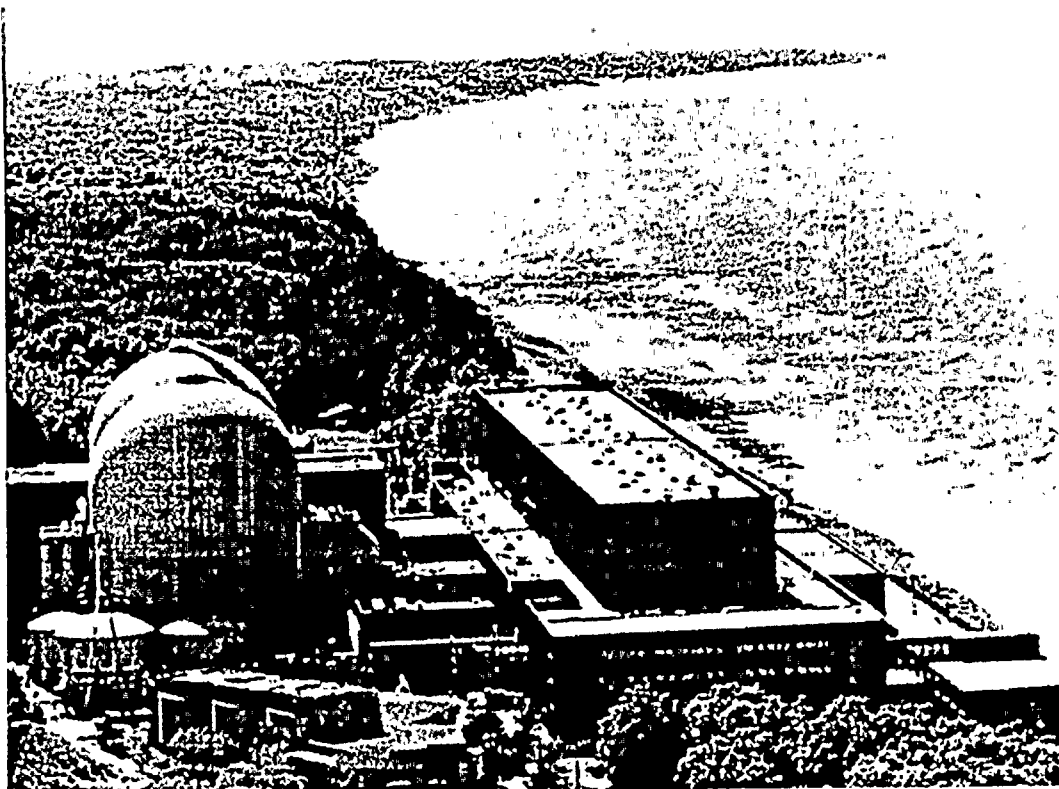


## ***Cook Nuclear Plant***

# ***Restart Plan (Revision 5)***




*Michael W. Renschler for*

Robert Powers  
Senior Vice President  
March 3, 1999

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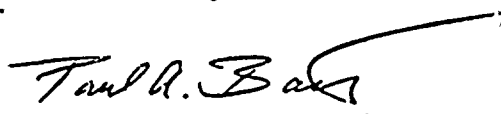
**CNP Restart Plan Concurrence:**

  
Vice President, Nuclear Engineering

  
Site Vice President

  
Plant Manager

  
Director, Regulatory Affairs

  
Director, Performance Assurance

  
Restart Director

**CNP Restart Plan Control:**

The Restart Director is the administrative owner of this Document. Any Revision, at a minimum, will be reviewed and approved by SMRT. The Licensing Manager shall docket the *CNP Restart Plan* and any subsequent revisions with the NRC in accordance with AEPNG Procedures.

The procedures required to support the implementation of *CNP Restart Plan* are listed in the reference section, page 7-1, of the *CNP Restart Plan* Attachments. Those identified with an asterisk (\*) still need to be developed and approved. The Restart Director will ensure the implementing procedures are developed prior to performance of the actions identified in the Plan.

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## ***CNP Restart Plan Attachments***

Attachment 1 CNP Outage History

Attachment 2 Restart Organization

Attachment 3 Plant Programs/Processes Required by Restart Plan

Attachment 4 Required Programmatic Readiness Reviews

Attachment 5 Required Functional Area Reviews

Attachment 6 Criteria for Work Included in the Restart Scope

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## **1. Plan Overview**

### **1.1. Introduction**

Both Cook Nuclear Plant (CNP) units have been shut down since September 1997. This extended shutdown, as summarized in Attachment 1, was initially prompted by concerns raised by the Nuclear Regulatory Commission (NRC) architect-engineer (A/E) inspection. Subsequent assessments have uncovered a wide range of plant, people and process issues that must be resolved.

In response, senior management is undertaking comprehensive, aggressive action to fully confront the issues at CNP, beginning with an expanded discovery effort. Building on this discovery, a methodical and comprehensive series of actions are being implemented. This document, the *CNP Restart Plan*, provides top-tier management direction regarding the structure, content and methods for these restart actions.

### **1.2. Objectives**

The *CNP Restart Plan* provides information to a wide range of users, including plant personnel, NRC, and other interested parties. The objectives of the plan are to:

- Set the overall strategy, logic, content, oversight, accountabilities and relationships of restart activities, with sufficient clarity to serve as a basis for the implementing processes and procedures.
- Establish a broad basis for continuing improvement in CNP performance, up to and beyond plant restart.
- Convey to the NRC how the CNP restart activities will meet regulatory requirements and commitments.
- Communicate to the entire CNP staff, and to others, the overall path forward to a successful return to service of both CNP units.

### **1.3. Program Management**

The CNP restart effort involves work that is different, and in some respects more demanding, than normal plant outages. For that reason, permanent plant organizational units and processes are supplemented with additional organizational units and personnel, oversight committees, and special processes as described in Attachment 2.

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Notwithstanding the need for special measures, the permanent CNP organization retains its accountabilities for plant safety and management, and normal plant processes will be employed to the extent practical.

Senior management expects the entire CNP organization to put this plan into full effect – as a common direction toward a successful restart.

