

Gary R. Leidich President and Chief Nuclear Officer

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Docket Number 50-346 License Number NPF-3 Serial Number 3190

September 14, 2005

Mr. Michael R. Johnson
Director, Office of Enforcement
U.S. Nuclear Regulatory Commission
One White Flint North
11555 Rockville Pike
Rockville, MD 20852-2738

Subject: Reply to a Notice of Violation: EA-03-025; EA-05-066; EA-05-067; EA-05-068; EA-

05-069; EA-05-070; EA-05-071; EA-05-072

Dear Mr. Johnson:

In accordance with 10 CFR §§ 2.201 and 2.205, this transmittal provides FirstEnergy Nuclear Operating Company's ("FENOC") reply to NRC's April 21, 2005 Notice of Violation and Proposed Imposition of Civil Penalties - \$5,450,000 ("NOV"), for apparent violations stemming from the reactor pressure vessel ("RPV") head degradation at the Davis-Besse Nuclear Power Station.

Before addressing individual violations, I want to reiterate that FENOC has accepted full responsibility for its past failure to properly implement its boric acid corrosion control and corrective action programs. Further, the Company has acknowledged that this lapse allowed the reactor coolant system pressure boundary leakage to occur undetected for a prolonged period. FENOC recognizes that this poor performance negatively impacted the reputation of the Company, the Davis-Besse plant and its employees with the community, the industry, and with regulators, particularly the NRC. FENOC has implemented comprehensive corrective actions, made sweeping changes in management staff throughout the organization, and will continue to focus on the safe, reliable operation of the plant.

FENOC appreciates that the NRC has acknowledged the Company's efforts, as affirmatively stated in the NRC's April 21, 2005 transmittal letter:

[T]he NRC has provided extensive oversight of the licensee's evaluation of and corrective actions for the conditions which contributed to the reactor pressure vessel head degradation and the performance deficiency. In a March 8, 2004, letter, the NRC documented its determination that the matters contained in the NRC's Confirmatory Action Letter and Restart Checklist had been adequately

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resolved and that the NRC had reasonable assurance that the Davis-Besse Station could be restarted and operated safety.

FENOC will do nothing to retreat from its recovery nor erode the trust that it has regained. In furtherance of reconciliation, in an effort to close the RPV head matter and in accordance with 10 CFR § 2.205, we are paying the proposed civil penalty of \$5,450,000 in full. In approximately five working days from the date of this letter, the \$5,450,000 will be electronic funds transferred to the NRC in accordance with NUREG/BR-0254, "Payment Methods."

FENOC recognizes the significance of the RPV head degradation discovered in March 2002, and the performance deficiencies that FENOC's several assessments and root cause investigations revealed. FENOC has accepted full responsibility for those performance deficiencies, and, as more fully set forth in its enclosed response, admits many of the violations cited by the NRC. It is due to FENOC's recognition and acceptance of its past poor performance that FENOC has decided not to challenge the proposed civil penalty. FENOC accepts responsibility for its past performance and in an effort to get this matter behind us, we are paying the proposed civil penalty. Nonetheless, we specifically are not addressing the allegations of willfulness contained in the April 21, 2005 transmittal letter because the NOV itself does not cite willfulness and a specific response to those allegations is not required.

As acknowledged by the NRC in its letter dated April 21, 2005 and the "Approval to Restart the Davis-Besse Nuclear Power Station, Closure of Confirmatory Action Letter, and Issuance of Confirmatory Order" ("NRC Restart Approval"), dated March 8, 2004, FENOC already has addressed the technical issues and programmatic failures underlying the apparent violations that contributed to the RPV head degradation in its several investigation and closure reports, and proposed and implemented comprehensive corrective actions to resolve them. As acknowledged by the NRC in its April 21st letter, FENOC planned and implemented all of these activities under the close scrutiny of the NRC's enhanced oversight process. Specifically, the NRC oversaw and closely monitored the Davis-Besse restart process, pursuant to the conditions imposed by a Confirmatory Action Letter and an Inspection Manual Chapter (IMC) 0350 NRC Oversight Panel.

In approving restart and later terminating the NRC IMC 0350 oversight process, the NRC recognized the adequacy and effectiveness of FENOC's corrective actions. See letters from James Caldwell, Regional Administrator, "Closure of NRC Inspection Manual Chapter 0350 Oversight Panel for Davis-Besse Nuclear Power Station; Disposition of Findings Identified in 0350 Process; and Inspection Schedule Update," dated May 19, 2005; and NRC Restart Approval. Therefore, the NRC determined that the cited violations do not represent current licensee performance.

As suggested in the NRC's transmittal letter, FENOC has referenced earlier documentation setting forth the reasons for past performance and resulting corrective action. The NRC has

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determined that the performance underlying the apparent violations does not represent current performance, and has previously recognized the adequacy and effectiveness of FENOC's corrective actions.

I appreciate this opportunity to respond, and am available to answer any questions you may have regarding FENOC's response. Should you wish to contact me, I can be reached at (330) 384-5770.

The statements contained in this submittal, including its associated enclosures are true and correct to the best of my knowledge and belief. I am authorized by the FirstEnergy Nuclear Operating Company to make this submittal. I declare under penalty of perjury that the foregoing is true and correct.

By: Sary R Leidick Gary R. Leidich, President & Chief Nuclear Officer

Sincerely, Yang R. Lerdik

Gary R. Leidich

Enclosure 1: Firstenergy Nuclear Operating Company's Reply To Notice Of Violation And Proposed Imposition Of Civil Penalties

**Enclosure 2: Commitment List** 

J. E. Dyer, Deputy Executive Director for Reactor Programs cc:

J. L. Caldwell, Regional Administrator, NRC Region III

K. G. O'Brien, Enforcement Officer, NRC Region III

C. S. Thomas, NRC Senior Resident Inspector

W. A. Macon, NRC/NRR Project Manager

USNRC Document Control Desk

Utility Radiological Safety Board

Docket Number 50-345 License Number NPF-3 Serial Number 3190 Enclosure 1

# FIRSTENERGY NUCLEAR OPERATING COMPANY'S REPLY TO NOTICE OF VIOLATION AND PROPOSED IMPOSITION OF CIVIL PENALTIES UNDER 10 CFR § 2.201 - \$5,450,000:

EA-03-025; EA-05-066; EA-05-067; EA-05-68; EA-05-069; EA-05-070; EA-05-071; AND EA-05-072

(21 pages to follow)

# FIRSTENERGY NUCLEAR OPERATING COMPANY'S ("FENOC") REPLY TO NOTICE OF VIOLATION AND PROPOSED IMPOSITION OF CIVIL PENALTIES UNDER 10 CFR § 2.201 - \$5,450,000: EA-03-025; EA-05-066; EA-05-067; EA-05-68; EA-05-069; EA-05-070; EA-05-071; AND EA-05-072

#### I. VIOLATIONS ASSESSED A CIVIL PENALTY

#### Violation I.A.

A. Technical Specification 3.4.6.2.a, Amendment 220, dated April 14, 1998, requires, in part, that the licensee shall limit reactor coolant system leakage to "No PRESSURE BOUNDARY LEAKAGE" during Modes 1 through 4.

