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Information	Effective Date: 4-4-99		
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## 1 PURPOSE AND SCOPE

- 1.1 The purpose of this document is to define the Expanded System Readiness Review (ESRR) Program for Level 2 systems and provide guidance in evaluating and determining system restart readiness for the Cook plant. Level 2 systems are defined in Section 4.1. This document also describes the process for scoping work items as either required or not required to support unit restart. These guidelines support startup from the current extended outage in support of Reference 6.2.
- 1.2 Several independent reviews, including a self assessment of the Auxiliary Feedwater System and an independent Engineering Issues Review Group report identified vulnerabilities in the preservation of the Design and Licensing Basis that suggested a need for a more rigorous review of overall system readiness.
- 1.3 The ESRR for Level 2 systems will provide reasonable assurance that:
  - the plant systems are capable of meeting their safety and accident mitigation functions as defined in their design and licensing bases [Ref. 6.9], and
  - in conjunction with other ongoing improvement programs and resolution of identified issues, that the plant is modified, tested, operated and maintained consistent with the design and licensing bases. [Ref. 6.10]
  - that Level 2 systems without safety or accident mitigation functions will perform in a manner that supports safe and reliable plant operation.
- 1.4 The Expanded System Readiness Review for Level 2 systems consists of four phases
  - Phase 1: Initial Expanded System Readiness Review
  - Phase 2: Restart Activities Monitoring
  - Phase 3: Final Expanded System Readiness Review
  - Phase 4: Startup and Power Ascension

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**NOTE:** These same four phases also apply to Level 1 systems as detailed in Reference 6.1. The word systems in this document refers specifically to Level 2 systems unless specifically indicated to the contrary.

1.4.1 Phase 1 is to include the following:

- a. Formation and training of system teams for readiness review using representatives from various station departments.
- b. A review of system design and license basis documentation.
- c. Review of safety and accident mitigation functions for each system.
- d. Verification, in conjunction with other ongoing improvement programs and resolution of identified issues, that the plant is modified, tested, operated and maintained consistent with the design and licensing bases.
- e. Evaluation of the extent of condition for identified problems and identification of potential programmatic or generic issues.
- f. Performance of multi-disciplined system walkdowns.
- g. Evaluation of open items in the System Indexed DataBase System (SIDS) (see definitions) against the Restart Screening Criteria.

**NOTE:** The Plant Nuclear Safety Review Committee (PNSRC) is making a transition to be known as Plant Operations Review Committee (PORC). This document uses the acronym, PORC, but documents such as the UFSAR and Technical Specifications may use PNSRC that represents the same group.

- h. Presentation of the Initial Expanded System Readiness Review Report to the System Readiness Review Board (SRRB) and the Plant Operations Review Committee (PORC).
- i. Begin scheduling restart work in the Restart Schedule.

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1.4.2 Phase 2 is to include the following:

- a. Continued review of open corrective action items through closure.
- b. Continued evaluation of emergent action items for unit restart against the Restart Screening Criteria.
- c. Scheduling of restart work into the appropriate System Work Window.
- d. Monitoring of field work, including presence at the job site, when appropriate.
- e. Development of System Test Plans.
- f. Preparation for System Window closure and the Final Expanded System Readiness Reviews.
- g. Completion of regularly scheduled walkdowns by the System Manager (See definitions).
- h. Management of work closure through use of performance indicators and priorities.
- i. Update of the SIDS data base, as the System Manager evaluates emergent and open items.

1.4.3 Phase 3 is to include the following:

- a. Final System Readiness Walkdown completed by the System Manager and an assigned Operations representative.
- b. Presentation of the Final System Readiness Report, prior to restart, to the SRRB and PORC by the assigned operations representative and the System Manager.
- c. Review work that is not complete prior to restart and review the aggregate impact of deferred work.
- d. Finalize the System Test Plans.
- e. System Manager will develop performance monitoring baseline for system performance tracking and trending

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1.4.4 Phase 4 is to include the following:

- a. Designated test results identified by the Test Review Board (TRB).
- b. System Manager will implement performance monitoring baseline for system performance tracking and trending.
- c. System Manager will monitor any new corrective maintenance activities or condition reports, and continuously monitor system readiness.
- d. Completion of System Readiness Affirmation.

## 2 DEFINITIONS AND ABBREVIATIONS

Term	Meaning
System Assessment Matrix	The matrix consists of attributes (rows) and topic review areas (columns) that define the scope of the work and when completed provides the summary basis of the conclusions of the Expanded System Readiness Review. Figure 1 provides the Assessment Matrix Form. Figure 2 provides a sample completed assessment matrix.
Attribute	Key system parameters, including system safety and accident mitigation functions, that will be evaluated against various topic review areas. The attributes make up the rows of the matrix and are selected by the Expanded System Readiness Review Teams using guidance provided in Section 4.3.4.
Topic Review Area	Consists of documents and sources of information in the following areas: Design, Licensing, Operations, Maintenance, Surveillance, Physical Plant, and Programs, Processes and Procedures. The review areas make up the columns of the assessment matrix. The addendum to Figure 1 provides guidance on the evaluation to be performed for each topic area.
Discrepancy	A finding generated as a result of an activity performed in accordance with this procedure which indicates a potential need for corrective action or process improvement. Discrepancies identified during the Expanded System Readiness Review are documented via Condition Reports (CRs) in the Cook Plant Corrective Action Program (CAP) or as Action Requests in the Work Control System (NPM). A Condition Report shall be issued for any item that falls within the scope of the Corrective Action Program.

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## 2 DEFINITIONS AND ABBREVIATIONS (Continued)

Term	Meaning
Generic Issue	Discrepancies identified in several systems for the same topic review area that potentially identify a process or programmatic problem.
Assessment Data Base	The data base used to document Expanded System Readiness Review assessments, confirming consistent use of design and licensing information, and identifying discrepancies.
System Indexed Data Base System	The SIDS data base is used to track open items identified as required for restart. Open items in this data base include open items from existing plant data sources, and discrepancies identified by the Expanded System Readiness Review. Thus, discrepancies identified during the Expanded System Readiness Review generate entries in the SIDS Database.
Current Licensing Basis	The set of NRC information applicable to a specific plant and a licensee's written commitments for ensuring compliance with, and operating within applicable NRC requirements and the plant specific design basis, including all modifications and additions to such commitments over the life of the license, that are docketed and in effect. The CLB includes NRC regulations contained in 10CFR Parts 2, 19, 20, 21, 26, 30, 40, 50, 51, 54, 55, 70, 72, 73, 100 and appendices thereto: Orders, License Conditions, Exemptions, and Technical Specifications (TSs). It also includes the plant specific design basis information defined in 10CFR 50.2 as documented in the most recent UFSAR as required by 10CFR 50.71 and NRC commitments remaining in effect that were made in docketed licensing correspondence such as responses to NRC Bulletins, Generic Letters and enforcement actions, as well as licensee commitments documented in the NRC Safety Evaluations or Licensee Event Reports.
Design Basis (as Defined by 10CFR 50.2)	Information that identifies the specific functions to be performed by a structure, system or component of a facility and the specific values or range of values chosen for controlling parameters as reference bounds for design. These values may be (1) restraints derived from generally accepted state-of-the-art practices for achieving functional goals or (2) requirements derived from analysis (based on calculations and/or experiments) of the effect of a postulated accident for which a structure, system or component must meet functional goals.

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## 2 DEFINITIONS AND ABBREVIATIONS (Continued)

Term	Meaning
Engineering Design Basis	The Engineering Design Basis is the entire set of design restraints that are implemented, including (1) those that are part of the current licensing basis, and (2) those that are not part of the current licensing basis, but are implemented to achieve certain economies of operation, maintenance, procurement, installation, or construction. (Refer to NUREG-1397 for further clarification, including definitions of Design Basis Document, Design Requirements and Design Output Document).
Vertical Slice Review	A structured review approach derived from the Safety System Function Inspection (SSFI) methodology that allows an assessment of specific aspects of the plant physical configuration and operation against selected aspects of the plant licensing and design basis. The scope of the ESRR vertical slice review for each system is defined by the System Assessment Matrix.
Horizontal Slice Review	A review of a programmatic issue or plant documents across multiple plant systems, such as a review of the UFSAR, evaluation of Appendix R fire protection requirements, review and upgrade of calculations, etc.
System Readiness Review Board (SRRB)	A board of personnel conducting business in accordance with the Charter in Attachment 1 of Reference 6.1.
System Manager	The leader of the Expanded System Readiness Review Team and engineering owner of assigned systems for purposes of this procedure.
System Manager "APPROVE"	Indicates the fact that the System Manager has reviewed the scope (i.e., the screening of the item as required or not required to support unit restart) of an item in SIDS and the associated comments that justify the item's scope. This "APPROVAL" is denoted in the Initial System Manager Approval box in SIDS and is used by the System Manager during all Phases for new items in SIDS, meaning that the System Manager agrees with the scope and justification.



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## 2 DEFINITIONS AND ABBREVIATIONS (Continued)

Term	Meaning
System Manager "CONCUR"	During Phases 3 and 4, "CONCURRENCE" is denoted in the Final System Manager Approval box in SIDS and is used by the System Manager to mean that restart items, or post restart items that are not included in the aggregate impact, have been completed to the satisfaction of the System Manager.
System Manager "EXCEPT"	Indicates that this Restart scoped SIDS item is not complete and remains an exception to restart (i.e., completion of the item still needed to enter the mode identified in the mode restraint box in SIDS). This "EXCEPTION" is denoted in the Final System Manager Approval box in SIDS and is used by the System Manager during Phases 3 and 4.
System Manager "Post Restart Deferred"	Denoted on items associated with a component that has (2) or more post restart deferred items, excluding PM post restart items.
System Manager "Restart Required Deferred"	Denoted on items with deferred scope that were initially approved, as restart required. These items must be accompanied by a Restart Required Scope Deferral Form (Attachment 7).

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### 3 RESPONSIBILITIES

- 3.1 The Director of Engineering Restart is responsible for overseeing Engineering preparations for restart, for the ESRR Program and, when needed, for chairing the System Readiness Review Board; ensuring that the requisite members are in attendance.
- 3.2 The System Readiness Review Manager is responsible for:
  - 3.2.1 Expanded System Readiness Review Program content and oversight.
  - 3.2.2 Determination of the scope of the review for ESRR systems.
  - 3.2.3 Ensuring adequate training and logistics support is provided to participating team members
  - 3.2.4 Reviewing the results of the individual system readiness reviews, identifying any generic concerns and defining programmatic corrective action (if any).
  - 3.2.5 Reviewing the attribute selection and the corresponding Assessment Matrix for each system (Figure 1).
  - 3.2.6 Maintaining and revising this procedure on the Expanded System Readiness Review Program, annotating the changes made, and obtaining appropriate approvals.
  - 3.2.7 Owns and manages the SIDS Database
- 3.3 The System Engineering Manager is responsible for the assignment of System Managers to systems being reviewed, and for providing additional oversight for the ESRR Program.
- 3.4 The System Engineering Supervisors are responsible for supervision and effective implementation of the Expanded System Readiness Review Program through active coaching, counseling and oversight of the System Manager. The System Engineering Supervisors jointly own the ESRR results with the System Managers.
- 3.5 The Expanded System Readiness Review Program Coordinator is responsible for:
  - 3.5.1 Expanded System Readiness Review program development and implementation.

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- 3.5.2 Schedule and coordination
- 3.5.3 Reviewing and recommending for approval the attribute selection and the corresponding Assessment Matrix for each system.
- 3.5.4 Review the Assessment Data Base to identify generic issues and trends.
- 3.6 The Assessment Data Base Coordinator is responsible for:
  - 3.6.1 Assuring that the Assessment Data Base is operational and available to the ESRR teams.
  - 3.6.2 Maintaining the data in the Assessment Data Base and providing status and summary reports regarding the ESRR.
- 3.7 The SIDS Data Base Coordinator is responsible for:
  - 3.7.1 Assuring that the SIDS Data Base is operational and available to the ESRR teams, and to program owners and functional area managers (or designees).
  - 3.7.2 Making any required changes or improvements to the SIDS Data Base.
  - 3.7.3 Ensuring that items required to be scoped are entered into the SIDS Data Base.
  - 3.7.4 Providing and maintaining the quality of SIDS reports.
- 3.8 System Managers are responsible for:
  - 3.8.1 Overall system health and performance.
  - 3.8.2 Organizing and leading each ESRR Team. The Team will be composed of the necessary multi-discipline resources to conduct Phase 1 of the Expanded System Readiness Reviews. The System Teams will include the following:
    - a. System Manager
    - b. Operations Representative
    - c. Design Engineering Representative
    - d. Maintenance Representative
    - e. Licensing Representative

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- f. Outside member(s) with varied industry experience
- 3.8.3 Coordinating team requests for system design and licensing basis documentation from the appropriate sources.
- 3.8.4 Performing Phases 1, 2, and 3, and supporting Phase 4 of the ESRR.
- 3.8.5 Coordinating preparation of the ESRR Initial and Final Reports, and presenting these reports to the SRRB and PORC.
- 3.8.6 Assembling ESRR review results and restart action items into the SIDS Database for tracking.
- 3.8.7 Maintaining a status of restart action items and submitting status updates to plant management as required.
- 3.8.8 Coordinating and conducting system walkdowns with appropriate team members.
- 3.8.9 Organizing and leading each work window team (see Section 4.4.2b.1).
- 3.9 The Expanded System Readiness Review Teams are responsible for:
  - 3.9.1 Identifying attributes appropriate to their specific system for assessment.
  - 3.9.2 Selecting topic areas appropriate to the identified attributes.
  - 3.9.3 Performing system attribute checks and walkdowns and documenting the results, including any noted discrepancies, in the assessment data base.
  - 3.9.4 Reviewing items in the SIDS data base and scoping the items as discussed in section 4.3.12.
  - 3.9.5 Entering the deficiencies in the Cook Plant Corrective Action Program and/or Work Control System as appropriate.
  - 3.9.6 Providing assistance to the System Manager as required.
- 3.10 The Operations Manager is responsible for assigning appropriate Operations representatives to support the ESRR Program.
- 3.11 The Director of Regulatory Affairs is responsible for assigning appropriate Licensing representatives to support the ESRR Program.

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- 3.12 The Maintenance Manager is responsible for assigning appropriate maintenance representatives to support the ESRR Program.
- 3.13 The Design Engineering Director is responsible for assigning appropriate Design Engineering representatives to support the ESRR Program.
- 3.14 The SRRB will perform management oversight and assessment of the Expanded System Readiness Review Program and will be the final approval authority over work item screening. The SRRB will perform activities applicable to this procedure, including approval of the System Assessment Matrices. The SRRB Charter is included in Attachment 1 of Reference 6.1. An expected product of the SRRB oversight is improved consistency and technical depth of the ESRR results.
- 3.15 The PORC is responsible to provide a cross-discipline oversight of the ESRR Program by reviewing ESRR reports for each system and the Integrated Readiness Review Report.
- 3.16 The Outage Scope Management Team (OSMT) will review emergent work items following Phase 1 to determine whether or not they are required to support Unit restart.

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#### 4 DETAILS

##### 4.1 Scope And Selection Of Level 2 Systems For the Expanded System Readiness Review

**NOTE:** The term "TBDL" when used in this document refers to detail To Be Developed Later and incorporated in a subsequent revision to this document or in other documents.

4.1.1 Previously, a plant System Readiness Review was conducted as discussed in Reference 6.3. A graded approach was used in performing the previous system readiness reviews, with high-risk systems receiving more thorough reviews. The previous system readiness reviews were broken down into three levels, with the following attributes:

a. Level 1 Systems -

1. Risk-significant Maintenance Rule systems
2. Some important non-risk significant standby maintenance rule systems

b. Level 2 Systems

1. Remaining non-risk significant Maintenance Rule systems

c. Level 3 Systems

1. Non-Maintenance Rule systems that support power generation
2. Systems that are required for plant operation, are easily monitored in service, and present little or no challenge to safety

4.1.2 Subsequent to the completion of the previous System Readiness Review, several independent reviews were conducted, including a Safety System Functional Inspection (SSFI) of the Auxiliary Feedwater System (Reference 6.4) and an Engineering Issues Review Group final report (Reference 6.5). These reviews identified vulnerabilities with respect to the scope of systems reviewed during the previous System Readiness Review, additional system design basis and licensing basis issues, and weaknesses in engineering programs and processes.

