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Docket Number 50-346

License Number NPF-3

Serial Number 1-1288

September 23, 2002

Mr. J. E. Dyer, Administrator
United States Nuclear Regulatory Commission
Region III
801 Warrenville Road
Lisle, IL 60532-4351

Subject: Transmittal of Revision 3 of the Davis-Besse Nuclear Power Station, Unit 1 Return to Service Plan

Dear Mr. Dyer:

The purpose of this letter is to transmit Revision 3 of the Davis-Besse Nuclear Power Station, Unit 1 (DBNPS) Return to Service Plan. As stated in FirstEnergy Nuclear Operating Company (FENOC) letter Serial Number 1-1275, dated May 21, 2002, the Return to Service plan describes the DBNPS course of action for a safe and reliable return to service. The course of action includes those actions necessary to address each of the six sets of commitments in the Confirmatory Action Letter (CAL Number 03-02-001A, dated May 15, 2002), the near-term corrective and preventive actions necessary to address the causal factors associated with the head degradation event, and the longer term actions necessary to assure that the underlying causal factors remain corrected and that improved performance at the DBNPS is sustained. Revision 3 to the Return to Service Plan, which supercedes the previous revisions in their entirety, continues to accomplish the original objectives and reflects the current revision of the Building Block Plans and the development of implementing procedures to effect the plans.

No commitments are identified in the attached Revision 3 of the Return to Service Plan. Actions discussed in Revision 3 of the Return to Service Plan represent intended or planned actions by the FirstEnergy Nuclear Operating Company. They are described to the Nuclear Regulatory Commission (NRC) for the NRC's information and are not regulatory commitments.

If you have any questions or require further information, please contact Mr. Patrick J. McCloskey, Manager-Regulatory Affairs, at (419) 321-8450.

Sincerely,

RMC:SPF/s

Attachments

cc: USNRC Document Control Desk
J.B. Hopkins, DB-1 NRC/NRR Project Manager
S.P. Sands, DB-1 NRC/NRR Backup Project Manager
C.S. Thomas, DB-1 Senior Resident Inspector
Utility Radiological Safety Board

Docket Number 50-346
License Number NPF-3
Serial Number 1-1288
Attachment 1

DAVIS-BESSE NUCLEAR POWER STATION, UNIT 1
RETURN TO SERVICE PLAN, REVISION 2

(26 Pages follow)

Davis-Besse Nuclear Power Station

Return to Service Plan

DAVIS-BESSE
RETURN TO SERVICE PLAN

Revision: 3

Date: September 6, 2002

Approvals:

L. W. Myers, RENOC Chief Operating Officer

Table of Contents

Summary of Revision Changes ..... 2 |2

I. Introduction and Purpose 3

II. Restart Organization 4

III. Nuclear Quality Assessment Oversight 5

IV. Building Blocks 5

- A. Reactor Head Resolution Plan 6
- B. Containment Health Assurance Plan 8
- C. System Health Assurance Plan 9
- D. Program Compliance Plan 11
- E. Management and Human Performance Excellence Plan 12
- F. Restart Test Plan 14
- G. Restart Action Plan 15

V. Confirmatory Action Letter Status 17

VI. Conclusions 20

Figures:

1. Davis-Besse Restart Building Blocks
2. Restart Organization

Appendix:

Correlation of Causal Factors versus Restart Building Blocks

Summary of Revision Changes

2

Revision 3

General: Some of the revised sections of this plan for Revision 2 were not accurately identified with revision bars. The revision bars that are included in this revision for this section of the plan accurately depict the changes that were made and are annotated with a numeral 2. Revision bars that depict Revision 3 are noted with a numeral 3.

3

Editorial corrections were made for consistency and grammatical correctness.

In the Program Compliance Building Block Plan section, the Radiation Protection Program was added as an additional program to receive a Phase 2 Detailed Review.

The Management and Human Performance Excellence Plan portion of this document was updated to reflect the revised Executive Summary of that plan. Changes included the addition of managerial and organizational contributors, as well as reference to the development of the Management and Human Performance Improvement Plan.

Revision 2

In general, clarifications were made to ensure consistency of terminology between the Building Block Plans and NG-VP-00100, Restart Action Plan Process.

References to the "Toledo Edison Regulatory Management System" were changed to the "regulatory management system."

The revised executive summary from Revision 1 of the Management and Human Performance Excellence Plan is included in the Building Block section of this revision.

The revised executive summary and charter from Revision 1 to the Restart Test Plan is included in the Building Block section of this revision.

Revised Appendix 1, Correlation of Causal Factors versus Restart Building Blocks to include Technical Standards and Oversight Factors, associated Building Block, and associated action.

I. Introduction and Purpose

Between March 6 and March 10, 2002, as a result of inspections conducted pursuant to NRC Bulletin 2001-01, "Circumferential Cracking of Reactor Vessel Head Penetration Nozzles," Davis-Besse Nuclear Power Station (Davis-Besse) management informed the Nuclear Regulatory Commission (NRC) of the presence of a large cavity in the Reactor Pressure Vessel (RPV) Head adjacent to a control rod drive nozzle. On March 13, 2002, the NRC issued a Confirmatory Action Letter (CAL) identifying six sets of commitments that the FirstEnergy Nuclear Operating Company (FENOC) will meet to address the conditions associated with degradation of the RPV Head prior to restart of the reactor, including meeting with the NRC to obtain approval for restart. The CAL was subsequently revised on May 15, 2002, to reflect the use of a replacement RPV Head.

Prior to this point, the Davis-Besse plant had good operational performance. All NRC reactor oversight cornerstones were GREEN. Previous Institute of Nuclear Power Operations (INPO) evaluations also showed no significant weaknesses, with generally improving trends.

This Return to Service Plan describes Davis-Besse's course of action for a safe and reliable return to service. This course of action includes those actions necessary to address each of the six sets of commitments in the CAL, the near-term corrective and preventive actions necessary to address the causal factors associated with the RPV Head degradation event, and the longer term actions necessary to assure that the underlying causal factors remain corrected and that continued safe performance at Davis-Besse is sustained. In addition, the root cause related to management not promptly identifying the degradation of the RPV Head will be corrected.