Contrary to the above, between May 18, 2000, and February 16, 2002, the licensee started up and operated the plant in Modes 1 through 4 with reactor coolant system pressure boundary leakage, i.e. control rod drive penetration leakage. Specifically, the licensee returned the plant to operation following the 2000 refueling outages without fully characterizing and eliminating reactor coolant system pressure boundary leakage on the reactor pressure vessel head as evidenced by significant boric acid deposits on the reactor pressure vessel head at the start and end of the outage and by the development of new and extensive boric acid deposits on reactor containment equipment during the operation cycle.

This is a violation associated with a RED SDP finding. Civil Penalty - \$5,000,000 (EA-05-071)

#### FENOC Reply to Violation I.A.

1. Admission or Denial of the Alleged Violation:

FENOC admits that between May 18, 2000 and February 16, 2002, it started up and operated the plant in Modes 1 through 4 with reactor coolant system ("RCS") pressure boundary leakage. FENOC did not recognize as evidence of RCS pressure boundary leakage either: (1) the significant boric acid deposits on the reactor pressure vessel ("RPV") head; or (2) the extensive boric acid deposits on reactor containment equipment during the operating cycle.

2. Reason(s) For The Alleged Violation:

Between May 18, 2000 and February 16, 2002, FENOC personnel believed that they were operating the plant within the Technical Specification ("TS") limits for RCS leakage. FENOC personnel were aware of, and documented, unidentified RCS leakage within the 1-gpm ("gallon per minute") limit specified in TS 3.4.6.2.b. FENOC personnel took extensive actions to identify the source of that unidentified leakage. At no time during the period cited in the violation did FENOC personnel conclude that the source of the leakage was reactor coolant pressure boundary leakage. Had FENOC done so, it would have shut the plant down, consistent with TS 3.4.6.2.a.

As noted in FENOC's several root cause investigations and other assessments, however, FENOC's efforts during the period cited in this violation were not sufficient to detect the control rod drive mechanism ("CRDM") nozzle leakage that led to significant degradation of the Davis-Besse RPV head. The principal documents that set forth the reasons for this violation include: Root Cause Analysis Report, "Lack of Operations Centrality in Maintaining, Assuring, and Communicating the Operational Safety Focus of Davis-Besse and Lack of Accountability of Other Groups to Operations in Fulfilling that Role; CR 02-02581" ("Operations Root Cause Report"), at 14, 16, and 27, November 22, 2002; Root Cause Analysis Report, "Failure to Identify Significant Degradation of the Reactor Pressure Vessel Head; CR 02-00685, 02-00846, 02-00891, 02-01053, 02-01128, 02-01583, 02-01850, 02-02584, and 02-02585" ("Management Root Cause Report"), at 56, August 13, 2002; Darrell G. Eisenhut, "Assessment of the FENOC Company Review Board" ("CNRB Assessment"), at 16, August 13, 2002; "Examination of Five Closed Nonconformances Related to the RPV Head" ("NQA Assessment"), Attachment 3, at 3, June 13, 2002; and Root Cause Analysis Report, "Significant Degradation of the Reactor Pressure Vessel Head; CR 2002-00891" ("Revision 1 to Technical Root Cause Report"), at 52, August 27, 2002.

In summary, the above-cited reports demonstrate that while there was evidence of RCS pressure boundary leakage in the Davis-Besse Nuclear Power Station ("DBNPS") containment building for several years prior to discovery of the RPV head degradation, FENOC did not recognize its source or associate it with possible CRDM nozzle leaks at the time. This evidence included: (1) iron oxide, boric acid, and moisture in the containment atmosphere radiation monitor filters; (2) boric acid accumulations in the containment air coolers ("CACs"); and (3) boric acid accumulations on the RPV head flange. While these conditions were all identified at the time, FENOC did not recognize their collective significance.

Moreover, Davis-Besse's history of CRDM flange leakage led FENOC to believe that this evidence was the result of CRDM flange leakage rather than a cracked CRDM nozzle and RCS pressure boundary leakage. The accumulation of boric acid on the RPV head allowed the nozzle leaks to go undetected and uncorrected which, ultimately resulted in damage to the RPV head. Boric acid that accumulated on the top of the RPV head over a period of years also inhibited FENOC's ability to confirm visually that neither CRDM nozzle leakage nor RPV head corrosion was occurring. Consequently, FENOC was not aware that there was in fact pressure boundary leakage during the period cited in the violation.

#### 3. Corrective Steps That Have Been Taken and the Results Achieved:

As discussed at length in FENOC's Integrated Report to Support Restart of the DBNPS, issued on November 23, 2003 ("IRR"), as supplemented on February 6, 2004, FENOC developed a Return to Service Plan, with seven Building Block Plans, that incorporated comprehensive corrective actions to address the issues identified in both the Technical and Management Root Cause Reports.

The Reactor Head Resolution Plan included replacement of the RPV head and modification of the RPV service structure to facilitate inspections of the RPV head (see IRR, Section IV.B). Pursuant to this Plan, the degraded DBNPS RPV head was replaced with an unused one from the canceled Midland Plant. To accommodate removal of the original RPV head and installation of the replacement, access openings were installed in both the shield building and containment vessel. Following installation of the new RPV head, the containment was returned to its original design configuration, and a successful containment integrated leak rate test was conducted. After installation of the new RPV head, the RCS was brought to normal operating pressure.

Visual inspections were performed for evidence of leakage. The RPV head-to-flange seals and the CRDMs were confirmed to be leak tight. Zero reactor coolant pressure boundary leakage was confirmed. After granting exemptions to certain ASME Code requirements, the installed replacement RPV head was determined to be in compliance with applicable NRC and industry requirements.

