April 21, 2005

EA-03-025; EA-05-066; EA-05-067; EA-05-068;
EA-05-069; EA-05-070; EA-05-071; EA-05-072

Mr. Gary Leidich, President
FirstEnergy Nuclear Operating Company
76 S. Main St.
Akron, OH 44308

SUBJECT: NOTICE OF VIOLATION AND PROPOSED IMPOSITION OF CIVIL PENALTIES - $5,450,000; (NRC OFFICE OF INVESTIGATIONS REPORT NO. 3-2002-006; NRC SPECIAL INSPECTION REPORT NO. 50-346/2002-08(DRS)); DAVIS-BESSE NUCLEAR POWER STATION

Dear Mr. Leidich:

This refers to the U.S. Nuclear Regulatory Commission's (NRC) inspections and investigations relative to the significant degradation of the reactor pressure vessel head identified at the FirstEnergy Nuclear Operating Company's (FENOC) Davis-Besse Nuclear Power Station in February and March 2002. Based upon the discovery of the reactor pressure vessel head degradation, the NRC issued Confirmatory Action Letter Number 3-02-001 to Davis-Besse documenting six commitments required to be accomplished prior to restarting of the reactor. The NRC also chartered an Augmented Inspection Team (AIT) inspection of the reactor pressure vessel degradation, the results of which were documented in Inspection Report No. 50-346/2002-03, issued on May 3, 2002. On October 2, 2002, the NRC issued the AIT Follow-up Special Inspection Report No. 50-346/2002-08, documenting ten apparent violations associated with the reactor pressure vessel degradation.

In a February 25, 2003, letter to FENOC, the NRC documented a performance deficiency associated with the control rod drive penetration cracking and reactor pressure vessel head degradation. The performance deficiency involved FENOC's failure to properly implement its boric acid corrosion control and corrective action programs, which allowed reactor coolant system pressure boundary leakage to occur undetected for a prolonged period of time, resulting in reactor pressure vessel head degradation. The NRC assessed the significance of the performance deficiency using the Significance Determination Process (SDP) and preliminarily concluded that the significance was in the RED range. A RED finding is one with high importance to safety that will result in increased NRC inspection and other NRC action. The NRC offered FENOC an opportunity to request a Regulatory Conference to discuss the preliminary significance determination. In lieu of a Regulatory Conference, FENOC submitted a written response, dated April 24, 2003, in which FENOC acknowledged the performance deficiency and did not contest the RED finding.

In a letter to FENOC, dated May 29, 2003, the NRC documented its conclusions that the significance of the performance deficiency, involving the control rod drive penetration cracking and the reactor pressure vessel head degradation, was appropriately characterized as RED. The NRC noted that the safety signficance of the performance deficiency was one of the inputs

into the final characterization and resolution of the apparent violations described in the October 2002 AIT Follow-up Special Inspection Report. The NRC also noted that the results of an ongoing Office of Investigations (OI) investigation into the cause of the apparent violations would be a factor in the final enforcement deliberations. As a result, no Notice of Violation (Notice) was issued concurrent with the May 2003 letter.

Based upon its investigation into the causes of the apparent violations, OI determined that the apparent violations involved the licensee's willful failure to: (1) properly implement the boric acid control program; (2) properly implement the corrective action program; (3) adequately remove, on several occasions, boric acid and rust deposits from the reactor pressure vessel head; (4) maintain the plant shutdown, i.e., not startup and return the plant to power from the Twelfth Refueling Outage (12RFO), until boric acid deposits were removed and the reactor pressure vessel head was inspected, and; (5) maintain and submit to the NRC, complete and accurate information. As a result, the NRC referred the OI report to the U.S. Department of Justice (DOJ) for its review and consideration of criminal prosecution. While the DOJ's review is still ongoing, the NRC has determined that enforcement action should now be taken relative to the apparent violations documented in the AIT Follow-up Special Inspection and the OI Investigation Reports. The NRC does not anticipate taking further enforcement action in this matter, relative to FENOC, absent the DOJ developing new additional information.

Since the licensee's initial discovery of the reactor pressure vessel head degradation and the NRC's issuance of a Confirmatory Action Letter which outlined those actions necessary for the licensee to restart the plant, the 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 resolved and that the NRC had reasonable assurance that the Davis-Besse Station could be restarted and operated safety. Therefore, the NRC has determined that the following results do not represent current licensee performance.