The near-term actions necessary to support restart are included in the Davis-Besse NRC Inspection Manual Chapter (IMC) 0350 Restart List and will be discussed in an Integrated Restart Report, which will document Davis-Besse's response to the NRC's Augmented Inspection Team (AIT) Report, and request NRC approval of restart and closure of the commitments in the CAL. The longer term, post-restart actions will be evaluated for incorporation into the Business Plan and/or the regulatory management system.

This Plan consists of seven Building Blocks, designed to support safe and reliable restart of the plant and to ensure sustained performance improvements:

A. Reactor Head Resolution Plan

B. Containment Health Assurance Plan

C. System Health Assurance Plan

D. Program Compliance Plan

E. Management and Human Performance Excellence Plan

F. Restart Test Plan

G. Restart Action Plan

Formal plans have been developed for each of the seven Building Blocks, along with implementing procedures and action plans where appropriate. These plans are available for NRC review. Status of the implementation of these plans is being discussed monthly in public meetings with the NRC IMC 0350 Panel, demonstrating Davis-Besse's performance. 2 3

Davis-Besse management is being deliberate and conservative in implementing the Return to Service Plan and will not return the Station to service until it is satisfied that the Station can be returned to power and operated safely and reliably over the long-term. FENOC senior leadership is directly involved in the direction and oversight of Davis-Besse's return to service. A Restart Overview Panel, which includes independent industry experts, is providing additional oversight of restart activities.

II. Restart Organization

The following are the key elements of the restart organization:

- A new Chief Operating Officer position has been established and is assigned to provide corporate direction and oversight of the Return to Service Plan.
- A new Executive Vice President – Engineering and Services position has been established to provide corporate direction and oversight of engineering activities under the Return to Service Plan.
- A new Vice President of Oversight position has been established to assess the quality of Building Block and restart activities.
- Building Block Teams (Figure 1) have been established to address the causal factors associated with the RPV Head degradation. 3 2
- A Restart Overview Panel has been established, consisting of FENOC and non-FENOC executives to provide overall oversight of implementation of the Return to Service and Building Block Plans.
- An Engineering Assessment Board has been established, consisting of independent experts from outside of FENOC, to review products generated under several of the Building Blocks. 3
- A Restart Senior Management Team has been established, consisting of the Vice President and the Directors at Davis-Besse. This team provides oversight to the Building Block Teams. The Restart Senior Management Team reviews the Building Block Plans and recommends them for approval to the Chief Operating Officer. 2 2 3
- A Restart Station Review Board has been established, consisting of site managers, and independent oversight. This board is chaired by the Director – Support Services to provide decisions regarding restart required actions. 2 3

Figure 2 depicts the restart organization and its relationship to the building blocks.

III. Nuclear Quality Assessment Oversight

Davis-Besse (DB) Nuclear Quality Assessment (NQA), reporting to the Vice President of Oversight, provides oversight and verifies the adequacy of activities conducted as part of the Return to Service Plan. This will be performed by assessing key activities such as: review board meetings; in-depth technical review of engineering products; field verification of actual conditions pre- and post-remediation; and independent reviews paralleling those performed by the line organization. Specific activities are selected for review based on their safety and risk significance to provide reasonable assurance that Return to Service Plan activities are performed in a quality manner. Details regarding the activities to be verified are included in the Nuclear Quality Assessment Oversight of Davis-Besse Return to Service Plan. 2 3 2 2

NQA oversight is conducted using FENOC procedure NOP-LP-2004, Internal Assessment Process. As described in this procedure, the Quality Field Observation database will be used to document the results of these assessments. Findings and recommendations shall be documented on Condition Reports (CRs) and processed in accordance with FENOC procedure NOP-LP-2001, Condition Report Process. 2

Assessment Team Leaders are certified in accordance with Davis-Besse procedure NA-QA-07006, Certification of Lead Auditor Personnel. Assessment team members, including technical specialists, receive training orientation in accordance with FENOC procedure NOP-LP-2004, Internal Assessment Process.

IV. Building Blocks

Each of the Building Blocks has been assigned an Owner and an individual responsible for Senior Oversight.

Block	Owner	Oversight
Reactor Head Resolution Plan	E. David Baker	Robert W. Schrauder
Containment Health Assurance Plan	Timothy J. Chambers	J. Randel Fast
System Health Assurance Plan	Joseph W. Rogers	James J. Powers
Program Compliance Plan	Neil A. Morrison	James J. Powers
Management and Human Performance Excellence Plan	Lew W. Myers	N/A
Restart Test Plan	Anthony R. Stallard	J. Randel Fast
Restart Action Plan	Clark A. Price	Lew W. Myers

2

These plans are summarized on Figure 1. Each of the plans for the first six Building Blocks identifies those actions that must be accomplished before restart. An internal plant operating review committee, the Restart Station Review Board, provides decisions regarding the restart action database, which consists of the Davis-Besse Restart Action List and the Davis-Besse IMC 0350 Restart List. The membership of the Restart Station Review Board consists of manager-level employees, and is headed by the Director – Support Services. 3 2

When viewed collectively, the Building Blocks address the causal factors identified in Chapters 5, 6, and 7 of the Davis-Besse Root Cause Analysis Report, submitted to the NRC on April 18, 2002. Appendix 1 provides a matrix which correlates the Building Block actions to the causal factors identified by FENOC and the corresponding causes and missed opportunities identified in the NRC's AIT Report.

The Management and Human Performance Excellence Plan includes actions to extend and deepen the analyses of causal factors in the Root Cause Analysis Report. This includes an in-depth review, under the leadership of the new FENOC Oversight Vice President, using formal root cause analysis tools to determine why indicators present before 2002 did not result in detection and resolution of the RPV Head degradation. 2

FENOC Nuclear Quality Assessment will monitor and sample each Building Block prior to restart. The Vice President-Oversight is a member of the Restart Overview Panel. A brief summary of the major elements of the actions and approach for each Building Block follows. 3

A. Reactor Head Resolution Plan

Charter: Restore the degraded Davis-Besse RPV Head such that it is in full compliance with appropriate Commission rules and industry requirements.