#### **1.4. Program Scope**

The *CNP Restart Plan* is intended to address the full spectrum of factors that will contribute to safe, efficient and reliable plant operation. Specific issues to be addressed have been identified, and are continuing to emerge, as part of the discovery effort, from NRC and restart requirements as well as AEP assessments.

#### **1.5. Program Structure**

The *CNP Restart Plan* is based on fundamentals. Four steps coupled with continuous oversight, which lead to plant restart. This methodology is well understood and has been implemented successfully, under similar circumstances, at several other U.S. nuclear plants. Each step of the restart path is depicted as a block on the diagram shown in Figure 1 and defined below.

##### **I. Discovery**

Discovery is the process of identifying and understanding plant, people and process problems that could jeopardize safe operation of CNP, and the determination of which of those problems must be corrected - and how - prior to restart.

##### **II. Implementation**

This term applies to the work done to implement the corrective actions in plant, people and processes needed for a successful restart.

##### **III. Verification**

Verification is the use of objective, defensible and properly documented methods to demonstrate that plant, people and process problems have been resolved. This is essential to meet both AEP and NRC requirements.

##### **IV. Startup and Power Ascension**

Upon authorization from AEP management and with concurrence from NRC, the plant will be restarted in an orderly, deliberate manner.

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## **V. Oversight**

AEP oversight will assess restart activities to provide further assurance that the work is done in accordance with requirements and procedures, and to confirm that the needed results have been achieved.

Figure 1 is a simplified process chart of the *CNP Restart Plan*. In principle, the restart program comprises these steps and the steps outlined.

The balance of this plan expands on the basic logic depicted in Figure 1. The processes and methods to be used are explained in this plan. Each of the steps shown in Figure 1 is sequentially outlined in the remaining sections of this plan. Where appropriate, the interrelationship of organizational units and processes – particularly the "cross cutting" ones that affect multiple steps are highlighted. Further detail on important topics is provided as attachments. In addition, references to implementing procedures and other pertinent documents are provided.

Finally, a summary of the programs and processes required by the *CNP Restart Plan* is provided in Attachment 3.

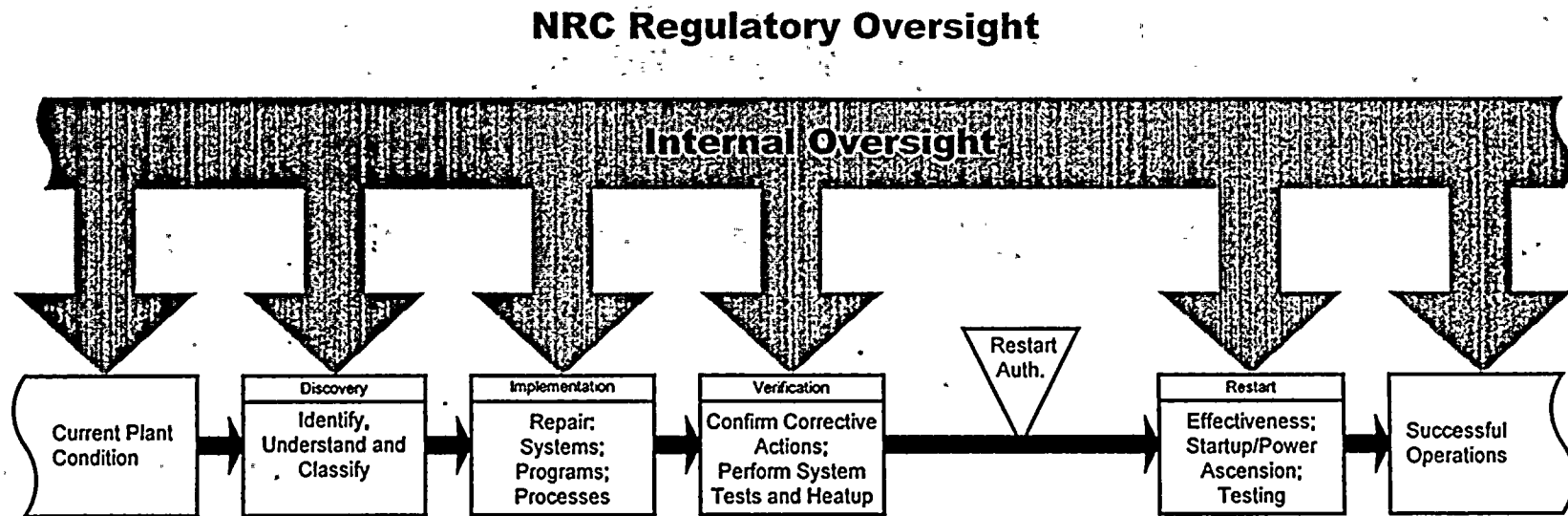
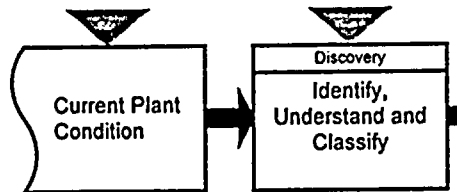


Figure 1 (CNP) Restart Plan: *The Path Forward*

## 2. Expanded Discovery – Identifying, Understanding and Classifying Problems



### 2.1. Objective

The objective of Discovery is to examine, comprehensively and rigorously, plant systems, programs, and functional areas in order to identify, assess and classify the problems that must be addressed in the Restart Program. Effective discovery is fundamental to a successful Restart Program. Expanded discovery, beyond the discovery work already accomplished, is necessary to provide sufficient confidence that the follow-on Restart Program work will result in a safe, successful return to service.

### 2.2. Sources of Potential Restart Issues

The following are sources of potential restart issues to be examined during discovery efforts:

- **NRC 0350 Issues**

NRC has identified issues as requiring resolution prior to restart, per the NRC Manual 0350. These "NRC 0350 issues" are listed in NRC's Case Specific Checklist for Donald C. Cook Plant.