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4.1.3 The classification of Level 1, 2, and 3 systems utilized during the previously performed system readiness reviews were based solely on Maintenance Rule input. The Level 1 systems were Maintenance Rule Risk Significant systems. Level 2 systems were non-risk significant systems, but systems that were still included in the scope of the Maintenance Rule. Level 3 systems were systems that were not included in the scope of the Maintenance Rule.

4.1.4 The classification of Level 1 and 2 systems utilized during the ESRR Program is based on Maintenance Rule input, systems required for safe shutdown, significant attendant/support systems, and systems identified by the System Engineering Manager that have experienced an abnormal amount of corrective maintenance. The basis for the selection of Level 1 systems is found in Attachment 3 of Reference 6.1. Level 2 systems are the remaining designated plant systems. The Level 2 systems do not include any systems that are risk significant in accordance with the Cook Plant Maintenance Rule, and do not include systems required to support safe shutdown. However, the Level 2 systems include some plant systems that are important to reliable plant operation, such as Main Feedwater, Condensate, and Turbine Control. Failures in these and other systems can result in challenges to the plant safety systems and plant protection systems.

4.1.5 Expanded System Readiness Reviews under this procedure will be conducted on all of the Level 2 systems as listed Attachment 1.

#### 4.2 Use Of The System Assessment Matrix, SIDS, And The Assessment Data Base

4.2.1 The ESRR employs a vertical slice approach derived from the methodology of a Safety System Functional Inspection (SSFI). This approach evaluates system safety important to safe operation and accident mitigation functions (Attributes) against plant configuration and design, licensing, operations and maintenance documents (Topic Areas).

4.2.2 The scope of the vertical slice review performed on a system is shown in a System Assessment Matrix. The system attributes selected for each system's review form the rows of this matrix, as further discussed in section 4.3.4. The sources of information or topic areas that are included in the vertical slice form the columns of the matrix.

4.2.3 The System Manager, accompanied by the cognizant System Engineering Supervisor, presents a description of the system scope and the system specific Assessment Matrix to the SRRB for approval. This helps the SRRB ascertain that attributes are appropriate.

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- 4.2.4 The requirements associated with each of the attributes are evaluated against specific topic areas or sources of information.
- 4.2.5 The assessments include comparison and evaluation of documents as well as observations of plant condition and configuration during system walkdowns. The ESRR will emphasize those attributes, topic areas and activities necessary to satisfy the program purpose.
- 4.2.6 The results are documented using Attribute Assessment Forms (Figure 3) in the Assessment Data Base. Discrepancies are entered into the Cook Plant Corrective Action Program and/or Work Control System (NPM). Assessment Data Base manipulation and reporting capabilities assist in reporting, tracking and identification of generic issues and trends.
- 4.2.7 By assessing the results for all topic areas across all the systems reviewed, the ESRR can assist in determining the extent of condition of vulnerabilities in plant programs and processes already identified by previous inspections and reviews (e.g., References 6.4 and 6.5). The ESRR will also be used to identify other potential vulnerabilities and the potential need for further improvement in plant processes and programs.
- 4.2.8 In summary, the ESRRs result in a vertical slice evaluation of selected design and licensing bases for the ESRR systems. These evaluations do not guarantee that future external or internal assessments will not uncover additional problem reviews. However, in conjunction with other ongoing horizontal slice restart programs at Cook Plant and resolution of issues that are recommended for restart, the ESRRs provide reasonable assurance that key systems are capable of meeting their safety and accident mitigation functions as defined in their design and licensing basis.
- 4.2.9 The SIDS Data Base is being used to track items being evaluated, scoped and justified as either Restart or Post Restart for both Units. This data base is the central repository for such items. SIDS will generate reports listing Restart and Post Restart items for SRRB and PORC approval. This data base will be managed and controlled by the System Manager for his particular system(s).
- 4.3 Phase 1 – Initial Expanded System Readiness Review
  - 4.3.1 Expanded System Readiness Review Team Formation
    - a. The System Engineering Manager will assign a System Manager to each of the Expanded System Readiness Review teams.



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- b. The System Manager will lead the Expanded System Readiness Review Team comprised of a licensed member from Operations and members from Design Engineering, Maintenance, Licensing, and outside members with strong industry experience.

#### 4.3.2 Training

- a. Prior to performing the reviews, training will be conducted for the AEP System Managers and the ESRR Team members on Expanded System Readiness Review Program knowledge and skill needs. These needs are defined in Attachment 2.
- b. The training for the AEP System Managers and the ESRR Teams was determined based on an evaluation of the tasks to be performed and lessons learned from the original System Readiness Reviews, the original System Engineering Review Board, and previously performed engineering and programmatic assessments.

#### 4.3.3 Review Design and Licensing Basis Documentation

- a. The ESRR Team shall become familiar with the design and licensing basis of the system to gain an understanding of the system functional and safety requirements under normal operating and accident conditions. The design and license basis documentation listed in Attachment 3 will be available to the ESRR Team to the extent it exists for each system.

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- b. Access to the following will be provided to the ESRR Teams.
  1. EQ information
  2. Appendix R information
  3. Station Blackout information
  4. ISI/IST Program Information
  5. Seismic qualification information
  6. Electrical design criteria (separation, etc.)
  7. Maintenance Rule Program Information
  8. Individual Plant Examination (IPE) Results
  9. High Energy Line Break Program Information
  10. Generic Letters GL89-13, GL83-28, GL96-01, and responses thereto.
  11. Generic Letter GL89-10 program information.
  12. Generic Letter GL96-06 information (as available)
  13. LER 97-021 and associated single failure commitments
  14. 1998 AFW SSFI Report
  15. 1998 Containment Spray SSFI Report
  16. Engineering Issues Review Group Report (Reference 6.5)
- c. The expectation is that the System Manager will review the above information to determine its impact on his system.
- d. Licensing will provide the results of a review of licensing commitments on a system basis.

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#### 4.3.4 Define System Specific Attributes

- a. During the review and evaluation of design and licensing information, each ESRR Team will develop a list of attributes to be included in the assessment on the System Assessment Matrix.
- b. Attributes will be selected by a thorough review of the design and licensing basis to identify the system safety and accident mitigation functions, as applicable. Additional functional requirements of the system and critical components may also be selected. Information from the Licensing Review Program will be considered as will PRA insights on risk significant components and functions. Functionality of attendant/support systems and important passive equipment (e.g., tanks, bladders, strainers) will also be considered in selection of system attributes. Generic requirements such as Year 2000 and Lake Temperature Effects on System Operability will also be selected as system attributes when appropriate. A detailed example of and some requirements for attribute selection and their bases are provided in the Figure 2 addendum.

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#### 4.3.5 Establish Scope of Review

- a. Each ESRR Team will perform a vertical slice review of its assigned system by evaluating the system and common attributes against specific topic review areas as documented in the system Assessment Matrix. The topic areas to be assessed for each attribute will be defined in an initial System Assessment Matrix at the start of the ESRR, taking into account the results of previous evaluations at Cook Plant. This initial System Assessment Matrix will be reviewed and recommended by the ESRR Program Coordinator or Manager and the Nuclear Licensing Manager or Director of Regulatory Affairs, and approved by the SRRB. Changes made in response to SRRB comments need not be re-reviewed by the other parties who previously reviewed the matrix. The specified reviews and approvals will be based on the matrix and attached supporting information. Typically, this information will consist of:
  - A listing of the system safety and accident mitigation functions
  - The matrix itself, showing the attributes selected and the topics to be reviewed for each
  - A marked-up system flow diagram or schematic depicting system boundaries
  - A separate word description of system physical and functional boundaries. Functional boundaries are those interfaces with other systems or the environment that must be proper in order for the system to function as designed. An example would be a circuit breaker in a non-safety related system that must open to protect a connected safety-related system if the non-safety related system incurs a fault.
  - A description of the attributes chosen and the sub-attributes of each which the team intends to pursue.
- b. The System Assessment Matrix will be used by each ESRR team as a guideline to ensure adequate coverage of topic areas and all attributes.

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- c. Based on the additional knowledge and understanding gained in the course of the review, specifically including the results of the review of licensing commitments, actual coverage of specific topic areas for particular attributes may expand and deviate from the initial matrix, provided that coverage of appropriate topic areas and all attributes is maintained. If ongoing licensing or ESRR reviews identify the need to add attributes to the assessment matrix, these additions will be approved by the ESRR Manager or the ESRR Program Coordinator. Such additions will be communicated in a timely manner between Licensing and the ESRR Manager. Actual coverage will be documented in the final System Assessment Matrix, which will be reviewed by the ESRR Program Manager or Program Coordinator and will be included in the Initial Expanded System Readiness Review report.

#### 4.3.6 Review System Condition Documentation

- a. SIDS will be loaded with open items from other plant data bases for review by the ESRR Teams to gain a comprehensive understanding of the current system condition, to assess the system functional requirements for readiness, and to evaluate the conformance of the system condition to its design basis. A specific focus of this effort shall be the identification of fundamental vulnerabilities in the system's ability to perform its safety and accident mitigation functions as defined in the Design and Licensing Basis.
- b. During the review and evaluation of these data sources, the ESRR team may develop additional specific requirements to be checked. For example, if a previously conducted assessment identified a discrepancy between a component capability and a design requirement, this design requirement would be a candidate for investigation and the satisfactory closure of the previously identified discrepancy would be assessed as part of the ESRR. The same strategy may be applied to assess the satisfactory closure of open items that were identified when the Design Basis Documents were created.

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#### 4.3.7 Perform Assessment of System Attributes and Topic Areas

- a. The checks of specific attributes against the topic areas will assess the internal consistency of system documents, procedures, and plant configuration and their conformance with design and licensing requirements. The ESRR Team will document conformance with requirements as well as discrepancies on an Attribute Assessment Form. An example of a completed Attribute Assessment Form is provided in Figure 4 (Actual form may vary slightly as it will be computer generated).
- b. Each Attribute Assessment Form shall list the documentation reviewed, or walkdown observations made to arrive at the assessment conclusions. The list of reviewed documents shall contain revision numbers and/or date if applicable. The assessment forms shall describe the assessment and indicate the number of attribute checks covered by the assessment form and the number of attribute checks which resulted in identification of discrepancies. The ESRR team shall determine the extent of condition for discrepancies identified within their system by conducting additional checks as necessary.
- c. A summary of the evaluation for each attribute will be documented in the Initial System Readiness Report. This summary will document the checks made to verify the capability of the system to perform its safety and accident mitigation functions.

#### 4.3.8 Perform Walkdown of System

- a. The System Manager shall develop the walkdown strategy in accordance with the System Walkdown Guidelines and brief the ESRR Team (see Attachment 4). The walkdowns conducted as part of the previous System Readiness Reviews tended to focus on material condition. The ESRR walkdowns will include evaluation of material condition, but will also focus on configuration or environmental issues that could also impact the design and licensing basis. [Ref. 6.11]
- b. System safety and accident mitigation function flow paths should be indicated on system flow diagrams. The marked up drawings will be used to assist the System Manager to verify the system safety and accident mitigation functions during the system walkdowns. Other drawings may be used by teams to check specific configuration or as-built details against drawing requirements.

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- c. Participants in the walkdowns will include the System Manager, the Operations representative, a Maintenance representative, and outside team member(s). Participation by representatives of design engineering and licensing may also be obtained when required by the System Manager.
- d. The assessment performed during the walkdown will be documented, together with discrepancies noted, in the assessment data base.
- e. Corrective action items identified during the walkdowns shall be entered into the Corrective Action Program and/or Work Control System by initiating a Condition Report or Action Request respectively. These corrective action items will also be captured in the SIDS data base and the Assessment Data Base.
- f. A Walkdown Report (Attachment 12) is to be assembled by the System Manager and included in the Initial Expanded System Readiness Report. The report will discuss the following:
  - 1. Walkdown purpose and scope
  - 2. Walkdown findings
  - 3. Necessary corrective actions identified
  - 4. Summarization of system concerns and condition
  - 5. Summarization and justification for portions of systems that are not walked down.
- g. During the review and evaluation of the walkdowns, the System Team may develop additional checks to make beyond those on the Walkdown Guidelines.

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#### 4.3.9 Identify Long Standing or Recurring Equipment Performance Issues

- a. Each ESRR team will obtain information, as applicable, from previous Reliability Centered Maintenance (RCM) evaluations, the IST program self assessment, and Maintenance Rule evaluations to identify potential long-standing or recurring equipment performance issues. Such issues shall be identified for follow-up in the Assessment Data Base and the Corrective Action Program and/or Work Control System and the results will be documented in the Initial Expanded System Readiness Review Report. A Condition Report shall be issued for any item that falls within the scope of the Corrective Action Program.

#### 4.3.10 Evaluate Extent of Condition for Identified Problems

- a. Each system team shall assess recurring issues to determine whether further extent of condition determination is required (beyond the planned scope as documented in the initial system Assessment Matrix) and document any such conditions in the Initial Expanded System Readiness Review Report. [Ref. 6.12]
- b. The ESRR Program Manager and Program Coordinator shall review the results across all the reviewed systems to identify potential programmatic or generic issues. If appropriate, this information will be used to recommend corrective actions of a programmatic nature. The results will be documented in the Expanded System Readiness Review Integrated Results, described in Attachment 11.

#### 4.3.11 Document review results and enter discrepancies into ESRR Assessment Data Base and the Cook Plant Corrective Action Program and/or Work Control System. A Condition Report shall be issued for any items that fall within the scope of the Corrective Action Program.

- a. Attribute checks performed as well as discrepancies found in this review are to be documented in the Assessment Data Base. Discrepancies shall also be entered into the Cook Plant Corrective Action Program by Condition Report or the Work Control System by Action Request.



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- b. Condition Reports and Action Requests will automatically be loaded into the SIDS data base. This SIDS data base will allow tracking of open items required for restart and will allow evaluation of potential aggregate effects of those items not required to be resolved prior to restart.

**NOTE:** Program owners or functional area managers (or designee) perform scoping, monitoring, and closure of non system-specific programmatic or functional area discrepancies as discussed further in PMP 7200.RST.009 and PMP 7200.RST.010.

#### 4.3.12 Determine Restart Workscope

- a. All system-specific items in the SIDS data base will be reviewed against the Restart Issues Selection/Screening Criteria (see Attachment 5). The System Manager is responsible for adding any known open corrective action items not present in SIDS for his system. These items are to be evaluated for Restart Readiness Scope. PRA risk-based insights may be helpful in deciding marginal cases.
- b. Each system-specific item in the SIDS database will be evaluated using the evaluation process outlined in Attachment 5. The ESRR Team will recommend one of the following classifications for each such item in SIDS in order to enable return of the Cook Plant Units to operation in a safe and reliable manner:
  1. RESTART1 - Activities required to be completed prior to entering Startup/Power Ascension of Unit 1. This classification includes necessary restart and power ascension testing activities as well as definition of the applicable mode restraint.
  2. RESTART2 - Activities required to be completed prior to entering Startup/Power Ascension of Unit 2. This classification includes necessary restart and power ascension testing activities as well as definition of the applicable mode restraint.
  3. POST RESTART1 - Activities which should be completed on a schedule consistent with the Unit 1 normal plant work controls process.
  4. POST RESTART2 - Activities which should be completed on a schedule consistent with the Unit 2 normal plant work controls process.

