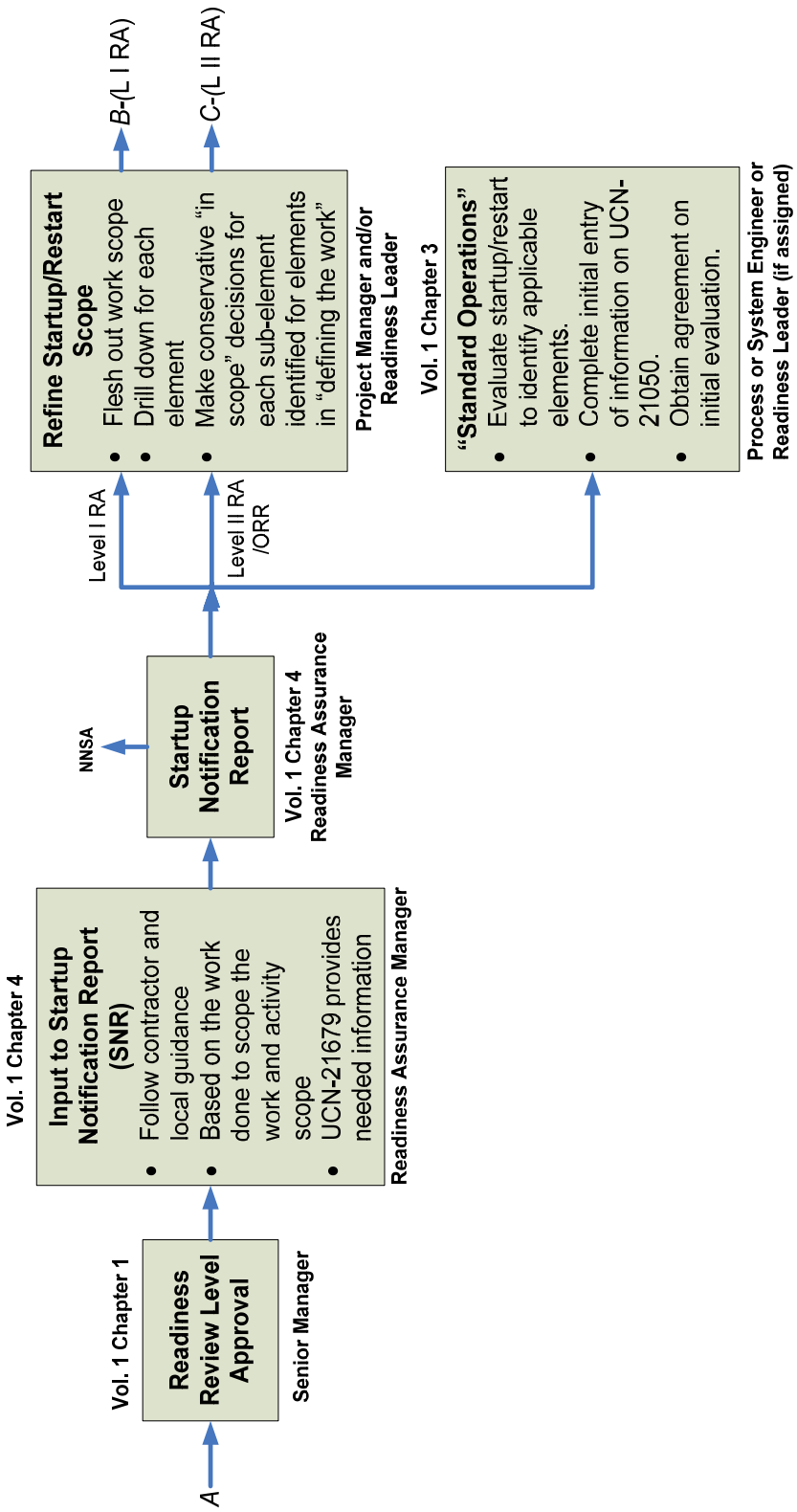


**Figure 1-ES**
**Page 2 of 6**



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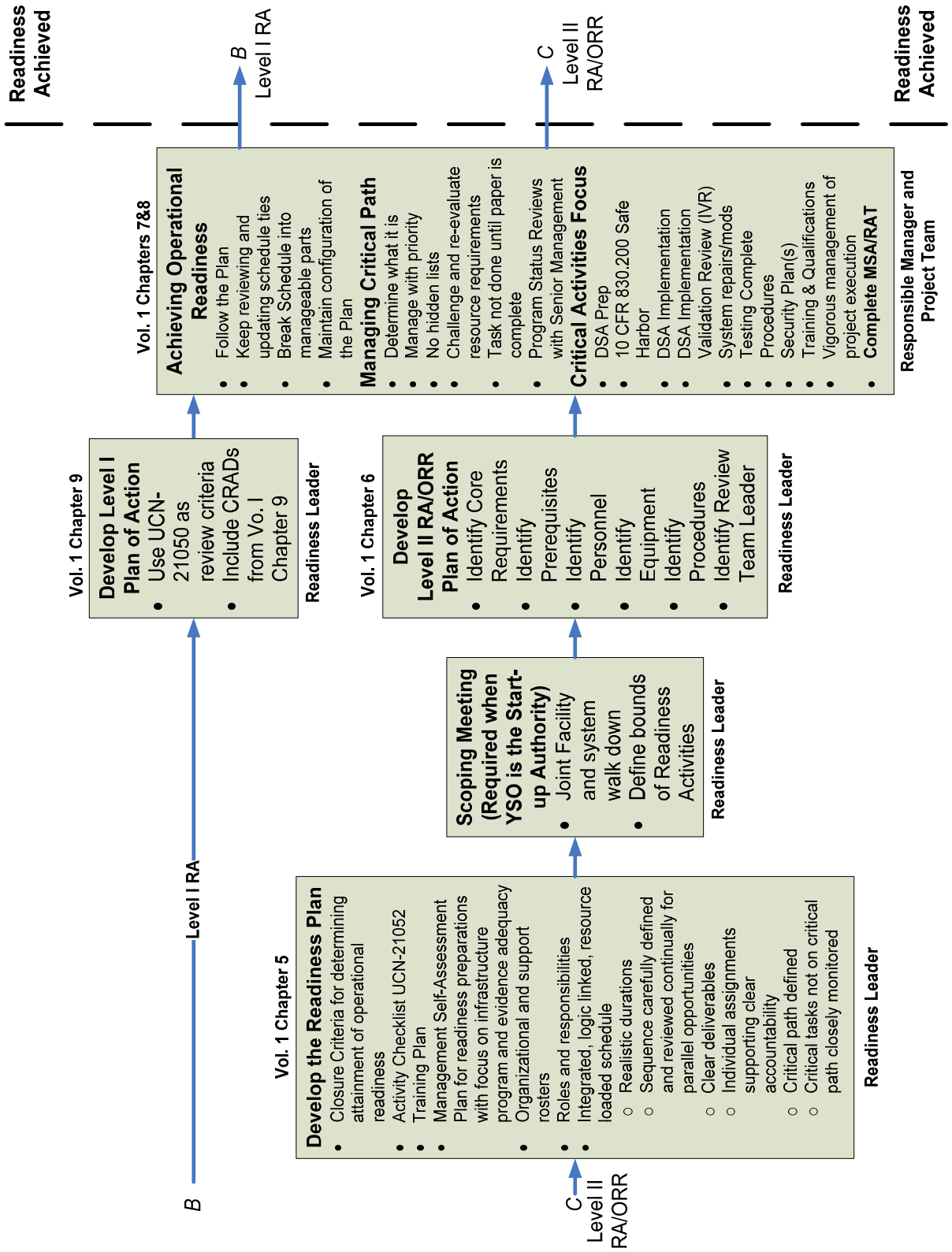
**Page 3 of 6**



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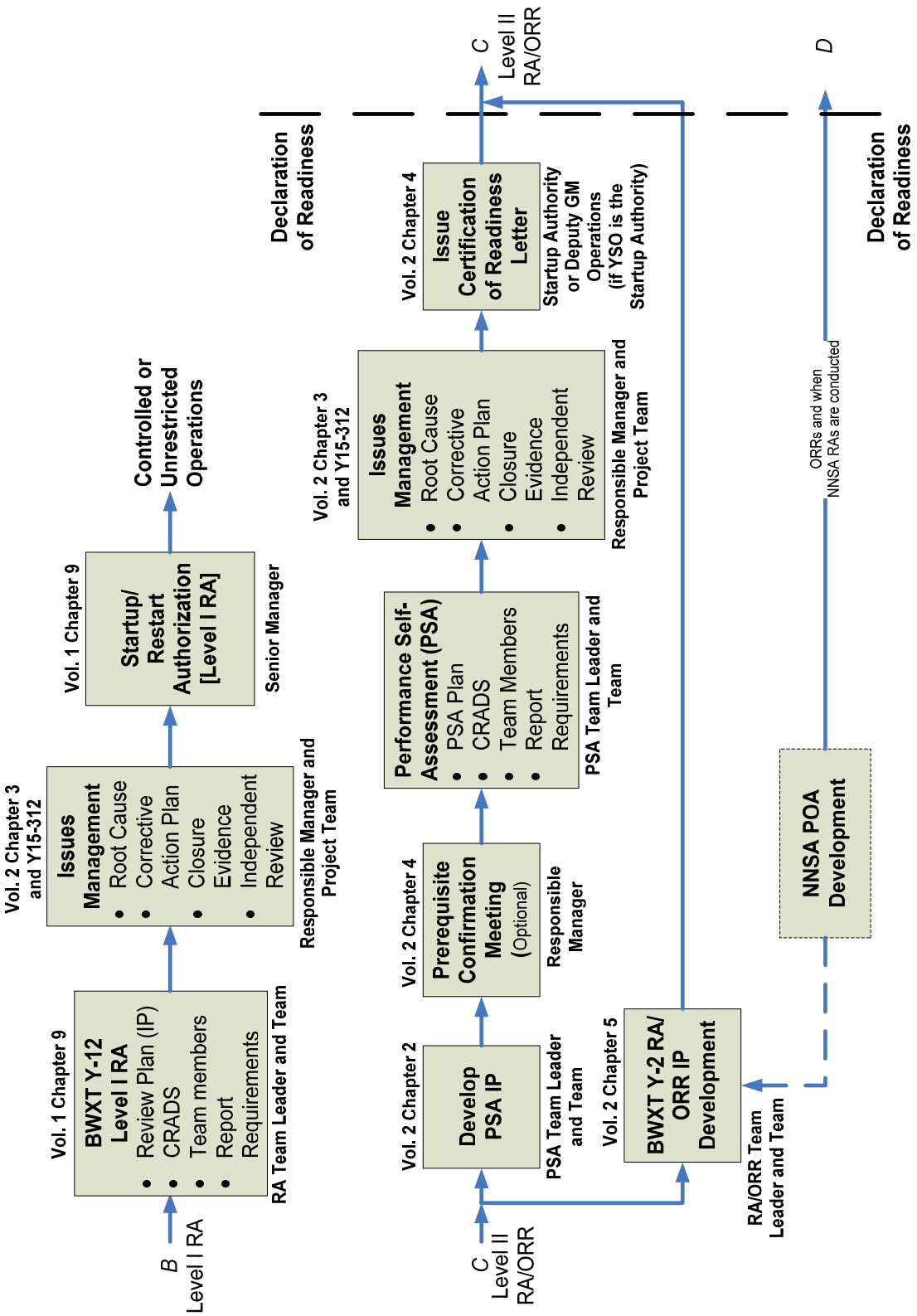

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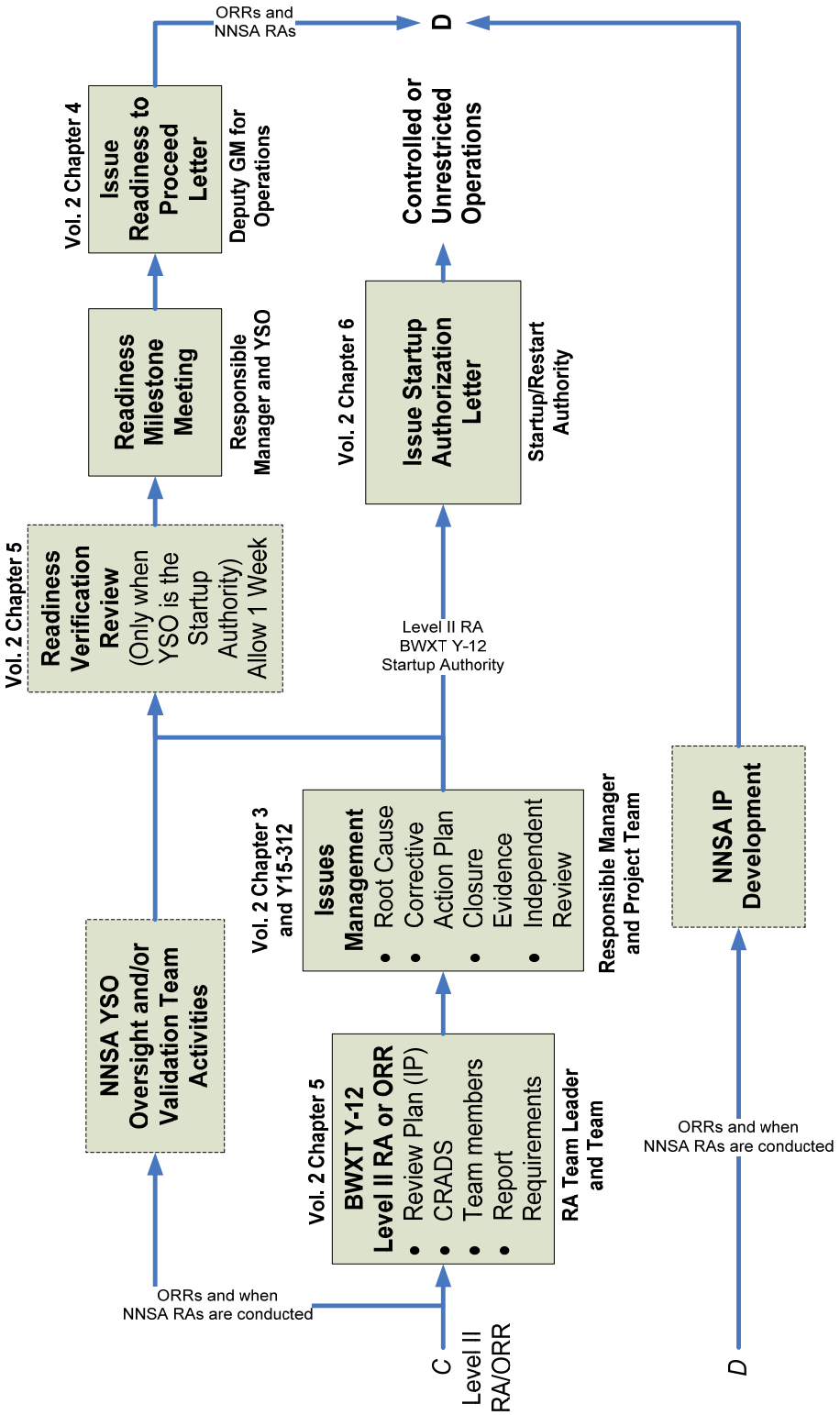
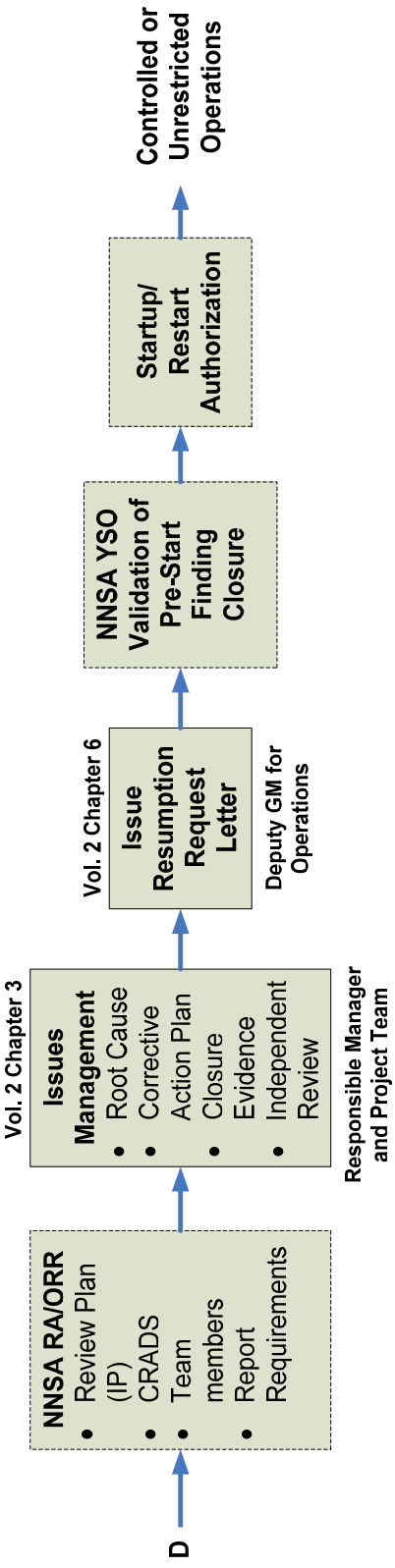


**Figure 1-ES**
**Page 6 of 6**



## ROLES AND RESPONSIBILITIES

**NOTE** Persons may fulfill the roles and responsibilities identified throughout this Manual with other job titles in areas and/or facilities.

The following paragraphs provide additional roles and responsibilities for personnel preparing for operational readiness and the associated readiness confirmation reviews. Depending on the type and level of review, not all will necessarily apply to a given startup or restart.

### ROLES AND RESPONSIBILITES

The RESPONSIBLE MANAGER (assisted by the Readiness Assurance Manager) preparing for a startup or restart will assign a Readiness Leader. This individual may be a system or process engineer where a Standard Operations Checklist is used. Where a readiness confirmation review is required (i.e., Level I or II RA or ORR) an individual with experience in planning and attaining operational readiness will be assigned as the Readiness Leader. Typically these types of startups or restarts also have a Project Manager assigned. When needed, Review Team Leaders and Team members will be assigned for the MSA/RAT and PSA. These are temporary positions that may be filled by either BWXT Y-12 employees or by subcontractors.

Readiness Leader: The person assigned by the RESPONSIBLE MANAGER and Readiness Assurance Manager to support the planning and preparation for attaining operational readiness. The readiness leader is assigned to support the planning, and achievement of operational readiness, to help meet the RESPONSIBLE MANAGER'S and project manager's goal to reduce potential vulnerabilities to a successful startup or restart by identifying those vulnerabilities early and working to get them resolved, and to ensure that the startup or restart is meeting operational, safety, and technical requirements.

In the initial planning stage the Readiness Leader develops information to be used to support the grading of the startup or restart for the level of readiness review required and working with the project team, supports the development of an integrated and resource loaded schedule. The Readiness Leader, as a member of the core project team, is responsible for ensuring that the documents required by this Manual are properly developed, reviewed, approved, and maintained as changes to the project occur.

The Readiness Leader is responsible for ensuring that the post RA/ORR operational effectiveness evaluation is performed for RAs and ORRs. This evaluation is performed to determine the effectiveness of the readiness process at preparing the project for operations. This is a subjective evaluation based on the results of the RA/ORR. Form UCN-21698, *Operational Readiness Evaluation Worksheet*, is used to evaluate the readiness achieved by the project team with respect to personnel, equipment, programs and processes. The evaluation is performed by a group of experienced personnel and should include the RA Team Leader (if available), and two to three additional readiness personnel. The results of the review are forwarded to the Readiness Manager.

**ROLES AND RESPONSIBILITES (cont.)**

Project Manager: The person assigned to the more complex and/or hazardous projects who directs the entire set of project activities needed to ensure that operational readiness is achieved. The Project Manager is responsible for the achievement of operational readiness in accordance with the project schedule and budget commitments and site management requirements. In some cases the Project Manager may be the RESPONSIBLE MANAGER.

Supporting Organizations: The BWXT Y-12 organizations required to complete assigned tasks within the project's scope. These organizations and the method of their employment are described in the "project execution procedure, Y13-007. Depending on the scope, complexity, and hazards of the startup or restart, managers for organizations needed to support the project will be responsible for planning, developing, and executing their portion of the work scope. This typically includes involvement from several Engineering organizations, as well as ES&H, NMC&A, Security, Maintenance and/or Construction, Training, and others. These organizations are responsible to the Project Manager and RESPONSIBLE MANAGER to support the development of the scope, by defining the detailed tasks needed to accomplish their project components/task and the resources required to support assigned tasks. Once defined these functional support managers are responsible and accountable for accomplishing their assigned elements of the scope, meeting applicable management requirements, ensuring quality expectations are met, and keeping the Project Manager informed of their status.

PSA Team Leader/Member: This position reports directly to the RESPONSIBLE MANAGER responsible for the FACILITY/area where the startup or restart will occur and is matrixed to the Readiness Assurance Manager. The Readiness Assurance Manager may assist the RESPONSIBLE MANAGER in designating a PSA Team Leader or PSA Team Members. The full breadth of responsibilities is outlined in the various chapters of this Manual. During the actual reviews daily reporting requirements for Team Leaders include a summary of the daily issues discussed with line management. This information may be provided to the Readiness Assurance Manager through his attendance at team meetings or line management debriefs, or through a daily summary report.

The Readiness Assurance Manager may provide training to the review team and/or assign Senior Oversight of BWXT Y-12 Contractor Reviews (RAs and ORRs). When assigned this position reports directly to the Readiness Assurance Manager and is independent of line management. Responsibilities may include confirming that:

a. The scope of the Implementation Plan generated by the Review Team is consistent with the scope defined in the approved Plan of Action;

b. The review team members are conducting the review within the defined scope;

c. Line management is being informed of issues in a timely manner;

d. Findings reference specific requirements violated and all examples observed; and

e. The findings are totally inclusive and do not reference other locations or documents for more examples.

## READINESS MANUAL CONTENTS

### A. Volume I, Planning and Achieving Operational Readiness

The goal of Volume I is to provide guidance for planning for operational readiness commensurate with the level complexity and risk associated with the particular startup or restart. Achievement of operational readiness is the most critical set of actions to be taken during the startup or restart process. The scope of the startup or restart must be well defined and understood to ensure required actions are accomplished. The scope defines the physical and administrative boundaries and is documented in the Project Execution Plan and/or Readiness Plan. The actions needed to achieve operational readiness including the quality elements are scheduled such that the expectations for being operationally ready will be attained. The Readiness Plan defines the closure criteria and indicates what evidence needs to be compiled during the preparation process. The Plan or Action identifies the scope of the reviews and prerequisites for startup.

**NOTE** UCN Forms referred to throughout the manual may be accessed through "Just-In-Time Forms" or the "Readiness Assurance" Home Page at https://home1.y12.doe.gov/ready/.

1. Chapter 1.0 Describes the processes for determining when the startup or restart of a new FACILITY, ACTIVITY, or OPERATION (e.g. a new project) exists and serves as the pointer for readiness review level determinations, evaluations, and preparations for startup or restart. When a startup or restart is identified, an evaluation is conducted to determine the type of readiness confirmation review, e.g. "Readiness Assessment" (RA) or "Operational Readiness Review" (ORR) or to determine if the use of the Standards Operations Checklist is appropriate. The chapter also discusses the requirements for an initial scoping meeting with Y-12 Site Office (NNSA) when they are the Startup/Restart Authority.

2. Chapter 2.0 Deleted

3. Chapter 3.0 Describes the requirements for the startup or restart of standard operations, i.e. the startups or restarts that do not require a RA or ORR. Startup or restart of Standard Operations requires completion of a detailed "Standard Operations Checklist."

4. Chapter 4.0 Describes the requirements for development and submittal of the "Startup Notification Report" (SNR). All startups or restarts in hazard category 2, 3, or hazardous non-nuclear facilities must be listed on the SNR including startups or restarts using the Standard Operations Checklists.

5. Chapter 5.0 Describes the requirements for development and execution of a "Readiness Plan." The Readiness Plan development is an internal Y-12 requirement to ensure adequate coverage of potential readiness issues, prior to startup authorization. A Readiness Plan is NOT required for a Level I RA, but the "Readiness Activity Checklist" can be used to ensure startup issues are addressed.

6. Chapter 6.0 Describes the requirements for development and approval of the "Plan of Action" (POA). The chapter includes information to aid in determination of applicable Core Requirements and development of prerequisites.

**A. Volume I, Planning and Achieving Operational Readiness (cont.)**

7. Chapter 7.0 Describes the requirements for monitoring progress toward attaining operational readiness, practice evolutions, and line management verification of readiness.

8. Chapter 8.0 Describes the requirements and logistics for interfacing with review teams, including set-up of work areas, providing information, preparing interviews, etc.

9. Chapter 9.0 This chapter provides instructions for preparing the Plan of Action (POA), completing the UCN-21051, Level I Readiness Assessment Checklist, and performing Level I Readiness Assessments (RAs).

**B. Volume II, Readiness Assessments and Reviews**

Once the readiness planning and achievement of operational readiness processes are completed, the confirmation process (i.e., Readiness Assessment or Operational Readiness Review) will be conducted. The purpose of readiness confirmation process is to confirm that an adequate state of operational readiness has been attained such that operations may safely and compliantly begin. This process confirms that preparation activities:

- Meet approved design concepts and applicable site requirements;
- Can be operated safely and within the safety envelope;
- Can be operated, maintained, and supported by trained and competent personnel;
- Can be operated with no undue risk to employees, the public, or the environment; and
- Are properly and adequately documented with regard to those items listed above

The readiness confirmation process is an opportunity to:

- Identify the gaps between where you are and where you should be
- Identify the reason for the gaps
- Identify the actions that will be taken to close the gaps (corrective actions)
- Close the gaps through corrective actions
- Verify that corrective actions have been effective and lasting
- Document immediate actions taken

1. The process for a Level I RA is defined in Chapter 9 of volume I. The chapters within Volume II typically do not apply to Level I RAs, but may be used for additional guidance. Chapter 1.0 Discusses the methods for development and execution of a “Startup Plan.” The Startup Plan documents the oversight and controls necessary for deliberate operational activities after startup/restart authorization has been granted. Typically, the Startup Plan also addresses those actions or performance issues that could not be demonstrated during the review process. These could include system testing, system alignments, or equipment operation that could not be demonstrated due to holdup material in the system or for other reasons.

**B. Volume II, Readiness Assessments and Reviews (cont.)**

2. Chapter 2 Discusses the Performance Self-Assessment (PSA), which is the first contractor evaluation of readiness. The PSA is conducted according to a "PSA Implementation Plan (IP)." Guidance on development of the PSA IP is provided in this chapter. The breadth and depth of readiness confirmation reviews depend on the complexity and safety requirements of the startup or restart. This chapter describes the types of internal (to BWXT Y-12) activities to confirm that operational readiness has been achieved. The PSA is intended to be the most comprehensive and have the largest scope of any formal review conducted. The PSA is a precursor to or "dress rehearsal" for the BWXT Y-12 and NNSA RAs/ORRs and, if the startup or restart is sufficiently reviewed by the PSA and found ready, the following RAs/ORRs may not have to address the same details and will likely move quicker and smoother.

3. Chapter 3.0 Defines the process for formulating, implementing, and adequately documenting corrective actions resulting from PSAs, RAs (except Level I RAs) and ORRs.

4. Chapter 4.0 Defines the requirement to document and certify the readiness to proceed by issue of formal notification to Senior Management and/or NNSA. Once operational readiness has been achieved, a declaration of readiness is made. When a PSA is required this is done after the completion of the PSA and correction of any pre-start findings.

5. Chapter 5.0 Describes the BWXT Y-12 RA (except Level I RAs) or ORR. This review is based on the "Implementation Plan. Guidance is provided for the development of the IP. This chapter also describes how to prepare for and support the formal NNSA RA or ORR. NNSA writes an Implementation Plan similar to the IP developed for the BWXT Y-12 RA/ORR, and uses it to govern the conduct of the NNSA RA/ORR. Working closely with NNSA is necessary for consistency in this part of the review process.

6. Chapter 6.0 Describes a final declaration of readiness, in the form of a "Resumption Request," which is made to NNSA or a Startup/Restart Authorization letter for approval by the BWXT Y-12 Authorization Authority. When approved, startup or restart may commence.

**ADDITIONAL INFORMATION**

Additional guidance, Startup Notification Report, project status, metrics, training materials, readiness templates, samples, lessons learned, and fillable forms may be found at the following URL: https://home1.y12.doe.gov/ready/

## GLOSSARY

**Abnormal Event-Driven Shutdown**: An unplanned event that directly necessitates stopping program work and meets any of the following conditions:

- results in or represents a near miss (i.e., one or fewer barriers remain) to personnel exposure to hazardous materials or energy in excess of established regulatory limits
- results in or represents a near miss (i.e., one or fewer barriers remain) to a release to the environment of hazardous materials in excess of established regulatory limits
- results in or represents a near miss (i.e., one or fewer barriers remain) to exposing a member of the public to hazardous materials or energy in excess of established regulatory limits
- results in SUBSTANTIAL or SIGNIFICANT CHANGES as part of the recovery actions (this condition, coupled with an abnormal event, takes precedence over the standalone "substantial or significant changes" entry condition)

**ACTIVITY, Nuclear**: A group of related OPERATIONs that support a particular element of production or program work that involves radioactive and/or fissionable materials in such form and quantity (Hazard Category 3 or higher quantities as listed in DOE-STD-1027-92, CN 1, Attachment 1, Table A.1) that a nuclear hazard potentially exists to the employees or the general public. ACTIVITIES are typically a higher level grouping of OPERATIONs identified in the Authorization Agreement for the FACILITY where the ACTIVITY is conducted. Examples of ACTIVITIES may include Quality Evaluation, EU Metalworking, DU Metalworking, EU Chemical Operations, Product Certification, Assembly, Disassembly, Material Movement, etc.

**ACTIVITY, Hazardous Non-Nuclear**: A group of related operations that support a particular element of production or program work that involves hazardous materials in a nuclear or chemically hazardous facility in such form and quantity that a hazard potentially exists to the employees or the general public. ACTIVITIES are typically a higher level grouping of OPERATIONS identified in the Authorization Agreement for the FACILITY where the ACTIVITY is conducted.

**Authorization Agreement (AA)**: A documented agreement between DOE and the contractor for Nuclear, PSM/RMP, and Chemically Hazardous facilities incorporating the results of DOE's review of the contractor's proposed authorization basis for a defined scope of work. The AA contains key terms and conditions (controls and commitments) under which the contractor is authorized to perform work. Any changes to these terms and conditions would require DOE approval. (RE: Y74-001)

**Authorization Authority**: The startup or restart approval authority sometimes referred to as the Startup/Restart Authority.

**Authorization Basis**: Those aspects of the FACILITY design basis and operational requirements relied upon by DOE to authorize operation, including safety basis documents and other documents such as environmental impact statements, environmental assessments, and permits.

**Breadth**: The number or set of Core Requirements or objectives, which will be evaluated by the team conducting the RA or ORR.

**Building**: Usually a walled and roofed structure designed for permanent use (e.g., Building 9212, 9204-2E, 9204-4, 9720-5, etc.).

**GLOSSARY (cont.)**

**Compensatory Measures**: Interim measures or actions taken to mitigate or eliminate risks that arise because of the inability to meet a mandated requirement or condition or an action taken to resolve a pre-start finding to allow for resumption authorization.

**Continuing Operations Plan**: A program to provide for and document the deliberate and systematic maintenance of equipment/ system operational readiness, procedure accuracy and viability, and personnel qualification/ proficiency, and readiness to operate in support of a program-related mission(s). Where feasible (based on a documented analysis of benefits, risks, and costs), surrogate materials shall be used to provide assurance that equipment/ systems remain operational.

**Core Requirements**: **(CRs)**: Fundamental areas or topics of review evaluated during an RA or ORR to assess whether a startup or restart can be operated safely.

**Criteria and Review Approach Document (CRAD)**: A form developed for formal reviews (i.e., PSA, RA, and ORR), which includes the statement of a Core Requirement, the criteria of how the Core Requirement will be measured, and the review approach – or what will be reviewed, discussed, walked-down, or observed – to gain objective evidence that the criteria is met.

**Defense-in-Depth**: Equipment and administrative features providing preventive or mitigative functions so that multiple features are relied on for accident prevention or mitigation to a degree proportional to the hazard potential and integrated safety-management programs that control and discipline operations.

**Depth**: The level of detail in analysis, documentation, and/or actions necessary to evaluate an applicable Core Requirement or review Objective.

**Documented Safety Analysis**: A documented analysis of the extent to which a FACILITY can be operated safely with respect to workers, the public, and the environment, including a description of the conditions, safe boundaries, and hazard controls that provide the basis for ensuring safety. [10 CFR 830.3(a)] (RE DOE M 411.1-1B)

**Evidence File**: Records of activities conducted to attain operational readiness, which may be included in the file or referenced by a number and location of document.

**FACILITY**: For the purpose of implementing the YSO CRD, the term FACILITY refers to buildings and other structures, their functional systems and equipment, and other fixed systems and equipment installed therein. Individual activities will only be considered facilities when a separate Documented Safety Analysis exists for the individual activity.

**FACILITY, Hazardous Non-Nuclear**: (1) Facilities subject to 29 CFR 1910.119 and/or 40 CFR 68. (2) Facilities that have inventories of chemicals that meet or exceed the maximum of (a) quantities that, under credible accident scenarios and without regard to mitigation, would result in unmitigated releases meeting or exceeding ERPG-2 or equivalent at or beyond 100 meters and (b) RQs contained in 40 CFR 302.4 and 40 CFR 355. (3) Facilities so designated by the NNSA Y-12 Site Office. [RUID 10906]

**FACILITY, New**: Any FACILITY that has been constructed to support an ACTIVITY or one that will change categorization, as a result of, or in support of, a new ACTIVITY or OPERATION.

**GLOSSARY (cont.)**

**FACILITY, Non-Reactor Nuclear**: Per DOE Standard DOE-STD-1027-92, those activities or operations that involve radioactive and/or fissionable materials in such form and quantity that a nuclear hazard potentially exists to the employees or the general public. Included are ACTIVITY or OPERATION that: (1) produce, process or store radioactive liquid or solid waste, fissionable materials, or tritium; (2) conduct separations operations; (3) conduct irradiated materials inspection, fuel fabrication, decontamination, or recovery operations; (4) conduct fuel enrichment operations; (5) perform environmental remediation or waste management activities involving radioactive materials; (6) conduct nuclear explosives activities; or (7) perform nuclear experimental activities. Incidental use and generation of radioactive materials in a FACILITY ACTIVITY or OPERATION (e.g., check and calibration sources, use of radioactive sources in research and experimental and analytical laboratory activities, electron microscopes, and X-ray machines) would not ordinarily require the FACILITY to be included in this definition. (See definition of FACILITY above.)

**FACILITY, Nuclear**: For the determination of when an ORR is required, a Hazard Category 1, 2, or 3 Nuclear Facility will be considered at the building or structure level. Each Nuclear Facility is covered by an Authorization Agreement (AA).

**Finding**: A noncompliance with a stated requirement (contractual or Management Requirements). Findings may be classified as Level A, Level B or Level C – See Y15-312, *Issues Management*, for discussion on classification levels.

**Findings, Post-Start**: A finding that must be resolved, but may be corrected after the start of the FACILITY, ACTIVITY or OPERATION.

**Findings, Pre-Start**: A finding that must be resolved before a startup or restart can be operated.

**Graded Approach**: A process by which the level of analysis, documentation, and actions necessary to comply with a requirement are commensurate with:

- The relative importance to safety, safeguards, and security
- The magnitude of any hazard involved
- The life cycle state of a FACILITY
- The programmatic mission of a FACILITY
- The particular characteristics of a FACILITY
- The relative importance of radiological and non-radiological hazards (10 CFR 830.3)
- Any other relevant factor

**Hazard Category No. 2**: Hazard analysis shows potential for significant on-site consequences, typically facilities with potential for nuclear criticality events or with sufficient quantities of hazardous material and energy, which would require on-site emergency planning. Typically facilities with quantities of hazardous radioactive materials that meet or exceed the values shown in DOE-STD-1027-92, Table A.1.

**Hazard Category No. 3**: Hazard analysis shows potential for only significant localized consequences, typically facilities with quantities of hazardous radioactive materials that meet or exceed the values shown in DOE-STD-1027-92, Table A.1.

**GLOSSARY (cont.)**

**Implementation Plan (IP)**: The plan developed by the Review Team describing the specifics of the approach, methodology, and reporting requirements of the review. Depending upon the circumstances of the startup or restart activity, this plan may be as simple as a checklist or as complex as an ORR IP.

**Implementation Validation Review (IVR)**: An RA-like review conducted subsequent to significant changes to the Technical Safety Requirements or Operational Safety Requirements requiring NNSA. An IVR has the following objectives:

- Objective 1: Verify that the safety basis controls and requirements are incorporated in appropriate FACILITY documents and work instructions.
- Objective 2: Verify that applicable personnel are knowledgeable of safety basis controls and requirements.
- Objective 3: Verify that safety basis controls and requirements have been implemented.
- Objective 4: Verify that key assumptions of the Accident Analysis and Hazards Evaluation Study are protected by implementing documents and processes.

**Level I or II Readiness Assessment**: A graded approach to the breadth and depth of a readiness assessment.

**Life Cycle Stage**: A phase in the life cycle of a FACILITY. Currently recognized phases are: construction, operations, deactivation, surveillance and maintenance, and decommissioning. (DOE Order 430.1)

**Management Oversight**: The personnel serving in an oversight role during execution of the Startup Plan. Personnel serving in this role shall not have direct supervisory responsibility for any operations activities being observed and should not give direction to the on-shift Operations Management.

**Management Self Assessment (MSA)**: An evaluation of readiness which is conducted on behalf of or by line management during the process to attain operational readiness. The MSA is a tool for improving the quality of products, performance, and evidence as they are being generated.

**Nuclear Hazard**: A nuclear source of danger with the potential to cause illness, injury, or death to personnel or damage to the FACILITY or the environment (without regard for the likelihood or credibility of accident scenarios or consequence mitigation).

**Observation**: Issues that do not involve a violation of requirements. May be positive, neutral, or negative.

**Operating Facility**: An area where a line organization: a) performs manufacturing or chemical process work activities designed to safely produce a deliverable which supports a Y-12 Complex mission, or b) maintains a safety envelope which provides safety limits for workers, the public, and the environment.

**OPERATION, Hazardous Non-Nuclear**: A specific process or a series of processes performed in the accomplishment of a NON-NUCLEAR HAZARDOUS ACTIVITY that involves program work with hazardous materials in a nuclear or chemically hazardous facility in such form and quantity that a hazard potentially exists to the employees or the general public. An example would be the Dryer-Mold Loading operation.

**GLOSSARY (cont.)**

**OPERATION, Nuclear**: A specific process performed in the accomplishment of a Nuclear ACTIVITY that involves PROGRAM WORK with radioactive and/or fissionable materials in such form and quantity (Hazard Category 3 or higher quantities as listed in DOE-STD-1027-92, CN 1, Attachment 1, Table A.1) that a nuclear hazard potentially exists to the employees or the general public.

**OPERATION, Standard**: Operations whose startup/restart do not meet the criteria for an RA or ORR.

**Operation Outside Of Safety Basis**: For the purposes of determining when an ORR is required, DOE Directed shutdowns are assumed to address restart after a nuclear facility shutdown because of operations outside the safety basis.

**OPERATIONAL**: Equipment is considered to be operational (i.e., not SHUTDOWN) within 12 months of performing PROGRAM WORK or under either of the following special conditions.

- The equipment, procedures, Safety Basis (SB) documents, etc., have been maintained in accordance with an approved CONTINUING OPERATIONS PLAN such that no additional actions (except for completion of normal maintenance activities initiated as the result of problems identified from exercising the equipment or conducting preventive maintenance) are necessary to resume the OPERATION, ACTIVITY, or FACILITY. This includes conducting scheduled preventive maintenance and periodically exercising the unused equipment/system in such a manner as to ensure operator proficiency is maintained. Where feasible (based on a documented analysis of benefits, risks, and costs), surrogate materials shall be used to provide assurance that equipment/ systems remain operational.
- The OPERATION, ACTIVITY, or FACILITY will be returned to service using an approved start-up procedure. The start-up procedure must be specific to the OPERATION, ACTIVITY, or FACILITY to be restarted and must address the steps necessary to bring the OPERATION, ACTIVITY, or FACILITY safely on-line. In addition, the start-up procedure must ensure adequate review of any changes of interest that may have occurred since the last operation of the equipment/systems. Changes of interest may include changes to the Safety Basis, training, qualification and certification, procedures, criticality safety documents, deficiencies and non-conformances, equipment certifications and calibrations, and maintenance activities.

**Operational Readiness Review (ORR)**: A disciplined, systematic, documented, performance-based examination of facilities, equipment, personnel, procedures, and management control systems to ensure that a FACILITY will be operated safely within its approved safety envelope as defined by the FACILITY safety basis.

**Operational Safety Board (OSB):** A multi-disciplined team chartered for a specific organization, FACILITY, or system to provide technical and safety direction, guidance and oversight support to the Responsible Manager or system owner for the safe execution of work.