During the Davis-Besse 13th Refueling Outage (13RFO), an inspection of the Reactor Pressure Vessel (RPV) Head nozzles was performed pursuant to NRC Bulletin 2001-01, "Circumferential Cracking of Reactor Vessel Head Penetration Nozzle." Extensive corrosion of the RPV Head was identified during this inspection that required either major repairs or replacement of the RPV Head. Condition Reports were written and a Root Cause Analysis was prepared.

FENOC has made the decision to replace the degraded RPV Head with an unused one from the canceled Midland Nuclear Power Plant. The replacement RPV Head is a Babcock and Wilcox design, and with minor modifications, can satisfy the applicable Nuclear Regulatory Commission (NRC) rules and industry requirements. 3

The major attributes of this Plan include:

- Procurement and Certification of the replacement RPV Head. Non-Destructive Examinations (NDE) were performed to confirm that the replacement RPV Head is suitable for use. 3

- Minor RPV Head modifications, to ensure that the replacement RPV Head fits the Davis-Besse reactor. Inspection holes have been added to the Service Structure for more effective inspections. 3
- Temporary fuel removal from the reactor and subsequent refueling. 2
- Access to the Davis-Besse Containment for removal of the original RPV Head and placement of the new RPV Head on the RPV Head Stand.
- Installation of new RPV Head, including transfer of existing Service Structure and transfer of existing CRDM to the new RPV Head.
- Restoration, testing, and inspection of the RPV Head and Containment.
- Storage and/or disposal of original Davis-Besse RPV Head.
- Updating the Design and Licensing Basis Documents.

A temporary access opening has been made in the Davis-Besse Containment vessel and shield building, allowing for the removal of the original RPV Head to its temporary storage location, and the transfer of the replacement RPV Head into the Containment building. The shield building and Containment vessel at Davis-Besse will be restored to meet design requirements. An integrated leakage rate test (ILRT) will be performed to verify Containment integrity. 3 3

The degraded RPV Head is being temporarily stored at Davis-Besse. Final plans for permanent storage or disposal are under development. 3

Bechtel is providing engineering services for the RPV Head replacement, including overall project management, detailed engineering, licensing support, quality assurance, and project controls. 3

Framatome-ANP was responsible for procurement and certification of the replacement RPV Head, including modifications to the RPV Head as required, providing a Certificate of Conformance documenting that the replacement RPV Head is suitable for use at Davis-Besse, and providing engineering and required evaluations to ensure the Davis-Besse design and licensing requirements are met (including ASME Code criteria). 3

The RPV Head replacement is a modification to the facility and is being performed in accordance with the provisions of 10 CFR 50.59 criteria. Completion of this modification will resolve the issue concerning boric acid corrosion degradation of Davis-Besse's RPV Head, including disposition of the associated corrective actions, and performance of more effective periodic head inspections allowing for early detection of RPV Head degradation due to the increased size of the inspection holes. This will enable Davis-Besse to return to safe and reliable operation. 3 3

B. Containment Health Assurance Plan

Charter: Perform inspections, evaluations of Containment Systems, Structures and Components (SSCs) prior to restart to ensure that the condition of Containment supports safe and reliable operation. This is accomplished by completing inspections and evaluations of SSCs using qualified inspectors and evaluators. Particular focus includes boric acid degradation of Containment SSCs, Containment vessel liner, Containment coatings, Containment emergency sump, Alloy 600, and inspections for indications of Primary Water Stress Corrosion Cracking (PWSCC) and inspections for threaded bolted component leaks. 3

The purpose of the Containment Health Assurance Plan is to perform inspections and evaluations of SSCs prior to restart to ensure that the condition of Containment supports safe and reliable operation. 3

To support this plan, an organization has been put into place to manage, provide oversight, implement, and provide interface with external organizations.

The plan is focused on the extent of Primary Water Stress Corrosion Cracking of Alloy 600 welds in the Reactor Coolant System, and any damage that may have resulted from boric acid leakage and dispersion of boric acid in the Containment Building. The plan scope has been expanded to assess the adequacy of several areas in Containment based on input from team members, operating experience reviews, and internal and external oversight. These areas include the Containment emergency sump, Containment vessel liner, Environmental Qualification Program and effects of boric acid on equipment, refueling canal leakage, Containment coatings, and the Decay Heat Removal valve pit. Action plans for each of these focus areas direct the actions necessary to meet the objectives of this plan. Procedures, Work Orders, and Condition Reports are used to control field activities, evaluation and resolution of issues. FENOC has solicited industry expertise to assist in evaluating these focus areas and developing needed corrective actions. 2 3

Field inspectors have been trained to conduct thorough inspections based on specific requirements and quality attributes associated with Containment inspections. Inspectors attend training for specific procedures and work orders prior to implementing field activities. This training standard was selected to ensure all inspectors are gathering data with similar knowledge standards and quality attributes.

C. System Health Assurance Plan

Charter: Perform reviews of system health prior to restart to ensure that the condition of the plant is sufficient to support safe and reliable operation. Three levels of system reviews will be performed. An Operational Readiness Review of systems important to the safe and reliable operation of Davis-Besse was performed. A System Health Readiness Review of all Maintenance Rule risk significant systems will be performed. Latent Issues Reviews of the Reactor Coolant, Emergency Diesel Generators, Auxiliary Feedwater, Component Cooling Water, and Service Water systems will be performed to identify any latent issues, and to provide reasonable assurance that these systems can perform their safety and accident mitigation functions.

