UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
2443 WARRENVILLE ROAD, SUITE 210
LISLE, IL 60532-4352

July 21, 2008

EA-03-0214

Mr. Barry Allen
Site Vice President
FirstEnergy Nuclear Operating Company
Davis-Besse Nuclear Power Station
5501 North State Route 2, Mail Stop A-DB-3080
Oak Harbor, OH 43449-9760

SUBJECT: DAVIS-BESSE NUCLEAR POWER STATION NRC INTEGRATED INSPECTION REPORT 05000346/2008-003

Dear Mr. Allen:

On June 30, 2008, the U.S. Nuclear Regulatory Commission (NRC) completed an integrated inspection at your Davis-Besse Nuclear Power Station. The enclosed report documents the inspection findings, which were discussed on July 15, 2008, with Mr. V. Kaminskas and other members of your staff.

The inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

Based on the results of this inspection, two NRC-identified findings of very low safety significance were identified. The findings involved a violation of NRC requirements. However, because of their very low safety significance, and because the issues were entered into your corrective action program, the NRC is treating the issues as Non-Cited Violations in accordance with Section VI.A.1 of the NRC Enforcement Policy.

If you contest the subject or severity of a Non-Cited Violation, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with a copy to the Regional Administrator, U.S. Nuclear Regulatory Commission - Region III, 2443 Warrenville Road, Suite 210, Lisle, IL 60532-4352; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the Resident Inspector Office at the Davis-Besse Nuclear Power Station.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be made available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS), accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

Jamnes L. Cameron, Chief
Branch 6
Division of Reactor Projects

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

Enclosure: Inspection Report 05000346/2008-003
w/Attachment: Supplemental Information

cc w/encl: The Honorable Dennis Kucinich
J. Hagan, President and Chief
Nuclear Officer - FENOC
J. Lash, Senior Vice President of
Operations and Chief Operating Officer - FENOC
Manager - Site Regulatory Compliance - FENOC
D. Pace, Senior Vice President of
Fleet Engineering - FENOC
J. Rinckel, Vice President, Fleet Oversight - FENOC
P. Harden, Vice President, Nuclear Support
D. Jenkins, Attorney, FirstEnergy Corp.
Director, Fleet Regulatory Affairs - FENOC
Manager - Fleet Licensing - FENOC
C. O'Claire, State Liaison Officer, Ohio Emergency Management Agency
R. Owen, Administrator, Ohio Department of Health
Public Utilities Commission of Ohio
President, Lucas County Board of Commissioners
President, Ottawa County Board of Commissioners

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Letter to B. Allen from J. Cameron dated July 12, 2008

SUBJECT: DAVIS-BESSE NUCLEAR POWER STATION NRC INTEGRATED INSPECTION REPORT 05000346/2008-003

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U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No:	50-346
License No:	NPF-3
Report No:	05000346/2008003
Licensee:	FirstEnergy Nuclear Operating Company (FENOC)
Facility:	Davis-Besse Nuclear Power Station
Location:	Oak Harbor, OH
Dates:	April 1, 2008, through June 30, 2008
Inspectors:	J. Rutkowski, Senior Resident Inspector A. Wilson, Resident Inspector T. Steadman, Resident Inspector (Fermi) A. Dunlop, Senior Reactor Engineer T. Go, Health Physicist G. Wright, Project Engineer
Approved by:	J. Cameron, Chief Branch 6 Division of Reactor Projects

Enclosure

TABLE OF CONTENTS

SUMMARY OF FINDINGS 1

REPORT DETAILS 3

Summary of Plant Status 3

1. REACTOR SAFETY 3
1R01 Adverse Weather Protection (71111.01) 3
1R04 Equipment Alignment (71111.04) 4
1R05 Fire Protection (71111.05) 6
1R06 Flooding (71111.06) 6
1R11 Licensed Operator Requalification Program - Inspector Quarterly Review (71111.11Q) 7
1R12 Maintenance Effectiveness (71111.12) 8
1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13) 8
1R15 Operability Evaluations (71111.15) 11
1R19 Post Maintenance Testing (71111.19) 12
1R22 Surveillance Testing (71111.22) 13
1EP6 Drill Evaluation - Emergency Preparedness Drill Observation (71114.06) 14

2. RADIATION SAFETY 15
2OS2 As-Low-As-Is-Reasonably-Achievable (ALARA) Planning And Controls (71121.02).4
Job Site Inspections and ALARA Control 15
2PS3 Radiological Environmental Monitoring Program And Radioactive Material Control Program (71122.03) 15

4. OTHER ACTIVITIES 18
4OA1 Performance Indicator Verification (71151-05) 18
4OA2 Identification and Resolution of Problems (71152) 20
4OA3 Follow-up of Events and Notices of Enforcement Discretion (71153) 21
4OA5 Other Activities 24
4OA6 Management Meetings 34

SUPPLEMENTAL INFORMATION 1

KEY POINTS OF CONTACT 1

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED 1

LIST OF DOCUMENTS REVIEWED 2

LIST OF ACRONYMS USED 13

SUMMARY OF FINDINGS

IR 05000346/2008-003; 4/1/08 – 6/30/08; Davis-Besse Nuclear Power Station; Maintenance Risk Assessment and Emergent Work Control, Other Activities

This report covers a three-month period of inspection by resident inspectors and announced baseline inspections by regional inspectors. Two Green findings, both of which were non-cited violations (NCVs) were identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). Findings for which the SDP does not apply may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

A. NRC-Identified and Self-Revealed Findings

Cornerstone: Barrier Integrity

- Green. The inspectors identified a non-cited violation (NCV) of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," when the licensee did not correct a condition adverse to quality, associated with a refrigerant leak on the regulating valve for Control Room Emergency Ventilation System (CREVS) Train 2, that eventually rendered CREVS Train 2 inoperable based on a loss of refrigerant charge. This finding is greater than minor because it is associated with the System, Structures, and Components (SSC) and Barrier Performance attribute of the Barrier Integrity cornerstone and negatively affected the cornerstone objective to ensure the availability, reliability, and capability of systems used to maintain the radiological barrier functionality of the control room, particularly for CREVS to maintain a suitable environment for safety-related equipment and operators. The licensee entered the equipment issue into their corrective action program.

  The finding is of very low safety significance because the finding only represents a degradation of the radiological barrier function provided for the control room. The cause of the finding is related to the cross-cutting aspect of problem identification and resolution (P1.(d)) in that the licensee did not take actions to correct the refrigerant leak in a timely manner, commensurate with the issue's safety significance. (Section 1R13)

Cornerstone: Mitigating Systems

- Green The inspectors identified a non-cited violation of 10 CFR 50.65(a)(4) for failure to implement a procedurally-required risk management activity for an orange risk activity. The licensee failed to provide required management oversight of a critical step in a surveillance test of the Auxiliary Feedwater System Train 1. The surveillance test rendered the train inoperable and unavailable. The licensee entered the issue into their corrective action program.

  The finding is greater than minor using the guidance of IMC 0612, Appendix B, Section 3 ("Minor Questions"), question (5)(i) and question (2). The licensee failed to implement prescribed significant compensatory measures for an elevated risk activity; and if the practice were left uncorrected, the issue would become a more significant safety concern involving programmatic issues. The finding was of very low safety significance,

using IMC 0612, Appendix K, flowchart 2, because the incremental core damage frequency associated with the surveillance was less than 1 X 10^{-6}. A contributing cause of the finding is related to the cross-cutting element of human performance (H4.(b)) in that there were varying expectations on the extent of procedure compliance, and some personnel were not complying with all elements of applicable procedures. (Section 4OA5).

B. Licensee-Identified Violations

No violations of significance were identified.

REPORT DETAILS

Summary of Plant Status

At the beginning of the inspection period, the plant was operating at 100 percent power.

On April 25, 2008, the licensee reduced power to 62 percent to address an oil leak on the control oil filter associated with the main feedwater pump 1. The feedwater pump was removed from service and the entire filter housing was replaced. The unit was returned to 100 percent power on April 27, 2008.

On June 6, 2008, the licensee reduced power to 62 percent to address control oil oscillations on main feedwater pump 1 turbine. The feedwater pump and turbine were removed from service and the turbine oil control servo valve was replaced. The unit was returned to 100 percent power on June 8, 2008.

At the end of the inspection period the plant was operating at approximately 100 percent power.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01)

.1 Readiness of Offsite Power and Alternate AC Power Systems

a. Inspection Scope

The inspectors verified that plant features and procedures for operation and continued availability of offsite and alternate alternating current (AC) power systems during adverse weather were appropriate. The inspectors reviewed the licensee's procedures affecting these areas and the communications protocols between the transmission system operator (TSO) and the plant to verify that the appropriate information was being exchanged when issues arose that could impact the offsite power system. Examples of aspects considered in the inspectors' review included:

- The coordination between the TSO and the plant during off-normal or emergency events;
- The explanations for the events;
- The estimates of when the offsite power system would be returned to a normal state; and
- The notifications from the TSO to the plant when the offsite power system was returned to normal.

The inspectors also verified that plant procedures addressed measures to monitor and maintain availability and reliability of both the offsite AC power system and the onsite alternate AC power system prior to or during adverse weather conditions. Specifically, the inspectors verified that the procedures addressed the following:

- The actions to be taken when notified by the TSO that the post-trip voltage of the offsite power system at the plant would not be acceptable to assure the continued operation of the safety-related loads without transferring to the onsite power supply;
- The compensatory actions identified to be performed if it would not be possible to predict the post-trip voltage at the plant for the current grid conditions;
- A re-assessment of plant risk based on maintenance activities which could affect grid reliability, or the ability of the transmission system to provide offsite power; and
- The communications between the plant and the TSO when changes at the plant could impact the transmission system, or when the capability of the transmission system to provide adequate offsite power was challenged.