**Performance Self Assessment (PSA**): The PSA is an evaluation of readiness on behalf of line management. The PSA may utilize reviews conducted by the MSA, but should ideally be conducted only after evidence compilation and practice evolutions are complete and satisfactory.

**GLOSSARY (cont.)**

**Plan of Action (POA)**: The document prepared by line management, which describes the breadth of the review and the prerequisites, which must be met to start the RA or ORR. It is the documented plan by which line management defines what will be evaluated by the RA ORR. For an ORR, both the Contractor and NNSA prepare a plan of action. The POA must be approved by the Authorization Authority.

**Practice**: The execution of table-top discussions, walk-throughs, dry runs, and/or simulations in order to adequately exercise procedures, personnel, and equipment.

**Prerequisites**: A set of specific, measurable actions or conditions identified in the POA that are to be completed prior to the start of an RA or ORR.

**Program Work**: Work in a reactor or non-reactor nuclear facility or hazardous non-nuclear facility that is accomplished to further the goals of the facility mission and/or the program for which the facility is operated. (Note: Use of an approved CONTINUED OPERATIONS PLAN is considered to be PROGRAM WORK.) Program work is not accomplished when a facility is shutdown. Mission or program work does **NOT** include:

- Work that would be required to maintain the facility in a safe shutdown condition.
- Modifications to the facility or equipment required before program work can recommence.
- Work to correct deficiencies before program work can recommence.
- Activities required to maintain the health and safety levels of the facility.
- Activities required to maintain environmental compliance of the facility.
- Activities required to maintain security levels of the facility.
- Activities required to comply with CSA/CSR requirements.
- Activities required for maintenance of facility/equipment.

**Readiness, Operational**: A state that is achieved only when facilities, personnel, equipment, and procedures are in a condition that would allow the FACILITY, ACTIVITY or OPERATION being started or restarted to be conducted, i.e. actual material processing could be safely and compliantly performed without additional FACILITY, personnel, equipment, or procedure changes if requested. Preparing for the readiness confirmation review, rather than preparing for unrestricted operations, is not achieving operational readiness. On a graded approach philosophy, the startup/restart authority can approve readiness for operation with limited known restrictions after evaluating the effects on personnel, equipment and FACILITY during the limited situation. This is totally a line manager decision with approval of cognizant authorities.

**Readiness Assessment (RA)**: A review that is conducted to determine a FACILITY'S readiness to startup or restart when an Operational Readiness Review is not required or when BWXT Y-12's standard procedures for startup are judged by BWXT Y-12 management or NNSA management to not provide an adequate verification of readiness.

**Readiness Assistance Team (RAT)**: A team of subject matter experts that perform an evaluation of readiness which is conducted on behalf of line management during the process to attain operational readiness. The RAT is less formal than a MSA in the sense that a review report is not generated, however the rigor of the review is the same. The RAT is a tool for improving the quality of products, performance, and evidence as they are being generated.

**GLOSSARY (cont.)**

**Readiness Leader**: The person assigned by the Responsible Manager and/or the Readiness Assurance Manager to support the planning and preparation for startup or restart reviews.

The Readiness Leader, working with the project manager , is responsible for ensuring that the requirements of the Readiness Program are met, preparing the applicable Readiness Program documents, e.g. the Plan of Action, Readiness Plan, etc., and advising line management on the state of operational readiness.

**Readiness Plan**: A combination of the scheduled activities and the evidence requirements (closure criteria) for those operations or activities being started or restarted.

**Readiness Review Team**: A management-appointed multi-discipline group that evaluates the subject activity's state of readiness and identifies the supporting objective evidence.

**Responsible Contractor**: The organization with contractual responsibility for carrying out program work at a government-owned FACILITY.

**Responsible Manager**: The line manager directly responsible for the FACILITY in which an ACTIVITY or OPERATION will be started or restarted.

**Restart**: Recommence operations and/or program work in facilities.

**Safety Basis**: The DOE-approved documented safety analysis and hazard controls that provide reasonable assurance that a FACILITY can be operated safely in a manner that adequately protects workers, the public, and the environment. Within the scope of Facility Safety, the safety basis is relied upon to authorize operation of a FACILITY or ACTIVITY.

The safety basis for a Nuclear FACILITY includes a SAR or BIO, TSR or OSR (if applicable), information submitted by the contractor to support DOE-approval of any USQ or amendment to the TSRs, DOE SERs, and FACILITY-specific commitments.

The safety basis for a non-nuclear FACILITY includes a SAR or HER, DOE SERs, and FACILITY-specific commitments. Hazard controls are documented within non-nuclear SARs and HERs. If a non-nuclear FACILITY has a SAR, then information submitted to support DOE-approval of any USQ would also be a part of the safety basis. (RE: Y74-802)

**Safety-Class Structures, Systems, and Components (SC-SSCs)**: Systems, structures, or components whose preventive or mitigative function is a major contributor to public safety. SC-SSCs are designated for the prevention or mitigation of nuclear hazards. (RE; Y74-802)

**Safety Envelope**: The parameters necessary for safe operations, as described in the Safety Basis documents. These parameters can include operating conditions, engineered controls such as equipment configuration, and administrative controls such as surveillances.

**GLOSSARY (cont.)**

**Safety-Significant Structures, Systems, and Components (SS-SSCs)**: Structures, systems, and components not designated as safety-class SSCs but whose preventive or mitigative function is a major contributor to defense in depth (i.e., prevention of uncontrolled material releases) and/or worker safety as determined from safety and/or hazard analysis. SS-SSCs are designated for the prevention or mitigation of nuclear hazards.
(RE: Y74-802)

**Safety-Significant Structures, Systems, and Components for non-nuclear safety (SSnn - SSCs)**: systems, structures, or components whose preventive or mitigative function is a major contributor to public safety, defense in depth (i.e., prevention of uncontrolled, non-nuclear material releases), and/or worker safety as determined from safety and/or hazard analysis. SSnn-SSCs are designated for the prevention or mitigation of accidents that do not cause or exacerbate nuclear hazards. (RE: Y74-802)

**Scope**: The overall magnitude of the ORR or RA as defined by the breadth of the Core Requirements selected and the depth of evaluation of these Core Requirements during conduct of the ORR or RA.

**Shutdown:** A state in which 12 months have passed since the last PROGRAM WORK was accomplished and the OPERATION, ACTIVITY, or FACILITY is not being maintained OPERATIONAL (i.e., via a CONTINUED OPERATIONS PLAN). (Note: Program work does not include maintenance, modifications, safety related work or acceptance or operational testing.)

**Startup**: The term as used throughout this Manual applies to either or both the initial operation of a new or modified process, restart, and their associated requirements.

**Substantial or Significant Changes**: Changes that increase the risk already accepted by the NNSA for the OPERATION, ACTIVITY, or FACILITY and/or that have impacts on the operational complexity of the OPERATION, ACTIVITY, or FACILITY. The determination as to whether or not changes are substantial or significant will be based on the impact of the changes to the safety basis (i.e. extent of changes to controls and requirements in the Documented Safety Analysis, Justification for Continued Operations, or Hazard Evaluation Report with or without changes to the Technical or Operational Safety Requirements), and/or the operational complexity of changes (i.e., impact on training, procedures, and equipment operations). This would not necessarily be determined by the Unreviewed Safety Question (USQ) or change evaluation process.

**GLOSSARY (cont.)**

**Substantial or Significant FACILITY Change**: Changes that increase the risk already accepted by the NNSA for the FACILITY and that have impacts on the operational complexity of the FACILITY. The determination as to whether or not changes are substantial or significant will be based on completing a Change Level Determination. Examples of changes that would likely be considered Substantial or Significant include:

- Structural addition to an existing building or structure, designed to house hazardous ACTIVITIES or processes that will require an authorization basis.
- Expansion of work into a new area of an existing FACILITY where that new area is not encompassed in the existing authorization basis.
- Deactivation, decommissioning, or demolition of a FACILITY, OPERATION or ACTIVITY, provided that the deactivation is not encompassed in the existing authorization basis.
- Environmental remediation activities in a new geographic area, structure, or building, provided that the work can reasonably be expected to encounter quantities of nuclear materials that would require designation as a hazard category 2 nuclear facility per DOE-STD-1027-92, Attachment 1.

**Substantial or Significant ACTIVITY Change**: Change that increases the operational complexity of the ACTIVITY by significantly changing two or more operations under the ACTIVITY. The determination as to whether or not changes are substantial or significant will be based on completing a Readiness Applicability and Review Level Determination. Examples of ACTIVITY changes that would likely be considered Substantial or Significant Include:

- Introduction of a new OPERATION that requires substantial changes to one or more other OPERATIONS under the same ACTIVITY.

**Substantial or Significant OPERATION Change**: Change to an OPERATION that either 1) modifies credited safety systems (SC, SS, SSnn) or creates/revises existing Safety Basis controls, 2) changes the fundamental operation of the equipment associated with the OPERATION, or 3) involves new or unique (i.e. different from those currently implemented in the facility) hazards or new controls (not listed in SAR/TSR) such as those typically identified through the Job Hazard Analysis process. The determination as to whether or not changes are substantial or significant will be based on completing a Change Level Determination. Examples of OPERATION changes that would likely be considered Substantial or Significant Include:

- Addition of a new TASK that requires modifying a credited fire suppression system.
- Modification of an existing TASK that changes the fundamental mode of operation (i.e., going from a manually controlled system to automatic control or vice versa.)

**Task**: Well defined components of program work that collectively constitute an OPERATION. The components are usually associated with operation of equipment, or handling/manipulating a work piece. Each component of program work will usually have hazards associated with the actions being performed.

**ACRONYMS**

AA - Authorization Agreement
AB – Authorization Basis
AJHA – Automated Job Hazard Analysis
ASME - American Society of Mechanical Engineers
ATP- Acceptance Test Plan
BIO - Basis for Interim Operation
CAP - Corrective Action Plan
CAPS - Corrective Action Planning System
CM - Corrective Maintenance
CR - Core Requirement
CRA - Criteria Review Approach
CRAD - Criteria Review and Approach Document
CRL – Certification of Readiness Letter
CSA - Criticality Safety Approval
CSE- Criticality Safety Evaluation
CSR - Criticality Safety Requirement
DAC - Design Analysis and Calculation
DOE - U.S. Department of Energy
DSA - Documented Safety Analysis
EH-2 -Deputy Assistant Secretary for Oversight
EIS - Equipment and Inspection Scheduler
ES&H - Environmental, Safety, and Health
ET&I - Equipment, Testing, and Inspection
FHA - Fire Hazard Analysis
HER - Hazard Evaluation Report
HQ - Headquarters
HRP – Human Reliability Program
IH - Industrial Hygiene
ID - Identification
IMPRB - Issues Management Prioritization and Risk Board
IP - Implementation Plan
IS - Industrial Safety
ISMS - Integrated Safety Management System
LCO - Limiting Conditions for Operation
LOTO - Lock Out/Tag Out
MEL - Master Equipment List
MJR - Maintenance Job Request
MSA - Management Self-Assessment
MSDS - Manufacturers Safety Data Sheet
N/A - Not Applicable
NCS - Nuclear Criticality Safety
NFPA - National Fire Protection Association
NMC&A-.Nuclear Materials Control and Accountability
NNSA - National Nuclear Security Administration
OMD - Operations Management Division of YSO
ORR - Operational Readiness Review
OSB - Operational Safety Board
OSHA - Occupational Safety and Health Administration

**ACRONYMS (cont.)**

OSR - Operational Safety Requirement
OTP - Operational Test Plan
PEP - Project Execution Plan
P&I - Planning and Integration
P&ID - Piping and Instrumentation Diagram
PM - Preventive Maintenance
POA – Plan of Action
PPE – Personnel Protective Equipment
PSA - Performance Self-Assessment
PSM - Process Safety Management
PSS - Plant Shift Superintendent
RA - Readiness Assessment
RAT – Readiness Assistance Team
RCA – Root Cause Analysis
RMP - Risk Management Plan
RRL - Resumption Request Letter
RTP - Readiness To Proceed
RWP - Radiological Work Permit
SAR - Safety Analysis Report
SB – Safety Basis
SDD - System Design Description
SER – Safety Evaluation Review
SME - Subject Matter Expert
SNR - Startup Notification Report
SSC - Systems, Structures, and Components
SSEL - Structures, Systems, and Equipment List
TBIS - Technical Basis Index Summary
TIE – Training Impact Evaluation
TSR- Technical Safety Requirements
UBC - Uniform Building Code
USQD - Unreviewed Safety Question Determination
YSO - Y-12 Site Office

| | | |
|---|---|---|
| Subject: | Readiness Manual | |
| Title: | Planning and Achieving Operational Readiness | Vol. I |
| Chapter: | 1.0, Identifying Scope and Review Level | Effective Date: 2/28/07 |

**PURPOSE**

This chapter provides instruction for:

- Identifying startups or restarts of FACILITIES, ACTIVITIES or OPERATIONS either located in or that are hazard category 2 and 3 nuclear FACILITIES or hazardous non-nuclear FACILITIES that will require further reviews (assessments) and approvals as outlined in this Manual.
- Defining and documenting the scope and requirements of an ACTIVITY or OPERATION. The scope defining process will include drafting a description of the ACTIVITY or OPERATION; the projected date for the start or restart of operations; and for restarts the reason for non-operation and the approximate date operations were last conducted
- Evaluating a new or changed ACTIVITY, or OPERATION, and determining the level of required formal readiness confirmation reviews or assessments.

The breadth and depth of the readiness reviews depends on the increase in risk assumed by the National Nuclear Security Administration (NNSA) for changes to an ACTIVITY, or OPERATION and on the extent and complexity of changes to ACTIVITY or OPERATION. Reviews to approve a new startup or restart are based on several factors. There are two types of readiness confirmation reviews:

- Readiness Assessment (RA)
- Operational Readiness Review (ORR)

Consistent with the NNSA requirements, contractor readiness reviews apply a graded approach using one of two levels of RAs (Level I RA and Level II RA) plus the ORR (for the most complex of startups or restarts). DOE Order 425.1 requires that where an ORR or RA is not required, the contractor's standard startup procedures are to be used. At Y-12 the BWXT Y-12 standard startup or restart process is described in Y15-190, Volume I, Chapter 3, and makes use of a Standard Operations Checklist (SOC). The Standard Operations Checklist is not considered to be a RA. When a BWXT Y-12 RA is required, NNSA may elect to perform a separate RA.

The Contractor RA/ORR has a breadth consistent with the complexity and risks of the new or restarted FACILITY, ACTIVITY, or OPERATION.

## APPLIES TO

This Chapter applies to the startup or restart of FACILITIES, ACTIVITIES or OPERATIONS that are either located in or are hazard category 2 and 3 nuclear FACILITIES or hazardous non-nuclear FACILITIES administratively controlled by the Y-12 National Security Complex. (See Y14-001, "Conduct of Operations Manual" Chapter 1.0, "Organization and Administration")

This chapter does not apply to process/operations that have maintained operability via a Continuing Operations Plan (UCN-21695).

## OTHER DOCUMENTS NEEDED

- UCN-21679, *Readiness Applicability and Review Level Determination*

## REFERENCES

- DOE Order 425.1, *Startup and Restart of Nuclear Facilities*
- DOE Order 251.1, *Departmental Directives Program*
- DOE-STD-1027-92, *Hazard Categorization and Accident Analysis Techniques for Compliance with DOE Order 5480.23, Nuclear Safety Analysis Reports*
- DOE-STD-3009-94, *Preparation Guide for U.S. Department of Energy Nonreactor Nuclear Facility Safety Analysis*
- Memorandum from Linton F. Brooks to Principle Deputy Administrator and Deputy Administrator for Defense Programs, dated April 20, 2005, *Delegation of Authority for Order 425.1C, Startup and Restart of Nuclear Facilities*
- Y14-190, *Safety Basis Implementation Plans and Implementation Validation Reviews*
- Y15-312, *Issues Management*
- Y71-930, *Environmental Aspect / Impact Identification and Significance Determination*
- Y73-045, *Job Hazard Analysis Manual*
- Y74-809, *Unreviewed Safety Question Determinations*
- 40 CFR 68, *Chemical Accident Prevention Provisions*
- 40 CFR 302, *Designation, Reportable Quantities, and Notification*

**WHAT TO DO**

**A. Identifying New Startups or Restarts**

**Project Manager (where applicable)**

1. WHEN the project involves the startup of a new Nuclear or Hazardous Non-Nuclear FACILITY, THEN ensure that the Division Manager responsible for the new FACILITY is engaged so that a Responsible Manager can be identified early.

2. Ensure that the manager responsible for the facility in which a startup or restart is planned (i.e., the Responsible Manager) is engaged in the project at the start and prior to the development of the Project Execution Plan (PEP).

**Responsible Manager**

3. Maintain cognizance of work within the FACILITY and recognize work that may be a startup or restart requiring evaluation.

4. Have a clear understanding of the objective and scope of the startup or restart.

   Actions associated with a restart after SUBSTANTIAL OR SIGNIFICANT CHANGES may require a RA or ORR depending on the extent of the changes.

5. Ensure an individual knowledgeable of the readiness process is assigned to evaluate the startup or restart for the applicability of the readiness confirmation process.

6. IF the startup or restart is more complex and likely to require a RA or ORR, THEN request the Readiness Assurance Manager assign a Readiness Leader to evaluate the startup or restart for the applicability of the readiness confirmation process.

   In the initial planning stages for a new startup or restart the Readiness Leader develops information to be used to support the evaluation of the startup or restart to determine the type and where applicable the level of readiness review required and, working with the project team, supports the development of an integrated and resource loaded schedule. The Readiness Leader, as a member of the project core team, is responsible for ensuring that the documents required by Y15-190 are properly identified, planned, developed, reviewed, approved, and maintained as changes to the project occur.

**Readiness Assurance Manager**

7. WHEN requested, THEN assign a Readiness Leader.

## B. Defining the Scope

**Readiness Leader**

**NOTE 1** Defining the scope of the startup or restart is crucial to ensuring success in achieving operational readiness. Line Management along with the Project Manager (when assigned) is responsible for defining the scope, utilizing the Operational Safety Board (OSB) and members of the supporting functional organizations, as necessary. It is recommended that an individual with startup experience also participate in defining the scope. The scope definition should be facilitated by both workshop reviews with representatives from each of the disciplines involved (including operators and other direct line support), and must include facility walk downs.

**NOTE 2** Definition of the scope should focus on not only the identification of what is required to perform the actual operations (i.e., the process) associated with the startup or restart, but also on what (e.g., materials, components, etc) will be processed. This includes restart requirements after changes. While all this information may not be known at the beginning, the information should be generated as early as possible. The UCN-21052, *Readiness Activity Checklist*, can serve as a valuable tool in developing the scope. Key functional areas may also have checklists that can aid in this effort.

**NOTE 3** The description document should be written to an unclassified level of detail, no higher than Official Use Only. This will allow its inclusion in the unclassified Startup Notification Report (SNR).

1. Prepare a description of the startup or restart, based on the best available information and using the guidance in Appendix 1A. Use UCN-21679 to document the description.

   The description should apply a graded approach (based on the complexity and extent of changes) using the guidance in Appendix 1A.

2. Ensure that the documented description is reviewed by the project team and concurred with by the Project Manager (if applicable), Production Manager (if applicable), and the Responsible Manager.

## C. Determining the Level of Review

**NOTE** The breadth and depth of the review and the work necessary for attaining operational readiness will apply a graded approach utilizing the guidance provided in Vol. I, Chapter 9.0, Level I Readiness Assessment or Vol. I, Chapter 6.0, Drafting a Plan-of-Action for Level II Readiness Assessments and ORRs.

**Readiness Leader**

1. Notify the Responsible Manager when a startup or restart is ready for review level evaluation.

2. Provide copies of the description of the scope of the startup or restart (UCN-21679) to the Responsible Manager prior to the review level evaluation.

**Responsible Manager**

3. Identify and notify members of the OSB who are required to participate in the review level determination evaluation.

**Readiness Leader**

**NOTE** The “Record Copy” of the Review Level Determination will be developed during the OSB meeting.

4. Provide a draft of UCN-21679, and supporting documentation to the OSB for review, either in advance of or at the OSB meeting as directed by the Responsible Manger.

**Responsible Manager**

5. Convene a meeting of the OSB for the purpose of conducting review level evaluation.

**Readiness Leader**

6. Present the planned ACTIVITY or OPERATION to the OSB including the following:

   - Impact on the Safety Basis including the applicable Authorization Agreement
   - Key Recommended requirements for attaining operational readiness

7. Record applicable comments on UCN-21679 during the OSB meeting.

**OSB**

8. Evaluate the startup or restart using criteria in UCN-21679 and information provided by the Readiness Leader.

**C. Determining the Level of Review (cont.)**

**Readiness Leader**

**NOTE 1** Upon recommendation by the OSB, the level of review may be elevated for reasons other than described above. The reason for elevation of the level of review should be documented on the UCN-21679 form in the "Review Level" section.

**NOTE 2** The OSB may recommend to the Senior Manager responsible for the facility, with justification, that the level of review be lowered from one RA Level to another. The reason for lowering the level of review should be documented on UCN-21679 form in the "Review Level" section. Lowering of a RA I to a Standards Operations Checklist requires Management Review Board approval and is only allowed as described by Table 1 of UCN-21679. Lowering an ORR to a RA requires an exemption to DOE Order 425.1. Exemptions to DOE Directives are requested in accordance with the process described in DOE Order 251.1.

**NOTE 3** NNSA will use the guidelines in DOE Order 425.1, *Startup and Restart of Nuclear Facilities*, to approve the recommended Startup/Restart (a.k.a. Authorization) Authority.

9. Document the level of review designated by the OSB on the UCN-21679.

**NOTE** Appendix 1B contains Startup/Restart Authority guidance.

10. Indicate the proposed Startup/Restart Authority on the UCN-21679 and complete development of the "Record Copy."

**OSB**

11. Sign (each member) the UCN-21679 signifying agreement with the evaluation.

    This includes the Readiness Leader signing as Evaluator and the Facility Safety representative signing concurrence on page 5 of the UCN-21679.

**Readiness Leader**

12. Forward the completed UCN-21679 form to affected Responsible Manager and (where applicable) the Production Manager for approval.

**Responsible Manager**

13. Review the UCN-21679 form.

14. IF the startup or restart has a planned startup date less than 12 months from the date of the OSB evaluation, THEN ensure that a justification is provided in the "Review Level" section of the UCN-21679 form.

15. IF the evaluation is acceptable, THEN sign the form.

## C. Determining the Level of Review (cont.)

**Responsible Manager**

16. IF the evaluation is not acceptable, THEN return the form to the Readiness Leader for further evaluation.

17. WHEN approved, THEN forward the UCN-21679 form to the affected Production Manager (if applicable), or Project Manager (if applicable), or to the Readiness Assurance Manager.

**Production Manager**

18. IF the approved form is not acceptable, THEN return to the Responsible Manager or Readiness Leader for further evaluation.

19. WHEN approved, THEN forward the UCN-21679 form to the Project Manager (if applicable), or the Readiness Assurance Manager (See Readiness Assurance Website, https://home1.y12.doe.gov/ready/, for contact information).

**Project Manager**

20. IF the approved form is not acceptable, THEN return to the Responsible Manager or Readiness Leader for further evaluation.

21. WHEN approved, THEN forward the UCN-21679 form to the Readiness Assurance Manager (See Readiness Assurance Website, https://home1.y12.doe.gov/ready/, for contact information).

**Readiness Assurance Manager**

22. IF the approved form is not acceptable, THEN return to the Responsible Manager or Readiness Leader for further evaluation.

23. WHEN approved, THEN forward the UCN-21679 form to the Senior Manager for approval.

24. WHEN the Senior Manager returns the approved UCN-21679, THEN ensure that a copy of the completed and signed form is retained in the Readiness Assurance files.

**Senior Manager**

**NOTE** The Senior Manager responsible for the facility in which the startup or restart is occurring has final authority for determining the readiness confirmation review to be recommended to NNSA.

25. Sign the UCN-21679 form indicating final determination of the recommended readiness confirmation review. Provide justification for any changes to the designated level of review in the “Review Level” section of UCN-21679.

**C. Determining the Level of Review (cont.)**

**Senior Manager**

The submittal of a completed UCN-21679 form for a RA or ORR that is approved less than 12 months in advance of the planned startup date requires a justification for the late submittal as it is non-compliant with DOE Order 425.1.

26. Return the approved UCN-21679 form to the Readiness Assurance Manager.

**Readiness Assurance Manager**

27. Ensure that a document number for the completed UCN-21679 form is obtained from the applicable DMC and assigned to the approved document.

28. Ensure that the original is submitted to the applicable DMC with copies to the Responsible Manager and Readiness Leader.

29. Ensure the SNR is updated in accordance with Vol. I, Chapter 4.0, *Startup Notification Report (SNR)*

    The addition of an item to the SNR for a RA or ORR that is less than 12 months in advance of the planned startup date requires a justification for the late submittal as it is non-compliant with DOE Order 425.1. The Division/Department Manager responsible for the planning associated with the late submittals should be informed of the non-compliant situation and repeated occurrences from a given Division or Department may warrant issuance of a deficiency in accordance with Y15-312, *Issues Management*.

**Responsible Manager**

30. IF final determination is to use the Standard Operations Checklist, THEN GO TO Vol. I, Chapter 3.0, *Standard Operations*, and follow the described process.

**Readiness Assurance Manager**

31. IF determination is that a RA or ORR is required, THEN:

    a. Ensure that a Readiness Leader is assigned to support the startup or restart.

**Readiness Leader**

    b. For a Level I RA follow the steps in Vol. I, Chapter 9.

    c. For a Level II RA or an ORR develop a Readiness Plan per Vol. I, Chapter 5.0, *Developing a Readiness Plan*.

## D. Developing the Readiness Files

**Readiness Leader**

**NOTE 1** Documents included in the Readiness files or Evidence files should be uniquely identified/numbered. If an Evidence Matrix is prepared, it can be used to define the unique numbers for each document in the file or designate the location where a particular document can be found. The Readiness Leader must ensure that the appropriate documents are identified and included in the files.

**NOTE 2** It is understood that classified documents, large bodies of evidence (e.g., Change Request Packages, Safety Analysis Reports, etc.) may not be practical to duplicate and include in an evidence file. In those instances, the evidence file should point to the permanent storage location and the contact for review or retrieval.

1. Establish a Readiness file for the startup or restart.

2. Ensure the appropriate documents are added to the Readiness file(s) or are available in a specified location (e.g., Document Management Center) when the documents are finalized and approved.

   It is a good practice to develop an Evidence Matrix that lists the anticipated documentation that will serve as evidence that the Prerequisites and Core Requirements have been satisfied. Examples of documents that might appear in this matrix are:

   - Approved procedures, system alignment checklists, etc.
   - Permits for work (RWP, hot work, etc.)
   - Results and evidence of correction of ES&H walkdown items
   - Change Request Packages
   - Design drawings
   - Automated Job Hazard Analysis
   - Change evaluation forms
   - Completed and approved USQDs
   - Engineering Technical Basis/Process Description/Technical Basis Index Summary (TBIS)
   - Grading Worksheet Package(s)
   - Structures, Systems, and Equipment List/Master Equipment Lists/Configuration Control Equipment Data Sheets (CCEDS)
   - Results of pre-operational testing of modified equipment and associated support systems
   - List of personnel (names) filling minimum staffing positions

**D. Developing the Readiness Files (cont.)**

**Readiness Leader**

- Training Plans and evidence of Qualification, and/or Certification
- Fire Hazard Analysis (FHA)
- Criticality Safety Evaluation (CSE/CSA/CSR)
- Safety Analysis Report (SAR)/ Technical Safety Requirements (TSR)/Safety Evaluation Report (SER)
- Security Plan(s)
- Drill guides
- Plans and reviews related to the project (e.g., ALARA Plan, Waste Management Plan, Pre-Fire Plan, etc.)
- Lessons Learned/CAPS reviews
- Maintenance Work Order reviews
- Project UCN-21679
- Documentation of any Scope Changes
- Readiness Plan (e.g., closure criteria, checklists, schedule, etc.)
- Plan of Action (POA)
- Implementation Plan for reviews
- Performance Self Assessment (PSA), RA/ORR Final Reports
- Startup Plan (if applicable)
- Level 1 Readiness Assessment Checklist (if applicable)

**E. Defining and Controlling Changes**

**Readiness Leader/Project Manager**

**NOTE** During the course of achieving operational readiness, changes in scope can occur.

1. IF a change in scope occurs during the course of achieving operational readiness, THEN perform the following:

   a. Evaluate impacts to the Review Level criteria and determine required actions.

   b. Notify the Responsible Manager if scope changes occur.

   c. Document the evaluation of the change along with required actions and place in the Readiness file.

   d. Evaluate impacts to the schedule, Readiness Plan, and POA. Notify the Startup/Restart Authority if changes to the POA are required.

**E. Defining and Controlling Changes (cont.)**

**Readiness Leader/Project Manager**

2. Update the schedule and scope, as required.

**F. Startup Plan**

**Readiness Leader/Project Manager**

**NOTE** A Startup Plan is required for startups requiring Level 2 RAs or higher. It is also required for Level 1 RAs or Standard Operations Checklist startups if the operation involves multiple non-trivial activities, operation of complex equipment, or operation of non-trivial equipment whose failure could jeopardize safety of personnel, the environment, or the public or result in substantial monetary impact,

1. Prepare a Startup Plan if required per Vol. II, Chapter 1, *Developing a Startup Plan*.

**G. Scoping Meeting**

**Readiness Leader**

**NOTE** The Scoping Meeting is only required for startups or restarts where NNSA is the Startup/Restart Authority. When held, the scoping meeting is conducted with representatives of the YSO. The scoping meeting is to occur prior to the development of the final Plan of Action (POA), but it should only be held after the Readiness Plan is approved and provided to YSO.

1. IF NNSA is the Startup/Restart Authority, THEN Convene a Scoping Meeting in accordance with guidance in Appendix 1C, *Scoping Meeting Guidance*.

   The Scoping Meeting should:

   - Provide early information on the activity.
   - Include a walk down of the ACTIVITY or OPERATION area to ensure the physical scope is well defined and understood.
   - Establish customer expectations and relate to the POA development and status of administrative program implementation.

2. Document the decisions from the Scoping Meeting as a memorandum and place in the evidence files.

3. Finalize development of POA in accordance with Vol. I, Chapter 6.0*, Drafting a Plan of Action*, upon receipt of Scoping Meeting notes/discussion from NNSA.

## RECORDS

Records generated as a result of this procedure are maintained in accordance with Y15-101, *Manual for the Management of Records and Controlled Documents* and established retention and disposition schedules in the Approved Comprehensive Records Schedule at https://home1.y12.doe.gov/scripts/eicms/prod/SMARTMain.cfm.

### Owner/DMC

The Records generated as a result of this Chapter include:

- UCN-21679 document.

The above record is to be maintained by the applicable DMC for the Organization responsible for the FACILITY in which the startup or restart is occurring. A hard copy and electronic copy of this document must also be provided to the Readiness Assurance Manager.

## SOURCE DOCUMENTS

- Standards/Requirements Identification Document (S/RID) Requirement Unique Identifiers (RUIDs): 10905, 10906, 10907, 10908, 10909, 10910, 10911, 10912, 10913, 10914, 10925, 10926, 10935, 10965, 11594, 11596, 11597, 11598, 11599, and 11601.
- YSO-CRD-03-01, *Start-Up and Restart of Operations, Activities and Facilities at Y-12*

## APPENDICES

Appendix 1A, *Guidance for Developing the Scope Description*
Appendix 1B, *Startup/Restart Authority*
Appendix 1C, *Scoping Meeting Guidance*

**APPENDIX 1A**
**Guidance for Developing the Scope Description**
**(Page 1 of 3)**

Defining the scope of the startup or restart is crucial to ensure success in achieving operational readiness. Line Management is responsible for defining the scope, utilizing the Operational Safety Board (OSB) and members of supporting organizations, as necessary. It is recommended that an individual with startup experience also participate in defining the scope. The scope definition should be facilitated by both workshop reviews with representatives from each of the disciplines involved (including operators and other direct line support), and must include facility walk downs.

Definition of the scope should focus on identification of what is required to perform the operation or activity. This includes restart requirements after process/equipment changes. While not all this information may be known at the beginning, the information should be generated as soon as possible. Identification of actions needed to attain operational readiness will be defined further during the development of the Readiness Plan (only required for Level II RAs and ORRs). Items listed below that are not applicable to the particular startup or restart may be omitted.

The scope of work description of the startup or restart, to include the following:

- Objective of the startup or restart (i.e., product of the work)
- Brief description of the process, facilities, equipment, and systems involved with the operation or activity including support systems
- Facility where the work will be performed
- Facility Hazard Category or Class
- Responsible Organization for the actual production work and Readiness Leader
- Key changes necessary to perform this ACTIVITY or OPERATION (e.g., facility, equipment, DSA/Safety documentation, procedures, personnel, training, facility security plan, etc.)
- Description of the impact of the operation or activity on the facility (e.g., change in facility, characterization, security, etc.)
- Length of shutdown period (for restarts) and reason for shutdown
- Estimated schedule date for actual startup or restart
- Primary systems, equipment, documentation, personnel, and organizational support that must be functioning to conduct the startup or restart by developing a description of the following:
    - Physical boundaries of the operation or activity
        - Vaults
        - Switches

**APPENDIX 1A**
**(Page 2 of 3)**

- Rooms
- Dampers
- Floors

o Administrative boundaries of the operation or activity

- Procedures
- Documented Safety Analysis (DSA)
- Criticality Safety Approval (CSA)/ Criticality Safety Requirement (CSR)
- Organizations
- Departments

o Buildings, structures, equipment, and hardware (include tooling and automated controls)

o Changes since previous operation (restarts only)

Conduct and document a walk down which consists of a visual inspection of work area, condition of equipment and tooling, accessibility, lighting, age of facility and equipment, and other pertinent factors which may affect the assessment. Performance of an ES&H Walkdown should be considered at this time to provide early identification of facility safety issues that will need to be resolved to support full operation.

Identify areas and equipment associated with, or supporting the ACTIVITY or OPERATION (e.g., vaults, labs, hoods, cranes, storage racks, movement carts, forklifts, etc.).

Identify personnel directly required for performance of (e.g., having performance, approval, or support responsibilities, etc.) the startup or restart, such as those listed below. Develop a Training Impact Evaluation (TIE) using UCN-21529, *Project/Task Training Impact Evaluation*, to document the anticipated training needs for the involved personnel.

- Operations Production (e.g., Production Managers, Supervisors and Operators, etc.)
- Facility Operations (e.g., Operations Manager, Shift Technical Advisor, Shift Manager, etc.)
- Environmental Health and Safety (IS, IH)
- Radiological Control
- Maintenance (including ET&I)
- Utilities
- Equipment Testing and Inspection (ET&I)
- Nuclear Criticality Safety
- Building tenants
- Security

**APPENDIX 1A**

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- Nuclear Material Control and Accountability (NMC&A)
- Environmental and Waste Management
- Quality Assurance
- Fire Protection Engineering
- Emergency Response
- Metrology
- Fire Protection Operations
- Plant Shift Superintendent (PSS )
- Material Management Organization

Document the information listed above and maintain this documentation as a record and include it in the readiness file. The completed UCN-21679 form should be given a unique document number from the applicable DMC and retained as a record in the DMC.

**APPENDIX 1B**
**Startup/Restart Authority**
**(Page 1 of 1)**

1. Startup/Restart Authority for ORRs is determined in accordance with DOE O 425.1 and Memorandum from Linton F. Brooks to Principle Deputy Administrator and Deputy Administrator for Defense Programs, dated April 20, 2005, *Delegation of Authority for Order 425.1C, Startup and Restart of Nuclear Facilities*.

2. The Manager, YSO, will be the Startup/Restart Authority for Level II RAs unless delegated (i.e., via SNR approval) to the Contractor.

3. The Contractor Senior Manager will be the Startup/Restart Authority for Level I (checklist) RAs.

**APPENDIX 1C**
**Scoping Meeting Guidance**
**(Page 1 of 2)**

1. The meeting schedule should be coordinated with the YSO Program Manager.

2. The meeting should occur after the Readiness Plan is provided to NNSA and prior to the development of the final Plan of Action (POA).

3. A summary of the results should be provided to the YSO Assistant Manager for Programs.

4. For startups/restarts that require an ORR, attendance should include Division Managers.

5. The agenda elements should consider the following: personnel, including supporting organization personnel; supporting organization services; site and organization level programs and procedures; documentation; technical baseline; safety basis documentation; safeguards and security basis documentation; and the equipment/facility. The following is an example of a possible agenda:

PURPOSE:

Develop a baseline understanding of the scope of the startup or restart including the reviewing and understanding the actions necessary to prepare a startup or restart for operational readiness.

DISCUSSION:

*Physical Boundary*

- Buildings, facilities, control rooms, storage locations, handling areas, systems, and equipment that will be used to perform the operation or activity being started.
- Description of how the physical boundary will be defined (e.g., defined by location, isolation valve or breaker, etc.).
- Depending on the complexity, the boundary definition should be in a controlled document (e.g., drawing, project plan, or other boundary definition document, etc.).
- The scoping meeting should include a discussion of physical boundary, and include a walk down of the area for clarification.

*Operational Boundary*

- Operations associated with the startup or restart should be discussed. This should include a description of all the systems, processes involved.
- Discuss how changes affect the startup or restart that is going to be operated.

**APPENDIX 1C**
**(Page 2 of 2)**

- The impact of the startup or restart on currently operational equipment and processes should be discussed. For example, the startup or restart requires the use of HEPA exhaust ventilation, which is currently operational. Does the current exhaust system have the capacity to support the startup or restart? Another example, the startup or restart requires the use of a ventilated hood that is currently operational. Does the hood have adequate alarms and flow to support the operation or activity?
- Operational interfaces with the startup or restart should be discussed (e.g., the sampling points, addition of feed materials, disposition of waste streams, etc.).
- Support systems that are required should be discussed.

*Organizational Boundary*

- A complete identification of the organizations required to operate and maintain the startup or restart should be discussed. This will include operational, technical, and functional support organizations including safeguards and security.

*Documentation*

- Provide a project plan, checklist, or listing of documents that will be generated, or upgraded as part of the operation or activity. The UCN-21052, *Readiness Activity Checklist*, can serve as a valuable tool in identifying impacted documents.
- Identify any unique programmatic elements required to support the startup or restart (e.g., source control, hazardous chemicals, security plan, etc.).

6. Other items, not necessarily required for the scoping meeting, but could be discussed.
    - Actions that can not be conducted prior to startup or restart operational authorization
    - Surrogate materials to be used for demonstrations
    - Practice evolutions or cold operations
    - Application of previous “Lessons to be Learned.” Document these discussions for use in the Lessons Learned review required for the activity or project.

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This chapter has been superseded. Use Chapter 3 for completing existing SNR approved Non-nuclear Checklists. When chapter 3 refers to UCN-21050, use the corresponding block on UCN-21045.

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| Chapter: | 3.0, Standard Operations | Effective Date: 2/28/07 |

**NOTE** In addition to processing UCN-21050, *Standard Operations Checklist*, this Chapter may also be used to process legacy UCN-21045, *Non-nuclear Readiness Checklist*s. WHEN used to process a UCN-21045 form, THEN where this Chapter refers to form UCN-21050, use UCN-21045 and the corresponding block on the form UCN-21045. Note that the completion of the UCN-21045 requires that the evidence of completion of applicable checklist items be reviewed by the OSB for the facility in which the startup or restart is being accomplished and signed by the Senior Manager.

## PURPOSE

Department of Energy Order 425.1, Startup and Restart of Nuclear Facilities, requires that "if a Readiness Assessment is not to be performed, the contractor's standard operating procedures for startup or restart will be used" [RUID 10907]. This Chapter provides instructions for performing startups or restarts that do not require a Readiness Assessment or Operational Readiness Review. This determination is made through the completion of UCN-21679, *Readiness Applicability and Review Level Determination*, as described in Vol. I, Chapter 1.0, *Identifying Scope and Review Level*.

In cases where additional rigor and formality beyond the minimum requirements specified in this Chapter are warranted, the Responsible Manager, commensurate with the circumstances, may decide that the completion of UCN-21050, *Standard Operations Checklist*, and associated evidence should be evaluated by the FACILITY Operations Safety Board (OSB) or by an independent reviewer. For some circumstances the Responsible Manager may decide that a review level determination, per Vol. I, Chapter 1.0, *Identifying Scope and Review Level*, should be accomplished. It may also be appropriate for more complex or unique startups or restarts that a Level I Readiness Assessment (RA) should be performed in lieu of the Standard Operations Checklist.

The startup or restart is to be planned, evaluated, and authorized prior to execution in accordance with the process identified in this Chapter.

Additional guidance and templates are available on the Operational Readiness Assurance (ORA) web site, https://home1.y12.doe.gov/ready/.

## APPLIES TO

This Chapter applies to startups or restarts in hazard category 2 and 3 nuclear facilities and hazardous non-nuclear facilities when the use of UCN-21679, *Readiness Applicability and Review Level Determination,* as described in Volume I, Chapter 1, requires that UCN-21050, *Standard Operations Checklist* be used. This Chapter does not apply to other types of reviews.

