HOPE CREEK RF06
OUTAGE COMPLETION PLAN

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Revision 0

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1.0 Introduction and Overview

1.1 Purpose

The Hope Creek RF06 Outage Completion Plan (OCP) describes the activities and controls that will be implemented to ensure:

- successful completion of refueling operations and other critical outage work,
- identification and completion of the physical and programmatic work necessary to achieve a safe and reliable post-RF06 operating cycle, and
- a safe and uneventful unit startup and power ascension to 100% power.

This Plan does not control work completion activities and, therefore, does not replace or supersede existing PSE&G procedures for the performance of work at Hope Creek. In addition, the guidance and requirements outlined in the RF06 outage handbook are not affected by this Plan.

1.2 Background

Hope Creek operators initiated a planned manual shutdown of the plant on November 10, 1995 to begin RF06. The original scope of RF06 included a wide variety of activities to refuel the reactor, complete corrective and preventive maintenance, perform planned testing and inspection activities, and implement plant design changes necessary to correct recurring problems and enhance system performance.

In the several weeks prior to the outage, it was decided that the scope of the outage needed to be re-evaluated and a more rigorous assessment of station readiness to achieve the objectives described in Section 1.1 was required prior to completion of the outage and unit restart. The key factors that led to this decision are:

- plant operational events and personnel performance errors raised the concern that additional hardware and non-hardware activities may need to be completed during RF06,

- confirmation is required that equipment deficiencies that may challenge plant operators during normal, abnormal or emergency conditions have been adequately identified and addressed, and

- lessons learned from other nuclear utilities in the implementation of an integrated self-assessment of readiness to restart following a refueling

outage are being adopted and applied to Hope Creek on a pilot basis during RF06.

The Hope Creek IMPACT Plan was issued on September 29, 1995 and contains a number of detailed Action Plans that, when successfully implemented, will achieve the performance improvements necessary to meet long-term NBU business goals. Just prior to the outage, the Action Plans were being revised to incorporate additional input from external sources including the most recent INPO evaluation. Based on the factors described above, it was also decided that the IMPACT Plan actions will be assessed to determine which specific actions should be completed during RF06.

1.3 Roles and Responsibilities

Roles and responsibilities for the execution of this Outage Completion Plan are as follows:

1.3.1 General Manager - Hope Creek Operations

Overall responsibility for the management and implementation of this Outage Completion Plan to achieve the purpose described in Section 1.1. The General Manager is also responsible to ensure the necessary resources are available and appropriately utilized.

1.3.2 Hope Creek Outage Manager

Responsible for the management and control of RF06 activities including the scope of outage work, scheduling of activities and coordination of resources.

1.3.3 Department Managers

Responsible for successful completion of defined RF06 work, performing a self-assessment of their department's readiness to support unit restart and safe, reliable power operations, implementing necessary corrective actions and providing affirmation of readiness to the ORC.

1.3.4 System Managers

Responsible for successful completion of defined RF06 work on their systems, performing an assessment of their system's readiness to support unit restart and safe, reliable power operations, implementing necessary corrective actions and providing affirmation of readiness

1.3.5 Outage Review Committee (ORC)

Responsible for defining the scope of RF06 using consistent standards and criteria and assessing the readiness of Hope Creek to restart and resume power operations. The ORC Charter is provided in Attachment A.

1.3.6 System Engineering Review Board (SERB)

Board internal to the System Engineering organization responsible for assessing the readiness of plant systems and providing a readiness recommendation to the Manager-Hope Creek System Engineering. This input will be used by the Manager - Hope Creek System Engineering to support the readiness self-assessment.

1.3.7 Hope Creek IMPACT Plan Action Plan Managers

Responsible for developing and managing Action Plans to achieve performance improvement objectives. Action Plan Managers are responsible for defining those actions necessary to be completed during RF06.

1.3.8 All NBU Employees

Responsible for supporting the activities of RF06 and the ORC by focusing on safe operations and continuous improvement. All NBU employees are obligated to raise any and all quality concerns to management's attention for resolution.

1.4 Overview of Outage Completion Plan

The Hope Creek RF06 Outage Completion Plan consists of the following major activities:

- RF06 work scope validation,
- operational readiness self-assessment, and
- startup and power ascension.