Documents reviewed are listed in the Attachment to this report. The inspectors also reviewed corrective action program (CAP) items to verify that the licensee was identifying adverse weather issues at an appropriate threshold and entering them into their CAP in accordance with station corrective action procedures.

This inspection constitutes one readiness of offsite and alternate AC power systems sample as defined in Inspection Procedure 71111.01-05.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment (71111.04)

.1 Quarterly Partial System Walkdowns

a. Inspection Scope

The inspectors performed partial system walkdowns of the following risk-significant systems:

- Emergency diesel generator 1 and support systems on April 1, 2008, during an outage for emergency diesel generator 2;
- Auxiliary feedwater train 2 on April 16 and 17, 2008, during and after inoperability of train 1 for testing;
- Component cooling water train 1 on April 22 and 23, 2008, during and after a maintenance outage for component cooling water train 2;
- Containment spray system train 2 on May 8, 2007, during planned maintenance on containment spray system train 1; and
- Decay heat/low pressure injection train 1 on May 20, 2008, during a planned maintenance outage on decay heat/low pressure injection train 2.

The inspectors selected these systems based on their risk significance relative to the reactor safety cornerstones at the time they were inspected. The inspectors attempted to identify any discrepancies that could impact the function of the system, and, therefore, potentially increase risk. The inspectors reviewed applicable operating procedures, system diagrams, Updated Final Safety Analysis Report (UFSAR), Technical Specification (TS) requirements, Administrative TS, outstanding work orders, condition

reports, and the impact of ongoing work activities on redundant trains of equipment in order to identify conditions that could have rendered the systems incapable of performing their intended functions. The inspectors also walked down accessible portions of the systems to verify system components and support equipment were aligned correctly and operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no obvious deficiencies. The inspectors also verified that the licensee had properly identified and resolved equipment alignment problems that could cause initiating events or impact the capability of mitigating systems or barriers and entered them into the CAP with the appropriate significance characterization. Documents reviewed are listed in the Attachment.

These activities constituted five partial system walkdown samples as defined by Inspection Procedure 71111.04-05.

b. Findings

No findings of significance were identified.

.2 Semi-Annual Complete System Walkdown

a. Inspection Scope

From May 12 through May 16, 2008, the inspectors performed a complete system alignment inspection of the Service Water System to verify the functional capability of the system. This system was selected because it was considered both safety-significant and risk-significant in the licensee's probabilistic risk assessment. The inspectors walked down the system to review mechanical and electrical equipment line ups, electrical power availability, system pressure and temperature indications, as appropriate, component labeling, component lubrication, component and equipment cooling, hangers and supports, operability of support systems, and to ensure that ancillary equipment or debris did not interfere with equipment operation. A review of a sample of past and outstanding work orders (WOs) was performed to determine whether any deficiencies significantly affected the system function. In addition, the inspectors reviewed the CAP database to ensure that system equipment alignment problems were being identified and appropriately resolved. Documents reviewed are listed in the Attachment.

These activities constituted one complete system walkdown sample as defined by Inspection Procedure 71111.04-05.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05)

.1 Routine Resident Inspector Tours (71111.05Q)

a. Inspection Scope

The inspectors conducted fire protection walkdowns which were focused on availability, accessibility, and the condition of firefighting equipment in the following risk-significant plant areas:

- Emergency Diesel Generator 1-1 Room (Room 318; Fire Zone K);
- Service Water Valve Room 2 (Room 53 and 53A; Fire Area BG);
- ECSS Pump Room 1 (Room 105; Fire Area AB); and
- Auxiliary Feedwater Pump Rooms (Room 237 and 238; Fire Area E and F).

The inspectors reviewed areas to assess if the licensee had implemented a fire protection program that adequately controlled combustibles and ignition sources within the plant, effectively maintained fire detection and suppression capability, maintained passive fire protection features in good material condition, and had implemented adequate compensatory measures for out of service, degraded or inoperable fire protection equipment, systems, or features in accordance with the licensee's fire plan. The inspectors selected fire areas based on their overall contribution to internal fire risk as documented in the plant's Individual Plant Examination of External Events with later additional insights, their potential to impact equipment which could initiate or mitigate a plant transient, or their impact on the plant's ability to respond to a security event. Using the documents listed in the Attachment, the inspectors verified that fire hoses and extinguishers were in their designated locations and available for immediate use; that fire detectors and sprinklers were unobstructed; that transient material loading was within the analyzed limits; and fire doors, dampers, and penetration seals appeared to be in satisfactory condition. The inspectors also verified that minor issues identified during the inspection were entered into the licensee's CAP.

These activities constituted four quarterly fire protection inspection samples as defined by Inspection Procedure 71111.05-05.

b. Findings

No findings of significance were identified.

1R06 Flooding (71111.06)

.1 Internal Flooding

a. Inspection Scope

The inspectors reviewed selected risk important plant design features and licensee procedures intended to protect the plant and its safety related equipment from internal flooding events. The inspectors reviewed flood analyses and design documents, including the UFSAR, engineering calculations, and abnormal operating procedures to identify licensee commitments. The specific documents reviewed are listed in the Attachment. In addition, the inspectors reviewed licensee drawings to identify areas and

equipment that may be affected by internal flooding caused by the failure or misalignment of nearby sources of water, such as the fire suppression or the circulating water systems. The inspectors also reviewed the licensee's corrective action documents with respect to past flood-related items identified in the CAP to verify the adequacy of the corrective actions. The inspectors performed a walkdown of the Service Water Pump Room to assess the adequacy of watertight doors and verify drains and sumps were clear of debris and were operable, and that the licensee complied with its commitments.

This inspection constitutes one internal flooding sample as defined in Inspection Procedure 71111.06-05.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program - Inspector Quarterly Review (71111.11Q)

a. Inspection Scope

On June 3, 2008, the inspectors observed a crew of licensed operators in the plant's simulator during licensed operator requalification examinations to verify that operator performance was adequate, evaluators were identifying and documenting crew performance problems and training was being conducted in accordance with licensee procedures. The inspectors evaluated the following areas:

- licensed operator performance;
- crew's clarity and formality of communications;
- ability to take timely actions in the conservative direction;
- prioritization, interpretation, and verification of annunciator alarms;
- correct use and implementation of abnormal and emergency procedures;
- control board manipulations;
- oversight and direction from supervisors; and
- ability to identify and implement appropriate TS actions and Emergency Plan actions and notifications.

The crew's performance in these areas was compared to pre-established operator action expectations and successful critical task completion requirements.

This inspection constitutes one quarterly licensed operator requalification program sample as defined in Inspection Procedure 71111.11.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12)

.1 Routine Quarterly Evaluations (71111.12Q)

a. Inspection Scope

The inspectors evaluated degraded performance issues involving the following risk significant systems:

- Integrated Control System; and
- Fire Doors and Doors and Hatches.

The inspectors reviewed events associated with the systems listed above and independently verified the licensee's actions to address system performance or condition problems in terms of the following:

- implementing appropriate work practices;
- identifying and addressing common cause failures;
- scoping of systems in accordance with 10 CFR 50.65(b) of the maintenance rule;
- characterizing system reliability issues for performance;
- charging unavailability for performance;
- trending key parameters for condition monitoring;
- ensuring 10 CFR 50.65(a)(1) or (a)(2) classification or re-classification; and
- verifying appropriate performance criteria for structures, systems, and components (SSCs)/functions classified as (a)(2) or appropriate and adequate goals and corrective actions for systems classified as (a)(1).

The inspectors assessed performance issues with respect to the reliability, availability, and condition monitoring of the system. In addition, the inspectors verified maintenance effectiveness issues were entered into the CAP with the appropriate significance characterization. Documents reviewed are listed in the Attachment.

This inspection constitutes two quarterly maintenance effectiveness samples as defined in Inspection Procedure 71111.12-05.

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13)

a. Inspection Scope

The inspectors reviewed the licensee's evaluation and management of plant risk for the maintenance and emergent work activities affecting risk-significant and safety-related equipment listed below to verify that the appropriate risk assessments were performed prior to removing equipment for work:

- Reduction in power to approximately 62 percent on April 25 and 26, 2008, for removal of main feedwater pump turbine 1 from service for repair of a control oil leak and subsequent return to full power on April 27, 2008, in conjunction with a containment entry on April 26, 2008;
- Scheduled work and risk assessments for the week of April 28, 2008, which involved four distinct work activities that were evaluated as yellow risk activities and included work on inverters supplying 120 volt vital instrument power and surveillance activities on an emergency diesel generator;
- Scheduled work and risk assessments for the week of May 20, 2008, which involved sundry scheduled work activities on decay heat/low pressure injection train 2 and included review of the applicability of TSs associated with planned and subsequently deferred work on a containment isolation valve;
- Scheduled work and risk assessments for the week of May 27, 2008, which involved a planned auxiliary feedwater train 2 outage and emergent work associated with control room emergency ventilation train 2 and emergent work with an excessively drifting differential pressure sensor in the steam-feedwater rupture control system; and
- Reduction in power to approximately 62 percent on June 6 and 7, 2008, for removal of main feedwater pump turbine 1 from service for replacement of the turbine's control oil servo valve and replacement of governor valve operating arm journal bearings and subsequent return to full power on June 8, 2008.

