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Docket Number 50-346

License Number NPF-3

Serial 1-1311

April 24, 2003

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

Subject: Response to the Nuclear Regulatory Commission (NRC) Preliminary Significance Assessment for the Control Rod Drive Mechanism Cracking and Reactor Pressure Vessel Degradation identified for the Davis-Besse Nuclear Power Station.

Dear Mr. Dyer:

The First Energy Nuclear Operating Company (FENOC) is in receipt of the Nuclear Regulatory Commission (NRC) Preliminary Significance Assessment for the Control Rod Drive Mechanism Cracking and Reactor Pressure Vessel Degradation identified for the Davis-Besse Nuclear Power Station dated February 24, 2003 (Log Letter 1-4351). Having reviewed the letter, FENOC does not contest the finding of the safety significance determination.

From the time of discovery of the condition, FENOC and its parent company, FirstEnergy, have aggressively pursued the collection and assessment of information pertinent to the identification of the root causes of the condition, provided such information to the NRC, and participated in the various inspections and incident investigations, in a forthright and timely manner. In doing so, FENOC has reaffirmed our understanding of the significance of the issue, and its implications to the safe operation of the facility, its impact to the nuclear industry, and its potential for effect on the surrounding community.

As a result of the rigorous and well-defined root cause methodology, action plans were developed to address both the programmatic issues identified as contributors to the condition, as well as the management and organizational deficiencies which failed to recognize critical indications throughout the history of the event.

APR 29 2003

Even before completion of the root cause determinations, actions were taken to address some of the more crucial management weaknesses. The position of Chief Operating Officer (COO) for FENOC was created to provide immediate and aggressive influence in setting the vision for the discovery and restoration processes. As a result, a Return to Service Plan was developed, which included seven Building Blocks, each to facilitate the identification and resolution of the programmatic and management issues identified.

The Building Blocks were designed to make the changes needed to ensure sustained safe and reliable operation. They address programmatic, materiel condition, and management and human performance issues across the site.

- The Reactor Head Resolution Building Block was created to restore the degraded reactor pressure vessel head to full compliance with appropriate Commission rules and industry requirements. Early on, FENOC made the decision to replace the degraded RPV head with that from the canceled Midland Nuclear Power Plant. This action provided assurances of compliance with design, regulatory, and industry requirements.

- The Containment Health Assurance Building Block was established to perform inspections and evaluations of the Containment Systems, Structures, and Components (SSCs) and assure completion of required remediation prior to restart. The primary focus of this plan was the extent of Primary Water Stress Corrosion Cracking (PWSCC) of Alloy 600 welds in the reactor coolant system, and identifying damage that may have resulted from boric acid leakage and dispersion of boric acid in the Containment Building.

- The System Health Assurance Building Block was developed to perform reviews of system health prior to restart to ensure the condition of the plant is sufficient to support safe and reliable operation. These actions are to be accomplished through the conduct of Operational Readiness Reviews (ORR), System Health Readiness Reviews (SHRR), Latent Issues Reviews (LIR), and follow-up actions to address the results of these reviews.

- The Program Compliance Building Block was structured to perform a review of applicable plant programs to ensure that the programs are fulfilling required obligations, and are sufficient to support the restart and safe operation of the Davis-Besse Nuclear Power Station. Phase 1 Program Reviews provide a baseline assessment of applicable plant programs to determine their status of readiness to support station restart. Phase 2 program reviews are a more aggressive, in-depth systemic review.

- The Management and Human Performance Excellence Building Block conducts a comprehensive and wide-ranging series of assessments of the management and organizational issues surrounding the degradation event and implements actions to address identified weaknesses. The ultimate objective of the Plan is to achieve and sustain excellence in the operation of the station through substantive and demonstrative

improvement in Davis-Besse management and human performance.