- **Regulatory Commitments**

It is essential that AEP commitments to the NRC and others be effectively implemented. Commitments are identified and managed through the tracking system described in PMP 7100.CMP.001, NRC Commitment Management Program. (See also Section 2.10)

- **Readiness Reviews**

An extensive process of assessments has been prescribed for systems, programs, and functional areas, in order to determine the station's readiness for restart and to identify corrective actions needed to achieve

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readiness. Readiness reviews, and particularly the Expanded System Readiness Reviews (ESRRs), are a primary source of discovery input.

The three separate but related processes for readiness review (i.e., systems, programs and functional areas) provide overlapping and multi-dimensional perspectives on factors which could affect plant performance.

Management may direct other internal or third party assessments to supplement these established methods as necessary.

- **Corrective Action Program**

The CNP Corrective Action Program is the normal and permanent process for identifying, evaluating and correcting problems.

Condition Reports and Action Requests are the approved Corrective Action Program methods for reporting problems and discrepancies at CNP. Therefore, problems and discrepancies identified through the discovery process shall be reported using these methods, in accordance with PMP 7030.INT.001, Corrective Action Initiation.

- **Leadership Plans:**

A Leadership Plan is a management tool designed to capture those actions considered necessary for the long-term improvement of a department. Although Leadership Plans are not specifically part of the Restart Program, it is clear that some action items, or portions thereof, in Leadership Plans will be considered prerequisite to startup and with management's direction be managed utilizing Restart Action Plans. Leadership Plan requirements are established in PMP 2090.001, Leadership Plans.

### **2.3. Expanded System Readiness Reviews (ESRR)**

The plant system and containment readiness assessment process is controlled by PMP 7200.RST.004, Expanded System Readiness Review Program. Its purpose is to provide reasonable assurance that systems are capable of performing their safety and accident mitigation functions by assessing conformance with the design basis and licensing basis. The ESRR establishes a disciplined approach to system assessment, ownership, and accountability thereby promoting continued safe, efficient and reliable plant operation.

The ESRR process is comprehensive and rigorous in its methods. The process integrates the results of discovery efforts through the use of

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information technology. This enables a collective review of potential adverse conditions and their impact on plant systems, programs and processes.

The ESSR Process begins with discovery and continues through implementation, verification, and startup and power ascension. It comprises four distinct phases, as summarized in Table 1.

**Table 1: Expanded System Readiness Review Program Phases**

<b>ESSR Phase 1: Initial System Readiness Review</b> <ul style="list-style-type: none"><li>▪ Assessment of system design and licensing basis</li><li>▪ Performance of a comprehensive multi-disciplined and/or System Manager walkdown of the system materiel condition and operability issues</li><li>▪ Evaluation of open action items against the restart screening criteria</li><li>▪ Determination of restart and post-restart work scope</li><li>▪ Presentation of system readiness reviews to SRRB and PNSRC</li></ul>
<b>ESSR Phase 2: Restart Activities Monitoring</b> <ul style="list-style-type: none"><li>▪ Evaluation of emergent action items against restart screening criteria</li><li>▪ Intrusive examination of field work</li><li>▪ Further review of open corrective action items</li><li>▪ Monitoring of work completion in preparation for final system readiness reviews</li><li>▪ System Walkdowns by the System Manager</li></ul>
<b>ESSR Phase 3: Final System Readiness Review</b> <ul style="list-style-type: none"><li>▪ Review of completed restart scope work</li><li>▪ Performance of system readiness walkdowns by the System Manager and an operations representative</li><li>▪ Presentation of the Final System Readiness review to SRRB and PNSRC</li></ul>
<b>ESSR Phase 4: Start and Power Ascension*</b> <ul style="list-style-type: none"><li>▪ System Manager monitoring of restart activities and continuous monitoring of system readiness</li><li>▪ System Manager establishing system performance monitoring baselines for tracking and trending</li><li>▪ Monitoring of new corrective maintenance activities or condition reports</li></ul>

\*The Expanded System Readiness Review Program activities are supplemented by the Restart Readiness Review and Startup and Power Ascension sections of the *CNP Restart Plan*.

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## **2.4. Programmatic Readiness Assessments**

Programmatic readiness assessments confirm that programs are in place and functioning. Programmatic issues identified during discovery are evaluated, and necessary corrective and preventive actions are completed. Programs in place at the time of startup must be adequate to provide reasonable assurance of safe operation of the plant and provide reasonable assurance of conformance with the design and licensing basis.

The programs to be assessed, as of the issue of this plan (revision 5), are listed in Attachment 4. Programmatic readiness assessments are governed by PMP 7200.RST.009, Programmatic Restart Readiness. Management may elect to perform additional assessments pending review of results and trends.

## **2.5. Functional Area Readiness Assessments**

Functional Area Assessments are conducted to determine that a department is in an appropriate state of readiness to support startup and safe operation. Elements of the Functional Area Assessments include staffing levels, training and qualifications, experience, performance deficiencies, reduction of backlog, and the establishment of continuing improvement goals.

The functional areas to be assessed, as of the issue of this plan (revision 5), are listed in Attachment 5. The Functional Area Readiness Assessment process is governed by PMP 7200.RST.010, Functional Area Restart Readiness.

## **2.6. Corrective Action Program**

The Corrective Action Program is a comprehensive process of identifying, evaluating and correcting problems. It affects all areas of CNP work, both restart and non-restart. Also, the effectiveness of the Corrective Action Program is itself an NRC 0350 Issue, and actions are in progress to monitor and improve its effectiveness.

In light of the unique circumstances of the extended shutdown, other processes are being employed at CNP to supplement the Corrective Action process. Special restart readiness processes, as described in Sections 2.2 through 2.5, provide extensive discovery capability. The ESRR Process, utilizing Restart Criteria, is being used to ensure that identified problems are appropriately prioritized for completion prior to restart.

The Corrective Action Program is integral to these efforts at CNP, and it is to be used as directed by applicable station procedures. Personnel recognize the importance of vigilance and a questioning attitude, and identify, report and correct problems via the Corrective Action process on a continuing basis.

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At an appropriate point in the restart effort, when it is determined that the Corrective Action Program is working effectively and that there is no further need for supplementary processes, senior management will direct that the Restart Criteria process (see Section 2.8) be discontinued. At that point, the Corrective Action Program will be used, along with other work control processes, for prioritization and classification of identified problems.