These activities were selected based on their potential risk significance relative to the reactor safety cornerstones. As applicable for each activity, the inspectors verified that risk assessments were performed as required by 10 CFR 50.65(a)(4) and were accurate and complete. When emergent work was performed, the inspectors verified that the plant risk was promptly reassessed and managed. The inspectors reviewed the scope of maintenance work, discussed the results of the assessment with the licensee's work week manager or shift engineer, and verified plant conditions were consistent with the risk assessment. The inspectors also reviewed TS requirements and walked down portions of redundant safety systems, when applicable, to verify risk analysis assumptions were valid and applicable requirements were met.

These activities constituted five samples as defined by Inspection Procedure 71111.13-05.

b. Findings

Introduction: The inspectors identified a Green non-cited violation (NCV) of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," when the licensee did not correct a condition adverse to quality, associated with a refrigerant leak on the regulating valve for control room emergency ventilation system (CREVS) train 2, that eventually rendered CREVS train 2 inoperable based on a loss of refrigerant charge.

Description: On May 27, 2008, operators reported an unexpected drop in indicated CREVS Train 2 compressor suction pressure of less than 12 psig (approximately 9 psig) caused by a refrigerant leak on a cooling water regulating valve. The control room emergency ventilation system procedure showed that the compressor will not start below 15 psig. Based on this information, the licensee declared CREVS train 2 inoperable and unavailable. The licensee rebuilt the regulating valve, SW 5897, under preventive maintenance work order 200157605; and the system was returned to service and

declared operable on May 29, 2008. The licensee entered the issue into their CAP in CR 08-40879.

Prior to this failure, on April 23, 2008, the licensee identified a refrigerant leak on the regulating valve that was small and difficult to quantify. A condition report was written with a corrective action submitted to rebuild the regulating valve using work order 200157605, which had been previously rescheduled and deferred. The work order could not be completed on May 19, 2008, because the correct parts were not available. At that time, the leak remained small and did not originally impact system operability. However, the failure to complete the preventive maintenance activity in a timely manner eventually caused the condition to reveal itself on May 27, 2008, when suction pressure was lost to CREVS Train 2. The inspectors identified that the licensee had several opportunities to correct the condition before it impacted safety system reliability and availability. Specifically, the maintenance activity was last performed in July 2001. The due date for the five year vendor recommended replacement interval was June 28, 2006, with an overdue date of September 21, 2007. The maintenance activity was not completed until the leak had developed and caused a loss of refrigerant in CREVS train 2.

The inspectors have also identified five other failures of CREVS which have occurred within the last 8 months. On November 9, 2007, train 2 compressor tripped on low oil pressure. On January 9, 2008, train 2 compressor tripped due to a broken sensing line. On January 24, 2008, train 1 compressor tripped on low refrigerant charge. On March 12 and July 3, 2008, train 1 tripped on low oil pressure during its monthly testing. The licensee has placed the system into red a(1) maintenance rule status and developed an associated action plan. The inspectors concluded that the developed plans to improve CREVS performance have been captured in the action plan.

Analysis: The inspectors determined that the failure to correct a condition adverse to quality, associated with a refrigerant leak on the regulating valve for CREVS Train 2, was a performance deficiency warranting a significance determination. This finding is greater than minor because it is associated with the Structure, Systems, Components and Barrier Performance attribute of the Barrier Integrity cornerstone and negatively affected the cornerstone objective to ensure the availability, reliability, and capability of systems used to maintain the radiological barrier functionality of the control room, particularly for CREVS to maintain a suitable environment for safety related equipment and operators. The finding was of very low safety significance because the finding only represented a degradation of the radiological barrier function provided for the control room.

The cause of the finding was related to the cross-cutting aspect of Problem Identification and Resolution (PI&R) in that the licensee did not take actions to correct the refrigerant leak in a timely manner, commensurate with the issue's safety significance. (P1.(d))

Enforcement: Title 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," requires that measures shall be established to assure that conditions adverse to quality are promptly identified and corrected. Contrary to this, the licensee failed to correct a refrigerant leak on the regulating valve for control room emergency ventilation system train 2, that eventually rendered CREVS train 2 inoperable based on a loss of refrigerant charge. Because the finding is of very low safety significance and has been entered into

the licensee's CAP as CR 08-40879, this violation (NCV 05000346/2008003-01) is being treated as a NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors reviewed the following issues:

- CR 08-38871 which addressed equipment qualification of components in the main steamline rooms while temperatures were above 110 degrees;
- CR 08-41022 which documented auxiliary feedwater pump 2 response time testing after the compensating needle valve on the governor was adjusted, which could have affected the responsiveness and stability of the governor; and
- CR 08-41499 and CR 08-41501, which documented a concern that the Measurement and Test Equipment used to perform the calibration of RPS Channel 2 flow transmitters was found out of tolerance during the post-calibration.

The inspectors selected these potential operability issues based on the risk-significance of the associated components and systems. The inspectors evaluated the technical adequacy of the evaluations to ensure that TS operability was properly justified and the subject component or system remained available such that no unrecognized increase in risk occurred. The inspectors compared the operability and design criteria in the appropriate sections of the TS and Updated Safety Analysis Report (USAR) to the licensee's evaluations, to determine whether the components or systems were operable. Where compensatory measures were required to maintain operability, the inspectors determined whether the measures in place would function as intended and were properly controlled. The inspectors determined, where appropriate, compliance with bounding limitations associated with the evaluations. Additionally, the inspectors also reviewed a sampling of corrective action documents to verify that the licensee was identifying and correcting any deficiencies associated with operability evaluations. Documents reviewed are listed in the Attachment.

This inspection constitutes three samples as defined in Inspection Procedure 71111.15-05.

b. Findings

No findings of significance were identified.

1R18 Plant Modifications (71111.18)

.1 Temporary Plant Modifications

a. Inspection Scope

The inspectors reviewed temporary modification, CP 08-0284-00, "Temporary Modification Installation for Leak Seal Repair for FW10." The inspectors compared the temporary configuration changes and associated 10 CFR 50.59 screening and evaluation information against the design basis, the UFSAR, and the TS, as applicable,

to verify that the modification did not affect the operability or availability of the affected system. The inspectors also compared the licensee's information to operating experience information to ensure that lessons learned from other utilities had been incorporated into the licensee's decision to implement the temporary modification. The inspectors, as applicable, performed field verifications to ensure that the modifications were installed as directed; the modifications operated as expected; modification testing adequately demonstrated continued system operability, availability, and reliability; and that operation of the modifications did not impact the operability of any interfacing systems. Lastly, the inspectors discussed the temporary modification with operations and engineering personnel to ensure that the individuals were aware of how extended operation with the temporary modification in place could impact overall plant performance.

This inspection constitutes one temporary modification sample as defined in Inspection Procedure 71111.18-05.

b. Findings

No findings of significance were identified.

1R19 Post Maintenance Testing (71111.19)

a. Inspection Scope

The inspectors reviewed the following post-maintenance (PM) activities to verify that procedures and test activities were adequate to ensure system operability and functional capability:

- Testing of emergency diesel generator 2 on April 3, 2008, after replacement of air start motors on the diesel and other scheduled preventive maintenance tasks;
- Service water train 2 valve testing after the replacement of circuit breaker BF1277 for the service water header 2 to turbine plant cooling water heat exchanger valve [SW1395] on April 21, 2008;
- Testing of main feed pump turbine controls after depressurization of the control oil and replacement of the servo valve control oil filter on April 26, 2008;
- Surveillance testing of reactor trip breaker C after replacement of the breaker with a refurbished breaker on May 2, 2008;
- Testing of decay heat valves DH7A [borated water supply tank supply line 2 Isolation] and DH2734 [decay heat pump 2 suction from the borated water supply tank] on May 20, 2008, after preventive maintenance tasks were performed on the valves and their motor operators;
- Surveillance testing of decay heat train 2 on May 21 and May 22, 2008, after scheduled maintenance that drained a portion of the system for replacement of relief valves and other scheduled work; and
- Surveillance testing of main feedwater/steam generator 2 pressure differential switch [PDS2685B] after replacement of that switch on May 28, 2008, due to higher than expected setpoint drift on the original switch.

These activities were selected based upon the structure, system, or component's ability to impact risk. The inspectors evaluated these activities for the following (as applicable): the effect of testing on the plant had been adequately addressed; testing was adequate

for the maintenance performed; acceptance criteria were clear and demonstrated operational readiness; test instrumentation was appropriate; tests were performed as written in accordance with properly reviewed and approved procedures; equipment was returned to its operational status following testing (temporary modifications or jumpers required for test performance were properly removed after test completion), and test documentation was properly evaluated. The inspectors evaluated the activities against TS, the UFSAR, 10 CFR Part 50 requirements, licensee procedures, and various NRC generic communications to ensure that the test results adequately ensured that the equipment met the licensing basis and design requirements. In addition, the inspectors reviewed corrective action documents associated with post-maintenance tests to determine whether the licensee was identifying problems and entering them in the CAP and that the problems were being corrected commensurate with their importance to safety. Documents reviewed are listed in the Attachment.

This inspection constitutes seven samples as defined in Inspection Procedure 71111.19-05.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

.1 Routine Surveillance Testing

a. Inspection Scope

The inspectors reviewed the test results for the following activities to determine whether risk-significant systems and equipment were capable of performing their intended safety function and to verify testing was conducted in accordance with applicable procedural and TS requirements:

- DB-MI-03202, “Channel Functional Test and Calibration of Steam and Feedwater Rupture Control System Actuation Channel 2 Pressure Inputs” on April 15, 2008 (routine);
- DB-OP-01101; “Containment Entry,” on April 26, 2008 (routine); and
- DB-SP-3136, “Decay Heat Train 1 Pump and Valve Test,” on April 15, 2008 (IST).