## OTHER DOCUMENTS NEEDED

- UCN-21679, *Readiness Applicability and Review Level Determination*
- UCN-21050, *Standard Operations Checklist*.

**REFERENCES**

- Y15-001 *Grading Criteria for Y-12 Facilities and Systems*
- Y15-009, *Criteria for Application of the Y-12 Configuration Management Program*
- Y15-101, *Manual for the Management of Records and Controlled Documents*
- Y15-187, *Integrated Safety and Change Control Process*
- Y15-232, *Technical Procedure Process*
- Y15-312, *Issues Management*
- Y15-331, *Lessons Learned Program*
- Y17-007INS, *Transitioning Technical Documentation to Operations*
- Y17-011, *Startup Testing Program Manual*
- Y73-045, *Job Hazard Analysis Manual*
- Y80-101PD, *Software Management Program Description*
- Y90-027, *Conduct of Training Manual*

**WHAT TO DO**

**A. Ensuring Operational Readiness**

**Responsible Manager**

1. Ensure that a Readiness Leader is assigned early in the startup or restart.

   This should be accomplished working in concert with the Readiness Assurance Manager and the Production Manager (where applicable). The Readiness Leader for standard operations is typically a System or Process engineer, but the Readiness Assurance Manager may assign a more experienced Readiness Leader where the uniqueness or complexity of the startup or restart warrants, or upon the request of management.

**Readiness Leader**

2. Ensure that UCN-21679, *Readiness Applicability and Review Level Determination*, has been completed in accordance with instructions provided in Vol. I, Chapter 1.0, *Identifying Scope and Review Level*, and that it has been signed by the Senior Manager.

3. Ensure that each item on the UCN-21050, *Standard Operations Checklist*, is evaluated for applicability early in the process of preparing the startup or restart for operations by performing the following:

   a. Address each UCN-21050, *Standard Operations Checklist*, item.

**A. Ensuring Operational Readiness (cont.)**

**Readiness Leader**

**NOTE** Where a particular checklist item is not changed (e.g., the Safety Basis documents or Security Plan are not changed) as a result of the startup or restart then that item would NOT be applicable to the particular startup or restart.

b. If the item is applicable to the startup or restart then mark the "YES" box and summarize in the "BASIS" section of that item the actions that must be completed prior to the startup or restart and the documentation that will be provided to show that it has been completed.

c. If the item is NOT applicable to the startup or restart then mark the "N/A" box and provide in the "BASIS" section the justification as to why the checklist item is not applicable.

Justification for the exclusion of a Checklist Item requires written basis for excluding the item, a discussion is expected.

4. Conduct preparations to achieve operational readiness by completing, as a minimum, the actions needed for each applicable item on the UCN-21050, *Standard Operations Checklist*.

5. Ensure a readiness file is established and maintained throughout the process for attaining operational readiness, adding to the file the final completed and approved documents necessary to support confirmation of readiness in accordance with applicable elements of UCN-21050, *Standard Operations Checklist*.

6. Document any Scope changes as follows:

a. Evaluate impacts to the UCN-21679, *Readiness Applicability and Review Level Determination*, and determine required actions.

b. Notify the Responsible Manager if the scope changes during the course of attaining operational readiness.

c. Document the evaluation and required actions and place in the Readiness file.

d. Update the schedule and scope, as required.

7. IF the startup or restart meets the applicability requirements of Y17-011, *Startup Testing Program Manual*, THEN ensure that installation test and checkout are completed and documented in accordance with Y17-011. If construction was involved in the project, ensure that the operation or activity has been turned over to operations in writing. Y17-007INS, *Transitioning Technical Documentation to Operations*, provides guidelines on construction project turnover to operations.

## A. Ensuring Operational Readiness (cont.)

**Readiness Leader**

8. IF the startup or restart involves maintenance work, THEN ensure that all maintenance work is completed and that when appropriate the post-work testing has been defined, completed, and documented.

9. Ensure that the applicable UCN-21050 criteria have been met and that the operation is ready for operations and startup/restart authorization. Additional guidance and templates are available on the Readiness Assurance (RA) web site [https://home1.y12.doe.gov/ready/].

**NOTE** A Startup Plan is recommended for Standard Operations Checklist startups if the operation involves multiple non-trivial activities, operation of complex equipment, or operation of non-trivial equipment whose failure could jeopardize safety of personnel, the environment, or the public or result in substantial monetary impact

10. Assess the need for developing a Startup Plan, considering the complexity and/or uniqueness of the startup or restart, the new or changed hazards introduced, and for initial startups the need for additional oversight during the transition to normal operations.

    A Startup Plan might include further testing needed to confirm operating parameters, additional operational controls, extra oversight (e.g., in areas such as operations, engineering, criticality safety, Environmental Safety and Health), reduced production rates, etc. (See Vol. II., Chapter 1.0, *Developing the Startup Plan*, for suggested guidelines.)

11. WHEN satisfied that actions are complete and evidence to support a declaration of operational readiness is approved and sufficient to confirm that actions have been completed, THEN sign and date the original version of the UCN-21050 indicating completion of the checklist and that the startup or restart is ready for safe, secure, and compliant operations.

## B. Startup or Restart Approval

**Responsible Manager**

1. Review UCN-21050, *Standard Operations Checklist*, along with supporting evidence to confirm that each applicable item is complete and operational readiness has been attained with sufficient confidence to authorize the startup or restart.

**B. Startup or Restart Approval (cont.)**

**Responsible Manager**

2. WHEN satisfied that actions are complete, evidence to support a declaration of readiness is in place, and personnel are ready to perform the activity THEN the Responsible Manager shall either:

   a. Review the documentation, sign and date UCN-21050, and go to Step B. 3, OR

   b. Have the documentation reviewed by an independent reviewer, OR

   c. Have the documentation reviewed by the OSB

      (a) Identify the members of the OSB required to participate in a review of the UCN-21050 and supporting evidence.

      (b) Convene the OSB for the purpose of conducting a review of the completed UCN-21050 and supporting evidence.

      (c) Attend the OSB meeting to discuss the readiness of the startup or restart and supporting evidence.

      (d) Support the OSB discussions including identifying the operational sequence and boundaries, pressures, temperatures, and materials required for the operation or activity to the OSB members as appropriate.

**OSB**

      (e) Evaluate readiness of the proposed startup or restart using the evidence of completion of applicable UCN-21050 items along with information provided by the Readiness Leader and recommend action (approval/rejection) to the Responsible Manager.

**Responsible Manager**

      (f) On recommendation of an independent reviewer or the OSB, sign and date UCN-21050, OR

3. IF a Production Manager is associated with the activity being started or restarted THEN ensure that he or she concurs with the determination by signing and dating the UCN-21050.

4. Obtain additional concurrence from other individuals as deemed appropriate (e.g., NMC&A, Radiological Control, Physical Security, etc.).

**B. Startup or Restart Approval (cont.)**

**Responsible Manager**

5. IF the uniqueness or complexity of the startup or restart warrant further approvals, or if processing a legacy UCN-21045 form, THEN forward the completed UCN-21050/UCN-21045 to the responsible Department Manager (if applicable) OR, if there is no Department Manager then to the Senior Manager for approval.

6. IF further approval is not needed or required, THEN Go to Step B.14.

7. Review the UCN-21050 for completeness and accuracy.

8. IF the UCN-21050 is rejected, THEN return it to the Responsible Manager for additional work and/or evidence and re-submittal.

9. WHEN satisfied with the UCN-21050, THEN sign and date and forward to the Senior Manager.

**Senior Manager**

10. Review the UCN-21050 for completeness and accuracy.

11. IF the UCN-21050 is rejected, THEN return it to the Department Manager for additional work and/or evidence and re-submittal.

12. Assume final responsibility for work authorization by approving the UCN-21050 (signing as Startup/Restart Authority) and granting permission to conduct the operation or activity.

13. Return the signed UCN-21050 form to the Responsible Manager

**Responsible Manager**

14. IF directed to this step from Step B.6,
    THEN Assume final responsibility for work authorization by approving the UCN-21050 (signing as Startup/Restart Authority) and granting permission to conduct the operation or activity.

15. Inform the National Nuclear Security Administration (NNSA) Facility Representative that the startup or restart has been authorized prior to actual operation and sign and date the notification block on the UCN-21050.

16. Provide a copy of the completed and approved UCN-21050 to the Readiness Assurance Manager so the SNR can be updated to reflect actual completion.

17. IF a Startup Plan was prepared, THEN ensure that it is applied to initial operations.

## RECORDS

All records generated as a result of this procedure are maintained in accordance with Y15-101, *Manual for the Management of Records and Controlled Documents* and established retention and disposition schedules in the Approved Comprehensive Records Schedule at https://home1.y12.doe.gov/scripts/eicms/prod/SMARTMain.cfm.

### Owner/DMC

The Records generated as a result of this Chapter include:

| Record | Record Copy Owner/DMC |
|---|---|
| UCN-21050, *Standard Operations Checklist* | DMC for the Organization responsible for the FACILITY |

## SOURCE DOCUMENTS

- Standards/Requirements Identification Document (S/RID) Requirement Unique Identifiers (RUIDs): 10907 and 10932.
- YSO-CRD-03-01, *Start-Up and Restart of Operations, Activities and Facilities at Y-12*

| | | |
|---|---|---|
| Subject: | Readiness Manual | |
| Title: | Readiness Planning and Achievement | Vol. I |
| Chapter: | 4.0, Startup Notification Report | Effective Date: 2/28/07 |

## PURPOSE

This Chapter provides guidance for the development of a Startup Notification Report (SNR). The SNR is updated and submitted quarterly to National Nuclear Security Administration (NNSA) Y-12 Site Office (YSO) for review and approval by the 15th day of first month of each subsequent quarter. In accordance with DOE Order 425.1, the SNR is required to look ahead at least 12 months and to update information from previous periods for startups or restarts that have not yet occurred and to add information for each startup or restart that has been identified since the last report. This Chapter describes the report's content, development, and approval process.

The SNR can be viewed on the Readiness Assurance Website, https://home1.y12.doe.gov/ready/.

The SNR is used by NNSA to grant approval of the proposed review level [i.e., whether readiness will be confirmed by the performance of a Readiness Assessment (RA) or an Operational Readiness Review (ORR)] and to track the status of startups or restarts. Additionally, it ensures that the appropriate Startup/Restart Authority is established. To ensure that each startup or restart is properly evaluated, NNSA also requires that startups or restarts using the Standard Operations Checklist or making use of a Continued Operations Plan also be included on the SNR. Failure to include new or significantly changed FACILITIES, ACTIVITIES, or OPERATIONS in the SNR may results in delays to the planned startup or restart.

## APPLIES TO

This Chapter applies to the startup or restart of nuclear or chemically hazardous, FACILITIES, ACTIVITIES, or OPERATIONS.

## OTHER DOCUMENTS NEEDED

- UCN-21679, Readiness Applicability and Review Level Determination
- UCN-21695, Continuing Operations Plan

## REFERENCES

1. DOE Order 425.1, *Startup and Restart of Nuclear Facilities*

2. Memorandum from Linton F. Brooks to Principle Deputy Administrator and Deputy Administrator for Defense Programs, dated April 20, 2005, *Delegation of Authority for Order 425.1C, Startup and Restart of Nuclear Facilities.*

## WHAT TO DO

### A. Identifying Required Information for the SNR

**NOTE 1** DOE Order 425.1 and YSO-CRD-03-01 require that the SNR be updated quarterly to identify nuclear and hazardous non-nuclear startups or restarts scheduled to occur over the subsequent 12 months. Routine startups or restarts using BWXT Y-12's standard startup procedure (i.e. Y15-190, Volume I, Chapter 3, *Standard Operations*) must be shown on the SNR and should be provided prior to the startup or restart [RUID 11608]. The determination as to whether or not an operation needs to be included on the SNR is made through the completion of UCN-21679, *Readiness Applicability and Review Level Determination*, as described in Vol. I, Chapter 1.0, *Identifying Scope and Review Level*.

**NOTE 2** The startup or restart of, FACILITIES, ACTIVITIES, or OPERATIONS are best included on the SNR at the time the Project Execution Plan (PEP) is developed to obtain early approval of the required readiness review prior to startup.

**NOTE 3** To be included on the SNR for NNSA approval of the recommended review level and Startup/Restart Authority, UCN-21679 must have been completed and approved by the responsible Senior Manager.

**NOTE 4** Continuing Operations Plans, UCN-21695, are required to be approved by NNSA prior to exceeding 6 months since the last Program Work was performed using the process/operation.

**Readiness Assurance Manager**

1. Request the Manager of Requirements Management to issue a call for updates of the SNR, quarterly.

**Requirements Management Manager**

2. Request Division and Department Managers to submit updates to the SNR to the Readiness Assurance Manager.

**Division/Department Managers**

3. Ensure that UCN-21679, *Readiness Applicability and Review Level Determination*, is completed for startups and restarts in nuclear and hazardous non-nuclear facilities with required information including the justification for the recommended review level and Startup/Restart Authority and submitted to the Readiness Assurance Manager a minimum of 12 months prior to the planned startup date.

4. IF the startup or restart has a planned startup date that is less than 12 months away, THEN provide justification as to why startup or restart is non-compliant with the requirements of DOE Order 425.1.

## A. Identifying Required Information For the SNR (Cont.)

**Division/Department Managers**

5. IF a Continuing Operations Plan (UCN-21695) will be used, THEN ensure that it is provided to the Readiness Assurance Manager for inclusion with the SNR update prior to exceeding 6 months of non-production operation.

   Each element of a Continuing Operations Plan must be implemented within 12 months of the date when Program Work was last performed.

6. Ensure SNR information is updated and resubmitted to the Readiness Assurance Manager at least quarterly to add new or revised information (e.g., expected startup or restart date) for previously identified startups and restarts as well as new startups and restarts that have been identified since the last report.

**Readiness Leader**

7. Ensure that the Readiness Assurance Manager is requested to submit an addendum to the SNR for those startups or restarts that are identified and require completion prior to the next SNR submittal.

**NOTE 1** It is important to provide information for the SNR as early as possible, even if all information is not known or if all the approvals have not been obtained. This information will be included in the SNR for information only until finalized.

**NOTE 2** After initial input, the SNR may be updated by referencing title and building number and indicating changes only.

8. Ensure the required information is included in the development of the SNR, by completing UCN-21679, using the evaluation conducted in Volume I, Chapter 1.0, *Identifying Scope and Review Level*, as a basis.

## B. Designating the Proposed Startup/Restart Authority

**NOTE 1** Startup/Restart Authority for ORRs is determined in accordance with References 1 and 2 above.

**NOTE 2** The Manager, YSO will be the Startup/Restart Authority for Level II RAs unless delegated (i.e., via SNR approval) to BWXT Y-12.

**NOTE 3** The BWXT Y-12 Division Manager of the Responsible Manager will be the Startup/Restart Authority for Level I (checklist) RAs.

**Readiness Leader**

1. Identify and justify the recommend Startup/Restart Authority as determined by the completion of UCN-21679.

**B. Designating the Proposed Startup/Restart Authority (Cont.)**

**Responsible Manager**

2. Approve and forward the SNR information indicating the recommended Startup/Restart Authority to the Readiness Assurance Manager by internal memo or electronically.

**C. Submitting the SNR to NNSA**

**Readiness Assurance Manager**

1. Compile SNR information including justifications for the recommended Review Level and Startup/Restart Authority.

2. Forward the SNR quarterly to NNSA YSO for review and approval by the 15th day of the first month of each quarter.

3. Ensure each SNR submittal is approved by YSO.

4. Ensure contractor RA or ORRs do not commence until the Manager, YSO has approved the proposed review level and Startup/Restart Authority via the NNSA approval of the SNR.

**NOTE** In those cases when a startup or restart requiring a RA or ORR is identified following submission of the SNR, that will occur before the next scheduled SNR update, a separate SNR addendum may be provided to ensure timely agreement on the details of the readiness review process for that startup or restart.

5. Ensure a SNR addendum is provided to NNSA to reach timely agreement on the details of the readiness review process for the startup or restart in those extenuating cases when a previously unreported startup/restart is identified that will occur prior to the next SNR update.

6. Ensure the SNR addendum contains the information required for the SNR, plus the reason for not waiting until the next SNR submittal.

   The addendum may include the Plan-of-Action (POA) for NNSA information or approval, depending on the Startup/Restart Authority determination.

**D. Removal of Items from the SNR**

**Readiness Leader**

1. Send the startup/restart authorization letter, completed Level I RA Checklist, or Standard Operations Checklist to the Readiness Assurance Manager, after completion of Readiness Reviews or Standard Operations Checklist and approval to startup has been granted.

**D. Removal of Items from the SNR (Cont.)**

**Readiness Assurance Manager**

2. Update the SNR information noting the completion of the startup/restart and its removal from the SNR.

## RECORDS

All records generated as a result of this procedure are maintained in accordance with Y15-101, *Manual for the Management of Records and Controlled Documents* and established retention and disposition schedules in the Approved Comprehensive Records Schedule at https://home1.y12.doe.gov/scripts/eicms/prod/SMARTMain.cfm.

**Owner/DMC**

The Records generated as a result of this Chapter include:

| Record | Record Copy Owner/DMC |
|---|---|
| Startup Notification Report | Manufacturing Division DMC |
| Transmittal Letter (when applicable) | Division Manager/ YDCC (Y-12 Document Control Center) |
| NNSA Approval Letter | YDCC (Y-12 Document Control Center) |

## SOURCE DOCUMENTS

- Standards/Requirements Identification Document (S/RID) Requirement Unique Identifiers (RUIDs): 11607 and11608.
- YSO-CRD-03-01, *Start-Up and Restart of Operations, Activities and Facilities at Y-12*

## APPENDICES

None

| | | |
|---|---|---|
| Subject: | Readiness Manual | |
| Title: | Readiness Planning and Achievement | Vol. I |
| Chapter: | 5.0, Developing a Readiness Plan | Effective Date: 2/28/07 |

## PURPOSE

This chapter identifies the early planning elements and actions that will help ensure the attainment of operational readiness. It includes guidance on the development of an effective Readiness Plan which is required for Level II Readiness Assessments (RAs) and Operational Readiness Reviews (ORRs).

The Readiness Plan development is an internal BWXT Y-12 requirement to ensure adequate coverage of potential issues in the attainment of operational readiness. UCN-21052, *Readiness Activity Checklist*, should be used to ensure applicable startup issues are addressed early in the planning process.

## APPLIES TO

Level II Readiness Assessments (RAs) and Operational Readiness Reviews (ORRs).

## OTHER DOCUMENTS NEEDED

- UCN-21052, *Readiness Activity Checklist*

## REFERENCES

- Y15-331, *Lessons Learned Program*
- Y15-902, *Management Assessments*
- Y17-007INS, *Transitioning Technical Documentation to Operations*
- Y17-011, *Startup Testing Program Manual*
- Y73-045, *Job Hazard Analysis Manual*
- Y73-115, *BWXTY-12 Hoisting and Rigging Procedure*
- Y75-117, *Radiological Posting and Entry Control*
- Y75-122, *Radiological Work Permit*
- Y75-124, *Selection and Use of Protective Clothing for Radiological Protection*
- Y75-134, Y-12 *National Security Complex ALARA Program for Radiological Protection*
- Y80-101PD, *Software Management Program Description*
- Y90-027, *Conduct of Training Manual*

## WHAT TO DO

### A. Developing the Readiness Plan

**Readiness Leader**

**NOTE 1** The development of a Readiness Plan is not required for a Level I RA and this Chapter is not applicable to Level I RAs.

**NOTE 2** The Readiness Plan should be developed before the Plan-of-Action (POA). However, the Readiness Plan and the POA may be developed concurrently. Whatever the sequence of preparation the two must be reconciled at the time of approval of the POA. Both documents should be developed from the same scoping basis. If NNSA is the Startup/Restart (a.k.a. Authorization) Authority, then the Readiness Plan must be prepared and sent to NNSA before the scoping meeting is held.

**NOTE 3** All or parts of the Readiness Plan elements marked with an asterisk (*) may be included in a schedule and do not have to be specifically described in the Readiness Plan.

**NOTE 4** A Project Manager should be assigned for Level II RAs and ORRs. If assigned to the startup or restart, then they will be responsible for the development and maintenance of the overall project schedule and ensuring actions are completed as planned. Where funding is provided by different organizations, it is vital to the success of the project to integrate all activities regardless of funding source into one schedule that is maintained throughout the life of the project.

1. Develop the Readiness Plan obtaining inputs from the project team as needed.

   In its simplest form, the Readiness Plan is a combination of the activities needed to attain operational readiness and the evidence requirements (closure criteria) to demonstrate adequate completion of those activities.

   Additional guidance and templates are available on the Readiness Assurance (RA) web site, https://home1.y12.doe.gov/ready/. Appendix 5A provides guidance on the suggested format for a Readiness Plan that may be used or varied, as applicable to fit specific project needs. Appendix 5B provides major milestones for a readiness schedule. Appendix 5C contains closure criteria guidance.

   **NOTE** Documents sent to NNSA must be sent to the NNSA Mailroom and not the physical address of the individual.

2. Ensure a copy of the Readiness Plan is sent to NNSA for their information.

   This can be accomplished by including the appropriate NNSA personnel on the distribution made by the applicable Document Management Center (DMC).

## B. Developing the Management Self-Assessment (MSA) Plan/ Readiness Assistance Team (RAT) Plan

**Readiness Leader or**
**MSA/RAT Team Leader**

**NOTE** The use of a MSA/RAT is not required although it is highly recommended and its omission has proven to result in operational readiness weaknesses. The scope of the MSA/RAT and associated planning is dependent on the startup/restart and must be appropriately graded based on this scope. For smaller scoped projects the MSA/RAT may be a small informal review. For larger projects the MSA/RAT may be more formal and the MSA/RAT Plan will be dynamic and should be expected to change during the operational readiness preparation period. The MSA/RAT is typically started early (around the time system level testing starts) in the operational readiness preparations and portions conducted at appropriate milestones during the preparation process.

1. IF an MSA/RAT will be performed THEN include in the Readiness Plan the basic elements to be examined by the MSA/RAT. A complete MSA/RAT Plan may be included as an appendix to the Readiness Plan or developed as a standalone document later in the project.

   The MSA/RAT should be graded for the scope of the startup or restart and covering the operational readiness preparation period. The MSA/RAT Plan may use the applicable requirements for the development of an Implementation Plan (Vol. II, Chapter 5.0) as guidance. The MSA/RAT Plan should have distinct phases:

   - The first phase should address the operational readiness preparation period and evaluate items such as:
     - Adequacy of applicable Site Programs (e.g., Conduct of Operations, Radiological Control, Criticality Safety, etc.).
     - Completion of activities required to declare readiness

       Completeness and accuracy of documentation
     - Other areas of concern as designated by the Responsible Manager/Readiness Leader as appropriate.

**B. Developing the Management Self-Assessment (MSA) Plan/ Readiness Assistance Team (RAT) Plan (cont.)**

**Readiness Leader or**
**MSA/RAT Team Leader**

- The second phase should address the physical conditions of the facility and personnel performance, including evaluation of the following:
  - Facility and equipment conditions such as:
    - As-built drawings vs. field conditions
    - Labeling
    - Operability
    - Cleanliness
    - Control and accuracy of simulations
    - Alignment of physical conditions with documentation.
  - Personnel Performance including topics such as:
    - Operational knowledge
    - Procedure compliance
    - Use of PPE
    - Conduct of Operations compliance
    - Questioning attitude
    - Overall participation in activities.

**Responsible Manager or Readiness Leader**

**NOTE** To ensure independence, when selected the MSA/RAT team members should not include individuals with direct line management responsibility for the work being reviewed.

2. Ensure responsibilities are assigned to manage internal review teams and ensure that a MSA/RAT Team Leader is identified early in the operational readiness preparation and is charged with:

   - Defining review team membership
   - Planning, coordinating, and conducting the MSA/RAT
   - Preparing and approving the MSA/RAT Report (if applicable)
   - Estimating the level of effort and schedule requirements
   - Establishing MSA/RAT objectives and milestones

**B. Developing the Management Self-Assessment (MSA) Plan/ Readiness Assistance Team (RAT) Plan (cont.)**

- Compiling or acquiring access to necessary background information (e.g., description of process equipment and control measures etc.)
- Acting as the team interface with management

3. Define how problems, issues, and concerns experienced in the operational readiness process, will be resolved, documented, and disseminated (e.g., feedback via *Lessons Learned Report*).

**C. Defining the Personnel**

**Responsible Manager, Department Manager, or Division Manager**

1. Identify required personnel to assist in the planning and achieving of operational readiness for the startup or restart.

   This may include the assignment of a Project Manager to ensure schedule and cost elements are properly managed and controlled.

   a. Ensure appropriate records are maintained to support the team members.

2. Support the Project Manager in obtaining needed participation from support organizations.

**D. Scheduling Readiness Activities**

**Readiness Leader**

**NOTE** The tasks needed to attain operational readiness should be scheduled with the involvement of the applicable support groups in a timely manner.

1. Work with the Project Manager (if assigned) and Planning and Integration (P&I) personnel to establish a schedule of the activities associated with attaining operational readiness.

   The Readiness Assurance web site (https://home1.y12.doe.gov/ready/) has template schedules and some sample schedules to support schedule development efforts. Appendix 5B provides guidance on items to be considered for inclusion in the schedule.

**NOTE** UCN-21052, *Readiness Activity Checklist*, may be used as a tool to assist in development of the schedule.

**D. Scheduling Readiness Activities (cont.)**

**NOTE** The UCN-21052 represents the information expected for most startups or restarts; however, additional items for unique features of a startup may be added to the checklist to provide a more thorough document.

2. Provide assistance in schedule development utilizing the following guidelines:

   - The schedule should include the known tasks required to achieve operational readiness and to ensure facility operational performance will be satisfactory at the completion of the startup or restart. See Appendix 5B for a listing of items that should be considered for inclusion on the startup or restart schedule.
   - Scheduled tasks must include requirements from POA prerequisites and Core Requirements as defined through closure criteria, and applicable activities from the UCN-21052, at a minimum.

3. Ensure the schedule developed for the attainment of operational readiness activities includes adequate time for operational practice and evidence gathering and documentation processes in addition to the other activities necessary for operational readiness.

## RECORDS

Records generated as a result of this procedure are maintained in accordance with Y15-101, *Manual for the Management of Records and Controlled Documents* and established retention and disposition schedules in the Approved Comprehensive Records Schedule at https://home1.y12.doe.gov/scripts/eicms/prod/SMARTMain.cfm.

### Owner/DMC

The Records generated as a result of this Chapter include:

- Readiness Plan.

The above record is to be maintained by the applicable DMC for the Organization responsible for the FACILITY in which the startup or restart is occurring. A hard copy and electronic copy of this document must also be provided to the Readiness Assurance Manager.

## SOURCE DOCUMENTS

- Standards/Requirements Identification Document (S/RID) Requirement Unique Identifiers (RUIDs): 10964 and 11599.
- YSO-CRD-03-01, *Start-Up and Restart of Operations, Activities and Facilities at Y-12*

**APPENDICES**

A. Guidance for Developing the Readiness Plan
B. Operational Readiness Schedule
C. Closure Criteria Guidance

**APPENDIX 5A**
**Guidance for Developing the Readiness Plan**
**(Page 1 of 2)**

The following provides guidance on the format and content for a typical Readiness Plan. Those items marked with an "*" can typically be included in the detailed scheduled and do not need specific discussion in the Readiness Plan.

General Information:

i Title Page
ii Approval Page
iii Table of Contents

Specific Information:

(1) Objective and scope of the startup or restart.

(2) Description of the operation being started or restarted (This must describe the process being started or restarted as well as the scope of items that will likely be processed such as particular materials or components.)

(3) Schedule* for attaining operational readiness of the planned scope of work

- This can include a detailed project schedule and the readiness activity checklist or they can be combined.
- The readiness activity checklist should be used to help develop the schedule as well as templates available on the Readiness Assurance web site.

(4) Sequence of startup tasks to achieve operational readiness*

(5) Initial identification of organization and roles and responsibilities including personnel requirements and assignments such as:

- Personnel assigned to Readiness Assist Team (RAT) or Management Self Assessment (MSA) and other Internal Evaluations (see Section B.)
- Personnel assigned to Performance Self Assessment (PSA)
- Personnel required for startup testing
- Personnel required for normal operations
- Personnel assignments for RA or ORR planning and execution (if known)*

(6) Equipment testing requirements including those required after startup/restart authorization*

(7) Procedure development or modifications*

**APPENDIX 5A**
**(Page 2 of 2)**

(8) Operator training requirements*

- Including practice or simulations of the actual startup or restart operations and associated upset conditions
- Discuss the use of any surrogate material that is planned for use in the demonstrations.
- Discuss any simulations that will be used and why they will not detract from the evaluation of the actual startup or restart.

(9) Identification of additional controls, hold points, and compensatory actions necessary for startup (if any), bases for such controls, and criteria for removal of additional controls and/or return to unrestricted operations.

(10) Review of Lessons Learned related to the startup or restart

- Identification of Lessons Learned applicable to the startup or restart, and identification of actions (if any) that should be planned to prevent similar problems

(11) Emergency planning, operational drills, and emergency exercises*

(12) Required records (change request packages, testing documentation, procedures, training, closure files)*

(13) For RAs only include the justification for exclusion of any Core Requirement that will not be included in the scope of the review.

(14) Closure criteria requirements (see Appendix 5C for additional guidance):

- Should include the Goals, Objectives, and Criteria that will be used to ensure that operational readiness has been attained:
  - Include Core Requirements
  - Prerequisites
  - Commitments
- Evidence of completion
  - Documents to be included in evidence files:
    - Key evidence should tie to the schedule where applicable
    - Responsible person or organization for providing the evidence (if known)
    - Location for documents that are too large for inclusion in readiness files and for Privacy information (training records)
    - Identification number tied to Core Requirement and prerequisite that is basis for action with a schedule cross reference (where applicable)

**APPENDIX 5B**
**Operational Readiness Schedule**
**(Page 1 of 3)**

The schedule for attaining and confirming operational readiness should address, as applicable, the planning, design, procurement, installation, testing, document preparation (including review and approval), training, operational practice, evidence collection, functional area program support, line management reviews, and finally the actual readiness confirmation reviews, and steps for gaining operational authorization. The Readiness Assurance web site (https://home1.y12.doe.gov/ready/) has template schedules, fragnets, and suggested Work Breakdown Structures that cover most of the typical items. The following is a list of several typical areas that should be included:

- o Equipment readiness
  - Calibrations/certifications
  - Preventive maintenance (PMs) including $N^3$ evaluations.
  - Configuration Management
  - Labeling
- o Personnel readiness
  - Position qualification/certification
  - Operation or activity qualification/certification
  - Procedure training (Training Impact Assessments)
  - Equipment training
  - Level of knowledge (Documentation of observations)
  - Proficiency
- o Procedures readiness
  - Development/revision
  - Review and comment
  - Verification/validation
  - Issued and effective

**APPENDIX 5B**
**(Page 2 of 3)**

- Programs readiness
  - Programs implemented
    - Radiation Control (RADCON)
    - Unreviewed Safety Question Determination (USQD) Process
    - Configuration Management
    - Emergency Preparedness
    - Fire Protection
    - Security (Physical and Cyber)
    - Etc.
  - Confirmation of adequate implementation
- Operational Proficiency (Minimize use of simulations)
  - Operational practice using actual procedures (redlined as needed for surrogate materials and simulations)
  - Equipment startup and shutdown
  - Unique maintenance or calibration processes
  - Testing that will be done after startup/restart authorization
  - Use of Management Oversight Personnel (MOP) or production management to oversee and evaluate practice sessions.
- Documentation Readiness and Evidence Files
  - Permits (Environmental, Industrial Hygiene (IH), RADCON)
  - Change Request packages
  - Procedure History Files
  - Automated Job Hazard Analysis (AJHA)
  - Fire Hazard Analysis
  - Safety Basis Documentation [ e.g., Safety Analysis Report (SAR), Basis for Interim Operation (BIO), Technical Safety Requirements (TSR), Operational Safety Requirements (OSR), Hazard Evaluation Report (HER), Safety Evaluation Report (SER), Chemical Safety Requirements (ChSR) document, etc.]
  - Technical baseline (e.g., Technical Basis Index Summary (TBIS), System Design Description (SDD), Grading Worksheets (GWS), etc.)
  - Piping and Instrumentation Diagram (P&ID)s/ Process System Diagrams (PSDs)

**APPENDIX 5B**
**(Page 3 of 3)**

- Criticality Safety Approval (CSA)
- Criticality Safety Evaluation (CSE)
- Criticality Safety Requirement (CSR)
- Preoperational Test Plans and results
- Startup Plan
- Equipment Listing [e.g., Master Equipment List (MEL)]
- Personnel Listing
- Procedure Listing
- Training records
- Tooling diagrams
- Surveillance records
- Log books
- Roundsheets
- Reviews of Lessons Learned, CAPS, and Maintenance Work Orders

o Reviews

- Performance Self Assessment (PSA)/Corrective Actions
- Contractor RA or ORR Corrective Actions
- National Nuclear Security Administration (NNSA) RA or ORR Corrective Actions

o Ensure that the schedule developed for the attainment of operational readiness activities includes adequate time for operational practice and evidence gathering and documentation processes in addition to the other activities necessary for operational readiness.

o Receipt of Resumption Letter

**APPENDIX 5C**
**Closure Criteria Guidance**
**(Page 1 of 14)**

As discussed in DOE O 425.1C the 15 Core Requirements (CR) of the Order have been individually evaluated and as appropriate are incorporated into the set of review Goals, Objectives, and Criteria, listed below. These review elements are based in the readiness Goals of having the necessary Personnel, Programs, and Equipment ready for the startup or restart. *Italics* in the listings below indicate those portions of the 15 CRs that are applicable for this Review and that support the three Goals. Since the Goals, Objectives, and Criteria, evaluated for this startup or restart incorporate the 15 CRs, confirming that these goals, objectives, and criteria are fully met assures that each of the CRs have been fully addressed in the attainment of operational readiness. Since the CRs in DOE O 425.1C have been arranged to show how they support, in an integrated fashion, the overall concept of Integrated Safety Management (ISM) then the satisfactory consideration of these CRs for the startup or restart translates into assurance that the applicable elements of ISM have been addressed.

Items in Italics are from the Core Requirements of DOE Order 425.1 and unless otherwise determined and justified must be addressed in the attainment of operational readiness. Note that if the startup or restart requires an ORR then a timely, technically adequate independent review is one approved means that may be used as justification for removing all or a portion of the Criteria listed below from the scope of a startup or restart. For RAs the removal of Objectives and/or Criteria should be justified as part of the Closure Criteria discussion. Objectives and/or Criteria that drive a particular prerequisite can not be fully excluded from the scope of the Review.

The selection of the applicable Objectives and Criteria from the set provided below will assure that the attainment of operational readiness has addressed the applicable elements of each CR.

### 1.1.1 Goal 1 – Sufficient Personnel are Trained, Qualified and Knowledgeable.

**Sufficient Personnel possess the experience, knowledge, skills, and abilities that are necessary to discharge assigned responsibilities necessary to conduct operations safely and compliantly. [DOE Order 425.1 CRs 1b, 2, 3, 4, 5, & 6a].**

#### 1.1.1.1 Objective 1.1 – Training and Qualification Programs are Implemented.

*Processes for the Selection, Training, and Qualification of personnel involved in or supporting the activity are established, documented, approved, and implemented to cover the range of duties necessary for safe and compliant conduct of the activity. [DOE Order 425.1 CR 3]*

**Criterion 1.1.1** - Training documentation including staffing needs, training needs, new or revised qualification documents, and training materials are prepared, approved, and issued to cover the range of required duties and tasks for personnel involved with and supporting the startup or restart operations.

*A. Staffing needs to safely and compliantly accomplish the activity for operational and support organizations have been evaluated and are defined and documented (CR 6a).*

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Prerequisite:

[Insert applicable Prerequsite(s)]

Evidence of Completion:

[Insert list of documentation that will confirm that this Prerequisite has been fully met]

B. The training needs have been determined by analysis of the startup or restart and operational interrelations with support groups that cover the range of required duties and tasks for the startup or restart and any *system, process, or equipment changes or modifications (CR 5).*

Prerequisite:

[Insert applicable Prerequsite(s)]

Evidence of Completion:

[Insert list of documentation that will confirm that this Prerequisite has been fully met]

C. The training needs analysis documents indicate participation by training personnel, Subject Matter Experts (SMEs), and line management.

Prerequisite:

**None** -See B. above

D. The training needs analysis documents include changes to the operators' responsibilities, procedures, equipment modifications, and for supervisors, the increased depth of knowledge needed to reflect their added responsibilities. (DOE Order 5480.20A, Chapter 4, Para 4,c.)

Prerequisite:

**None** -See B. above

E. Qualification / Certification documents for operators and supervisors have been developed and/or modified to include changes derived from the training needs analysis and meet applicable program requirements.

Prerequisite:

**None** -See B. above

F. Supervisor training documents include items that indicate the increased depth of knowledge needed to reflect the supervisors' added responsibilities (DOE Order 5480.20A, Chapter 4, Para 4,c.).

Prerequisite:

**None** -See B. above

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**(Page 3 of 14)**

G. Training Materials incorporate as applicable:
   1. Elements of Training Needs Analysis or Job Task Analysis;
   2. Roles and responsibilities;
   3. Lessons Learned;
   4. *Conduct of Operations Program (ConOps) principles (public and worker safety and environmental protection) (CR 13b);*
   5. Safety Basis (SB) requirements and controls; and
   6. Management program elements including:
      - Job hazards and controls from Job Hazard Analyses (JHAs);
      - Criticality Safety hazards, engineered safety features, and controls;
      - ALARA Review hazards and controls; and
      - Others as applicable.

   Prerequisite:

   **None** -See B. above

H. *Training documents have been evaluated to confirm that they incorporate the latest revisions to applicable work control documents (CR 5).*

   Prerequisite:

   [Insert applicable Prerequsite(s)]

   Evidence of Completion:

   [Insert list of documentation that will confirm that this Prerequisite has been fully met]

**Criterion 1.1.2** - A process is established to ensure that new personnel assigned to or supporting the startup or restart under review receive a level of training equivalent to that provided for individuals involved in the initial startup or restart.

A. Training and qualification processes and documentation incorporate provisions to adequately train personnel added to the staff after the initial startup or restart and appropriately address training during actual operations.

   Prerequisite:

   **None** - The Y-12 Training Program Manual (Y90-027) provides the process to ensure new personnel assigned to this startup or restart are trained before assuming unrestricted duties associated with the startup or restart. The training documentation and qualification records of the operations personnel evaluated in Criterion 1.1.1.B above demonstrate the effectiveness of this process.

**Criterion 1.1.3** - The Training Program ensures that personnel performing work associated with the startup or restart are selected, trained and qualified, and the qualification and completion of training are documented *and encompass the range of duties and activities required to be performed (CR 3)*.

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A. Training and/or personnel records confirm that personnel meet defined training, education, and experience requirements:

1. Operators and supervisors have HS Diploma or GED;
2. Supervisors have 3 years of nuclear experience (academic training may be substituted for 2 years of the experience requirement) (exception from DOE possible);
3. Individual Certification documents for operators and supervisors contain a logical sequence of signature dates (prerequisite training completed before other sign-off - indicates a systematic approach was used);
4. Individual certification and training documents contain a logical sequence of signature dates (prerequisite training completed before other sign-off - indicates a systematic approach was used);
5. The qualification records are consistent with program requirements and reflects the current training of applicable personnel; and
6. Managers' meet established minimum experience requirements.

Prerequisite:

**None**

Evidence of Completion:

Training Records contains the files that document that minimum experience and education requirements confirming that items 1, 2, and 5 above are met. A review of the evidence provided in 1.1.1.B above will confirm that items 3 and 4 above are met.

**1.1.1.2 Objective 1.2 – Roles, Responsibilities, and Reporting Relationships are Established.**

*The roles, responsibilities, and reporting relationships of personnel assigned to or supporting the activity are defined, understood, and implemented in such a manner as to ensure that line management is responsible for the control of safety. [DOE Order 425.1 CR 2]*

**Criterion 1.2.1 –** Roles, responsibilities, and reporting relationships of operations and support personnel are documented.

Prerequisite:

[Insert applicable Prerequsite(s)]

Evidence of Completion:

[Insert list of documentation that will confirm that this Prerequisite has been fully met]

**Criterion 1.2.2 –** Interface responsibilities with supporting organizations are appropriately defined, documented, and understood by Facility and support organization personnel. [See PR - 3 for Criterion 1.2.1 above]

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**1.1.1.3 Objective 1.3 – Adequate Level of Knowledge Obtained.**
*Personnel performing the duties necessary for the safe and compliant conduct of the activity have adequate knowledge of the processes, associated hazards, established controls, and applicable Authorization Basis requirements. [DOE Order 425.1 CR 4]*

**Criterion 1.3.1 –** Interviews and performance demonstrations conducted with operational and support personnel clearly confirm an adequate level of performance and working knowledge of activities, hazards, interfaces, responsibilities, and controls applicable to the conduct of the startup or restart. Interviews conducted with operations personnel, management, and support personnel (including Functional Area Program owners) confirm that their knowledge reflects:

1. The material used in their training;
2. Understanding of the hazards and results of safety evaluations for their assigned areas;
3. *A concern and awareness of pubic and worker safety and environmental protection requirements including the elements of ConOps and ISM (CR 1b);*
4. Understanding of the modifications made to support operations;
5. *Understanding and ability to accomplish assigned roles and responsibilities including those associated with upsets or emergency conditions (competence commensurate with responsibilities) (CR 3);* and
6. Understanding of the applicable roles and responsibilities including support organization and subcontractor roles and responsibilities.