Based on information developed during the AIT Follow-up Special Inspection and OI Investigation, the NRC has determined that nine violations of NRC requirements occurred. The violations are cited in the enclosed Notice and are described in detail in the AIT Follow-up Special Inspection and the OI Investigation Reports. The NRC has determined that all of the violations were associated with the RED finding and the performance deficiency previously communicated to FENOC in our February and May 2003 letters.

Section I of the Notice documents five violations which were considered for civil penalties in accordance with the "General Statement of Policy and Procedures for NRC Enforcement Action," (Enforcement Policy), NUREG-1600. The NRC determined that these violations were of very high safety and regulatory significance because they clearly documented a pattern of willful violations of FENOC's boric acid corrosion control and corrective action programs over a protracted period of time, and a pattern of willful inaccurate or incomplete documentation of information that was required to be maintained or submitted to the NRC. As a direct result of these violations, the NRC determined that FENOC started up and operated the plant, for at least the last operating cycle prior to the February 16, 2002, shutdown without: (1) fully understanding or characterizing the condition of the reactor pressure vessel head and the

control rod drive penetrations; (2) determining the cause of significant boric acid buildup on the reactor pressure vessel head, the control rod drive penetrations, and several other components in the reactor containment building; (3) properly identifying the presence of ongoing reactor coolant system pressure boundary leakage and taking appropriate corrective actions, and; (4) identifying the very significant ongoing degradation of the reactor pressure vessel head which required a number of years to reach the level of material wastage observed in March 2002. Finally, the NRC determined that FENOC willfully provided incomplete and inaccurate information associated with its responses to the NRC Bulletin 2001-01, "Circumferential Cracking of Reactor Pressure Vessel Head Penetration Nozzles," which contributed to continued operation of the plant with ongoing reactor coolant system pressure boundary leakage and the significant degradation of the reactor pressure vessel head. As a result, a civil penalty in the amount of $5,450,000 is proposed as outlined in the following paragraphs and in the enclosed Notice.

Violation I.A of the enclosed Notice concerns a violation of Davis-Besse Technical Specification 3.4.6.2.a which prohibits plant operation in Modes 1 through 4 with any reactor coolant system leakage associated with the reactor coolant system pressure boundary. From at least May 18, 2000, to February 16, 2002, FENOC started up and operated the Davis-Besse Station in Modes 1 through 4 while being aware of the presence of significant boric acid deposits, on the reactor pressure vessel head, which were indicative of reactor coolant system leakage and which could not be justified as being caused by reactor coolant system non-pressure boundary leakage alone. The licensee conducted limited cleaning and inspection of the reactor pressure vessel head during the 12RFO in April-May 2000. However, the limited cleaning and inspection of the reactor pressure vessel head were not sufficient to ensure the integrity of the reactor coolant system pressure boundary.

The NRC determined that the licensee's failure to exercise adequate management oversight and controls, in its assessment of substantial recurring boric acid deposits on the reactor pressure vessel head during 12RFO and the build-up of boric acid deposits on other reactor containment equipment during plant operations, significantly contributed to the length of the Technical Specification violation and the significant reactor pressure vessel head degradation. The licensee's decision to return the unit to power on May 18, 2000, with ongoing reactor coolant system leakage, with significant boric acid deposits on the reactor pressure vessel head, which could not be associated with reactor coolant system non-pressure boundary leakage, and without conducting the reactor pressure vessel head cleaning and inspection required by the boric acid corrosion control procedure, is a serious safety and regulatory concern.

The seriousness of this safety and regulatory concern was exacerbated by FENOC's inaccurate and incomplete response to NRC Bulletin 2001-01, "Circumferential Cracking of Reactor Pressure Vessel Head Penetration Nozzles." The inaccurate and incomplete information provided by FENOC in its responses directly contributed to enabling FENOC to operate the plant beyond the Bulletin 2001-01 recommended shutdown date of December 31, 2001. Had the NRC known that the Davis-Besse Station was being operated with reactor coolant system pressure boundary leakage, the NRC would have taken immediate regulatory action to shut

down the plant and to require the licensee to implement appropriate corrective actions. The startup and operation of the Davis-Besse Station, with reactor coolant system pressure boundary leakage, was a continuing violation of Davis-Besse Technical Specification 3.4.6.2.a.