The inspectors observed in plant activities and reviewed procedures and associated records to determine whether: any preconditioning occurred; effects of the testing were adequately addressed by control room personnel or engineers prior to the commencement of the testing; acceptance criteria were clearly stated, demonstrated operational readiness, and were consistent with the system design basis; plant equipment calibration was correct, accurate, and properly documented; as-left setpoints were within required ranges; and the calibration frequency were in accordance with TSs, the USAR, procedures, and applicable commitments; measuring and test equipment calibration was current; test equipment was used within the required range and accuracy; applicable prerequisites described in the test procedures were satisfied; test frequencies met TS requirements to demonstrate operability and reliability; tests were performed in accordance with the test procedures and other applicable procedures;

jumpers and lifted leads were controlled and restored where used; test data and results were accurate, complete, within limits, and valid; test equipment was removed after testing; where applicable for inservice testing activities, testing was performed in accordance with the applicable version of Section XI, American Society of Mechanical Engineers Code, and reference values were consistent with the system design basis; where applicable, test results not meeting acceptance criteria were addressed with an adequate operability evaluation or the system or component was declared inoperable; where applicable for safety-related instrument control surveillance tests, reference setting data were accurately incorporated in the test procedure; where applicable, actual conditions encountering high resistance electrical contacts were such that the intended safety function could still be accomplished; prior procedure changes had not provided an opportunity to identify problems encountered during the performance of the surveillance or calibration test; equipment was returned to a position or status required to support the performance of its safety functions; and all problems identified during the testing were appropriately documented and dispositioned in the corrective action program. Documents reviewed are listed in the Attachment to this report.

This inspection constitutes two routine surveillance testing samples and one inservice inspection sample as defined in Inspection Procedure 71111.22, Sections -02 and -05.

b. Findings

No findings of significance were identified.

CORNERSTONE: EMERGENCY PREPAREDNESS

1EP6 Drill Evaluation - Emergency Preparedness Drill Observation (71114.06)

a. Inspection Scope

The inspectors evaluated the conduct of two routine licensee emergency drills on April 24, 2008 and June 17, 2008, to identify any weaknesses and deficiencies in classification, notification, and protective action recommendation development activities. The inspectors observed emergency response operations in the Technical Support Center, the Emergency Onsite Facility, the Operations Support Center, and the Control Room Simulator, to determine whether the event classification, notifications, and protective action recommendations were performed in accordance with procedures. The inspectors also attended the licensee drill critique to compare any inspector-observed weakness with those identified by the licensee staff in order to evaluate the critique and to verify whether the licensee staff was properly identifying weaknesses and entering them into the CAP. As part of the inspection, the inspectors reviewed the drill packages and other documents listed in the Attachment.

This inspection constitutes two samples as defined in Inspection Procedure 71114.06-05.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety

2OS2 As-Low-As-Is-Reasonably-Achievable (ALARA) Planning And Controls (71121.02)

.4 Job Site Inspections and ALARA Control

a. Inspection Scope

The inspectors observed the following work activity that was being performed in radiation areas, airborne radioactivity areas, or high radiation areas for observation of work activities that presented the greatest radiological risk to workers associated with the decay heat outage:

- Replaced man-way gasket and bolting on reactor coolant drain tank

The licensee's use of engineering controls to achieve dose reductions was evaluated to verify that procedures and controls were consistent with the licensee's ALARA reviews, that sufficient shielding of radiation sources was provided for and that the dose expended to install/remove the shielding did not exceed the dose reduction benefits afforded by the shielding.

This inspection constitutes a partial sample as defined in Inspection Procedure 71121.02-5.

b. Findings

No findings of significance were identified.

Cornerstone: Public Radiation Safety

2PS3 Radiological Environmental Monitoring Program And Radioactive Material Control Program (71122.03)

.1 Inspection Planning

a. Inspection Scope

The inspectors reviewed the most current Annual Environmental Monitoring Report and licensee assessment results to verify that the Radiological Environmental Monitoring Program (REMP) was implemented as required by TSs and the Offsite Dose Calculation Manual (ODCM). The inspectors reviewed the report for changes to the ODCM with respect to environmental monitoring commitments and in terms of sampling locations, monitoring and measurement frequencies, land use census, interlaboratory comparison program, and analysis of data. The inspectors reviewed the ODCM to identify environmental monitoring stations and reviewed licensee self-assessments, audits, licensee event reports, and interlaboratory comparison program results. The inspectors reviewed the Final Safety Analysis Report (FSAR) for information regarding the environmental monitoring program and meteorological monitoring instrumentation. The

inspectors reviewed the scope of the licensee's audit program to verify that it met the requirements of 10 CFR 20.1101(c).

This inspection constitutes one sample as defined in Inspection Procedure 71122.03-5.

b. Findings

No findings of significance were identified.

.2 Onsite Inspection

a. Inspection Scope

The inspectors walked-down greater than 30 percent of the air sampling stations and greater than 10 percent of the thermoluminescence dosimeter (TLD) monitoring stations to determine whether they were located as described in the ODCM and to determine the equipment material condition.

This inspection constitutes one sample as defined in Inspection Procedure 71122.03-5.

The inspectors observed the collection and preparation of a variety of environmental samples (e.g., ground and surface water, milk, vegetation, sediment, and soil) and verified that environmental sampling was representative of the release pathways (as specified in the ODCM) and that sampling techniques were in accordance with procedures.

This inspection constitutes one sample as defined in Inspection Procedure 71122.03-5.

The inspectors verified that the meteorological instruments were operable, calibrated, and maintained in accordance with guidance contained in the FSAR, NRC Safety Guide 23, and licensee procedures. The inspectors verified that the meteorological data readout and recording instruments in the control room and at the tower were operable. The inspectors compared readout data (i.e., wind speed, wind direction, and delta temperature) in the control room and at the meteorological tower to identify if there were any line loss differences.

This inspection constitutes one sample as defined in Inspection Procedure 71122.03-5.

The inspectors reviewed each event documented in the Annual Environmental Monitoring Report which involved a missed sample, inoperable sampler, lost TLD, or anomalous measurement for the cause and corrective actions. The inspectors also conducted a review of the licensee's assessment of any positive sample results (i.e., licensed radioactive material detected above the lower limits of detection (LLDs) and established background levels.) The inspectors reviewed the associated radioactive effluent release data that was the likely source of the released material.

This inspection constitutes one sample as defined in Inspection Procedure 71122.03-5.

The inspectors reviewed significant changes made by the licensee to the ODCM as the result of changes to the land census or sampler station modifications since the last inspection. The inspectors reviewed technical justifications for changed sampling

locations. The inspectors verified that the licensee performed the reviews required to ensure that the changes did not affect its ability to monitor the impacts of radioactive effluent releases on the environment.

This inspection constitutes one sample as defined in Inspection Procedure 71122.03-5.

The inspectors reviewed the calibration and maintenance records for seven air samplers and composite water samplers. The inspectors reviewed calibration records for the environmental sample radiation measurement instrumentation (i.e., count room). The inspectors verified that the appropriate detection sensitivities with respect to TS/ODCM were utilized for counting samples (i.e., the samples meet the TS/ODCM required LLDs). The inspectors reviewed quality control charts for maintaining radiation measurement instrument status and actions taken for degrading detector performance.

The inspectors reviewed the results of the REMP sample vendor's quality control program including the interlaboratory comparison program to verify the adequacy of the vendor's program and the corrective actions for any identified deficiencies. The inspectors reviewed audits and technical evaluations the licensee performed on the vendor's program. The inspectors reviewed audit results of the program to determine whether the licensee met the TS/ODCM requirements.

This inspection constitutes one sample as defined in Inspection Procedure 71122.03-5.

b. Findings

No findings of significance were identified.

.3 Unrestricted Release of Material from the Radiologically Controlled Area

a. Inspection Scope

The inspectors observed several locations where the licensee monitors potentially contaminated material leaving the radiologically controlled area (RCA) and inspected the methods used for control, survey, and release from these areas. The inspectors observed the performance of personnel surveying and releasing material for unrestricted use to verify that the work was performed in accordance with plant procedures.

This inspection constitutes one sample as defined in Inspection Procedure 71122.03-5.

The inspectors verified that the radiation monitoring instrumentation was appropriate for the radiation types present and was calibrated with appropriate radiation sources. The inspectors reviewed the licensee's criteria for the survey and release of potentially contaminated material and verified that there was guidance on how to respond to an alarm which indicates the presence of licensed radioactive material. The inspectors reviewed the licensee's equipment to ensure the radiation detection sensitivities were consistent with the NRC guidance contained in IE Circular 81-07 and IE Information Notice 85-92 for surface contamination and HPPOS-221 for volumetrically contaminated material. The inspectors verified that the licensee performed radiation surveys to detect radionuclides that decay via electron capture. The inspectors reviewed the licensee's procedures and records to verify that the radiation detection instrumentation was used at its typical sensitivity level based on appropriate counting parameters (i.e., counting times

and background radiation levels). The inspectors verified that the licensee had not established a "release limit" by altering the instrument's typical sensitivity through such methods as raising the energy discriminator level or locating the instrument in a high radiation background area.

This inspection constitutes one sample as defined in Inspection Procedure 71122.03-5.

b. Findings

No findings of significance were identified.

