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Docket Number 50-346

License Number NPF-3

Serial Number 1-1357

April 5, 2004

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555-0001

Subject: Reply to a Notice of Violation from Davis-Besse Nuclear Power Station NRC
Inspection Report No. 50-346/03-010 (EA-04-049 and EA-04-050)

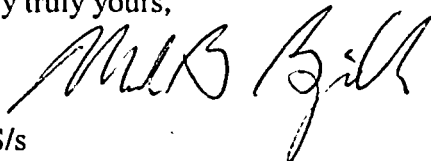
Ladies and Gentlemen:

The FirstEnergy Nuclear Operating Company (FENOC) received the NRC's Inspection Report, dated March 5, 2004 (Log Letter 1-4527), documenting the results of the special Corrective Action Team Inspection (CATI) to assess the effectiveness of the implementation of the corrective action program at the Davis-Besse Nuclear Power Station (DBNPS). The NRC's Davis-Besse Oversight Panel concluded that the corrective action program was sufficiently acceptable for plant restart.

The NRC identified two (2) Cited Violations of very low safety significance during the inspection. Attachment 1 to this letter provides the FENOC's written response to these violations. Additionally, Attachment 1 provides further information for one (1) Non-Cited Violation discussed in the Inspection Report.

The new commitments identified in this submittal are listed in Attachment 2. If there are any questions concerning this matter, please contact Mr. Gregory A. Dunn, Manager – Regulatory Affairs at 419-321-8450.

Very truly yours,



JCS/s

Attachment 1: Response to Violation
Attachment 2: Commitment Listing

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cc: NRC Regional Administrator, Region III
DB-1 Senior NRC/NRR Project Manager
DB-1 Senior NRC Resident Inspector
Utility Radiological Safety Board

I. STATEMENT OF VIOLATION (IR 03-010-01)

Title 10 CFR Part 50, Appendix B, Criterion III, "Design Control", requires, in part, that measures be established to assure that applicable regulatory requirements and the design basis are correctly translated into specifications, drawings, procedures, and instructions. It also requires that measures be provided for verifying or checking the adequacy of design, such as by the performance of design reviews, by the use of alternate or simplified calculational methods, or by the performance of a suitable testing program.

Contrary to the above, as of August 12, 2003, the licensee failed to verify that the design of the Service Water system discharge path swap-over setpoints was adequate. Specifically, the analysis performed by the licensee showed that the established setpoints were not adequate and the evaluation of the analysis accepted the inadequate setpoint based on non-safety-related equipment performing a safety-related function under design basis conditions. Neither the analysis nor the evaluation corrected the nonconforming condition previously identified in Inspection Report 05000346/2002014.

This is a violation of very low safety significance (Green).

ACCEPTANCE OR DENIAL OF THE VIOLATION

The FirstEnergy Nuclear Operating Company (FENOC) accepts the violation.

REASON FOR THE VIOLATION

The NRC Inspection Report (IR) 2003-010, dated March 5, 2004 (DBNPS Log 1-4527) discussed that FENOC had not provided the calculation for the 50-psig setpoint for swapping from the non-safety-related Service Water (SW) system discharge flow path to the safety-related SW system discharge flow path. As discussed in the IR, the calculated 50-psig setpoint failed to provide a basis for not having to postulate a failure of the non-safety-related discharge piping due to a Loss-of-Coolant Accident (LOCA).

CORRECTIVE STEPS TAKEN AND RESULTS ACHIEVED

During the inspection, the DBNPS conservatively took compensatory measures to close the valves in the non-safety-related SW discharge flow paths leading to the cooling tower and collection box.

The FENOC has completed its research and evaluation of the design and licensing basis of the DBNPS with respect to the SW system discharge path swap-over setpoints. The FENOC reviewed the system design, including the licensing basis of the plant as discussed in the Preliminary Safety Analysis Report (PSAR), the Final Safety Analysis Report (FSAR), the Operating License NRC Safety Evaluation Report (OL SER), and the Updated Safety

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Analysis Report. Documentation of this evaluation and its results have been submitted to the NRC Office of Nuclear Reactor Regulation (NRR) by DBNPS letter Serial Number 3040, dated April 2, 2004.