A. Performance demonstrations confirm that consistent with their roles, personnel:
   1. Demonstrate a working knowledge of the work control documents, work processes and associated hazards, and results of safety evaluations for their assigned areas;
   2. Demonstrate a level of performance that assures the startup or restart can be safely and compliantly conducted.
   3. *Demonstrate a concern for and awareness of public and worker safety and environmental protection (CR 1b);*
   4. *Exhibit a commitment to comply with safety, health, and environmental protection requirements (CR 1b);*
   5. Apply the applicable elements of ConOps;
   6. Appropriately respond to operational upsets and emergency conditions;
   7. Understand their role and how it relates to the applicable roles and responsibilities of others including those in support; and
   8. *Conduct work with operational formality and discipline to ensure the safe and compliant conduct of the activity (CR 13a).*

B. Performance demonstrations confirm that sufficient personnel are available and trained to safely and compliantly accomplish and/or support the startup or restart.

   Prerequisite:

   [Insert applicable Prerequsite(s)]

   Evidence of Completion:

   [Insert list of documentation that will confirm that this Prerequisite has been fully met]

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### 1.1.2 Goal 2 – Equipment Installed, Tested, and Operable.

**Equipment and modifications have been adequately designed, installed, tested, and are operable in accordance with Y-12 management requirements. [DOE Order 425.1 CRs 6b, 8b, & 9a]**

#### 1.1.2.1 Objective 2.1 – New and/or Modified Systems and Equipment are Appropriately Designed, Procured, Installed, and Tested.

*New and/or modified systems and equipment have been designed, procured, installed, and tested in accordance with Site requirements. [DOE Order 425.1 CR 9a]*

**Criterion 2.1.1 –** New and/or modified systems and equipment have been designed and procured in accordance with Y-12 management requirements.

A. Designs for new and/or modified systems and equipment performed in accordance with the applicable requirements of procedure Y17-002PD, *Conduct of Engineering Program,* Y13-002PD, *Project Management Program Description*, and supporting procedures.

B. Material and equipment procurement specifications define important attributes including quality levels and inspection elements.

C. Material and equipment meet specification and inspection requirements.

Prerequisite:

[Insert applicable Prerequsite(s)]

Evidence of Completion:

[Insert list of documentation that will confirm that this Prerequisite has been fully met]

**Criterion 2.1.2 –** New and/or modified systems and equipment have been installed, calibrated, and tested in accordance with Y-12 management requirements.

A. Systems and equipment installed to design and/or manufactures specifications, applicable quality control requirements, and using approved work packages.

B. Installation Change Requests, including Work Orders, completed and closed.

C. Component and System testing requirements defined and testing completed with acceptable results to confirm design intent.

D. Testing packages completed and closed.

E. Process instruments, tools, and M&TE are calibrated.

F. *Final configuration is confirmed to be consistent with the facility description and safety basis as reflected in the Authorization Basis (CR 9a).*

Prerequisite:

[Insert applicable Prerequsite(s)]

Evidence of Completion:

[Insert list of documentation that will confirm that this Prerequisite has been fully met]

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**1.1.2.2 Objective 2.2 – Applicable Systems and Equipment are Operable.**
Operational dry runs and emergency drills that use applicable safety, process, utility, and support facilities and equipment, confirm that they are operational and that the material condition is adequate to safely and compliantly conduct the startup or restart.

**Criterion 2.2.1 –** Safety, process, utility systems, and/or, equipment, including new and/or modified systems and equipment needed for the startup or restart have been confirmed to be operational.

A. Satisfactory completion of post-maintenance testing, and/or surveillances demonstrate that safety, process, utility systems, and/or, equipment including new and/or modified systems and equipment are operable.

Prerequisite:

[Insert applicable Prerequsite(s)]

Evidence of Completion:

[Insert list of documentation that will confirm that this Prerequisite has been fully met]

**Criterion 2.2.2 –** *The material condition of safety, process, and utility systems and equipment is sufficient to support the safe and compliant conduct of the activity. [DOE Order 425.1 CR 8b]*

A. Evaluation of open Work Orders and maintenance history for key equipment and systems confirm that maintenance issues are adequately resolved.

B. A walkdown of safety, process, and utility systems applicable to the startup or restart confirms that their material condition is adequate.

C. Walkdowns of the areas where the startup or restart will be conducted confirm that good safety and housekeeping practices are established.

Prerequisite:

[Insert applicable Prerequsite(s)]

Evidence of Completion:

[Insert list of documentation that will confirm that this Prerequisite has been fully met]

**Criterion 2.2.3 –** *Supporting facilities and equipment are available and are adequate for the safe and compliant conduct of the activity. [DOE Order 425.1 CR 6b]*

A. The following support facilities, equipment, and material that are needed for the safe and compliant conduct of the startup or restart are available:
   1. Operations supplies and equipment including cans, bags, labels, etc.;
   2. Training equipment including mockups;
   3. Maintenance supplies and equipment;
   4. Waste Management supplies;

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5. Radiological Protection PPE and monitoring equipment including CAMs;
6. Fire Protection equipment including extinguishers, detection and suppression;
7. Criticality detectors, alarms, and applicable engineered safety features, e.g. drains; and
8. Safeguards measurement equipment and supplies including scales and TIDs.

B. Instruments, tools, and portable M&TE used for process monitoring or data collection are available and calibrated.

C. The satisfactory completion of tests, calibration, inventories, inspections, surveillances, or other appropriate means confirms that supporting facilities and equipment are operational.

D. A walkdown of supporting facilities and equipment confirms that their material condition supports the safe and compliant conduct of the startup or restart.

E. Where specialty items (material cans) must be procured, Site procurement requirements and processes are followed.

Prerequisite:

[Insert applicable Prerequsite(s)]

Evidence of Completion:

[Insert list of documentation that will confirm that this Prerequisite has been fully met]

### 1.1.3 Goal 3 – Programs and Processes are Established and Effective.

**Programs and administrative processes needed for the safe and compliant conduct of The startup or restart are defined and documented in accordance with Authorization Basis and Site work control requirements and are validated through operational dry runs. [DOE Order 425.1 CRs 1, 7, 8a, 9b, 10, 11, 12, 13, 14, & 15]**

#### 1.1.3.1 Objective 3.1 – Site Management Programs are implemented.

Y-12 infrastructure programs, elements of which are needed to support and assure the safe and compliant conduct of the startup or restart, are identified and are defined, documented, and implemented. Document reviews, operational dry runs, and operational drills confirm their implementation. [DOE Order 425.1 CR 1a]

**Criterion 3.1.1** – *Activity Project Management has identified the Site Infrastructure Programs (Management Programs) and the program elements including Safety Management Programs (SMPs) needed to support and assure the safe and compliant conduct of the activity have been adequately applied to the activity. [DOE Order 425.1 CR 1a]*

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The Y-12 infrastructure programs listed below [additional programs should be added based on the particular startup or restart] are implemented and the applicable elements have been applied to support the safe and compliant conduct of this startup/restart.

| | |
|---|---|
| Conduct of Operations | Nuclear Criticality Safety |
| Radiation Protection | Facility Safety |
| Engineering (including Configuration Management) | Construction Management |
| Training and Qualification | Procedures |
| Industrial Safety | Fire Protection |
| Quality Assurance | Safeguards |
| Measuring and Test Equipment | Maintenance |
| Security | Environmental Protection |
| Waste Management | Readiness Management |

Prerequisite:

None

Evidence of Completion:

√ The elements of Functional Area Programs applicable to this startup or restart are covered under CRs and associated PRs as listed in Table CR 1.1

**[Note: Reflect actual functional areas for the particular startup or restart]**

| Functional Area Program | Confirmatory CR |
|---|---|
| Conduct of Operations | CR-02, CR-04, CR-09, CR-10, & CR-13 |
| Nuclear Criticality Safety | CR-04, CR-07, & CR-10 |
| Facility Safety | CR-04, CR-07, CR-09, CR-10 & CR-14 |
| Radiation Protection | CR-06, CR-07 & CR-10 |
| Testing & Engineering | CR-05, CR-08 & CR-09 |
| Configuration Management | CR-07 & CR-09 |
| Procedures | CR-10 |
| Training and Qualification | CR-03, CR-04, CR-05 & CR-11 |
| Fire Protection | CR-07 |
| Industrial Safety | CR-07 & CR-10 |
| Measuring and Test Equipment | CR-08 |

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| | |
|---|---|
| Safeguards | CR-01, CR-04, CR-06 & CR-10 |
| Security | CR-09 & CR-10 |
| Quality Assurance | CR-15 |
| Maintenance | CR-08 |
| Waste Management | CR-07 & CR-10 |
| Environmental Protection | CR-14 |
| Readiness Management | CR-12 |

**Criterion 3.1.2 –** *A documented routine and emergency drill program has been established that includes drill scenarios encompassing the more likely hazards associated with the conduct of the activity being reviewed. [DOE Order 425.1 CR 11]*

A. An operational drill program is established to ensure that sufficient satisfactory operational drills have been performed involving personnel assigned to the startup or restart and applicable support personnel to ensure that upset situations associated with the conduct of the startup or restart can be adequately handled. Drill guides are adequate to perform, control, and evaluate drills. Drill critiques are documented and confirm a complete and objective evaluation of drill performance.

Prerequisite:

[Insert applicable Prerequsite(s)]

Evidence of Completion:

[Insert list of documentation that will confirm that this Prerequisite has been fully met]

**Criterion 3.1.3 –** *Oversight processes (Management Assessments, Surveillances, and Independent Assessments) are established and periodically performed to evaluate conformance to Site Infrastructure Program requirements for those programs required by the BWXT Y-12 contract, S/RIDS, or applicable Safety Basis for the activity under review. [DOE Order 425.1 CR 14 and 15]*

A. *A feedback and improvement process has been established to identify, evaluate, and resolve Findings and recommendations made by oversight groups, official review teams, audit organizations, and the operating contractor (CR 15).*

B. *Formal agreements between the operating contractor and DOE have been established, via the contract or other enforceable mechanism, which govern the safe operations of the facility. These requirements have been implemented in the facility, or compensatory measures are in place, and formally agreed to during the period of implementation. The compensatory measures and the implementation period are approved by DOE (CR 14)*.

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1. A detailed list of applicable DOE orders, Standards/Requirements Identification (S/RID) relevant to the scope of the activity has been compiled and verified to be accurate.

2. S/RID assessment program is established and adequate.

3. Order nonconformance and schedules for gaining compliance have been justified and approved.

4. Compensatory measures are adequate and in place where nonconformance exist.

C. Existing assessment programs are established to identify issues and make recommendations for improved performance.

D. Existing organization and Y-12 issues tracked in Y-12 Corrective Action Tracking System (CAPS) that will be open at the time of startup or restart are evaluated based on established documented criteria for impact on the particular startup or restart. Examples of issues to be evaluated include safety basis issues, Non-conformance Reports (NCRs), fire protection impairments, criticality safety issues, maintenance items, management program issues, and/or other unresolved issues.

E. Issues with potential impact are dispositioned by having their corrective actions closed before the startup or restart of operations, being listed on the open items list prior to the start of the readiness confirmation reviews, or included in the Startup Plan.

Prerequisite:

[Insert applicable Prerequsite(s)]

Evidence of Completion:

[Insert list of documentation that will confirm that this Prerequisite has been fully met]

**1.1.3.2 Objective 3.2 – Programs Established to Confirm and Maintain System and Equipment operability and Configuration.**

Programs are implemented to periodically confirm the operability of applicable systems and equipment and maintain their configuration consistent with the governing safety documentation. [DOE Order 425.1 CR 7 & 8]

**Criterion 3.2.1 –** *Programs are in place to ensure that the configuration of systems and equipment important to the safe and compliant conduct of the activity, including SSCs, remain consistent with the applicable safety basis and process safety requirements and ensures that modifications are reviewed for impact on training and work control documents (CR 7c).* [See Criterion 3.3.1]

**Criterion 3.2.2 –** *A program is in place to ensure that the design of systems and equipment important to the safe and compliant conduct of the activity, including SSCs, remains consistent with the applicable safety basis and process safety requirements and ensures that modifications are reviewed for impact on training and work control documents (CR 7c).* [See Criterion 3.3.1]

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**Criterion 3.2.3 –** *A surveillance program is in place to confirm and periodically reconfirm the condition and operability of safety, process, and utility systems and equipment needed for the conduct of the activity. This program includes examinations of records of tests and calibration of these systems (CR 8a).*

A. Activities to periodically confirm operability of systems (including support systems), utilities, and equipment are tracked and scheduled to ensure they are completed as required.

B. A process is established to ensure that process instruments, tools, and portable M&TE used for process monitoring or data collection are calibrated and that calibration is periodically monitored, tracked, and scheduled.

Prerequisite:

[Insert applicable Prerequsite(s)]

Evidence of Completion:

[Insert list of documentation that will confirm that this Prerequisite has been fully met]

**1.1.3.3 Objective 3.3 – Processes Established to Implement Applicable Work Controls.** Adequate work control documents that include applicable hazard controls are implemented for operating and surveilling the safety, process, and utility systems needed for the safe and compliant conduct of the startup or restart. [DOE Order 425.1 CR 9, 10, & 15]

**Criterion 3.3.1 –** *Adequate and correct procedures and other work control documents are in place for operating and surveilling the safety, process, and utility systems needed for the safe and compliant conduct of the activity. (CR 10)*

A. Work control documents have been prepared, reviewed, verified, validated, approved, and issued to:
   1. Implement new or modified Safety Basis controls and requirements. Documents must incorporate controls and mitigative measures for Safety Basis evaluated hazards;
   2. Implement applicable controls, preventive, and mitigative measures for evaluated hazards, and operational upsets;
   3. *Incorporate applicable elements of modifications or changes made to support the conduct of the activity such that they are consistent with the safety basis and facility description as reflected in the applicable Safety Basis (CR 9b and 10);*
   4. Describe the operation of required equipment and systems including the control or mitigation of operational hazards;
   5. Implement the applicable elements of ConOps;
   6. *Incorporate applicable lessons learned from similar activities conducted on Site or at other sites (CR 15);* and
   7. Periodically reconfirm the condition and operability of safety, process, utility systems, and equipment needed for the conduct of the startup or restart.

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B. Processes are established to ensure that work control documents remain consistent with applicable changes to the Safety Basis and startup or restart related operational processes, systems, and equipment.

Prerequisite:

[Insert applicable Prerequsite(s)]

Evidence of Completion:

[Insert list of documentation that will confirm that this Prerequisite has been fully met]

**1.1.3.4 Objective 3.4 – Safety Documentation Established.**
Safety documentation identifying the hazards and mitigative or preventative controls has been developed. The applicable Authorization Basis document(s) authorize the startup or restart. [DOE Order 425.1 CR 7 & 14]

**Criterion 3.4.1 –** Safety documentation either directly related to or supporting the startup or restart has been developed in accordance with Site infrastructure program requirements and is in place (CR 7a).

A. Safety documentation:
   1. *Describe the "safety envelope" of the facility or area where the activity is to be conducted (CR 7a);*
   2. *Identify and characterize the hazards/risks associated with the activity (CR 7a)* (Criticality Safety Evaluation, ALARA Review, Job Hazard Analysis, Fire Hazards Analysis, etc.);
   3. *Identify preventive and mitigating measures (e.g. engineered controls, protective equipment and clothing, administrative controls, etc.) that protect workers and the public from those hazards/risks (CR 7a); and*
   4. *Define applicable safety structures, systems, and components (CR 7b).*

B. *The applicable Safety Basis incorporates the hazards and risks associated with the startup or restart and the Authorization Agreement authorizes the conduct of the activity (CR 14a).*

Prerequisite:

[Insert applicable Prerequsite(s)]

Evidence of Completion:

[Insert list of documentation that will confirm that this Prerequisite has been fully met]

**Criterion 3.4.2 –** *Controls identified in the safety documentation are implemented through appropriate work control documents (CR 7a)* (procedures, RWP, Orders, etc.) [See Criterion 3.3.1]

**Criterions 3.4.3 –** Documented processes are established to evaluate compliance and effectiveness of safety controls including applicable Safety Basis Administrative Controls. These processes include the evaluation of issues for programmatic implications and appropriate reporting and the results are used to provide input for process improvements. [See Criterion 3.1.3]

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### 1.1.3.5 Objective 3.5 – The Startup or Restart Approach is Established.

*A Startup Program has been established to control the graded approach to full operation of the activity under review. [DOE Order 425.1 CR 12]*

**Criterion 3.5.1 –** A Startup Plan is developed and approved to describe, to the degree needed, the training, operational, procedural, testing, and supplemental oversight elements necessary to ensure the safe and compliant conduct of operations.

A. *The Startup Plan describes the plans for a graded approach to operations (CR 12a).*

B. *The Startup Plan describes the process and controls, including operational restrictions, for testing (if any) required to be performed after startup to confirm the operability of equipment, the viability of procedures, and/or the performance and knowledge of personnel (CR 12b)*.

C. The Startup Plan describes the criteria that must be met prior to declaring the Plan completed.

D. *The Startup Plan describes the oversight that will be applied during the initial startup phase of the activity including the qualifications of those providing the oversight, the objectives to be achieved by the oversight (CR 12c)* and the roles, responsibilities, and authority of the oversight personnel.

Prerequisite:

[Insert applicable Prerequsite(s)]

Evidence of Completion:

[Insert list of documentation that will confirm that this Prerequisite has been fully met]

Subject: Readiness Manual
Title: Readiness Planning and Achievement Vol. I
Chapter: 6.0, Drafting a Plan-of-Action Effective Date: 2/28/07

## PURPOSE

This Chapter provides direction in the preparation, development and approval of the Plan-of-Action (POA) required for the initial startup or restart of a FACILITY, OPERATION or ACTIVITY. The POA contains the following elements, as a minimum:

- Identification of the breadth of the assessment by determination of the applicable Core Requirements for startup/restart.
- Identification of applicable Review Team Leader and Startup/Restart (a.k.a. Authorization) Authority.
- Identification of prerequisites that must be completed before initiating a Readiness Assessment (RA) or Operational Readiness Review (ORR).

## APPLIES TO

This Chapter applies only when the Readiness Applicability and Review Level Determination process as described in Volume I, Chapter 1, has determined that an ORR or a Level II RA is required to be performed to confirm readiness.

This Chapter does not apply to startup or restarts where a Level I RA is to be performed.

## OTHER DOCUMENTS NEEDED

- UCN-21052, *Readiness Activity Checklist*
- UCN-21679, *Readiness Applicability and Review Level Determination*
- Startup/Restart Readiness Plan

**REFERENCES**

- DOE M 251.1-1A, *Directives System Manual*
- DOE O 425.1, *Startup and Restart of Nuclear Facilities*
- DOE-STD-3006-2000, *Planning and Conduct of Operational Readiness Reviews (ORR)*
- Y15-001 *Grading Criteria for Y-12 Facilities and Systems*
- Y15-009, *Criteria for Application of the Y-12 Configuration Management Program*
- Y15-101, *Manual for the Management of Records and Controlled Documents*
- Y15-187, *Integrated Safety and Change Control Process*
- Y15-232, *Technical Procedure Process*
- Y15-312, *Issues Management*
- Y15-331, *Lessons Learned Program*
- Y17-007INS, *Transitioning Technical Documents to Operations*
- Y17-011, *Startup Testing Program Manual*
- Y73-045, *Job Hazard Analysis Manual*
- Y80-101PD, *Software Management Program Description*
- Y90-027, *Conduct of Training Manual*

**WHAT TO DO**

**A. Developing the POA**

**Readiness Leader**

**NOTE 1** Appendix 6-A, *Plan-of-Action Development Guide* and Appendix 6-B, *Guiding Principles, Core Requirements, and Y-12 Guidance*, provide guidance for identification of the requirements to be included in the review scope.

**NOTE 2** The POA should be based on a graded approach, consistent with the hazards and significance or complexity of changes and if applicable the duration of inoperation and reason for inoperation. Appendix 6-C, *Application of the Graded Approach in Review Planning*, provides information on use of the graded approach for a review.

**NOTE 3** Justification for the exclusion of a Core Requirement (CR) for an ORR typically involves positive results from another recent independent review. A RA does not require written justification for excluding CRs, although some discussion is expected. The justification for exclusion of a Core Requirement for a RA should be included in the Readiness Plan.

1. Review Appendix 6-A, *Plan-of Action Development Guide*, Appendix 6-B, *Guiding Principles, Core Requirements, and Y-12 Guidance*, and Appendix 6-C, *Application of the Graded Approach in Review Planning*.

2. IF the POA is for a Level II RA, THEN evaluate each of the CRs listed in Appendix 6-B for applicability.

3. IF the POA is for an ORR, THEN incorporate each of the CRs as identified in Appendix 6-B, OR document the justification/rationale for the exclusion of any CR from consideration in the review.

4. IF the POA is for a Level II RA or ORR where NNSA will conduct their own review, THEN incorporate the NNSA specific CRs and indicate that they are NNSA CRs.

   The POA may be written to cover both reviews with NNSA concurrence.

5. IF a scoping meeting has been held THEN ensure the scope of CRs address any issues from the meeting.

6. Prepare the POA utilizing the outline in Appendix 6-A, *Plan-of Action Development Guide*.

## B. Defining and Developing Prerequisites

**Readiness Leader**

**NOTE 1** Prerequisites, when completed, are expected to bring the startup or restart into a state of operational readiness. Therefore, prerequisites must address the entire scope of the startup or restart and not just focus on the readiness confirmation review.

**NOTE 2** It is a good practice to use prerequisites to delineate specific actions for different organizations (e.g., operations training, support organization training, etc.). Prerequisites may also include specific NNSA or management issues (e.g., the completion of two integrated dry runs through the process without the need for intent changes to procedures or stopping for equipment or personnel issues, etc.).

1. Define the prerequisites for operational readiness by performing the following:

   a. Address each applicable CR as listed in Appendix 6-B.

   b. Identify key activities that must be completed to meet each CR prior to initiating the readiness confirmation review (i.e., RA or ORR).

   c. Identify and review any additional prerequisites that may be established by Operations Management or NNSA.

2. Ensure the prerequisites identified are developed as specific action statements in the POA (per Appendix 6-A) that identify what must be completed before readiness is declared.

3. Ensure the prerequisite statements provide for measurable evidence that the prerequisite has been met.

   It is a good practice to review the evidence as it is finalized for each of the prerequisites to ensure that it is complete and is technically adequate to satisfy the prerequisite. This may be done as a part of the Readiness Assist Team or Management Self-Assessment if one is conducted.

## C. Designation of Review Team Leader and Authorization Authority

**Readiness Leader, Responsible Manager, Readiness Assurance Manager**

**NOTE** The Review Team Leader is an individual with the necessary qualifications for managing and conducting the RA/ORR. The basis of the qualifications include:

- Technical familiarity with the activities and functional areas being reviewed.
- Previous performance-based review experience or training.
- Demonstrated leadership and managerial skills.
- Readiness Assessment or Operational Readiness Review experience or formal training.

1. Name the Review Team Leader for the RA/ORR.

**Readiness Leader**

2. Add the name of Review Team Leader and qualifications to the POA.

   In some situations where the POA is developed early in a project with a long duration the Review Team Leader may not be known and a designation of "TBD" may be used to indicate that the name is yet to be determined.

**NOTE** For a Level II RA where YSO is the Startup/Restart Authority, YSO may choose to not perform a separate RA.

3. Ensure the appropriate Startup/Restart Authority is identified in the POA as indicated in the approved Startup Notification Report (SNR).

**Readiness Assurance Manager**

4. Ensure the Review Team Leader is qualified and will NOT review work for which he or she is or has been directly responsible.

## D. Submitting the POA for Review and Approval

**Readiness Leader**

1. Ensure the POA is complete and adequately describes the scope of the startup or restart.

2. Distribute the POA for review by applicable individuals (e.g., Responsible Manager, Production Manager, Project Manager, System Engineer, Process Engineer, Training, etc.).

   Where NNSA is the Startup/Restart Authority, they should review and provide comments prior to submittal for their approval.

## D. Submitting the POA for Review and Approval (cont.)

**Readiness Leader**

3. Incorporate review comments and finalize the POA for approval.

**Responsible Manager**

4. Review the final POA and IF acceptable, THEN sign the document indicating approval.

**Readiness Leader**

5. Ensure that other managers (e.g., Production Manager, Project Manager, etc.) approve the POA.

6. IF applicable, THEN forward the POA to the Department Manager responsible for the FACILITY in which the startup or restart will occur for approval.

**Department Manager (when applicable)**

7. Review and approve the POA.

8. Submit the approved POA to Senior Management (e.g., Division Manager responsible for the FACILITY in which the startup or restart will occur for final review and approval.

**Senior Manager**

9. Review the POA.

10. WHEN satisfied, THEN approve the POA.

11. Return the POA to the Readiness Leader.

**Readiness Leader**

12. IF NNSA is the Startup/Restart Authority, THEN forward the POA to NNSA for Approval.

**NOTE** Documents sent to NNSA must be sent to the NNSA Mailroom and not the physical address of the individual.

13. WHEN required approvals have been obtained, THEN ensure the POA is distributed to involved parties including NNSA.

    This may be accomplished by including the individuals on the distribution made by the applicable Document Management Center (DMC).

### E. Identifying Exemptions

**Senior Manager and Readiness Leader**

**NOTE** Exemptions to NNSA requirements are rare and approval should not be sought except under extenuating circumstances.

1. Determine if obtaining an exemption to the RA/ORR process might be appropriate, such as when a short duration, one-time startup or restart is to be conducted for which the requirements for an ORR are not warranted.

   Examples may include one-time, unique startup or short duration actions necessary to support national commitments in unusual circumstances.

**NOTE** The justification for exemption will be reviewed and must be approved by NNSA and any other appropriate Startup/Restart Authority. Exemptions are approved on a case-by-case basis.

2. Ensure the exemption request complies with the requirements of DOE Order 425.1 and DOE-STD-3006-2000.

   Exemptions to DOE Directives are requested in accordance with the process described in DOE Order 251.1.

## RECORDS

Records generated as a result of this procedure are maintained in accordance with Y15-101, *Manual for the Management of Records and Controlled Documents* and established retention and disposition schedules in the Approved Comprehensive Records Schedule at https://home1.y12.doe.gov/scripts/eicms/prod/SMARTMain.cfm.

**Owner/DMC**

The Records generated as a result of this Chapter include:

- Plan-of-Action

This record is to be maintained by the applicable DMC for the Organization responsible for the FACILITY in which the startup or restart is occurring.

## SOURCE DOCUMENTS

- Standards/Requirements Identification Document (S/RID) Requirement Unique Identifiers (RUIDs): 10906, 10907, 10914, 10925, 11598, and 11601.
- YSO-CRD-03-01, *Start-Up and Restart of Operations, Activities and Facilities at Y-12*

## APPENDICES

Appendix 6-A, *Plan-of-Action Development Guide*
Appendix 6-B, *Guiding Principles, Core Requirements, and Y-12 Guidance*
Appendix 6-C, *Application of the Graded Approach in Review Planning*

**APPENDIX 6-A**
**Plan-of-Action Development Guide**
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Prior to developing the POA it is important to have the scope of the startup or restart well defined in as much detail as possible including interfaces with the existing infrastructure (both physical and administrative). The scope is often described in the Activity Description (see Volume I, Chapter 1) or Project Execution Plan (PEP) and associated documentation including the detailed schedule, Standards and Requirements Document, Process Description, etc.

The important element in the development of the POA is the definition of the breadth of the review through the creation of the list of objectives (Core Requirements) and supporting criteria that when met will ensure that operational readiness has been attained. Identification of the objectives and criteria is accomplished by an evaluation of the entire scope of startup or restart to determine what is different from the operations ongoing in the facility in which the startup or restart is planned. For example, if the operations personnel are newly assigned, trained and qualified, then the operators would be evaluated during the readiness confirmation review. If security plan changes were needed to support the startup or restart, then the security plan and its implementation would be evaluated. If the startup or restart is in an operating facility in which support programs and systems already function and different functions are not required for the startup or restart, then the support programs and systems would not be included in the POA for the readiness confirmation review.

Those organizations or programs that were identified as providing a product or service required to attain operational readiness for the startup/restart but are not directly involved in the actual day-to-day operation after startup or restart may be excluded from the scope of the review when their function has not changed as a result of the startup/restart. However, those functional area programs and responsible organizations must be prepared to demonstrate that their function has been implemented in compliance with applicable Y-12 Management Requirements and contractual flow-down requirements.

Once the objectives and criteria which will be within the scope of the readiness confirmation review are defined, the prerequisites that must be met to achieve operational readiness can be defined.

The key elements of the POA are the objectives and criteria to be reviewed and the prerequisites that when met will ensure readiness for operation. The following process provides a method to identify the minimum set of objectives and criteria that should be included in the POA. The scope of each as well as the prerequisites will logically follow based on the defined scope of the startup or restart.

**Appendix 6-A**
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| STEP ONE: Identification of the Core Requirements to be included in the POA. | |
|---|---|
| **Consider the following questions as regards to the startup or restart for which the POA is being developed. If the answer is "Yes," the Core Requirements (See Appendix 6-B) in the next column listed should be considered for inclusion in the POA** | **Core Requirements** |
| 1. Will new operating or support personnel be required for the startup or restart?<br><br>Personnel must be identified by job description or position (e.g., chemical operator, machinist, etc.). The level of training and qualification should be understood. The CRs must evaluate that the training program and the execution of that program are adequate to assure that the new personnel can conduct operations within safety and security requirements. The review includes program, record, and level of knowledge. Personnel are considered new because they have not performed the operation before or are new to the job position. | 2, 3, 4, 5, 6 |
| 2. Will new management personnel be assigned to the startup or restart?<br><br>Management personnel should be identified by job description or position (e.g., Shift Manager, Operations Manager, etc.). The management selection and training process may not be new, therefore not require evaluation. The scope of the review may be to determine that the new managers meet the selection criteria and understand their individual responsibilities. | 2, 3, 4, 6 |
| 3. Will existing operations or support personnel require retraining or re-qualification for the startup or restart?<br><br>Personnel should be identified by job description or position. The changes in existing qualification requirements or the new qualification requirements that are required should be identified. The new records and level of knowledge to verify these changes should be the extent of the depth of the core objectives. | 2, 3, 4, 5, 6 |
| 4. Will safety class, safety-significant, or safety significant non-nuclear SSCs require changes to support the startup or restart?<br><br>Safety-class, safety-significant, or safety significant non-nuclear SSCs that have been modified, and the extent of the changes should be described. The individual CRs should be evaluated to the degree necessary to insure the affects of the changes have been reflected in the safety documentation, security documentation, maintenance work instructions, and operational procedures, and the training and qualification requirements. The results of question 10 will also have a bearing on the scope of the individual CRs. | 5, 7, 8, 9, 10, 12 |

**Appendix 6-A**
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| STEP ONE (cont.): Identification of the Core Requirements to be included in the POA. | |
|---|---|
| **Consider the following questions as regards to the startup or restart for which the POA is being developed. If the answer is "Yes," the Core Requirements (See Appendix 6-B) in the next column listed should be considered for inclusion in the POA** | **Core Requirements** |
| 5. Will new processing systems or components be installed to support the startup or restart?<br><br>The new systems and components should be listed. Configuration management of the systems and components must be evaluated, including the technical baseline and change control processes. Maintenance Post-work testing and startup testing will be evaluated. The scope will indicate the impact of the changes on support systems, procedures, training, and qualification. | 5, 7, 8, 9, 10, 12 |
| 6. Will existing processing systems or components be modified or restarted following extended shutdowns to support the startup or restart?<br><br>The modified systems or components should be listed. Configuration management of the systems and components must be evaluated, including the technical baseline and change control processes. Post installation and startup testing will be evaluated. The depth discussion will indicate the impact of the changes on support systems, procedures, training, and proficiency of the operators. Systems or components to be restarted after extended shutdowns must be evaluated for condition of equipment, confirmation of operability, adequacy of procedures, and proficiency of the operators. | 3, 4, 5, 7, 8, 9, 10, 12 |
| 7. Will new site support programs be required or will changes be needed to meet the needs of the startup or restart?<br><br>See #8 below. | 1, 2, 3, 4 |

**Appendix 6-A**
**(Page 4 of 9)**

| STEP ONE (cont.): Identification of the Core Requirements to be included in the POA. | |
|---|---|
| **Consider the following questions as regards to the startup or restart for which the POA is being developed. If the answer is "Yes," the Core Requirements (See Appendix 6-B) in the next column listed should be considered for inclusion in the POA** | **Core Requirements** |
| 8. Will (any) site support programs have a significant interface or unusual involvement with the startup or restart?<br><br>Both Questions 7 and 8 require the same consideration to define the scope of the review. The support programs that require evaluation must be identified. The degree of the evaluation should be described. For example, it may not be necessary to evaluate the training and qualification programs for ongoing support programs, only the availability and capability of personnel, and their understanding of their role in supporting the startup or restart. If a new support program were to be required or a significant change needed, then a greater scope would be specified than if it were only an extension of an existing program. New or significantly modified programs should be evaluated as part of Core Requirement 1. Where the program is existing and is only being applied to the startup or restart, then it is permissible to examine that program within the particular Core Requirement where it is being applied (e.g., if a training program is only being applied to new or revised procedures then it can be fully evaluated in Core Requirement 3). | 1, 2, 3, 4, 5, 6 |
| 9. Will new or modified procedures be required to carry out the startup or restart?<br><br>The breadth will be defined by listing the affected procedures. The individual CRs will evaluate, as necessary, adequate procedure changes were met, properly managed, and that the personnel have been trained on the latest versions. This question is closely related to questions 4, 5, and 6. | 3, 9, 10, 13 |
| 10. Will facility safety basis (SB) documentation require changes to accommodate the startup or restart? (e.g., SAR, TSR, BIO, OSR, HER, etc.) Did the USQD or Change Evaluation process evaluation have a positive result?<br><br>Identify the SB documentation related to the startup or restart and the changes that are required. The Core Requirements will, as necessary, insure the changes to the safety documentation were adequately incorporated in derivative, flow down, documents and procedures. If the nature of the changes require that an Implementation Validation Review (IVR) be conducted and the IVR is completed prior to the declaration of readiness, then the scope of the RA or ORR may be reduced to eliminate duplication of items being reviewed. | 7,9,10 |

**Appendix 6-A**
**(Page 5 of 9)**

| STEP ONE (cont.): Identification of the Core Requirements to be included in the POA. | |
|---|---|
| **Consider the following questions as regards to the startup or restart for which the POA is being developed. If the answer is "Yes," the Core Requirements (See Appendix 6-B) in the next column listed should be considered for inclusion in the POA** | **Core Requirements** |
| 11. Will the startup or restart require changes to the operational or emergency drill programs (e.g., add new drill scenarios, modified security plan, require different responses, etc.)?<br><br>Describe the changes to the respective drill programs. The scope of the evaluation will be as necessary to review the adequacy of the applicable drill program following the changes. The information associated with questions 1 and 9 will affect the scope of this Core Requirement. | 11 |
| 12. Will further startup testing, operator training, procedure finalization, or other actions be required to fully transition to the routine conduct of program work or will additional oversight be used to validate procedure/personnel adequacy due to inability to fully demonstrate some elements of performance?<br><br>Describe the details of the transition to routine operations. The presumption is that it will be done in accordance with a startup plan. The startup plan, evaluation criteria, methods for removing controls, evaluations and qualifications, and recording of results must be reviewed for adequacy as part of the readiness review. | 12 |
| 13. Will changes to the Conduct of Operations implementation matrix or implementing procedures be required to accommodate the startup or restart?<br><br>Describe the changes. New chapters may now be applicable. New control rooms may be brought into operation. The description of the project and the changes required should define the depth of the evaluation of Conduct of Operations. The current status of Conduct of Operations compliance should also be considered (e.g., recent reviews indicate lax step-by-step procedure compliance or weak work planning). The operational formality demonstrated by operations personnel will be evaluated based on questions 1, 3, and 9. | 13 |

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| STEP ONE (cont.): Identification of the Core Requirements to be included in the POA. | |
|---|---|
| **Consider the following questions as regards to the startup or restart for which the POA is being developed. If the answer is "Yes," the Core Requirements (See Appendix 6-B) in the next column listed should be considered for inclusion in the POA** | **Core Requirements** |
| 14. Does the startup or restart require a change to the Authorization Agreement, Clean Air Permits or a specific evaluation of the issues management program or corrective action status?<br><br>The reasons that this question was answered "yes" will provide the basis for the scope. Core Requirement 14 can often be removed from the scope of the review based on there being no need to change current agreements. In general, open CAPS issues within the facility should be evaluated for proper closure or technical basis to justify their remaining open (i.e., pre/post screening). | 14,15 |

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STEP TWO: Define the scope that each Core Requirement (CR) will evaluate.

The extent of detail that the scope of each Objective or CR will evaluate should be determined by an evaluation of the individual elements of the startup or restart reflected in the questions presented in STEP ONE.

For CRs, it is important to identify the end state that satisfies the CR, since this is what the reviewers will be evaluating (e.g., operators will be certified, DSA requirements are implemented, procedures can be performed, etc.). Each CR should define the process or procedure that will be used to achieve the desired operational readiness end state (e.g., procedures used per Y15-232, *Technical Procedure Process*; SB documents developed and approved per Y74 series procedures, SB documents implemented per Y14-190, *Safety Basis Implementation Plans and Implementation Validation Reviews,* and Training conducted per Y90-027, *Conduct of Training Procedure,* etc.). It is important to include as much detail in the scope of each CR as is practical since this is the information that will form the basis for the Criteria Review and Approach Document that will be developed in accordance with Volume II, Chapter 5, as a part of the Implementation Plan for the review.

STEP THREE: Description or Identification of Prerequisites to the Review.

Upon completion of STEP ONE and STEP TWO, the actions and conditions necessary to satisfactorily complete the readiness confirmation review should be clear. The prerequisites are identified as action steps which, when satisfied, will ensure the attainment of operational readiness. For example, STEP TWO identified the personnel required, the procedures requiring change, the systems being installed and tested, etc. This information defines specifically what must be completed to achieve operational readiness for the startup or restart. In addition, the detailed description of the startup or restart should lead to an understanding of what actions must be completed to achieve a state of operational readiness.

Action statements that describe these requirements should be developed and included as the prerequisites in the POA. The prerequisites must address the entire scope of the startup or restart. Prerequisites must address each applicable Core Requirement. It is not acceptable to have one prerequisite stating that the entire set of applicable Core Requirements has been met. Some Core Requirements will require several prerequisites to ensure satisfactory completion. An example is “CR-3,” where it would be prudent to have several prerequisites for operations and if applicable each of the support organizations. This method will facilitate better organization of evidence and allow for easier tracking of prerequisite completion. When properly defined, the closure criteria in the Readiness Plan developed in accordance with Volume I, Chapter 5, can provide much of the basis for the prerequisites.

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A suggested Plan-of-Action (POA) format:

**POA Outline**

Cover Page

- Document number
- Title
- Date

**Note:** It is desirable to keep the POA unclassified and no more than Official Use Only. Particular items in this outline may reference other documents for details to achieve this objective.

I. Description of facility
- Y-12 Plant
- Evaluation Activities
  - Building Number
  - Facility Hazard Categorization
  - General area of startup or restart within the building
  - Description of the startup or restart

II. Identification of Responsible Contractor

III. Designation of action as New Start or Restart
- Statement defining reason for conducting review as related to DOE Order 425.1 requirements.

IV. Startup or Restart discussion
- Reason for inoperation (if applicable)
- Length of inoperation (if applicable)
- Changes and repairs
- Special conditions
  - Demonstration configurations
  - Use of mock-ups or surrogate materials
  - Use of actual parts/materials

V. Proposed breadth
1. Basis for breadth
2. Focus of preparations
   - Core Requirements excluded (if for an ORR exclusion must be justified)
   - Core Requirements included
     - Discussion of detailed scope for each CR

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**POA Outline (cont.)**

VI. Prerequisites
- Should include at least one per CR

VII. Estimated start date
- Start date for contractor review

VIII. Proposed Team Leader
- Identification of the contractor Review Team Leader

IX. Official to approve start of contractor review
- Include the estimated start date for the review

X. Official to approve facility startup/restart (Startup/Restart Authority)

XI Approval Page
- Preparer/Readiness Leader
- Responsible Manager
- Production Manager (if applicable)
- Department Manager (if applicable)
- Project Manager (if applicable)
- Program Manager (if applicable)
- Senior Manager
- NNSA (for Startup/Restarts where NNSA is the Startup/Restart Authority)

Appendices
- Personnel by category
- Equipment by type
- Documents by type

**APPENDIX 6-B**
**Guiding Principles, Core Requirements, and Y-12 Guidance**
**(Page 1 of 12)**

The following information is provided to assist in developing the Plan-of-Action (POA) and preparing the facility for safe, secure, and compliant operations. Specifically, this guidance is provided to assist the Responsible Manager and Readiness Leader in selecting the appropriate Core Requirements to attain operational readiness. This information is organized around (a) the DOE guiding principles for Integrated Safety Management as listed in DOE Order 425.1, (b) DOE Core Requirements for startup/restart (found in DOE Order 425.1, DOE STD-3006-2000), and (c) guidance specifically intended for Y-12 startup/restart work.