The general flow of activities implemented within the scope of this plan are shown in Figure 1. A summary of the activities is presented below with more detailed information presented in later sections of this document.

1.4.1 RF06 Work Scope Validation

Considerable review of open Hope Creek work items was performed over the past year in planning for RF06. The result was a targeted scope of work for the outage including reactor refueling activities, corrective and preventive maintenance, equipment testing and inspection, and implementation of design changes to correct recurring problems or enhance system performance. The RF06 work scope is being validated by the ORC through a rigorous review of open work against defined criteria. The work reviewed includes both hardware and non-hardware work items. The RF06 validation effort is to have a strong focus on items that may potentially challenge plant operators during normal, abnormal or emergency conditions (e.g., work around items, temporary modifications, control room instruments out-of-service and equipment out-of-service that impacts Technical Specification action statements).

The RF06 work scope will be redefined based on the ORC-led evaluation and validation process. In addition, input to the scope of system outages planned during the next operating cycle and future refuel outages is being provided as a result of this review process.

The RF06 work scope validation process is described more fully in Section 2 below.

1.4.2 Operational Readiness Self-Assessment

An operational readiness self-assessment will be initiated in parallel with the execution and completion of outage work. The objective of the operational readiness self-assessment is to ensure that the integrated set of plant equipment, human resources and work processes are capable of supporting safe and reliable power operations. The self-assessment process will be implemented on a pilot basis during RF06 with lessons learned factored into guidance procedures that can be implemented on a routine basis in future outages.

The operational readiness self-assessment will focus on the following areas:

- system readiness,
- core configuration readiness,
- department readiness, and
- operational readiness.

Results of the self-assessment will be presented to the ORC with an affirmation by the Responsible Manager of the readiness of their system or organization to support plant startup and safe, reliable power operations. Following presentation and acceptance of the self-assessment results by the ORC, the General Manager will convene a SORC to perform an integrated review of the affirmations, verify compliance with regulatory commitments and any other special criteria that may impact the initiation of startup activities. Based on this review, the SORC is to provide the General Manager with a recommendation of the readiness of Hope Creek to initiate startup and power operations.

The operational readiness self-assessment process is described more fully in Section 3 below.

1.4.3 Startup and Power Ascension

Startup and power ascension following the completion of RF06 will follow a deliberate and controlled approach that ensures operational and personnel safety. The normal startup process defined in Hope Creek procedures will be supplemented with appropriate management oversight and support from engineering and maintenance organizations such that issues or concerns are promptly addressed and the startup can be accomplished in a safe, controlled manner.

The startup and power ascension process is described more fully in Section 4 below.

2.0 RF06 Work Scope Validation

2.1 RF06 Work Scope Validation Process

The original RF06 work scope is being redefined through a validation process driven by the ORC consistent with their charter. Outstanding work items are reviewed against defined criteria to determine which items should be added to the scope of RF06. System Managers have the largest role in this process but there is also considerable involvement from other organizations including Operations and Design Engineering.

Many work items are intentionally being evaluated in a two-dimensional manner. both work item categories and plant systems are reviewed against the criteria with results and recommendations presented to the ORC. Although this method requires some additional interface and coordination, it ensures a high focus on

potential challenges to plant operators. The criteria used for this evaluation are provided in Attachment B. The Hope Creek IMPACT Plan will also be assessed and any items recommended for completion prior to unit startup are to be identified to the ORC by the Action Plan Manager.

2.2 Work Item Category Review

Work item categories evaluated by the ORC are as follows:

- control room instruments out of service (DL-10 items),
- design change requests (DCRs) summary review*,
- discrepancy evaluation forms (DEFs)*,
- engineering work requests (EWRs),
- degraded Technical Specification-related equipment (TSAS)*,
- licensing commitments,
- open OEF commitments*,
- open operability determinations*,
- operator work around items*, and
- temporary modifications (T Mods),

* items identified in System Index Database

The ORC evaluates the recommendations from the presenter of the information using the criteria presented in Attachment B and makes one of the following decisions: 1) include the resolution of the item in RF06; 2) complete the item during power operations at the scheduled outage window; 3) complete the item during a future refueling outage or planned unit outage; or 4) cancel or close the item. Once a decision has been made by the ORC, existing plant processes and procedures will be used to execute the work activity.