The NRC recognized and accepted the adequacy and effectiveness of FENOC's corrective actions in a letter from James M. Caldwell, Regional Administrator, NRC, to Lew W. Myers, Chief Operating Officer, FENOC, "Approval to Restart the Davis-Besse Nuclear Power Station, Closure of Confirmatory Action Letter, and Issuance of Confirmatory Order" ("NRC Restart Approval"), March 8, 2004.

# 4. Corrective Steps To Avoid Further Violations:

In addition to the actions discussed in item 3, above, FENOC implemented other corrective actions to address the identification of unidentified leakage and associated performance deficiencies, including:

- BACC Program FENOC revised the Boric Acid Corrosion Control ("BACC") Program Manual to include the CRDM nozzles as a probable location of leakage, hired a new person to become the plant BACC Program Owner, and implemented a new Job Familiarization Guideline which established specific training requirements and qualifications for boric acid inspectors and the BACC Program owner.
- RCS Integrated Leakage Program FENOC developed and implemented an RCS Integrated Leakage Program to improve the capability for detecting and correcting small leaks that are within the Technical Specifications limits.
- <u>ISI Program</u> FENOC revised the In-Service Inspection ("ISI") program to provide for the performance of augmented examinations for selected components, including the CRDM nozzles. Additionally, a formal interface between the ISI Pressure Test and the BACC Program has been established, and training of personnel has been revised to emphasize identification of the leakage source.
- <u>FLÜS Leak Monitoring System</u> In an effort to enhance the leak detection capabilities at the DBNPS, a leak detection system, FLÜS, was installed on the

lower RPV head to monitor potential leakage of the incore instrumentation nozzles. This system, first of its kind in the United States, operates on the principle of humidity detection.

5. Date When Full Compliance Will Be Achieved:

FENOC is currently in full compliance.

#### Violation I.B.

B. 10 CFR 50.9 requires that information provided to the Commission by a licensee or information required by statute or by the Commission's regulations, orders, or license conditions to be maintained by the licensee shall be complete and accurate in all material respects.

10 CFR 50, Appendix B, Criterion XVI requires, in part, that for significant conditions adverse to quality, the cause of the condition and the corrective actions taken to preclude repetition shall be documented.

10 CFR 50, Appendix B, Criterion XVII, requires, in part, that the licensee shall maintain sufficient records to furnish evidence of activities affecting quality and that those records shall include monitoring of work performance.

Condition Report (CR) 2000-1037, closed May 1, 2000, documented corrective action for the presence of boric acid on the reactor pressure vessel head, a significant condition adverse to quality, that included: "Accumulated boron deposited between the reactor head and the thermal insulation was removed during the cleaning process performed under W.O. [Work Order] 00-001846-000. No boric acid induced damage to the head surface was noted during the subsequent inspection."

Work Order 00-001846-000, "Clean Boron Accumulation from Top of Reactor Head and Top of Insulation," dated April 25, 2000, required the licensee staff to "clean boron accumulation from top of reactor head and on top of insulation." The Work Order Log, included as Page Four of the completed Work Order, documented that the, "work [was] performed without deviation" and was signed by the System Engineer on April 25, 2000.

#### Contrary to the above,

1. The information included in CR 2000-1037 relative to the completed corrective actions and the subsequent inspection results were not complete and accurate in all material respects. Specifically, the licensee did not remove the accumulated boron deposits from all areas between the reactor head and the thermal insulation and did not conduct subsequent inspections of the entire reactor head. Instead, the licensee removed accumulated boric acid deposits from a portion of the reactor vessel head and conducted subsequent inspections for those portions of the reactor vessel head where the boric acid deposits had been removed.

2. The Work Order Log, included as Page Four of completed Work Order 00-001846-000, a record required by Commission regulations to furnish evidence of activities affecting quality, contained information that was not accurate in all material respects. Specifically, the Work Order Log indicated that boron accumulation was cleaned from the top of the reactor head and on top of the insulation, without deviation, when, in fact, boric acid deposits were left on the head after the cleaning was completed on April 25, 2000.

This is a Severity Level I violation (Supplement VII). Civil Penalty - \$110,000 (EA-05-068)

#### FENOC Reply to Violation I.B.

1. Admission or Denial of the Alleged Violation:

FENOC admits that the cited statements in CR 2000-1037 and Work Order 00-001846-000 regarding the extent of the RPV head cleaning and inspection in the twelfth refueling outage ("12 RFO") were misleading.

2. Reason(s) For The Alleged Violation:

The principal documents that set forth the reasons for this violation include: Revision 1 to Technical Root Cause Report, at 50, September 23, 2002; Management Root Cause Report, at 33-34; NQA Assessment, at 5-6. These documents show that the boron deposition was not completely removed from the RPV head.

3. Corrective Steps That Have Been Taken and the Results Achieved:

To prevent and detect any other similar occurrence and in response to Restart Checklist item 3.i, "Process for Ensuring Completeness and Accuracy of Required Records and Submittals to the NRC," FENOC implemented a number of corrective actions, including: (1) issuing administrative procedures governing outgoing NRC correspondence and reports; (2) performing Root Cause Analysis Report, "Apparent Violation of 10 CFR 50.9, Completeness and Accuracy of Information, CR 2002-04914" ("Completeness and Accuracy Root Cause Report"), April 4, 2003; (3) performing an extent-of-condition ("EOC") review of the completeness and accuracy of documents based on a sample population of previously submitted NRC correspondence ("EOC Review"); (4) addressing discrepancies resulting from the reviews via the corrective action program ("CAP"); (5) developing a new corporate policy and conducting site-wide supervisory awareness training of the requirements of 10 CFR § 50.9; and (6) revising new employee orientation manuals and developing an initial training program requirement for all new supervisors; (7) site wide employee awareness training of the requirements of 10 CFR 50.9 including reinforcing the requirement in records as well as formal regulatory submittals; (8) and the Condition Report Process procedure was revised to include requirements for completeness and accuracy.

FENOC's EOC Review consisted of verification of the statements of fact contained in the submittals, and resolution of any discrepancies identified during the review. The review

initially covered approximately 20 percent of the FENOC submittals to the NRC between January 1996 and March 2002 for the DBNPS. The sample size was subsequently expanded according to pre-established criteria after several of the initial submittals were determined to contain information that may not be complete and accurate in all material respects.