.4 Identification and Resolution of Problems

a. Inspection Scope

The inspectors reviewed the licensee's self assessments, audits, Licensee Event Reports, and Special Reports related to the radiological environmental monitoring program since the last inspection to determine if identified problems were entered into the corrective action program for resolution. The inspectors also verified that the licensee's self-assessment program was capable of identifying repetitive deficiencies or significant individual deficiencies in problem identification and resolution.

The inspectors also reviewed corrective action reports from the REMP since the previous inspection, interviewed staff and reviewed documents to determine if the following activities were being conducted in an effective and timely manner commensurate with their importance to safety and risk:

- Initial problem identification, characterization, and tracking;
- Disposition of operability/reportability issues;
- Evaluation of safety significance/risk and priority for resolution;
- Identification of repetitive problems;
- Identification of contributing causes;
- Identification and implementation of effective corrective actions;
- Resolution of NCVs tracked in the corrective action system; and
- Implementation/consideration of risk significant operational experience feedback.

This inspection constitutes one sample as defined in Inspection Procedure 71122.03-5.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151-05)

.1 Unplanned Scrams with Complications

a. Inspection Scope

The inspectors sampled licensee submittals for the Unplanned Scrams with Complications performance indicator (PI) for the period from the second quarter of 2007 through the first quarter of 2008. To determine the accuracy of the PI data reported

during those periods, PI definitions and guidance contained in the Nuclear Energy Institute (NEI) Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, were used. The inspectors reviewed the licensee's operator narrative logs, issue reports, event reports and NRC Integrated Inspection reports for the period of the second quarter of 2007 through the first quarter of 2008 to validate the accuracy of the submittals. The inspectors also reviewed the licensee's issue report database to determine whether any problems had been identified with the PI data collected or transmitted for this indicator and none were identified.

This inspection constitutes one unplanned scrams with complications sample as defined by Inspection Procedure 71151-05.

b. Findings

No findings of significance were identified.

.2 Unplanned Transients per 7000 Critical Hours

a. Inspection Scope

The inspectors sampled licensee submittals for the Unplanned Transients per 7000 Critical Hours PI for the period from the second quarter of 2007 through the first quarter of 2008. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, were used. The inspectors reviewed the licensee's operator narrative logs, issue reports, maintenance rule records, event reports and NRC Integrated Inspection reports for the period of the second quarter of 2007 through the first quarter of 2008.to validate the accuracy of the submittals. The inspectors also reviewed the licensee's issue report database to determine whether any problems had been identified with the PI data collected or transmitted for this indicator and none were identified. Specific documents reviewed are described in the Attachment to this report.

This inspection constitutes one unplanned transients per 7000 critical hours sample as defined by Inspection Procedure 71151-05.

b. Findings

No findings of significance were identified.

.3 Public Radiation Safety

a. Inspection Scope

The inspectors sampled licensee submittals for the Public Radiation Safety performance indicator (PI) for the period from the second quarter 2007 through the first quarter 2008. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the Nuclear Energy Institute (NEI) Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, was used. The inspectors reviewed the licensee's effluent samples, TS requirements, issue reports, event reports and NRC Integrated Inspection reports for the period of January 2007

through May 2008, to validate the accuracy of the submittals. The inspectors also reviewed the licensee's issue report database to determine whether any problems had been identified with the PI data collected or transmitted for this indicator and none were identified. Specific documents reviewed are described in the Attachment to this report.

This inspection constitutes one public radiation safety sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems (71152)

.1 Routine Review of Items Entered Into the Corrective Action Program

a. Inspection Scope

As part of the various baseline inspection procedures (IPs) discussed in previous sections of this report, the inspectors routinely reviewed issues during baseline inspection activities and plant status reviews to verify that they were being entered into the licensee's CAP at an appropriate threshold, that adequate attention was being given to timely corrective actions, and that adverse trends were identified and addressed. Attributes reviewed included: the complete and accurate identification of the problem; that timeliness was commensurate with the safety significance; that evaluation and disposition of performance issues, generic implications, common causes, contributing factors, root causes, extent of condition reviews, and previous occurrences reviews were proper and adequate; and that the classification, prioritization, focus, and timeliness of corrective actions were commensurate with safety and sufficient to prevent recurrence of the issue. Minor issues entered into the licensee's CAP as a result of the inspectors' observations are included in the attached list of documents reviewed.

These routine reviews for the identification and resolution of problems did not constitute any additional inspection samples. Instead, by procedure they were considered an integral part of the inspections performed during the quarter and documented in Section 1 of this report.

b. Findings

No findings of significance were identified.

.2 Daily Corrective Action Program Reviews

a. Inspection Scope

In order to assist with the identification of repetitive equipment failures and specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into the licensee's CAP. This review was accomplished through inspection of the station's daily condition report packages.

These daily reviews were performed by procedure as part of the inspectors' daily plant status monitoring activities and, as such, did not constitute any separate inspection samples.

b. Findings

No findings of significance were identified.

.3 Semi-Annual Trend Review

a. Inspection Scope

The inspectors performed a review of the licensee's CAP and associated documents to identify trends that could indicate the existence of a more significant safety issue. The inspectors' review was focused on repetitive equipment issues and issues with cause codes identifying procedure non-compliance, but also considered the results of daily inspector CAP item screening discussed in Section 4OA2.2 above, licensee trending efforts, and licensee human performance results. The inspectors' review nominally considered the six-month period of October 18, 2007, through June 15, 2008, although some examples expanded beyond those dates where the scope of the trend warranted. The inspectors review encompassed the potential significance of a large number of condition reports that had cause codes indication of procedure non-compliance as the cause of the condition.

The review also included issues documented outside the normal CAP in major equipment problem lists, repetitive and/or rework maintenance lists, departmental problem/challenges lists, system health reports, quality assurance audit/surveillance reports, self assessment reports, and Maintenance Rule assessments. The inspectors compared and contrasted their results with the results contained in the licensee's CAP trending reports. Corrective actions associated with a sample of the issues identified in the licensee's trending reports or self-assessments were reviewed for adequacy.

This review constituted a single semi-annual trend inspection sample.

b. Findings

No findings of significance were identified.

4OA3 Follow-up of Events and Notices of Enforcement Discretion (71153)

.1 Configuration Control Issues

a. Inspection Scope

The inspectors reviewed the plant's response to a breaker found out of position during the quarterly decay heat train 1 surveillance on April 15, 2008. During a routine panel walkdown of the train 2 decay heat system, the control room discovered open indication for DH 2734, the decay heat pump 2 suction valve. Most likely, the breaker inadvertently opened when an operator and RP technician entered mechanical penetration room 2 to manipulate a valve in close proximity to the motor control center for DH 2734. Upon discovery, DH 2734 was verified to be in its appropriate (open) position, and it was

determined that decay heat train 2 remained operable. On April 16, 2008, while performing the auxiliary feedwater (AFW) train 1 check valve test, the operator incorrectly closed the test tree outlet valve instead of the test tree inlet valve during the procedure section to isolate and drain the test tree rig. The test tree inlet and outlet valves were restored to the correct positions at the completion of testing and AFW Train 1 was returned to standby status. In response to these events, the site issued a standing order to require peer checks for all active manipulations of positionable components. On April 21, 2008, a human performance stand-down was presented to all station personnel, focusing on peer checking, verification, STAR, and the 2-minute drill. Documents reviewed in this inspection are listed in the Attachment.

This inspection constitutes one sample as defined in Inspection Procedure 71153-05.

b. Findings

No findings of significance were identified.

.2 Control Room Cooling Issues

a. Inspection Scope

The inspectors reviewed the plant's response to a loss of control room cooling on June 5, 2008. On June 5, 2008, licensee personnel were performing an air flow test on control room emergency ventilation system (CREVS) train 1. As part of this test, to provide a sufficient heat load for the compressor in the emergency ventilation system, control room normal ventilation train 2 was shutdown; train 1 normal ventilation was out-of-service because of questions on overload trip settings. At the conclusion of the CREVS testing, a restart of the normal ventilation system was attempted several times but was unsuccessful. At this time control room cabinet room temperatures were increasing. The licensee entered their abnormal procedure for control room heat load shedding at approximately 1645 hours. At approximately 1700 hours the running CREVS system tripped and attempts to restart it were unsuccessful. At approximately 1733 hours the licensee successfully started train 1 of the control room normal ventilation and cooling system. The highest control room cabinet room temperature was recorded at 80.5 degrees Fahrenheit. At approximately 2315 hours the licensee exited the abnormal procedure; control room temperatures were at normal levels and were stable. Documents reviewed in this inspection are listed in the Attachment.

This inspection constitutes one sample as defined in Inspection Procedure 71153-05.

b. Findings

No findings of significance were identified.

.3 (Closed) Licensee Event Report (LER) 05000346/2007-001-00: Station Vent Radiation Monitor in Bypass Due to Faulty Optical Isolation Board

This event, which occurred on October 16, 2007, caused both trains of station vent normal range radiation monitors to be inoperable for more than one hour (on two occasions) without isolating the control room normal ventilation system as required by TS 3.7.6.1. The train 2 monitor was unknowingly inoperable due to installation of a

faulty optical isolation board on October 15, 2007, which caused the monitor to be in the bypass mode for approximately 13 days. This was in excess of the seven days allowed by TS 3.7.6.1 with the ventilation not isolated. The licensee implemented corrective actions to return the monitor to operable status on October 25, 2007. Spare qualified optical isolation boards were installed into a station vent radiation monitor iodine channel to test the bypass function while the system was out of service. Five boards tested satisfactorily and were returned to stock for future use. Three boards failed testing and were discarded. In addition, the licensee revised the Post Maintenance Test Manual to alert station personnel to verify the proper operation of each final device when generating orders for circuit board replacement. The licensee also revised the functional test procedures for the station vent normal range radiation monitors and the containment normal range radiation monitors to more adequately test the flow path of the monitor to ensure it is in the normal range configuration. The enforcement aspects of this licensee-identified violation were discussed in Section 4OA7 of Inspection Report 05000346/2008002, dated May 5, 2008. Documents reviewed as part of this inspection are listed in the Attachment.