The purpose of this program is to perform reviews of system health prior to restart to ensure that the condition of the plant is sufficient to support safe and reliable operation. This will be accomplished using the following 3-step approach, an Operational Readiness Review, System Health Readiness Reviews, and Latent Issues Reviews. Other measures that will help ensure the success of the Davis-Besse System Health Assurance Plan are listed below:

- A substantially new Davis-Besse management team with a demonstrated track record is in place.
- The FENOC Engineering Principles and Expectations were issued on July 10, 2002, and these new principles and expectations have been communicated to the system review team members. 2
- An Engineering Assessment Board was implemented on June 28, 2002. This board, largely made up of outside experts with proven high standards, will independently review products from the system reviews to ensure technical adequacy.

1. Operational Readiness Reviews

The Operational Readiness Review is complete and was performed to identify whether systems have significant shortcomings, and to initiate immediate actions to correct those problems. These reviews were initiated prior to entry into the IMC 0350 process. Systems for review were selected considering system performance relative to the Maintenance Rule performance criteria, materiel condition, and operator burdens. The reviews were performed under the direction of the Plant Manager and included representatives from various site organizations. 3

2. System Health Readiness Reviews

System Health Readiness Reviews will be performed on all risk significant Maintenance Rule systems. These reviews are more thorough than the Operational Readiness Reviews. These reviews are focused to provide reasonable assurance that these systems can perform their risk significant maintenance rule functions. These reviews include identification of the system's risk significant functions, reviews of testing or review of other information (like trending data) that assesses the system's ability to support the system risk significant functions, walkdowns, and reviews of selected data sources. Problems identified during the

reviews will be captured in the CR process. The Restart Station Review Board will review all CRs for restart requirements.

The original scope was described as selected Maintenance Rule and Technical Specification systems. Further evaluation has resulted in clarifying the scope of the reviews to include all Maintenance Rule Risk Significant systems. This is a risk-based approach that focuses plant resources in the highest risk areas. By performing these reviews on the identified systems, issues can be corrected that could potentially impact a system's ability to perform its risk significant maintenance rule functions.

Additionally, these reviews may identify programmatic issues that could impact other less risk significant systems and functions. As these programmatic issues are identified, CRs will be initiated and evaluations will be performed to determine if additional System Health Readiness Reviews should be performed. The assigned system engineer will prepare a report based on the System Readiness Review. An Engineering Assessment Board (EAB) will review each report to provide an independent assessment of the technical adequacy of the report. 3 3

3. Latent Issues Reviews

Latent Issues Reviews of the Reactor Coolant, Auxiliary Feedwater, Emergency Diesel Generators, Service Water, and Component Cooling Water systems will be performed prior to restart. The five systems selected for Latent Issues Reviews include three systems (Reactor Coolant, Auxiliary Feedwater, and Emergency Diesel Generators) with identified weaknesses and two systems (Component Service Water and Service Water) chosen based on their importance. The primary focus of these reviews is to provide reasonable assurance that these systems can perform their safety and accident mitigating functions. These reviews will be comprised of three major efforts. These efforts are the assessment of system attributes, review of various data sources, and walkdowns. The collective significance of problems identified during the Latent Issues Review will be evaluated to determine if further actions are required. Problems identified during the reviews will be captured in the CR process. The Restart Station Review Board will review all CRs for restart requirements. 2

The Plant Engineering Manager and the EAB and will review the Latent Issues Review Report for each system, and the Restart Senior Management Team chaired by the Vice President-Nuclear will approve the report.

The list of systems that will not have a System Health Readiness Review or a Latent Issues Review performed is included in the System Health Assurance Plan. A matrix that compares the various documentation/data sources that will made available for review for the Operational Readiness Reviews, System Health Readiness Reviews, and Latent Issues Reviews, is also included in the Building Block Plan. 3

Inspections will also be conducted to look for evidence of boric acid leakage and degradation on systems outside of containment. These inspections will be performed as part of the System Health Assurance Plan. In addition to the materiel condition walkdowns being performed during the System Health Readiness Reviews and the Latent Issues Reviews, a separate boric acid inspection of systems outside of containment will be performed in accordance with procedure EN-DP-01506, Borated Water System Inspections Outside Containment. 3

D. Program Compliance Plan

Charter: Perform a review of applicable plant programs to ensure that the programs are fulfilling required obligations, including interfaces and handoffs, and are sufficient to support the restart and safe operation of the Davis-Besse Nuclear Power Station. Prior to restart, perform Phase 2 detailed systematic reviews of the Boric Acid Corrosion Control Program, Inservice Inspection Program, Plant Modification Program, Corrective Action Program, Reactor Coolant System, Unidentified Leakage Program, Radiation Protection Program, and the Operating Experience Program. Prior to restart, perform Phase 1 baseline assessments of applicable plant programs. 3

Program weaknesses were a major contributor to the degradation of the Reactor Pressure Vessel Head. The program weaknesses identified are:

- **Standards**
- **Ownership**
- **Oversight**

Programs to receive a Phase 2 review, as described below, are identified in the Program Compliance Building Block Plan. Each of these programs will be reviewed over the next two years. A schedule for the first seven programs which includes those contributing to Reactor Pressure Vessel Head degradation has been developed, and is included in the Program Compliance Building Block Plan. A schedule for the remaining programs will be developed and may be modified, as plant needs change in the future. The programs identified as contributing to the degradation of the Reactor Pressure Vessel Head are: the Boric Acid Corrosion Control Program, Inservice Inspection Program, Plant Modification Program, Corrective Action Program, Reactor Coolant System Unidentified Leakage Program, Radiation Protection Program, and the Operating Experience Program. 3 3 3

The plan review process will use a two-phase approach.