FENOC documented the results of its EOC Review in "Final Report: Results of the Extent of Condition Review, NRC IMC 0350 Restart Checklist Item 3.i, 'Process for Ensuring Completeness and Accuracy of Required Records and Submittals to the NRC" ("EOC Final Report"), October 24, 2003.

The NRC inspected FENOC's EOC Final Report, and found it to be adequate. Specifically, the NRC determined that FENOC's EOC review process provided a "reasonable approach to address NRC Restart Checklist Item 3.i," and that "the licensee has taken appropriate corrective actions to ensure that future regulatory submittals are complete and accurate in all material respects." The NRC closed Restart Checklist item 3.i in NRC Special Inspection Report 50-346/03-19, dated January 28, 2004.

The NRC has recognized and accepted the adequacy and effectiveness of FENOC's corrective actions, as documented in NRC's Restart Approval.

4. Corrective Steps To Avoid Further Violations:

See item 3, above.

5. Date When Full Compliance Will Be Achieved:

FENOC is currently in full compliance.

#### Violation I.C.

C. 10 CFR 50, Appendix B, Criterion XVI, requires, in part, that licensees shall establish measures to ensure that conditions adverse to quality such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and non-conformances are promptly identified and corrected. For significant conditions adverse to quality, the licensee shall establish measures to ensure that the cause of the condition is determined and that corrective actions are taken to preclude repetition.

Plant Procedure NG-NA-00702, "Corrective Action Program," Revision 3, defined a significant condition adverse to quality to be a condition, which, if left uncorrected, could have an undesirable effect on plant safety, personal safety, regulatory position, financial liability, or environmental impact.

Contrary to the above, the licensee did not determine the cause of the condition and did not implement corrective actions to preclude repetition of the condition associated with the identification and removal of boric acid on the reactor vessel

head, a significant condition adverse to quality, prior to closing the associated condition reports.

# Specifically:

- 1. On April 27, 2000, the licensee closed CR 2000-0781, "Leakage from CRD [Control Rod Drive] Structure Blocked Visual Exam of Reactor Vessel Head Studs," issued on April 6, 2000, associated with the accumulation of boric acid deposits on the reactor vessel head studs without determining the cause of the deposits, i.e., identifying the source of the reactor coolant system leakage, and without taking corrective actions to preclude recurrence.
- 2. On April 27, 2000, the licensee closed CR 2000-0782, "Inspection of Reactor Flange Indicated Boric Acid Leakage From Weep Holes," issued on April 6, 2000, associated with the accumulation of boric acid deposits on the reactor vessel head, without determining the cause of the boric acid deposits, i.e., identifying the source of the reactor coolant system leakage, without removing all of the known boric acid deposits on the reactor pressure vessel head, and without taking corrective actions to prevent recurrence.
- 3. On May 1, 2000, the licensee closed CR 2000-1037, "Inspection of Reactor Head Indicated Accumulation of Boron in Area of the CRD [Control Rod Drive] Nozzle Penetration," issued on April 17, 2000, associated with the accumulation of boric acid deposits on the reactor vessel head, without determining the cause of the boric acid deposits, i.e., identifying the source of the reactor coolant system leakage, without removing all of the known boric acid deposits on the reactor vessel head, and without taking corrective actions to prevent recurrence.

This is a Severity Level II violation (Supplement I). Civil Penalty - \$110,000 (EA-05-066)

#### **FENOC Reply to Violation I.C.**

1. Admission or Denial of the Alleged Violation:

FENOC admits that it failed to correctly determine the cause of the boric acid deposits discovered on the RPV head in 12 RFO, and, as a result, failed to take adequate and effective corrective action in response to CRs 2000-0781, 2000-0782, and 2000-1037.

2. Reason(s) For The Alleged Violation:

The principal documents that set forth the reasons for this violation include: Management Root Cause Report, at 32-33, 36, 42-43, and 45; and NQA Assessment, at 1, 4-8, Attachment 4 at 1-6, and Attachment 5 at 1-2.

3. Corrective Steps That Have Been Taken and the Results Achieved:

To ensure that conditions adverse to quality are properly identified, evaluated and corrected and in response to Restart Checklist item 3.a, FENOC improved its CAP. A detailed list of the corrective actions taken to address this violation and prevent recurrence is provided in the IRR at Section IV.D. The NRC has recognized and accepted the adequacy and effectiveness of FENOC's corrective actions, as documented in NRC's Restart Approval. The NRC reviewed the CAP and evaluated FENOC's effectiveness in correcting the deficiencies in the program. Specifically, the NRC evaluated the effectiveness of the implementation of various aspects of FENOC's CAP, including: (1) identifying and documenting plant design-related deficiencies; (2) categorizing and prioritizing safety issues for resolution; (3) conducting apparent and the root cause analyses; (4) determining extent of condition; and (5) implementing appropriate and timely corrective actions to ensure adequate resolution of problems.

The NRC's conclusions are documented in NRC Inspection Report Nos. 50-346/02-11, 50-346/03-09 and 50-346/03-10. The NRC specifically concluded that the CAP was "sufficiently acceptable" to support plant restart, and closed Restart Checklist item 3.a in NRC Special Team Inspection Report 50-346/03-10, dated March 5, 2004. Furthermore, the NRC evaluated the implementation of the CAP in Inspection Report Number 05000346/2004017, dated January 30, 2005, and concluded that implementation was safe for continued operation of the plant.

4. Corrective Steps To Avoid Further Violations:

See item 3, above.

5. Date When Full Compliance Will Be Achieved:

FENOC is currently in full compliance.

#### Violation I.D.

D. 10 CFR 50, Appendix B, Criterion V, requires, in part, that activities affecting quality be accomplished in accordance with written procedures.

Davis-Besse Station Procedure NG-EN-00324, "Boric Acid Corrosion Control Program," Revisions 1/C1 and 2, Step 6.3.1, required, in part, that an initial inspection of boric acid buildup shall he performed to determine the "as found" conditions and to document the inspection results. The procedure also required, in Attachment 3, that insulation and other hindrances to direct visual [inspection] be removed as needed to allow detailed inspections of components suspected of leakage.