2.3 Plant System Review

Plant systems are reviewed by the System Manager using the criteria in Attachment B with results and recommendations presented to the ORC. There is intentional overlap between the plant system review and the review performed on the work item categories to ensure appropriate resolution of items that may affect safe and reliable operation through the next operating cycle.

The plant system review process consists of four primary elements as described below.

2.3.1 Selection of Plant Systems

Twenty plant systems have been selected for a detailed review and affirmation based on the historical performance and risk significance of the system. This review will be performed in accordance with SA-SD.ZZ-8. A more rigorous system readiness review will be performed on six of these 20 systems. The purpose of performing this rigorous review on six Hope Creek systems is to assess the commonality to Hope Creek of the hardware, process and programmatic issues and concerns that have been identified at Salem. This system readiness review is similar to reviews performed at other utilities including the System Readiness Reviews being performed at Salem. Results of the assessment of the twenty systems will be presented to the ORC with appropriate recommendations for additional actions to be performed during RF06 or in the future. The twenty systems are presented in Attachment C.

The remaining Hope Creek systems will be assessed and evaluated as part of the line responsibility of the Hope Creek System Engineering organization through the use of the SERB. Issues that affect outage scope on these systems will be presented to the ORC on a case basis.

2.3.2 Validation of RF06 Work Scope.

The RF06 validation review for plant systems is focused on those items not already included in the RF06 work scope. Items already scheduled for completion in RF06 are not evaluated against the criteria provided in Attachment B. The goal of the system review and validation of the RF06 work scope is to define the work necessary for completion in RF06 such that the system is capable of supporting safe and reliable power operation. Specific issues to evaluate as part of the aggregate review of system readiness and determining the scope of RF06 activities are as follows:

- the magnitude, significance and risk of items remaining open at the end of RF06 should be defined and evaluated,
- assurance that recurring problems on the system that could affect safe and reliable operations are being fixed,
- assurance that any design and licensing issues on the system are being addressed within a time frame that is appropriate for the issue, and
- assurance that operators will not be unnecessarily challenged in the operation of the system during normal, abnormal or emergency conditions.

Based on the review of open work items against the criteria presented in Attachment B, the System Manager is to provide recommendations for RF06 scope changes to the ORC. This review is to be completed during the initial stage of the outage so that the work can be promptly planned and scheduled. As noted in section 2.3.1, the System Managers for the twenty selected systems will present the results of their review to the ORC. Items recommended for addition to the RF06 scope for remaining plant systems will be handled on an item specific basis by the ORC following an initial review by line management.

2.3.3 Monitoring RF06 Work, Addressing Emergent Issues and Performing a More Detailed Assessment of System Readiness

Throughout RF06, the System Manager is to monitor the progress of work on their assigned system and address emergent issues as required. Any major RF06 scope issues defined by emergent issues should be brought to the ORC following line management review. All other emergent issues are assessed daily by the senior supervisors.

Also, the System Manager is to use this period to complete the assessment and evaluation of system readiness in preparation for the final system readiness review and affirmation of readiness for restart.

2.3.4 Final System Readiness Review and Affirmation

This aspect of the system readiness review process is summarized in Section 3.1. Although it is not expected that any significant RF06 work scope issues will be identified during this final review, if any are identified they are to be brought to the immediate attention of the ORC (following line management review).

2.4 Hope Creek IMPACT Plan Review

The Hope Creek IMPACT Plan consists of twelve individual Action Plans. Each Action Plan Manager will present their recommendations to the ORC on which specific items of the Action Plan should be completed prior to initiation of startup and power ascension activities. This recommendation is to be based on the criteria presented in Attachment B coupled with an evaluation of the role of the Action Plan in achieving the purpose of this Outage Completion Plan as described in Section 1.1.

2.5 Redefined RF06 Work Scope

The RF06 work scope is redefined based on the evaluation process described above. Following addition of the work scope to RF06 by the ORC, the Hope Creek Outage Manager is responsible for coordinating the planning, scheduling and completion of the work. Decisions made by the ORC regarding the RF06 work scope are documented in meeting minutes and work item status is tracked using existing software tools.