Phase 1- Program Readiness Baseline Assessment

Phase 1 performs a baseline assessment of applicable plant programs to determine if the programs are in a condition to support the restart and safe operation of Davis-Besse. The programs to receive a Phase 1 assessment prior to restart are identified in the Program Compliance Building Block Plan. (Exceptions include the Probabilistic Safety Assessment, Boric Acid Corrosion Control, Inservice Inspection, Plant Modification, Corrective Action, Reactor Coolant System Unidentified Leakage, Radiation Protection Program, and Operating Experience programs that will receive a detailed review prior to restart). The program owner assesses the program by completing a standardized questionnaire. The program owner then presents the results of the assessment to a Program Review Board, which includes independent, external personnel. The Program Review Board reviews the program utilizing a screening form. Condition Reports (CRs) will be generated to document program deficiencies. The CRs will be evaluated to determine whether the corrective action should be identified as a restart restraint. 3 3

Phase 2 – Detailed Program Reviews

Phase 2 is an integral part of the long term comprehensive Management and Human Performance Excellence Plan. This phase is an in-depth systematic review of the programs, which are identified in the Program Compliance Building Block Plan. This process evaluates programs in depth to ensure that the programs are fulfilling required obligations, including interfaces and handoffs, and are sufficient to support the restart and safe operation of Davis-Besse. Phase 2 reviews will be completed prior to restart for the Boric Acid Corrosion Control Program, Inservice Inspection Program, Plant Modification Program, Corrective Action Program, Reactor Coolant System Unidentified Leakage Program, Radiation Protection Program, and the Operating Experience Program. The Probabilistic Safety Assessment (PSA) will be evaluated as a pilot for this process. Condition Reports (CRs) will be generated to document program weaknesses and recommendations. The CRs will be evaluated to determine whether the corrective action should be identified as a restart restraint. 3 3

E. Management and Human Performance Excellence Plan

Charter: Conduct a thorough assessment of the management and organizational issues surrounding the degradation of the Reactor Pressure Vessel (RPV) Head. 3

Create a comprehensive leadership and organizational development plan for the site. This plan will include actions to be taken prior to and after restart. 2

A concise summary of the issue that led to the Davis-Besse RPV Head degradation is as follows: 3

Management ineffectively implemented processes, and thus failed to detect and address plant problems as opportunities arose.

Using data from various assessment tools and reports, the primary areas where the contributors to this failure can be grouped are identified as:

- **Nuclear Safety Culture**
- **Management/Personnel Development**
- **Standards and Decision-making**
- **Oversight and Assessments**
- **Programs/Corrective Action/Procedure Compliance**

Several program implementation failures, including procedural compliance, were identified in the Root Cause Report, including the Corrective Action Program. The actions to address the program and implementation issues are being addressed by actions in this plan as well as actions from the Program Compliance Building Block. Actions will be initiated from the Management and Human Performance Improvement Plan to develop the proper focus, behaviors and teamwork throughout the entire organization. These actions will consist of restart actions and actions to be taken after restart.

The overall goal of this plan is to initiate a substantive and demonstrative change in Davis-Besse management. This change will prevent cyclical plant performance, and provide for consistent, continuous performance excellence. Performance indicators monitoring the effectiveness of the actions taken will be used to demonstrate and track the desired changes.

In accordance with the Program Compliance Plan building block activity, the plant programs will be assessed for proper management Ownership, Standards, and Oversight. The Program Compliance Plan performs a baseline assessment of applicable plant programs, as well as a more detailed program review for selected programs. Long term, follow-up assessments of the programs will be performed using the same criteria, and the resultant program health will be communicated through specific program indicators.

Reviews of specific departments will be done by way of Functional Area Reviews. These reviews will be performed in selected areas in order to assess restart readiness. Long term monitoring and indicator presentation of specific area or section health will be performed through the self-evaluation process.

The Management Observation Program will be used to monitor individual performance. This program will be updated to schedule management observations to monitor effectiveness of work activities and worker behaviors.

Review boards, such as the Corrective Action Review Board and Engineering Assessment Board will be used to monitor various work products for appropriate standards. These will have indicators to show performance at the individual section level.

A Management Monitoring Process will be used to monitor and trend the performance of specific management oversight activities taken on an individual basis. These will demonstrate the level of involvement of individual managers. 2

F. Restart Test Plan

Charter: Perform Restart Testing necessary to ensure the integrity of the Reactor Coolant System and the Containment Pressure Vessel, and to evaluate proposed testing of systems and components affected by RCS leakage and boric acid deposits. In addition, develop an Integrated Restart Procedure to ensure that proper sequencing of required restart activities are accomplished prior to mode ascension.

This plan has four key elements to ensure that comprehensive testing is performed prior to and during restart, and that restart activities have been completed to ensure the Davis-Besse Nuclear Power Station is in a condition to support sustained safe and reliable operation. These elements include: 2

- Testing the Reactor Coolant System (RCS), including components and associated piping exposed to full RCS pressure, to ensure integrity following replacement of the Reactor Pressure Vessel Head and maintenance of RCS piping and components. 3

- Testing the Containment by performing an Integrated Leakage Rate Test in accordance with 10CFR50, Appendix J (Type A test) to ensure the integrity of containment following restoration of the containment pressure vessel.

- Evaluating the adequacy of proposed post-maintenance and post-modification testing on systems and components affected by RCS leakage and boric acid deposits and to determine if additional testing is required.

- Developing an Integrated Restart Procedure to ensure required restart activities and tests are included, and ensure that inspections have been performed prior to mode ascension. 3

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The Integrated Restart Procedure shall identify the sequence of critical steps, procedures, and tests that must be performed to safely restart the Davis-Besse Nuclear Power Station. This procedure shall also include the necessary administrative controls required to authorize mode changes during plant restart. In addition to the normal procedure approvals, the Integrated Restart Procedure shall be reviewed by the Engineering Assessment Board and receive concurrence from the Restart Senior Management Team. Final authority to restart the plant resides with the FENOC Chief Operating Officer.

G. Restart Action Plan

Charter: Administer the identification, coordination, monitoring and closure of actions required to meet all Company-identified objectives and requirements under the Davis-Besse Return to Service Plan.

The Restart Action Plan establishes a mechanism for identification, monitoring and control of restart actions under the Davis-Besse Return to Service Plan. The Restart Action Plan also establishes a process and criteria for the evaluation, disposition, and closure of restart-identified actions and provides for the effective interaction with the Nuclear Regulatory Commission (NRC) during the Inspection Manual Chapter 0350 Reactor Oversight Process. This plan provides for the actions that the FENOC Management Team at Davis-Besse will perform to ensure that the plant is restarted in a safe and reliable manner and that the long-term performance of the plant will be sustainable. After NRC approval to restart has been received, final authority to restart the plant resides with the FENOC Chief Operating Officer.