Potential Condition Adverse to Quality (PCAQ) 96-0551, initiated on April 21, 1996, documented the licensee's inability to comply with some inspections of the reactor pressure vessel head, as required by Procedure NG-EN-00324, and an inability to accurately determine the reactor pressure vessel head "as found" conditions,

associated with boric acid deposits on the reactor pressure vessel head, due to the restrictions resulting from the location and size of the inspection ports, "mouse holes." The PCAQ further documented that only 50 to 60 percent of the reactor pressure vessel head could be inspected using the current inspection ports.

Modification 94-0025, initiated in May 27, 1994, and referenced as corrective action for PCAQ 96-0551, directed the completion of modifications to the reactor pressure vessel head service structure inspection ports to permit the inspection and cleaning of 100 percent of the reactor vessel head in accordance with Procedure NG-EN-00324.

Contrary to the above, on May 18, 2000, and at the end of Refueling Outage 12, the licensee failed to remove obstructions, including boric acid deposit buildups, necessary to conduct a detailed inspection of the reactor pressure vessel head and other components that may be suspected of leakage, as required by Plant Procedure NG-EN-00324, "Boric Acid Corrosion Control Program." The licensee's ability to conduct the inspections was significantly limited as a result of its concurrent deferral of the installation of Modification 94-0025, a corrective action for a significant condition adverse to quality documented in PCAQ 96-0551 and associated with the licensee's failure during previous outages to conduct complete Inspections and cleaning of boric acid deposits on the reactor pressure vessel head.

This is a Severity Level II violation (Supplement I). Civil Penalty - \$110,000 (EA-05-067)

#### FENOC Reply to Violation I.D.

1. Admission or Denial of the Alleged Violation:

FENOC admits that it failed to remove all of the boric acid deposits found on the DBNPS RPV head during 12 RFO, and that, as a result, it failed to inspect the bare metal surface of the entire RPV head during 12 RFO.

2. Reason(s) For The Alleged Violation:

FENOC's reasons for the underlying violation are more fully explained in its several reports and reviews previously provided to the NRC, including: Management Root Cause Report, at 1, 5, 10, 11, 30-32, 36, 40, 43, 61, 63, and 69; and NQA Assessment, at 3-4, Attachment 2 at 1-8, and Attachment 5 at 1-4.

3. Corrective Steps That Have Been Taken and the Results Achieved:

To prevent and detect any recurrence and in response to Restart Checklist item 3.d, FENOC performed a detailed, systematic evaluation of the BACC Program, and made comprehensive programmatic improvements. The NRC reviewed FENOC's corrective actions, and concluded that the BACC Program issues were "properly resolved." The NRC closed Restart Checklist item 3.d in NRC Integrated Inspection Report 50-346/03-17, dated September 29, 2003.

In addition to the installation of the unused reactor head from the canceled Midland Plant, the existing service structure was refurbished, modified with new inspection access openings, and transferred to the RPV head service structure support skirt.

A detailed list of the corrective actions taken to address this violation and prevent recurrence is provided in the IRR, at Section IV.D. The NRC has recognized and accepted the adequacy and effectiveness of FENOC's corrective actions, as documented in NRC's Restart Approval.

4. Corrective Steps To Avoid Further Violations:

See item 3, above.

5. Date When Full Compliance Will Be Achieved:

FENOC is currently in full compliance.

#### Violation I.E.

E. 10 CFR 50.9 requires that information provided to the Commission by a licensee or information required by statute or by the Commission's regulations, orders, or license conditions to be maintained by the licensee shall be complete and accurate in all material respects.

NRC Bulletin 2001-01, "Circumferential Cracking of Reactor Pressure Vessel Head Penetration Nozzles," required all holders of operating licenses for pressurized water nuclear power reactors to provide information related to the structural integrity of the reactor vessel head penetration (VHP) nozzles for their respective facilities, including the extent of VHP nozzle leakage and cracking that has been found to date, the inspections and repairs that have been undertaken to satisfy applicable regulatory requirements, and the basis for concluding that their plans for future Inspections will ensure compliance with applicable regulatory requirements.

Contrary to the above, the licensee, a holder of an operating license for a pressurized water nuclear power reactor, the Davis-Besse Station, provided the Commission responses to Bulletin 2001-01 which included materially inaccurate and incomplete information as follows:

- 1. In a September 4, 2001, response to the Bulletin entitled, "Response to Bulletin 2001-01," Serial 2731, the licensee made the following four materially inaccurate and incomplete statements:
  - (a) The licensee's response to Bulletin Item 1.c, on page 2 of 19, stated: "the minimum gap being at the dome center of the RPV [reactor pressure vessel] head where it is approximately 2 inches, and does not impede a qualified visual inspection."

The licensee's response was materially inaccurate, in that, the statement contradicted statements in the licensee's documents identified as PCAQR 94-0295 and 96-0551, which clearly stated that inspection capability at the top of the reactor vessel head was limited. The limitation was stated to be caused by the restricted access to the area through the service structure "weep holes", the curvature of the reactor pressure vessel head, and by the limited space to manipulate a camera due to the insulation that creates the two inch gap.

(b) The licensee's response to Bulletin Item 1.d, which requested inclusion of a description of any limitations (insulation or other impediments) to accessibility of the bare metal of the reactor pressure vessel head for visual examinations, did not include a description of any limitations.

The licensee's response was materially incomplete in that the response did not mention that accessibility to the bare metal of the reactor pressure vessel head was impeded, during the Eleventh (1998) and the Twelfth (2000) Refueling Outages, by the presence of significant accumulations of boric acid deposits.

(c) The licensee's response to Bulletin Item 1.d, which also requested a discussion of the findings of reactor pressure vessel head inspections, stated that for the Twelfth Refueling Outage (2000), the inspection of the reactor pressure vessel head/nozzles indicated some accumulation of boric acid deposits.

The licensee's response was materially incomplete and inaccurate in that it mischaracterized the accumulation of boric acid on the reactor pressure vessel head and did not mention the evidence of corrosion that was evidenced by the pictures and the video examination of reactor pressure vessel head conditions documented at the beginning and ending of the Twelfth Refueling Outage (2000).

(d) The licensee's response to the Bulletin, on Page 3, stated: "The boric acid deposits were located beneath the leaking flanges with clear evidence of downward flow. No visible evidence of nozzle leakage was detected."