## **2.7. Classification of Identified Items Required for Restart**

For every item identified and evaluated in the discovery process, a determination must be made as to whether it must be resolved prior to restart. This determination shall be made in accordance with logical screening criteria and a methodical process. This step of classifying identified items as 'restart required' is a key part of the discovery process.

## **2.8. Criteria and Process for Designation of Restart Items**

The determination of which items identified through the discovery process must be resolved prior to restart is made by means of consistent application of restart criteria established for this purpose. These criteria address nine attributes:

- Nuclear Safety
- Operability
- Design Basis
- License and Licensing Basis
- Licensing Commitments
- Configuration Management
- Reliability
- Post Restart Issues
- Industrial Safety

The criteria are discussed more fully in Attachment 6.

The process for classification is prescribed in PMP 7200.RST.004, Expanded System Readiness Review Program. Each System Manager is accountable to perform initial classifications for all items entered into SIDS, using the criteria in Attachment 6. Potential restart items are then presented to the System Readiness Review Board (SRRB) for classification as "restart required." Upon classification of an item, the information is reviewed by the Restart Team for incorporation in the Integrated Restart Schedule update.



## **2.9. System Indexed Database System**

The System Indexed Database System (SIDS) is the plant database that records and tracks restart and post-restart action items. CNP work management actions are electronically loaded into the SIDS database. These potential restart items, once loaded into SIDS, are accessed by users, via networked PCs, as the work proceeds through the steps of classification, implementation, verification and startup and power ascension.

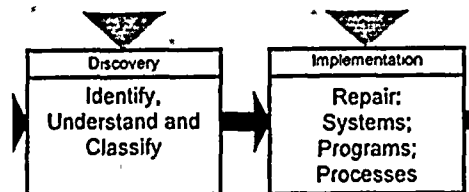
## **2.10. Commitments**

Adherence to commitments is a cornerstone of CNP's operating philosophy. From an organizational perspective, this objective will be reinforced through daily practice and accountability. It is essential that all CNP management and staff adhere to commitments made to the NRC, to other external groups, and to each other.

NRC commitments may be rooted in regulatory guides and standards, generic letters, NRC Inspection Reports, in minutes of meetings with the NRC, and in other correspondence, and may be enumerated and documented in responses to the NRC. CNP's discovery processes are intended to identify external commitments. Once identified and documented in accordance with plant procedures, the commitments may be checked for plant conformance.

The process for identifying and tracking commitments (including those made in the future during the restart process and after during normal operations) is found in PMP 7100.CMP.001, NRC Commitment Management Program. All commitments to the NRC must be documented and tracked in accordance with this program.

### 3. Implementation – Fixing the Problems



#### 3.1. Objective

The objective of implementation is the completion of designated work to a standard that provides reasonable assurance of successful restart.

#### 3.2. Restart Action Plans

The Restart Action Plan process is the primary vehicle for managing significant restart items. It is a simple and flexible project management tool. It is a "cross-cutting" process, affecting multiple steps in the restart path forward.

Restart Action Plans are required for all NRC 0350 issues, along with other significant actions as selected by management. This process is being established to supplant the "Restart Strategies" process described in previous revisions of the *CNP Restart Plan*. The objective and philosophy are similar to the earlier process, but it is intended to be a simpler in implementation and to support integration of discovery with issue resolution, in keeping with the wide diversity of restart issues and actions.

The Restart Action Plan process is described in procedure PMP 7200.RST.001, Restart Action Plans.

#### 3.3. Work Control and Integrated Restart Schedule

Integrated scheduling is needed to prioritize and allocate resources for corrective action implementation. The Restart Team is accountable to develop, implement and maintain the Integrated Restart Schedule. The Integrated Restart Schedule is the vehicle to monitor accountabilities for assigned work. The Restart Director will provide the guidance on schedule control and plant personnel responsibilities.

### 3.4. Documentation Requirements

Documentation demonstrating resolution of restart issues, program deficiencies and functional area weaknesses are required to support AEP oversight and NRC inspection. Documentation of implementation actions will fall within one of the following three categories:

- Restart Action Plans:

These may require additional closure package documentation beyond existing practice, as defined by procedure PMP 7200.RST.001, Restart Action Plans.

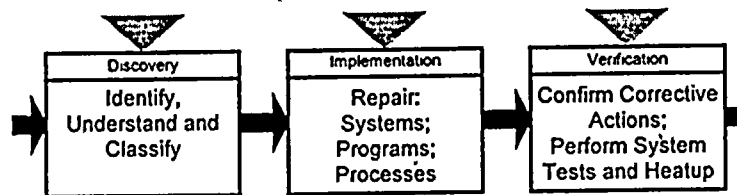
- Non-0350 restart items (including those deficiencies identified in the ESRR):

These are documented using existing permanent plant processes.

- Leadership Plan actions:

PMP 2090.001, Leadership Plans, prescribes closure requirements.

## 4. Verification – Confirming that Objectives are Achieved



### 4.1. Final Readiness Reviews

Final readiness reviews are intended to confirm that restart activities have been completed. The reviews shall be conducted to confirm system and containment readiness, functional area readiness (including programs), regulatory readiness and operational readiness. Self-assessments, third party evaluations, peer reviews, and other verification methods will be used as directed by departmental and senior management.

- **Systems and Containment:**

System Managers will assess assigned systems for affirming system readiness per PMP 7200.RST.004, Expanded System Readiness Review Program. Readiness assessments by the System Manager and an operations representative will provide reasonable assurance that restart actions have been completed to facilitate a safe and reliable startup and continued operations.

The assessment of system readiness is a prerequisite to the turnover of systems to Operations. Any outstanding items remaining at final turnover to Operations will be scheduled for resolution in accordance with the Corrective Action Program commensurate with their significance. The System Readiness Review will not be considered closed until final turnover to Operations is performed per PMP 7200.RST.002, Startup and Power Ascension.