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5. NOT APPLICABLE - Activities that are not required to be completed.
- c. These classifications will be used to determine and schedule the work within the appropriate restart time frame.
- d. Preventive Maintenance activities are unique since they often provide a means of enhancing equipment performance. However, the equipment being serviced may require being removed from operation. As a result, the ESRR must take these activities into consideration when evaluating PM activities. The following expectations are associated with the evaluations of PM activities:
- All PMs scheduled for completion before August 31, 2001 are to be reviewed.
  - PMs scheduled (next required date) prior to March 31, 2000 are to be categorized as RESTART1 or RESTART2.
  - PMs that are scheduled or planned during the operating cycle, and require a unit outage to complete, are to be categorized as RESTART1 or RESTART2 as appropriate.
  - PMs scheduled (next required date) prior to August 31, 2001 that are not part of on-line maintenance or a Functional Equipment Group (FEG) outage, and will impact a surveillance test, or initiate an unplanned or unscheduled LCO during the operating cycle, are to be categorized as RESTART1 or RESTART2.
  - PMs that are scheduled as a function of a pre-planned or pre-scheduled FEG outage, with or without an ensuing LCO, and do not challenge unit/system operability, are to be categorized as POST RESTART1 or POST RESTART2.

Some re-screening will be necessary if the assumed dates above change.

- e. All system leaks are to be evaluated. Scope determination guidelines are as follows:
- Any leak location with no available isolation is to be categorized as RESTART1 or RESTART2, unless reasonable justification for a different categorization is provided.

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- Any ASME code component/vessel/piping leakage is to be categorized as RESTART1 or RESTART2.
- Leakage that can only be isolated by using a "freeze seal" is to be categorized as RESTART1 or RESTART2.
- Any leakage identified within containment requiring corrective action is to be categorized as RESTART1 or RESTART2.
- Leakage identified on systems outside containment, on non-ASME code components/vessels/piping, that is isolable, and would not challenge system operability or reliability if worked non-outage, is to be categorized as POST RESTART1 or POST RESTART2.
- Leakage from systems outside containment that would or could contain radioactive fluids that could violate leakage requirements in Section 14.3 of the UFSAR is to be categorized RESTART1 or RESTART2.

#### 4.3.13 Labeling

- Any labeling issues that have potential impact to work control tagging are to be categorized as RESTART1 or RESTART2 with the mode identified.
- Any labeling issues with any potential impact to system operability or reliability are to be categorized as RESTART1 or RESTART2.
- Only labeling issues that have no impact on components/systems work control tagging are to be categorized as POST RESTART1 or POST RESTART2.

#### 4.3.14 Prepare Initial Expanded System Readiness Report and Present to The System Readiness Review Board.

- a. The information gathered throughout the system readiness review and walkdown shall be compiled by the ESRR Team into an Initial Expanded System Readiness Review Report. Each member of the review team, including participants in the walkdowns, will be identified in the report.

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- b. The System Manager will ensure that each open corrective action item identified during the ESRR and walkdown is initiated either as a Condition Report or Action Request, and, if system-specific, is evaluated and scoped in the SIDS data base prior to the SRRB presentation.
- c. The report content is as depicted in Attachment 9 and will be presented to the SRRB for approval. Minor changes in the report format are permitted with the concurrence of the ESRR Program Manager or Coordinator. The System Manager will be accompanied by the Engineering Supervisor cognizant over the system.
- d. When the Initial Expanded System Readiness Report is approved by the SRRB, the System Manager will next present the report to the PORC for approval. If the report is approved by the SRRB with comments, the System Manager will resolve all SRRB comments and the original signee will re-review the report and approve comment resolution. If the SRRB disapproves the report, the System Manager must re-present the report to the SRRB until approval is obtained, obtaining re-reviews as needed.
- e. After the report has been presented to the SRRB, the SRRB Secretary will provide the cognizant Engineering Supervisor with a list of all comments the System Manager needs to address. In some instances when the new technical issues are identified during SRRB reviews, the System Manager will be required to write a Condition Report on the issue. In this case, the respective Engineering Supervisor is to debrief the System Manager, and record the debrief in the CR. The debrief will address all comments recorded at the SRRB presentation. When ESRR program implementation problems are identified, the SRRB secretary will write a Condition Report on the issue.
- f. After SRRB approval, the System Manager presents the Initial Expanded System Readiness Review Report to the PORC. The PORC will approve or disapprove the report, from a nuclear safety standpoint, keeping an overview perspective that focuses on ensuring that inter-disciplinary concerns were adequately addressed. PORC should not normally focus on approving SRRB action on each discrepant condition but rather should probe into methods and overall results. If approved, the action items will be included in the restart effort. Any changes to the scope (restart/post restart) of individual items will be recorded in the PORC meeting minutes. If disapproved, the System Manager will take appropriate actions and re-present the report to the PORC.

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- g. The cognizant Engineering Supervisor will ensure incorporation of PORC comments within the report and SIDS data base. PORC comments are to be incorporated in SIDS by the SIDS Data Base Coordinator, and reviewed by the System Manager. PORC comments within the report are to be incorporated by the System Manager.

#### 4.3.15 Functional Areas and Programmatic Issues

- a. Open items associated with functional areas and programs will be loaded into the SIDS data base.
- b. If the open functional area or programmatic items affect specific systems, these items will be transferred to the appropriate system, within SIDS, where the ESRR Teams will scope the items.
- c. The SRRB will review the scoping of programmatic and functional area work items that are not system specific subject to a schedule and protocol established by the Director of Restart.
- d. Functional area and programmatic issue items will be reviewed and approved by SRRB.
- e. For open functional area and programmatic items that are not system specific, the appropriate functional area or program owners are responsible for ensuring that the functional areas and programs are ready to support restart in accordance with the Restart Plan.

#### 4.4 Phase 2 - Restart Activities Monitoring

<b>NOTE:</b>	Program owners or functional area managers (or designee) perform scoping, monitoring, and closure of non system-specific programmatic or functional area discrepancies as discussed further in PMP 7200.RST.009 and PMP 7200.RST.010.
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##### 4.4.1 General Description of Phase 2 Activities

- a. The System Manager will use SIDS to monitor approved system work scope and identify any new action items. Work activities should be frequently field verified and monitored to insure corrective actions are being taken and no adverse plant conditions develop.
- b. The System Manager will perform the following activities:

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1. Monitor closure of approved system-specific workscope items using SIDS and available performance indicators
  2. Identify and evaluate new emergent system specific action items for restart; consider using risk-based insights where available to enhance decision-making in marginal cases
  3. Perform routine field walkdowns
  4. Make presentations to the SRRB as requested
  5. Review system work window planning and scheduling to ensure work is being properly scheduled
  6. Provide input to and review System Test Plans
  7. Update SIDS to reflect proper completion of open system-specific items and to document exceptions to completed work
- c. For system-specific Restart Required items that are not planned to be completed prior to restart, the Restart Required Scope Deferral Form (Attachment 7) is to be reviewed through the same level of approval as when the item was originally approved for restart.
  - d. Applicable Restart Required Scope Deferral Forms are to be completed prior to closure of the applicable System Work Window. For Condition Reports not associated with corrective maintenance, the deferral form is to be completed no later than the Final Expanded System Readiness Review.

#### 4.4.2 Management of Workscope

NOTE:	Emergent items scoped as restart must be scheduled in the appropriate System Work Windows.
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- a. Identify and Scope Emerging (New) Open Items
  1. Phase 2 work items that are evaluated and scoped for accomplishment prior to restart after the Expanded System Readiness Review Initial Report is prepared will be reviewed using the following process in accordance with Attachment 6.

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- a) The System Manager will review, evaluate and scope new or emergent system-specific items within SIDS in accordance with Attachment 5, "Criteria for Work Included in Restart Scope,"
- b) The System Manager is also responsible for review and evaluation of any newly initiated Operating Experience items impacting his respective systems. The new Operating Experience items are to be scoped for applicability to the unit restart. The System Manager is to ensure that Operating Experience items that are scoped as restart items are resolved and follow-up actions completed prior to restart.
- c) System-specific items that result in newly created corrective maintenance or new design change requests are to be monitored for closure.

## 2. Phase 2 Outage Scope Approval Process - Additions

- a) Once new emergent field work items (ARs/JOs/JOAs) are scoped by the System Manager, they will be presented to the OSMT for review and approval by the cognizant Engineering Supervisor or his designee in order to be added to the Restart Schedule. These new emergent work items are subsequently (usually weekly) presented to the SRRB (or subcommittee thereof) for review and approval by the System Manager. PORC approval of restart items is not required during Phase 2.
- b) All other emergent system specific items that are not field work related (broke/fix) are scoped by the System Manager and presented to the SRRB ( or subcommittee thereof) for review and approval. PORC approval of these items is not required during Phase 2.

## 3. Phase 2 Outage Scope Approval Process - Deletions

- a) When deferring items that have been previously approved by the SRRB and PORC as restart items, The Restart Required Scope Deferral Form is to be used. The form will be reviewed through the same level of approval that the restart item originally received.

## b. System Windows

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## 1. System Window Scheduling

- a) The System Manager and Operations personnel should ensure that the applicable restart work is contained within the respective system work window or other appropriate work opportunity. Actual system work windows are developed and scheduled using a System Work Window Team that assists the scheduling organization. System window planning and scheduling will be accomplished by the team under the supervision of the System Manager as follows:
  - Interface with the appropriate planner and scheduler and obtain the planned system windows for review.
  - Review the system schedule for completion. The System Manager should record system schedule additions, changes, conflicts, and omissions within an internal memorandum sent to Planning and Scheduling.
  - Through System Work Window Team meetings the System Manager will ensure that the System Work Window Team is aware of restart task requirements to support System Work Window schedules.

## 2. System Window Work Management

- a) The following issues are to be monitored on systems with only one work window, or monitored during the final system work window of a system:
  - Ensure Restart Required scope items are completed. The System Manager will review completed items to ensure the work was completed to his satisfaction.
  - The System Manager is to assure that the final comment field in SIDS is completed.
  - For Restart Required items, the mode field and the test restraints within the issue field are to be completed in SIDS by the System Manager.



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- Closed restart scope items are to be reviewed and approved by the System Manager and comments entered into the Final Comments Screen of each item in SIDS. An approval designates that the responsible department for completing the item has statused the item as closed or complete.
- b) The following issues are to be monitored by the system work window team on systems with multiple system work windows.
  - Ensure "Evaluation Type" open items (i.e., CRs, AR Evals etc.) are completed.
  - Corrective maintenance items generated from "Evaluation Type" activities are scoped within SIDS.
  - Ensure emergent work items scoped as Restart are scheduled for completion prior to the end of the last available system work window.
- c. System Test Plans
  1. The System Managers are responsible for assisting in the development of the Startup Testing Program for their respective systems. The System Manager will support the Start-up and Power Ascension Organization/Operations organizations in this capacity.
  2. The System Manager will start developing System Test Plans in accordance with PMP-7200.RST.005 (when approved). Test Plans will be developed for appropriate systems based on the reviews performed in Phase 1.
  3. For systems where the System Manager concludes that System Test Plans are not appropriate, justification as to why a System Test Plan is not required will be developed.
- d. System Walkdown
  1. The System Manager should complete a system walkdown on a routine basis. The purpose of these walkdowns is to monitor satisfactory completion of work and to identify emergent deficient conditions.

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e. Interaction with the System Readiness Review Board

1. Any new technical issues identified in a system by SRRB during Phase 2 will be documented in a Condition Report. The Condition Report will be generated by the SRRB secretary or individual System Managers will write the Condition Reports if the issue was identified during a SRRB meeting or presentation at which they are present.

4.5 Phase 3 - Final Expanded System Readiness Review

<b>NOTE:</b>	Program owners or functional area managers (or designee) perform scoping, monitoring, and closure of non system-specific programmatic or functional area discrepancies as discussed further in PMP 7200.RST.009 and PMP 7200.RST.010.
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4.5.1 General Scope

- a. For Restart Required items that are not planned to be completed prior to restart, the Restart Required Scope Deferral Form (Attachment 7) is to be reviewed through the same level of approval as when the item was originally approved for restart.
- b. Applicable Restart Required Scope Deferral Forms are to be completed prior to closure of the applicable System Work Window. For Condition Reports not associated with corrective maintenance, the deferral form is to be completed no later than the Final Expanded System Readiness Review.
- c. Restart Activities
  1. System Managers will review all items scoped RESTART1 or RESTART2 in SIDS to ascertain their completion prior to affirming final system readiness for Restart.
  2. A final system readiness review walkdown will be completed by the System Manager and a licensed operations representative.
  3. A Final Expanded System Readiness Review Report will be developed.

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4. The System Test Plan will be revised to include all items applicable to Restart and Power Ascension that were not approved in previous revisions of the Test Plan.
  5. The Final Expanded System Readiness Review is completed when the System Test Plan has been reviewed and approved by the Test Review Board (TRB) (reference PMP-7200.RST.005 (when approved)) concurrence and the Final Expanded System Readiness Review Report has been completed, presented to the SRRB and the PORC, and PORC approval has been given for system Restart.
  6. Restart Required system-specific items that are not completed are to be coded as an Exception within SIDS. Refer to Attachment 8, "Final Expanded System Readiness Review Clarification Sheet," for detailed information.
  7. Items that are coded as an Exception do not require comments in the Final Comment field in SIDS.
  8. Restart Required system-specific items that are not planned to be completed prior to restart are to be coded as Restart Required Deferred in the Final System Manager Approval box within SIDS. Refer to Attachment 8, "Final Expanded System Readiness Review Clarification Sheet," for detailed information.
- d. Post Restart Activities
1. System Managers will review all system-specific items scoped Post Restart1 or Post Restart2 as appropriate in SIDS for final approval for applicability to Restart. They then complete the Final Comment field in SIDS for all Post Restart items.
  2. For components that have two (2) or more associated Post Restart items, the Post Restart items are to be coded as Post Restart Deferred in the Final System Manager Approval box within SIDS. Refer to Attachment 8, "Final Expanded System Readiness Review Clarification Sheet," for detailed information.

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3. Post Restart items related to components with multiple (two or more) deferred issues, excluding post restart PMs, are to have the Final Comment section completed in SIDS providing technical justification for restart by evaluating the aggregate impact of the multiple deferred tasks on the component. These comments are to be referenced in the Final Expanded System Readiness Review Report.
4. Marked-up drawings identifying the components with multiple deferred issues will be included with the Final Expanded System Readiness Review Report.
5. The aggregate impact of all outstanding items against a given component will be reviewed, assessing the operability of the component. Justification for exclusion of the items for Final System Readiness will be included in the Final Expanded System Readiness Review Report.
6. The aggregate impact of all affected components will be evaluated against the given system assessing the operability of the system, and this evaluation will also be included in the Final Expanded System Readiness Review Report.

#### 4.5.2 Final Restart Work Closure

- a. All system-specific Restart Scope items within SIDS are to be reviewed and concurred with by the System Manager. An approval designates that the responsible department for completing an item has statused the item as Work Complete or Closed. Any known exceptions to the items are to be noted as specified in Section 4.5.1c.6 prior to System Manager approval. Items not administratively closed are to be addressed within the final comments as to how these items are to be closed.
- b. The System Manager collects the Restart Required Scope Deferral Forms completed on each system and reviews the Deferred Restart Required Work and Post Restart Scoped Work, excluding post restart PMs, for aggregate impact to the system, and prepares technical justification for system operability in accordance with its design basis functions. This review is to be included within the Final Expanded System Readiness Review Report as discussed in Section 4.5.4a.

#### 4.5.3 Final System Walkdown and Walkdown Report

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- a. The ESRR Team, under the leadership of the System Manager, will conduct a final system walkdown in accordance with the guidance of Attachment 4. The purpose of the walkdown is to ascertain proper accomplishment of identified work and to identify any previously undocumented system deficiencies.
- b. Minimum walkdown attendance will require the System Manager and a licensed operations representative.
- c. Upon completion of the System Team Walkdown, the System Manager will complete a Walkdown Report. This report will cover the topics identified in Attachment 12 and will form a part of the Final Expanded System Readiness Review Report.
- d. Discrepancies identified during this walkdown will be entered into the Corrective Action Program and/or Work Control System.

#### 4.5.4 Final Expanded System Readiness Review Report

- a. The Final Expanded System Readiness Review Report will include the following items:
  1. Final Expanded System Readiness Review SIDS Report.
  2. Final Expanded System Readiness Review System Walkdown Report (Attachment 12).
  3. The report will include a cover sheet similar to Attachment 10, titled Final Expanded System Readiness Review Report.
  4. Copies of all Restart Required Scope Deferral Forms for the system are to be attached.
  5. Impact of deferred work assessment (See 4.5.4b below).
  6. System Test Plan
- b. The impact of deferred work (work scoped as Post-restart) will be assessed, first individually, then in aggregate on individual system components, then on the system overall readiness for restart as discussed further below.