This evaluation concluded that the design and licensing basis of the DBNPS, as licensed in 1977 by the NRC, required the consideration of two specific failures of this non-safety-related discharge flow path: complete blockage or breakage. The design and licensing basis as described in the FSAR and accepted by the NRC in the OL SER did not require consideration of a partially blocked non-safety-related SW system discharge flow path in conjunction with a design basis accident (i.e., a LOCA). It did not describe that a swap-over was necessary for a LOCA scenario which did not involve blockage or breakage of the non-safety-related flow path, i.e., SW discharge could continue via the non-safety-related flow path. Postulation of a partial blockage would represent a new NRC position affecting the design of plant systems after issuance of the Operating License.

In addition to the design and licensing basis evaluation, a probability evaluation has been completed that demonstrates a partial blockage of the non-safety-related SW system discharge flow paths in conjunction with a LOCA, is not a credible event. This probability evaluation and its results were included in the aforementioned DBNPS letter Serial Number 3040 submitted to the NRC/NRR. The results of this evaluation indicate that the failure probability is approximately $4 \text{ E-}13/\text{year}$ for the SW2932 flow path and $7 \text{ E-}14/\text{year}$ for the SW2931 flow path.

Accordingly, the basis for the 50-psig setpoint for the pressure switches PSH 2929 and PSH 2930 to initiate a swap-over from the non-safety-related discharge flow path to the safety-related SW discharge flow path has been established under the DBNPS design and licensing basis. The 50-psig setpoint provides adequate assurance that the SW system design function will be performed under credible conditions, and is acceptable under the DBNPS design and licensing basis.

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CORRECTIVE STEPS THAT WILL BE TAKEN TO AVOID FURTHER VIOLATIONS

The Davis-Besse Nuclear Power Station Operational Improvement Plan, Operating Cycle 14, Engineering Initiative 6 implements a Design Calculation Improvement Plan. This initiative will improve quality of engineering products, increase access to design basis information, and provide continued improvement in safety margins of the station. This initiative was discussed in and commitment made via DBNPS letter Serial Number 1-1348, dated February 19, 2004.

In addition, the information collected and contained in DBNPS letter Serial Number 3040 will allow for the plant design and licensing basis to be clarified.

DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

Full compliance has been achieved.

II. STATEMENT OF VIOLATION (IR 03-010-02)

Technical Specification Section 4.0.5.a requires, in part, that the licensee perform inservice testing of valves in accordance with the ASME Operation and Maintenance (OM) Code and applicable addenda as required by 10 CFR 50.55a, "Codes and Standards".

10 CFR 50.55a(f)(4) requires that pumps and valves which are classified as ASME Code Class 1, 2, and 3 meet the inservice test requirements set forth in the appropriate edition and addenda of the ASME OM Code. It further requires that, during 120-month intervals successive to the initial 120-month interval, tests must comply with the requirements in the latest Code edition and addenda incorporated by reference in paragraph (b) of 10 CFR 50.55a 12 months prior to the start of the 120-month interval. Paragraph 50.55a(f)(5)(i) requires that the inservice test program be revised as necessary to meet the requirement of paragraph 50.55a(f)(4).

The ASME OM Code, 1995 edition through the 1996 addenda, Section ISTC 4.5.1 requires, in part, that check valves be exercised nominally every three months. Section ISTC 4.5.4(a) requires, in part, that check valves be exercised by initiating flow and observing that the obturator traveled to its full open position. Observations shall be made by observing a direct indicator (e.g., a position-indicating device) or by other positive means (e.g., changes in system pressure, flow rate, level, temperature, seat leakage, testing, or non-intrusive testing results).