- **Functional Areas and Programs:**

Managers affirming the readiness of their functional and programmatic areas will perform assessments per PMP 7200.RST.010, Functional Area Restart Readiness. Readiness assessments for functional and programmatic areas will provide reasonable assurance that restart actions have been completed to facilitate a safe and reliable startup and continued operations. The readiness assessment is intended to ensure that potential restart issues have been identified, and assigned actions have

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been completed and that departmental programs, processes, organizations, personnel, and management capabilities are adequate to support safe and reliable operation.

▪ **Operations:**

Each Shift Supervisor will perform an assessment of shift readiness. These assessments are intended to ensure completion of required training, appropriate staffing, experience and qualification levels; acceptance of plant materiel condition, system readiness, operator workarounds (if any), and the control room environment. Additional criteria and processes are found in PMP 7200.RST.003, System Turnover to Operations.

▪ **Regulatory:**

The Director of Regulatory Affairs shall perform an assessment of CNP's compliance with regulatory requirements and commitments. This assessment will include a determination of whether:

- License amendments required for restart have been issued
- Exemptions required for restart have been granted
- Code applicable reliefs required for restart have been granted
- Confirmatory Action Letter conditions required for restart have been addressed to the satisfaction of the NRC
- Regulatory commitments required for restart have been satisfied
- Compliance with license conditions has been verified
- Ongoing programmatic commitments are being met or commitments have been revised
- Inspection findings and open items required for restart are resolved

#### **4.2. Affirmation Requirements**

The restart readiness process requires an affirmation that attests that there is reasonable assurance that restart actions have been completed to facilitate safe and reliable startup and continued operations. The affirmation is also intended to be the foundation for continuous improvement philosophy.

The Plant Nuclear Safety Review Committee (PNSRC) shall conduct readiness affirmation sessions and recommend restart to the Senior Vice President when appropriate. Following acceptance by the PNSRC, the Senior Vice President shall authorize startup based on this review with input

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from the Nuclear Safety Design Review Committee, the Independent Safety Review Group and Performance Assurance.

Plant system and containment affirmation attributes are contained in PMP 7200.RST.004, Expanded System Readiness Review Program. The affirmation attributes for Functional and Programmatic Areas are contained in PMP 7200.RST.010, Functional Area Restart Readiness.

System turnover to Operations shall be performed to assure plant systems are acceptable to Operations per procedure PMP 7200.RST.003, System Turnover to Operations.

#### **4.3. Startup and Power Ascension**

As part of ESRR phase 4, system testing and related activities conducted during plant heat up (see Section 8) is to provide an additional level of assurance of effective corrective action and readiness for restart. Emphasis will be placed on assuring that personnel, programs and equipment are performing as expected and as required.

While permanent plant procedures shall be used to perform these activities, augmented staffing for test performance and operations shall be provided. PMP 7200.RST.002, Startup and Power Ascension and PMP 7200.RST.005, Restart and Power Ascension Testing Program describes these activities in detail.

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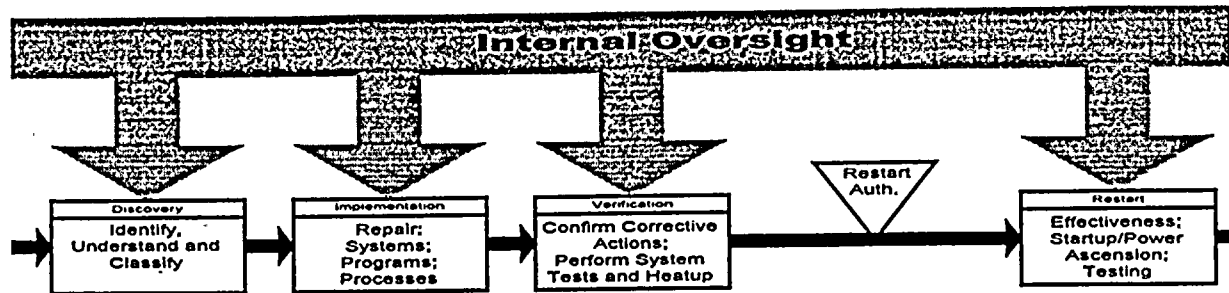
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## 5. Internal Oversight – Ongoing Assessment



### 5.1. CNP Oversight Organizations

Several oversight organizations have been established with responsibilities unique to CNP restart, to supplement the Performance Assurance responsibilities under 10 CFR 50, Appendix B. The System Readiness Review Board (SRRB) applies direct oversight to the ESRR program, functional assessments, programmatic assessments and Restart Action Plans. Performance Assurance, the Plant Nuclear Safety Review Committee (PNSRC), Senior Management Review Team (SMRT), the Nuclear Safety Design Review Committee (NSDRC), and the Independent Safety Review Group (ISRG) will provide indirect oversight of the readiness reviews and Restart Action Plans.

Oversight organizations are discussed in more detail in Attachment 2.

### 5.2. Third Party Assessments

Directors and managers may initiate independent third party assessments, as necessary, to supplement restart activities, particularly in the discovery and verification phases of restart. Third party assessments are not required and do not replace or diminish the assigned responsibilities of CNP permanent plant or restart organizations.

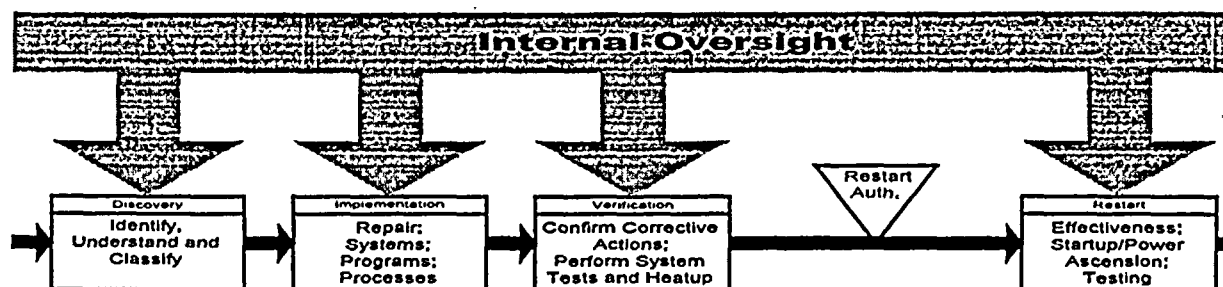
### 5.3. Restart Readiness Measures

Restart readiness measures provide the capability for management and staff to gauge progress in accomplishing goals and achieving readiness for restart. Such measures include workdown curves, performance indicators, and tabulations of adherence to the Integrated Restart Schedule.