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1. The following items will be evaluated individually regarding the impact on a component basis, aggregate impact on a component basis, and aggregate impact on a system basis:
    - Post Restart Scope, system components with multiple (Two or more) deferred work items, excluding post restart PMs.
    - All Restart required deferred scope Components.
  2. The evaluation will first address system components with multiple deferred work items. At the component level, the deferred work issues, then the aggregate impact of the deferred work for each component will be addressed.
  3. This discussion will include the technical justification allowing the component to return to service with the identified deferred work issue(s).
  4. System components with multiple (two or more) Post Restart deferred work items, or any component with a deferred Restart Required work item are to be identified on the applicable drawing(s) (Flow Diagrams, Wiring Diagrams, General Arrangement Diagrams), with the deferred work identification number(s) noted next to the affected component. Alternately, the component can be identified on the drawing and a list of the deferred work identification numbers for each affected component attached.
  5. The aggregate impact evaluation will conclude with a discussion on system readiness to return to service. The aggregate impact on the system and its capacity to perform its design basis function is to be discussed, addressing the cumulative impact of system components with deferred work. A statement will be included explaining how the deferred work is to be scheduled.
- c. Final Expanded System Readiness Review Presentations
1. The Final Expanded System Readiness Review Reports are to be reviewed by the respective Operations representative, Engineering Supervisor, then scheduled for presentation to the SRRB.

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2. The Final Expanded System Readiness Review Report is to be presented to the SRRB and PORC by the System Manager, the cognizant Engineering Supervisor and a licensed operations representative. SRRB or PORC comments or open items are to be addressed as discussed in Sections 4.3.14e through 4.3.14g for the Initial Expanded System Readiness Review Report.

d. System Test Plans

1. System Test Plans are to be finalized as specified in (PMP-7200.RST.005 (when approved)). The plans will include all items applicable to Restart and Power Ascension which have been finalized subsequent to previous revisions of the Test Plan.
2. System Test Plans or Justifications for not having System Test Plans will be reviewed and approved by the Test Review Board.
3. System Test Plans will be implemented through Phase 3 and Phase 4 of the ESRR Program.

4.5.5 Phase 3 Emergent Work Management

- a. Emergent corrective action items are to be continuously scoped for restart applicability throughout Phase 3. Use of PRA risk-based insights may help with marginal cases.
- b. After initial comments and scoping on an emergent system-specific work item is incorporated in the SIDS database, the item is coded "APPROVE". The System Manager also reviews the scoping of the item and if Restart required, then annotates it in the SIDS database as "EXCEPT" (to designate the item as a restart exception if not completed).
- c. For a system-specific item scoped as Post Restart, comments are entered in the Final Comments field and the System Manager codes the item as Post Restart Deferred.
- d. For emergent system-specific field work items, refer to Section 4.4.2a.2.a) for the approval process.
- e. For all other emergent system-specific items that are not field work related (broke/fix), refer to section 4.4.2a.2.b) for the approval process.

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- f. The system-specific Exception List in SIDS is to be continually managed by the System Manager until the system is turned over to Operations for testing.
- g. For those system-specific items that are completed and satisfy restart requirements, change the "EXCEPT" to "CONCUR" and complete the Final Comments section in SIDS.

#### 4.6 Phase 4 - Startup And Power Ascension

<b>NOTE:</b>	Program owners or functional area managers (or designee) perform scoping, monitoring, and closure of non system-specific programmatic or functional area discrepancies as discussed further in PMP 7200.RST.009 and PMP 7200.RST.010.
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##### 4.6.1 General Scope

- a. Phase 4 activities include the following:
  1. Phase 4 commences on each system with the PORC approval of Final Expanded System Readiness Review Report for that system.
  2. The System Manager is to monitor through completion those system-specific work items scoped Exception within SIDS.
  3. Management of emergent system-specific work items through the normal work control process and Scope Addition/Deletion Cover Sheet (TBDL).
  4. The System Manager is to complete System Readiness Affirmation after the retest portion of the system work window and prior to restoration of system operability to support unit Restart.
  5. System Readiness Affirmation and submittal of the System Readiness Affirmation Report (Attachment 13).
  6. Each System Manager is to monitor the conduct of the Station Startup and Power Ascension Plan as it relates to his system.
  7. The System Manager is to implement the baseline system performance monitoring, tracking and trending.



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8. System Work Window Teams are to continue to meet on a regular basis. The System Manager will lead the team in managing future system work windows, as well as monitoring open corrective action items, operability issues, and reliability issues on the system.
9. Phase 4 is complete when all power ascension testing is complete and the respective unit attains 100% rated unit load for - (TBDL) - days.

4.6.2 Phase 4 Emergent System-Specific Work Management, Prior to System Affirmation

- a. Emergent issues are to be reviewed to support the system work window schedule.
- b. Emergent corrective action items are to be presented to the OSMT with an attached Scope Addition/Deletion Cover Sheet (TBDL).
- c. Emergent items are to have initial comments entered into SIDS and to be scoped as follows:
  1. Emergent items that are required for restart will be scoped Restart1 or Restart2, in accordance with Attachment 5, "Criteria for Work Included in Restart Scope."
  2. Items that are identified to be worked in accordance with the normal Work Control system requirements are to be scoped as WORK CONTROL PROCESS (WCP). Items scoped as WCP will include the technical basis for when the item should be completed. These conditions shall support work order priorities as defined in PMI-2291 to ensure continued system readiness.
  3. An explanation, providing technical justification (Reference item 6 on Attachment 5) is to be entered in the Initial Comments Field in SIDS.
  4. The System Manager is to "APPROVE" items in the Initial System Manager Approval box in SIDS once he is satisfied with the scope of the item.

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- d. Corrective maintenance work items are to be presented to the OSMT with a Scope Addition/Deletion Cover Sheet (TBDL). Engineering issues that may impact the system affirmation process are to be included and managed via the Restart Schedule.
- e. Restart Required items that are not complete are to become "Exceptions," and added to the "Exceptions" list. When an item is completed, the System Manager is to review and denote as "CONCUR" within the Final System Manager Approval box in SIDS.

#### 4.6.3 System Readiness Affirmation

- a. The System Manager will complete a System Readiness Affirmation Report (Attachment 13) which will include the following information:
  - 1. Current system License Change Request(s).
  - 2. Current list of operator workarounds.
  - 3. Current corrective actions that involve Control Room equipment.
  - 4. Currently installed Temporary Modifications.
  - 5. Active Operability Determinations (ODs) and Justifications for Continued Operation (JCOs), with the associated 10CFR50.59 screen or evaluation for each OD or JCO.
  - 6. The remaining open system-specific "Exceptions" items and any system-specific "Exceptions" identified during the affirmation process. Exceptions are remaining open restart required items.
  - 7. Any other operation's priorities furnished by the Operations Department compiled from the focus list or operation's priorities addendum list (but not necessarily limited to these lists) for the system.
  - 8. Reference to the Initial and Final Expanded System Readiness Review Reports.
  - 9. Reference to the system tests specified in the System Test Plan.

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- b. The System Manager and licensed operations representative will conduct a System Readiness Affirmation walkdown and document walkdown on System Walkdown Report (Attachment 12). The results of the walkdown will be included in the System Readiness Affirmation Report.
- c. The licensed operations representative will co-sign the System Readiness Affirmation Report with the System Manager.
- d. Any corrective actions identified during the System Readiness Affirmation are to be addressed within the work control process and identified to the Outage Control Center for resolution. Engineering action items are to be added to the Engineering Priority List with the designated engineer identified as the lead to resolve the issue.
- e. The System Manager and the licensed operations representative will present the System Readiness Affirmation Report to SRRB and PORC.
- f. Any comments received from SRRB during the Phase 4 require resolution and response within three weeks from the date of the SRRB meeting.
- g. The system is turned over to operations after PORC approval of the System Readiness Affirmation Report.

#### 4.6.4 System Test Plans

- a. The System Managers are to monitor the results of each respective System Test Plan. The System Managers are to follow-through on deficient test plan results the Corrective Action Program and/or Work Control System as appropriate. A Condition Report shall be issued for any items that fall within the scope of the Corrective Action Program.
- b. System Test Plan results are to be selectively incorporated within the System Manager Performance Monitoring Program (TBDL).

#### 4.6.5 Emergent System-Specific Work Management After System Affirmation

- a. All emergent issues are to be scoped as "WCP" or "Work Control Process" in the SIDS database. Emergent work is to be addressed within the work control process as described within the Station Administrative Procedures.

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- b. Emergent corrective maintenance issues are to be presented to the OSMT. Emergent engineering issues that may impact unit start-up are to be addressed within the Engineering Priority List.

#### 4.7 Reports

##### 4.7.1 Phase 1 - Initial Expanded System Readiness Review Report.

- a. The Initial Expanded System Readiness Review Reports are to be completed in accordance with Section 4.3.14 and Attachment 9.

##### 4.7.2 Phase 3 - Final Expanded System Readiness Review Report

- a. The Final Expanded System Readiness Review Reports are to be completed in accordance with Section 4.5.4 and Attachment 10.

##### 4.7.3 Phase 4 - System Readiness Affirmation Report

- a. The System Readiness Affirmation Reports are to be completed IAW Section 4.6.3a.

##### 4.7.4 Integrated System Readiness Report

- a. The ESRR Manager or his designee shall prepare a report which integrates the results of the individual system ESRR efforts.
- b. The integrated report (see Attachment 11) shall summarize the results of the ESRR activities in Phases 1 and 2, and identify the status of other programs, reviews and upgrades that are supportive of the ESRR in providing reasonable assurance of being in conformance with licensing and design basis.
- c. The intent of this integrated report and associated backup information is to provide assurance that the plant design, testing, maintenance, operation and configuration conforms to the licensing and design requirements and that the plant is in a condition to support plant operation for the next run cycle.
- d. The final integrated System Readiness Report will be presented to the SRRB for review and to the PORC for approval.

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## 5 FINAL CONDITIONS

5.1 None

## 6 REFERENCES

- 6.1 PMP 7200.RST.004, Level 1 System Expanded Systems Readiness Review Program
- 6.2 Cook Nuclear Plant Restart Plan
- 6.3 Restart Strategy for Restart Issue 5455, Plant Systems Readiness Assessment
- 6.4 Auxiliary Feedwater SSFI Report (November 1998)
- 6.5 Engineering Issues Review Group Final Report (December 19, 1998)
- 6.6 PMP-7200.RST.005, Restart Startup Power Ascension Program (when approved)
- 6.7 PMP 7200.RST.009, Functional Area Restart Readiness
- 6.8 PMP 7200.RST.010, Programmatic Restart Readiness
- 6.9 Commitment 7280
- 6.10 Commitment 7197
- 6.11 Commitment 7303
- 6.12 Commitment 6783
- 6.13 Commitment 7319

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Attachment 1	EXPANDED SYSTEM READINESS REVIEW LEVEL 2 SYSTEMS	Pages: 46- 47	

<u>SYSTEM DESCRIPTION</u>	<u>ABB</u>	<u>SYSTEM LEVEL</u>	<u>RELATED SYSTEMS</u>
<u>MAIN TURBINE</u>	<u>MT</u>	<u>2</u>	<u>Includes MTLO, MT CON, TOC, TUR SS, TUR SI &amp; MSR</u>
<u>BORIC ACID RECOVERY</u>	<u>BAR</u>	<u>2</u>	
<u>CHEM &amp; VOL CONT SYSTEM DEMINS</u>	<u>CVCS DEM</u>	<u>2</u>	
<u>AUX BUILDING VENT SPENT FUEL PIT</u>	<u>ABV SFP</u>	<u>2</u>	
<u>TURBINE BUILDING VENTILATION</u>	<u>TBVT</u>	<u>2</u>	
<u>BLOWDOWN</u>	<u>BD</u>	<u>2</u>	
<u>NUCLEAR SAMPLING</u>	<u>NS</u>	<u>2</u>	
<u>REACTOR CONTROL</u>	<u>RC</u>	<u>2</u>	
<u>SEISMIC MONITORING SYSTEM</u>	<u>SEIS</u>	<u>2</u>	
<u>AMSAC</u>	<u>AMSAC</u>	<u>2</u>	
<u>MAIN GENERATOR</u>	<u>GEN</u>	<u>2</u>	<u>Includes GEN H2, SO, SCW</u>
<u>AUX STEAM SYSTEM</u>	<u>AS</u>	<u>2</u>	<u>Includes BS &amp; EVAPD</u>
<u>PLANT HEATING BOILER</u>	<u>PHB</u>	<u>2</u>	
<u>AUX BUILDING VENT SATR</u>	<u>PAS VENT</u>	<u>2</u>	
<u>VENTILATION - MISC NON-CLASS I SYS</u>	<u>TSC VENT</u>	<u>2</u>	
<u>600 V AND 480 V AUX SYSTEMS</u>	<u>LVAC</u>	<u>2</u>	
<u>CONDENSATE SYSTEM</u>	<u>COND</u>	<u>2</u>	<u>Includes HDV, SJAE, Main Condensers, LP HTR, &amp; TACW</u>
<u>DEMINERALIZED WATER</u>	<u>DW</u>	<u>2</u>	<u>Includes MUP</u>
<u>MAIN FEEDWATER</u>	<u>FW</u>	<u>2</u>	<u>Includes FPLO, HP HTR &amp; Feed Pump Condensers</u>
<u>STATION DRAINAGE - AUX BUILDING</u>	<u>AB DRN</u>	<u>2</u>	
<u>STATION DRAINAGE - CNTMT BUILDING</u>	<u>CNTMNT DRN</u>	<u>2</u>	
<u>STATION DRAINAGE - TUR BUILDING</u>	<u>TUR DRN</u>	<u>2</u>	<u>Includes TRS</u>
<u>REACTOR H2 AND N2 GAS SYSTEM</u>	<u>RX H2</u>	<u>2</u>	
<u>PACHMS</u>	<u>PACHMS</u>	<u>2</u>	
<u>SECONDARY SAMPLING SYSTEM</u>	<u>SS</u>	<u>2</u>	
<u>PRIMARY WATER</u>	<u>PW</u>	<u>2</u>	
<u>WASTE DISPOSAL - GASEOUS</u>	<u>WDG</u>	<u>2</u>	

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<u>SYSTEM DESCRIPTION</u>	<u>ABB</u>	<u>SYSTEM LEVEL</u>	<u>RELATED SYSTEMS</u>
<u>WASTE DISPOSAL - LIQUIDS</u>	<u>WDL</u>	<u>2</u>	
<u>WASTE DISPOSAL SYSTEM</u>	<u>WDS</u>	<u>2</u>	
<u>69 KV EMERGENCY POWER SUPPLY</u>	<u>EP</u>	<u>2</u>	
<u>MAIN &amp; AUXILIARY TRANSFORMERS</u>	<u>XFMR</u>	<u>2</u>	
<u>ANNUNCIATORS</u>	<u>ANN</u>	<u>2</u>	
<u>BORIC ACID HEAT TRACE SYSTEM</u>	<u>BA HT</u>	<u>2</u>	
<u>DIGITAL METAL IMPACT MONITORING</u>	<u>DMIMS</u>	<u>2</u>	
<u>PLANT COMMUNICATIONS</u>	<u>PA</u>	<u>2</u>	
<u>WEATHER MONITORING SYSTEM</u>	<u>MIDAS</u>	<u>2</u>	
<u>CHEMICAL FEED SYSTEM</u>	<u>CF</u>	<u>2</u>	
<u>CIRCULATING</u>	<u>GW</u>	<u>2</u>	<u>Includes VPS &amp; MSCW</u>
<u>E PLAN EQUIPMENT</u>	<u>E PLAN</u>	<u>2</u>	
<u>LIGHTNING PROTECTION</u>	<u>LTP</u>	<u>2</u>	
<u>REFUELING EQUIPMENT</u>	<u>REFUEL</u>	<u>2</u>	
<u>CHEMICAL CLEANING SYSTEM</u>	<u>CC</u>	<u>2</u>	
<u>SODIUM HYPOCHLORITE INJECTION SYS</u>	<u>NACL</u>	<u>2</u>	
<u>CATHODIC PROTECTION</u>	<u>CP</u>	<u>2</u>	

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Attachment 2	EXPANDED SYSTEM READINESS REVIEW TRAINING REQUIREMENTS		Pages: 48- 48

## 1.0 TECHNICAL TRAINING

- 1.1 Human Error Reduction Techniques for Engineers\* (including record review and verification)
- 1.2 Electronic Corrective Action System
- 1.3 Folio Database\*
- 1.4 Calculation Matrix
- 1.5 System Design and Licensing Basis\*
- 1.6 SRO level self taught systems training with test and remediation\*
- 1.7 Causal Analysis and effective problem solving techniques
- 1.8 Operability Determinations\*
- 1.9 50.59 Screens and Evaluations\*
- 1.10 PRA/Maintenance Rule
- 1.11 INPO Database/NRC Web Page\*
- 1.12 Environmental Qualification
- 1.13 Generic Letter 89-13
- 1.14 Generic Letter 89-10
- 1.15 High Energy Line Break Analysis
- 1.16 Appendix R
- 1.17 Station Blackout
- 1.18 Communications-Elevating Issues to Mgnt.