***Guiding Principle #1*** *– Line Management is responsible for the protection of employees, the public, and the environment. Line management includes those contractor and subcontractor employees managing or supervising employees performing work.*

**CORE REQUIREMENT 1:** Line management has established programs to assure safe accomplishment of work (the authorization authority should identify in the plan-of-action those specific infrastructure programs of interest for the startup or restart). Personnel exhibit an awareness of public and worker safety, health, and environmental protection requirements and, through their actions, demonstrate a high priority commitment to comply with these requirements. (DOE Order 425.1)

Guidelines:

- Appropriate management programs are identified and established:
  - Fire Protection
  - Procedure development and use
  - Industrial Safety and Health
  - Radiation Protection
  - Maintenance
  - Engineering Support (System and Process)
  - Quality Assurance
  - Criticality Safety
  - Training
  - Environmental Protection
  - Waste management
  - Emergency Preparedness
  - Safeguards and Security

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- o Transportation and Packaging
- o Conduct of Operations
- o Configuration Management and Change Control
- o Specific programs are established to promote a site-wide safety culture.
- o Safety Awareness
- o Employee Concern
- o The Integrated Safety Management System (ISMS)

***Guiding Principle #2*** *- Clear and unambiguous lines of authority and responsibility for ensuring ES&H (Environmental, Safety, and Health criteria, requirements, and/or standards) are established and maintained at all organizational levels.*

**CORE REQUIREMENT 2:** Functions, assignments, responsibilities, and reporting relationships [including those between the line operating organization and Environment, Safety and Health (ES&H) support organizations] are clearly defined, understood, and effectively implemented with line management responsibility for control of safety.

- Roles and responsibilities are defined.
- Personnel understand their assignments, responsibilities, and reporting relationships.
- Management assigns only qualified personnel to operational or support positions.
- Management monitors field activities for safe operations and promptly stops work when unsafe conditions arise.

**Guiding Principle #3** - *Personnel shall possess the experience, knowledge, skills, and abilities that are necessary to discharge their responsibilities*.

**CORE REQUIREMENT 3:** The selection, training, and qualification programs for operations and operations support personnel have been established, documented, and implemented. The selection process and applicable position-specific training for managers assure competence commensurate with responsibilities. (The training and qualification program encompasses the range of duties and activities required to be performed.)

An adequate Training Program is in place.

- Training and qualification requirements are identified and implemented.
- Job Task Analysis (JTA) has been performed

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- The training program encompasses the attributes of the JTA.
- Positions requiring qualification or certification have been identified and personnel filling those positions are qualified or certified.
- Operations and operations support personnel have been, as a minimum, trained to:
  - Operating and Surveillance Procedures and associated changes
  - Importance of operational constraints
  - Terms and conditions or limits and conditions of applicable environmental permits or safety requirements
  - Conduct of Operations
  - Security Plan
  - Emergency preparedness and response to upset conditions
  - Hazards of materials associated with operation, Material Safety Data Sheet (MSDS) reviewed
- Operations and Operations support personnel are qualified on facility equipment, systems, and processes.
- The following Training Descriptions may be applicable to this Core Requirement:
  - ALARA Training Program Description
  - NCS Training Program Description
  - Radiological Worker Training Program Description
  - GET Training Program Description
  - Radiological Control First Line Manager Training Program Description
  - Radiological Control Technician Training Program Description

**CORE REQUIREMENT 4:** Level of knowledge of managers, operations, and operations support personnel is adequate based on reviews of examinations and examination results and selected interviews of managers, and operating and operations support personnel.

- Management position descriptions have been written and personnel filling those positions meet position description criteria.
- The technical basis for each position is adequate for the position and technical support personnel meet the technical basis for their position.

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- Examinations adequately test personnel
  - o Exams include responses to process alarms, abnormal plant conditions, and emergency actions
- Assigned personnel have successfully passed examinations.
- Interviews adequately test the level of knowledge.
- Performance evaluations for positions (including surveillance), facility systems, and processes adequately test each individual and ensure proficiency.

**CORE REQUIREMENT 5:** Modifications to the facility have been reviewed for potential impacts on training and qualification. Training has been performed to incorporate all aspects of these changes.

- Facility changes for the startup or restart have been reviewed; including the USQD process, to determine if the security plan and what procedures could have been affected by the changes.
- Those procedures and security plan identified are reviewed to ensure they have been updated.
- Applicable personnel have been trained and qualified (if necessary) on the revised procedures and/or security plan.

***Guiding Principle #4*** *- Resources are effectively allocated to address ES&H, programmatic, and operational considerations. Protecting employees, the public, and the environment is a priority whenever activities are planned and performed.*

**CORE REQUIREMENT 6:** Sufficient numbers of qualified personnel are available to conduct and support operations. Adequate facilities and equipment are available to ensure operational support services are adequate for operations (Such support services include operations, training, maintenance, waste management, environmental protection, industrial safety and hygiene, radiological protection and health physics, emergency preparedness, fire protection, quality assurance, criticality safety, and engineering).

- There are sufficient numbers of qualified personnel to support safe, secure, and compliant operations.
- Task analysis defines the minimum required number of qualified personnel.
- The minimum number of qualified personnel has been defined to support the startup or restart.

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- The minimum number of personnel are qualified and/or certified to perform their duties, this may include:
  - Emergency Response Personnel
  - Facility Operations Personnel
  - Production Personnel
  - Operations Support Personnel such as:
    - Environmental and Waste Management
    - Fire Protection
    - Industrial Safety and Health
    - Radiation Protection
    - Maintenance
    - Engineering
    - Quality Assurance
    - Criticality Safety
    - Training
    - Environmental
    - Emergency Preparedness
    - Safeguards and Security
    - Transportation and Packaging

***Guiding Principle #5*** *- Before work is performed, the associated hazards are evaluated and an agreed upon-set of standards and requirements are established that, if properly implemented, provide adequate assurance that employees, the public, and the environment are protected from adverse consequences*.

**CORE REQUIREMENT 7**: Facility safety documentation is in place and has been implemented that describes the "safety envelope" of the facility. The safety documentation should characterize the hazards/risks associated with the facility and should identify preventive and mitigating measures (e.g., systems, procedures, and administrative controls, etc.) that protect workers and the public from those hazards/risks. Safety structures, systems, and components (SSCs) are defined and a system to maintain control over their design and modification is established.

Note: Some or all of the items listed below may be confirmed through the performance of an Implementation Validation Review (IVR) conducted in accordance with Y14-190, *Safety Basis Implementation Plans and Implementation Validation Reviews*. If this is accomplished prior to the Declaration of Readiness, then those items already covered by the IVR may be removed from the scope of the RA or ORR.

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- NNSA has approved the Safety Basis.
- Safety basis requirements are traceable from the SB documentation to the implementing directive/procedure, and back.
- A system is in place to manage change to the SB documents
- Implementation of the SB requirements has been demonstrated down to the implementing document.
- The required nuclear criticality safety evaluations have been completed and reviewed.
- The required fire hazard evaluations have been completed and reviewed.
- The required Safety Analyses are completed and approved.
- New or updated security plans have been prepared and where necessary approved by NNSA.
- Unreviewed Safety Questions (USQD or Change Evaluation process) have been evaluated.
- Hazard Evaluation Study and Accident Analysis updated for operations phase.
- Safety Evaluation Report (SER) Conditions of Approval have been resolved or tracked in CAPs.
- TSR document complete, approved and implemented.
- Safety Basis commitments are engineered or are in administrative controls, procedures or postings.
- Permits (e.g., Radiological Work Permit) have been developed and identify applicable
- Configuration Management of safety systems and design features for safety systems are identified and established to prevent unauthorized change.

**CORE REQUIREMENT 8:** A program is in place to confirm and periodically reconfirm the condition and operability of safety SSCs. This includes examinations of records of tests and calibration of these systems. The material condition of safety, process, and utility systems will support the safe conduct of work.

- The programs that confirm and reconfirm the condition and operability of safety and safety related systems are in place, including:
  - Calibration Recall
  - Metrology
  - Configuration Management Program (Y15-009INS)
  - Integrated Safety and Change Control (Y15-187)
  - Engineering Design
  - Deficiency reports
  - Non-conformance reports

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- Software Configuration Control (Y80-101PD, Y80-102)

- Safety systems and other instruments, which monitor OSR/TSRs or process parameters are calibrated and monitored for calibration.
- Safety related instrumentation has been identified, calibrated, and preventive maintenance completed.
- Safety and safety-related utility systems are identified and are currently operational, in a satisfactory condition.
- Equipment has been tested to meet established functional testing requirements and acceptance criteria or post maintenance criteria.
- Essential equipment items are identified (safety systems and safety related systems and labeling is complete), have been calibrated, preventive maintenance (if required) is complete, and the equipment is on-line.
- Vital Safety Systems (VSS) have been identified and assigned system engineer(s) meet minimum qualification requirements.
- Configuration of process equipment, emission control equipment, sampling equipment or other equipment, agrees with the terms and conditions or limiting conditions for operation of applicable permits or safety requirements and complies with Y-12 requirements.

**CORE REQUIREMENT 9:** The facility systems and procedures, as affected by facility modifications, are consistent with the description of the facility, procedures, and accident analysis included in the safety basis.

- Changes to facility systems and components comply with the Safety Basis and security plan requirements.
- An effective document change procedure has been demonstrated.
- Procedures necessary for operation have been identified, prepared, and approved. Operational constraints, terms and conditions or limiting conditions, if any, are identified and visible in System Operating Procedures or other documents.
- System Operating Procedures have been verified and validated.
- Maintenance requirements, system operating procedures, and current forms have been distributed and are available to operating crews.
- Qualified personnel manage the USQD/Change Evaluation process.

***Guiding Principle #6*** *- Administrative and engineering controls to prevent and mitigate hazards are tailored to the work being performed and associated hazards. Emphasis should be on designing the work and/or controls to reduce or eliminate the hazards and to prevent accidents and unplanned releases and exposures.*

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**CORE REQUIREMENT 10:** Adequate and correct procedures and safety limits are in place for operating the process systems and utility systems, and they include revisions for modifications that have been made to the facility

- Define the list of procedures to be implemented.
  - Procedures associated with implementing Safety Basis requirements [e.g., Limiting Condition of Operations (LCO), Technical Safety Requirement (TSR), Operational Safety Requirement (OSR), Safety Analysis Report (SAR) requirements, Security Plan requirements, etc.]
  - Controls identified through the Job Hazard Analysis are implemented in operating procedures.
  - Operational procedures
  - Operational drill procedures and emergency procedures
  - Alarm response procedures
  - Abnormal operating procedures
  - Maintenance procedures/work instructions
  - Facility changes have been reviewed, including the USQD/Change Evaluation process, to determine what procedures could have been effected by the changes
  - Applicable personnel have been trained and qualified (if necessary) on the revised procedures

**CORE REQUIREMENT 11:** A routine drill program and emergency operations drill program, including program records, have been established and implemented.

- A routine operations drill program has been established and implemented
  - Operators and operations support personnel can satisfactorily respond to upset conditions
  - Operators have been trained and have demonstrated their ability to respond to the range of abnormalities associated with the facility and the specific startup or restart
  - Operators are knowledgeable of the methods for reporting process upsets
- Upset conditions identified and drills prepared and are consistent with the Process Description.
- An Emergency Preparedness Drill Program has been established and implemented
  - Emergency plan prepared, approved, and demonstrated effective
  - Evacuation plan prepared and demonstrated effective
  - Back shift operators have demonstrated proper use of emergency notification lists

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**CORE REQUIREMENT 12:** 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 include if applicable the validation processes for equipment, procedures, and operators after startup or resumption of operations, including any required restrictions and additional oversight.

- The startup plan includes:
  - Deliberate controlled operations used to transition to unrestricted routine operations
  - Procedures for gaining or regaining operator proficiency where pre-startup conditions (e.g., surrogate material, hazardous materials, etc.) prohibit this from being accomplished prior to startup.
  - Testing required to confirm operability or to define operating parameters where the testing can only be performed with real materials.
  - Initial product quality checks

Verify that the Startup Plan (a) describes the process of deliberate, controlled operations that the contractor will follow after authorization to start or restart operations following an RA or ORR, (b) provides a summary-level schedule that illustrates a systematic approach to full operations, and (c) includes management approval requirements for key events. Key elements of the startup plan shall accomplish the following if not demonstrated during the RA/ORR:

- Identify and describe the equipment startup testing to be performed to confirm that changes meet design criteria and integrated tests planned to confirm operability of equipment during initial operations.
- Identify facility management observers necessary for initial operations oversight, including summary level duties, responsibilities, and shift staffing requirements.
- Identify plans for implementation of the startup plan with compensatory oversight, including approvals for progressing to normal unrestricted operations.
- Identify and describe the mechanism for confirmation of the viability of procedures during actual performance.
- Identify and describe the mechanism for real-time in-plant management observer evaluation of operator proficiency to confirm the adequacy of operator training.
- Identify and describe the mechanism established for remediation of any identified weaknesses.
- Identify how and when “first use” controls may be suspended.

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Startup Plan prerequisites may include confirmation of the completion of Pre-start findings from the RA and other specific actions, such as:

- Assignments of Managers to oversight roles have been completed, and the responsible personnel are knowledgeable of their responsibilities
- Pre-operations functional tests are complete or planned as an initial part of the Startup.
- Human Factor considerations tested.

**CORE REQUIREMENT 13:** The formality and discipline of operations are adequate to conduct work safely and programs are in place to maintain this formality and discipline.

Conduct of Operations program is completely and adequately implemented per the applicability matrix.

- Operating organizations and administration ensures a high level of performance is achieved through effective implementation and control of operations activities:
  - Facility policies describe the philosophy of standards of excellence under which the facility is operated and clear lines of responsibility for normal and emergency conditions are established
  - Effective implementation and control of operational activities are achieved by written standards, periodic monitoring and assessing performance, and holding personnel accountable
- Shift routine and operating practices ensure professional conduct of operations.
- Control area activities are conducted in a manner that achieves safe and reliable facility operations in a professional manner.
- Communications are highly reliable in providing accurate transmission of information.
- Personnel under instruction are carefully supervised and controlled by qualified personnel.
- Abnormal events are thoroughly investigated:
  - Assesses the impact of the event
  - Determines the root cause of the event
  - Determine if the event is reportable
  - Identify corrective actions to prevent recurrence

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- Timely notifications ensure the facility is responsive to public health and safety concerns.
- Facility configuration is maintained and the operating shift knows the status of equipment and system.
  - Equipment and instrument malfunctions are tracked
- Lockout/Tagout program ensures proper energy isolations and includes proper independent verification.
- Independent verification provides a high degree of reliability in ensuring the correct facility operation.
- Key positions maintain proper logs.
- Shift turnovers provide oncoming operators with an accurate picture of the overall facility status.
- Facility chemistry or unique process data and parameters ensure that parameters are properly maintained.
- Required reading ensures that appropriate individuals are made aware of information that is related to job assignments.
- Operations management communicates short-term information and administrative instructions to operations personnel.
- Operator Aid Postings are identified and controlled.
- Facility personnel are able to positively identify equipment they operate through equipment labeling.

***Guiding Principle #7*** *- The conditions and requirements to be satisfied for operations to be initiated and conducted are established and agreed upon by NNSA and the contractor. These agreed-upon conditions and requirements are requirements of the contract and are binding on the contractor. The extent of documentation and level of authority for agreement shall be tailored to the complexity and hazards associated with the work and shall be established in a Safety Management System*.

**CORE REQUIREMENT 14:** Formal agreements between the operating contractor and NNSA have been established via the contract or other enforceable mechanism to govern the safe operations of the facility. A systematic review of the facility's conformance to these requirements has been performed. These requirements have been implemented in the facility, or compensatory measures are in place, and were formally agreed to during the period of implementation. The compensatory measures and the implementation period are approved by NNSA.

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- The Contractor Assurance database is current for the FACILITY and reflects any new functional area programs being implemented as a result of the startup or restart.
- S/RID assessment program is established and adequate.
- Order nonconformance and schedules for gaining compliance have been justified and approved.
- Compensatory measures are adequate and in place where nonconformance exist.

**CORE REQUIREMENT 15:** A feedback and improvement process has been established to identify, evaluate, and resolve deficiencies and recommendations made by oversight groups, official review teams, audit organizations, and the operating contractor.

- The process to identify, evaluate and resolve deficiencies is adequately implemented.
- Management adequately evaluates open issues and verifies that no single open issue or group of issues in aggregate will preclude the start of safe and compliant operations.
- The Corrective Action Planning System (CAPS) is implemented, adequate, and working.
- Lessons learned input evaluated for the startup or restart.

**CORE REQUIREMENT 16:** The technical and managerial qualifications of those personnel at the DOE field organization and at DOE Headquarters who have been assigned responsibilities for providing direction and guidance to the contractor, including the Facility Representatives, are adequate *(DOE Readiness Review only)*.

**CORE REQUIREMENT 17:** The breadth, depth, and results of the responsible contractor Readiness Review are adequate to verify the readiness of hardware, personnel, and management programs for operations *(DOE Operational Readiness Review only)*.

**CORE REQUIREMENT 18:** DOE operations office oversight programs, such as occurrence reporting, Facility Representative, corrective action, and quality assurance programs, are adequate *(DOE Operational Readiness Review only)*.

**APPENDIX 6-C**
**Application of the Graded Approach in Review Planning**
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For the purposes of attaining operational readiness and confirming that through the review process, the graded approach is defined as the process by which the readiness determination is adjusted in depth of detail required to be evaluated commensurate with the potential impact on safety, environmental compliance, safeguards and security, and its programmatic importance, including present and future mission. The graded approach is commensurate with:

1. The relative importance to safety, safeguards, and security
2. The magnitude of any hazard involved
3. The life cycle stage of a facility
4. The programmatic mission of the startup or restart
5. The particular characteristics of the startup or restart
6. The relative importance of radiological and non-radiological hazards
7. The cause and circumstances of the shutdown (restarts only)
8. Complexity of the startup or restart
9. Other relevant factors

ORRs address the minimum set of Core Requirements plus any additional requirements as deemed necessary for adequate review (breadth). A recent (within the last 6 to 12 months) review may be used as justification for eliminating a Core Requirement from the scope of an ORR. With respect to planning, a graded approach is utilized to determine the level of detail, that is, the depth. The combination of breadth and depth forms the envelope (scope) within which the review is conducted. Proper utilization of the graded approach is essential to conducting a successful review. The supporting principle governing the use of the graded approach must be that knowledgeable personnel analyze the factors surrounding the start or restart, determine the depth of the review needed, and then document this determination. Precise documentation facilitates communication with knowledgeable outside officials that the proper scope of review has been conducted and that readiness to operate has been accurately confirmed.

The depth of a review cannot be determined using a cookbook or formula approach. Depth requirements depend on knowledgeable people identifying relevant topics based on their experience, the characteristics of the startup or restart, the operating environment, the operating and support organizations' capabilities, and the risks associated with the proposed startup or restart. The breadth discussion in the approved plan-of-action should provide a basis for determination of the depth of the review of individual criteria or Core Requirements.

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Criteria and Review Approaches (CRADs) are developed in the Implementation Plan (IP) for each Core Requirement, which specify the level of detail that is appropriate for that area. The following factors and their implications should be considered in developing the depth of the review and should be considered in preparation of the plan-of-action:

- Physical changes to the facility: Any change must be assessed for its potential effect on the startup or restart hazards and risks, on the facility safety basis as documented in the DSA, on facility procedures, on the need for personnel to be trained on the reconfiguration, etc.

  In addition, the integrity of the facility design baseline may need to be validated. This includes confirming that documents are properly identified and retrievable from the records center, construction and start-up tests were properly defined and completed and test deficiencies resolved, drawings have been updated to reflect the as-built configuration, change packages are complete and identified documents updated, procurement records indicate appropriate design specified equipment and components were procured and installed and appropriate vendor records and documents were received and are retrievable, Title III inspections were completed, equipment has been properly labeled, and deficiencies and nonconformance's resolved.

- Procedural changes: Changed or new procedures (including operating, utility, surveillance, etc.) must be reviewed to determine if they have been adequately verified and validated, if the operators have been adequately trained on the modified procedures and are proficient in their use, and if the procedures at the workstations clearly reflect the changes and can be performed as written.

- Personnel changes: Continuity of the operations team must be assessed to determine if significant loss of experienced personnel has occurred and, if so, has been adequately mitigated. Training and qualification of new and reassigned personnel must be verified.

- Length of shutdown: There is a characteristic loss of operator familiarity with normal facility operations that increases with the length of the shutdown. If the shutdown is unusually long, a review and possibly re-qualification of the operators may be necessary. There are also physical processes (e.g., corrosion, radioactive decay, evaporation, etc.) that may become important following an extended outage. The longer the outage and the more complex the activity during the outage, the more rigorous should be the review to identify unanticipated changes.

- Overall hazard characteristics of the startup or restart: The nature of the hazards to safety and the environment associated with the startup or restart are a major component in determining the depth of the review. The depth of a review for a facility that handles small quantities of depleted uranium would not be as complex as one that handles large quantities of enriched uranium.

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- The complexity of the startup or restart: The size and complexity of the startup or restart being reviewed drives the size and complexity of the review. The depth of the review requires that reviewers be able to comprehend and accomplish the criteria provided them. The number of criteria developed is based on the size and complexity of the startup or restart.

- A new startup versus the restart of an existing operation: A new process would involve confirmation of training and qualification of workers and new procedures without any significant reference points available onsite. This would drive the review to be more thorough and comprehensive than the review for one that has a significant experience base onsite or even within the FACILITY.

- The programmatic significance of the subsequent operations: A startup or restart that is intended for long-term programmatic operations would necessarily require a more comprehensive and thorough review in some specific area than would a temporary operation.

- Introduction of new hazards: The proposed startup or restart must be evaluated for potential new hazards. While some new hazards will be obvious, a critical review is needed to identify subtle new hazards introduced by the startup of new processes or changes to existing processes. Changes made to improve operations in one aspect may unexpectedly introduce hazards in a different area.

- Increase in existing hazards or risk: Changes to the facility, personnel, or procedures must be evaluated for their potential to increase the hazard level (i.e., by increasing the inventories of hazardous materials) or the hazard potential (i.e., by introducing a new mechanism for the release of hazardous materials).

- Operating history of the facility: The record of operational reliability, (e.g., reliability during most recent operation), may identify issues to be addressed in the proposed review. Additionally, the nature of the startup or restart transition to standby or shutdown status needs to be considered. A shutdown resulting from systemic safety concerns may require greater review depth than would a shutdown in response to an individual safety concern.

- Confidence in site-wide functional programs: Even if the proposed startup or restart does not directly involve changes to site functional programs (e.g., emergency preparedness, site fire response, environmental monitoring, security plans, etc.), it may be prudent to evaluate these in a review unless recent reviews have shown them to be acceptable. A Startup or restart maybe problematic within a significantly flawed site infrastructure. Conversely, a strong record of implementing management requirements, (e.g., Conduct of Operations would allow for a justifiable reduction in depth in that area in the review).

**Appendix 6-C**
**(Page 4 of 4)**

- Issues raised through other internal or external reviews: The review may need to confirm that previously raised issues have been adequately addressed. These issues may be specific to the startup or restart or they may relate to the site infrastructure within which the startup or restart will operate. The experiences in implementing the corrective actions and lessons learned may also provide a valuable perspective for determining the depth of the review. **(Caution must be exercised in utilizing previous reviews as justification for eliminating a topic or limiting the breadth of review.)** The adequacy of any previous review to be used in this manner should be equivalent.

- DOE Order 425.1 requires that reviews document lessons learned. Such lessons may assist in determining the depth of the review. Previous reviews may highlight issues to be considered or may provide the justification for doing a less detailed review if recent reviews and restart experience can be cited.

- Extent to which the startup or restart has been evaluated or operated using the standards and level of excellence being used in the review. In applying the graded approach, the extent to which the startup or restart has utilized or been evaluated against the current nuclear safety standards should be considered. One that has operated successfully using the DOE nuclear safety standards may require a less extensive review depth.

| | | |
|---|---|---|
| Subject: | Readiness Manual | |
| Title: | Readiness Assessments and Reviews | Vol. I |
| Chapter: | 7.0, Readiness Activities and Verification | Effective Date: 2/28/07 |

## PURPOSE

This Chapter will provide guidance for the management of the process for attaining operational readiness by providing details on how to get ready, including instructions on monitoring the progress of the readiness preparation activities.

This Chapter defines and identifies the process for ensuring attainment of operational readiness. This process is an internal line-management function that precedes the formal readiness confirmation review. The validation of operational readiness by line-management prior to the start of the more formal evaluations (e.g., Performance Self-Assessment (PSA)) will facilitate a more efficient confirmation of readiness and reduce the number of issues identified that must be tracked and corrected.

## APPLIES TO

This Chapter applies to nuclear and hazardous non-nuclear startups or restarts.

## OTHER DOCUMENTS NEEDED

- None

## REFERENCES

- Y13-007, *Executing Projects*
- Y14-001, *Conduct of Operations Manual*
- Y15-232, *Technical Procedure Process*
- Y30-601, *Baseline Change Control*

**WHAT TO DO**

**NOTE** Not all readiness activities/tasks require a comprehensive, detailed schedule or budget. The need for, and level of detail of, a formal schedule and budget will be determined by the Responsible Manager, and/or Project Manager, in consultation with the Readiness Leader. Y13-007, *Executing Projects*, provides guidance on schedule and budget needs.

**NOTE** YSO performs "routine oversight" activities of Contractor startup preparations. This "routine oversight" can generate deficiencies and weaknesses. Deficiencies and weaknesses trip the Pegasus, https://nnsacaps.y12.doe.gov/pegasus/, automatic notification of the IMPRB. "Routine oversight" starts after the Scoping Meeting and continues through the Contractor Readiness Review. Any weaknesses noted during "routine oversight" are expected to be closed by the end of issue closure after the contractor review. For ORRs or when YSO is conducting their own Readiness Assessment, YSO will then hold a Readiness Verification Review to determine if BWXTY-12 is "ready" before they will instruct the NNSA readiness review to start.

## A. Executing the Schedule

**Responsible Manager and**
**Project Manager and**
**Readiness Leader**

1. Ensure actions identified in the schedule are performed.

2. Conduct frequent facility walk downs.

3. Utilize Subject Matter Expert coaching to support performance areas.

4. Determine if a Readiness Assist Team (RAT) or Management Self-Assessment will be applied to a particular startup or restart.

   The Readiness Assist Team can provide independent reviewers to evaluate completed tasks to ensure they meet site management requirements. The use of the RAT or MSA is optional at the discretion of the Responsible Manager

## B. Monitoring Progress

**Project Manager and**
**Readiness Leader**

1. Ensure an independent review of evidence is established for validation of administrative and technical content.

2. Conduct regularly scheduled status meetings to ensure the scheduled activities are progressing, delays are identified, necessary resources are focused on needed tasks, and evidence is being submitted.

**B. Monitoring Progress (cont.)**

**Project Manager and Readiness Leader**

3. IF a Readiness Assistance Team (RAT) will be used to help ensure an adequate level of operational readiness is attained OR IF a Management Self-Assessment (MSA) will be performed, THEN ensure that these teams are identified and in place to evaluate completed tasks..

4. Work with Planning and Integration (P&I) to update the schedule after each status meeting to ensure an accurate account of progress is maintained.

**Evidence Owner**

5. Provide evidence of completion to Readiness Leader or to Independent Reviewer (RAT or MSA team member) for validation.

**Independent Reviewer**

6. Validate evidence files for inclusion of required evidence, completeness and accuracy of required evidence, and proper reference to available evidence.

7. IF the evidence files are incomplete or inaccurate, THEN return them to the Evidence Owner for rework along with explanation of problems.

**Evidence Owner**

8. Correct evidence deficiencies and return files to Independent Reviewer, if applicable.

**Independent Reviewer**

9. Return the evidence files to the Readiness Leader upon successful validation.

**Responsible Manager**

10. Obtain periodic updates on the status of activities/tasks.

11. Ensure activities affecting plans, budgets and schedule are monitored closely throughout the life of the startup or restart.

**B. Monitoring Progress (cont.)**

**Project Manager and Readiness Leader**

12. Report the status of the startup or restart preparations to the Responsible Manager and National Nuclear Security Administration (NNSA) periodically in order to assure that progress is made according to the schedule.

    The frequency of status reporting is set in consultation with the Responsible Manager and NNSA personnel.

13. Periodically review Pegasus, https://nnsacaps.y12.doe.gov/pegasus/, for "routine oversight" weaknesses

    Go to Pegasus, Select "View/Edit Assessment", scroll down to Assessment Type and select the RR assessment of your project. The results will appear below.

**C. Project Controls**

**Project Manager and Readiness Leader**

1. Ensure that change controls are established to ensure that proposed changes are evaluated for impact on the baseline.

2. Changes that impact schedule, cost, scope, or deliverables are processed in accordance with Y30-601, *Baseline Change Control*.

3. Ensure performance and forecast analysis for scheduled tasks to cost and scheduling is performed monthly or on a predetermined basis, as directed by the Responsible Manager or Project Manager.

4. Ensure any budgetary or allocation changes are reported to the Senior Manager.

5. Include the following typical status information in the progress updates, as required by Responsible Manager:

   - Actual start dates for scheduled activities started during the status period.
   - Actual finish dates for scheduled activities completed during the status period.
   - Actual occurrence dates for milestones accomplished during the status period.
   - Percent complete and/or remaining duration of activities that are started but not complete.
   - Forecasted completion dates for scheduled activities started in the past, but which are not yet complete.
   - Forecasted duration, start, and finish dates for scheduled activities, and occurrence dates for milestones, which are currently scheduled in the future, and for which a change is foreseen.

## D. Practice Evolutions

**Readiness Leader/**
**Responsible Manager**

1. Ensure Operators and support organizations are allowed sufficient time to practice procedures/operations evolutions using the practice evolution types described below.

**NOTE 1** Specific controls or oversight for practice evolutions may be required. It is a good practice to use the Readiness Assist Team or Management Oversight Personnel (MOPs) during practice evolutions.

**NOTE 2** Practice Evolutions should continue during the periods between multiple readiness confirmation reviews to ensure continuous improvements of operational proficiency, equipment operability, and procedure viability.

**NOTE 3** Requirements for red-lining of procedures for practice evolutions are found in Chapter 8 of Y15-232, *Technical Procedure Process*. This process should also be applied to the redlining of procedures for the actual demonstrations during the readiness confirmation reviews. These red-lined procedures are not required to be placed in the DMC.

**NOTE 4** Although simulation should be minimized, the Readiness Team with input from line management should closely review operating procedure(s) for the need to redline a procedure for demonstration purposes when simulation is required to ensure all steps can be performed as written. Additionally, close attention should be paid to “hand-offs” to and from other processes/procedures that may be contained within the operating procedure(s) to be demonstrated. Facsimiles of documents related to ancillary processes should be developed, annotated with appropriate phrases such as “for training use only”, “for simulation only” etc., and used throughout the readiness process. These documents should resemble the actual paperwork to the closest extent achievable. The goal should be to reflect the practice/demonstration operation as close as possible to that of the process to be followed during actual operations. The Readiness Leader should ensure any simulations that are to be performed are included in the review in-brief and discussed with the review team prior to execution of field demonstrations. Further, it is a good practice for the supervisor to review these simulation(s) with operating personnel during the pre-job brief.

**D. Practice Evolutions (cont.)**

**Readiness Leader/**
**Responsible Manager**

2. Use any or all of the following practice evolution types for practice, each involving different levels of actions and participation by the applicable personnel.

   A practice evolution must, at a minimum, be used.

   - *A table-top talk-through* review of the procedure, operator aids, work instruction, or other evolution guidance document. For this type of Practice Evolution, the instructions are discussed, reviewed, assessed, or critiqued in a step-by-step manner by participants, usually sitting around a table. Draft versions of procedures or other instructions may be used.
   - *A walk-through* where the operators physically move to the location of the work and follow the instructions or procedure, using gestures to imitate, but not actually perform, the actions required by the instructions or procedure. Draft versions of procedures or other instructions may be used. The instructions are discussed, reviewed, assessed, or critiqued in a step-by-step manner by the participants in the field.

**NOTE** A USQD may be required to perform a Mockup.

   - *A mock-up of operations*, where props are used and the equipment is actually operated according to the procedure. Instrument readings for de-energized instruments, may be simulated using paper covers over the gauges, as appropriate. The instructions are performed and assessed in a step-by-step manner by the participants in the field. Approved versions of procedures or other instructions are preferred to be used. Mock-ups of products, product containers, or other containers may be used, following the requirements of Y70-153, *Mock-ups*, where applicable. It is recommended that initial training to new procedures used in Mock-up operations be conducted using the reader/worker method of procedure performance per Y14-001, *Conduct of Operations Manual,* Chapter 16.0. Reader/worker method has proven to be an effective practice tool for initial operator use of procedures. However, the way the procedure will be used after readiness is achieved should be used for the final practice sessions and the readiness review demonstration.

**D. Practice Evolutions (cont.)**

**Readiness Leader/**
**Responsible Manager**

**NOTE 1** A USQD may be required to conduct practice evolutions.

**NOTE 2** Practice evolutions are performed without hazardous materials.

**NOTE 3** Practice evolutions are the final preparations for readiness confirmation review demonstrations. They require that the operating procedures or other instructions be red-lined, reviewed and approved in accordance with procedure Y15-232 prior to use. Changes resulting from the practice are also controlled per Y15-232. This is the final opportunity to ensure that equipment, personnel, and procedures (including checklists, round sheets, system alignments, etc.) are correct. Because of the importance of practice evolutions, they should be performance oriented. This is to say that all procedure steps that can actually be performed should be performed rather than simulated. It is also crucial that all procedure steps be practiced, including prerequisites, branching, and referencing. The practice evolutions should provide the details necessary to allow for the final redlining of procedures to denote simulations to be used in the actual readiness confirmation review demonstrations. As with practice evolutions, demonstrations during the actual readiness confirmation review should be performance oriented and minimize the use of simulations.

**NOTE 4** Although it is crucial to practice the actual evolutions, it is also important to practice the preceding and subsequent activities (e.g., pre-job briefs, post-job debriefs, prerequisites, plan-of-the-day, etc.).

3. Ensure the participants practice the procedures often when preparing for startup/restart until confidant that participants are proficient.

## E. Maintaining Evidence Files

**Readiness Leader**

1. Monitor the completion of scheduled operational readiness tasks and the scheduled completion of the Readiness Evidence Files.

**NOTE** It is recommended that an evidence matrix be developed to provide a cross-walk of the evidence by prerequisite and Core Requirement. This will facilitate ease of location regardless of the filing strategy.

2. Maintain Evidence Files in a manner in which they are readily located and usable.

**Evidence Owner**

3. IF readiness evidence has been revised or updated,
   THEN submit updated evidence to the Readiness Leader.

**Readiness Leader**

4. IF updated evidence is received, THEN determine necessary reviews and update readiness evidence files.

5. Notify the Responsible Manager that the requirements have been completed and the startup or restart is ready for review, upon completion and compilation of readiness evidence files.

6. Review the completed evidence files with the Responsible Manager for confirmation of completion of requirements.

7. Compare the CRADS from PSA/RA/ORR Implementation Plan(s) (IP) to the evidence files to ensure necessary documents are present.

**Responsible Manager**

8. Concur in the adequacy of the completed Readiness Evidence Files.

## F. Reviewing Evidence Files

**Readiness Leader/**
**Responsible Manager**

**NOTE** When used the Management Self-Assessment (MSA)/ Readiness Assistance Team (RAT) should begin as readiness actions are completed. These actions should be scheduled for completion before the start of the PSA. The MSA/RAT can begin as soon as evidence is ready and may use procedural requirements and the POA as the basis for evaluation if the RA, ORR or PSA Implementation Plan is not yet complete. Depending on the nature and complexity of the startup or restart, the RAT/MSA should begin around the start of equipment testing.

1. Review the Evidence Files and ensure the following:

   - POA Prerequisites are complete.
   - Evidence Files are current, accurate, and adequate.
   - Evidence Files indicate reviews are complete.

2. Ensure that no additional Evidence Files are necessary.

**Responsible Manager and**
**Senior Manager**

3. IF a MSA or RAT is used, THEN ensure it has been conducted to ensure that operational readiness has been attained.

   A representative sample of the following items may be reviewed to ensure this has been accomplished:

   - Review procedures (for routine operations, emergency operations, and drills) to ensure quality of procedures.
   - Observe practice evolutions of the actual performance of operating and support procedures (during each shift), including pre-job briefing.
   - Observe drills, where applicable.

   a. Perform a review of routine operations work by performing the following:

      (1) Observe performance of shift routines/surveillances.
      (2) Observe shift turnover activities for each shift.
      (3) Review condition of log books.
      (4) Observe pre-job briefing(s).

   b. Review work control activities by performing the following:

      (1) Observe Maintenance evolutions.
      (2) Review samples of completed work packages.
      (3) Observe Job Hazard Analysis, pre-job and post-job briefings.

**F. Reviewing Evidence Files (cont.)**

**Responsible Manager and Senior Manager**

c. Perform facility walk downs to assess readiness by reviewing the following areas and plan remedial actions for any problems noted:

- Conduct of Operations practices
- Housekeeping
- Occupational Safety and Health Administration (OSHA) and Industrial Hygiene (IH) safety compliance
- Criticality Safety postings
- Lock Out/Tag Out (LOTO) status and records (complete and correct)
- Emergency Systems (e.g., lights, egress pathways, doors, etc.)
- Radiological Control practices
  - Facility postings
  - RWPs accuracy and compliance
  - Dress-out and frisking practices
- Programmatic compliance
  - PMs
  - Calibrations
  - Certifications
  - Tests
  - Inspections
  - Surveillances
- Interfaces between procedures, equipment, safety functions, and operations
- Hazardous Material postings

d. Review corrective actions taken to resolve issues from applicable recent startups for effectiveness and status of implementation that could impact readiness completion.

**G. Reviewing Current Corrective Actions**

**Readiness Leader/ Responsible Manager**

1. Review CAPS Corrective Action files related to the startup/restart to ensure adequacy (Reference Volume II, Chapter 3.0, Corrective Actions, for required information).

2. Review Pegasus, https://nnsacaps.y12.doe.gov/pegasus/, for “routine oversight” weaknesses.

   Go to Pegasus, Select “View/Edit Assessment”, scroll down to Assessment Type and select the RR assessment of your project. The results will appear below.

3. Utilize Lessons Learned and other feedback mechanisms to identify problem areas and significant issues requiring closer scrutiny.

## H. Conducting Personnel Interviews

**Responsible Manager**

1. Select a variety of individuals representing those involved with the startup or restart, to interview.

2. Conduct personal interviews to ensure personnel are trained and aware of assignments and requirements.

3. Use pre-job briefings, post-job discussions, and Lessons Learned to assure that the performance of the startup or restart will be consistent, effective, and controlled.

## I. Notification of Readiness

**Responsible Manager**

1. IF a Level II RA or ORR is required, THEN inform the PSA Team Leader, Readiness Manager and Senior Manager in writing (e.g., via memo, letter, e-mail, etc.) that the startup or restart is ready for PSA..

**NOTE 1** The PSA may commence prior to prerequisites being completed, but this is not a recommend practice. Prerequisites not completed prior to start of the PSA should be identified to the Senior Manager and PSA Team Leader.

2. Notify the PSA (Review Team) Leader that the activity/task is ready to be reviewed.

The PSA is conducted in accordance with Volume II, Chapter 2

3. IF a Level I RA is being conducted then follow the applicable certification or readiness steps in Volume I, Chapter 9.

## RECORDS

There are no records generated by the performance of this document.

## SOURCE DOCUMENTS

- YSO-M-5.4, *Manual for Startup and Restart of Facilities at Y-12*

| | | |
|---|---|---|
| Subject: | Readiness Manual | |
| Title: | Readiness Planning and Achievement | Vol. I |
| Chapter: | 8.0, Preparing for Reviews | Effective Date: 2/28/07 |

## PURPOSE

This chapter provides guidance on preparing operations personnel for readiness confirmation reviews [i.e., Performance Self-Assessment (PSA), Readiness Assessment RA, or Operational Readiness Review (ORR)] and interviews.

## APPLIES TO

Preparations for Performance Self Assessments (PSAs), Readiness Assessments (RAs) and Operational Readiness Reviews (ORRs).

## OTHER DOCUMENTS NEEDED

- None

## REFERENCES

- Y15-232, *Technical Procedure Process*

## WHAT TO DO

### A. Pre-Review Briefing

**Readiness Leader**

1. Schedule a Pre-Review Briefing with the Review Team Leader to discuss organizational issues, logistics for the review (e.g., location of files, tours, computer access, escort needs, access requirements, meeting or working space, etc.) and review performance demonstrations (e.g., simulations, surrogate materials, mockups, etc.).