The Restart Team will be responsible for developing appropriate measures, compiling the necessary data, and disseminating and providing access to this information.

## 6. Regulatory Oversight

### NRC Regulatory Oversight



### 6.1. NRC MC 0350 Restart Panel

The NRC has implemented a Restart panel in accordance with Inspection Manual Chapter (MC) 0350 Staff Guidelines for Restart Approval to provide guidance for CNP's restart. The guidelines in MC 0350 ensure that:

- Nuclear Reactor Regulation (NRR) and Region III Office are appropriately involved in restart decision for significant cases.
- The NRC responds in a clear and appropriate manner with a unified position to the licensee.
- Restart activities are comprehensive and appropriate for the specific reason for the shutdown.

The Restart Panel has developed a Case-Specific Checklist that provides a detailed list of actions and issues to be addressed prior to CNP restart. The items on the list were derived from NRC's review of inspection activities, the Confirmatory Action Letter (CAL), and *CNP Restart Plan* (previous revisions).

### 6.2. CNP Role in Regulatory Oversight

The Regulatory Affairs Department will coordinate support for inspections and assessments performed by or for the NRC and communicate with the NRC where opportunities may exist for assessments of CNP's restart program.

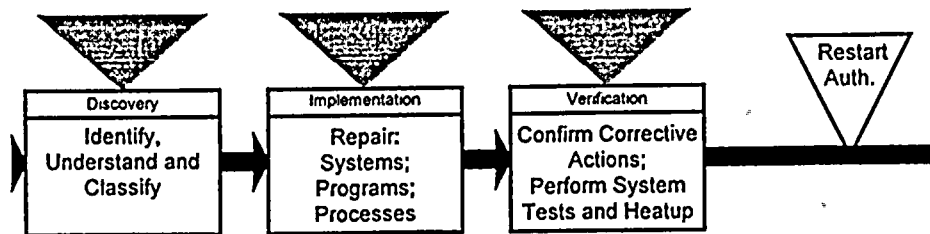
Establishing the confidence of the NRC is vital to a restart effort. This is attainable through a full awareness and compliance with regulatory requirements and commitments along with effective communications with the NRC via the NRC Communication Plan. It is important for the personnel working at CNP to be aware of their individual and collective roles in establishing NRC confidence that restart can be achieved.

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## 7. Authorization to Restart

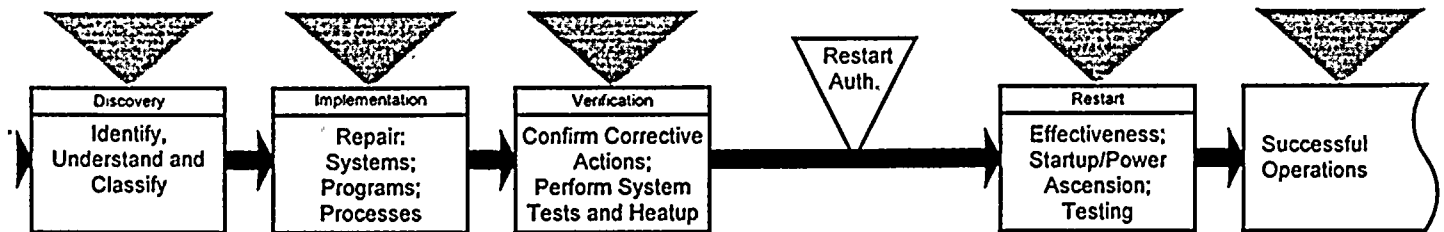


### 7.1. Senior Vice President Approval

The Senior Vice President, with input from oversight organizations and senior management, will provide authorization for restart. This restart authorization will be based on confirmation of the following:

- System, Functional Area, and Programmatic Readiness has been verified and affirmed by SRRB and PNSRC.
- Operations has completed acceptance of plant systems and declared readiness for restart and power ascension.
- Regulatory Affairs has obtained NRC concurrence for restart and satisfied other regulatory prerequisites, including:
  - Applicable licensing amendments have been issued
  - Exemptions and/or relief has been granted where applicable
  - Imposed Orders have been modified or rescinded
  - CAL conditions have been satisfied
  - Significant enforcement issues have been resolved
  - Impact of allegations has been appropriately assessed
  - 10 CFR 2.206 Petitions have been appropriately addressed.

## 8. Startup and Power Ascension



As part of ESRR phase 4, Startup and Power Ascension is the process of defining and conducting a well-planned, methodical and conservative CNP return to power operation. The objective is safe, reliable startup and operation of the plant.

The program includes the following key elements:

- Startup and power ascension management/support organization
- Specific hold points, acceptance tests and criteria for continuing restart
- Contingency plans
- Comprehensive management observation program for the startup evolutions
- Performance Requirements
- Plant Communications
- Post startup reviews and critique.

PMP 7200.RST.002, Startup and Power Ascension, and PMP 7200.RST.005, Restart and Power Ascension Testing Program, provides requirements for these activities.



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## **Attachments And References**

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## **Attachment 1: CNP Outage History**

The following is a chronological synopsis of the major events leading up to and comprising the extended CNP shutdown. Taken as a whole, the outage history is one of gradually emerging problems and constantly evolving restart plans to deal with them. The changes to senior management in mid-1998, and the aggressive and comprehensive assessments initiated by the new team, made clear the full extent of corrective action needed to achieve readiness for restart. This revision 5 to the CNP Restart Plan provides a comprehensive, methodical and proven process to achieve that goal.

Between July and September of 1997, the NRC conducted an architect engineering (AE) inspection at CNP. The inspection focused primarily on two safety systems, ECCS and CCW, and it raised issues regarding the sustainability of long-term core cooling during a design basis accident. As a conservative measure, AEP shut both units down on September 9, 1997.