The Davis-Besse Restart Station Review Board has been established to identify and classify items to be included in the Restart Action Database through a review of Condition Reports and Corrective Actions received from activities identified by the six Building Block Plans. The Restart Station Review Board makes the determination of items for inclusion in the Restart Action Database and further classifies those items that meet NRC IMC 0350 criteria. The Restart Senior Management Team approves additions to the Davis-Besse IMC 0350 Restart List, with final approval by the FENOC Chief Operating Officer. The Restart Station Review Board uses criteria that parallel the NRC IMC 0350 Restart Checklist criteria. Those items processed through the Restart Station Review Board that are not required for restart are managed in accordance with the Corrective Action Program and evaluated for inclusion in the Davis-Besse Operational Business Plan and/or the Regulatory management system. 3 2 3

Action Plans from the Containment Health Assurance, System Health Assurance, Reactor Head Resolution, Restart Test, and Program Compliance Building Blocks are further evaluated for technical accuracy by the Engineering Assessment Board. The Engineering Assessment Board has been introduced at each FENOC site to ensure a high degree of technical accuracy and assurance of nuclear safety. 2 3

The Restart Action Plan establishes the phases of Planning, Discovery, Implementation, and Validation/Closure. Closure packages documenting the resolution of issues on the Davis-Besse IMC 0350 Restart List, are prepared, validated, and approved, and made available for NRC review. 3

The Restart Overview Panel functions to provide an independent oversight and review of restart activities as part of the Davis-Besse Return to Service Plan. The Restart Overview Panel performs an overview of internal and external plant activities, advising the FENOC President, FENOC Chief Operating Officer and Davis-Besse Vice President on matters relating to the safe resumption of operation of Davis-Besse and provides recommendations as appropriate. 2

The Davis-Besse Restart Action Plan shall be maintained through restart and until the NRC terminates the IMC 0350 Reactor Oversight Process. This plan is implemented by a procedure that provides details of the responsibilities and activities required to administer and control the Restart Action Plan Building Block.

V. Confirmatory Action Letter Status

A number of actions to satisfy the CAL commitments are completed or underway. The current status of the CAL items is summarized as follows:

(1) Quarantine components or other material from the RPV Head and CRDM nozzle penetrations that are deemed necessary to fully address the root cause of the occurrence of degradation of the leaking penetrations. Prior to implementation, plans for further inspection and data gathering to support determination of the root cause will be provided to the NRC for review and comment.

Status: Applicable components and material were quarantined. Plans for inspection and data gathering to support determination of the root cause were provided to the NRC for review and comment. Ongoing activities to support confirmation of the root cause analysis were described by Davis-Besse staff in a public meeting with NRC Headquarters personnel on May 9, 2002. On June 17, 2002, a meeting was held with the NRC staff at the BWXT Laboratory in Lynchburg, Virginia. The Nozzle 2, Nozzle 3, and Nozzle 3 Corrosion Area samples were viewed and the plans for the laboratory analyses to be performed on these samples were discussed. The sample plan was updated following the meeting, and was approved by the NRC. Discussions are ongoing with the NRC regarding the NRC's possible desires to extract further samples (in particular in the areas of Nozzle 2 and 46) prior to disposal of the RPV Head 2

(2) Determine the root cause of the degradation around the RPV Head penetrations, and promptly meet with the NRC to discuss this information after you have reasonable confidence in your determination.

Status: FENOC provided a Probable Cause Summary Report to the NRC on March 22, 2002. FENOC submitted the Root Cause Analysis Report to the NRC on April 18, 2002. Responses to NRC questions on the Probable Cause Summary Report were submitted by FENOC on April 30, 2002, and May 14, 2002. Davis-Besse staff met with NRC headquarters personnel on May 9, 2002, to review the technical elements of the root cause analysis. FENOC understands that the NRC 0350 Restart Panel will schedule a meeting to review the root cause issues in satisfaction of the CAL commitment. FENOC has completed a formal root cause analysis of the failure to identify the degradation, which was submitted to the NRC on August 21, 2002. FENOC and Davis-Besse management met with NRC Region III management on August 15, 2002, to discuss the Management and Human Performance Excellence root cause report. The results of this report were also discussed at the NRC IMC 0350 Panel public meeting, which was held on August 20, 2002. 3

(3) Evaluate and disposition the extent of condition throughout the reactor coolant system relative to the degradation mechanisms that occurred on the RPV Head.

Status: On April 15, 2002, FENOC began implementation of its Containment Health Assurance Plan. The scope of this plan has been increased to encompass the overall health of the Containment. Inspections, evaluations, and dispositions are ongoing and available for NRC inspection and audit.

(4) Obtain NRC review and approval of the repair or modification and testing plans for the RPV Head, prior to implementation of those activities. Prior to restart of the reactor, obtain NRC review and approval of any modification and testing activity related to the reactor core or reactivity control systems. If the reactor vessel head is replaced in lieu of repair or modification, the replacement must comply with appropriate Commission rules and industry requirements.

Status: FENOC is in process of replacing the RPV Head with a replacement RPV Head from the Midland Plant. Core modifications will not be necessary. 2

Framatome has procured the Midland Plant RPV Head under the provisions of 10 CFR Part 21. The Midland Plant RPV Head was designed and manufactured under Section III of the ASME Code. However, following the cancellation of the Midland project, the Midland Plant RPV Head has not been maintained under a quality assurance program under 10 CFR Part 50 Appendix B. To resolve this nonconformance, Framatome performed non-destructive examinations (NDE) and provided certification of the Midland Plant RPV Head that meets the requirements of the ASME Code. Minor modifications have been made to the replacement RPV Head. The RPV Head will be replaced using a temporary opening in the Containment while the reactor is de-fueled. After temporary storage, the used RPV Head will be transported off-site for disposal. 2 3

(5) Prior to the restart of the unit, meet with the NRC to obtain restart approval. During that meeting, discuss the root cause determination, extent of condition evaluations, and corrective actions completed and planned to prevent recurrence. 3

Status: Upon completion of the restart actions described in this Plan, FENOC will submit its Integrated Restart Report, which will summarize the root cause determination, extent of condition evaluations and corrective actions completed and planned to prevent recurrence. FENOC understands that the NRC IMC 0350 Restart Panel will schedule a meeting to review the root cause issues in satisfaction of the CAL commitment. 3

(6) Provide a plan and schedule to the NRC, within 15 days of the date of this letter, for completing and submitting to the NRC your ongoing assessment of the safety significance for the RPV Head degradation.