3.0 Operational Readiness Self-Assessment

The operational readiness self-assessment is an integrated line management self-assessment that assists station management in determining the readiness to initiate startup from an outage and achieve safe, reliable power operation through the next operating cycle. This form of self-assessment is one element of a comprehensive station self-assessment program that is the foundation for the Hope Creek continuous improvement philosophy. Implementation of this action is consistent with the Hope Creek IMPACT Plan and the experience and lessons learned of other nuclear utilities. The Operational Readiness Self-Assessment is being implemented at Hope Creek on a pilot basis in RF06 and lessons learned will be captured such that this process can be implemented on a routine basis in the future.

The Operational Readiness Self-Assessment for RF06 will verify the completion of all defined outage work and the affirmation of system, department and operational readiness for startup and power operations. Results of the self-assessment and affirmation of readiness will be presented to the ORC by the responsible System Manager, Department Manager and Operations Shift Crew Managers (SNSS). Following acceptance by the ORC, the General Manager will convene a SORC to review these affirmations and verify compliance with regulatory commitments and any other applicable criteria. Based on this review, the SORC will provide a recommendation to the General Manager regarding the readiness of the station to initiate startup and safely, reliably operate through the next operating cycle.

A summary of the key elements of the program is provided below.

3.1 System Readiness

System readiness affirmations by the System Manager provides assurance that plant systems are ready to support safe and reliable startup and operation through the next cycle. This affirmation is based on the work completed by the System Manager, as described in Section 2.3, and is to include a coordinated system walkdown of the system with operations and maintenance personnel on

systems defined by the Manager-Hope Creek System Engineering. Where necessary, compensatory actions for rescheduled work or other areas of performance risk are to be specifically defined and addressed.

System readiness affirmations are to be presented by the System Manager to the ORC for the twenty systems identified in Attachment C. Affirmation of system readiness is documented with the signature of the System Manager, Supervisor and Manager. Affirmation of individual system readiness for the remaining plant systems will be addressed as part of the System Engineering line management responsibility and will be one element of the Hope Creek System Engineering department readiness evaluation.

3.2 Core Configuration Readiness

Core configuration readiness is an affirmation by the Manager - Nuclear Fuels that the fuel assemblies and core configuration meet applicable design criteria and requirements. Affirmation of core configuration readiness is documented with the signature of the Manager-Nuclear Fuels, System Manager, and Manager-System Engineering.

3.3 Operational Readiness

Operational readiness is an affirmation by each SNSS and operating crew that the operating shifts are satisfied with the plant material condition and that they are ready to operate the station in a safe an reliable manner through the next operating cycle. Determination of operational readiness is the responsibility of the Operations Manager and will include verification of operator training, establishment of an acceptable control room working environment and assurance that operations performance expectations have been established and effectively communicated.

Affirmation of operational readiness is documented with the signature of the SNSS with review and approval by the Assistant-Operations Manager and the Hope Creek Operations Manager.

3.4 Department Readiness

Department readiness by selected departments is an affirmation that the department is in an appropriate state of readiness to support startup and safe and reliable power operation through the next cycle. Department readiness will include items such as:

- adequacy of staffing levels, personnel experience and qualifications to demonstrate compliance with regulatory requirements and commitments

- completion of personnel training on normal startup evolutions, power ascension requirements, industry operating experience and unusual events at similar plants, emergency preparedness, changes in plant configuration, changes in plant operating and emergency procedures, and changes in key administrative procedures and processes,
- resolution of recurring performance deficiencies and reduction of backlogs to manageable levels, and
- Establishment of goals and priorities for the continued improvement of the department including use of critical self-assessment methods.

Department readiness will be affirmed to the ORC by the following departments:

- Hope Creek Operations
- Hope Creek Maintenance
- Hope Creek System Engineering
- Hope Creek Chemistry/Radiation Protection
- Hope Creek Outage and Planning
- Hope Creek Licensing
- Design Engineering

Affirmation of department readiness is documented with the signature of the Department Manager.