## 2.0 PROCESS TRAINING

- 2.1 The Enhanced System Readiness Review Program and Procedure
- 2.2 Use of the Assessment Database
- 2.3 Systems Indexed Database System (SIDS), access and data entry
- 2.4 Use of computers
- 2.5 Lessons Learned and Vulnerabilities from previous independent inspections and reviews.

\* For System Managers only. Seminars to indoctrinate other team members in design and licensing basis fundamentals and key concepts and definitions related to operability determinations and 50.59 screens and evaluations will also be conducted for other team members.





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Attachment 3	SYSTEM READINESS REVIEW DOCUMENTATION AND DATA SOURCES		Pages: 49- 50

## DESIGN BASIS DOCUMENTATION

P&IDs Elementary and One Line Diagrams
DBDs & Associated Notebooks
Calculations
Modifications - Open only
Safety Evaluations and Screenings
TMODS
Component Evaluations
Design Change Determinations

## LICENSE BASIS DOCUMENTS (AS APPLICABLE)

UFSAR, FSAR & SER including Amendments
General Design Criteria & FSAR Q&A
Licensing History Books
Commitment Database
Reg Guides
LERs & NOVs
Tech Specs and Bases
NRC Open Item List

## DATA SOURCES

Operating Procedures
Abnormal Operating Procedures
Emergency Operating Procedures
Annunciator Response Procedure
Preventive Maintenance Procedures/PMCR
Surveillance Test Procedures
Ops Training Lesson Plans
Condition Reports - Open only
Previously conducted audits, assessments (SSFIs, EDSFIs, QA/PA, 3 <sup>rd</sup> party reviews)
Results of relevant NRC & INPO inspections (Inspection Reports, etc.)
Generic Letters and Responses
IENs
IEBs and Responses
SOERs
SERs
Part 21 Notifications
Westinghouse Information
Vendor Manuals
JO/ARs including AR Evals
Operability Determinations & TDMs
DATA SOURCES (CONTINUED)
Ops Open Item Log
Operator Workarounds/Concerns
Restart Plan
Engineering Evaluations
Specifications and Standards
PRA Components Based and Operator Action Based Risk Ranking

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Engineering Memos
Receipt Inspection Procedures
Relay Document
Technical Data Book
PMI 5023
Dedication Plans
Long Standing Clearances/Caution Tags
Operator Aids

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EXPANDED SYSTEM READINESS REVIEW PROGRAM FOR LEVEL 2 SYSTEMS.			
Attachment 4	SYSTEM READINESS REVIEW PROGRAM (SYSTEM WALKDOWN GUIDELINES)		Pages: 51- 58

## 1.0 PURPOSE

- 1.1 This walkdown guideline is to be used as a reference while conducting the Expanded System Readiness Review Team (or individual) walkdowns. The completed walkdowns, during the initial SRR, should be taken into account in setting the scope of the ESRR walkdowns.

## 2.0 GENERAL METHODS

- 2.1 Define the purpose of the walkdown, areas to be visited/observed, roles of the individual team members, and assistance from Health Physics or other departments to access areas.
- 2.2 Plan the walkdown execution and implementation. Pre-define how the walkdown will assess the conformance of the plant with design and licensing basis requirements (For example, piping and component configuration, electrical separation, etc.). Ensure remote electrical cabinets, tanks, etc. and instrumentation including control Room and Remote Shutdown Panel instruments are included in the walkdown plan. Contact Health Physics supervision to obtain any special ALARA reviews prior to actual system walkdowns.
- 2.3 Brief the team on the purpose and plan.
- 2.4 Conduct the walkdown. Focus the team on observation of equipment. Work independently and discuss concerns for clarity. Take concise and accurate notes to quantify and describe findings in sufficient detail to prevent having to walkdown the item twice.
- 2.5 Conduct a formal post walkdown briefing. Review the notes, discuss issues and document the results on the ESRR Assessment forms, entering the data into the ESRR Assessment database. Identify any impact on equipment or system operation. Immediate concerns are to be identified to the engineering supervisor and the operations Shift Manager.
- 2.6 Identify the items that need to be completed for the system to meet its intended design function. Assess each item against the restart criteria, Attachment 8. The items are to be documented for disposition and tracking in SIDS.

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### 3.0 GUIDELINES

- 3.1 The team (lead by the System Manager) is to outline the system walkdown strategy. Key system components and system concerns are to be identified.
- 3.2 The team is to identify necessary operational or plant configuration drawings to accompany the team during the walkdown.
- 3.3 Throughout the walkdown, the team is to function as a cohesive unit, maintaining focus on either individual system components or specific system areas.
- 3.4 The walkdown is to focus on operability issues as well as conformance with system design configuration and design basis. Other conditions including potential impact on equipment reliability should be noted during the walkdown.
- 3.5 Each Team member is expected to record detailed notes identified during the walkdown. Any areas of the system that could not be walked down shall be noted and justified in the walkdown report.
- 3.6 Examples of team focus areas include:
  - Condition of snubbers, pipe supports, hangers and fasteners
  - Condition and placement of coatings and insulation
  - Evidence of corrosion
  - Evidence of boric acid or boric acid buildup especially on carbon steel components, and material wastage
  - Unauthorized modifications, partial modifications or temporary modifications not in accordance with station programs
  - Surface condition of visible structural welds
  - Condition of barrier or penetration seals
  - Use of unauthorized chemicals on components

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- Evidence of bolt torque relaxation.
- Evidence of discoloration on relays, cable insulation or electrical components
- Condition inside electrical cabinets
- Unauthorized or expired scaffolding in unauthorized locations or impacting equipment performance
- Hoses or other connections for vents or drains
- Presence of abandoned equipment not clearly labeled

3.7 The following is a general list of electrical and mechanical equipment physical plant inspection items:

#### 3.7.1 Electrical Panels Equipment

- Identify missing water plugs or holes/openings in cabinets (water or moisture intrusion can degrade or damage equipment).
- Identify missing or loose bolts or thumb screws (if missing can violate seismic evaluation and it is not good work practice).
- Identify open doors or back panels (ensure properly closed and latched, otherwise can violate seismic evaluation or allow dirt, water, etc. to enter panel).
- Identify mis-positioned breaker switches (anything that is different).
- Identify improper labeling on key component breakers/switches (ensure that they are accurate and legible per controlled drawings; also includes modules, relays, conduit).
- Identify dirt or debris covering cooling gratings or filters (if blocked, can prevent cooling and cause heat buildup and subsequent equipment degradation).

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- Feel panels and equipment enclosures where appropriate to check for excessive heat buildup (can be an indication of degraded equipment; initiate request for thermography check).
- Check cable trays. (Cable should not be hanging outside of cable tray; can overstress cable tray).
- Check cables and conduit for degradation (cracked, brittle, chafed, bend radius, etc.).
- Check MCCs overall for anything that is different.
- Note any deficiency tags, especially old tags not being worked. These may need increased priority or have had work completed but the tags have not been removed.
- Check for any abnormal sounds or smells coming from the cabinet (may indicate degraded equipment)
- Verify equipment-grounding cable is connected and intact.
- Look at general materiel condition of cabinet (rust, dirt, consider qualitative impact on heat transfer).
- Inspect seismic supports and trays.
- Inspect overall condition of terminal strips and mechanical connections (lug landings).
- Inspect conduit and junction boxes for external damage, loose conduit connections and missing parts and fasteners.
- Inspect solenoid valves and motor covers for evidence of damage or equipment degradation.

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### 3.7.2 Mechanical Components

- Identify any abnormal sounds or smells coming from pump or motor operation.
- Bearing housings and motors and pumps are to be inspected for signs of excessive heat or vibration.
- Look at general material condition of pump or motor for steam, oil, water leaks, proper levels in oil reservoirs or sight glasses (and properly marked), missing insulation, proper conduit installation.
- Identify pinned hangers.
- Inspect system gauges for proper operation or typical values.
- Look for pump rotation or reverse rotation if part of a dual train common header system (could indicate check valve degradation or isolation valves leaking by)
- Identify dirt or debris covering cooling gratings or filters (if blocked can prevent cooling and cause heat buildup and subsequent equipment degradation)
- Note any deficiency tags, especially old tags not being worked. (These may indicate a need for increased priority or they may be an indication that the work was completed but that the tags have not been removed.)
- Check equipment/equipment skid/foundation bolting. (Are all bolts present with proper thread engagement?)(minimum of flush or better)
- Review trends of parameters on key system equipment; visually inspect identified equipment with degraded performance.
- Visually inspect for old leak repair fittings, ensure Temporary Modifications exist to restore components with leak repair fittings.



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- Inspect equipment labeling/tags (ensure they are accurate and legible per controlled drawings).

3.8 The following list contains material conditions indicating equipment operability issues:

3.8.1 Operability Issues

- Leaks (water, steam, oil, air-packing, flanges, rust on components or floor).
- Lubrication (sight glasses, bull's eyes, grease cups, grease fittings, valve stems).
- Handwheels/valve operators (missing, key or pin missing, unlocked, not labeled).
- Filters, screen or louvers (clogged, dirty, missing).
- Instruments or gauges (out of calibration, inoperable, bent pointers).
- Drains or drain holes (clogged, blocked, full, screens or grating missing).
- Lines or pipes (loose, unbracketed, vibrating, insulation missing or damaged, not properly sloped).
- Fasteners/bolts (loose, stripped, corroded, missing).
- Indicating lamps (missing, burned out, missing covers).
- Control room annunciators.
- Panels (covers missing, bolt missing or not tightened, dirt and debris inside).
- Area lighting (bulbs missing or burned out, inadequate to support activities).
- Look for consistency between similar parameters.
- Packing (bottomed out, out of adjustment, dirty or rusted glands).



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- Cables or leads (unsecured, worn or frayed insulation, improper terminations).
- Motors or generators (dirty, brush rigging pigtailed broken, carbon dust, excessive noise or vibration, ground straps loose or missing).
- Preservation (rust, corrosion, missing or damaged insulation or lagging).
- Check valves (oscillating lever, banging, stuck open).
- MOVs (lubricant leaks, missing T-Drains).
- Valves (dried grease caked on stem, packing or stem leaks, bent stem).

3.9 The following is a general list of additional inspection items that apply to both mechanical and electrical equipment:

#### 3.9.1 Mechanical or Electrical Equipment

- Identify inadequate or degraded structural components.
- Inspect system piping for evidence of water hammer, severe transients, or improper venting. Damaged supports, base plate grouting, anchors (pulled-out or deformed) are to be identified for further root cause analysis.
- Inspect for unauthorized loads supported from cable trays, conduits or piping systems.
- Identify undocumented system modifications.
- Identify damaged heat trace and damaged or missing insulation.
- Note piping exhibiting cyclical vibration for possible high cycle fatigue concerns.
- Safety postings, radiological postings (properly positioned, legible and understandable).

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Attachment 4	SYSTEM READINESS REVIEW PROGRAM (SYSTEM WALKDOWN GUIDELINES)		Pages: 51- 58

- 3.10 The System Manager is to ensure that team members record identified walkdown issues in Walkdown Reports, and during Phase 1 on the Attribute Assessment forms. The System Manager is responsible to ensure that any discrepancies have appropriate follow-up corrective actions initiated to resolve any identified issues.

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Attachment 5	CRITERIA FOR WORK INCLUDED IN RESTART SCOPE		Pages: 59- 64

<p style="text-align: center;"><b>NOTE</b></p> <p><b>CHANGES TO THE RESTART CRITERIA REQUIRE THE APPROVAL OF THE SENIOR MANAGEMENT REVIEW TEAM (SMRT).</b></p>
--

1. Review the open corrective action item against the Restart Screening Criteria. The Restart Screening Criteria is used to identify scope of items reviewed during Phases 1, 2, and 3. If none of the criteria apply, then the action item is not applicable to the restart effort. If the restart screening criteria applies the System Manager should determine when the action item must be completed to support safe and event free restart and reliable power operation. Program owners and functional area managers (or their designees) shall also follow the guidance in this attachment for scoping non system-specific programmatic and functional area SIDS items when directed by the Director of Restart. In this capacity, these owners/managers/designees function, in effect, as the System Manager for these items.
  - Restart1 – Activities required to be completed prior to entering Startup/Power Ascension of Unit 1. This classification includes necessary restart and power ascension testing activities
  - Restart2 – Activities required to be completed prior to entering Startup/Power Ascension of Unit 2. This classification includes necessary restart and power ascension testing activities.
  - Post Restart1 – Activities which should be completed on a schedule consistent with the Unit 1 normal plant work controls process.
  - Post Restart2 – Activities which should be completed on a schedule consistent with the Unit 2 normal plant work controls process.
  - Not Applicable – Activities that are not required to be completed.
2. Enter descriptive text that describes a specific issue in the ISSUES box. This is a searchable text field of up to 255 characters and is designed to assist the System Managers in readily retrieving information on associated issues. Some examples are packing leaks, oil leaks, housekeeping, etc.

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3. If the issue is system-specific but also is related to an existing station program, consider identifying the PROGRAM by scrolling, then selecting the most appropriate program source and dragging the appropriate program(s) into the RELATED PROGRAM box. This information may help program owners identify programmatic weaknesses. Examples of such program sources include High Energy Line Break, Appendix R, Station Blackout, etc. For new items placed in the "No system entered" bin in SIDS, the ESRR group will review the item and assign it either to a system or programmatic and/or functional area. If a needed program is not listed, contact the SIDS data base coordinator.
  4. Identify the applicable Restart Screening Criteria as outlined in this attachment. Enter this criteria in SIDS by scrolling and selecting the most appropriate criteria (e.g. RESTART1A, RESTART2A, RESTART2B, etc.).
  5. Identify the applicable mode restraint for the item by scrolling, then selecting the appropriate mode (e.g., 1, 2, 3, 4, etc.).
  6. Complete the INITIAL COMMENT field in the INITIAL REVIEW screen. The comment field should contain specific reasons for the item being included or excluded from the restart effort. Ensure that the information is accurate and concise, technically justifying from a design basis view point, the SCOPE and RESTART CRITERIA selected. The COMMENT field must be completed prior to System Manager approval.
- Note: The FINAL COMMENT field on the FINAL REVIEW screen is to be completed prior to the final readiness review presentations. This field is to justify that the work completed will support restart readiness.
7. During Phases 1, 2, and 3, the System Manager will approve SIDS items as Restart1, Restart2, Post Restart1, Post Restart2, or N/A. The System Manager will signify his approval of the scope by "Approving" the scope and justification comments in the Initial System Manager Approval Box in SIDS. Later, during Phase 3, if a restart item is not completed, the System Manager will denote the item as an "Exception" in the Final System Manager Approval Box in SIDS. If an item is satisfactorily completed, the System Manager will denote his "Concurrence" in the Final System Manager Approval Box in SIDS.
  8. During Phase 4, items will be scoped as WCP or RESTART1 or RESTART2.
  9. Additional information is available in the Systems Indexed Data Base Systems Operator's Manual.