This continuing Technical Specification (TS) violation is associated with a RED finding (EA-03-025) and was evaluated using the Significance Determination Process of the NRC Reactor Oversight Process. While a civil penalty is not usually considered for issues evaluated under the SDP, absent actual consequences (Section VI.C of the Enforcement Policy), the NRC considers a RED SDP finding to be of significant regulatory concern and may issue a civil penalty, up to the statutory maximum civil penalty, for such violations (Section VII.A of the Enforcement Policy).

In consultation with the Commission and because of the safety significance of the violation and the particularly poor performance of FENOC in this matter, the NRC is proposing, in accordance with Section VII.A of the Enforcement Policy, to issue a civil penalty for the Technical Specification violation associated with a RED finding evaluated under the SDP. In determining the proposed civil penalty, the NRC considered the safety significance of the violation, FENOC's multiple opportunities to identify and take corrective action for the violation, prior to and following restart of the plant in May 2000, and the economic benefit FENOC gained by operating the plant with reactor coolant system pressure boundary leakage between May 18, 2000, and February 16, 2002.

The statutory maximum civil penalty for the Technical Specification violation would be $110,000 per day for the period of time prior to and including November 2, 2000, and would be $120,000 per day for the period of time beginning on November 3, 2000, until the plant shut down on February 16, 2002. If the civil penalty for the Technical Specification violation was assessed for the entire operating cycle, the statutory maximum civil penalty would be approximately $75,000,000. However, the NRC's approach in assessing a civil penalty is not punitive, but focuses on deterrence to emphasize the importance of compliance with requirements and to encourage prompt identification and comprehensive corrective actions for violations. In determining the civil penalty, the NRC also noted that the licensee experienced substantial adverse economic impact resulting from the extended outage to replace the reactor vessel head and to make improvements necessary to address NRC requirements and concerns. Therefore, on balance, the NRC determined that a proposed civil penalty of $5,000,000 was appropriate for Violation I.A (EA-05-071).

Violation I.B of the enclosed Notice concerns FENOC willfully maintaining incomplete and inaccurate information in documents required to be maintained by the NRC. The documents

indicated that accumulated boric acid deposits were removed from the reactor pressure vessel head and that the entire reactor pressure vessel head was inspected. However, the licensee did not clean or inspect the entire reactor pressure vessel head. The licensee's willful failure to accurately document the condition and cleanliness of the reactor pressure vessel head, including the willful failure to fully describe the accumulated boric acid deposits that remained on the head, is a significant violation that permitted uncorrected reactor coolant system pressure boundary leakage and boric acid corrosion of the reactor pressure vessel head to continue for an extended period of time. Had the NRC known of the reactor coolant system

pressure boundary leakage, the NRC would have taken a different regulatory position, including the issuance of an Order. Therefore, this violation is categorized in accordance with the Enforcement Policy at Severity Level I.

In accordance with the Enforcement Policy, a base civil penalty of $110,000 was considered for a Severity Level I violation at the time of occurrence. Because the violation was willful and categorized at Severity Level I, the NRC considered whether credit was warranted for the civil penalty adjustment factors of *Identification* and *Corrective Action*. Credit was not warranted for *Identification* because the NRC identified the violation. Credit was not warranted for *Corrective Action* because significant intervention was required by the NRC to focus FENOC on the evaluative and corrective action process in order that comprehensive corrective action be taken. While credit was not warranted for the immediate corrective actions, the NRC recognized that your corrective actions ultimately were sufficient to permit restarting the facility. Since credit for *Identification* and *Corrective Action* was not warranted, the civil penalty assessment would normally be twice the base civil penalty for a Severity Level I violation or $220,000. However, Section VI.C.2.d of the Enforcement Policy limits the civil penalty to $110,000 per violation, per day. Therefore, a civil penalty of $110,000 is proposed for Violation I.B (EA-05-068).

Violation I.C of the enclosed Notice concerns FENOC willfully failing to ensure that a significant condition adverse to quality, associated with the presence of boric acid on the reactor pressure vessel head, at the end of 12 RFO, on May 18, 2000, was evaluated and corrected prior to restart of the plant. Specifically, the licensee closed at least three condition reports documenting the presence of significant boric acid deposits on the reactor pressure vessel head and associated components without determining the cause of each condition, i.e., the source of the reactor coolant system leakage, without taking corrective action to address the immediate condition adverse to quality, i.e., the presence of significant deposits of boric acid on the reactor vessel head, and without taking corrective action to prevent recurrence. Therefore, this willful violation is categorized at Severity Level II in accordance with the Enforcement Policy.