4.0 Startup and Power Ascension

Startup and power ascension following the completion of RF06 will follow a deliberate and controlled approach that ensures operational and personnel safety. The normal startup process defined in Hope Creek procedures HC.OP-IO.ZZ-0002 and HC.OP-IO.ZZ-003 will be supplemented with appropriate management oversight and support from engineering and maintenance organizations such that issues or concerns are promptly addressed and the status can be accomplished in a safe, controlled manner. The startup and power ascension actions summarized in this section do not change or alter any requirements of the startup procedures defined above.

4.1 Management Oversight and Organizational Support

The Hope Creek outage management structure will be supplemented with a Shift Plant Manager, Shift Engineering Manager and Shift Maintenance Manager during the startup and power ascension phase. The responsibilities of these positions are as follows:

4.1.1 Shift Plant Manager

The Shift Plant Manager provides on-shift (24 hour) presence as a direct representative of the GM-Hope Creek and is responsible for maintaining an overall perspective of the startup process. If necessary, the Shift Plant Manager is authorized to request Operations to delay the startup, reduce power or shutdown to make necessary repairs. The Shift Plant Manager can authorize, with the concurrence of the GM-HC, ascension to the next mode level.

4.1.2 Shift Engineering Manager

The Shift Engineering Manager provides on-shift (24 hour) presence as a direct representative of the Director-System Engineering and is responsible for maintaining an overall perspective of engineering support of the startup process. The Shift Engineering Manager will control on-shift engineering resources as necessary to support scheduled startup testing activities, resolve emergent operability issues, support maintenance and manage necessary reactor engineering test activities.

4.1.3 Shift Maintenance Manager

Provides on-shift (24 hour) presence as a direct representative of the Hope Creek Maintenance Manager and is responsible for maintaining an overall perspective of maintenance support of the startup process. The Shift Maintenance Manager will control on-shift maintenance resources as necessary to support scheduled startup testing activities, resolve emergent equipment issues, and support operations.

This organization will be implemented as directed by the GM-HC but at least prior to the initiation of HC-OP-IO.ZZ-0002, Preparation for Plant Startup. The organization will be disbanded as directed by the GM-HC but not before attainment of 100% power.

4.2 Startup and Power Ascension Hold Points

The Outage Manager is responsible for defining on the RF06 schedule specific startup and power ascension hold points. Hold points will be defined for the following major milestones:

- Prior to initiating fuel shuffle.
- Prior to initiating channel swap to A&C.
- Prior to initiating cold hydo testing.

- Prior to initiating HC.OP-IO.ZZ-0002 and entering operational condition 3.
- Prior to entering operational condition 2.
- Prior to initiating HC.OP-IO.ZZ-0003 and entering operational condition 1.

4.3 Contingency Planning

To minimize the potential for performance errors during the plant startup, the following action will be taken:

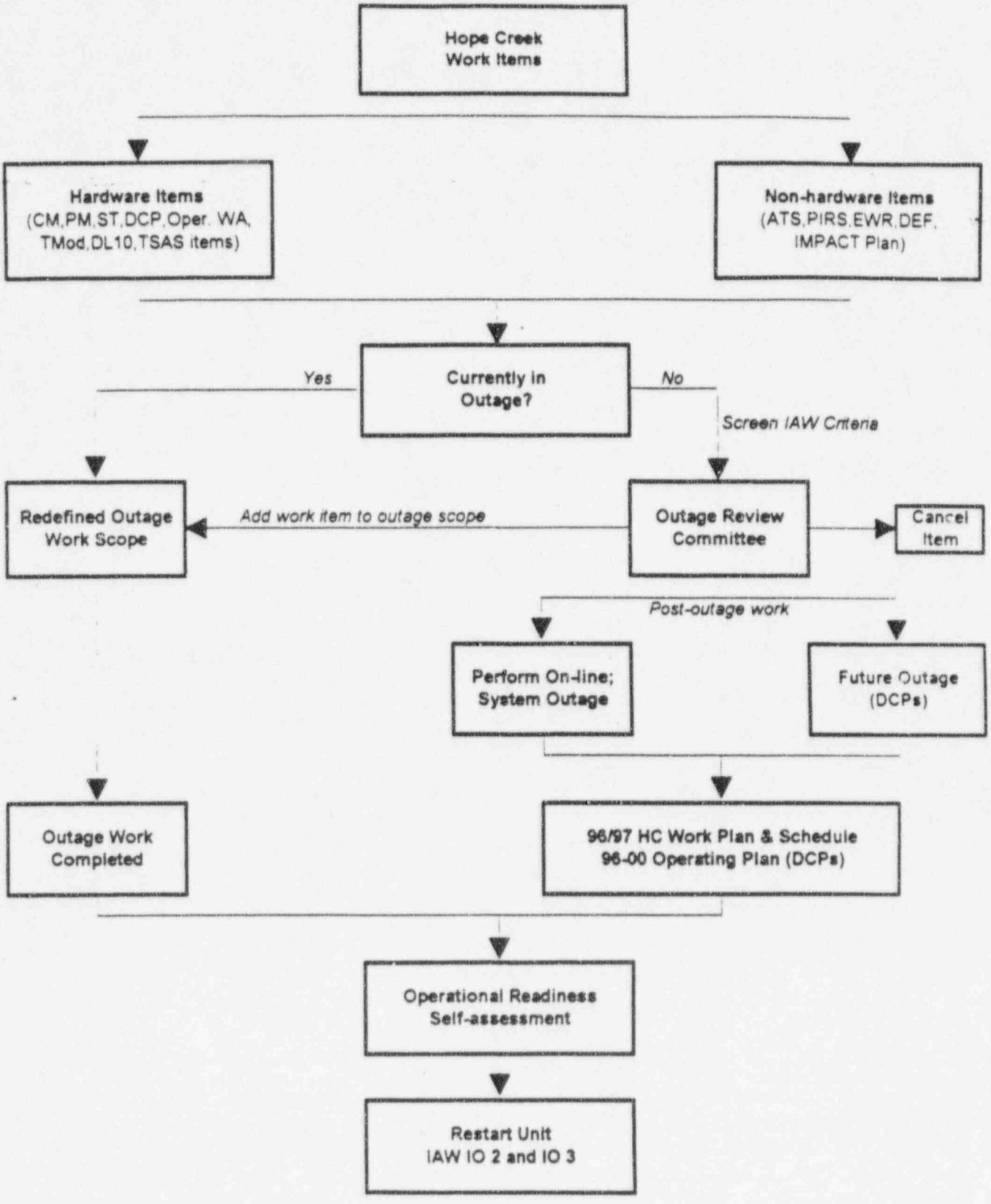
- Operations personnel will utilize the simulator to practice the startup evolution and ensure understanding and proficiency with applicable startup procedures and special requirements.

- A review of past Hope Creek startup and OEF startup issues will be performed to ensure understanding of past experience and lessons learned.

- Department roll-down communications meeting will be conducted with each plant department to discuss management expectation regarding the startup and power ascension process, schedule and responsibilities. These meeting will be completed prior to initiating the startup evolution.

- Management hold points will be used as described above to ensure adequate performance of plant equipment, personnel and work processes in supporting the continuing startup of the plant.

Figure 1
Hope Creek RF06 Outage Completion Plan



ATTACHMENT A

Outage Review Committee Charter

Note: Outage Review Committee charter provided in this attachment may not be the current version. See ORC secretary for current version.

Outage Review Committee Charter

Purpose: Exercise management oversight and approval of physical and programmatic work scope necessary to complete refueling operations, ensure a safe and uneventful unit startup, and achieve a reliable post-refueling operating cycle.

Members:
Plant GM, Chair (Mark Reddemann)
Operations Manager, Vice Chair (Rob Gambone)
Maintenance Manager, Vice Chair (Marty Trum)
Outage/Planning Manager, Vice Chair (Tom Kirwin)
Chemistry/RP Manager (Kim Maza)
Technical Manager (Jim Clancy)
Design Engineering Manager (Gary Overbeck)

Operations Alternate (Ernie Harkness or Harlan Hanson)
Maintenance Alternate (Larry Wagner)
Outage/Planning Alternate (Frank Higgins)
Chemistry/RP Alternate (Terry Cellmer)
Technical Alternate (Bill Schell)
Design Engineering Alternate (Dom LaMastra)

Outage Review Committee Secretary (Sherri Huston)

Quorum: Chairperson and three additional members/alternates.