LER 05000346/2007-001-00 is closed.

This inspection constitutes one sample as defined in Inspection Procedure 71153-05.

.4 (Closed) Licensee Event Report (LER) 05000346/2007-002-00: Decay Heat Removal Discharge Piping Void Due to Inadequate Procedure for Venting Following Maintenance

On December 30, 2007, with the plant in Mode 5, a step decrease of approximately 6 inches in the reactor coolant system (RCS) pressurizer water level was observed when the decay heat (DH) removal train 1 pump suction was being realigned from the low pressure injection mode to the DH removal mode. The re-alignment was suspended and an investigation commenced to determine if there was an air void in the DH system that caused an outflow of RCS water to the DH system. A void was discovered in the discharge piping of DH pump 1. The void was vented using a high point vent valve inside containment and DH train 1 alignment to DH removal mode was completed. The licensee's investigation determined that the void formed during on-line maintenance on October 31, 2007. The void rendered DH removal Train 1 inoperable for approximately 59 days due to the inability to meet TS Surveillance Requirement 4.5.2.b, which requires the train to be full of water while in Modes 1 through 3. The root cause of the event was inadequate procedural guidance for refilling the DH system after draining portions of the system downstream of the DH coolers. The licensee has revised the decay heat and low pressure injection system operating procedure to add the requirement to appropriately vent the system following maintenance in Modes 1 through 3. The system operating procedures for emergency core cooling systems (ECCSs), as well as other standby safety systems were reviewed for potential deficiencies that would allow for gas intrusion to the piping system. The enforcement aspects of this non-cited violation were discussed in Section 4OA2 of NRC Inspection Report 05000346/2008002. Documents reviewed as part of this inspection are listed in the Attachment.

LER 05000346/2007-002-00 is closed.

This inspection constitutes one sample as defined in Inspection Procedure 71153-05.

.5 (Closed) Licensee Event Report (LER) 05000346/2008-001-00: Pressure Boundary Leak Found During Decay Heat Removal Drop Line Weld Overlay

On January 4, 2008, during the fifteenth refueling outage with the plant in Mode 6, while installing a pre-emptive full structural weld overlay of alloy 52M weld material for mitigation of an alloy 600/182/82 weld on the 12-inch decay heat drop line branch connection from the reactor coolant system hot leg, the weld machine operator identified reactor coolant seeping through a small hole. The weld overlay was stopped, and both loops of the decay heat removal system were declared inoperable. Fuel was removed from the reactor vessel until the decay heat removal system could be restored to a leak-tight condition. An ultrasonic examination characterized the flaw as a single axial flaw approximately 1.75 inches long, wholly contained in the dissimilar metal butt weld. The probable cause of the flaw was attributed to primary water stress corrosion cracking (PWSCC) with the heat from the overlay activities causing a small hole to develop on the surface of the pipe. The axial flaw in the decay heat removal drop line branch connection had not been identified in previous ultrasonic examinations, but the contour of the dissimilar metal butt weld had inhibited complete coverage.

After an activity to seal the axial flaw, the planned full structural weld overlay was completed, followed by an acceptable ultrasonic examination. These corrective actions provided a new RCS pressure boundary, an acceptable method of preventing future PWSCC, and an acceptable contour for ultrasonic examination. This event was reviewed by inspectors during the maintenance risk assessments and emergent work control inspection documented in Section 1R13 of NRC Inspection Report 05000346/2008002. The inspectors reviewed LER 05000346/2008-001-00 with no findings of significance being identified. No violation of NRC requirements occurred. Documents reviewed as part of this inspection are listed in the Attachment.

LER 05000346/2008-001-00 is closed.

This inspection constitutes one sample as defined in Inspection Procedure 71153-05.

4OA5 Other Activities

.1 Licensee Activities and Meetings

The inspectors observed select portions of licensee activities and meetings and met with licensee personnel to discuss various topics. The activities that were sampled included:

- Corrective Action Review Board meeting on April 14, 2008;
- Davis-Besse Monthly Performance Review meeting on April 18, 2008;
- Containment entry at power ALARA briefing on April 25, 2008;
- Practice on June 2, 2008, for the challenge call and actual challenge call on June 3, 2008, for licensee's senior management review of the plant's readiness for a weekend downpower for maintenance activities on main feed pump turbine;
- Plant Health Committee meeting on June 25, 2008; and
- Davis-Besse all hands meeting on June 26, 2008.

.2 Quarterly Resident Inspector Observations of Security Personnel and Activities

a. Inspection Scope

During the inspection period, the inspectors conducted the following observations of security force personnel and activities to ensure that the activities were consistent with licensee security procedures and regulatory requirements relating to nuclear plant security. These observations took place during both normal and off-normal plant working hours.

- Tours of operations within the central and secondary security alarm stations;
- Tours of selected security officer response posts;
- Direct observation of personnel entry screening operations within the plant's main access facility; and
- Security force shift turnover activities.

These quarterly resident inspectors observations of security force personnel and activities did not constitute any additional inspection samples. Rather, they were considered an integral part of the inspectors' normal plant status review and inspection activities.

b. Findings

No findings of significance were identified.

.3 Inspector Observations of an Elevated Risk Activity

a. Inspection Scope

During a plant status tour the inspectors observed a portion of an auxiliary feedwater system surveillance test that had been classified as an elevated risk activity. Specifically the inspectors questioned the licensee on the additional procedurally-required administrative controls for oversight of elevated risk activities.

Introduction: The inspectors identified a Green non-cited violation (NCV) of 10 CFR 50.65(a)(4) for failure to implement a procedurally required risk management activity for an orange risk activity. The licensee failed to provide required management oversight of the critical step in a surveillance test of the auxiliary feedwater system train 1 that rendered the train inoperable and unavailable.

Description: On June 5, 2008, during a plant tour, the inspectors observed a portion of surveillance testing of auxiliary feedwater train 1. This test rendered the train unavailable and also was classified as an orange risk activity. The licensee defined an orange risk activity as an activity or configuration associated with a core damage frequency (CDF) of ten times baseline risk or greater but less than 1 $X10^{-3}$/year CDF. Licensee baseline CDF was 2.45 $X\ 10^{-6}$/year. The unavailability of the auxiliary feedwater train has a CDF of approximately 20 to 30 times baseline risk.

Procedure NOP-OP-1007, “Risk Determination,” required for orange risk activities that the “duty team manager or, as directed by the duty team manager, the subject matter expert shall provide oversight in accordance with management expectations and provide

direct observation of all critical steps." The inspectors, upon not seeing in the auxiliary feedwater pump room a duty team manager, questioned operators about critical steps and the presence of management oversight. The inspectors were told that the subject matter expert was at the prejob brief but had advised the operators after some procedure initial steps that he was finished.

The inspectors questioned two operators about critical steps in the procedure. One operator said there were no critical steps since all equipment manipulations were being peer-checked. Another operator said all major valve manipulations were critical steps. In later discussions with the duty team manager, the inspectors were told that the only critical step was opening of valve MS5889A [steam admission to auxiliary feedwater pump 1] and that this was reflected in the documents used in the prejob briefing. The inspectors were in the auxiliary feedwater pump room when MS5889A, which is in that room, was opened.

The duty team manager stated that neither he nor the subject matter expert were in the control room when valve MS5889A was opened using the control room hand switch. Neither individual was in the auxiliary feedwater pump room when the valve was opened. The duty team manager stated that he decided that the oversight of the control room senior reactor operator was sufficient to meet the requirements of procedure NOP-OP-1007. The inspectors did not identify any log entry or procedure allowance that either explained or permitted the deviation from the procedural requirements of NOP-OP-1007. The licensee documented the issue in CR 08-41719.

Analysis: The inspectors determined that the failure to implement a required risk management activity for an elevated risk activity was a performance deficiency. This inspector-identified issue was greater than minor using the guidance of IMC 0612, Appendix B, Section 3, "Minor Questions," question (5)(i) and question (2). The licensee failed to implement a prescribed significant compensatory measure for an elevated risk activity and, if the practice were left uncorrected, the issue would become a more significant safety concern involving programmatic issues.

The inspectors, using IMC 0609, Appendix K, "Maintenance Risk Assessment and Risk Management Significance Determination Process," flowchart 2, determined that the finding was of very low safety significance. The surveillance procedure duration was approximately four hours. The surveillance activity that required management oversight was of short duration and a fraction of the total time of the overall procedure. The incremental core damage probability for the duration of the procedure and for the critical step was less than 1×10^{-6}. A contributing cause of the finding is related to the cross-cutting element of human performance in that there were varying expectations on the extent of procedure compliance and some personnel were not complying with all elements of applicable procedures (H4.(b)).

Enforcement: 10 CFR 50.65(a)(4), required that the licensee manage the increase in risk that may result from maintenance activities including surveillance testing. Procedure NOP-OP-1007, "Risk Determination," required that critical steps in designated orange risk activities receive direct management oversight. Contrary to this, the inspectors identified that the required risk management activities were not implemented for an elevated orange risk surveillance test of the auxiliary feedwater train 1. Because the violation was of very low safety significance and the issue was entered into the

licensee's CAP (CR 08-41719), this violation is being treated as an NCV, consistent with Section VI.A of the NRC Enforcement Policy (NCV 05000346/2008003-02).