   This meeting should be scheduled about one month prior to the start of the RA or ORR. And may be used by the Review Team Leader as a part of the team's familiarization with the startup or restart.

2. Use the briefing to be introduced to the Review Team Members, identify their assigned review areas, and define what support is expected.

### B. Establishing Points of Contact

**Responsible Manager/**
**Readiness Leader**

1. Ensure a single point of contact is established for the review team and Operations.

   The review team leader and the Readiness Leader commonly assume this role.

**B. Establishing Points of Contact (cont.)**

**Responsible Manager/**
**Readiness Leader**

2. Assign a primary contact to each Review Team Member who will assist in logistic arrangements for the member and will ensure that any questions get a prompt and accurate response.

3. Provide persons to act as escorts and interfaces with the Operating personnel if not provided by the primary contact.

4. Provide a list of startup or restart contacts with the following information to all Review Team Members and involved Operations/support personnel:

   - Name
   - Subject area
   - Phone number
   - Pager number
   - User I.D
   - Location

**C. Providing Team Logistics**

**Responsible Manager/**
**Readiness Leader**

NOTE: The number of people observing an evolution can distract performers and in some cases may impede on space needed to conduct operations safely.

1. Ensure that the number of personnel involved with shop floor evolutions is minimized.

2. Ensure that classification issues are considered in planning and are communicated to the review team.

   A classification briefing is recommended for the Review Team. This can be accomplished as a follow-on part of the entrance brief for the review.

3. Provide office space, telephones, and clerical support to the review team to prepare the team report when possible.

   This space should have computers (one per team member) with word-processing software available. Provide a meeting room to the review team, if requested.

4. Ensure compliance with applicable security requirements (e.g., for HRP-required areas, handling classified information, etc.).

## C. Providing Team Logistics (cont.)

**Responsible Manager/**
**Readiness Leader**

5. Ensure review team members have required PPE (e.g., safety glasses, TLDs, etc.)

## D. Scheduling Evolutions and Interviews

**Responsible Manager/**
**Readiness Leader/**
**Operations Point of Contact**

1. Ensure interviews and evolutions with Operations personnel, and others, are scheduled as far in advance as possible with a date, time, specific location, and personnel who need to be present.

   Any change to the schedule should be published quickly.

2. Ensure Operations personnel are available to participate in scheduled evolutions and interviews, are knowledgeable of the evolution subject, and are familiar with the interview protocols shown in Appendix 8A, Appropriate Interview Protocols.

3. Ensure the evolution or interview is scheduled on the Plan-of-the-Day.

   a. Define evolution schedule and review with Review Team Leader to ensure understanding of sequence, simulations (if any), and use of surrogate or mock materials.

   b. Explain the evolutions that must be performed in sequence.

   c. Review the reason for sequencing and those evolutions that can be moved or re-sequenced.

   d. Explain how evolutions are to be performed, and any conditions required for simulations/demonstrations.

4. Consider assigning an observer to each interviewer to record questions and answers. This will aid in factual accuracy reviews and will provide input for future training evolutions.

## E. Performance Demonstrations

**Responsible Manager/**
**Readiness Leader/**
**Operations Point of Contact**

1. Ensure that performance demonstrations have been practiced as they are scheduled to be demonstrated.

2. Ensure that practice dry-runs have been completed for each procedure, instruction, job performance aid (JPA), etc. and that they can be performed with confidence.

3. Ensure that each procedure, instruction, JPA, etc. has been redlined in accordance with the full scale practice section of procedure Y15-232, *Technical Procedure Process*, and the required approvals have been attained.

   In the unlikely event that procedural changes are needed during the actual performance demonstrations, these changes may be accomplished in accordance with the process defined in Y15-232 for full scale practice.

## RECORDS

There are no records generated by the performance of this document

## APPENDICES

**A.** Appendix, 8A, *Appropriate Interview Protocols*

**APPENDIX 8A**
**Appropriate Interview Protocols**
**(Page 1 of 2)**

**Interviewee**

1. Consider that first impressions are important in interviews and follow the guidelines presented below:

   - Be on time for your interview.
   - Have an appropriate appearance for the interview.
   - Be enthusiastic - appear excited about the opportunity to discuss and operate the facility.
   - Greet the interviewer professionally, making eye contact.
   - Bring whatever reference documents you want to have at the interview.
   - If it will help you, bring a pencil/paper to write on or bring a drink (e.g., water, soft-drink, or coffee).

2. Listen carefully to each question:

   - Repeat the question, if you need to clarify your understanding.
   - Do not answer the question until you are absolutely sure you understand the question.
   - It is acceptable to ask the interviewer to clarify their question if you are unsure of what they are asking.

3. Think about your answer:

   - Phrase your answer in your mind.
   - Always listen. Stop and think before responding.
   - Answer questions directly (to the point) and confidently.
   - If you know the answer, state it.
   - Stay within your area of knowledge. If you don't know the answer, say so. (It is acceptable to say, "I don't know, but I will find out and get back to you.")
   - Answer "yes" or "no" to yes/no questions.
   - Always answer "yes" or "no" first, if possible, then explain the answer.
   - Be completely honest - never attempt to shade or slant your answer to the positive or negative.
   - Avoid projecting an opinion - stay with the facts.

**Appendix 8-A**
**(Page 2 of 2)**

**Interviewee**

- Avoid elaborating, speculation, or extraneous information not directly related to the question.
- Avoid sarcasm.
- Avoid self-evaluation of your performance.
- Be prepared.
- Do not turn the interview into a gripe session.
- Wait for further questions.
- Be ready for the question, "What would you change if you could?"
- Ask to reference other sources of information (e.g., procedures, manuals, etc.). If you need to refer to a reference document to fully respond and you have that document, then use it in responding to the question.
- If you don't remember the answer, but know where to look it up, tell the interviewer where you would look.

4. Remain calm:

- Control your emotions.
- Practice answering interview questions to reduce being nervous.
- Don't get flustered if you don't know the answer.
- Avoid conflict and don't be argumentative.
- Remember that we are all professionals.

No one should know your job better than you. Most interviewers are experts in their associated areas, but most have never done your job. You can be successful with the interview by giving measured, well thought-out responses in a confident and forthright manner.

| | | |
|---|---|---|
| Subject: | Readiness Manual | |
| Title: | Readiness Planning and Achievement | Vol. I |
| Chapter | 9.0, Level I Readiness Assessment | Effective Date: 12/29/2006 |

## PURPOSE

This chapter provides instructions for preparing the Plan of Action (POA), completing the UCN-21051, *Level I Readiness Assessment Checklist,* and performing Level I Readiness Assessments (RAs) at BWXT Y-12.

## APPLIES TO

This chapter applies only when the Readiness Applicability and Review Level Determination process as described in Volume I, Chapter 1, Section D requires that a Level I RA be performed. This Chapter does not apply to other levels of RAs.

## OTHER DOCUMENTS NEEDED

- UCN-21048, *Finding Categorization -- Pre/Post-Start Determination*
- UCN-21051, *Level I Readiness Assessment Checklist*
- UCN-21061, *Significance Determination Worksheet*
- UCN-21698, *Operational Readiness Evaluation Worksheet*
- Y15-101, *Manual for the Management of Records and Controlled Documents*

## REFERENCES

- Y15-001, *Grading Criteria for Y-12 Facilities and Systems*
- Y15-009, *Criteria for Application of the Y-12 Configuration Management Program*
- Y15-187, *Integrated Safety and Change Control Process*
- Y15-232, *Technical Procedure Process*
- Y15-312, *Issues Management*
- Y15-331, *Lessons Learned Program*
- Y17-007INS, *Transitioning Technical Documents to Operations*
- Y17-011, *Startup Testing Program Manual*
- Y71-930, *Environmental Aspect/Impact Identification and Significance Determination*
- Y73-045, *Job Hazard Analysis Manual*
- Y73-115, *BWXT Y-12 Hoisting and Rigging Procedure*
- Y74-802, *Safety Basis Documents for Nuclear, PSM/RMP, and Chemically Hazardous Facilities*
- Y74-809, *Unreviewed Safety Question Determinations*
- Y75-122, *Radiological Work Permit*
- Y80-101PD, *Software Management Program Description*
- Y90-027, *Conduct of Training Manual*

**WHAT TO DO**

**A. Plan of Action (POA) Development**

**Responsible Manager**

1. Ensure the Readiness Assurance Manager has assigned a Readiness Leader.

**Readiness Assurance Manager**

2. Assign a Readiness Leader.

**Readiness Leader**

3. Ensure the SNR is updated in accordance with Vol. I, Chapter 4.0, *Startup Notification Report (SNR)*,

4. Ensure the *UCN-21051, Level I Readiness Assessment Checklist,* form is initially filled out early in the startup or restart by performing the following:

   a. Address each *UCN-21051, Level I Readiness Assessment Checklist,* item.

   b. IF the item is applicable to the activity being started or restarted, THEN mark the “YES” box and summarize the actions that must be completed prior to initiating the review in the applicable “BASIS” section.

   c. IF the item is not applicable to the startup or restart, THEN mark the “N/A” box and provide in the “BASIS” section the justification as to why the checklist item is not applicable.

5. Draft a POA utilizing the guidance in Appendix 9-A, Level I RA Plan-of-Action Development Guide and Appendix 9-B, Checklist Item Review Approach Document.

   UCN-21051, *Level I Readiness Assessment Checklist*, serves as the Core Requirements for development of the Level I RA Plan-of-Action.

   Justification for the exclusion of a Checklist Item requires written basis for excluding the item, a discussion is expected.

   Prerequisites, when completed, are expected to bring the startup or restart into a state of operational readiness. Therefore, prerequisites must address the entire scope of the startup or restart.

   It is a good practice to use prerequisites to delineate specific actions with defined deliverables for different organizations (e.g., operations training, support organization training, etc.). Prerequisites may also include specific DOE or management issues (e.g., the completion of practice sessions. etc.).

**A. Plan of Action (POA) Development (cont.)**

**Readiness Leader**

6. Define the prerequisites for readiness by performing the following:

   - Address each applicable item on the UCN-21051, Level I Readiness Assessment Checklist.
   - Identify tasks that must be completed to meet each checklist item prior to initiating the review. This may expand upon the information in the checklist basis statement.
   - Identify any additional prerequisites that may be established by Operations Management or DOE.

7. Ensure the prerequisite statement provides measurable evidence that the prerequisite has been met and that it provides the closure requirement.

   Appendix 9-B contains review approach statements that can also aid in the development of the prerequisites.

8. Ensure the prerequisite statements provide for measurable evidence that the prerequisite has been met and provides the closure requirement.

9. Ensure the appropriate Startup/Restart (a.k.a. Authorization) Authority is identified in the POA as indicated in the DOE approved Startup Notification Report (SNR).

10. Work with the Responsible Manager and the Readiness Assurance Manager to ensure the Independent Reviewer/RA Team Leader for the RA is identified in the POA, is qualified and will NOT review work for which he or she has been or is directly responsible.

    The Independent Reviewer/Review Team Leader is an individual with the necessary qualifications for managing and conducting the RA. The basis of the qualifications includes:

    - Technical familiarity with the activities and functional areas being reviewed.
    - Previous performance-based review experience or training.
    - Demonstrated leadership and managerial skills.
    - Operational Readiness Review experience or formal training.

**A. Plan of Action (POA) Development (cont.)**

**Readiness Leader**

11. Select the review approach statements from Appendix 9-B for each of the UCN-21051, *Level I Readiness Assessment Checklist,* items marked "YES."

    a. IF the Independent Reviewer/RA Team Leader is available, THEN work with that individual to tailor the review approach statements to the specific startup or restart as needed.

**B. Plan of Action Review and Approval**

**Readiness Leader**

1. Submit POA to the Responsible Manager for Concurrence.

**Responsible Manager**

2. Review and approve the POA or provide comments to the Readiness Leader.

3. WHEN approved AND IF applicable THEN forward the POA to the Production Manager for review and approval.

**Production Manager**

4. WHEN applicable THEN Review and approve the POA.

5. WHEN applicable THEN submit the approved POA to the Startup/Restart Authority for review and approval.

**NOTE** The BWXT Y-12 Division Manager responsible for the facility in which the startup or restart is to occur is typically the Startup/Restart Authority, however, if DOE is the Startup/Restart Authority then they must approve the POA. Otherwise DOE must receive a copy of the POA for their information.

**Startup/Restart Authority**

6. Review and approve the POA and return the POA to the Readiness Leader.

   The original version of the UCN-21051, *Level I Readiness Assessment Checklist,* form may be retained for use during the declaration of readiness, review, and authorization process and a copy placed in the POA.

**Readiness Leader**

7. Ensure the POA is distributed to the Responsible Manager, Readiness Assurance Manager, Production Manager (when applicable), Independent Reviewer/RA Team Leader, DOE, and provide the original to the DMC for Organization responsible for the FACILITY in which the startup or restart is occurring.

## C. Developing Readiness Files

**Readiness Leader**

1. Establish a readiness evidence file, and maintain the file throughout the operational readiness preparation process.

   The readiness evidence file should be identified with a numbering scheme and file locations for the evaluations performed in their organization that aligns with the Level I Readiness Checklist items. This is best accomplished through an evidence matrix. Since not all the documents listed in this Section are applicable to every startup or restart, the Readiness Leader must ensure the appropriate documents are included. Maintenance of the readiness evidence files ensures they are kept current as operational readiness preparations progress.

   It is understood that large bodies of evidence may not be practical to duplicate. In those instances, the readiness evidence file and evidence matrix should point to the permanent storage location and the contact for review or retrieval.

2. Ensure the appropriate documents are added to the readiness evidence file or are available in a specified location when the documents are approved.

   Examples of documents that could be needed include:

   - Change Package(s)
   - Design drawings or Process System Diagrams
   - Job Hazard Identification/Hazard Identification Planning
   - Automated Job Hazard Analysis
   - Change evaluation forms
   - Approved USQDs
   - Lessons Learned and associated actions taken
   - Plan of Action (POA)
   - Documentation of the evaluation of any Scope Changes
   - ES&H Walkdown Report
   - Engineering Technical Basis
   - Grading Worksheet Package(s)
   - Structures, Systems, and Equipment List/Master Equipment Lists
   - Criticality Safety Implementation Plan(s)
   - Training Records
   - Personnel Qualification Records
   - Personnel Certification evidence
   - Safety Analysis Report (SAR)/ Technical Safety Requirements (TSR)
   - Fire Hazard Analysis (FHA)
   - Facility Security Plan including evaluation of impacts to the Plan
   - Criticality Safety Evaluation/Approval/Requirement (CSE/CSA/CSR)

## D. Defining and Controlling Changes

**Readiness Leader/Project Manager**

NOTE: During the course of achieving operational readiness, changes in scope can and may occur.

1. IF a change in scope occurs during the course of achieving operational readiness, THEN perform the following:

   a. Evaluate impacts to the Review Level Determination criteria and determine required actions.

   b. Notify the Responsible Manager if the startup or restart scope changes.

   c. Document the evaluation of the change and required actions and place in the readiness evidence file.

   d. Evaluate impacts to the POA and notify the Responsible Manager and Startup/Restart Authority if changes are required.

2. Update the schedule and scope, as required.

3. IF the change requires a change in the previously approved Review Level Determination, THEN revise the Readiness Applicability and Review Level Determination in accordance with Vol. I, Chapter 1 and submit the update to the Readiness Assurance Manager.

**Readiness Assurance Manager**

4. Process the SNR change and submit to DOE for approval.

   The RA may not begin until DOE has approved the Review Level proposed by BWXT Y-12 and submitted in the SNR.

## E. Ensuring Readiness

**Readiness Leader**

1. Ensure the UCN-21051, *Level I Readiness Assessment Checklist,* criteria have been met and the operation is ready for operational authorization.

   Additional guidance and templates are available on the Readiness Assurance (RA) web site, https://home1.y12.doe.gov/ready/.

## E. Ensuring Readiness (cont.)

**Readiness Leader**

2. Sign and date the UCN-21051, *Level I Readiness Assessment Checklist,* form indicating that each applicable checklist item has been completed and that each of the prerequisites has been met.

   It is important to ensure the startup or restart is truly ready and that were it not for the Level I RA, operations could be safely and compliantly started. To gain this level of confidence that expectations have been met, the Responsible Manager may choose to have a Readiness Assist Team (RAT) or Management Self-Assessment (MSA) conducted to evaluate the adequacy of actions taken. Past experience has indicated that conducting a thorough RAT/MSA is an excellent tool for ensuring that operational readiness expectations have been met.

**Responsible Manager**

3. Ensure UCN-21051, *Level I Readiness Assessment Checklist,* and associated evidence file is reviewed to confirm that each item is complete and operational readiness has been attained with sufficient confidence to authorize the start of the Level I RA.

4. Sign and date the UCN-21051, *Level I Readiness Assessment Checklist,* indicating the certification of readiness and approval to start the Level I RA.

**Production Manager**

5. IF there is a Production Manager associated with the activity being started or restarted, THEN the Production Manager initials the UCN-21051, *Level I Readiness Assessment Checklist,* form next to the Responsible Manager's signature signifying their concurrence with the certification of readiness.

**Responsible Manager**

6. Forward the signed UCN-21051, *Level I Readiness Assessment Checklist*, to the Independent Reviewer/Team Leader. This serves as the Certification of Readiness Letter.

## F. Performing the Level I Readiness Assessment

**Review Team Leader**

NOTE 1: The POA and Level I RA Checklist, serve as the Implementation Plan (IP) for the Level I RA. The preparation of a standalone IP is not required, but may be appropriate for more complex activities undergoing a Level I RA. Y15-190, Vol. II, Chapter 5, *Developing an Implementation Plan and Conduct of Y-12 RA/ORR*, contains additional guidance in preparing an IP if one is desired. The decision to write an IP is up to the Review Team Leader.

NOTE 2: The RA cannot be started until the SNR update that submitted this activity for approval has been approved by DOE.

1. Conduct the RA using as guidance the information in Volume II, Chapter 5, *Developing an Implementation Plan and Conduct of Y-12 RA/ORR,* relating to the conduct of a RA.

2. Ensure that each of the applicable UCN-21051, *Level I Readiness Assessment Checklist,* items has been evaluated.

3. Ensure the "basis" for each UCN-21051, *Level I Readiness Assessment Checklist,* item(s) marked "N/A" is evaluated as part of the RA.

   A formal report is not required if there are no Pre-Start or Post-Start findings identified by the review. In the absence of any findings (including those resolved during the review), the preparation of a report is optional, but may be appropriate for the more complex startup or restarts. If a report is needed, guidance on its preparation is provided in Appendix 9-C, *Level I Readiness Assessment Report Guide*. Y15-190, Vol. II, Chapter 5, *Developing an Implementation Plan and Conduct of Y-12 RA/ORR*, contains guidance on preparing review reports.

4. When the Level I RA has been completed, sign and date the Level I Readiness Assessment Checklist indicating completion of the review.

5. IF there are any Pre-Start or Post-Start findings resulting from the review, THEN:

   a. Prepare a formal report documenting the results of the review. See Appendix 9-C for guidance;

   b. Ensure that findings are categorized. UCN-21048 should be used as guidance, but is not required to be retained;

   c. Complete UCN-21061, *Significance Determination Worksheet*, in accordance with Y15-312, *Issues Management.*

   d. Document the composition of the review team in an appendix to the report;

   e. Ensure the report is reviewed for factual accuracy;

**F. Performing the Level I Readiness Assessment (cont.)**

**Review Team Leader**

f. Obtain the signatures of the review team (if applicable);

g. Distribute the report ensuring the Responsible Manager, Production Manager (if applicable), Readiness Assurance Manager, Startup/Restart Authority, DOE receive copies, AND the original is provided to the DMC for the Organization responsible for the facility in which the startup or restart is occurring; and

h. Ensure the findings are provided to the Responsible Manager and to the Performance Assurance organization (along with the UCN-21061 forms) for processing in accordance with Y15-312, *Issues Management*.

**Responsible Manager**

6. IF there are any Pre-Start or Post-Start findings resulting from the review THEN ensure that:

   a. Findings are entered into the Y-12 CAPS database;

   b. Pre-Start Findings are fully resolved and closed in CAPs; and

   c. Post-Start Findings have an approved corrective action plan and are on schedule for closure.

7. Sign and date the UCN-21051, *Level I Readiness Assessment Checklist,* indicating identified Pre-Start issues have been resolved and action plans are current for Post-Start issues.

8. Ensure other applicable managers (e.g., Production Manager, Physical Security Manager, NMC&A Manager) sign and date in the Concurrence signature section of the Level I Readiness Assessment Checklist.

9. Submit the approved UCN-21051, *Level I Readiness Assessment Checklist,* to the Startup/Restart Authority for review and approval.

   For Level I RAs the Startup/Restart Authority is typically the Division Manager responsible for the Facility in which the particular startup or restart is being conducted.

**Startup/Restart Authority**

10. Review and approve the UCN-21051, *Level I Readiness Assessment Checklist,* authorizing the startup or restart of the system, process, or operation and return the Level I readiness Assessment checklist to the Responsible Manager.

**F. Performing the Level I Readiness Assessment (cont.)**

**Responsible Manager**

11. Ensure the DOE Facility Representative is notified of the intent to start the operation.

12. Ensure the individual that contacted the DOE Facility Representative signs and dates the UCN-21051, *Level I Readiness Assessment Checklist*.

13. Provide the signed UCN-21051, *Level I Readiness Assessment Checklist,* form to the Readiness Leader

**NOTE:** While not required by DOE Order 425.1, it is a recommended practice to capture and communicate significant opportunities for improvement discovered during the execution of the readiness process.

14. Document Lessons Learned in the Y-12 *Lessons Learned Program* in accordance with Y15-331, Lessons Learned Program, as appropriate.

**Readiness Leader**

15. Ensure that copies of the completed UCN-21051, *Level I Readiness Assessment Checklist,* form are distributed to the Responsible Manager, Production Manager (if applicable), and Readiness Assurance Manager, AND provide the original to the DMC for the Organization responsible for the facility in which the startup or restart is occurring.

16. Ensure a post RA/ORR operational effectiveness evaluation is performed within approximately 1 month of startup or restart authorization using form UCN-21698, *Operational Readiness Evaluation Worksheet*.

## RECORDS

Records generated as a result of this procedure are maintained in accordance with Y15-101, *Manual for the Management of Records and Controlled Documents* and established retention and disposition schedules in the Approved Comprehensive Records Schedule at https://home1.y12.doe.gov/scripts/eicms/prod/SMARTMain.cfm.

### Owner/DMC

The Records generated as a result of this Chapter include:

- UCN-21051, *Level I Readiness Assessment Checklist*
- UCN-21062, *Significance Determination Worksheet* (when required)
- UCN-21698, *Operational Readiness Evaluation Worksheet*
- Plan-of-Action
- Review Report (when required).

The above records are to be maintained by the applicable DMC for the Organization responsible for the facility in which the startup or restart is occurring. A hard copy and electronic copy of this document must also be provided to the Readiness Assurance Manager.

## SOURCE DOCUMENTS

- Standards/Requirements Identification Document (S/RID) Sub-element 01.07, *Operational Readiness Reviews and Readiness Assessments:*

  - RUID 10914 - RUID 10921 - RUID 10923 - RUID 10925 - RUID 11600
  - RUID 10920 - RUID 10922 - RUID 10924 - RUID 11599 - RUID 11601

- YSO-CRD-03-01, *Start-Up and Restart of Facilities at Y-12*

## APPENDIXES

A. Level I RA Plan-of-Action Development Guide
B. Checklist Item Review Approach Document
C. Level I Readiness Assessment Report Guide

**APPENDIX 9-A**
**Level I RA Plan-of-Action Development Guide**
**(Page 1 of 2)**

**Cover Page**

- Document Number
- Title
- Activity/Task Identification
- Date
- Preparer

**Approval Page**

- Preparer/Readiness Leader
- Responsible Manager
- Production Manager
- Production Facilities Manager (*if required*)
- Senior Manager

**I. Activity/Task Description**

*The information in Section I should be available from what was developed for the activity/task description. Do not create something new. Use the information that was already developed.*

- Facility
  - Building Number
  - Facility Categorization
  - Authorization Basis
  - Location of Activity/Task within building
- Activity/Task
  - A detailed description of Activity/Task
  - Include a discussion of any activities/tasks that will occur which are already authorized.
- Scope of Activity/Task
  - Physical/Geographical Boundaries
  - Personnel
  - Documentation affected by the project/change
  - Hazards and Controls
  - Major Equipment

**II. Scope of Readiness Assessment**

- Must designate the reviewer/review team leader
- Must designate the authorization authority and be consistent with the approved SNR

**III. Prerequisites**

*The information in Section III should be developed to ensure that UCN-21051, Level I Readiness Assessment Checklist, requirements can be met. The prerequisites may include issues of concern to line management or DOE beyond those requirements from the UCN-21051, Level I Readiness Assessment Checklist.*

- Linked to applicable Checklist Items
- Must include what is required for closure of Item(s).

**APPENDIX 9-A**
**(Page 2 of 2)**

## IV. Checklist Non-Applicable Items

- Must include discussion of why Item is non-applicable.

## V. Checklist Item Review Approach Criteria

*The selected Review Approach Criteria is based on the applicable checklist items. Select the Review Approach Criteria from Appendix 9B and copy them here. Coordinate with the Review Team Leader to ensure the review approach is appropriate for the Assessment.*

## Appendix

- *UCN-21051, Level I Readiness Assessment Checklist,* with initial evaluation of applicability completed and documented.

**APPENDIX 9-B**
**Checklist Item Review Approach Document**
**(Page 1 of 6)**

**Checklist Item 1** – The startup/restart required a change to the Safety Basis. Safety Basis (SB) documentation has been updated, approved, and properly controlled.

Approach:

Record Review: Review the Safety Basis documentation (SAR, TSR, Document Change Notice (DCN), Hazards Evaluation Study (HES), Accident Analysis, and Authorization Agreement) impacted by this activity to determine if changes have been made to reflect the project. Verify the Safety Basis (SB) documentation is properly approved and changes to the documentation are in accordance with Y74-802, *Safety Basis Documents for Nuclear, PSM/RMP, and Chemically Hazardous Facilities*. Confirm that SB documents are implemented in accordance with the applicable requirements in Y14-190, *Safety Basis Implementation Plans and Implementation Validation Reviews*.

**Checklist Item 2** – The startup/restart required Change Evaluations/USQD process/USQDs to support facility operation. This is required for physical as well as procedural changes.

Approach:

Record Review: Review USQDs in the evidence files. Determine if the USQDs cover the scope of the project and if they were performed in accordance with Y74-809, *Unreviewed Safety Question Determinations*.

**Checklist Item 3** – If the startup/restart required changes to the Safety Basis (question 1 is "Yes"), personnel have been trained to the new Safety Basis requirements/controls. Descriptive changes to Chapter 2 of the DSA do not require a "Yes" answer.

Approach:

Interviews: Through formal or Ad Hoc interviews determine if personnel directly involved with the operation (i.e., operators, supervisors, etc.) and facility operations support personnel (e.g., STA, Shift Manager, Operations Manager) are aware of safety basis conditions that affect the project/operation or safety basis requirements imposed on the project/operation.

**Checklist Item 4** – The startup/restart required a change to the CSA(s)/CSE(s)/CSR(s) applicable in the facility. The CSA(s)/CSE(s)/CSR(s) are updated, approved, and properly controlled.

Approach:

Record Review: Review the CSA(s)/CSE(s)/CSR(s) for this activity to determine if they adequately reflect the operations, are approved and properly controlled.

**Appendix 9-B**
**(Page 2 of 6)**

**Checklist Item 5** – If the startup/restart required changes to the CSA(s)/CSE(s)/CSR(s) (question 4 is "Yes"), personnel have been trained to the new CSA(s)/CSE(s)/CSR(s) limits and conditions.

Approach:

Record Review: Review the implementation plan for the CSA(s)/CSE(s)/CSR(s) for this activity to determine if training was performed for the changes.

Interviews: Interview project personnel and Criticality Safety Officer as needed to evaluate their understanding of the applicable CSA/CSE/CSR requirements.

**Checklist Item 6** – Procedures and work instructions for the startup/restart are current, effective, and properly controlled in accordance with Y15-232, *Technical Procedure Process*.

Approach:

Record Review: Review the operating procedures along with associated USQDs, AJHAs, CSEs, CSAs, and CSRs against the requirements of Y15-232, *Technical Procedure Process*.

**Checklist Item 7** – Personnel required for the startup/restart performance have completed training on the latest revision of procedures required for activity performance.

Approach:

Record Review: Review evidence files for documentation of training as required by Training Impact Assessments for the operating procedures.

Interviews: Interview the personnel assigned to the positions identified in this document to ensure they possess an adequate understanding of roles, responsibilities, procedures, equipment use and operation, awareness of safety, health and environmental protection, response to abnormal situations, and adherence to the principles of Conduct of Operations required to support operations.

Shift Performance: None

**Checklist Item 8** – Personnel have established proficiency in the operation(s) to be conducted.

Approach:

Record Review: Review the evidence files for documentation of personnel proficiency, [e.g., completed Performance Document Checklist (PDCs), Operations Managers determination of proficiency, etc.]

Shift Performance: Equipment startup, operation and shutdown are typically demonstrated. To the maximum extent practical the performance demonstrations of operation will be performed without simulation except for the material used. Observe surrogate performance demonstrations of the operating procedures as applicable.

**Appendix 9-B**
**(Page 3 of 6)**

**Checklist Item 9** – A job hazard analysis has been completed for the startup/restart and necessary controls implemented in accordance with Y73-045, *Job Hazard Analysis Manual*.

Approach:

Record Review: Review the operating procedures along with associated AJHAs to ensure the JHA is in accordance with Y73-045, *Job Hazard Analysis Manual.*

Interviews: Interview operations personnel to determine if they participated in the development of the JHA.

**Checklist Item 10** – Critical lifts required for startup/restart performance have been reviewed and approved by the Hoisting and Rigging Committee or designee, as required.

Approach:

Record Review: Review the operating procedures along with associated JHAs and the process description for defined critical lifts. Verify the defined critical lifts have been approved by the Hoisting and Rigging Committee as required by Y73-115, *BWXT Hoisting and Rigging Procedure.*

**Checklist Item 11** –Permits/plans (e.g., RWP, critical lifts, etc.) required for startup/restart are approved and implemented.

Approach:

Record Review: Review the evidence files for RWPs associated with this project and verify they were approved and implemented in accordance with Y75-122, *Radiological Work Permit*. Review the evidence files for other permits associated with this project and verify they were approved and implemented in accordance with governing procedures.

**Checklist Item 12** – Equipment/tooling required for operation has been identified, verified operational, and calibrated/certified as applicable.

Approach:

Record Review: Review acceptance testing of installed equipment and associated support systems and components including post-work testing results from Work Orders (WO) associated with this project. Where applicable confirm that testing was conducted in accordance with Y17-011, *Startup Testing Program Manual*. Verify pre-start WOs associated with the project are closed. Review the list of items requiring field calibration, inspection or preventive maintenance. Review SAP for documentation the items from the list are tracked and are current. Review the application references to ensure that they are appropriate for the specified equipment and intended use. Verify required tooling is available.

**Appendix 9-B**
**(Page 4 of 6)**

**Checklist Item 13** – Change Request Packages for the startup/restart have been reviewed and post-installation testing has been completed and the packages "Approved to Return to Service" or "Closed" per Y15-187, *Integrated Safety and Change Control Process*.

Approach:

Record Review: Review Change Request packages associated with the startup/restart, ensure the packages have been properly filled out, reviewed and completed to "Return to Service" or closed. Review operational testing of installed equipment and associated support systems and components in conjunction with Checklist Item 12 above.

**Checklist Item 14** – Maintenance records have been reviewed. A maintenance applicability review (N3) has been performed. Open WOs have been reviewed for pre-start or post-start applicability. All pre-start maintenance work is complete and associated WOs are closed.

Approach:

Record Review: Review WOs associated with this activity in conjunction with Checklist Item 12 above. Verify that pre-start maintenance work is complete. Verify that a maintenance applicability review (N3) has been performed and the required work instructions and PMs have been entered in SAP.

**Checklist Item 15** – Affected Technical Basis Documents have been developed or revised and are listed on an effective TBIS.

Approach:

Record Review: Review the TBIS against issued and approved documents.

Shift Performance: Walk-down selected as-constructed drawings to verify the controlled document is consistent with the physical configuration.

**Checklist Item 16** – Equipment testing is complete and engineering/maintenance have turned the equipment over to operations. For engineering construction projects, the transition to operations will be done following completion of successful pre-operational functional testing in accordance with Y17-011, *Startup Testing Program Manual*.

Approach:

Record Review: Equipment testing is reviewed in Checklist item 12 above. Review the evidence file to verify the equipment has been formally turned over to operations.

**Checklist Item 17** – Personal protective equipment (PPE) required for this startup/restart is available in acceptable condition and sufficient quantity to support operations.

Approach:

Record Review: Review evidence files for verification of available PPE.

**Appendix 9-B**
**(Page 5 of 6)**

**Checklist Item 18** – Supporting utilities and support services necessary for the operation have reported operational readiness by their responsible managers.

Approach:

Record Review: Review evidence files for utilities and support services, including Material Management, report of operational readiness to support start-up of operations.

**Checklist Item 19** – Grading Worksheet Package has been completed in accordance with Y15-009, *Criteria for Application of the Y-12 Configuration Management Program,* and Y15-001, *Grading Criteria for Y-12 Facilities and Systems*, as applicable.

Approach:

Record Review: Review evidence files for grading worksheets for project SSCs. Verify the grading worksheets are completed in accordance with Y15-001, *Grading Criteria for Y-12 Facilities and Systems*, and Y15-009, *Criteria for Application of the Y-12 Configuration Management Program*.

**Checklist Item 20** – System limits, process limits, or hazardous material limits for the operation have been identified and implemented in appropriate procedures, work instructions, etc.

Approach:

Record Review: Review operating procedures and inventory procedures for evidence that system limits, process limits, or hazardous material limits have been identified and implemented.

**Checklist Item 21** – Per Y71-930, *Environmental Aspect/Impact Identification and Significance Determination*, environmental aspects and impacts have been identified, evaluated, and where required controls have been established and integrated into operating procedures to eliminate, prevent, or minimize environmental impacts. Environmental permit requirements and exemptions have been reviewed to ensure compliance.

Approach:

Record Review: Review the evidence for a NEPA determination. If ventilation systems are affected, determine if permit drawings have been updated and clean air program organization has agreed that permit changes are not needed. Determine if waste profiles have been developed for hazardous waste produced by the project, if applicable and a waste disposition path exists.

**Checklist Item 22** – Safeguards and security impacts have been identified and addressed.

Approach:

Record Review: Review evidence to assure the Physical Security plan, NMC&A plan, Material Surveillance plan, and/or Cyber Security plan have been updated, if required, and changes have been evaluated for safeguards and security impacts.

**Appendix 9-B**
**(Page 6 of 6)**

**Checklist Item 23** – Lessons Learned have been evaluated for applicability and where applicable to the Startup/restart actions have been taken to address the Lesson Learned.

Approach:

Record Review: Review evidence files for proof that Lessons Learned database was reviewed for applicable Lessons Learned and where applicable Lessons Learned were identified that they were reviewed against the project/task. If issues were identified verify that actions were taken appropriate to the startup/restart.

Interviews: Interview project personnel to evaluate the effectiveness of the Lessons Learned training.

**APPENDIX 9-C**
**Level I Readiness Assessment Report Guide**
**(Page 1 of 2)**

If a Level I Readiness Assessment report is required or desired it should communicate the issues identified during an RA. The RA Team Leader should ensure the report:

- Provides a clear picture of the results in terms of the processes, systems, and people reviewed.
- Documents the as found condition. The report should document findings even if they are closed during the review period.
- Is clear and easy to understand. The report should include only facts that directly relate to review observations and results.
- Findings are based on specific requirements not met. If a requirement can not be cited then the issue can be documented as an observation.
- Findings are categorized as Pre-Start or Post-Start. UCN-21048, *Finding Categorization Pre/Post-Start Determination,* should be used to guide the evaluation but completed UCN-21048 forms do not need to be retained.
- Includes sufficient information to enable the reviewed organization to check the report for accuracy and to develop and implement appropriate corrective action plans.
- Concise, accurate, and understandable.

The Report should contain a summary of the review activities, the conclusions reached, the basis for those conclusions, and the findings identified as well as the following:

- Identify observations that would not impact startup, restart or shutdown but, if corrected, could lead to excellence.
- Make an unambiguous statement regarding a recommendation to approve the startup or restart.

The following format is a guide that may be used in developing the report. Other formats are acceptable given the information described above is provided:

1. Title Page - A cover and title page that states the subject and date of the review
2. Signature Page- Includes space for team members (if any) to sign, signifying their agreement of the report content and conclusions of the review
3. Table of Contents- Identifies, with page numbers, sections of the report.
4. Executive Summary which may include:
   - ✓ One page summary of review highlights (both positive and negative)
   - ✓ Summary of findings and observations
   - ✓ Overall conclusion

**APPENDIX 9-C**
**(Page 2 of 2)**

5. Results of the RA organized by UCN-21051, *Level I Readiness Assessment Checklist,* items.
6. Lessons Learned
7. Appendices may include such items as:
   - ✓ List of team members and qualifications
   - ✓ List of documents reviewed
   - ✓ List of individuals contacted and/or interviewed

| | | |
|---|---|---|
| Subject: | Readiness Manual | |
| Title: | Readiness Planning and Achievement | Vol. II |
| Chapter: | 1.0, Developing the Startup Plan | Effective Date: 2/28/07 |

## PURPOSE

This chapter identifies the elements and actions which will ensure development of an effective Startup Plan. The Startup Plan defines the systematic process and controls that will guide operations immediately after the authorization to operate is received and support a smooth, deliberate, and controlled transition into unrestricted routine operations. The period of operations covered by the Startup Plan is often referred to as "first use."

## APPLIES TO

A Startup Plan is required when Core Requirement 12, is identified within the scope of review (Reference **Volume I, Chapter 1,** *Identifying Scope and Review Level*, and **Volume I, Chapter 6,** *Drafting a Plan-of-Action)*. A startup Plan may be used for any startup or restart where there is a need for special controls, testing, training, or oversight during the period immediately after startup authorization.

## OTHER DOCUMENTS NEEDED

- None

## REFERENCES

- Y15-331, Lessons Learned Program
- Y17-011, Startup Testing Process Manual
- Y90-027, Conduct of Training Manual

## WHAT TO DO

### A. Developing the Startup Plan

**Readiness Leader**

**NOTE 1** The Startup Plan should provide for a controlled, deliberate approach to achieving safe, normal operations, clearly delineating the graded and systematic approach to full operations. Both management and facility actions necessary to achieve full operations should be described. Additional guidance and templates are available on the Readiness Assurance (RA) web site, https://home1.y12.doe.gov/ready/.

**NOTE 2** Coordination with National Nuclear Security Administration (NNSA) during the Startup Plan development can be beneficial toward ensuring integration of the NNSA oversight during this period into the Startup Plan.

1. Develop the Startup Plan, describing the information outlined in Appendix 1-A, *Outline for Startup Plan*.

   - Obtain a document number from the applicable DMC.
   - The Startup Plan must address any actions or functions that cannot be demonstrated during the reviews. This may include first-use, phase-in, proficiency, process safety, and product or software quality.
   - In general, any actions or functions that can not be performed until after startup authorization is received (e.g., testing with hazardous materials, performing control manipulations, finalizing procedures where actual run data is needed, etc. should be addressed in the Startup Plan. Also, the startup plan may include items such as exercising process functions that are not necessary to demonstrate operational readiness, such as alternate process flow paths in a multi-branched process. In limited cases, items that do not detract from the full and complete evaluation of operational readiness may be covered as items in the Startup Plan.
   - The Startup Plan should detail implementation of management and facility activities necessary to achieve full operations not merely describe established programs.
   - Pre-operational testing results during readiness preparedness may require post-operational or startup testing to gather additional data with actual materials. The Startup Plan may have to be revised to include changes based on the results of pre-operational testing.
   - The Startup Plan should identify and describe the integrated tests planned and required to obtain operational data or confirm operability of equipment during initial operations. Include the purpose and a summary of the acceptance criteria of the tests and list the management responsibilities for approval of test commencement and management observer oversight of test performance, including management approval requirements for key test events or progression to the next phase of testing.

**A. Developing the Startup Plan (cont.)**

**Readiness Leader**

- Provide a summary level schedule that clearly illustrates the systematic approach to full operations.
- The Startup Plan must address the current configuration/condition, the expected final configuration/condition, and the methods and required oversight for making the transition.
- The startup Plan must ensure that changing conditions within the facility are evaluated. For example new Work Orders (WOs) could create an unanticipated challenge to successful first use operations unless evaluated for impact ahead of the evolution.
- The Startup Plan must clearly define the roles and responsibilities of individuals to be involved in activities defined in the Plan such as those serving in a management oversight role.
- For more complex startup, the use of a Management or Startup Review Board should be considered to oversee and evaluate the first use operations.