The licensee's response was materially inaccurate in that the boric acid deposits were not all located under leaking flanges and the licensee lacked clear evidence of the absence of downward flow for all nozzles. Specifically, the presence of boric acid deposits was not limited only to the areas beneath the flanges, as implied by that statement. The build-up of boric acid deposits was so significant that the licensee could not inspect all of the nozzles. As a result, the licensee also did not have a basis for stating that no visible evidence of nozzle leakage was detected.

2. In an October 17, 2001, response to the Bulletin entitled, "Supplemental Response to Bulletin 2001-01," Serial 2735, the licensee stated: "In May 1996, during a refueling outage, the RPV [reactor pressure vessel] head was inspected. No leakage was identified, and these results have been recently verified by a re-review of the video tapes obtained from that inspection. The RPV head was mechanically cleaned at the end of the outage.

Subsequent inspections of the RPV head in the next two refueling outages (1998 and 2000), also did not identify any leakage in the CRDM [control rod drive mechanism] nozzle-to-head areas that could be inspected. Video tapes taken during these inspections have also been re-reviewed."

The licensee's response was materially inaccurate, in that: (1) each reactor pressure vessel head control rod drive penetration was not inspected in May 1996, as documented in PCAQR 96-0551, and; (2) the reactor pressure vessel head, including the area around each control rod drive penetration, was not completely cleaned, as noted in PCAQR 98-0649, which was prepared at the start of the Eleventh Refueling Outage (1998), which stated that there were old boric acid deposits on the head.

This is a Severity Level I violation (Supplement VII). Civil Penalty - \$120,000 (EA-05-072)

# FENOC Reply to Violation I.E.

1. Admission or Denial of the Alleged Violation:

FENOC denies the alleged violation. Although, in hindsight, letters Serial Number 2731 and Serial Number 2735 could have been more clear, when read in context and when further considered with the totality of information provided to the NRC over the fall of 2001, FENOC's collective response to Bulletin 2001-01 was complete and accurate in all material respects.

2. Reason(s) For The Denial Of The Alleged Violation:

FENOC's reasons for denying this violation are more fully explained in its several reports and reviews previously provided to the NRC. FENOC's position is that: when read in context and, considered together with the whole of the information submitted by FENOC in response to NRC Bulletin 2001-01, the statements made in these submittals regarding Davis-Besse's RPV head cleaning and inspection history were not materially incomplete or inaccurate. Additionally, FENOC believes that information related to the noted discrepancies in Serials 2731 and 2735 was provided in the correspondence or in FENOC's later submittals in further responding to Bulletin 2001-01. Responses to the NRC Bulletin that were misleading were a product of communication by committee. The errors may not be attributed to a particular individual. Nor may they be attributable to all involved in the process of responding to the NRC Bulletin. In summary,

- FENOC provided all relevant information to the NRC before it agreed to allow Davis-Besse to operate until February 16, 2002, approximately six-weeks after the original Bulletin 2001-01 shutdown date of December 31, 2001;
- Any deficiency in FENOC's initial Bulletin response resulted from collective failure; and

Finally, the NRC was not misled, as shown by the NRC's December 3, 2002 Staff Evaluation,  $^{1/2}$  which sets out its rationale for accepting FENOC's justification to operate Davis-Besse past the December 31, 2001 deadline. Clearly, the performance of some of those who participated in preparation of the Bulletin responses fell below FENOC's expectations.

3. Corrective Steps That Have Been Taken and the Results Achieved:

See FENOC Reply to Violation I.B, above.

4. Corrective Steps To Avoid Further Violations:

See item 3, above.

5. Date When Full Compliance Will Be Achieved:

FENOC is currently in full compliance.

NRC Staff Evaluation Related to NRC Bulletin 2001-01 Response, FirstEnergy Nuclear Operating Company, Davis-Besse Nuclear Power Station, Unit 1, Docket No. 50-346, December 3, 2002, at 2.

#### II. VIOLATIONS NOT ASSESSED A CIVIL PENALTY

#### Violation II.A.

A. 10 CFR Part 50, Appendix B, Criterion XVI, requires, in part, that the licensee shall establish measures to ensure that conditions adverse to quality such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and non-conformances are promptly identified and corrected. Criterion XVI also requires that for significant conditions adverse to quality, the measures shall assure that the cause of the condition is determined and that corrective actions are taken to preclude repetition.

Plant Procedure NG-NA-00702, "Corrective Action Program," Revision 3, defined a significant condition adverse to quality to be a condition adverse to quality, which, if left uncorrected, could have an undesirable effect on plant safety, personal safety, regulatory position, financial liability, or environmental impact.

Contrary to the above, the licensee failed to determine the root cause of and take corrective actions to preclude the repetition of:

- 1. Fouling of containment air cooling fins by boric acid, between June 2000 and February 16, 2002, a significant condition adverse to quality, as documented in:
  - Condition Report (CR) 2000-1547, "CAC [containment air cooler] Plenum Pressure Drop Following 12 RFO," dated June 2, 2000;
  - > CR 2000-4138, "Frequency for Cleaning Boron From CAC Fins Increased to Interval of Approximately 8 Weeks," dated December 21, 2000, and;
  - > CR 2001-0039, "CAC Plenum Pressure Experienced Step Drop," dated January 4, 2001.
- 2. Fouling of the containment radiation elements by boric acid and iron oxide, between April 2001, and February 16, 2002, a significant condition adverse to quality, as documented in:
  - Condition Report (CR) 99-1300, "Analysis of CTMT [containment] Radiation Monitor Filters.' dated May 13, 1999;
  - > CR 2001-1110, "Chemistry is Changing Filters on RE4597BA More Frequently," dated April 23, 2001;
  - CR 2001-1822, "Frequency of Filter Changes for RE4597BA is Increasing," dated July 23, 2001;
  - CR 2001-2795, "RE4597BA Alarmed on Saturation," dated October 22, 2001, and;
  - > CR 2001-3411, "Received Equipment Fail Alarm for Detector Saturation on RE4597BA," dated December 18, 2001.

- 3. An increasing trend in unidentified reactor coolant system leakage, between March 2001, and December 2001, a significant condition adverse to quality, as documented in:
  - Condition Report (CR) 2001-0890, "Unidentified RCS [reactor coolant system] Leak Rate Varies Daily by as Much as 100 percent of the Value," March 29, 2001;
  - CR 2001-1857, "RCS Unidentified Leakage at .125 to .145 gpm [gallons per minute]," July 25, 2001;
  - CR 2001-2862, "Calculated Unidentified Leakage for Reactor Coolant System has Indicated Increasing Trend," October 22, 2001, and;
  - CR 2001-3025, "Increase in RCS Unidentified Leakage," November 12, 2001.