Status: The Safety Significance Assessment was submitted to the NRC on April 8, 2002. In response to NRC Staff requests for additional information, FENOC submitted supporting information by letters dated June 12, 2002, July 12, 2002, and July 20, 2002. 3

VI. Conclusions

FENOC is taking an integrated and comprehensive approach to complete the items in the CAL, address the causal factors in the Root Cause Analysis Report and AIT Report, and identify and implement restart actions and long-term actions to ensure that Davis-Besse is ready for safe and reliable operation and improved performance. FENOC is structuring its approach around seven key Building Blocks, including implementing documents. These plans have been made available for NRC review, and will provide the foundation for Davis-Besse's safe and reliable return to service. Lessons learned from the RPV Head degradation root cause analyses will be shared with the other FENOC plants as well as with the nuclear industry. 3

FIGURE 1

DAVIS-BESSE RESTART BUILDING BLOCKS

Reactor Head Resolution Plan

Owner: D. Baker
Oversight: B. Schrauder

Desired Outcome – Ensure reactor head can perform its safety function

Key Actions
- Reactor Head Repair; or
- Reactor Head Replacement

Program Compliance Plan

Owner: N. Morrison
Oversight: J. Powers

Desired Outcome – Ensure applicable programs are in a condition to support the restart and safe operation of Davis-Besse.

Key Actions
- Perform Program Readiness Baseline Assessments
- Detailed Reviews of Boric Acid Corrosion Control Program, Inservice Inspection Program, Corrective Action Program, Reactor Coolant System Unidentified Leakage Program, the Operating Experience Program, and the Plant Modification Program.

Containment Health Assurance Plan

Owner: T. Chambers
Oversight: R. Fast

Desired Outcome – Identify impacts of Boric Acid leakage into Containment and ensure Containment is ready for safe and reliable operations.

Key Actions
- Containment Inspections to Identify Boric Acid Concerns
- Inspections and evaluations in focused areas outside Containment
- Identify and resolve restart items
- Develop Outage Inspection Plan for Post-Restart

Restart Test Plan |2

Owner: T. Stallard
Oversight: R. Fast

Desired Outcome – Return to power with leaktight plant

Key Actions
- Boron Leakage Inspection During Filling and Venting of RCS
- Boron Leakage Inspection at Normal Operating Pressure
- Containment Integrated Leakage Rate Testing
- Evaluation of Post Maintenance and Modification Testing of Systems & Components
- Development of an Integrated Restart Procedure

2

Management and Human Performance Excellence Plan

Owner: L. Myers |2
Oversight: N/A

Desired Outcome Ensure Management and Human Performance issues are identified and resolved

Key Actions
- Improve Corporate oversight
- Enhance site oversight groups
- Review of activities associated with Reactor Head for management concerns
- Develop detailed management improvement plan

System Health Assurance Plan

Owner: J. Rogers
Oversight: J. Powers |2

Desired Outcome – Identify and resolve safety system issues and ensure safety and reliability

Key Actions
- Review System Health
- Review open and closed Condition Reports and Modification requests
- Review industry experience
- Review outstanding work

Normal Plant Processes
- Condition Reports
- Industry Experience
- Employee Concerns
- Others