2. Train the individuals that have specific roles defined in the Startup Plan.

   - Ensure that individuals' assigned specific roles in the Startup Plan are trained on the Plan and revisions so they understand their role and the interfaces with others involved in first use operations.
   - If a Management Review Board is used then ensure that its members are trained in their roles.

**Production and Responsible Manager**

3. Review and approve the Startup Plan.

**Readiness Leader**

**NOTE** Documents sent to NNSA must be sent to the NNSA Mailroom and not the physical address of the individual.

4. WHEN required approvals have been obtained, THEN ensure the Startup Plan is distributed to involved parties including NNSA and the Readiness Assurance Manager.

   This may be accomplished by including the individuals on the distribution made by the applicable Document Management Center (DMC).

## RECORDS

Records generated as a result of this procedure are maintained in accordance with Y15-101, *Manual for the Management of Records and Controlled Documents* and established retention and disposition schedules in the Approved Comprehensive Records Schedule at https://home1.y12.doe.gov/scripts/eicms/prod/SMARTMain.cfm.

## Owner/DMC

The Records generated as a result of this Chapter include:

- Startup Plan.

When generated, the above record is to be maintained by the applicable DMC for the organization responsible for the FACILITY in which the startup or restart is occurring. A hard copy and electronic copy of this document must also be provided to the Readiness Assurance Manager.

## SOURCE DOCUMENTS

- Standards/Requirements Identification Document (S/RID) Requirement Unique Identifiers (RUIDs): 11599.
- YSO-CRD-03-01, *Start-Up and Restart of Operations, Activities and Facilities at Y-12*

## APPENDICES

A. Appendix 1-A, *Outline for Startup Plan*

**Appendix 1-A**
**Outline for Startup Plan**
**(Page 1 of 4)**

**Production Manager and**
**Responsible Manager**

**NOTE 1** The Start-up Plan template is available on the Readiness Assurance (RA) web site, https://home1.y12.doe.gov/ready/.

**NOTE 2** Management oversight personnel must not have direct supervisory responsibility for any operations activities being observed and should not give direction to the on-shift Operations Management.

1. Identify the facility management personnel necessary for initial operations oversight to include the following:

   a. List the management oversight personnel (MOP) assigned for initial operational evaluations of the graded operations or testing, including summary level duties, responsibilities, and shift staffing requirements. (Specific duties and responsibilities should be listed in the remaining sections of the plan.)

   b. Include the criteria for selection of management oversight personnel. Specific individuals and their qualifications and the basis for selection may be included in an appendix.

   c. Include the criteria that will govern the duration of the initial observations by management oversight personnel. This typically is in the format of number of successful completions of a process without procedural changes or other issues arising.

2. Plan equipment operability oversight as follows:

   a. Identify and describe the integrated operations or tests planned and required to confirm operability of equipment during initial operations AND include the purpose and a summary of the acceptance criteria.

   b. List management responsibilities for approval of operation or test commencement, management oversight of performance, AND include management approval requirements for key events or progression to the next phase of operations or testing.

   c. Provide a summary level outline schedule that clearly illustrates the systematic approach to full operations. This schedule may be in the form of a flowchart with hold-points and MOP removal criteria listed for each process.

**Appendix 1-A**
**(Page 2 of 4)**

**Production Manager and**
**Responsible Manager**

3. Plan procedure adequacy and confirmation by the following:

   a. Identify and describe the mechanism for confirmation of procedure adequacy during actual performance, including requirements for management oversight of processes in the actual operational environment.

   b. Summarize the process for procedure changes as a result of identification of inadequacies in the field. (Typically this will be a reference to the red-line process described in Y15-232) Include any provisions for increased procedure revision support during periods of high levels of first time execution of procedures.

4. Ensure operator performance by the following:

   a. Identify and describe the mechanism for management oversight of operator performance to verify the adequacy of operator training.

   b. Identify and describe the mechanism (specific steps) established for remediation of any identified weaknesses. (Such steps could include classroom training, on-the-job training with another operator or supervisor, walk downs with an SME, etc.)

5. Ensure additional controls are identified such as:

   - First use controls
     - Waivers or other authorization mechanisms, including criteria for such authorizations or waivers.
   - Nuclear Criticality Safety (NCS)
   - Radiological Control
   - Testing
   - Change Control
   - Technical basis information
   - Management
     - Startup authority that will make the final decision on going to normal operations.
     - Oversight of selected critical steps/activities
     - Resolution of startup problems. Reasonably expected events might be treated within the plan.

**Appendix 1-A**
**(Page 3 of 4)**

**Production Manager and**
**Responsible Manager**

- Access controls to reduce distractions during the initial operations.
- Hold points for decisions/notifications.
- Required notifications and who will make them.

- Support
  - ESH oversight of the effectiveness of health and safety controls (e.g., sampling around a containment vessel).
  - Technical oversight of process parameters (e.g., pressure on a system that is not expected to exceed 150 psig).
  - Actions/controls/coordination for other support organizations. (ETI, Maintenance, Utilities)
  - Who (e.g., procedure writers) to have on standby to make any needed revisions.
- Software
- Release of provisional qualifications.
- Use of surrogate or non-hazardous materials to familiarize operators with the equipment prior to introduction of hazardous materials.
- Scrutiny of MSA/ORR reports (not just findings) for possible impact on the plan.
- Controls to ensure that open maintenance actions are documented and evaluated for impact on upcoming evolutions.
- Controls to ensure PM/cal, training, and other perishables are current before first use.

6. Provide feedback by defining how problems, issues, and concerns experienced in the startup process, will be resolved, documented, and disseminated (e.g. Lessons Learned Report).

7. Define Criteria for Removal of controls, if any, for unrestricted operations.

8. List records generated by the plan and their retention requirements.

**Appendix 1-A**
**(Page 4 of 4)**

## Startup Plan Format

i. Title Page
ii. Approval Page
iii. Table of Contents

1. Introduction and Background of the Startup Activities

2. Schedule and Sequence of the Plan/Startup Activities

   -First use operations
   -Phase-in of operations
   -Normal operations
   -Duration of initial evaluations

3. Identification of Oversight Personnel

   -Management oversight for initial (first use) evolution evaluations
   -Summary level duties and responsibilities
   -Qualifications of management personnel
   -Training requirements relative to Startup Plan content, including revisions.

4. Equipment Operability and Operations or Testing Requirements

   -Description of integrated test or evaluation techniques for equipment
   -Acceptance criteria for operations or tests
   -Check of system status files and impact of open maintenance activities
   -Line management responsibilities for oversight and approval of operations or test commencement

5. Procedure Adequacy and Confirmation

   -Description of mechanism for procedure adequacy and confirmation
   -Startup checklists generated to meet control requirements

6. Operator Performance Requirements

   -Evaluation criteria

7. Identification of Additional Controls, Hold Points, Waivers, and Compensatory Actions Necessary for Startup (if any), and Criteria for Removal of Additional Controls and/or Return to Unrestricted Operations

   -When and how first use controls will be used
   -Data collection needs
   -Post-Startup reviews/critiques
   -Conditions for release of controls/actions

8. Disposition of Lessons Learned Related to the Startup Activity

9. Required Records

| | | |
|---|---|---|
| Subject: | Readiness Manual | |
| Title: | Readiness Planning and Achievement | Vol. II |
| Chapter: | 2.0, Developing and Conducting Performance Self Assessment (PSA) | Effective Date: 2/28/07 |

**NOTE** The National Nuclear Security Administration (NNSA) and Y-12 Management expect that when required, the Performance Self-Assessment (PSA) will have the largest scope of any review conducted for a startup or restart. The preparations of the facility, procedures, and operations for the RA/ORR must be completed prior to evaluation by the PSA. The PSA implementation plan must at least cover those activities listed in the Plan-of-Action (POA). The Management Self-Assessment (MSA)/ Readiness Assistance Team (RAT) is an integral part of operational readiness and should be used for real time evaluation as activities are completed. The PSA is the final evaluation of operational readiness including evolutions/demonstrations prior to Line Management's formal declaration of readiness to conduct operations.

## PURPOSE

This chapter will provide guidance for (1) developing the Performance Self-Assessment (PSA) Implementation Plan which is a key element in determining if line management has achieved operational readiness. The PSA is a Y-12 management tool to support line management's certification of operational readiness. Operations should be ready prior to the start of the PSA. (2) conducting the PSA, and (3) developing and issuing the Final PSA Report.

## APPLIES TO

Startup or restarts where a Level II RA or ORR is required.

## OTHER DOCUMENTS NEEDED

- UCN-21047, *Readiness Issue (Form 2)*
- UCN-21048, *Finding Categorization-Pre/Post-Start Determination*
- UCN-21053, *Readiness Evaluation (Form 1)*
- UCN-21061, *Significance Determination Worksheet*

## REFERENCES

Y15-312, *Issues Management*

| | | |
|---|---|---|
| Subject: | Readiness Manual | |
| Title: | Readiness Planning and Achievement | Vol. II |
| Chapter: | 2.0, Developing and Conducting Performance Self Assessment (PSA) | Effective Date: 2/28/07 |

**WHAT TO DO**

**A. Establishing PSA Team**

**Responsible Manager/Readiness Leader**

**NOTE 1** The startup or restart must be identified on the Startup Notification Report (SNR) and approved by NNSA prior to starting the PSA.

**NOTE 2** PSA reviews are not required for Level I Readiness Assessments.

**NOTE 3** The Review Team may consist of plant personnel or external experts who have been assembled at the request of the Review Team Leader. The size and expertise of the team depends upon a number of factors including the complexity of the activity being reviewed, schedule requirements, and the scope of the review including safeguards and security considerations.

1. Appoint a PSA Team Leader, who will be responsible for managing the team and conducting the PSA.

**PSA Team Leader/Readiness Leader**

2. Identify the required personnel (team members) to assist in performing PSA activities based on the following criteria:

   - Technical knowledge of the area assigned for evaluation, including experience working in the technical area;
   - Knowledge of performance-based assessment processes and methods;
   - Knowledge of facility specific-information;
   - Independence in that no team member may review their own work or work for which they were the responsible manager.

3. Appoint a PSA Team consisting of representatives from the line management and support organizations or individuals that are technically knowledgeable in these areas as follows:

   - Assigned technical support (e.g., for such organizations as Operations, Engineering, Nuclear Criticality Safety (NCS), Facility Safety, Training, Issues Management, etc.),
   - Environmental, Safety, and Health (ES&H) representative,
   - Personnel from or individuals that are technically knowledgeable in other areas with key readiness actions.

## B. Reviewing Source Documents

**PSA Team Leader**

1. Review the following Source Documents, as applicable, to understand the requirements used in the PSA:

   - Federal and State regulatory requirements
   - Appropriate codes and standards
   - Contract requirements
   - DOE Orders, Manuals, and Notices
   - Implementation plans
   - Implementation procedures
   - Facility safety documents
   - Policy and mission statements
   - NNSA-approved Work Smart Standards
   - Standards/Requirements Identification Documents (S/RIDs)
   - Plans and programs
   - Lessons Learned from previous startups
   - Technical baseline documents.

## C. Identifying Additional Information Sources

**PSA Team Leader and**
**PSA Team Members**

1. Review as necessary, information on additional performance requirements that may be available to assessors in documents like the following:

   - Reports from outside regulators
   - Facility operations reports
   - Performance reviews
   - Previous assessment reports
   - Internal inspections, reviews, and reports
   - Corrective action plans and status reports
   - Concerns and occurrence reports
   - Performance indicators
   - Price-Anderson Amendments Act Nonconformance Tracking System reports.

## C. Identifying Additional Information Sources (cont.)

**PSA Team Leader and**
**PSA Team Members**

2. Ensure planning is implemented to address any outstanding issues from the information sources in the POA.

3. Walk down the startup or restart to help define the PSA Scope as soon as practicable.

## D. Developing a PSA Implementation Plan

**PSA Team Leader**

**NOTE** Additional guidance and templates are available on the Readiness Assurance (RA) web site, https://home1.y12.doe.gov/ready/.

1. Develop a PSA Implementation Plan (IP) using the suggested outline in Appendix 2-A, Suggested Outline for PSA Implementation Plan, and Appendix 2-B, Sample CRADs.

2. Ensure PSA development has encompassed requirements for the startup or restart by a completing a review of the criteria identified in the POA and associated schedule activities.

## E. Conduct PSA

**Responsible Manager**

**NOTE** Prerequisite Confirmation Meetings are described in Volume II, Chapter 4, *Certification of Readiness*, in this manual.

1. IF requested by the Responsible Manager or Senior Manager prior to the PSA, THEN conduct a Prerequisite Confirmation Meeting.

**NOTE** Prerequisites not completed at the end of the PSA will be considered pre-start findings.

2. IF the PSA is to be initiated prior to completion of some prerequisites, as identified in the POA, THEN provide the PSA Team Leader with a list of the open items, justification for commencing review prior to completion, and expected completion dates.

3. Notify the PSA Team Leader in writing when preparations are complete for the start of the PSA.

## E. Conduct PSA (cont.)

**PSA Team Leader and**
**PSA Team Members**

4. Conduct the PSA, and document the review on UCN-21053, *Readiness Evaluation* (Form 1).

## F. Conducting Daily Debriefs

**PSA Team Leader**

1. Ensure daily debriefs are scheduled with the Readiness Leader, and Operations personnel (e.g., Facility Operations Manager and Production Manager) present. These debriefs may be combined with team meetings, if desired.

2. Ensure a Final Closeout debrief is scheduled at the end of the fieldwork portion of the review.

3. Ensure the Final Debrief includes a discussion of the following:

   - The scope of the review
   - Findings and observations
   - Noteworthy practices
   - Determination of readiness
   - Recommendation to proceed.

## G. Developing Findings and Deficiencies

**PSA Team Members**

**NOTE 1** Findings should be brought to the attention of the Readiness Leader and Responsible Manager immediately for corrective action. Findings or deficiencies that are corrected prior to completion of the fieldwork portion of the PSA by Operations to the Assessors' satisfaction still require completion of Form 2, however it should be noted that the finding was corrected during the review. Additional information regarding development of Forms is provided in Vol. II, Chapter 5.0, *Developing an Implementation Plan and Conduct of Y-12 RA/ORR*.

**NOTE 2** A good practice has been to use of a table to track items of interest (i.e., areas of investigation or questions) as they are identified by the team. This table can serve as a tool to provide advance information on potential issues to the Readiness Leader and Responsible Manager, provide a means to request additional information or answers to questions, and serve as a means to record the resolution or response to questions.

1. Prepare a Readiness Issue (Form 2), UCN-21047, to document each finding and observation identified during the PSA [for any finding the specific requirement(s) violated must be listed on the (Form 2)].

## G. Developing Findings and Deficiencies (cont.)

**PSA Team Members**

2. Assemble Findings and Observations.

3. Compile findings after the review is completed.

4. Ensure finding forms are complete and comprehensible.

## H. Performing Finding Categorization (Pre- or Post-Start Determination)

**PSA Team Leader and**
**PSA Team Members**

1. Complete a Pre/Post-Start screen for each Finding using the following guidelines are the basis for the screening:

   - Utilize as guidance the criteria in UCN-21048, *Finding Categorization – Pre/Post-start Determination*.
   - Review Team members may recommend which findings are to be treated as Pre-start findings or the determination may be done in a team meeting.
   - The UCN-21048 is a guide and does not need to be signed or retained.

   The basis for the pre/post-start determination for findings is to be documented on the UCN-21047 and/or in the final report.

2. Complete UCN-21061, *Significance Determination Worksheet*, in accordance with Y15-312, Issues Management for each finding.

3. Review the preliminary finding categorization with the Responsible Manager, and Readiness Leader.

**Responsible Manager/Readiness Leader**

4. Review the preliminary finding categorization, indicate final categorization, and ensure the finding is assigned to a responsible person for generating a corrective action plan and resolving finding.

## I. Generating the PSA Final Report

**PSA Team Members**

**NOTE** The Final Report should contain a summary of the review activities, the conclusions reached, the basis for those conclusions, and the findings identified as well as the following:

- The Final Report may also identify observations that are not a deviation from a requirement but, if corrected, could lead to excellence in operations.

## I. Generating the Final Report (cont.)

**PSA Team Members**

- The Final Report should make an unambiguous statement regarding whether prerequisites and core requirements have been met, and that if not, whether the closure of findings will verify prerequisites and Core Requirements are satisfied.

1. Develop the PSA Final Report utilizing the following format :

   - Title Page - A cover and title page that states the subject and date of the review.
   - Signature Page- Includes space for all team members to sign, signifying their agreement of the report content and conclusions of the review.
   - Status of Integrated Safety Management System (ISMS) implementation. Statements related to an assessment of the adequacy of the implementation of the Core Requirements and, thereby, the ISMS Guiding Principles. The extent that the ISMS principles were visible in the review should be evaluated and reported.
   - Review Evaluation
     - A paragraph concerning each CRAD reviewed by the PSA Team
     - Issues identified by PSA Team Members requiring corrective action (If corrected during the review period, a description of the corrective action taken should be noted.)
     - A listing of issues not resolved at the close of the PSA
     - A clearly communicated evaluation of the state of readiness.

**NOTE** The driver for proceeding with the Y-12 and where applicable NNSA RA/ORR is operational readiness, [e.g., the RA's/ORR's will not take place unless the startup or restart (equipment, personnel, procedures, support systems, etc.) is completely ready for operation].

2. Ensure the PSA Final Report makes a conclusion as to whether startup or restart of the facility can proceed safely and compliantly.

3. Distribute the report ensuring the Responsible Manager, Production Manager (if applicable), Readiness Assurance Manager, Startup/Restart Authority, NNSA receive copies, AND the original is provided to the DMC for the Organization responsible for the facility in which the startup or restart is occurring.

4. Ensure the findings are provided to the Responsible Manager and to the Performance Assurance organization (along with the UCN-21061 forms) for processing in accordance with Volume II, Chapter 3, *Corrective Actions*, of this manual.

## RECORDS

All records generated as a result of this procedure are maintained in accordance with Y15-101, *Manual for the Management of Records and Controlled Documents*, and established retention and disposition schedules in the Approved Comprehensive Records Schedule at https://home1.y12.doe.gov/scripts/eicms/prod/SMARTMain.cfm

### Owner/DMC

The Records generated as a result of this Chapter include:

- Implementation Plan for the PSA; and
- Final Report for the PSA.
- UCN-21062, *Significance Determination Worksheet* (when required)

These are both to be maintained by the applicable DMC for the Organization being evaluated.

## SOURCE DOCUMENTS

- Standards/Requirements Identification Document (S/RID) Sub-element 01.07.
- YSO-CRD-03-01, *Start-Up and Restart of Operations, Activities and Facilities at Y-12*

## APPENDICES

A. Appendix 2-A, *Suggested Outline for PSA Implementation Plan*
B. Appendix 2-B, *Sample CRADS*

**Appendix 2-A**
**Suggested Outline for PSA Implementation Plan (IP)**
**(Page 1 of 2)**

1.0 Introduction/Background: Describes the startup or restart that will 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 startup or restart 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 startup or restart, and justifies those defined boundaries and support function reviews relative to each of the following:

- Plant and equipment (hardware) readiness
- Management and personnel readiness
- Management programs (e.g., 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 must be incorporated into the Plan. The depth to which each scope element is evaluated is specified and quantified by the associated Implementation Plan (if available) 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 must 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 Prerequisites: The Plan should summarize the prerequisites specified in the approved POA. It is not the responsibility of the PSA Team to develop the prerequisites but they must understand them and be prepared to confirm that the prerequisites have been achieved.

**Appendix 2-A**
**(Page 2 of 2)**

5.0 Overall Approach: Defines the generic approach by which the review is conducted, and provides an introduction to the PSA process. The Criteria and Review Approaches (CRAs) are defined by the processes described in this Chapter. 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 PSA Preparations: Describes any preparations, including team pre-review site visits, document reviews, etc., that will be undertaken prior to the on-site review. A discussion of qualifications and training considerations for PSA Team Members could appear here.

7.0 PSA Process: Describes the actual CRAs that will be used to review the defined Core Requirements of the review. These CRAs should be developed in a Criteria and Review Approach Document (CRAD) (Sample CRADS are provided in Appendix 2-B) to include the following items:

- Core Requirement or Objective -- Identification of the requirement that will be verified as having been achieved by the readiness process
- Criteria -- Specifically how the Objective will be measured, which may include regulatory requirements, etc.
- Review Approach -- A definition of the combination of documentation review, personnel interviews, systems walk downs, and exercises and/or drills observed that will be conducted to derive objective evidence the PSA 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 PSA-related meetings, correspondence, communications, team structure, etc. of the review. The PSA Team composition/organization, interface requirements, any oversight groups, and NNSA organizations to be involved in the review should be discussed in this section.

9.0 Reporting and Resolutions: The section should detail the methods that the PSA Team will use to report review results. These elements include “Documentation of the PSA Results,” “Lessons Learned,” and the “PSA Final Report.”

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 may also include reporting forms, Lessons Learned from previous startups, writing guides, team resumes, and other sections appropriate to stand alone in an appendix.

**Appendix 2-B**
**Sample CRADS**
**(Page 1 of 2)**

**Sample CRAD #1**

OBJECTIVE

An emergency operations drill program, including program records, has been established and implemented. **(CORE REQUIREMENT 11)**

Criterion:

An effective emergency preparedness program has been established. Drills and exercises are conducted and an adequate response capability exists

Approach:

Record Review:

- Verify that the XXX (name of site, facility, activity, or process) has been adequately incorporated into the BWXT Y-12 operational and emergency drill program.
- Review the records that describe the recent emergency preparedness drills and review the results from each.
- Determine if the drill scenarios were adequate and if the necessary number of drills have been conducted to fully verify and test compliance with the approved safety bases of the facility.
- Determine if lessons learn from drills are factored into following drills and training.

Interviews: None

Observe the following:

- Pre-drill briefings
- Drill conduct
- Post-drill critiques of an Emergency Preparedness drill

**Sample CRAD #2**

OBJECTIVE

A feedback and improvement process has been established to identify, evaluate, and resolve deficiencies and recommendations made by oversight groups, official review teams, audit organizations, and the operating contractor**. (CORE REQUIREMENT 15)**

Criterion

A system for identifying, reviewing, cataloging, and resolving deficiencies and recommendations is adequately implemented.

**Appendix 2-B**
**(Page 2 of 2)**

Approach

Record Review:

- Review the issue management tracking system, selecting representative issues and assessing the adequacy of XXX incorporation into the program.
- Assess the backlog and prioritization system to ensure appropriate emphasis on the XXX.

Interviews:

Interview issue management personnel to establish their qualification and understanding of the program.

Shift Performance:

Evaluate the Issue Management Programs' effectiveness in ensuring that corrective actions are being completed and tracked to closure through the system.

**Sample CRAD #3**

OBJECTIVE

An adequate startup test program has been conducted which verifies the operability and integration of the XXX equipment. The plant is in a material condition to support the safe startup of program work. **(CORE REQUIREMENT 12)**

Criterion

The program is adequate and is on schedule per approved startup plans to support safe startup.

Approach

Record Review:

- Review documentation of test results and resolution of open items for at least three tests of safety systems or plant components.
- Verify the satisfactory integration of these new plant systems with the existing site systems.
- Verify that maintenance records and requirements have been updated to reflect the new systems requirements.

Interviews/Shift Performance:

Observe management review of the test plans and results for adherence to procedures and management of any resultant actions.

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|---|---|---|
| Subject: | Readiness Manual | |
| Title: | Readiness Planning and Achievement | Vol. II |
| Chapter: | 3.0, Corrective Actions | Effective Date: 2/28/07 |

## PURPOSE

The purpose of this chapter is to define the process for correcting the findings from the Performance Self-Assessment (PSA), Readiness Assessments (RAs) and Operational Readiness Reviews (ORRs).

## APPLIES TO

This process is applicable for findings and observations resulting from PSAs, RAs, and ORRs. Managers responsible for the startup or restart assessed are also responsible for the development of effective corrective actions for the problem areas or findings discovered during the assessment.

## OTHER DOCUMENTS NEEDED

- UCN-21048, *Finding Categorization -- Pre/Post-Start Determination*

## REFERENCES

Y15-312, *Issues Management*

Y15-331, *Lessons Learned Program*

## WHAT TO DO

## A. Generating Corrective Actions (Corrective Action Plans)

### Responsible Manager

**NOTE 1** The requirements of Y15-312, *Issues Management*, provide the foundation and basic process for addressing findings and observations derived from the PSA and readiness confirmation reviews (RAs and ORRs). Nothing in the Chapter is intended to conflict with Y15-312; however, if a conflict is discovered, the requirements of Y15-312 take precedence.

**NOTE 2** Contractor (Y-12) RA/ORR and National Nuclear Security Administration (NNSA) RA/ORR findings must be screened by the Issues Management Prioritization and Risk Board, (IMPRB) per Y15-312. Due to the normally compressed schedule for reviews, it is recommended that advance coordination with the IMPRB chairman be initiated as early as possible. This may include the pre-scheduling of IMPRB meetings for finding reviews.

1. Evaluate each finding per Y15-312, *Issues Management*.

   It is recommended that initial corrective actions be developed by a single person or small team, and then the corrective actions provided to the issue owner for concurrence. This ensures that actions are developed in a timely manner.

## A. Generating Corrective Actions (Corrective Action Plans) (cont.)

**Responsible Manager and**
**Readiness Leader and**
**Review Team**

**NOTE** Where Observations are identified by the review (PSA, RA or ORR) it is a good business practice to ensure that these are captured in the Corrective Action Plan System (CAPS) and actions developed and completed.

2. Develop corrective actions to address the finding and (if required by the Y15-312 process) observations.

   Typically, corrective actions include:

   - Measures to correct issues
   - Identification of root and contributing causes (for deficiencies)
   - Determination of the existence of similar issues
   - Corrective actions to preclude recurrence of like or similar issues (generic implications)
   - Assignment of corrective action responsibility
   - Completion dates.

**Responsible Manager**

3. Submit proposed corrective actions to the Review Team Leader for review as a good practice.

**Responsible Manager**

**NOTE** Post-start findings must have corrective action plans developed and entered in CAPS, and the associated issue must be on schedule for closure.

4. Ensure each Finding is entered in CAPS for tracking to closure in accordance with Y15-312, *Issues Management*, where appropriate.

**NOTE** A review of procedure Y15-312, *Issues Management*, Appendix B (*Guidelines for the Development of an Effective Corrective Action Plan*) and Appendix E (*Closure Evidence Documentation*) will provide guidance for ensuring adequate closure of findings.

5. Ensure closure of each Pre-start finding.

**A. Generating Corrective Actions (Corrective Action Plans) (cont.)**

## Responsible Manager

6. The PSA Team should verify closure of PSA findings.

7. Closure of RA/ORR findings should also be independently verified by the RA or ORR team.

8. If applicable, develop a readiness to proceed letter per **Vol. II, Chapter 4.0**, *Certification of Readiness*, upon completion of all pre-start Finding corrective actions, closure of pre-start issues, and approval of the corrective action plans for any post-start findings.

**B. Follow-up and Feedback**

**Responsible Manager**

**NOTE** It is a recommended practice to capture and communicate significant startup issues discovered during the execution of the operational readiness process.

1. Document Lessons Learned in the Y-12 Lessons Learned Program in accordance with Y15-331, *Lessons Learned Program*, as appropriate.

**RECORDS**

No unique records are generated by the performance of this procedure. The records generated by the use of this Chapter are as defined in Y15-312.

| | | |
|---|---|---|
| Subject: | Readiness Manual | |
| Title: | Readiness Assessments and Reviews | Vol. II |
| Chapter: | 4.0, Certification of Readiness | Effective Date: 2/28/07 |

## PURPOSE

This Chapter defines the requirement to document and certify the readiness to proceed by the issuance of a formal declaration of readiness.

A Certification of Readiness Letter (COR) is prepared by the Responsible Manager and signed by the Startup/Restart (a.k.a. Authorization) Authority, after the Performance Self-Assessment (PSA) is completed and the prerequisites in the Plan-of-Action (POA) have been fully met, to certify to the readiness confirmation review [Readiness Assessment (RA) or Operational Readiness Review (ORR)] team leader that the startup or restart has attained a fully operational state of readiness and the review may begin.

Where the startup or restart requires a National Nuclear Security Administration (NNSA) review, the certification of readiness to begin the NNSA review takes the form of a Readiness to Proceed (RTP) Memorandum. The RTP is prepared by the Responsible Manager after the completion of the BWXT Y-12 readiness confirmation review (RA or ORR) and closure of any pre-start findings. The RTP is signed by the General Manager or Deputy General Manager for Operations and is issued to the Y-12 Site Office (YSO) Manager, declaring that the startup or restart has attained a fully operational state of readiness and is ready for the NNSA review.

## APPLIES TO

This Chapter applies only when the Review Level Determination process as described in Volume I, Chapter 1, has determined that an ORR or a Level II RA is required to be performed to confirm readiness.

This Chapter does not apply to startup or restarts where a Level I RA is to be performed.

## OTHER DOCUMENTS NEEDED

- Readiness Plan for Startup or Restart
- Plan of Action
- UCN-21052, *Readiness Activity Checklist*

## REFERENCES

- None

**WHAT TO DO**

**A. Prerequisite Confirmation Meeting**

**Readiness Leader**

**NOTE** The Prerequisite Confirmation Meeting is optional, but when held it should be held prior to the start of the Performance Self-Assessment. It may be held after the PSA and closure of the PSA pre-start findings. The decision to hold the meeting is made by the Responsible Manager or Senior Manager.

1. IF requested by the Responsible Manager or Senior Manager, THEN ensure that a Prerequisite Confirmation Meeting has been scheduled (reference Appendix 4A, *Guidance for Prerequisite Confirmation Meeting*).

2. IF a Prerequisite Confirmation Meeting is to be held, THEN assist line management in preparing for the Meeting.

Use of UCN-21052, *Readiness Activity Checklist*, along with the closure criteria from the Readiness Plan and Prerequisites from the POA may be an aid to ensuring that relevant topics are covered.

**Functional Area Representatives**

**NOTE** For major startups or restarts the involved Division Managers may be asked to attend the Prerequisite Confirmation Meeting to certify that each of that Division's responsibilities have been fully met and to personally certify that their assigned areas are ready for the review.

3. When requested, be prepared to discuss the following topics as they relate to assigned functional areas:

   a. Methods used to assure closure criteria and prerequisites are satisfied;

   b. Methods used to provide the appropriate level of quality control and quality assurance to ensure that criteria were met with quality products that will withstand the scrutiny of the review;

   c. Outstanding issues and plans for resolution (i.e., any items that may need to be listed on the Manageable List of Open Items); and

   d. Verification activities used to assure readiness of process, programs, personnel, and equipment are operationally ready.

**A. Prerequisite Confirmation Meeting (cont.)**

**Readiness Leader**

4. Ensure that any outstanding issues identified during the meeting are assigned for resolution and resolved prior to the start of the PSA.

**Responsible Manager**

5. When satisfied that the startup or restart has achieved a state of operational readiness, approve the start of the PSA by notifying the PSA Team Leader that the startup or restart is ready to start the PSA.

The notification to the PSA Team leader may be by letter or e-mail.

**B. Development of Certification of Readiness Letter (COR)**

**Readiness Leader/Responsible Manager**

1. Ensure closure criteria and prerequisites have been met, actions required for operation have been completed, and outstanding issues from the Prerequisite Confirmation Meeting (if held) have been resolved.

2. Ensure that the PSA has been completed and any pre-start findings have been resolved and post-start actions are documented and plans approved and on schedule for closure.

It is a good practice to have the PSA team or an independent source verify that the findings have been adequately resolved in accordance with the approved corrective action plan.

**Readiness Leader**

**NOTE** The COR letter should NOT be submitted unless all actions required for startup or restart have been completed, with the possible exception of a small manageable list of very specific open pre-start items that have a well-defined plan and schedule for closure (See Appendix 4B, *Acceptance Criteria for Open Pre-start Items*).

3. Prepare the Certification of Readiness letter and submit the letter to the Responsible Manager.

- The letter must be a formal declaration of readiness to conduct operations, certify that all prerequisites specified in the POA have been met. And indicating completion of the PSA and summarizing the results.
- The letter should be submitted only when prerequisites are complete.

**B. Development of Certification of Readiness Letter (COR) (cont.)**

**Responsible Manager**

- Any open items should be listed and discussed in the letter.
- The letter should include as attachments, the PSA Report and when applicable the manageable list of open items.

4. Perform the following upon receipt of the Certification of Readiness letter:

   a. Review the letter for completeness and accuracy.

   b. Ensure Corrective Action Planning System (CAPS) indicates that pre-start findings are closed.

   c. Ensure completion of appropriate CAPS entry of corrective action plans for post-start findings, as appropriate.

5. When satisfied that the startup or restart has achieved a state of operational readiness, approve the Certification of Readiness letter indicating your certification to the responsible Senior Manager and the review Team Leader that the startup or restart is ready to start the confirmation review.

6. Forward the signed letter to the responsible BWXT Y-12 Senior Manager or applicable Startup/Restart Authority as listed in the NNSA approved Startup Notification Report (SNR).

**Senior Manager/Startup-Restart Authority**

7. Review the results of the PSA, any findings, and Corrective Actions and indicate authorization to begin the BWXT Y-12 review by signing the Certification of Readiness letter.

8. Forward the signed Certification of Readiness letter, to the BWXT Y-12 review Team Leader to authorize the start of the review.

**C. Development of Readiness to Proceed (RTP) Letter**

**NOTE 1** The RTP is only required when NNSA is the Startup/Restart Authority and they will be conducting a NNSA RA or ORR.

**NOTE 2** The RTP letter should NOT be submitted unless all actions required for startup or restart have been completed, with the possible exception of a small manageable list of very specific open pre-start items that have a well-defined plan and schedule for closure that will be prior to completion of the NNSA review (See Appendix 4B, *Acceptance Criteria for Open Pre-start Items*).

## C. Development of Readiness to Proceed (RTP) Letter (cont.)

**Readiness Leader**

1. IF NNSA is the Startup/Restart Authority AND NNSA will be conducting a RA or ORR, THEN prepare the Readiness to Proceed letter and submit the letter to the Responsible Manager.

   - The letter should be a formal declaration of readiness to start the NNSA review, indicating completion of the BWXT Y-12 review and summarizing the results.
   - The letter should be submitted only when pre-start findings from the BWXT Y-12 review are complete and post-start items have an approved corrective action plan that is on schedule for closure.
   - Ensure that evidence of closure of pre-start findings from the BWXT Y-12 review is made available to YSO for their review and verification.
   - Any open pre-start items should be discussed in the letter indicating why it is acceptable to start the review with these items open.
   - The letter should include as attachments, the BWXT Y-12 review report and when applicable the manageable list of open items.

     Items listed on the Manageable List of Open Items for a NNSA RA or ORR must be scheduled for resolution during the NNSA review so that the NNSA review team has time to review the closure of the items.

2. IF NNSA will be conducting a RA or ORR AND the Authorization Agreement for the Facility in which the startup or restart is occurring requires revision to authorize the proposed activity, THEN submit the revised Authorization Agreement (signed by BWXT Y-12) with the RTP for approval by NNSA upon completion of the NNSA RA/ORR.

**Responsible Manager**

3. Perform the following upon receipt of the RTP letter:

   a. Review the letter for completeness and accuracy.

   b. Ensure Corrective Action Planning System (CAPS) indicates that pre-start findings are closed.

   c. Ensure completion of appropriate CAPS entry of corrective action plans for post-start findings, as appropriate.

## C. Development of Readiness to Proceed (RTP) Letter (cont.)

**Responsible Manager**

d. Ensure that evidence of closure of any pre-start findings has been provided to NNSA for their verification.

4. When satisfied that the findings from the BWXT Y-12 review have been resolved, indicate approval of the RTP letter indicating your certification to the responsible Senior Manager and NNSA that the startup or restart is ready for operations and the NNSA review may start.

5. Forward the signed letter to the responsible BWXT Y-12 Senior Manager.

**Senior Manager**

6. Review the results of the BWXT Y-12 review, any findings, and Corrective Actions and when satisfied that the startup or restart is ready for the NNSA review so indicate by approving the RTP letter.

7. Forward the RTP letter, to the BWXT Y-12 Deputy General Manager for Operations.

**Deputy General Manager, Operations**

**NOTE** Receipt of the Readiness to Proceed Letter is a prerequisite for the start of the NNSA RA/ORR. See Section D below.

8. When satisfied that the startup or restart is ready for the NNSA review, sign the RTP letter.

9. Forward the RTP letter to YSO Manager as formal notification of readiness to begin the NNSA review.

## D. NNSA Readiness Certification Meeting

**Readiness Leader**

**NOTE 1** The Startup/Restart Authority is identified in the Startup Notification Report (SNR) as approved by YSO.

**NOTE 2** The Readiness Certification Meeting is held at the request of NNSA and prior to the start of the DOE RA or ORR and after closure of the BWXT Y-12 RA or ORR pre-start findings. The purpose of the meeting is for BWXT Y-12 to provide the basis for their certification of readiness and request to proceed with the DOE RA/ORR.

**D. NNSA Readiness Certification Meeting (cont.)**

**Readiness Leader**

1. IF the Startup/Restart Authority is NNSA, AND IF requested by NNSA, THEN ensure that a Readiness Certification Meeting has been scheduled to take place after closure of pre-start findings from the BWXT Y-12 review (reference Appendix 4C, Guidance for NNSA Readiness Certification Meeting).

**Responsible Manager and Senior Manager**

2. Be prepared to discuss the following topics at the Readiness Certification Meeting:

   a. Basis for the certification by BWXT-Y12 of the Readiness to Proceed with the DOE review;

   b. Methods used to assure prerequisites were satisfied;

   c. Findings from the BWXT Y-12 review and evidence of closure;

   d. Manageable List of Open Items (reference Appendix 4B, *Acceptance Criteria for Open Pre-start Items*); and

   e. Verification activities used to assure readiness of Programs, personnel, and equipment.

**Readiness Leader**

3. Ensure that any outstanding issues identified during the meeting are assigned for resolution and resolved prior to the start of the DOE review.

## RECORDS

Records generated as a result of this procedure are maintained in accordance with Y15-101, *Manual for the Management of Records and Controlled Documents* and established retention and disposition schedules in the Approved Comprehensive Records Schedule at https://home1.y12.doe.gov/scripts/eicms/prod/SMARTMain.cfm.

### Owner/DMC

The Records generated as a result of this Chapter include:

| Record | Record Copy Owner/DMC |
|---|---|
| Certification of Readiness Letter | Division Manager/Division DMC |
| Readiness to Proceed Letter | Division Manager/ Y-12 Document Control Center |

## SOURCE DOCUMENTS

- Standards/Requirements Identification Document (S/RID) Requirement Unique Identifiers (RUIDs): 10920, 10964, 11316, 11317, and 11318.
- YSO-CRD-03-01, *Start-Up and Restart of Operations, Activities and Facilities at Y-12*

## APPENDICES

Appendix 4A, *Guidance for Prerequisite Confirmation Meeting*
Appendix 4B, *Acceptance Criteria for Open Pre-start Items*
Appendix 4C, *Guidance for NNSA Readiness Certification Meeting*

**APPENDIX 4A**
**Guidance for Prerequisite Confirmation Meeting**
**(Page 1 of 1)**

1. For startups or restarts where the Responsible Manager or Senior Management have determined that a Prerequisite Confirmation Meeting is to be held:

   - The meeting should be scheduled by the Readiness Leader.
   - The meeting shall occur before the contractor RA or ORR and preferably prior to the PSA.
   - The meeting should include key representatives from each of the support organizations.
   - When held the NNSA Facility Representative and NNSA responsible program lead should be invited.
   - The Readiness Activity Checklist, UCN-21052, the closure criteria from the Readiness Plan, and prerequisites from the POA should form the basis for the discussions at this meeting.

2. The agenda should include the following:

   PURPOSE:

   Review the Closure Criteria for the Startup or Restart and confirm that each of the closure criteria as defined in the Readiness Plan have been met and that the Prerequisites as defined in the POA are fully satisfied. Confirm that the PSA scope will adequately cover the startup or restart and that when completed the results will support a certification of readiness and moving ahead with the next review. If held after the PSA then in addition to the above, it may confirm that the PSA pre-start issues are fully resolved. If there are any items to be listed on a manageable list of open items, then this meeting should identify them and confirm that the review can be conducted with the item open.

   DISCUSSION:

   - Overview of the startup/restart activity and action taken to achieve readiness. This should include how the closure criteria were met and the prerequisites satisfied.
   - Certification by the involved support organizations (e.g., Maintenance, Engineering, RADCON, Training, Production, Testing, etc.) that their functional areas are complete and ready to fully support operations.
   - Certification that each of the prerequisites has been completed.
   - The scope of the PSA by functional area (optional)

     This may include a discussion by the PSA Team Leader or other PSA Team Representative.
   - If after the PSA then the findings identified during the PSA and their pre/post-start categorization and status including actions taken to resolve the findings.

**APPENDIX 4B**
**Acceptance Criteria for Open Pre-start Items**
**(Manageable List of Open Items)**
**(Page 1 of 1)**

1. Each prerequisite that has not been met prior to declaring facility readiness must be identified as a part of the Certification of Readiness or Readiness to Proceed Letter. Typically NNSA will not start a NNSA review with any prerequisites not fully met.