This is a violation associated with a RED SDP finding (EA-03-025).

# FENOC Reply to Violation II.A.

1. Admission or Denial of the Alleged Violation:

FENOC admits the alleged violation. FENOC admits that it failed to correctly determine the root cause of, and take appropriate corrective action for:

- Fouling of CAC fins by boric acid, between June 2000 and February 16, 2002;
- Fouling of containment radiation monitor elements by boric acid and iron oxide, between April 2001 and February 16, 2002; and
- An increasing trend in unidentified RCS leakage, between March 2001 and December 2001.
- 2. Reason(s) For The Alleged Violation:

FENOC's reasons for the violation are more fully explained in its several reports and reviews previously provided to the NRC, including: Operations Root Cause Report, at 15-16; Revision 1 to Technical Root Cause Report, at 19-21, 35-40, 50, and 53; QA Root Cause Report, at 6, 8, 18-19, and 21; Management Root Cause Report, at 2, 6-9, 24-25, 35-37, 39-40, 42-45, 47, 50-51, 56-57, and 60.

In summary, although FENOC made extensive efforts to determine the root cause of the fouling of the CAC fins and radiation monitor filters, and the increasing trend in unidentified RCS leakage, and the NRC was informed of the FENOC's efforts in this regard, the actual source did not become apparent until March 2002, when FENOC identified the CRDM nozzle cracking and RPV head degradation. Because FENOC had misidentified the source of the boric acid, the earlier corrective actions were insufficient.

3. Corrective Steps That Have Been Taken and the Results Achieved:

In addition to the actions described in reply to Violation I.D, above, FENOC has implemented several other corrective steps, including:

- Containment Air Cooler Modifications The CACs were modified to correct damage from boric acid corrosion. Nearly the entire system was replaced including new CAC motors, plenum, cooling coils, and local service water piping that supplies cooling water to the CACs. To restore the system to its original design specification, the plenum was replaced with stainless steel, the coolers and drop-out registers were replaced. The use of stainless steel assures that boric acid corrosion will be minimized in the future, and the elimination of the galvanized steel previously used in construction of the CAC plenum and ductwork lowers the quantity of zinc in containment a significant source of potential hydrogen generation. Finally, the service water piping that supplies the CACs was replaced to correct a prior design error.
- RCS Integrated Leakage Program FENOC developed and implemented an RCS Integrated Leakage Program to improve the capability for detecting and correcting small leaks that are within the limits of the Technical Specifications.
- <u>FLÜS Leak Monitoring System</u> As noted above in FENOC's reply to Violation I.A,, a leak detection system, FLÜS, was installed on the lower RPV head to monitor potential leakage of the incore instrumentation nozzles.
- 4. Corrective Steps To Avoid Further Violations:

See item 3, above.

5. Date When Full Compliance Will Be Achieved:

FENOC is currently in full compliance.

#### Violation II.B.

B. 10 CFR Part 50, Appendix B, Criterion V, requires, in part, that activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings.

Procedure NG-EN-00324, "Boric Acid Corrosion Control Program," Revisions 0 through 2 (effective date October 1, 1999), were classified as a procedure affecting quality under the licensee's administrative system.

Contrary to the above, between October 1, 1999, and March 6, 2002, Procedure NG-EN-00324, "Boric Acid Corrosion Control Program," Revisions 0 through 2, were not appropriate to the circumstances and contributed to the licensee's failure to detect and address boric acid corrosion of the reactor vessel head, as follows:

- 1. The procedure inappropriately focused on bolted and flanged connections in the definition of leakage (Sections 4.2 though 4.4), the definition of reactor coolant system pressure boundary components (Section 4.9), and the identification of investigation locations (Section 6.1) at the expense of identifying the potential for through-wall leakage.
- 2. The procedure did not include adequate guidance, specifications, or threshold levels for initiating a "detailed inspection" in order to ensure consistent implementation of Section 6.3.4 of the procedure.
- 3. The procedure did not require the identification of and corrective actions to preclude the repetition of boric acid leaks, a significant condition adverse to quality, but instead only required the preparation of a repair tag or work order to facilitate repair of the leak.
- 4. The procedure did not define the qualifications and training necessary to permit engineering staff to conduct inspections and evaluations in a consistent manner, including the use of proper inspection techniques, observations, recording of results, and evaluations.
- 5. The procedure inappropriately exempted stainless steel or Inconel components from further examination related to boric acid corrosion, unless the examination was during an ASME Section XI test which might require a bolting examination.
- 6. The procedure inappropriately did not require the licensee staff to maintain records necessary to demonstrate the proper completion of activities affecting quality.

This is a violation associated with a RED SDP finding (EA-03-025).

#### FENOC Reply to Violation II.B.

1. Admission or Denial of the Alleged Violation:

FENOC admits the alleged violation. FENOC admits that Plant Procedure NG-EN-00324, Revisions 0 through 2, was not appropriate to the circumstances as set forth in the alleged violations and contributed to FENOC's failure to detect and address boric acid corrosion of the RPV head.

2. Reason(s) For The Alleged Violation:

FENOC identified a number of inadequacies with the BACC Procedure, as more fully explained in its several reports and reviews previously provided to the NRC, including: Management Root Cause Report, at 5; and Revision 1 to Technical Root Cause Report, at 46-48.

3. Corrective Steps That Have Been Taken and the Results Achieved:

See FENOC Reply to Violation I.D, above.

4. Corrective Steps To Avoid Further Violations:

See item 3, above.

5. Date When Full Compliance Will Be Achieved:

FENOC is currently in full compliance.

# Violation II.C.

C. 10 CFR 50.9 requires that information provided to the Commission by a licensee or information required by statute or by the Commission's regulations, orders, or license conditions to be maintained by the licensee shall be complete and accurate in all material respects.

10 CFR Part 50, Appendix B, Criterion XVII requires, in part, that the licensee shall maintain sufficient records to furnish evidence of activities affecting quality and that those records shall include actions taken to correct any deficient conditions.