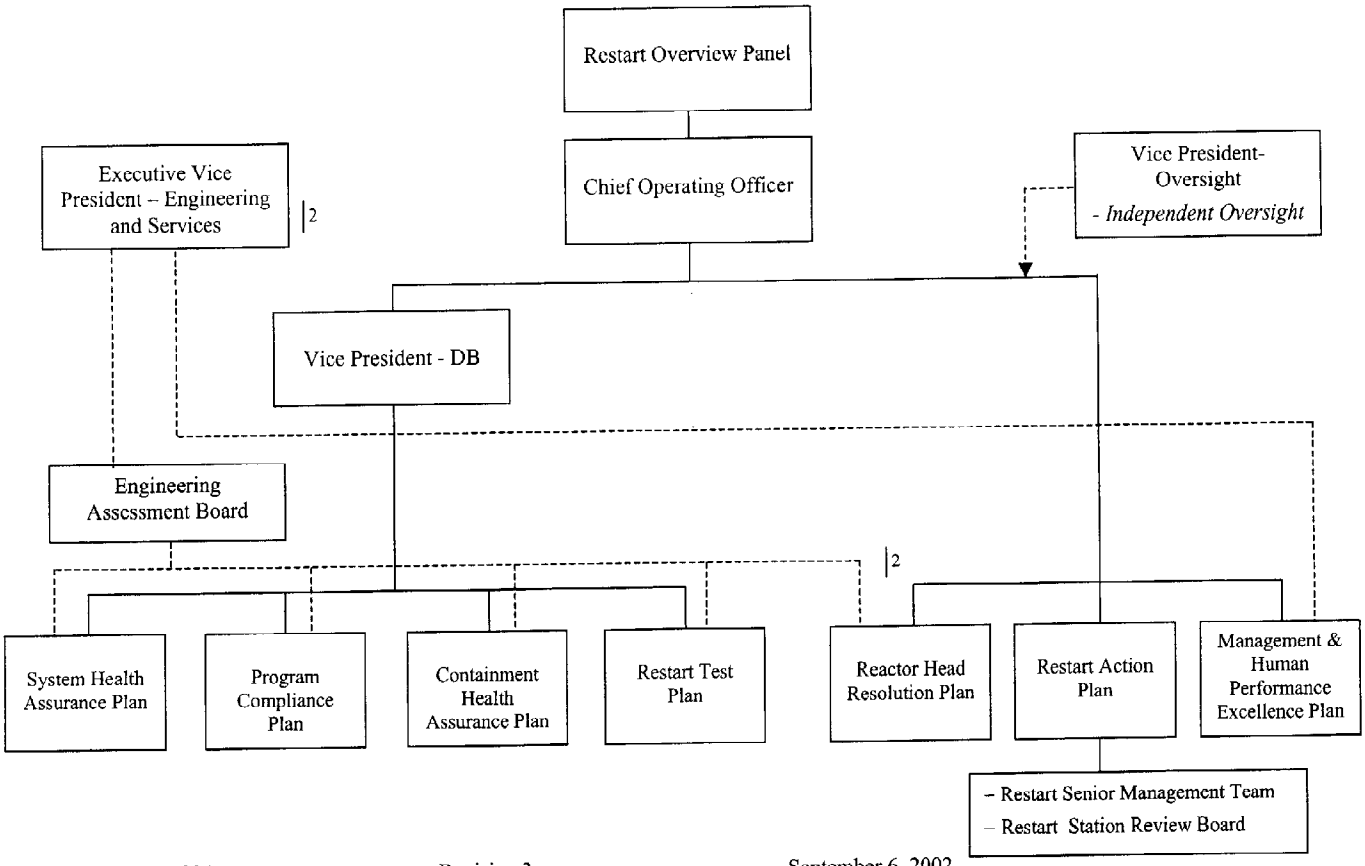
Restart Action Plan

Owner: C. Price Oversight: L. Myers
Desired Outcome – Development of Restart and Post-Restart Issues Program
- Develop specific criteria for identification of restart issues
- Closure of all activities for restart issues

3

FIGURE 2

Restart Organization



CORRELATION OF CAUSAL FACTORS VERSUS RESTART BULDING BLOCKS

Causal Factor	Building Block	Action	
	Root Cause Analysis Report		
PWSCC of CRDM nozzles resulted in Boric acid corrosion of RPV Head	Reactor Head Resolution	Repair/Replace the RPV Head.	2
	Restart Test Plan	Inspect for leakage during restart	
	Containment Health Assurance	Inspections in the Containment for other SSCs that may be affected by boric acid.	
Boric Acid and Inservice Inspection Programs and program implementation	Program Compliance Plan	Review of Boric Acid Corrosion Control and ISI Programs.	
Environmental conditions and cramped conditions at the RPV Head	System Health Assurance Program	Review of modification requests to identify modifications that should be implemented prior to restart. (Note: the modification to improve access to the RPV Head service structure has been completed.)	
Uncorrected CRDM flange leakage	Restart Test Plan	Inspect for any leaks. (Note: flange leakage was corrected in RFO 12)	2
	Program Compliance Plan	Review of RCS Leakage Monitoring Program	
Management monitoring of field activities	Management and Human Performance Excellence Plan	Management monitoring and oversight improvement.	
Management monitoring of changes in conditions	Management and Human Performance Excellence Plan	New oversight processes.	
	Program Compliance Plan	Review of Boric Acid and ISI Programs.	
	Restart Test Plan	Inspect for leaks and boric acid corrosion.	3
Technical standards	Program Compliance Plan	Ensure Program Compliance	2 3
	System Health Assurance Plan	Ensure System Health	
Oversight	Management and Human Performance Excellence	Improve corporate oversight process. Evaluate effectiveness and enhance site oversight groups.	
Use of industry and in-house experience	Management and Human Performance Excellence Plan	Industry experience management review.	
	Program Compliance Plan	Performance of reviews of industry experience programs	
	System Health Assurance Plan	Review of closed industry and operating experience reports on SSCs to determine adequacy of actions.	

CORRELATION OF CAUSAL FACTORS VERSUS RESTART BULDING BLOCKS

Causal Factor	Building Block	Action	
Execution of Condition Report Program	Program Compliance Plan	Review of Corrective Action Program.	
	Management and Human Performance Excellence Plan	Review of missed opportunities associated with reactor head for management concerns.	
	System Health Assurance Plan	Review of closed CRs on SSCs to determine adequacy of corrective action.	
AIT Report			
PWSCC of CRDM nozzles	Reactor Head Resolution Plan	Restore the head.	
	Restart Test Plan	Inspect for any leaks.	2 3
Boric acid corrosion of RPV Head	Reactor Head Resolution Plan	Restore the head.	
	Containment Health Assurance Plan	Inspections in the Containment for other SSCs that may be affected by boric acid.	
Boric acid corrosion control program	Program Compliance Plan	Review of Boric Acid and ISI Programs.	
Reactor Coolant System leakage detection	Restart Test Plan	Inspect for any leaks.	
Boric acid in Containment Air Coolers	Restart Test Plan	Inspections in the Containment for other SSCs that may be affected by boric acid.	2
Boric acid in radiation elements	Restart Test Plan	Inspections in the Containment for other SSCs that may be affected by boric acid.	
Delay of Modification of Service Structure	System Health Assurance Plan	Review of modification requests to identify modifications that should be implemented prior to restart. (Note: the modification to improve access to the RPV Head service structure has been completed.)	
Delay of Repair of CRDM Flange Leakage	Restart Test Plan	Inspect for any leaks. (Note: flange leakage corrected in RFO 12.)	2

Docket Number 50-346
License Number NPF-3
Serial Number 1-1288
Attachment 2

COMMITMENT LIST

The following list identifies those actions committed to by the Davis-Besse Nuclear Power Station (DBNPS) in this document. Any other actions discussed in the submittal represent intended or planned actions the DBNPS. They are described only for information and are not regulatory commitments. Please notify the Manager - Regulatory Affairs (419-321-8450) at the DBNPS of any questions regarding this document or associated regulatory commitments.

COMMITMENTS	DUE DATE
None	