In accordance with the Enforcement Policy, a base civil penalty of $88,000 was considered for a Severity Level II violation at the time of occurrence. Because the violation was willful and categorized at Severity Level II, the NRC considered whether credit was warranted for either of the civil penalty adjustment factors of *Identification* or *Corrective Action*. As discussed in Violation I.B above, credit was not warranted for either of the civil penalty adjustment factors because the NRC identified the violation, the licensee had multiple opportunities to identify the violation and failed to do so, and significant intervention by the NRC was necessary to focus the licensee on corrective actions and determining the root cause of the violation. Since credit was not warranted for the civil penalty adjustment factors, the civil penalty assessment would normally be twice the base civil penalty for a Severity Level II violation or $176,000. However, the civil penalty is reduced to the statutory maximum of $110,000 per violation (Section VI.C.2.d of the Enforcement Policy). Therefore, a civil penalty of $110,000 is proposed for Violation I.C (EA-05-066).

Violation I.D of the enclosed Notice documented that FENOC, at the end of 12RFO, willfully failed to fully implement the boric acid corrosion control procedure. Specifically, FENOC did not conduct a complete cleaning and inspection of the reactor pressure vessel head as required by the boric acid corrosion control procedure. In addition, FECNOC willfully deferred the implementation of a modification which was a corrective action for previous boric acid corrosion control program implementation non-conformances. As a result, FENOC willfully restarted the plant on May 18, 2000, and operated until February 16, 2002, with visible boric acid deposits on the reactor pressure vessel head and uncharacterized reactor coolant system pressure boundary leakage. Therefore, this willful violation is categorized at Severity Level II in accordance with the Enforcement Policy.

In accordance with the Enforcement Policy, a base civil penalty of $88,000 was considered for a Severity Level II violation at the time occurrence. Because the violation was willful and categorized at Severity Level II, the NRC considered whether credit was warranted for either of the civil penalty adjustment factors of *Identification* or *Corrective Action*. As discussed in Violation I.B above, credit was not warranted for either of the civil penalty adjustment factors because the NRC identified the violation, the licensee had multiple opportunities to identify the violation and failed to do so, and significant intervention by the NRC was necessary to focus the licensee on corrective actions and determining the root cause of the violation. Since credit was not warranted for the civil penalty adjustment factors, the civil penalty assessment would normally be twice the base civil penalty for a Severity Level II violation or $176,000. However, the civil penalty is reduced to the statutory maximum of $110,000 per violation (Section VI.C.2.d of the Enforcement Policy). Therefore, a civil penalty of $110,000 is proposed for Violation I.D (EA-05-067).

Violation I.E of the enclosed Notice concerns FENOC willfully providing incomplete and inaccurate information in two responses to the NRC relative to NRC Bulletin 2001-01. The incomplete and inaccurate information was significant because the NRC relied, in part, on the information to assess the adequacy of FENOC's previous implementation of those quality assurance and management controls necessary to ensure a complete understanding of the physical condition of the reactor pressure vessel head, the control rod drive penetrations, and the absence of reactor coolant system pressure boundary leakage. Had the NRC known of the reactor coolant system pressure boundary leakage, the NRC would have taken a different regulatory position, including the issuance of an Order. Therefore, this willful violation is categorized at Severity Level I in accordance with the Enforcement Policy.

In accordance with the Enforcement Policy, a base civil penalty of $120,000 was considered for a Severity Level I violation at the time occurrence. The NRC considered whether credit was warranted for the for either of the civil penalty adjustment factors of *Identification* or *Corrective Action*. As discussed in Violation I.B above, credit was not warranted for either of the civil penalty adjustment factors because the NRC identified the violation, the licensee had multiple opportunities to identify the violation and failed to do so, and significant intervention by the NRC was necessary to focus the licensee on corrective actions and determining the root cause of the violation. Since credit was not warranted for the civil penalty adjustment factors, the civil penalty assessment would normally be twice the base civil penalty for a Severity Level I

violation or $240,000. However, the civil penalty is reduced to the statutory maximum of $120,000 per violation (Section VI.C.2.d of the Enforcement Policy). Therefore, a civil penalty of $120,000 is proposed for Violation I.E (EA-05-072).