Contrary to the above, the NRC identified that on September 12, 2003, and other dates, the licensee did not observe by a direct indicator or other positive means that the ASME Class 3 Service Water pump discharge check valve obturator traveled to its full open position during its quarterly surveillance test. Specifically, on September 12, 2003, the licensee observed a flow rate of 9,718 gpm through valve SW-19, which was less than the test acceptance criterion of 10,000 gpm, and less than the approximately 10,300 gpm used in the licensee's most recent accident analysis. Observing flow rates less than required for the valve to perform its safety function was not a positive means to determine that the obturator traveled to its full open position and no other direct indicator or positive means was used. The NRC approved use of the 1995 Code edition through the 1996 addenda for the third inservice testing 120-month interval on March 28, 2003. Prior to that date, the licensee was committed to the 1986 Edition (no Addenda) of the ASME Boiler and Pressure Vessel Code, Section XI. The 1986 Code Edition contains similar requirements.

This is a violation of very low safety significance (Green).

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ACCEPTANCE OR DENIAL OF THE VIOLATION

The FENOC accepts the violation.

REASON FOR THE VIOLATION

The Condition Report (CR) 03-07656 evaluation determined the cause of not providing the required flow through check valve SW19 (SW pump #3 discharge check valve) was a less than adequate test procedure; DB-PF-03232, "Baseline Testing of Service Water Pump 3." The test procedure did not contain provisions to permit additional throttling of flow through the Component Cooling Water (CCW) Heat Exchanger, which would have provided for a higher flow rate through check valve SW19.

Condition Report 03-07765 documents an apparent cause of a historical lack of connection in the various In-Service Test (IST) programs and the technical design bases flow for the performance of components including check valves. There were no formal/programmatic ties between the various IST programs (except pumps) and the design bases for check valves. Additionally, historically changes in the IST program appear to have only considered the Code technical requirements and did not formally evaluate the impact of the change on the technical design bases.

Additionally, the DBNPS recognizes that the original evaluation of this condition (documentation of flow required to obtain full open position of the SW discharge check valves SW17, SW18, SW19), as documented in CR 02-07657 should have been performed via a more formal engineering method than informally in the CR evaluation. The CR 02-07657 was initiated to determine what flow rate should be measured through SW17, SW18 and SW19 for the forward flow test. The CR 02-07657 evaluation informally determined the flow rate that would cause the valves to be full open. It did not determine the design flow rate required through the valves to provide the necessary cooling water flow to the safety related components as required by the IST program.

This conclusion was validated by CR 03-06909, "Design Control Collective Significance Review." This evaluation determined: (1) Rigor of Engineering products (such as CR evaluations) were less than adequate, (2) Documentation of Design Basis was less than adequate. The review also concluded the documentation of design basis needs improvement.

CORRECTIVE STEPS TAKEN AND RESULTS ACHIEVED

Procedure DB-PF-03232 was altered to permit throttling of flow through both parallel heat exchangers, as required, to obtain the higher flow rates from 9,000 gpm up to 11,000 gpm. This was incorporated in Revision 01, effective on October 22, 2003. This procedure change will permit testing of the SW19 at full flow conditions. The procedures were similarly revised for forward flow testing of SW17 and SW18.

CORRECTIVE STEPS TAKEN TO AVOID FURTHER VIOLATIONS

As discussed in DBNPS letter Serial Number 1-1352, dated March 4, 2004; improvements have been made in the identification and cause evaluation of CRs. These include:

- Procedural requirements were strengthened for apparent cause analysis to specify analytical requirements to be used.
- The number of apparent cause evaluators was reduced and additional training was provided.
- The Corrective Action Review Board is reviewing apparent cause analyses.
- The Engineering Assessment Board reviews a sampling of engineering related CRs to ensure the appropriate level of technical rigor.

The Davis-Besse Nuclear Power Station Operational Improvement Plan, Operating Cycle 14, Engineering Initiative 6 implements engineering organization-related improvements. This initiative is designed to improve quality of engineering products, increase access to design basis information, and provide continued improvement in safety margins of the station. This initiative was discussed in and commitments made via DBNPS letter Serial Number 1-1348, dated February 19, 2004

Documentation will be provided establishing flow requirements (e.g., to demonstrate full open position) for check valves SW17, SW18, and SW19, by June 30, 2004.

The Check Valve program manual will add a requirement that changes in test acceptance criteria will be evaluated against the applicable design basis requirements. This revision will be completed by July 6, 2004.

DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

Procedure DB-PF-03232 was altered to permit throttling of flow through both parallel heat exchangers, as required, to obtain the higher flow rates in accordance with TS 4.0.5.a. The DBNPS will complete the documentation of the flow requirements of check valves SW17, SW18, and SW19 described above by June 30, 2004.

III. STATEMENT OF VIOLATION (NCV 03-010-19)

Title 10 CFR Part 50, Appendix B, Criterion XI, "Test Control", requires, in part, that a test program be established to demonstrate that components will perform satisfactorily in service. Contrary to the above, as of September 29, 2003, the test procedures for the AFW turbine high speed stop and overspeed trip did not demonstrate that the system would perform satisfactorily in service because the test included a step to flush the cooling water lines and blow down the strainers prior to performing the test. These actions prevented any adverse effects due to strainer blockage from being discovered. Failure to adequately test the system was a violation of Appendix B, Criterion XI. This issue has been entered into the licensee's CAP as CR 03-06520. This violation is being treated as a NCV consistent with Section VI.A.1 of the NRC Enforcement Policy. (NCV 05000346/2003010-19)

ACCEPTANCE OR DENIAL OF THE VIOLATION

The FENOC accepts the non-cited violation and provides the following clarification.

CLARIFICATION

As discussed below, FENOC believes that the example cited in Non-Cited Violation 03-010-19 does not involve inappropriate preconditioning. However, in performing a review of this condition, FENOC did identify other examples of inappropriate preconditioning.

The Auxiliary Feedwater (AFW) turbine high speed stop and overspeed trip tests (DB-SP-04152, "Auxiliary Feedwater Pump Turbine 1 High Speed Stop and Overspeed Trip" and DB-SP-04153, "Auxiliary Feedwater Pump Turbine 2 High Speed Stop and Overspeed Trip") are not within the scope of a TS surveillance requirement. The overspeed trip tests (DB-SP-04152 and 04153) do not utilize the normal cooling water source for AFW pump turbine lube oil and governor cooling. Instead, the tests utilize an alternate source (i.e., SW) for AFW pump turbine lube oil and governor cooling.

During normal operation, cooling water for the pump turbine lube oil and governor cooling would be provided by the AFW pump itself. However, during these overspeed tests the AFW pump is uncoupled from the turbine. When operating the AFW pump turbine with the pump uncoupled, cooling water is provided from the alternate supply of SW since the AFW pump cannot providing the cooling water supply from condensate. The SW is introduced to the coolers by manually opening normally closed valves SW9 and SW10. The SW passes through SW strainers (S202 and S205) to remove particles greater than 0.047 inch in size before being introduced to the normal cooling water lines. Service Water cooling is not used during normal AFW system operation.

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The cooling water strainers are blown down prior to and after overspeed testing as a good engineering practice. Since SW is being used as the cooling medium and the forebay (lake water) contains more impurities than the condensate (from the Condensate Storage Tank), which is the normal source of AFW cooling, the strainers are blown down to remove any buildup of residual contaminants to minimize fouling of heat transfer services in the AFW cooling heat exchangers. Since this SW path would not be used during normal operation and is only used during test conditions, blow down of these SW strainers does not constitute inappropriate preconditioning.

However, during further review, it was determined that other AFW cooling water strainers were being blown down prior to performing other safety-related testing that utilizes the normal cooling water supply of condensate. This application is considered inappropriate preconditioning. Condition Report 04-02476, "Potential Concern for Pre-Conditioning Prior to Performing AFW Testing," dated April 2, 2004, was initiated and corrective actions are being pursued under this CR.

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COMMITMENT LIST

The following list identifies those new 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 as information and are not regulatory commitments. Please notify the Manager - Regulatory Affairs (419-321-8450) of any questions regarding this document or associated regulatory commitments.

COMMITMENTS

DUE DATE

Documentation will be provided establishing flow requirements (ex, to demonstrate full open) for check valves in the Check Valve program, including Service Water (SW) 17, SW18, and SW19.

June, 30, 2004

The Check Valve program manual will add a requirement that changes in test acceptance criteria will be evaluated against the applicable design basis requirements.

July 6, 2004