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## RESTART SCREENING CRITERIA

Issues will be evaluated against criteria 1 through 9. If criteria 1 through 7 do not apply, then categorize the issue using criteria 8 or 9.

Issues shall be resolved prior to restart if they are:

### 1) Nuclear Safety

Required to address a nuclear safety issue.

Issues may be classified as follows:

- a) Items that could result in significant personnel radiation exposure, radioactivity release or effluent discharge, in excess of limits.
- b) Reduces cumulative deficiencies, backlogs or conditions that, in the aggregate, are evaluated to have significant negative impact on nuclear safety. (Not applicable to individual work issues).

### 2) Operability

Required to address an operability issue.

Issues may be classified as follows:

- a) Eliminates an existing component failure, deficiency, or condition that could result in operation in, or entry to, an LCO action statement if left uncorrected.
- b) Would result in failure or inability to perform a required surveillance test during the current outage or the following operating cycle in accordance with the plant technical specifications.
- c) Would increase the risk to operation or safety associated with performing a surveillance.

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- d) Testing or retesting that must be performed to certify system or component operability, including testing on systems or components during power ascension that result in breaching a system regardless of the work being classified as a restart issue or not.
  - e) Reduces cumulative deficiencies, backlogs or conditions that, in the aggregate, are evaluated to have significant negative impact on operability. (Not applicable to individual work issues).
- 3) **Design Basis**

Required to restore acceptable design margin or conformance with the design basis.

Issues may be classified as follows:

  - a) Corrects design basis deficiencies; i.e., deficiencies in safety-related or technical specification equipment not in conformance with design basis documents.
- 4) **License and Licensing Basis**

Required to resolve unreviewed safety questions (USQs) or to restore conformance with the license, license conditions or licensing basis.

Issues may be classified as follows:

  - a) Restores licensing basis deficiencies to conforming conditions.
  - b) Technical Specification changes to support safe plant operation.
- 5) **Licensing Commitments**

Required to meet restart licensing commitments such as A/E inspection and related programmatic issues, and confirmatory action letter issues.

Issues may be classified as follows:

  - a) Resolves existing deficiencies or conditions that would result in the failure to meet a license requirement or a restart commitment to an outside agency.



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#### 6) Configuration Management

Required to address an organizational, programmatic, or process deficiency that could prevent maintenance of adequate design margins or conformance with the design or licensing basis.

Issues may be classified as follows:

- a) Corrects deficiencies in configuration management programs, processes, engineering analysis codes, or operating, maintenance, or test procedures that have a reasonable probability of affecting equipment OPERABILITY.

#### 7) Reliability

Required to address significant equipment material condition deficiencies singly or in aggregate, or repetitive failures that could affect safety system availability, impact plant reliability, or reduce the ability of operators to operate the plant safely.

Issues may be classified as follows:

- a) Reduces cumulative deficiencies, backlogs or conditions that, in the aggregate, are evaluated to have significant negative impact on safety system availability or reliable plant operation. (Not applicable to individual work issues).
- b) Restores degraded critical components or conditions that could result in a plant transient, power reduction or shutdown.
- c) Resolves conditions that have resulted in repetitive safety system or equipment failures.

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Attachment 5	CRITERIA FOR WORK INCLUDED IN RESTART SCOPE		Pages: 59- 64

Issues that are not classified as restart should be classified as follows:

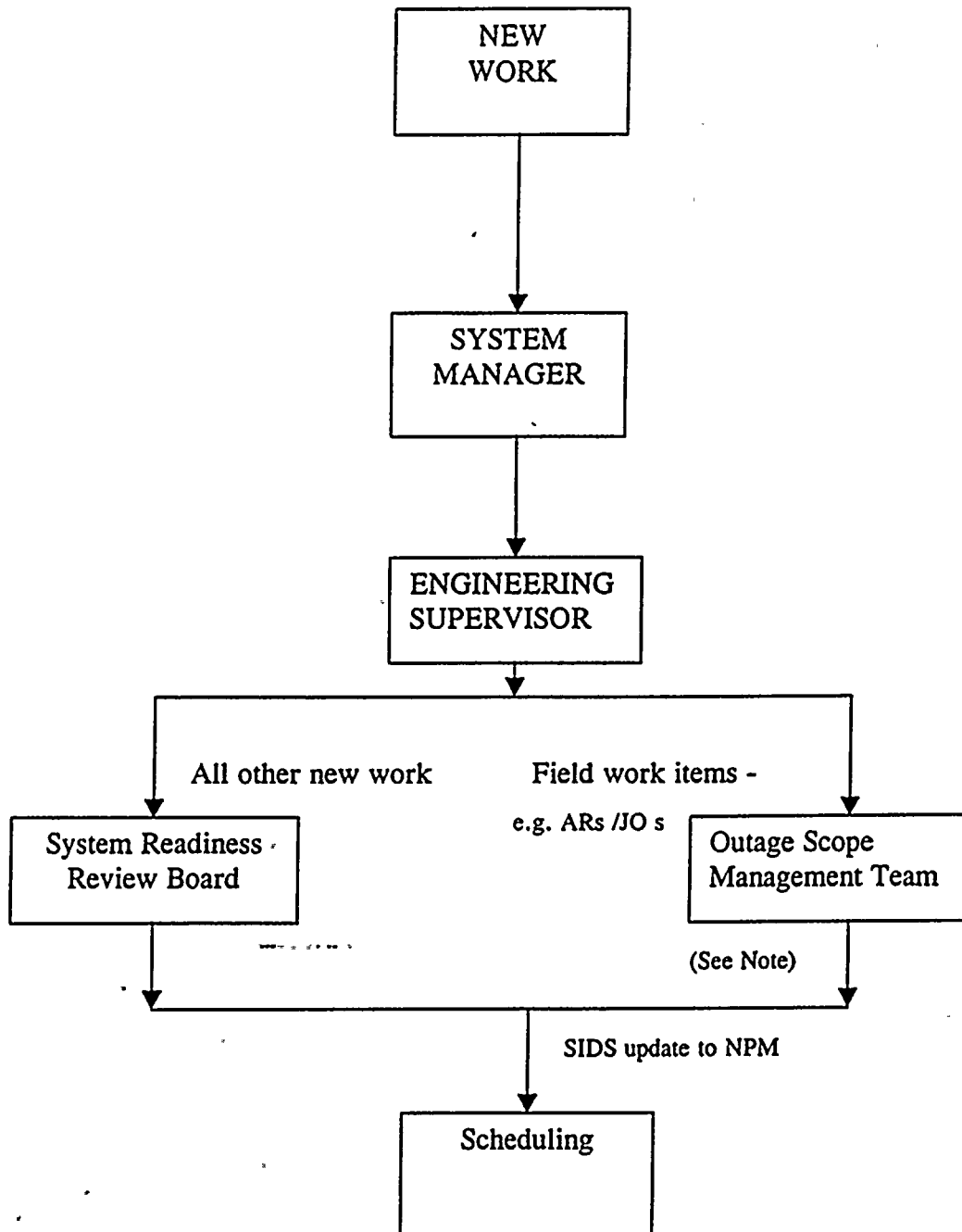
**8) Post Restart Issues**

- a) Issue can be scheduled for a subsequent outage.
- b) Issue can be readily worked on line, does not affect safe and reliable operation, does not represent a significant challenge to Maintenance Rule Goals or LCO allowed outage time, and does not impair operations necessary to perform surveillance or monitoring.
- c) Issue is classified as minor maintenance, or housekeeping, and does not affect plant operation.
- d) Issue is an administrative issue.
- e) Issue is a documentation deficiency that has no safety impact.

**9) Industrial Safety Concern**

**NOTE:** Industrial safety concerns will not be classified as "restart" because the priority and resolution of these concerns will be addressed under the established work control process priorities and scheduling. Although an industrial safety issue is not classified as restart, it will be worked promptly, commensurate with the safety risk.

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Attachment 6	PHASE 2 OUTAGE SCOPE APPROVAL PROCESS		Pages: 65 - 65



NOTE: SRRB (or subcommittee thereof) reviews the scoping of these items separately. SIDS is then updated to reflect SRRB comments by the System Manager.

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Attachment 7	RESTART REQUIRED SCOPE DEFERRAL FORM		Pages: 66 - 66

UNIT: \_\_\_\_\_

DATE: \_\_\_\_\_

SYSTEM: \_\_\_\_\_

DOCUMENT TYPE: \_\_\_\_\_  
(e.g., Condition Report, Action Request)

KEY I. D: \_\_\_\_\_  
(e.g., Condition Report or Action Request Number)

Item Description:

Initial Technical Justification for Restart Scope Designation (ensure the original basis for scoping the item as required for restart is addressed):

Technical Justification for Restart Deferral:

New Scheduled Completion Date: \_\_\_\_\_

(Scope Addition/Deletion form attached if applicable)

Originator \_\_\_\_\_ Date: \_\_\_\_\_

System Manager \_\_\_\_\_ Date: \_\_\_\_\_

Designated Ops. Rep. \_\_\_\_\_ Date: \_\_\_\_\_

Engineering Supervisor \_\_\_\_\_ Date: \_\_\_\_\_

Nuclear Licensing Manager/  
Director of Regulatory Affairs \_\_\_\_\_ Date: \_\_\_\_\_

System Engineer Manager \_\_\_\_\_ Date: \_\_\_\_\_

SRRB \_\_\_\_\_ Date: \_\_\_\_\_

PORC \_\_\_\_\_ Mtg. # \_\_\_\_\_ Date: \_\_\_\_\_

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Attachment 8	EXPANDED SYSTEM READINESS REVIEW CLARIFICATION SHEET		Pages: 67 - 67

### System Manager Approval

- Approve** Indicates the fact that the System Manager has reviewed the scope and agrees with the scope and justification.
- Concur** Item closed and work completed satisfies restart requirements, or for those post restart items that are not included in the aggregate impact.
- Except** Open restart items (including those items that are "work complete" but not administratively closed), or items that are closed but do not satisfy restart requirements.
- Post Restart Deferred** Denoted on items associated with a component that has two (2) or more post restart items, excluding PM post restart items.
- Restart Required Deferred** Denoted on items with deferred scope that were initially approved, as restart required. These items must be accompanied by a Restart Required Scope Deferral Form (Attachment 7).

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Attachment 9	INITIAL EXPANDED SYSTEM READINESS REVIEW REPORT		Pages: 68- 70

INITIAL EXPANDED SYSTEM READINESS REPORT  
COVER SHEET

SYSTEM TITLE

SYSTEM  
REVIEWERS

( )  
( )  
( )  
( )

System Manager \_\_\_\_\_  
Signature / Date

Operations Representative \* \_\_\_\_\_  
Signature / Date

Licensing Representative \* \_\_\_\_\_  
Signature / Date

Engineering Supervisor \_\_\_\_\_  
Signature / Date

ESRR Manager/Coordinator \_\_\_\_\_  
Signature / Date

System Readiness Review Board \_\_\_\_\_  
Signature / Date

Plant Operations Review Committee \_\_\_\_\_  
Chairman, Signature / Date

PORC MTG. # \_\_\_\_\_

\* These signatures may be obtained by routing the report to both individuals simultaneously. Retain copies of both signatures with the original of the report with SRRB minutes.

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EXPANDED SYSTEM READINESS REVIEW PROGRAM FOR LEVEL 2 SYSTEMS			
Attachment 9	INITIAL EXPANDED SYSTEM READINESS REVIEW REPORT		Pages: 68- 70

## INITIAL EXPANDED SYSTEM READINESS REVIEW REPORT FORMAT

### EXECUTIVE SUMMARY

#### 1.0 INTRODUCTION

##### 1.1 Purpose

##### 1.2 Scope and Approach (Include specific identification of the system's safety and Accident Mitigation functions)

#### 2.0 RESULTS AND CONCLUSIONS

##### 2.1 Summary of Attribute Assessments

##### 2.2 Summary of Review of SIDS Items

##### 2.3 Summary of Open Items

##### 2.4 Observations and Conclusions (including recurring items judged to need further extent of condition determination) (see step 4.3.10a)

#### 3.0 VERTICAL SLICE REVIEW

##### 3.1 Assessment Matrix

##### 3.2 Attribute Assessments and review of system functions.

##### 3.3 Discrepancies

#### 4.0 WALKDOWN RESULTS

##### 4.1 Walkdown Scope

##### 4.2 Observations

#### 5.0 REVIEW OF SIDS ITEMS

##### 5.1 Review of Open Items (Summary of Information)

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## 5.2 Review of Closed Items (Summary of Information)

## 6.0 REFERENCES

### 6.1 ENCLOSURES:

- Enclosure 1: Attribute Assessment Forms
- Enclosure 2: Restart Items (SIDS)
- Enclosure 3: Post-restart Open Items (SIDS)
- Enclosure 4: Review of Closed Items in SIDS
- Enclosure 5: System Boundaries
- Enclosure 6: Walkdown Plan

### 6.2 FIGURES AND TABLES

- Figure 1: System Boundaries
- Table 1: Final System Readiness  
Review Assessment Matrix
- Table 2: Attribute Assessment Summary
- Table 3: Assessment Discrepancies Recommended for  
Corrective Action Prior to Restart
- Table 4: Assessment Discrepancies Recommended for  
Closure Post Restart



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Attachment 10	FINAL EXPANDED SYSTEM READINESS REVIEW REPORT		Pages: 71 - 73

**FINAL EXPANDED SYSTEM READINESS REPORT  
COVER SHEET**

SYSTEM TITLE

DATE

SYSTEM  
REVIEWERS

( )  
( )  
( )  
( )

\_\_\_\_\_  
System Manager

\_\_\_\_\_  
Date

\_\_\_\_\_  
Operations Representative \*

\_\_\_\_\_  
Date

\_\_\_\_\_  
Licensing Representative \*

\_\_\_\_\_  
Date

\_\_\_\_\_  
Engineering Supervisor

\_\_\_\_\_  
Date

\_\_\_\_\_  
ESRR Manager/Coordinator

\_\_\_\_\_  
Date

\_\_\_\_\_  
System Readiness Review Board

\_\_\_\_\_  
Date

\_\_\_\_\_  
Plant Operations Review Committee

\_\_\_\_\_  
Date

\_\_\_\_\_  
PORC MTG. #

\* These signatures may be obtained by routing the report to both individuals simultaneously. Retain copies of both signatures with the original of the report with SRRB minutes.

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Attachment 10	FINAL EXPANDED SYSTEM READINESS REVIEW REPORT		Pages: 71 - 73

## FINAL EXPANDED SYSTEM READINESS REVIEW REPORT FORMAT

### 1.0 OVERVIEW

#### 1.1 Summary of items closed since the initial report issuance

- 91-18 Operability Determinations (list each item)
- Engineering Evaluations (list each item)
- DCPs (list each item)
- Action Requests (list each item)
- Condition Reports (list each item)
- NRC Commitment Data Base items (list each item)
- Operator Workarounds (list each item)
- Outage Required PMs

### 2.0 OPEN ITEM REVIEW

#### 2.1 Items

- 91-18 Operability Reviews (list each item)
- Engineering Evaluations (list each item)
- DCPs (list each item)
- Work Requests (list each item)
- Condition Reports (list each item)
- Commitment Data Base (list each item)

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- Operator Workarounds (list each item)

#### 2.1 Items (Continued)

- Outage Required PM's that will become overdue prior to next planned outage

#### 2.2 Restart Scoping

#### 2.3 Schedule for Resolution of Open Items

### 3.0 DESIGN AND LICENSE BASIS ISSUES SUMMARY

- Explain the significance of each issue (one or two sentences on safety, risk, or system operability/reliability impact.
- Discuss what plans(s) is in place for resolution of each issue. Include when the issue is scheduled to be resolved.

### 4.0 WALKDOWN

#### 4.1 Walkdown purpose and scope

#### 4.2 Walkdown Team

#### 4.3 Walkdown Results

#### 4.4 Conclusions

#### 4.5 Restart Scoping

### 5.0 AGGREGATE IMPACT OF DEFERRED WORK

Attachment: Marked up drawings showing components with multiple (two or more) Post-restart or restart deferred work items.