Section II of the enclosed Notice describes other violations of NRC requirements that are associated with the previously issued RED SDP finding (EA-03-025). Also described in Section II of the enclosed Notice are two non-willful violations of 10 CFR 50.9, “Completeness and Accuracy of Information” (Severity Level III violation without civil penalty (EA-04-069) and a Severity Level IV violation). The NRC is exercising discretionary authority under Section VII.B.6 of the Enforcement Policy and is not proposing a civil penalty be issued for the other violations associated with a RED SDP finding and the Severity Level III violation of 10 CFR 50.9, in part, because of the significant civil penalty proposed in Section I of the Notice.

Therefore, to emphasize the very high safety and regulatory significance of compliance with TSs, FENOC’s willful failure to effectively implement its boric acid corrosion control and corrective action programs, and FENOC’s willful failure to maintain and provide to the NRC complete and accurate information, and in consultation with the Commission, I am issuing the enclosed Notice with a cumulative civil penalty of $5,450,000.

You are required to respond to this letter within 90 days and should follow the instructions specified in the enclosed Notice when preparing your response. However, since the NRC enforcement action is being proposed prior to any final action by the U.S. Department of Justice, consideration may be given to extending the response time for good cause shown.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosures , and your response will be made available electronically for public inspection in the NRC Public Document Room or from the NRC’s document system (ADAMS), accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html. To the extent possible, your response should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the public without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request withholding of such material, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim of withholding (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.390(b) to support a request for withholding confidential commercial or financial information). If safeguards information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21.

Questions concerning this matter should be addressed to Mr. Steven Reynolds, the NRC Senior Manager responsible for the NRC's Manual Chapter 0350 oversight activities associated with the Davis-Besse Station. Mr. Reynolds may be reached at (630) 829-9601.

Sincerely,

/RA/

Ellis W. Merschoff
Deputy Executive Director for Reactor Programs
Office of the Executive Director for Operations

Enclosures:
1. Notice of Violation and Proposed
   Imposition of Civil Penalties
2. NUREG/BR-0254 Payment Methods (Licensee Only)

Docket No. 50-346
License No. NPF-3

cc w/encl: The Honorable Dennis Kucinich
M. Bezilla, Vice President, Davis-Besse
J. Hagan, Senior Vice President
Engineering and Services, FENOC
L. Myers, Chief Operating Officer, FENOC
Plant Manager
Manager - Regulatory Compliance
D. Jenkins, Attorney, FirstEnergy
Ohio State Liaison Officer
R. Owen, Administrator, Ohio Department of Health
Public Utilities Commission of Ohio
President, Board of County Commissioners
of Lucas County
J. Papcun, President, Ottawa County Board of Commissioners

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NOTICE OF VIOLATION
AND
PROPOSED IMPOSITION OF CIVIL PENALTIES

FirstEnergy Nuclear Operating Company
Davis-Besse Nuclear Power Station

Docket No. 50-346
License No. NPF-3
EA-03-025; EA-05-066; EA-05-067;
EA-05-068; EA-05-069; EA-05-070;
EA-05-071; EA-05-072

During an NRC inspection conducted from May 15 to August 9, 2002, and an NRC investigation completed on August 22, 2003, violations of NRC requirements were identified. In accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions," NUREG-1600, the NRC proposes to impose civil penalties pursuant to Section 234 of the Atomic Energy Act of 1954, as amended (Act), 42 U.S.C. 2282, and 10 CFR 2.205. The particular violations and associated civil penalties are set forth below:

I. Violations Assessed a Civil Penalty

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)

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 actions 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)

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)

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 be 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 on 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)

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)

II. Violations Not Assessed a Civil Penalty

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).

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).

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)

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. identify, properly classify, or correct the boric acid accumulation and leaks.