Contrary to the above, the following information was not complete or accurate in all material respects for documents required to be maintained or provided to the Commission:

1. Potential Condition Adverse to Quality Report (PCAQR) 98-0649, dated April 18, 1998, contained the following closure statement: "Accumulation of boric acid on the reactor vessel caused by leaking CRDMs [control rod drive mechanisms] has not resulted in any boric acid corrosion. This was identified through inspections following reactor vessel head cleaning in past outages....Additionally, B&W [Babcock & Wilcox] documentation discussing CRDM nozzle cracking further stated that boric acid deposits on the head caused by leaking CRDM flanges would not result in head corrosion." However, the quoted statements were not accurate in all material respects in that the licensee had previously not cleaned all areas of the reactor head of boric acid deposits, had not inspected the base metal under all the deposits to determine whether corrosion was present, and no B&W documentation was

available to support the claim that boric acid would not result in head corrosion.

2. Potential Condition Adverse to Quality Report (PCAQR) 98-0767, dated April 25, 1998, Section 4A, Item F, included the following closure justification, "The boric acid deposits were removed from the head." However, the quoted statement was not accurate in all material respects in that the licensee had not removed all of the boric acid deposits from the head as of the end of the eleventh refueling outage.

This is a Severity Level III violation (Supplement VII) (EA-05-069).

#### FENOC Reply to Violation II.C.

1. Admission or Denial of the Alleged Violation:

FENOC admits, in part, and denies, in part, the alleged violation. FENOC admits that the statements in PCAQRs 98-0649 and 98-0767 regarding the condition of the RPV head in the eleventh refueling outage were not complete and accurate in all material respects.

FENOC denies the charge that no B&W documentation was available to support the conclusion that boric acid deposits on the RPV head were not corrosive.

2. Reason(s) For The Alleged Violation:

FENOC's reasons for the violation were documented in the Completeness and Accuracy Root Cause Report. The two root causes identified were: (1) less than adequate nuclear safety focus; and (2) less than adequate analysis of safety implications. The first root cause concerned activities in work orders and the corrective action program that were processed for closure in a manner to reflect action completion without full disclosure of the "as-left" conditions. The language used spawned varying interpretations of the physical condition of installed equipment. The second root cause, inadequate analysis of safety implications, was manifested in the lack of rigor applied to the assessment of data and information used in the development and processing of documentation. Also, a contributing cause was identified in the Completeness and Accuracy Root Cause Report, that there was less than adequate knowledge of regulatory requirements. The analysis revealed that there was a generic lack of awareness or respect for the regulatory requirements governing the completeness and accuracy of required records and documentation, not just the submittal of documents required by the license.

FENOC denies the charge regarding the unavailability of supporting B&W documentation because there was, in fact, a B&W report then in existence that supported this conclusion. The author of the PCAQR 98-0767 evaluation clearly cited to B&W Report No. 51-1229638-01,<sup>2</sup> for the proposition that dry boric acid deposits would not be

<sup>&</sup>quot;Boric Acid Corrosion Data — Summary and Evaluation," dated June 29, 1994.

corrosive at the DBNPS RPV head operating temperature. This was a reasonable engineering judgment based upon the totality of the information available at the time.

3. Corrective Steps That Have Been Taken and the Results Achieved:

See FENOC Reply to Violation I.B, above.

4. Corrective Steps To Avoid Further Violations:

See item 3, above.

1. Date When Full Compliance Will Be Achieved:

FENOC is currently in full compliance.

## Violation II.D.

D. 10 CFR 50.9 requires that information provided to the Commission by a licensee or information required by statute or by the Commission's regulations, orders, or license conditions to be maintained by the licensee shall be complete and accurate in all material respects.

10 CFR Part 50, Appendix B, Criterion XVII, requires, in part, that the licensee shall maintain sufficient records to furnish evidence of activities affecting quality and that those records shall include audits and those actions taken, to correct any deficient conditions.

Contrary to the above, the following information was not complete or accurate in all material respects for documents required to be maintained or provided to the Commission:

- 1. On September 23, 1993, the licensee processed a "Document Void Request" to cancel Modification 90-012 which stated, "Current inspection techniques using high-powered cameras preclude the need for inspection ports, additionally, cleaning of the reactor vessel head during last three outages was completed successfully without requiring access ports." However, the quoted statement was not accurate in all material respects, in that, the licensee left boric acid deposits on the reactor vessel head at the end of both the seventh and eighth refueling outages, the two outages preceding this statement.
- 2. Quality Assurance Audit Report AR-00-OUTAG-01, dated July 7, 2000, stated, in part, "Boric Acid Corrosion Control Checklists and Condition Reports were initiated by inspectors when prudent to document and evaluate boric acid accumulation and leaks. Boric acid leakage was adequately classified and corrected when appropriate. Engineering displayed noteworthy persistence in ensuring boric acid accumulation from the reactor head was thoroughly cleaned." However, the audit report was not accurate in all material respects in that the licensee did not: 1) thoroughly clean the

reactor head during the outage; 2) did not prepare a boric acid corrosion control checklist for the boric acid left on the head after the cleaning attempt; and 3) (did not) identify, properly classify, or correct the boric acid accumulation and leaks.

This is a Severity Level IV violation (Supplement VII) (EA-05-070).

#### FENOC Reply to Violation II.D.

1. Admission or Denial of the Alleged Violation:

FENOC admits the alleged violation. FENOC admits that statements in the September 23, 1993 Document Void Request and AR-00-OUTAG-01 regarding the extent of the RPV head cleaning in prior outages were not complete and accurate in all material respects. FENOC believes that, in preparing AR-00-OUTAG-01, the auditor most likely relied upon the same CAP documentation found to be inaccurate and/or incomplete as alleged in Violation I.B., above.

2. Reason(s) For The Alleged Violation:

See FENOC's Reply to Violation II.C, above.

3. Corrective Steps That Have Been Taken and the Results Achieved:

See FENOC Reply to Violation I.B, above.

4. Corrective Steps To Avoid Further Violations:

See item 3, above.

5. Date When Full Compliance Will Be Achieved:

FENOC is currently in full compliance.

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# **COMMITMENT LIST**

The following list identifies those actions committed to by the Davis-Besse Nuclear Power Station in this document. Any other actions discussed in the submittal represent intended or planned actions by Davis-Besse. They are described only as information and are not regulatory commitments. Please notify the Manager – Regulatory Compliance (419) 321-8585 at Davis-Besse of any questions regarding this document or associated regulatory commitments.

Commitments	Due Date
None	N/A