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EXPANDED SYSTEM READINESS REVIEW PROGRAM FOR LEVEL 2 SYSTEMS			
Attachment 11	EXPANDED SYSTEM READINESS REVIEWS INTEGRATED RESULTS		Pages: 74 - 78

\_\_\_\_\_  
ESRR Program Coordinator

\_\_\_\_\_  
Date

\_\_\_\_\_  
ESRR Program Manager

\_\_\_\_\_  
Date

\_\_\_\_\_  
Director, Engineering Restart

\_\_\_\_\_  
Date

\_\_\_\_\_  
System Readiness Review Board

\_\_\_\_\_  
Date

\_\_\_\_\_  
Plant Operations Review Committee

\_\_\_\_\_  
Date

PORC Mtg. # \_\_\_\_\_

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EXPANDED SYSTEM READINESS REVIEW PROGRAM FOR LEVEL 2 SYSTEMS			
Attachment 11	EXPANDED SYSTEM READINESS REVIEWS INTEGRATED RESULTS		Pages: 74 - 78

## EXPANDED SYSTEM READINESS REVIEWS INTEGRATED RESULTS FORMAT

### 1.0 INTRODUCTION AND PURPOSE

#### 1.1 Introduction

#### 1.2 Purpose

### 2.0 SCOPE AND STRUCTURE FOR LEVEL 2 ESRRs

#### 2.1 Overall Approach and Scope

#### 2.2 System Prioritization

#### 2.3 Structure of Level 2 ESRR Teams

#### 2.4 Vertical Slice Methodology

#### 2.5 Screening of Open Items for Restart Requirements

#### 2.6 Reviews and Self-Assessments

### 3.0 SUMMARY OF PHASE 1 RESULTS

#### 3.1 Vertical Slice Results and Characterization of Findings

#### 3.2 Screening of Open Items

#### 3.3 Walkdown Results

### 4.0 ASSESSMENT OF RESULTS BY TOPIC AREA

#### 4.1 Identification of Potential Programmatic Issues

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## 5.0 CONCLUSIONS

5.1 System Readiness

5.2 Potential Programmatic Issues

## 6.0 REFERENCES

### APPENDICES

A RESTART ISSUES, SELECTION/SCREENING CRITERIA

B EVALUATION OF DISCREPANCIES BY TOPIC AREAS REQUIRED  
FOR LEVEL 2 SYSTEMS

Topic Area 1: Electrical Calculations and Analysis

Topic Area 2: I&C Calculations and Analysis

Topic Area 3: Mechanical & Structural Calculations and Analysis

Topic Area 4: Accident Analysis

Topic Area 7: Configuration Management

Topic Area 9: DBD

Topic Area 10: Change Documentation/50.59 Reviews

Topic Area 11: Temporary Modifications/Bypasses

Topic Area 12: FSAR Review

Topic Area 13: TS and Bases

Topic Area 14: Licensing Commitments

Topic Area 15: Notices / Bulletins/Generic Letters

Topic Area 16: Procedures

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Topic Area 17: Operator Workarounds

Topic Area 18: Industry Operating Experience Reviews

Topic Area 19: Maintenance Procedures

Topic Area 20: Vendor Technical Information

Topic Area 21: Preventive Maintenance

Topic Area 22: Surveillance and Periodic Tests and Inspections

Topic Area 23: ISI/Section XI IST

Topic Area 24: As-Built Verification

Topic Area 25: Control Room Drawings

Topic Area 27: Corrective Actions

Topic Area 28: QA Audits and Self Assessments

Topic Area 30: Open Items (Backlog)

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## C GROUPING OF ESRR-IDENTIFIED ITEMS BY TOPIC AREA

### FIGURES

- 2.1 Graded Approach for Enhanced System Readiness Review
- 2.2 Typical Topic Areas for Enhanced System Readiness Review Vertical Slices
- 2.3 Enhanced System Readiness Review Plan
- 2.4 Level 2 Enhanced System Readiness Reviews
- 2.5 Typical System Assessment Matrix
- 4.1 Topic Review Summary - Level 2 Systems Checks and Discrepancies
- 4.2 Topic Review Summary - Level 2 Systems Discrepancies as Percent of Checks
- 4.3 Issues by Topic Areas - Level 2 Systems by severity
- 4.4 Issues by Topic Area - Level 2 Systems (Restart Recommended Issues Only)

### TABLES

- 3-1 Summary Statistics for Level 2 System Reviews
- 3-2 Summary of Areas Covered During the Walkdowns



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Attachment 12	SYSTEM WALKDOWN REPORT		Pages: 79- 79

Date of Walkdown:

System Manager/Team Leader:

System:

Purpose of Walkdown:

Provide a brief description of the purpose of the walkdown.

Walkdown Scope:

Provide an overall synopsis as to the scope of the walkdown, primary objectives, time spent on the walkdown, total number of all deficiencies noted as well as noting if any operability concerns were noted.

Walkdown Team:

Provide a listing of the walkdown team members as well as their respective organizations.

Walkdown Results:

Provide an overall characterization as to the items identified, and safety or operability concerns, etc.

Conclusions:

Provide an overall assessment of the system condition based on observations. Summarize any specific need for improvements and all follow-up actions being pursued.

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Attachment 13	SYSTEM READINESS AFFIRMATION REPORT		Pages: 80 - 80

**1.0 THE READINESS AFFIRMATION REPORT WILL INCLUDE THE FOLLOWING INFORMATION**

- 1.1 Current system License Change Request(s).
- 1.2 Current operator workarounds.
- 1.3 Current corrective actions required of control room equipment.
- 1.4 Currently installed T-Mods.
- 1.5 Active operability determinations and JCOs, with the 10CFR50.59 for each OD or JCO.
- 1.6 The remaining open "Exceptions" items and any "Exceptions" identified during the affirmation process. Exceptions are remaining open restart required items.
- 1.7 An Operations priorities list compiled from or identical to the focus list or operations priorities addendum list (but not necessarily limited to these lists) for the system.
- 1.8 Reference Initial Expanded System Readiness Review Report
- 1.9 Reference Final Expanded System Readiness Review report.
- 1.10 Reference the system tests per the System Test Plan.



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Figure 1 Addendum	SYSTEM ASSESSMENT MATRIX MAJOR TOPICS		Pages: 81- 88

## OVERVIEW

The following guidance for each of the 31 major topics in Figure 1 is provided regarding the types of documents and sources of information to be used and to provide a consistent definition of the topic areas for grouping and documenting the results. Individual reviewers will use their experience and that of the ESRR Team to determine the specific documents and sources of information to be assessed. Completed scope of the previous System Readiness Reviews should be taken into account. Figure 1 applies to both Level 1 and Level 2 systems. Accordingly, some topics in Figure 1 are not applicable to Level 2 systems as discussed below. Additionally, some topic areas do not apply to systems without safety or accident mitigation functions.

## DESIGN BASIS

- 1     **Electrical Calcs/Analysis:** Calculations that establish the ability of systems to satisfy safety and accident mitigation functions shall be reviewed. The reviews should assess the appropriateness of design inputs, assumptions, consistency with as-built configuration, and general approach. Also, calculation results should be verified for appropriate use in other design basis documents.
  
- 2     **I&C Calcs/Analysis:** Calculations that establish the ability of systems to satisfy safety and accident mitigation functions shall be reviewed. The scope of the reviews should be similar to the electrical calculations.
  
- 3     **Mech and Struct Calcs/Analysis:** Calculations that establish the ability of systems to satisfy safety and accident mitigation functions shall be reviewed. Additionally, consistency between system calculations and seismic design criteria shall be assessed. The scope of the reviews should be similar to the electrical calculations.
  
4.    **Accident Analysis:** Analysis of UFSAR Chapter 14 events shall be reviewed for assumptions regarding system configuration, performance and conditions. This does not apply to systems with no safety or accident mitigation functions



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Figure 1 Addendum	SYSTEM ASSESSMENT MATRIX MAJOR TOPICS		Pages: 81- 88

5. Drawings: Review of Control Room drawings is covered in Topic 25. Review of other drawings is not required for Level 2 systems.
6. Logic Diagrams: Not required for Level 2 systems.
7. Configuration Management: Cross-referenced documents that demonstrate the ability of systems to satisfy safety and accident mitigation functions shall be verified to be current, applicable, and appropriate. In particular, ESRR teams shall specifically review several input changes looking for a lack of integration between calculations, accident analysis assumptions, design values, design basis documents, system description and normal and emergency operating procedures.
8. Specifications: Review of specifications is not required for Level 2 systems.
9. DBD: Related design basis documents shall be reviewed for system design basis requirements, identification of possible cross-referenced documents, and appropriate applicability. Potential vulnerabilities include identification of and compliance with single failure criteria. Adequate closure of open items identified during preparation of the DBDs should be considered. Based on the results in reference 6.5, this topic area should be a focus area for the ESRR.

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Figure 1 Addendum	SYSTEM ASSESSMENT MATRIX MAJOR TOPICS		Pages: 81- 88

10. Change Documents/50.59 Reviews: Change documents, including DCPs, Component Evaluations (CEs) and UFSAR changes, shall be assessed for completeness, consistency with the system safety and accident mitigation functions as defined in the design and licensing basis, appropriate consideration of interdisciplinary impact/input, and effective follow through (changes made or posted against the appropriate documents). 50.59 screens and 50.59 safety reviews shall be reviewed to assess whether the change may have resulted in a current plant configuration or operation that is outside the design or licensing basis. Cook Plant has, in the past, not performed some 50.59 screens when required because station personnel did not recognize that they were changing the facility as described in the UFSAR. As part of the ESRR, teams should review past 50.59 screens associated with change documents being reviewed to ensure that an excessively liberal interpretation of the words "system as described in the UFSAR" was not used. See NEI 96-07 for additional guidance and current industry standards.

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11. Temporary Modifications/Bypasses: Temporary modifications and "bypasses" that may affect safety or accident mitigation functions shall be reviewed to verify that they were evaluated against appropriate design basis information and do not result in an unreviewed safety question. Based on the results of reference 6.5, "Bypasses" should be a focus area for the ESRR. Additionally, teams should be alert for engineering evaluations, action requests, partially installed modifications, and other changes to ensure that necessary screenings were done in each case. Cook Plant has identified 23 specific processes with a potential to bypass the 50.59 process as follows:

- Engineering Specifications
- Action Request/Job Orders
- Drawing changes
- Operability determinations
- Technical Direction Memos
- NPM (Engineering) Evaluations
- Mechanical Engineering Memo
- Electrical Engineering Memos
- Design Change Determination
- Condition Report
- Receipt Inspection Practices
- Design Standards
- Design Change Addenda
- Setpoints
- DCDIRs
- Technical data books
- PMI-5023 addressing plant fabrication and repairs
- Dedication Plans
- Old clearances/Caution Tags
- Open Items Log
- Work Arounds/Watch List
- Temporary Operator Aids
- Permanent Operator Aids

These items should be reviewed in assessing the health of the 50.59 process for the system. Also, the temporary modification shall be assessed to assure the duration is not excessive. 50.59 applicability evaluations and 50.59 reviews shall be reviewed to assess whether the temporary modifications may have resulted in a current plant configuration or operation that is outside the regulatory design basis or licensing basis. Abandoned Equipment without a 50.59 should also be considered.



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## LICENSING DOCUMENTS

12. UFSAR Review: Chapters related to the system, interfacing systems (e.g., power distribution, I&C, and support systems), accident analysis, and applicable design criteria shall be reviewed for regulatory design basis and licensing basis information. Scope of this review should take into account the ongoing UFSAR validation effort (which was initially restricted to 21 systems of the original SRR). Pending UFSAR changes should be assessed and selected UFSAR questions and requirements should be validated against installed equipment specifications and operational/test procedures as applicable.
13. TS/Bases: LCOs, Surveillance requirements, and their bases for the system and its components shall be reviewed for regulatory design basis and licensing requirements.
14. Licensing Commitments: Open items from NRC inspections, commitments in the license (and not in the UFSAR or TS), and other commitments made to the NRC by docketed correspondence shall be reviewed for additional licensing basis requirements. For example, reference 6.5 notes that not all systems may meet the criteria of the response to LER 97-021-01 regarding single failure interpretation. A list of system specific licensing commitments will be provided to the ESRR by the Licensing Basis Review Group, where applicable
15. Notices/Bulletins/Generic Letters: NRC generic communications and evaluations and responses to them related to the system shall be reviewed for additional regulatory design basis requirements and information.

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## OPERATIONS

16. Procedures: Operating and emergency operating procedures related to the system shall be reviewed for conformance with design basis information. Based on the results of reference 6.5, Emergency Operating Procedures should be a focus of the ESRR.
17. Operator Workarounds: Operator workarounds shall be reviewed for impact on system operation or performance. The impact should be assessed for conformance with the design basis information.
18. Industry Operating Experience Reviews: Industry experience reviews related to the system shall be assessed and compared to current design basis information. Specifically, Operating Experience information from the INPO Industry Database and generic NRC information shall be reviewed and effectiveness of application/consideration reviewed. Based on the results of reference 6.5, industry operating experience should be a focus of the ESRR. [Ref. 6.13]

## MAINTENANCE

19. Maintenance Procedures: Procedures for the overhaul of or general repair of system components shall be reviewed for appropriate use of and conformance with design basis information. Also, completed work documentation, including any applicable data sheets, should be assessed for adequacy of the use of the procedure. Preventive maintenance activities are covered in item 21 and technical specification surveillance type procedures are covered in item 22. Review of other maintenance procedures is not required for Level 2 systems.
20. Vendor Technical Information: Vendor technical manuals, vendor drawings, and design data forwarded by the vendor related to system components shall be reviewed for conformance with design basis information. Based on the results of reference 6.5, vendor technical information should be a focus area of the ESRR.

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21. Preventive Maintenance: Regularly scheduled maintenance work items to assure proper equipment operation, including calibrations, lubrication, and filter flushing/changing, shall be reviewed for appropriate schedules, timeliness of performing the activity, and appropriate use of materials. Procedures for preventive maintenance scheduling and documentation shall also be reviewed.

## **SURVEILLANCE**

22. Surveillance and Periodic Tests & Inspections: Each ESRR team shall, in the course of its assessment, verify that design basis safety and accident mitigation functions of the system are validated and verified, either by periodic testing or by engineering calculation for those portions of the system that cannot be tested periodically. Procedures for tests and inspections required to verify compliance with TS Surveillance Requirements for system components shall be reviewed to assess compliance with the TS and its Bases, appropriate methodology, and consistency with other design basis information. Results of the most recent surveillance and periodic performance tests shall also be reviewed for compliance with design basis information and for the presence of adverse trends that have not been addressed.
23. ISI and Section XI IST: Results of the most recent tests/inspections shall be reviewed for compliance with design basis information.

## **PHYSICAL PLANT**

24. As-Built Verifications: Walkdowns of the system to verify conformance with design basis information, system layout against the drawings, system condition, component configuration, interactions with other systems, and other characteristics shall be performed based on checklists developed from the documentation reviews. These walkdowns should consider the adequacy of system vent provisions and how the provisions are incorporated into system procedures.

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25. Control Room Drawings (i.e. the OP-series and the 9800 series drawings) shall be reviewed for conformance with design basis information. Also, the timeliness of the incorporation of changes to the current drawings should be assessed.
26. Surveillance Programs: A review of surveillance- test procedures or results not associated with Items 22 and 23, such as Erosion/Corrosion, Fire Protection, or HELB is not required for Level 2 systems.

#### PROGRAMS, PROCESS AND PROCEDURES

27. Corrective Actions: Closed Condition Reports (CRs), Maintenance Action Requests, NPM Engineering Evaluation Requests, and other corrective action type reports related to safety and accident mitigation functions shall be assessed for appropriate evaluation against the design basis.
28. PA Audits and other Assessments: PA audits, EDSFIs, SSFIs, and other completed similar system or program assessments related to the system including Maintenance Rule Risk Significance determination shall be reviewed to assess effectiveness of the audit, appropriate resolution, including addressing extent of condition, timeliness of resolution, and adverse trends. Implementation of any generic lessons learned from system - specific SSFIs and the 9/97 IST self assessment should be evaluated.
29. Training Lesson Plans: Review of training lesson plans is not required for Level 2 systems.
30. Open Items (Backlog): Maintenance, engineering, and operations open items related to the system shall be evaluated with respect to the current Restart Criteria within the SIDS data base.
31. Strategy Documents: Review of strategy documents is not required for Level 2 systems.