Actions:

1. Set and communicate expectations for the organization to evaluate work items against the outage scope criteria.

2. Ensure screening criteria are consistently applied via the Outage Review Committee review, meeting and approval process.

   In defining the scope of RF06, the Committee may elect to complete some items in RF06 that do not meet the screening criteria. This decision would be based on the efficiency of completing this work with other planned outage work, advantages of completing the work during core off-load, risk or complexities of completing the work during the next operating cycle, or other management decisions.

   In addition, some items that meet one or more of the criteria may be deferred until after RF06 if there are special considerations that provide the basis for this decision. Examples may include items that are only a concern during certain seasons (e.g., grass growth), reduced risk of performing the work during a system outage, or implementation of adequate compensatory actions until a long term solution is defined. A clear basis for deferral of these items is to be provided.

3. Review and approve:

   A. Work scope to be performed during RF06.

   B. IMPACT Plan action items to be completed prior to startup from RF06.

   C. Station readiness to initiate unit startup and power ascension as determined by the results of the Self Assessment of Readiness to Startup Following an Outage.

4. Provide oversight of the NAP-55 process for inclusion of emergent work items in the RF06 work scope.

5. Maintain a record of presentations, discussion, deliberations, and basis for decisions and recommendations.

6. Revise charter as necessary to accommodate changing conditions.

Convene as necessary to accomplish this charter prior to and during RF06. Disband after unit startup when directed by the General Manager - Hope Creek Operations.

Mark E. Reddemann

ATTACHMENT B

Criteria for Work Included in RF06 Outage

Note: Criteria provided in this attachment may not be the current version. See ORC secretary for current version.

Criteria for Work Included in RF06 Outage

Work items not currently in the scope of RF06 will be screened to the criteria provided below. A work item that meets the criteria will be included in the scope of RF06.

Level 1 **Resolves a safety or operability issue.**

Level 2 **Not a safety or operability issue. However, action:**

2.1 ***Eliminates*** a component failure, deficiency or condition that could result in operation or entry into an LCO action statement.

2.2 ***Resolves*** deficiencies or conditions that:

a. 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,

b. would increase the risk to operation or safety associated with performing a surveillance, or

c. would result in the failure to meet a license requirement or a commitment to an outside agency.

2.3 ***Restores*** degraded critical components or conditions that could result in a plant transient, derate or shutdown.

2.4 ***Resolves*** conditions that have resulted in repetitive safety system or power block equipment failures.

2.5 ***Restores*** licensing basis deficiencies to conforming conditions (e.g., EQ, Appendix R, seismic, environmental).

2.6 ***Corrects*** equipment with design basis deficiencies, i.e., deficiencies in safety related equipment or other Technical Specification equipment not in conformance with design basis documents such as the UFSAR (documentation deficiencies may be completed post-outage with justification of no safety impact).

2.7 ***Corrects*** deficiencies in configuration management programs, processes, engineering analysis codes or documentation that have a reasonable probability of affecting equipment operability (documentation deficiencies may be completed post-outage with justification of no safety impact).

2.8 ***Eliminates*** conditions that may create an unacceptable potential for personnel radiation exposure, an unplanned radioactivity release to the environment or discharge of effluent in excess of limits.

2.9 ***Reduces*** cumulative deficiencies, backlogs or conditions that, in aggregate, could have significant negative impact on safety, operability or reliable plant operation. (Not applicable to individual work items)

ATTACHMENT C

Twenty Plant Systems Reviewed by Outage Review Committee

Feedwater (AE)
RX Recirc (BB)
RHR (BC)
RCIC (BD)
CRD (BF)
SLC (BH)
HPCI (BJ)
EHC (CH)
Service Water (EA)
SACS (EG)
Ctm Atmosphere (GS)
CREF (GJ/GK)
RBVS (GR)
FRVS (GU)
Instrument Air (KB/KL)
EDG (KJ)
1E 480VAC MCC (PH)
Nuclear Instrumentation (SE)
Primary Ctm Isolation (SM)
RMS (SP)

Systems in bold to undergo rigorous readiness review.

ENCLOSURE 3 TO LR-N96010

OPERATIONAL READINESS SELF ASSESSMENT PROGRAM PROCEDURE