- The Restart Test Plan Building Block was created to ensure the integrity of the reactor coolant system and containment pressure vessel, and to evaluate proposed testing of systems and components affected by the leakage of coolant and boric acid deposits. Primary activities include the testing of the containment vessel, testing of the reactor coolant system, evaluating the adequacy of proposed post-maintenance and post-modification testing, and developing an Integrated Restart Procedure to ensure required restart tests and inspections are performed effectively prior to mode ascension.

- Finally, the Restart Action Plan Building Block administers the identification, monitoring, and closure of actions prescribed by the Davis-Besse Return to Service Plan. Under the Plan, a Restart Station Review Board has been established to identify and classify items for restart through the use of consistent and well-defined criteria. Additionally, a Restart Overview Panel was created to provide independent oversight and review of restart activities.

To provide for the independence and enhancement of quality assessment functions, the position of Vice President – Oversight was created. With this office providing periodic report to the Board of Directors, a strong assurance of rigorous and unfettered program and operational oversight is achieved. Additionally, the position of Executive Vice-President FENOC was created to provide focused and consistent administration of corporate activities, including engineering. This office will assure that the commitment to standards and process rigor are maintained.

To ensure that an appropriate focus on nuclear safety, recognition of critical nuclear safety issues, and effective and integrated decision making are achieved, organizational changes involving essentially the entire Site management team were instituted. These changes focused on the creation of an experienced, highly critical management team, who in turn have created the bases for daily operation rooted in newly developed principles, fortified programmatic standards, and visible program accountability and ownership.

With respect to the NRC's evaluation of the significance of the violation, the scientific evidence presented, the root cause(s), and the risk assessment determinations are consistent with FENOC understanding of the issue. FENOC, however, requests the NRC to consider making some minor clarifications to the Significance Determination Process (SDP) and Enforcement Review Panel Worksheet as written.

In Section C.1.a, page 2, paragraph two, under the Screening Logic, Results and Assumptions for Phase I, it is stated that "The resulting circumferential cracking and cavity represent a significant loss of the design basis barrier integrity and could be reasonably viewed as a precursor to a significant event." Although FENOC understands that the reference is to the potential that existed for through-wall circumferential cracking to develop if the condition was

left uncorrected, in its current context it could be misinterpreted that the cavity resulted from leakage associated with a circumferential crack. As stated in the FENOC root cause and later in the SDP Worksheet (See "Analysis of CRDM Circumferential Cracking"), the circumferential crack identified through inspection at Davis-Besse was associated with CRDM nozzle 2, and this crack was in its initial stages of formation and was not through-wall. The cavity in the RPV head was associated with axial cracking in nozzle 3.

In Section C.1.c, page 5, paragraph two, under "Corrosion rates not known", a possible corrosion rate of 7 inches per year is provided as a reasonable consideration for the last stages of cavity growth for the RPV head. Attachment A, *Risk Assessment and Insights in Support of Phase 3 Risk Significance Determination...*, page 8, states that mechanisms for cavity growth cannot be substantiated by data. It is also mentioned that a mechanism could exist which would limit the corrosion process, thus reducing the rate and ultimate size of the cavity. Given that physical evidence provides indications of corrosion products for several cycles over the event timeline, a corrosion rate of 7 inches per year, if it occurred, would have been short lived. The extent of boron concentration in the system, amount of boron deposition on the head, and other factors would determine the future rate of corrosion. Seven inches per year, applied as a projected future corrosion rate, would certainly appear to be a bounding assumption and not a realistic estimate of average corrosion rates.

We appreciate the opportunity to respond to this letter. FENOC continues its efforts under the Restart Plan to restore Davis-Besse to safe and reliable operations and reaffirms its commitment to apply all necessary resources to resolve both the physical and organizational challenges that have been identified.

Please contact Mr. Patrick J. McCloskey, Manager – Regulatory Affairs Manager at 419-321-8450, should you have questions or require additional information.

Sincerely,

PJM/laj

Enclosure

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

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Enclosure

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 by 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 any associated regulatory commitments.

COMMITMENTS	DUE DATE
None	