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[illegible]

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### ATTRIBUTE SELECTION GUIDANCE

The attributes shown below are representative examples of those appropriate for selection by a System manager for a Level 2 system. Some Level 2 systems may have safety or accident mitigation functions, typical examples of which are presented below for illustration as XXXS01 and XXXS02, which must be selected as attributes for verification and validation during the ESRR. These systems may also provide support for other safety system functions (see XXXS03 below). Other attributes should be chosen as appropriate to assure the system will support safe and reliable plant operation. The specific attributes chosen will vary from system to system, but in all cases, they should cover the fundamental functions for the system and the critical components that provide that functionality.

### SYSTEM FUNCTIONS BEING ASSESSED

- XXXS01**      **Water Supply:** An water supply inventory of 350,000 gallons is required for the system to perform its safety function. Issues related to water volume and level indication, switchover to other sources, and overpressure/vacuum pressure are to be assessed. Included in this assessment should be a review of the capability of backup water supplies to function as designed.
- XXXS02**      **Safety system pumps** are critical components for delivery of the required system flow. The pumps must be capable of delivering 330 gallons per minute of flow at design pressure. Issues related to pump performance, NPSH, minimum flow requirements, motor and power supplies, power supply reliability, and design requirements are to be assessed.
- XXXS03**      **Support for Safety Functions in other Systems:** Any supporting or interface functions with other systems that have a safety or accident mitigation function should be assessed. These functions should be explicitly identified.
- XXX01**      **Overall System:** The overall system requirements not covered under the overall system requirements assessed below will be addressed. Issues to be considered include system demands and configuration differences based on variable plant conditions, such as equipment availability. Issue related to single failure scenarios, and system interfaces are to be assessed.
- XXX02**      **Hydraulic Functionality:** System flow, pressure, pressure drop, and temperature requirements will be identified and compared to system capability. Issues related to valve and actuator design requirements, power supplies, and positioning capability are also to be assessed.

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- XXX03      Heat Transfer Functionality: Heat transfer requirements for the system will be identified and compared to system capability. Issues to be addressed include fouling margin for heat exchangers and monitoring for degradation of system performance.
- XXX04      Piping and Structural Design: Issues related to classification boundaries, design temperatures and pressures, and pipe stress/support loads are to be assessed for the system.
- XXX05      Pumps: Pumps, as noted above, are critical to even nonsafety related system for delivery of flow. Issues related to pump performance, NPSH, minimum flow requirements, motor and power supplies, and design requirements are to be assessed.
- XXX06      Control and instrumentation: Issues related to initiation and control setpoints, instrumentation, flow controller design and stability, level controller design and stability, and operator interfaces with the system are to be assessed.
- XXX07      Electrical Power: Requirements for quality of power supply, and for redundant electrical trains and instruments channels are to be assessed.

Generic Attributes (to be applied where applicable by all ESRR teams)

- XXXC09      Year 2000.(Y2K): Considerable industry effort is being expended to ensure the reliable operation of microprocessor-based control and indication systems will not be vulnerable to year 2000 related problems. Identify microprocessor based controls within the system, confirm they are within the Y2K scope, and identify outstanding work remaining.
- XXXC12      Temperature Effects on System Operability: Cook Plant has not yet properly accounted for lake temperature variations in all system design bases. ESRR teams shall specifically assess, where applicable, whether the design basis for the system or system components is at odds with the maximum seasonal lake temperature expected, which could be as high as 87.5 degrees during certain summer months. Where such instances are found, the effect on system operability shall be assessed.

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Figure 4	SAMPLE COMPLETED READINESS REVIEW ATTRIBUTE ASSESSMENT FORM		Pages: 93 - 93

### Readiness Review Attribute Assessment Form

Reviewer:  Date:  Item Number

Reviewer Number:  System  Attribute Number

Attribute Description

Major topic		Attribute Checks	CRs	Major Topic		Attribute Checks	CRs
Electrical Calcs/analysis	1	<input type="text" value="0"/>	<input type="text" value="0"/>	Operating Procedures	16	<input type="text" value="0"/>	<input type="text" value="0"/>
I&C Calcs/Analysis	2	<input type="text" value="0"/>	<input type="text" value="0"/>	Operator Work Arounds	17	<input type="text" value="0"/>	<input type="text" value="0"/>
Mech/struct Calcs/Analysis	3	<input type="text" value="0"/>	<input type="text" value="0"/>	Industry Op Exp Reviews	18	<input type="text" value="0"/>	<input type="text" value="0"/>
Accident Analysis	4	<input type="text" value="0"/>	<input type="text" value="0"/>	Maintenance Procedures	19	<input type="text" value="0"/>	<input type="text" value="0"/>
Drawings	5	<input type="text" value="0"/>	<input type="text" value="0"/>	Vendor/Technical Info	20	<input type="text" value="0"/>	<input type="text" value="0"/>
Logic Diagrams.	6	<input type="text" value="0"/>	<input type="text" value="0"/>	Preventive Maintenance	21	<input type="text" value="0"/>	<input type="text" value="0"/>
Config. Management info.	7	<input type="text" value="0"/>	<input type="text" value="0"/>	Surveillance Test/Inspections	22	<input type="text" value="0"/>	<input type="text" value="0"/>
Specifications	8	<input type="text" value="0"/>	<input type="text" value="0"/>	ISI/Section XI IST	23	<input type="text" value="0"/>	<input type="text" value="0"/>
DBDs	9	<input type="text" value="1"/>	<input type="text" value="1"/>	As-Built Verification	24	<input type="text" value="0"/>	<input type="text" value="0"/>
Change Docs/50.59 Reviews	10	<input type="text" value="1"/>	<input type="text" value="0"/>	Control Room Drawings	25	<input type="text" value="0"/>	<input type="text" value="0"/>
Temporary Mods/Bypasses	11	<input type="text" value="0"/>	<input type="text" value="0"/>	Surveillance Programs	26	<input type="text" value="0"/>	<input type="text" value="0"/>
UFSAR Reviews	12	<input type="text" value="1"/>	<input type="text" value="0"/>	Correction Action Program	27	<input type="text" value="0"/>	<input type="text" value="0"/>
ITS/Bases	13	<input type="text" value="1"/>	<input type="text" value="0"/>	PA Audits/Other Assessments	28	<input type="text" value="0"/>	<input type="text" value="0"/>
Licensing Commitments	14	<input type="text" value="1"/>	<input type="text" value="0"/>	Training Lesson Plans	29	<input type="text" value="0"/>	<input type="text" value="0"/>
Notices, Bulletins and GLs	15	<input type="text" value="0"/>	<input type="text" value="0"/>	Open Items (Backlog)	30	<input type="text" value="0"/>	<input type="text" value="0"/>
				Strategy Documents	31	<input type="text" value="0"/>	<input type="text" value="0"/>

CR Number:   
 CR # 98-0000 to provide basis for the statement that the minimum specified sump level sufficient to meet system needs.

Documents Reviewed   
 (List all documents used to arrive at the assessment.)

Attribute Assessment   
 No Calculation or other documentation or data could be found to establish the basis for this minimum value. The basis for the tank capacity needs to be established.



Attachment 3

Expanded System Readiness Review  
Schedule

# ESRR Schedule

## Reviews In-Progress

### Level 1 Reviews

System(s) (System Designation)	Review Target Date	SRRB Target Date	PORC Target Date
Containment Ventilation (CV)	Complete	27-Apr-99	05-May-99
Aux Building Vent ESF (AES)	Complete	Complete	27-Apr-99
Containment Spray System (CTS)	Complete	Complete	23-Apr-99
120 Vac Vital Buses & CRID Inverter (CRID)	Complete	30-Apr-99	07-May-99
Radiation Monitoring (RMS)	Complete	30-Apr-99	07-May-99
Residual Heat Removal Shutdown Cooling (RHR SDC)	10-May-99	21-May-99	28-May-99
Plant Air Compressor (PAC)	17-May-99	28-May-99	04-Jun-99
Component Cooling Water (CCW)	11-May-99	22-May-99	29-May-99
Reactor Coolant System (RCS) / RCS Pressure Relief	15-May-99	27-May-99	03-Jun-99
Essential Service Water (ESW)	18-May-99	29-May-99	05-Jun-99
Offsite Power (OFPW)	13-May-99	25-May-99	01-Jun-99
ECCS Safety Injection (ECCS SI)	19-May-99	31-May-99	07-Jun-99
Reactor Protection System, Solid State Protection System, Engineered Safety Features Actuation System (RPS)	05-May-99	17-May-99	24-May-99
Electrical Safety Buses (T BUS)	24-May-99	04-Jun-99	11-Jun-99
250 VDC Station Batteries (250 VDC)	06-May-99	18-May-99	25-May-99
Containment (CNTMT)	28-Jun-99	09-Jul-99	16-Jul-99
Emergency Diesel Generator (DG)	11-Jun-99	24-Jun-99	01-Jul-99
Control Room Complex Ventilation (CRAC)	19-May-99	31-May-99	07-Jun-99
Ice Condenser (ICE)	25-Jun-99	07-Jul-99	14-Jul-99
Auxiliary Feedwater System (AFW)	08-Jun-99	19-Jun-99	26-Jun-99
Switchgear Ventilation (SWGR)	25-May-99	05-Jun-99	12-Jun-99
Containment Isolation Components (CIV)	12-Jun-99	24-Jun-99	01-Jul-99
Screenwash (SCRN)	08-Jun-99	19-Jun-99	26-Jun-99
Main Steam (MS)	29-Jun-99	10-Jul-99	17-Jul-99
Post Accident Sampling System (PASS)	28-May-99	09-Jun-99	16-Jun-99
Auxiliary Building (AB)	21-May-99	02-Jun-99	09-Jun-99
Fire Protection - Water / Halon & Cardox (FP)	28-Jun-99	09-Jul-99	16-Jul-99
Nuclear Instrumentation (NI)	24-May-99	31-May-99	07-Jun-99
Ventilation - Diesel Generator (DGVENT)	13-May-99	25-May-99	01-Jun-99

### Level 2 Reviews

System(s) (System Designation)	Review Target Date	SRRB Target Date	PORC Target Date
Demineralized Water (DW)	18-May-99	24-May-99	31-May-99
Annunciators (ANN)	13-May-99	19-May-99	26-May-99

# ESRR Schedule

## Reviews Scheduled

### Level 1 Reviews

System(s) (System Designation)	Review Target Date	SRRB Target Date	PORC Target Date
Reactor Vessel Level Indication System (RVLIS)	03-Jun-99	15-Jun-99	22-Jun-99
Control Rod & Control Rod Drive (CRDM)	09-Jun-99	21-Jun-99	28-Jun-99
Spent Fuel Pit Cooling (SFP)	09-Jun-99	21-Jun-99	28-Jun-99
Air Recirculation / Hydrogen Skimmer (CEQ)	10-Jun-99	22-Jun-99	29-Jun-99
Emergency Lighting Packs (ELTG)	15-Jun-99	26-Jun-99	03-Jul-99
ECCS Accumulators (ACCUM)	18-Jun-99	30-Jun-99	07-Jul-99
Local Shutdown Indication System (LSI)	18-Jun-99	30-Jun-99	07-Jul-99
Turbine Building (TB)	23-Jun-99	05-Jul-99	12-Jul-99
ECCS Charging (CVCS)	25-Jun-99	07-Jul-99	14-Jul-99
Control Air (CA)	28-Jun-99	09-Jul-99	16-Jul-99
Non-essential Service Water (NESW)	29-Jun-99	10-Jul-99	17-Jul-99



# ESRR Schedule

## Reviews Scheduled

### Level 2 Reviews

System(s) (System Designation)	Review Target Date	SRRB Target Date	PORC Target Date
Demineralized Water (DW)	18-May-99	24-May-99	31-May-99
Boric Acid Heat Trace System (BAHT)	28-May-99	03-Jun-99	10-Jun-99
Plant Communications (PA)	12-Jun-99	18-Jun-99	25-Jun-99
Aux Building Vent Spent Fuel Pit (ABV SFP)	15-Jun-99	21-Jun-99	28-Jun-99
Blowdown (BD)	17-Jun-99	23-Jun-99	30-Jun-99
Boric Acid Recovery (BAR)	21-Jun-99	26-Jun-99	03-Jul-99
Post Accident Containment Hydrogen Monitoring System (PACHMS)	22-Jun-99	28-Jun-99	05-Jul-99
Anticipated Transient Without Scram Mitigating System Actuation Circuitry (AMSAC)	25-Jun-99	02-Jul-99	09-Jul-99
Turbine Building Ventilation (TBVT)	26-Jun-99	02-Jul-99	09-Jul-99
Auxiliary Vent Building - Spray Additive Tank Room (PASVNT)	30-Jun-99	06-Jul-99	13-Jul-99
Weather Monitoring System (MIDAS)	30-Jun-99	06-Jul-99	13-Jul-99
Sodium Hypochlorite Injection System (NACL)	01-Jul-99	07-Jul-99	14-Jul-99
Reactor Control (RC)	02-Jul-99	08-Jul-99	15-Jul-99
Emergency Plan Equipment (E PLAN)	06-Jul-99	12-Jul-99	19-Jul-99
Waste Disposal - Liquids (WDL)	06-Jul-99	12-Jul-99	19-Jul-99
69 KV Emergency Power Supply (EP)	07-Jul-99	13-Jul-99	20-Jul-99
Secondary Sampling System (SS)	09-Jul-99	15-Jul-99	22-Jul-99
Ventilation - Misc Non-Class 1 System (TSC VENT)	09-Jul-99	15-Jul-99	22-Jul-99
Lightning Protection (LTP)	10-Jul-99	16-Jul-99	23-Jul-99
Primary Water (PW)	10-Jul-99	16-Jul-99	23-Jul-99
Main Generator (GEN)	10-Jul-99	19-Jul-99	26-Jul-99
Main Turbine (MT)	15-Jul-99	21-Jul-99	28-Jul-99
Chemical Feed System (CF)	16-Jul-99	22-Jul-99	29-Jul-99
Seismic Monitoring System (SEIS)	16-Jul-99	22-Jul-99	29-Jul-99
Chemical and Volume Control System Demineralizer (CVCSDM)	17-Jul-99	23-Jul-99	30-Jul-99
Waste Disposal - Gaseous (WDG)	17-Jul-99	23-Jul-99	30-Jul-99
Refuelling Equipment (REFUEL)	20-Jul-99	26-Jul-99	02-Aug-99
Cathodic Protection (CP)	21-Jul-99	27-Jul-99	03-Aug-99
Reactor Hydrogen and Nitrogen Gas System (RX H2)	22-Jul-99	28-Jul-99	04-Aug-99
Bleed Steam (BS)	24-Jul-99	30-Jul-99	06-Aug-99
Digital Metal and Impact Monitoring (DMIMS)	27-Jul-99	02-Aug-99	10-Aug-99
Nuclear Sampling (NS)	28-Jul-99	03-Aug-99	11-Aug-99
Auxiliary Steam System (AS)	29-Jul-99	04-Aug-99	12-Aug-99
Condensate System (COND)	29-Jul-99	04-Aug-99	12-Aug-99
Waste Disposal System (WDS)	29-Jul-99	04-Aug-99	12-Aug-99
Circulating Water (CW)	30-Jul-99	05-Aug-99	13-Aug-99
600 V & 480 V Auxiliary Systems (LVAC)	28-Jul-99	05-Aug-99	13-Aug-99
Station Drainage - Auxiliary / Containment / Turbine Buildings (AB/CNTMT/TUR DRN)	31-Jul-99	06-Aug-99	16-Aug-99
Chemical Cleaning System (CC)	31-Jul-99	06-Aug-99	16-Aug-99
Main Feedwater (FW)	30-Jul-99	06-Aug-99	16-Aug-99
Non-safety Related 120Vac (120NSR)	Schedule to be determined.		