.4 Calendar Year (CY) 2008 Operations Performance Independent Assessment Plan

a. Inspection Scope

As part of the inspection activities performed to verify the licensee's compliance with the requirements for independent assessments, as described in the March 8, 2004, Confirmatory Order Modifying License No. NPF-3 (EA 03-214), the inspectors verified that the licensee submitted, in letter dated February 12, 2008, the required inspection plan for the Operations Independent Assessment prior to the performance of the CY2008 annual Operations Assessment. The assessment was scheduled for May 2008. As part of the inspection activities, the inspectors reviewed the scope of the Independent Assessment Plan and the qualifications of the team members designated to perform the assessment.

b. Findings and Observation

After evaluating the Operations Performance Independent Assessment Plan for CY2008, the inspectors determined that the scope and depth of activities outlined in the plan would be sufficient to obtain an appropriate assessment of operations department performance.

The inspectors evaluated the qualifications of the assessment team members and concluded that the individuals designated to perform the assessment were independent from FENOC and possessed the necessary expertise to accomplish the assessment, as outlined in the assessment plan.

.5 Observation of CY2008 Operations Performance Independent Assessment

a. Inspection Scope

The independent assessment of operations performance for CY2008, required by Confirmatory Order EA 03-0214, was conducted on-site from May 12 to May 23, 2008. The inspectors evaluated the on-site activities. In particular, the inspectors attended selected licensee debriefs, monitored in-process evaluations, and discussed preliminary findings with assessment team members. Additionally, the inspectors observed independent assessment activities to determine the effectiveness of the assessment.

b. Findings and Observation

No findings of significance were identified. The inspectors concluded that the assessment team conducted all activities prescribed by the Operation Performance Assessment Plan. A final discussion of the results of the independent assessment of operations was conducted on June 6, 2008. The March 8, 2004, Confirmatory Order required that the licensee provide the NRC Region III Administrator with all assessment results and actions planned to address the assessment results, within 45 days of the completion of the independent assessment and the final debrief.

.6 Safety Culture/Safety Conscious Work Environment (SC/SCWE) Independent Assessment, CY2007

a. Inspection Scope

The inspectors observed work activities and reviewed documents to assess the licensee's implementation of the March 8, 2004 Confirmatory Order as it applied to the annual external, independent evaluations of safety culture (SC) and safety conscious work environment (SCWE). Documents reviewed included the licensee's assessment plan submitted to the NRC on June 11, 2007 (ML 071640189) and revision 1 to the plan submitted November 8, 2007, (ML 073170697), the licensee's SCWE survey, the contractor's survey methodology, and external independent assessment report submitted to the NRC by FENOC letter dated January 27, 2008 (ML 080300183). As part of the process of verifying compliance with the March 8, 2004 Order, the inspectors, also observed the licensee's implementation of its Business Practice, NOBP-LP-2501, Rev. 3, for assessing SC and SCWE and the external independent contractor's meetings when they were discussing input from interviews of selected staff members (Inspection Report 05000346/2007-005).

b. Findings and Observations

1) Actions for Areas-For-Improvement (AFI).

No AFIs were identified during the 2007 external, independent SC/SCWE assessment.

2) Effectiveness of Corrective Actions for AFIs identified during 2006 Independent SC/SCWE Assessment.

The CY 2007 independent SC/SCWE assessment specifically looked at the effectiveness of the corrective actions for the AFIs identified during the 2006 independent assessment. The independent assessment concluded that while some areas could benefit from additional actions, the corrective actions for each AFI had been effective. The inspector, through independent review of the assessment's results, concurred that the corrective actions had been effective.

3) External, Independent SC/SCWE Methodology.

The NRC's review of SC/SCWE at Davis-Besse in 2007 (IR 05000346/2007003) in part concluded that: "...because of the deficiencies identified in the development and assessment of the contractor's survey tool, the Team is concerned with the tool's use as a stand alone assessment of SC/SCWE."

The contractor's methodology was reviewed in detail during an inspection at the Palo Verde nuclear power plant as part of the Inspection Procedure 95003 inspection (IR 05000528/2007012, 05000529/2007012, and 05000530/2007012, ML 0803205620). That inspection concluded that: "The team determined that the licensee's third-party safety culture assessment was adequate to provide the licensee with the information necessary to develop appropriate corrective actions for safety culture weaknesses, although limitations in the interpretability of the survey tool decreased its usefulness to the licensee. Without the many write-in

comments provided by the survey participants, the licensee may not have been able to use the survey results to develop specific corrective action plans. The results of the NRC's independent safety culture assessment validated the results of the licensee's third-party safety culture assessment."

4) Areas in Need of Attention (ANA):

The independent assessment identified five ANAs as follows:

a) Management should ensure that Nuclear Safety Priorities and Values are steadfastly and consistently maintained during the conduct of refueling outage number 15.

b) There is a continuing need to communicate with the workforce regarding (1) management's commitment to provide sufficient resources and funding to continue to improve operational and equipment condition, and (2) the budgeting process and how decisions are made/priorities set than balance cost and safety considerations.

c) Electrical Maintenance organization has been identified as an outlier based on declining survey ratings. Issues in this area appear to be link to General Culture & Work Environment, and Leadership, Management and Supervisory Behaviors & Practices rather than Nuclear Safety Culture.

d) The Site Protection/Security organization was identified as an organizational outlier with respect to the SCWE. As in (3) above, the lower ratings in certain SCWE attributes appear to stem from General Culture & Work Environment, and Leadership, Management and Supervisory Behaviors & Practices.

e) There is a need for increased management attention and focus on providing training and qualification opportunities for Maintenance craft personnel.

The licensee has generated condition reports (CRs) for each of the ANAs, thereby entering each item into the CAP for assessment and development of corrective actions. The individual condition reports are as follows:

a) CR 08-38793, dated April 21, 2008, "COIA-SC-2007: Training and Qualification of Maintenance Personnel."

b) CR 08-38795, dated April 21, 2008, "COIA-SC-2007: Ensure Nuclear Safety Priorities and Values Maintained during 15RFO"

c) CR08-38798, dated April 21, 2008, "COIA-SC-2007: Workforce Communication on funding and budget Priorities."

d)* CR 08-38971, dated April 23, 2008, "COIA-SC-2007: Site Protection/Security Identified as SCWE Outlier Organization."

e) CR 08-38972, dated April 23, 2008, "COIA-SC-2007: "Electrical Maintenance an Outlier Organization in Safety Culture."

f)* CR 08-39137, dated April 25, 2008, "COIA-SC-2007: "Site Protection/Security Declined Survey Ratings."

*Note that two CRs were written for the Site Protection/Security issue.

In reviewing the licensee's evaluations of the CRs and corrective actions, the inspector noted that while the corrective actions appeared to be appropriate, the documentation did not always provide a good link between the corrective actions and the identified deficiencies.

5) External, Independent Assessment Team

The inspector reviewed the team member's resumes and concluded that the assessment team met the Order's requirement for an external, independent team to assess SC/SCWE at Davis-Besse. The inspector's review included a team member substitution due to a schedule conflict; no issues were identified.

6) Licensee's Inspection Plan

The inspector's review of revision 0 and revision 1 of the inspection plans identified that, with the exception of the team member change mentioned in e) above, they were identical. In addition the review confirmed that the assessment was conducted in accordance with the docketed Plan.

c. Conclusion

No findings of significance were identified.

Overall, the inspectors concluded that the SC/SCWE at Davis-Besse continued to be adequate to support continued safe facility operation and that corrective actions were being effective. In addition, the inspector concluded that the licensee had met requirements contained in the NRC's March 8, 2004, letter, "Approval to Restart the Davis-Besse Nuclear Power Station, Closure of Confirmatory Action Letter, and Issuance of Confirmatory Order" in the SC/SCWE area."

.7 (Closed) NRC Temporary Instruction (TI) 2515/166, "Pressurized Water Reactor Containment Sump Blockage (NRC Generic Letter 2004-02)"

a. Inspection Scope

The inspectors reviewed the station implementation of the licensee's actions documented in their February 28, 2008 response to Generic Letter (GL) 2004-02, "Potential Impact of Debris Blockage on Emergency Recirculation during Design Basis Accidents at Pressurized Water Reactors." The inspectors reviewed the engineering change packages (ECPs) associated with the modifications installed based on the licensee's actions in response to the GL and the 10 CFR 50.59 evaluations for these ECPs. The inspectors also reviewed procedure changes and programmatic controls implemented in response to the GL. In addition, the inspectors reviewed the completed

and approved for use changes for the Updated Safety Analysis Report (USAR). The documents reviewed are listed at the end of the report. The inspection was conducted in accordance with TI 2515/166, "Pressurized Water Reactor Containment Sump Blockage."

b. Inspection Documentation

The inspectors determined the following answers to the Reporting Requirements detailed in the TI:

a. Did the licensee implement the plant modifications and procedure changes committed to in their GL 2004-02 responses?

Although the licensee made some commitments in earlier correspondence with the NRC, the majority of the actions taken by the licensee were implemented prior to the issuance of the GL. As such, the inspectors verified the licensee has implemented the plant modifications and procedure changes previously committed to and/or described in the February 28, 2008, GL 2004-02 response. The plant modifications and procedure changes included:

- Installation of permanent modification of the upper and lower sump strainer assemblies including the trash rack cover for the upper strainer, hold up trash gates, vortex grating, jet impingement shield, ECR 02-0512, "Emergency Sump Strainer Modification," and replacement of the fibrous insulation with reflective metal insulation (RMI), EWR 02-0329, "Replace Fibrous Insulation with RMI."