2. Items listed on the Manageable List of Open Items at the Start of the NNSA review must be closed during the fieldwork portion of that review in such time as to allow the NNSA review team time to confirm adequate resolution prior to the end of their review.

3. Each open item must be specifically defined with an explicit corrective action plan. Open items such as “the required environmental permits have not been requested or approved,” are not be acceptable in that it indicates several specific items may not be complete and that additional facility procedures and activities are potentially dictated by the corrective actions to the identified open item. Another example of an unacceptable open item would be “MJRs have not been closed” as this indicates an indeterminate state, (i.e., have the MJRs been worked and just not closed) with the potential for several items to be involved. Listing of specific MJRs by number with a description of each would be acceptable, provided they are of a nature such that they individually or in aggregate do not preclude an adequate review.

4. The number of open items must be small. In determining how many open items are acceptable, one principle should be that every area to be evaluated by the RA/ORR must be sufficiently complete to permit evaluation. For example, a single finding or multiple findings that in aggregate mean that some key program has not yet been developed and put in place would not be acceptable since the review would be unable to review the adequacy of the implementation of that program.

5. Each open pre-start and post-start item from the BWXT Y-12 RA/ORR must have a reasonable plan of corrective action in place. The plan must be included with the identified open items in the Readiness to Proceed Letter. The schedule for completion of the pre-start corrective action plan must be consistent with the timing for the completion of the NNSA review.

6. In summary, the open items should be very few in number, very clear and well defined with a well defined corrective action plan, able to be quickly completed on a schedule which is consistent with the RA/ORR schedule, and not of such a nature individually or in aggregate to preclude an adequate review by the NNSA RA/ORR Team of any specific area.

7. Items open at the start of the BWXT Y-12 RA or ORR and not closed during the fieldwork portion of the review will become a pre-start finding.

8. Items that do not preclude an adequate review and which will not or can not be completed until after the reviews may be considered for inclusion in the Startup Plan.

**APPENDIX 4C**
**Guidance for NNSA Readiness Certification Meeting**
**(Page 1 of 1)**

**The meeting is only held when the Startup/Restart Authority is NNSA and only when NNSA has requested the meeting.**

1. The meeting should be scheduled by the YSO Program Manager.

2. The meeting shall occur before the DOE RA or ORR and after the BWXT Y-12 RA or ORR is complete and the pre-start findings closed. The BWXT Y-12 Readiness to Proceed (RTP) letter shall be submitted prior to the meeting.

3. For startups or restarts that require an ORR, attendance should include involved BWXT Y-12 Senior Mangers and the YSO Manager.

4. The agenda should include the following:

   PURPOSE:
   Certification of Readiness and Request to Proceed with the DOE RA/ORR.

   DISCUSSION:

   - Overview of the startup/restart activity.
   - Basis for the certification by BWXT-Y12 of the Readiness to Proceed with the DOE review including:
     - Updates on any outstanding issues from the contractor Performance Self-Assessment (PSA).
     - Issues identified during the Contractor RA/ORR and their pre/post-start categorization.
     - Status of pre-start and post-start issues.
     - Recommendation of the Contractor RA/ORR Team.
   - Adequacy of Contractor RA/ORR (by YSO Startup Manager).
   - YSO verification status (by YSO Startup Manager).
   - YSO validation and verification status of contractor RA/ORR findings (by YSO Startup Manager).
   - YSO Certification of Readiness to Oversee Operations.
   - Summary of outstanding issues requiring resolution prior to DOE RA/ORR and/or prior to startup/restart.
   - Recommendation to proceed with DOE RA/ORR.

Subject: Readiness Manual
Title: Readiness Assessments and Reviews Vol. II
Chapter: 5.0, Developing an Implementation Plan and Conduct of Y-12 RA/ORR
Effective Date: 12/29/06

## PURPOSE

This chapter will provide the following guidance:

- Direction for developing an Implementation Plan (IP) for the contractor review [Readiness Assessment (RA) or Operational Readiness Review (ORR)] to include the following elements:
  - Definition of personnel requirements
  - Plan Outline and requirements
  - Defining Criteria Review and Approach Documents (CRADs)

  A separate IP is NOT required for a Level I RA. See Volume I, Chapter 9 for Level I RA guidance.
- Direction and requirements for independent Y-12 Contractor review (RA/ORR) of activities/tasks to confirm that readiness for safe and compliant operations has been achieved.

## APPLIES TO

This Chapter applies to the startup or restart of both nuclear and Hazardous Non-Nuclear FACILITIES, ACTIVITIES, and OPERATIONS where a Level II Readiness Assessment (RA) or an Operational Readiness Review (ORR) is to be performed. This Chapter does not apply to Level I RAs, but may be used as supplemental guidance when a Level I RA is conducted in accordance with Y15-190, Volume I, Chapter 9.

## OTHER DOCUMENTS NEEDED

- UCN-21053, *Readiness Evaluation (Form 1)*
- UCN-21047, *Readiness Issue (Form 2)*
- UCN-21048, *Finding Categorization – Pre/Post-Start Determination*
- UCN-21061, *Significance Determination Worksheet*
- UCN-21698, *Operational Readiness Evaluation Worksheet*

## REFERENCES

- Y15-101, *Manual for the Management of Records and Controlled Documents*
- Y15-312, *Issues Management*

**WHAT TO DO**

**A. Developing the RA/ORR Implementation Plan**

**Team Leader**

1. Develop the RA/ORR Implementation Plan (IP) based upon the breadth of the review contained in the POA. See Appendix 5-A for additional guidance.

2. Ensure the IP evaluates the full scope as described in the POA.

**NOTE 1** The extent of the review, as reflected by the requirements included in the POA, is shown in the depth or details of the IP. The details in the IP depend on the risks, complexity, and hazards of the assessed activity. The extent of the review as reflected in the IP should consider safeguards and security threats and applicable controls for those threats as defined in approved security plans including any associated training.

**NOTE 2** The RA/ORR IP documents not only the process the team uses to conduct the review, but also defines the rationale for that process. The documentation includes the selection of CRADs and the procedures the team uses to identify findings and develop conclusions. The IP is the document that provides for the depth of evaluation of the review breadth and execution of other details in the approved POA.

**NOTE 3** Additional guidance and templates are available on the Readiness Assurance (RA) web site, https://home1.y12.doe.gov/ready/.

3. Consider the following issues in preparation of the IP:

   - The IP should provide sufficient detail to serve as information to management on the depth of the review and to provide guidance to the Review Team Members on the conduct of the review.
   - Pre-development on-site facility visits and interviews may be required before the IP can be adequately developed or finalized.
   - Ensure the IP identifies how the review will be done, how the review will be documented, and the depth of the review.

4. Develop the IP utilizing the suggested format shown in Appendix 5-A, RA/ORR Implementation Plan.

5. Ensure the IP contains the names as well as a brief biographical sketch of the review team members documenting the basis for their qualifications.

**NOTE** The Review Team may consist of plant personnel or external experts who have been assembled at the request of the Review Team Leader. The size and expertise of the team depends upon a number of factors including the complexity of the activity being reviewed, schedule requirements, and the scope of the review including safeguards and security considerations.

## A. Developing the RA/ORR Implementation Plan (cont.)

**Team Leader**

a. Ensure the Review Team Member(s) meet the following requirements and definition:

- Technically knowledgeable of the assigned functional area
- Experienced in performance-based assessments
- Team members may be associated with the project being started or restarted but shall not have direct responsibility for the any of the areas within the scope of the review.

**Team Leader and Team Members**

6. Ensure the IP contains the Criteria Review and Approach Documents (CRADs) that will be used as the basis for the review.

   a. Develop the CRADs that will provide the means through which the graded approach is applied to the scope of the RA/ORR (see Appendix 5-B, Sample CRADS, for examples) as follows:

      (1) Begin each CRAD with an objective that includes a Core Requirement or some portion of the Core Requirement.

      This will ensure that each of the Core Requirements listed in the POA are addressed by criteria regardless of the approach used in developing the criteria.

      (2) Identify the specific criteria, which address the objective, Core Requirement or portion of a Core Requirement.

      Each criterion is a statement of the specific actions, or attributes, the reviewer(s) use to make a judgment as to the readiness of the site, facility, or process to operate in this specific area.

      (3) Identify the Review Approach.

      The Review Approach describes the documents to be reviewed, the personnel to be interviewed, and the shift evolutions, including tours and walk downs, to be observed that will lead to the conclusion as to whether the criteria have been met.

      (4) Identify Expectations (Optional)

      Statements of expectations may be added to supplement the Review Approach. These statements, when used, typically provide a further breakdown of specific topics that will be examined during the review.

**Team Leader**

7. Provide the IP to the Responsible Manager and others as needed for review and comment.

## A. Developing the RA/ORR Implementation Plan (cont.)

**Team Leader**

8. Assign specific tasks to team members based on the individual's knowledge of the particular system, process, safety documentation, or facility as well as the review process and document these assignments in the IP.

**NOTE** The distribution of the IP may be performed by the applicable Document Management Center (DMC).

9. Resolve comments, approve, and distribute the IP.

10. Ensure that a copy of the IP is provided to the team members, YSO, the Responsible Manager, Readiness Leader, Project Manager (when applicable), Production Manager (when applicable), and others as directed by the Responsible Manager.

## B. Conduct of the Review

**Team Leader**

1. Begin the review upon receipt of the certification of readiness (see Y15-190, Volume II, Chapter 4, *Certification of Readiness*).

2. Direct and manage the review in accordance with the approved IP.

3. Ensure the review is conducted in a manner that will meet quality expectations.

**Team Members**

4. Use the CRADs when reviewing documents, observing operations, observing drills, conducting interviews, etc., as part of the review.

5. Ensure issues are brought to the attention of the Review Team Leader and the Readiness Leader and/or Responsible Manager.

6. Perform tasks as assigned that typically include:

   - Conduct the Review in accordance with review criteria/performance objectives as assigned in the IP or by the review team leadership.
   - Conduct and reflect on the evaluation within the context of the principles and functions of Integrated Safety Management.
   - Concur with the readiness status and the conclusions presented in the Final Report in the team members area of assessment.
   - Submit completed issue documentation for review and approval.
   - Assist, as requested, the Review Team Leader in preparation of the Final Report.

## B. Conduct of the Review (cont.)

**Team Leader**

7. Ensure daily debriefs are scheduled with the Readiness Leader, Responsible Manager, Production/Operations, and key support personnel as appropriate.

   These debriefs may be combined with team meetings, if desired.

8. Ensure a final closeout or exit debrief is scheduled before leaving the reviewed area.

   The final or exit debrief should be conducted as soon as possible after the end of the fieldwork portion of the review and typically denotes the end of the fieldwork.

9. Ensure the final or exit debrief includes a discussion of the following:

   - The scope of the review
   - Summary of findings and observations
   - Noteworthy practices
   - Determination of readiness
   - Recommendation to proceed

## C. Documentation of Findings/Observations

**Team Members**

1. Document the review of assigned areas on UCN-21053, *Readiness Evaluation (Form 1)*, and when complete forward the form to the Review Team Leader.

   The UCN-21053 is typically used to document the review. This form may or may not be included in the final report as determined by the Review Team Leader. The validity of and the ability to defend the results of a review often depends on the thoroughness with which the basis for the conclusions are documented. The record of the review should be clear as to what was evaluated and the methodology used during the evaluation. Reference the IP where appropriate rather than duplicating discussions. Record the “how” that leads to the conclusions reached concerning the particular review criteria. This discussion must be sufficient to allow another person to understand the basis for the stated conclusions. Do not discuss specific findings or observations other than to list them on the form. Findings and observations are discussed on the UCN-21047.

2. Ensure the UCN-21047, *Readiness Issue (Form 2),* is developed to document findings and observations upon completion of the review per the IP.

**C. Documentation of Findings/Observations (cont.)**

**Team Leader**

Each finding must cite a specific requirement that was not met and be clearly described by either including examples of items that are noncompliant or describing individual noncompliant issues that are included in the scope of the finding. The finding must be written in a manner permitting correction.

Findings that were resolved during the course of the review are required to be documented on an UCN-21047, *Readiness Issue*, and included in the Final Report. For findings resolved during the review, document on the UCN-21047 how the finding was resolved (i.e., what actions were taken and what evidence was evaluated or performance observed that led to the resolution).

The UCN-21047 must also document the basis for the pre/post-start determination.

3. Forward the proposed finding (UCN-21047, *Readiness Issue (Form 2)),* to the Review Team Leader.

4. Ensure deficiencies are brought to the attention of the Readiness Leader's and Responsible Manager's attention immediately after requirement references have been confirmed to be correct.

   A good practice has been to use of a table to track items of interest (i.e., areas of investigation or questions) as they are identified by the team. This table can serve as a tool to provide advance information on potential issues to the Readiness Leader and Responsible Manager, provide a means to request additional information or answers to questions, and serve as a means to record the resolution or response to questions.

5. Compile and where feasible consolidate findings at the end of the fieldwork portion of the review and prior to the exit debrief.

   At or near the end of the fieldwork when the entire set of findings has been identified and requirements confirmed, it is a good practice to review this list with the Review Team Members and using their input consolidate findings with similar characteristics into one finding with perhaps several examples of noncompliant items. Where the consolidated finding is determined to be a pre-start finding, some of the cited examples may be defined as post-start elements. This needs to be clearly documented on the UCN-21047, *Readiness Issue, (Form 2).*

**Team Leader and Team Members**

6. Complete a Pre/Post-Start screen for each Finding using the following guidelines are the basis for the screening:

   - Utilize as guidance the criteria in UCN-21048, *Finding Categorization – Pre/Post-Start Determination*.

## C. Documentation of Findings/Observations (cont.)

**Team Leader and Team Members**

- Review Team members may recommend which findings are to be treated as Pre-start findings or the determination may be done in a team meeting.
- The UCN-21048 is a guide and does not need to be signed or retained.

The basis for the pre/post-start determination is to be documented on the UCN-21047 and/or in the final report.

**Team Leader**

7. Review the preliminary finding categorization with the Readiness Leader and Responsible Manager and finalize the categorization.

## D. Generating the Review Report

**Team Leader and Team Members**

1. Prepare the final report documenting the review and its results.

2. Ensure the report provides a clear and concise picture of the “as found” results in terms of the people, equipment, programs, and processes assessed and includes only facts that directly relate to the assessment.

   Assessment reports are required to communicate the issues identified during an assessment.

   The report should include sufficient information to enable the assessed organization to check the report for accuracy (if such a check was not done during the assessment) and to develop and implement appropriate corrective action or improvement plans.

   The Final Report should contain an executive summary, a discussion of the findings or observations identified during the review [this may be done by inclusion of the UCN-21047, *Readiness Issue, (Form 2)* forms], a summary of the review activities [this may be done in part by reference to the IP for the review approach], the conclusions reached for each review objective, and the basis for those conclusions.

   The Final Report should make an unambiguous statement regarding whether prerequisites and Core Requirements have been met, and that if not, whether the closure of findings will adequately confirm that prerequisites and Core Requirements are satisfied.

3. Develop the Final Report utilizing the format in Appendix 5-C as guidance.

   Templates are available on the Operational Readiness Assurance (ORA) web site, https://home1.y12.doe.gov/ready/.

**D. Generating the Review Report (cont.)**

**Team Leader and Team Members**

4. Ensure the final report contains a “Lessons Learned” section that may relate to design, construction, and operation of similar facilities and future RA or ORR efforts.

5. Ensure the Final Report documents a conclusion by the review team as to whether or not startup or restart can safely proceed.

6. Ensure that for ORRs, there is a statement in the Final Report as to whether identified non-compliances or schedules for gaining compliance with applicable DOE Orders, directives, and Standards/Requirements Identification Documents (S/RIDs) as listed in the contract have been identified in writing; have been formally approved; and, in the opinion of the Team maintain adequate protection of the public health and safety, worker safety, or the environment.

**Team Leader**

7. Complete the initial significance screening for each finding using the UCN-21061, *Significance Determination Worksheet*.

8. Ensure the completed UCN-21061 forms and associated findings are provided to Performance Assurance for evaluation by the IMPRB.

9. Ensure the report is signed by the team members signifying their agreement with the conclusions and provide the Final Report to the Responsible Manager.

   Any dissenting opinions of team members must be documented in the final report.

**Responsible Manager**

10. Ensure the Final Report is distributed, including DOE (YSO) and the submittal for evaluation by the Issues Manager as required by Y15-312, *Issues Management*.

    The distribution of the Final Report may be performed by the applicable DMC. The Readiness Assurance Manager should be included on the distribution. An electronic file of the Final Report should be provided to the Readiness Assurance Manager.

11. Ensure that findings identified by the review team are resolved in accordance with the applicable requirements of Y15-190, Volume II, Chapter 3 and Y15-312, *Issues Management*.

12. IF BWXT Y-12 is the Startup/Restart Authority, THEN when the findings are resolved (i.e., pre-starts are closed in CAPS and an approved corrective action plan exists for the post-starts) request startup or restart authorization in accordance with Volume II, Chapter 6.

**D. Generating the Review Report (cont.)**

**Responsible Manager**

13. IF DOE is the Startup/Restart Authority, AND they are to conduct a DOE RA or ORR, THEN issue a Request to Proceed letter in accordance with Volume II, Chapter 4.

14. IF DOE is the Startup/Restart Authority, AND they will NOT conduct a DOE RA or ORR, THEN issue a Resumption Request Letter in accordance with Volume II, Chapter 6.

**E. Y-12 Support for DOE Review**

**Responsible Manager/Readiness Leader**

**NOTE** Appendix 5-C, DOE Activities, provides information related to DOE activities.

1. Discuss the logistics issues for hosting the review team with DOE team leader, team members or YSO managers as soon as possible.

2. Participate in daily briefings when applicable, and final exit-brief.

3. Assign a primary contact to each DOE review team member who will assist that team member in logistic arrangements and gathering of information.

4. Ensure that evolutions and exercises to be observed by the DOE review team are scheduled on the Plan of the Day and have been well practiced.

5. Ensure interviews with facility and production personnel and others as needed are scheduled and the schedule clearly communicated to both the interviewers and interviewees.

**F. Post Review Actions**

**Readiness Assurance Manager**

**NOTE** The post review evaluation is a process designed to develop metrics for the readiness process. It is an evaluation of the effectiveness of preparing the project for safe and compliant operations.

1. Ensure a post RA/ORR operational effectiveness evaluation is performed within 2 months of authorization to startup using form UCN-21698, *Operational Readiness Evaluation Worksheet*.

2. Participate in daily briefings when applicable, and final exit-brief.

## RECORDS

All records generated as a result of this procedure are maintained in accordance with Y15-101, *Manual for the Management of Records and Controlled Documents*, and established retention and disposition schedules in the Approved Comprehensive Records Schedule at https://home1.y12.doe.gov/scripts/eicms/prod/SMARTMain.cfm

## Owner/DMC

The Records generated as a result of the procedure include:

- Implementation Plan for the Readiness Assessment or Operational Readiness Review; and
- Final Report for the Readiness Assessment or Operational Readiness Review.

These are both to be maintained by the applicable DMC for the Organization being evaluated.

- UCN-21061, *Significance Determination Worksheet*

## SOURCE DOCUMENTS

- Standards/Requirements Identification Document (S/RID) Sub-element 01.07, *Operational Readiness Reviews and Readiness Assessments:*

  - 10914 - 10922 - 10924 - 11599 - 11601
  - 10921 - 10923 - 10925 - 11600

- YSO-CRD-03-01, *Start-Up and Restart of Facilities at Y-12*

## APPENDIXES

A. Appendix 5-A, RA/ORR Implementation Plan
B. Appendix 5-B, Sample CRADS
C. Appendix 5-C, Review Report Guide
C. Appendix 5-D, DOE Activities

**APPENDIX 5-A**
**RA/ORR Implementation Plan**
**(Page 1 of 2)**

1.0 Introduction/Background: Describes the activity that will 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
- Management programs (e.g., procedures, plans, etc.)

The scope section of the IP describes the breadth from the approved POA. Each breadth element required by the POA must 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. It is not necessary to repeat general information that is adequately described in the POA. In these cases the POA may be referenced for that information.

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

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. The method for report preparation, finding resolution and methods of closure are defined here.

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

**Appendix 5-A**
**(Page 2 of 2)**

7.0 RA/ORR Process: Describes the actual CRAs that will 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:

- Core Requirement or Objective -- Identification of the requirement or objective that will be confirmed as having been achieved by the readiness process.
- Criteria -- Specifically how the Core Requirements/objectives will be measured, which may include regulatory requirements, etc
- Review Approach -- A definition of the combination of documentation review, personnel interviews, systems walk downs, 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 RA/ORR-related meetings, correspondence, communications, team structure, etc., of the review. The team composition/organization, interface requirements, any oversight groups, and NNSA 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 team will use to report review results. These elements include Documentation of the RA/ORR Results, Lessons Learned, and the RA/ORR Final Report.

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: Include reporting forms, Lessons Learned from previous steps, writing guides, team resumes, and other sections appropriate to stand alone in an appendix.

**APPENDIX 5-B**
**Sample CRADS**
**(Page 1 of 5)**

**Sample CRAD #1**

OBJECTIVE

An emergency operations drill program, including program records, has been established and implemented. **(CORE REQUIREMENT 11)**

Criterion:
An effective emergency preparedness program has been established. Drills and exercises are conducted and an adequate response capability exists

Approach:
Record Review:

- Verify the XXX (name of site, facility, activity, or process) has been adequately incorporated into the operational and emergency drill program.
- Review the records that describe the recent emergency preparedness drills and review the results from each.
- Determine if the drill scenarios were adequate and if the necessary number of drills has been conducted to fully verify and test compliance with the approved safety bases of the facility.
- Determine if lessons learn from drills are factored into following drills and training.

Interviews: None

Shift Performance:

- Observe pre-drill briefings
- Conduct, and post-drill critiques of an Emergency Preparedness drill

**Sample CRAD #2**

OBJECTIVE

A feedback and improvement process has been established to identify, evaluate, and resolve deficiencies and recommendations made by oversight groups, official review teams, audit organizations, and the operating contractor**. (CORE REQUIREMENT 15)**

**Appendix 5-B**
**(Page 2 of 5)**

Criterion
A system for identifying, reviewing, cataloging, and resolving deficiencies and recommendations is adequately implemented.

Approach
Record Review:

- Review the issue management tracking system, selecting representative issues and assessing the adequacy of XXX incorporation into the program.
- Assess the backlog and prioritization system to ensure appropriate emphasis on the XXX.

Interviews:
Interview issue management personnel to establish their qualification and understanding of the program.

Shift Performance:
Evaluate the Issue Management Programs' effectiveness in ensuring that corrective actions are being completed and tracked to closure through the system.

**Sample CRAD #3**

OBJECTIVE

An adequate startup test program has been conducted which verifies the operability and integration of the XXX equipment. The plant is in a material condition to support the safe startup of program work. **(CORE REQUIREMENT 12)**

Criteria
The startup test program is adequate and is on schedule per approved startup plans to support safe startup.

Approach
Record Review:

- Review documentation of test results and resolution of open items for at least three tests of safety systems or plant components.
- Verify the satisfactory integration of these new plant systems with the existing facility systems.
- Verify that maintenance records and requirements have been updated to reflect the new systems requirements.

Interviews/Shift Performance:

- Observe management review of the test plans and results for adherence to procedures and management of any resultant actions.

**Appendix 5-B**
**(Page 3 of 5)**

**Sample CRAD #4**

**Objective – Training and Qualification Programs are Implemented.**

*Processes for the Selection, Training, and Qualification of personnel involved in or supporting the activity are established, documented, approved, and implemented to cover the range of duties necessary for the safe and compliant conduct the activity under review. [DOE Order 425.1C CR 3]*

**Criterion 1.1.1** - Training documentation including staffing needs, training needs, new or revised qualification documents, and training materials are prepared, approved, and issued to cover the range of required duties and tasks for personnel involved with and supporting the activity.
Approach: Reviews of activity training documentation will be performed to confirm that minimum staffing is defined and documented for each shift of planned operations including operations support. Reviews will confirm that operations and support staffing are reasonable given the activities anticipated to be performed during each shift, including potential upset or emergency situations, and the defined staffing is consistent with SB established minimum requirements. Training program documentation will be examined to confirm that adequate training needs analysis and/or Job Task analysis was performed to meet Expectations 1.1.1.2 through 1.1.1.6 below. Training program documentation will be examined to confirm the training materials used to train activity and support personnel were adequately developed and include the applicable material described in the Expectations below.

Expectation 1.1.1.1 - *Staffing needs to safely and compliantly accomplish the activity for each operational shift and support organizations have been evaluated and are defined and documented (CR 6).*

Expectation 1.1.1.2 - The training needs have been determined by analysis of activity operations and operational interrelations with support groups that cover the range of required duties and tasks for the activity and any *system, process, or equipment changes (CR 5)*.

Expectation 1.1.1.3 - The training needs analysis documents indicate participation in their development by training personnel, Subject Matter Experts (SMEs), and line management.

Expectation 1.1.1.4 - The Training Needs Analysis documents have been updated to include changes to the operators' responsibilities, procedures, equipment changes, and for supervisors, the increased depth of knowledge needed to reflect their added responsibilities. (DOE Order 5480.20A, Chapter 4, Para 4,c.)

Expectation 1.1.1.5 - Master Qualification/Certification documents, including examinations, for operators and supervisors have been developed and/or modified (if needed) to include any changes derived from the training needs analysis and meet applicable program requirements. (CR-04)

**Appendix 5-B**
**(Page 4 of 5)**

Expectation 1.1.1.6 – Supervisor training documents include items that indicate the increased depth of knowledge needed to reflect the supervisors' added responsibilities (DOE Order 5480.20A, Chapter 4, Para 4,c.).

Expectation 1.1.1.7 – Training Materials incorporate as applicable:

1. Elements of Training Needs Analysis or Job Task Analysis;
2. Roles and responsibilities including support organization and subcontractor roles and responsibilities;
3. Lessons Learned;
4. *Conduct of Operations Program (ConOps) principles (public and worker safety and environmental protection) (CR 13);*
5. Safety Basis (SB) requirements and controls; and
6. Management program elements including:
    - Job hazards and controls from Automated Job Hazard Analyses (AJHAs);
    - Criticality Safety hazards, engineered safety features, and controls;
    - ALARA Job Review hazards and controls; and
    - Others as applicable.

Expectation 1.1.1.8 – *Training documents have been evaluated to confirm they incorporate the latest revisions to applicable work control documents (CR 5).*

Expectation 1.1.1.9 - *A continuing training program is established and documented to ensure personnel maintain the formality and discipline of operations required by ConOps along with the required skills and are trained in improved work methods (CR 13).*

**Criterion 1.1.2 -** A process is established to ensure that new personnel assigned to or supporting the activity under review receive a level of training equivalent to that provided for individuals involved in the initial startup of the activity.

Approach: Training and qualification documents will be reviewed to confirm they fully reflect the training provided to the initial set of activity personnel. The review will confirm that qualification and certification requirements for new personnel include equivalent levels of practical experience prior to full qualification. Training requirements for support positions will be examined to confirm they include similar kinds of activity related training provided to those now in these positions.

Expectation 1.1.2.1 - Training and qualification processes and documentation incorporate provisions to adequately train personnel added to the activity staff after the initial activity startup and appropriately address training during actual operations.

**Criterion 1.1.3 -** The Training Program ensures that personnel performing work associated with the activity under review are selected, trained, and qualified and the qualification and completion of training are documented *and encompass the range of duties and activities required to be performed (CR 3)*.

**Appendix 5-B**
**(Page 5 of 5)**

Approach: Reviews of individual training records will confirm that activity management, facility or project management, and operational and support personnel, including defined minimum staffing, have completed required training including the certification and qualification requirements where applicable. This review will also include confirmation that:

1. Personnel were trained to the latest revision of work control documents; and
2. Certification and qualification processes were applied that followed the requirements of the Site Training Program.

Review of Training and Personnel documentation will be performed to confirm that activity personnel meet the education and experience requirements stated in Chapter IV of DOE Order 5480.20A and in Expectation 1.1.3.1 below.

Expectation 1.1.3.1 - Training and/or personnel records confirm that personnel meet defined training, education, and experience requirements:

1. Operators and supervisors have HS Diploma;
2. Supervisors have 3 years of nuclear experience (academic training may be substituted for 2 years of the experience requirement) (exception from DOE possible);
3. Individual Qual/Cert documents for operators and supervisors contain a logical sequence of signature dates (prerequisite training completed before other sign-off - indicates a systematic approach was used);
4. Examination records show that personnel demonstrated an adequate level of knowledge. (CR 4)
5. The minimum staffing is consistent with program requirements and reflects the current training of activity personnel and support personnel.

Expectation 1.1.3.2 - The selection process and applicable position-specific training for managers assures competence commensurate with responsibilities. (CR 3)

1. Managers meet established minimum experience requirements.
2. Position specific qualifications are defined
3. Managers current qualifications meet those specified for assigned position.

**APPENDIX 5-C**
**Review Report Guide**
**(Page 1 of 3)**

The review or assessment report should communicate the issues identified during the review. The Team Leader should ensure the report:

- Provides a clear picture of the results in terms of the processes, systems, and people reviewed.
- Documents the as found condition at the start or the review. The report should document findings even if they are resolved during the review period. The resolution should also be documented.
- Is clear and easy to understand. The report should include only facts that directly relate to review observations and results.
- Findings are based on specific requirements not met. If a specific requirement can not be cited then the issue should be documented as an observation.
- Findings are categorized as Pre-Start or Post-Start. UCN-21048, *Finding Categorization Pre/Post-Start Determination* should be used to guide the evaluation but completed UCN-21048 forms are not required to be signed or retained. As a good practice the report should document on the Form 2 or other appropriate place, the basis for the pre/post-start categorization of findings.
- Includes in the review summary sufficient information for each review objective and supporting criteria to enable the reviewed organization to check the report for accuracy and to develop and implement appropriate corrective action plans. The validity of and the ability to defend the results of a review often depends on the thoroughness with which the basis for the overall conclusions are documented. The record of the review should be clear as to what was evaluated and the methodology used during the evaluation. Record the “how” that leads to the conclusions reached concerning the particular review objective and criteria. This discussion may reference the CRADS from the IP, but must be sufficient to allow another person to understand the technical basis for the stated conclusions. Do not discuss specific findings or observations other than to reference them to a specific single location for that discussion. Findings and observations are discussed in one section of the report or on the UCN-21047 form that can be located in an appendix. This information can be provided by using the UCN-21053, *Readiness Assessment (Form 1)*, as the basis for writing the review summary, or by including the completed UCN-21053 forms in a separate appendix and referencing them from the review summary section of the report.
- Concise, accurate, and understandable.
- Does not repeat information already contained in the POA or the IP. These documents can and should be referenced whenever appropriate.
- Does not duplicate finding statements. Findings should only appear in one place. Either in a specific section of the report or in an appendix. Findings may be documented by inclusion of the UCN-21047, *Readiness Issue, (Form 2)* in an appendix.
- The report must contain a “lessons learned” section that may relate to design, construction, and operation of similar facilities and future RA or ORR efforts.

**APPENDIX 5-C**

**(Page 2 of 3)**

The Report should contain a summary of the review activities, the conclusions reached, the basis for those conclusions, and the findings identified as well as the following:

- Make an unambiguous statement regarding whether prerequisites and Core Requirements have been met, and that if not, whether the closure of findings will verify prerequisites and Core Requirements are satisfied.
- Make an unambiguous statement regarding a recommendation to approve the startup or restart.
- Identify observations that would not impact startup, restart or shutdown but, if corrected, could lead to excellence.

The following format is a guide that may be used in developing the report. Other formats are acceptable given the information described above is provided:

1. Title Page - A cover and title page that states the subject and date of the review
2. Signature Page- Includes space for team members to sign, signifying their agreement of the report content and conclusions of the review. Dissenting opinions should be included as an appendix to the report.
3. Table of Contents- Identifies, with page numbers, sections of the report.
4. Executive Summary which may include:
   - A brief (one to three page) summary of review highlights (both positive and negative)
   - Summary of findings and observations (Typically this is the number and short descriptive title)
   - Overall conclusion
5. Introduction, which provides:
   - Information and background regarding the startup or restart being reviewed
   - The purpose of the review/evaluation
   - The scope of the review/evaluation
   - The overall objectives of the evaluation
   - The review process and methodologies used in the review if they differ from those described in the IP.

   To the extent the actual review followed the IP, this section of the report may simply be a reference to the IP.
6. Identification of Findings and Observations. If these are incorporated by inclusion of the UCN-21047 (form 2) in an appendix then this can be as simple as a reference to that appendix.

**APPENDIX 5-C**

**(Page 3 of 3)**

7. Summary of the review for each review objective and supporting criteria.

   Describe the logic of the review, relating findings (when needed reference findings but do not repeat findings) to the objectives and core requirements. Explain how the review addresses each of the core requirements or objectives, criteria used, and methods used to address the criteria (this can include a reference to the specifics in IP). Much of this information may be incorporated by inclusion of the Form 1s (UCN-21053) in an appendix and a reference to that appendix. The validity of and the ability to defend the results of a review often depends on the thoroughness with which the basis for the overall conclusions are documented. The record of the review should be clear as to what was evaluated and the methodology used during the evaluation. Record the "how" that leads to the conclusions reached concerning the particular review objective and criteria. This discussion may reference the CRADS from the IP, but must be sufficient to allow another person to understand the technical basis for the stated conclusions. Do not discuss specific findings or observations other than to reference them to a specific single location for that discussion.

   If the review approach and methods are as described in the IP, the IP may be referenced for a description of the methodology.

   This section should include a statement about the status of Integrated Safety Management System (ISMS) Implementation for the area being reviewed. This statements can be related to an assessment of the adequacy of the implementation of the Core Requirements and, thereby, the ISMS Guiding Principles. The extent that the ISMS principles were visible in the review should be evaluated and reported.

8. Lessons Learned

   - A Lessons Learned section that discusses ways to improve both the project being reviewed and the review process itself. Lessons Learned provides information concerning problems encountered by the review team, inadequacies encountered during the review, i.e., design and implementation, expertise, or any other relevant factors or information that may be used by future review teams.
   - Lessons Learned that are applicable to similar facilities in areas such as operations, procedures, design, or documentation.

9. Appendices may include such items as:

   - List of team members and qualifications (if not in the IP or if changes to team membership are made)
   - List of documents reviewed
   - List of individuals contacted and/or interviewed
   - UCN-21053, *Readiness Evaluation (Form 1)*, if not summarized in the body of the report.
   - UCN-21047, *Readiness Issue, (Form 2)*, if not included within the body of the report.

**APPENDIX 5-D**
**DOE Activities**
**(Page 1 of 1)**

NNSA Activities include:

1. Reviewing Contractor's Plan-of-Action (POA).

2. Preparing the NNSA Plan-of-Action (if not included in the Contractor's POA).

   The responsible contractor's POA may provide the starting point for the NNSA POA or can be written such that it covers the scope of both the contractor review and the NNSA review.

3. Preparing the NNSA Implementation Plan.

4. Providing day-to-day oversight of the responsible contractor's activities to achieve and verify readiness to conduct operations including review of the contractor report and pre-start finding closure plans and closure documentation.

5. Reviewing and taking appropriate action on the responsible contractor's Readiness to Proceed Letter.

6. Conducting a Readiness Verification Review (RVR) to confirm that pre-start findings from the contractor review are appropriately closed and post-start findings have approved corrective action plans.

7. Preparing a NNSA line management endorsement to the Readiness to Proceed Letter as a part of forwarding it to the restart authority.

8. Conducting the review and preparing the report of the NNSA review in accordance with the NNSA Implementation Plan.

9. Verifying that any pre-start findings from the NNSA review are closed and that post-start findings have an approved corrective action plan.

10. Approving the contractor's resumption request and if applicable the revised Authorization Agreement.

| | | |
|---|---|---|
| Subject: | Readiness Manual | |
| Title: | Readiness Assessments and Reviews | Vol. II |
| Chapter: | 6.0, Resumption of Operations | Effective Date: 2/28/07 |

## PURPOSE

This chapter describes in Section A the guidelines for submission and contents of the Startup/Restart Authorization Letter, a formal letter to the BWXT Y-12 Startup (a.k.a. Authorization) Authority, and in Section B the Resumption Request Letter, a formal letter to National Nuclear Security Administration (NNSA) stating that all reviews are completed and the startup or restart is ready for a safe and compliant operation.

**NOTE** Examples of Startup/Restart Authorization Letters and Resumption Request Letters and templates are available on the Readiness Assurance (RA) web site, https://home1.y12.doe.gov/ready/.

## APPLIES TO

This Chapter applies only when the Review Level Determination process as described in Volume I, Chapter 1, has determined that an ORR or a Level II RA is required to be performed to confirm operational readiness.

This Chapter does not apply to startup or restarts where a Level I RA is to be performed.

## OTHER DOCUMENTS NEEDED

- None

## REFERENCES

- Y15-331, *Lessons Learned Program*

**WHAT TO DO**

**A. Obtaining BWXT Y-12 Startup or Restart Approval**

**Readiness Leader/**
**Responsible Manager**

**NOTE** This Section only applies for startups or restarts where BWXT Y-12 has been designated as the Startup/Restart (a.k.a. Authorization) Authority on the SNR, the Startup Authorization Letter (SAL) is the formal communication from the Responsible Manager to the BWXT Y-12 Startup/Restart Authority that the facility has been brought to a state of operational readiness such that operations may safely and compliantly begin.

1. Verify that pre-start findings from the Performance Self-Assessment (PSA) and Level II RA have been closed in Corrective Action Planning System (CAPS).

2. Verify that post-start findings from the PSA and Level II RA have corrective actions established and are entered into CAPS.

3. Ensure open post-start findings have approved action plans and are on schedule for closure.

4. Develop the SAL providing the following information:

   - Title of activity/task.
   - Brief description of the reviews conducted.
   - Summary of results from each review and current status (e.g., 3 pre-starts/closed, 4 post-starts/2 closed, etc.).
   - Recommendation for startup and request for final approval statement.

5. Forward the SAL through appropriate organizational channels to the Startup/restart Authority for review and approval.

**Startup/Restart Authority**

6. Ensure all actions required for startup or restart have been completed.

7. Ensure the SAL certifies the completion of the Reviews.

8. When satisfied that a suitable state of operational readiness has been attained such that operations can safely and compliantly begin, then sign the SAL indicating authorization for startup or restart and return to the Responsible Manager.

**Responsible Manager**

9. When the BWXT Y-12 Startup/Restart Authority approves the SAL, follow the steps in Section C.

## B. Obtaining NNSA Startup or Restart Approval

**Readiness Leader/**
**Responsible Manager**

**NOTE** This Section only applies when NNSA is the Startup/Restart Authority. The Resumption Request Letter (RRL) is the formal communication from the responsible contractor to NNSA that the facility has been brought to a state of readiness to safely and compliantly start operations.

1. IF NNSA is the Startup/Restart Authority, THEN accomplish the following:

   a. Verify that pre-start findings from the Performance Self-Assessment (PSA), Contractor Review, and the NNSA Review (when applicable) have been closed in Corrective Action Planning System (CAPS) and verified by NNSA.

   b. Verify that post-start findings from the PSA, Contractor Review, and NNSA Review have approved corrective actions established and are entered into CAPS.

   c. Ensure open post-start findings are on schedule for closure.

   d. Develop the RRL providing the following information:

      - Title of the startup or restart.
      - Brief description of the reviews conducted.
      - Summary of results from each review and current status (e.g., 3 pre-starts/closed, 4 post-starts/2 closed, etc.).
      - Recommendation for startup and request for final approval statement.

**Readiness Leader/**
**Responsible Manager**

2. Forward the RRL for review and approval.

**Senior Manager**

3. Ensure all actions required for the startup or restart has been completed.

4. Ensure the RRL certifies the completion of the Reviews.

**B. Obtaining NNSA Startup or Restart Approval (cont.)**

**Responsible Manager**

5. Submit the RRL to NNSA.

6. When the Startup/Restart Authority approves the RRL, follow the steps in Section C to release the startup or restart for routine operations.

**C. Performing Startup**

**Responsible Manager**

1. When the Startup/Restart Authority has approved the startup or restart, then review the authorization for any special conditions.

2. Start operations in accordance with Startup Plan and in compliance with special conditions, as applicable.

3. Monitor the startup or restart to ensure operations are conducted within requirements.

4. Document the results of the execution of the Startup Plan and any special conditions, as applicable.

5. Develop any applicable lessons learned in accordance with Y15-331, *Lessons Learned Program*.

## RECORDS

Records generated as a result of this procedure are maintained in accordance with Y15-101, *Manual for the Management of Records and Controlled Documents* and established retention and disposition schedules in the Approved Comprehensive Records Schedule at https://home1.y12.doe.gov/scripts/eicms/prod/SMARTMain.cfm.

**Owner/DMC**

The Records generated as a result of this Chapter include:

| Record | Record Copy Owner/DMC |
|---|---|
| Startup/Restart Authorization Letter | Division Manager/Division DMC |
| Resumption Request Letter | Division Manager/ Y-12 Document Control Center |

## SOURCE DOCUMENTS

- YSO-CRD-03-01, *Start-Up and Restart of Facilities at Y-12*