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

Pursuant to the provisions of 10 CFR 2.201, FirstEnergy Nuclear Operating Company (Licensee) is hereby required to submit a written statement or explanation to the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, in response to this Notice of Violation and Proposed Imposition of Civil Penalties (Notice) within 90 days of the date of this letter. However, since this enforcement action is being proposed prior to any final action by the U.S. Department of Justice, consideration may be given to extending the response time for good cause shown. The reply should be clearly marked as a "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 and EA-05-072" and should include for each alleged violation: (1) admission or denial of the alleged violation, (2) the reasons for the violation if admitted, and if denied, the reasons why, (3) the corrective steps that have been taken and the results achieved, (4) the corrective steps that will be taken to avoid further violations, and (5) the date when full compliance will be achieved. Your response may reference or include previous docketed correspondence, if the

correspondence adequately addresses the required response. If an adequate reply is not received within the time specified in this Notice, an Order or a Demand for Information may be issued as to why the license should not be modified, suspended, or revoked or why such other action as may be proper should not be taken. Under the authority of Section 182 of the Act, 42 U.S.C. 2232, this response shall be submitted under oath or affirmation.

Within the same time as provided for the response required above under 10 CFR 2.201, the Licensee may pay the civil penalties proposed above or the cumulative amount of the civil penalties, if more than one civil penalty is proposed, in accordance with NUREG/BR-0254 and by submitting to the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555, a statement indicating when and by what method payment was made, or may protest imposition of the civil penalties in whole or in part, by a written answer addressed to the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission. Should the Licensee fail to answer within the time specified, an order imposing the civil penalties will be issued. Should the Licensee elect to file an answer in accordance with 10 CFR 2.205 protesting the civil penalties, in whole or in part, such answer should be clearly marked as an "Answer to a Notice of Violation" and may: (1) deny the violations listed in this Notice, in whole or in part, (2) demonstrate extenuating circumstances, (3) show error in this Notice, or (4) show other reasons why the penalties should not be imposed. In addition to protesting the civil penalties, in whole or in part, such answer may request remission or mitigation of the penalties.

In requesting mitigation of the proposed penalties, the factors addressed in Section VI.C.2 of the Enforcement Policy should be addressed. Any written answer in accordance with 10 CFR 2.205 should be set forth separately from the statement or explanation in reply pursuant to 10 CFR 2.201, but may incorporate parts of the 10 CFR 2.201 reply by specific reference (e.g., citing page and paragraph numbers) to avoid repetition. The attention of the Licensee is directed to the other provisions of 10 CFR 2.205, regarding the procedure for imposing civil penalties.

Upon failure to pay any civil penalties due which subsequently has been determined in accordance with the applicable provisions of 10 CFR 2.205, this matter may be referred to the Attorney General, and the penalties, unless compromised, remitted, or mitigated, may be collected by civil action pursuant to Section 234(c)) of the Act, 42 U.S.C. 2282c.

The response noted above (Reply to Notice of Violation, statement as to payment of civil penalties, and Answer to a Notice of Violation) should be addressed to: Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, One White Flint North, 11555 Rockville Pike, Rockville, MD 20852-2738, with a copy to the Regional Administrator and Enforcement Officer, U.S. Nuclear Regulatory Commission, Region III, and a copy to the NRC Resident Inspector at the Davis-Besse Nuclear Power Station.

Because your response will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS), to the extent possible, it should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the public without redaction. ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html. If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your

response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request withholding of such material, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim of withholding (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.790(b) to support a request for withholding confidential commercial or financial information). If safeguards information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21.

In accordance with 10 CFR 19.11, you may be required to post this Notice within two working days.

Dated this 21st day of April 2005

Questions concerning this matter should be addressed to Mr. Steven Reynolds, the NRC Senior Manager responsible for the NRC's Manual Chapter 0350 oversight activities associated with the Davis-Besse Station. Mr. Reynolds may be reached at (630) 829-9601.

Sincerely,

/RA/
Ellis W. Merschoff
Deputy Executive Director for Reactor Programs
Office of the Executive Director for Operations

Enclosures:
1. Notice of Violation and Proposed
   Imposition of Civil Penalties
2. NUREG/BR-0254 Payment Methods (Licensee Only)

Docket No. 50-346
License No. NPF-3

cc w/encl: The Honorable Dennis Kucinich
M. Bezilla, Vice President, Davis-Besse
J. Hagan, Senior Vice President
Engineering and Services, FENOC
L. Myers, Chief Operating Officer, FENOC
Plant Manager
Manager - Regulatory Compliance
D. Jenkins, Attorney, FirstEnergy
Ohio State Liaison Officer
R. Owen, Administrator, Ohio Department of Health
Public Utilities Commission of Ohio
President, Board of County Commissioners
of Lucas County
J. Papcun, President, Ottawa County Board of Commissioners

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DATE	4/19/05		4/19/05		4/21/05		4/ 21/05	

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