At the conclusion of the AE inspection, CNP committed to address and resolve, prior to restart, the seven (7) specific issues that were identified during the inspection. Shortly thereafter, NRC issued a confirmatory action letter (CAL) identifying additional actions that must be taken by AEP prior restarting the units and advising that NRC approval would be required for restart. A January 1998 restart of both units was planned.

By the early part of 1998, steady progress had been made in resolving the initial CAL issues. At the same time, however, several new issues arose, relating primarily to plant containment systems. In light of these new, emerging concerns, AEP management chose to implement a more rigorous assessment of plant readiness. Three factors led to this decision:

- Additional assessments would be required to determine whether the type of inspection findings discovered during the AE inspection existed in other safety related systems and whether they effected system operability.
- It would be necessary to confirm that procedure inadequacies or equipment deficiencies that could challenge operators had been adequately identified and addressed.
- Lessons learned from other licensees through the integrated assessment of readiness to restart following an extended shutdown period needed to be adopted and applied as appropriate.

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Also, in July 1998 the NRC established a CNP Restart Panel pursuant to NRC Inspection Manual Chapter (MC) 0350 to assure that its review efforts were appropriate and provided objective measures of restart readiness.

The *CNP Restart Plan* was incrementally revised several times over the next six months to reflect the expansion of issues uncovered by system, programmatic and functional area reviews as well as the need to address them in an adequate manner.

To test the effectiveness of the System Readiness reviews, CNP conducted a Safety System Functional Inspection (SSFI) of the Auxiliary Feedwater System. The SSFI identified further design and licensing basis issues not detected by the previous work. The Senior Vice President-Nuclear Generation responded by commissioning an assessment of engineering programs by a panel of industry experts. The resulting Engineering Issues Review Group's final report identified additional system design bases and licensing basis issues, potential weaknesses in engineering programs and processes, and potential vulnerabilities with respect to the scope of systems reviewed during the prior System Readiness Reviews. Additional assessments were performed at the direction of the new Vice President of Nuclear Engineering in the areas of Engineering Skills, Design Engineering, UFSAR, Corrective Action, and Engineering Training. It was clear that to achieve restart, CNP must expand its discovery efforts further and employ a more rigorous industry proven process to accomplish the original objectives of the restart plan.

Accordingly, in January 1999, senior management undertook additional actions to confront the scope of the problems at CNP, beginning with an expanded discovery effort for systems, programs and functional areas. Building on this discovery, a methodical and comprehensive series of actions is now being implemented.

This revision 5 of the *CNP Restart Plan* represents a continuum with the restart efforts to date. It is intended to capture the full intent of previous revisions, and at the same time adopts proven and comprehensive processes used successfully at other facilities in achieving safe restart from extended outages.

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## **Attachment 2: Restart Organization**

The following are the key CNP organizational positions and the primary restart role(s) of each:

- **Senior Vice President Nuclear Generation**

Provides senior management oversight of the restart process and is responsible for; the management of the Restart Plan and; authorizing startup and power ascension.

- **Site Vice President**

Serves as chairman of the Senior Management Review Team (SMRT) and is responsible for the Restart Plan implementation

- **Plant Manager**

Manages plant operations and is responsible for the Operations Department's acceptance of system readiness and power ascension.

- **Restart Director**

Manages and controls the restart schedule and its implementation.

- **Vice President, Nuclear Engineering**

Oversees engineering related activities that include providing reasonable assurance that systems can be operated, maintained, modified, and tested in accordance with the design and licensing basis. Responsibilities also include the expanded system readiness review program and System Readiness Review Board.

- **System Managers**

Responsible for completion of the system readiness review program to provide reasonable assurance exists that the systems are operable, maintained, modified, and tested in accordance with the design and licensing basis. System Managers are also responsible for the conduct of ESRR for their assigned systems.

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- **Director, Performance Assurance**

Oversees the Performance Assurance activities that provide for verification that CNP personnel, programs and facilities are meeting management expectations and quality standards.

- **Director, Regulatory Affairs**

Establishes expectations and requirements for plant communications with NRC personnel. Responsibilities also include MC 0350 issue closure, interfacing with the MC 0350 Restart Panel, communicating with the NRC and providing assistance to other plant departments on regulatory issues

- **Directors, Section Managers, and Department Superintendents**

Accountable for the rigorous and comprehensive performance of readiness assessments, identification of discrepancies, resolution of issues, implementation of corrective actions, completion of restart work, and providing affirmation of readiness to the PNSRC. Responsibilities also include the implementation of continuous improvement activities throughout the organization.

- **Restart Action Plan Owner**

Responsible for the successful implementation and completion of a Restart Action Plan as detailed in PMP 7200.RST.001, Restart Action Plans.



In addition, the following CNP Oversight Organizations provide restart support:

▪ **Performance Assurance (PA)**

Responsible for the Restart Readiness verification effort and providing appropriate resources to support the effort. PA verifies that D. C. Cook personnel, programs, and facilities are meeting management expectations and quality standards.

▪ **Senior Management Review Team (SMRT)**

The SMRT is responsible for the generation and approval of the restart criteria, for approval of 0350 Restart Action Plans, and for the monitoring and oversight of the Restart Plan and associated processes.

Members:    Site Vice President (Chairman)  
                 Vice President Nuclear Engineering (Co-Chairman)  
                 Plant Manager  
                 Director Performance Assurance  
                 Director Regulatory Affairs  
                 \*Independent Safety Review Group Member  
                 \*\*Restart Director  
                 \*\*Restart Program Manager  
                 \*\*AEPNG Legal Counsel

\*This member will actively participate as available and will perform a continuous oversight role.

\*\*This member will actively participate on a regular basis in an advisory capacity.

▪ **System Readiness Review Board (SRRB)**

Approves the scope of restart work utilizing restart criteria provided in Attachment 6. The SRRB also assesses the readiness of plant systems and containment, Engineering programs, and Engineering functional areas for restart. The SRRB charter is contained in PMP 7200.RST.004, Expanded System Readiness Review Program.

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- **Plant Nuclear Safety Review Committee (PNSRC)**

The PNSRC conducts readiness assessment sessions and recommends plant restart to the Senior Vice President when appropriate.

- **Nuclear Safety Design and Review Committee (NSDRC)**

The NSDRC may be requested or choose to review Restart Action Plans, leadership plans, closure packages or other related restart documents that are not directly required by their charter.

- **Independent Safety Review Group (ISRG)**

Identifies and reviews key information and issues associated with restart and provides feedback regarding restart program effectiveness to the Senior Vice President, Nuclear Generation, Nuclear Safety Design Review Committee, and other management personnel.

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### **Attachment 3: Plant Programs/Processes Required by Restart Plan**

The following is a matrix of restart processes and programs and their respective procedures, owners, applicability under the Restart Plan, etc.:

<b>Process or Program</b>	<b>Restart Plan Steps<sup>(1)</sup></b>	<b>Reference</b>	<b>Restart Plan Attachment<sup>(2)</sup></b>	<b>Key Individuals, Departments, and/or Committees<sup>(3)</sup></b>
0350 Issues	Discovery	PMP 7200.RST.001	—	Regulatory Affairs Restart Action Plan Owners, SRRB, PNSRC
Regulatory Commitments	Discovery	PMP 7100.CMP.001	—	Regulatory Affairs, PNSRC
Leadership Plans	Discovery	PMP 2090.001	—	Managers, Senior Management
Corrective Action Program	Discovery	PMP 7030.INT.001	—	All CNP Personnel
SIDS	Discovery	PMP 7200.RST.004	—	SRRB
ESRR	Discovery Verification Startup & Power Ascension	PMP 7200.RST.004	—	Engineering, Operations, SRRB, PNSRC
Programmatic Readiness Assessments	Discovery	PMP 7200.RST.009	4	Managers, SRRB, PNSRC
Functional Area Readiness Assessments	Discovery Verification	PMP 7200.RST.010	5	Managers, SRRB, PNSRC
Restart Item Criteria	Discovery	PMP 7200.RST.004	6	SMRT, Restart Manager
Restart Action Plans	Implementation	PMP 7200.RST.001	—	Restart Action Plan Owner, Restart Team

Process or Program	Restart Plan Steps <sup>(1)</sup>	Reference	Restart Plan Attachment <sup>(2)</sup>	Key Individuals, Departments, and/or Committees <sup>(3)</sup>
Integrated Restart Schedule	Implementation	—	—	Restart Team
Operations Readiness	Verification	—	—	Operations Manager, PNSRC
Regulatory Readiness	Verification	—	—	Regulatory Affairs, PNSRC
Affirmations	Verification	PMP 7200.RST.004 PMP 7200.RST.010	—	SRRB, PNSRC
System Turnover and Operations Acceptance	Verification	PMP 7200.RST.003	—	Engineering Operations Department, PNSRC
Internal Oversight	Discovery, Implementation, and Verification	—	—	PA, SRRB, PNSRC, SMRT, NSDRC, ISRG
Startup and Power Ascension	Verification, Restart	PMP 7200.RST.002		Operations, Maintenance, Engineering, Appropriate Line Management

**NOTES:**

- (1) Identifies the restart step (as shown in Figure 1) where the process or program is presented in this plan.
- (2) Refers to the attachments in the *CNP Restart Plan* that either directly or indirectly provides guidance regarding restart process or programs.
- (3) Other individuals, departments, or committees may be involved.

#### **Attachment 4: Required Programmatic Readiness Reviews**

The following programs, at a minimum, will be assessed per PMP 7200.RST.009,  
Programmatic Restart Readiness:

- 10 CFR 50.59 program
- Operating Experience
- Instrument Uncertainty
- Corrective Action Program
- Design Change Process
- Calculations
- Design and Licensing Basis
- Procedures
- Quality Assurance (QA) Audits and Quality Control (QC) Surveillances
- Surveillances
- Operator Training
- FSAR Revalidation/Publication/Update Process
- MOV
- Human Performance
- Failure Modes

## **Attachment 5: Required Functional Area Readiness Reviews**

The following functional areas, at a minimum, will be assessed per PMP 7200.RST.010, Functional Area Restart Readiness:

- Operations
- Maintenance
- Plant engineering
- Design engineering
- Nuclear Fuels and Safety Analysis
- Chemistry
- Radiation protection
- Outage management
- Licensing, including licensing support
- Plant protection
- Information management
- Plant performance assurance
- Document Control and Records Management including procedure development
- Emergency Planning
- Corrective Actions Group
- Work Control
- Training



## **Attachment 6: Criteria for Work Included in Restart Scope**

The following are the criteria to be employed in determining whether an identified issue (or item) must be resolved prior to restart. Each will be evaluated against criteria 1 through 7. If any of these criteria apply, the issue (or item) will be designated as 'required for restart'. If criteria 1 through 7 do not apply, then criteria 8 or 9 will dictate the classification.

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.
- 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.

### **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.

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## **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.

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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## REFERENCES

The documents referenced below support the implementation of the CNP Restart Plan. At the time of approval of revision 5 of the CNP Restart Plan, the asterisked (\*) references have not been issued. The Restart Director shall assure that the asterisked references are developed and issued to support implementation of the CNP Restart Plan.

PMP 7200.RST.001	Restart Action Plans*
PMP 7200.RST.002	Startup and Power Ascension*
PMP 7200.RST.003	System Turnover to Operations*
PMP 7200.RST.004	Expanded System Readiness Review Program
PMP 7200.RST.005	Restart and Power Ascension Testing Program
PMP 7200.RST.006	Expanded System Readiness Review Program for Level 2 Systems*
PMP 7200.RST.009	Programmatic Restart Readiness*
PMP 7200.RST.010	Functional Area Restart Readiness*
PMP 2090.001	Leadership Plans*
PMP 7100.CMP.001	NRC Commitment Management Program
PMP 7030.INT.001	Corrective Action Initiation
NRC MC 0350 Case Specific Checklist for the Donald C. Cook Plant	
NRC Inspection Manual Chapter (MC) 0350 <u>Staff Guidelines for Restart Approval</u>	
NRC Communication Plan	
Plant Communication Plan	