  These modifications, including structural analyses and 50.59 evaluations, were previously reviewed and documented in NRC Inspection Reports 05000346/2003006 and 05000346/2003022. The surface area of the upper and lower strainer was calculated to be approximately 1227 square feet with 3/16 -inch holes. The strainer design configuration complied with the specifications for vortex suppression contained in Regulatory Guide 1.82, "Water Sources for Long-Term Recirculation Cooling Following Loss-of-Coolant-Accident."

- Installation of permanent modifications for the cyclone separators to the High Pressure Injection (HPI), Low Pressure Injection (LPI) and Containment Spray (CS) pumps; the modification of the HPI pump internal tubing, and recoating the upper containment.

  The modifications for the pumps were installed per ECP 03-503, "High Pressure Injection Mechanical Seal Cyclone Separator," ECP 03-0263, "Low Pressure Injection Cyclone Separators, ECP 03-291, "Containment Spray Cyclone Separators," and ECP 03-0216, "Modify High Pressure Injection Pump Tubing." The coating of the containment was performed by EWR 02-0329, "Containment Vessel Dome Coating."

  One item noted was the Piping and Instrument Drawing (P&ID) M-034 did not include the separators for the CS pumps, although the drawing had been revised to include the piping associated with the modification. The licensee also identified that the LPI pumps P&ID did not have either the separators or the

associated piping included on its' P&ID, while the HPI P&ID included the separators and associated piping. The licensee initiated CR 08-42370 to evaluate the issue. The Operating Schematic for the CS pumps was updated by the ECP to include the separators and associated piping.

- Perform latent debris walkdowns, and debris generation and transport analyses.

  The results of containment walkdowns performed per DBBP-DES1003, "Containment Latent Debris Load Inventory," were documented in analysis C-NSA-049.02-050, "Containment Latent Debris and Latent Fiber Determination." The debris generation was estimated and analyzed by C-NSA-059.01-023, "Davis Besse Containment Building LOCA Debris Generation." Debris transportation was analyzed through C-NSA-049.02-047, "Davis-Besse Containment [Computational Fluid Dynamics] CFD Debris Transport Analysis." These analyses were previously reviewed and documented in NRC Inspection Report 05000346/2003022.

- Quantification of chemical effects sources, determination of generated debris, evaluation of the Integrated Chemical Effects Testing results, and evaluation of strainer performance.

  Strainer performance was evaluated in calculation C-NSA-049.02-032, "Davis-Besse Emergency Sump Strainer Head Loss," which received inputs from the following analyses: C-NSA-059.01-020, "Chemical Effects Source Inventory"; C-NSA-059.01-021, "Davis Besse Chemical Product Generation Calculation"; C-NSA-059.01-023, "Davis Besse Containment Building LOCA Debris Generation"; C-NSA-049.02-047, "Davis-Besse Containment CFD Debris Transport Analysis"; and C-NSA-049.02-031, "Clean Strainer Head Loss for Davis-Besse Large Passive Strainer." Plant specific head loss testing was not performed due to the licensee removing the majority of fiber from the containment. Since a fiber bed of greater than 1/8-inch would not form on the strainer, analyses concluded the strainer will have a clean screen area, such that head losses were based on clean screen head loss plus RMI head loss.

  Perform evaluation of downstream effects.

  Downstream effects were evaluated by Enercon Report DBE004-RPT-004, "Assessment of Debris Size Acceptance on ECCS Components." Supporting documents included Wyle Laboratories Test Report WLTR10489, "Debris Laden Flow Test Results on Two Cyclone Separators for First Energy," and MPR-2547, "Davis-Besse HPI Pump Post-LOCA Debris Operation Issue Resolution Final Summary Report."

- Determine minimum available net positive suction head (NPSH) margin for the LPI and CS pumps.

  Minimum available net positive suction head margin was determined by C-NSA-049.02-026, "NPSH Licensing Basis Analysis for Davis-Besse LPI & CS Pumps," which was based on C-NSA-059.01-019, "Water Level Inside Containment Post LOCA," and C-NSA-049.02-032. These analyses were previously reviewed and documented in NRC Inspection Report 05000346/2003022.

- Establish programmatic controls to ensure that potential sources of debris introduced into containment are assessed for adverse affects.

  The licensee performed enhancements to the following procedures to limit and control the sources and amount of debris in containment to within the analyzed limit: DB-DP-00023, "Label And Sign Control"; DB-OP-03013, "Containment Daily Inspection and Containment Closeout Inspection"; DB-OP-06900, "Plant Heatup"; DB-OP-06911, "Pre-Startup Checklist"; DB-SP-03134, "Containment Emergency Sump Visual Inspection"; EN-DP-01508, "Containment Protective Coatings Condition Assessment Inspections"; NG-DB-00212, "Containment Storage"; NG-EN-00360, "Nuclear Safety-Related Protective Coatings Program"; NOP-WM-4001, "Foreign Material Exclusion"; and A-024Q, "Specification for Operational Phase for Field Coating Inside Containment." Operating procedure DB-OP-02000, "RPS, SFAS, SFRCS TRIP, or SG Tube Rupture," was updated to include guidance on mitigating containment sump blockage.

b. Has the licensee updated its licensing bases to reflect the corrective actions taken in response to GL 2004-02?

   The licensee has updated its licensing bases to reflect the corrective actions taken in response to GL 2004-02, which were included in Revisions 24 through 26 of the USAR.

c. If the licensee or plant has obtained an extension past the completion date of this TI, document what actions have been completed and what actions are outstanding.

The licensee requested and received approval for an extension until February 29, 2008, to complete analyses based on the latest chemical effects and Nuclear Energy Institute guidance. The licensee completed the required analyses, which were documented in the February 28, 2008 letter to the NRC. There are no outstanding actions to be completed. This TI is closed. This documentation of TI-2515/166 completion as well as any results of sampling audits of licensee actions will be reviewed by the NRC staff (Office of Nuclear Reactor Regulation - NRR) as input along with the GL 2004-02 responses to support closure of GL 2004-02 and Generic Safety Issue (GSI)-191 "Assessment of Debris Accumulation on Pressurized-Water Reactor (PWR) Sump Performance." The NRC will notify each licensee by letter of the results of the overall assessment as to whether GSI-191 and GL 2004-02 have been satisfactorily addressed at that licensee's plant(s). Completion of TI-2515/166 does not necessarily indicate that a licensee has finished all testing and analyses needed to demonstrate the adequacy of their modifications and procedure changes. Licensees may also have obtained approval of plant-specific extensions that allow for later implementation of plant modifications. Licensees will confirm completion of all corrective actions to the NRC. The NRC will track all such yet-to-be-performed items identified in the TI-2515/166 inspection reports to completion and may choose to inspect implementation of some or all of them.

b. Findings

No findings of significance were identified.

4OA6 Management Meetings

.1 Exit Meeting Summary

On July 15, 2008, the inspectors presented the inspection results to Mr. V. Kaminskas and other members of the licensee staff. The licensee acknowledged the issues presented. The inspectors confirmed that none of the potential report input discussed was considered proprietary.

.2 Interim Exit Meetings

Interim exits were conducted for:

- The licensee's radiological environmental monitoring and radioactive material control program and verification of the performance indicator for public radiation safety with an exit with the Site Vice President, Mr. Barry Allen, on May 23, 2008.
- The review of licensee actions associated with TI-166 with an exit with Mr. Barry Allen and other members of the licensee staff on June 26, 2008.

The inspectors confirmed that none of the potential report input discussed was considered proprietary. Several documents reviewed by the inspectors as part of the review for TI-166 were considered proprietary information and were returned to the licensee at the end of the inspection.

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

B. Allen, Site Vice President
D. Blakely, Staff Engineer, Engineering Analysis
B. Boles, Director, Site Maintenance
G. Ellithorpe, Supervisor, Nuclear Security Support
B. Hennessy, Supervisor, Nuclear Performance Improvement
R. Hovland, Manager, Technical Services
V. Kaminskas, Director, Site Operations
J. Kemp, Senior Nuclear Engineer, Design Engineering
D. Moul, Director, Site Engineering
S. Plymale, Manager, Plant & Equipment Reliability Engineering
C. Price, Director, Site Performance Improvement
J. Rinckel, Vice-President, Fleet Oversight
L. Strauss, Advanced Nuclear Specialist
G. Wolf, Regulatory Compliance Engineer
D. Wuokko, Acting Manager, Regulatory Compliance

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000346/2008003-01	NCV	CREVS Train 2 Inoperable Due To Loss of Refrigerant Charge
05000346/2008003-02	NCV	Inadequate Management Oversight During Orange Risk Activity

Closed

05000346/2007-001-00	LER	Station Vent Radiation Monitor in Bypass Due to Faulty Optical Isolation Board
05000346/2007-002-00	LER	Decay Heat Removal Discharge Piping Void Due to Inadequate Procedure for Venting Following Maintenance
05000346/2008-001-00	LER	Pressure Boundary Leak Found During Decay Heat Removal Drop Line Weld Overlay
05000346/TI 2515/166	TI	Pressurized Water Reactor Containment Sump Blockage (NRC Generic Letter 2004-02)

LIST OF DOCUMENTS REVIEWED

The following is a partial list of documents reviewed during the inspection. Inclusion on this list does not imply that the NRC inspector reviewed the documents in their entirety, but rather that selected sections or portions of the documents were evaluated as part of the overall inspection effort. Inclusion of a document on this list does not imply NRC acceptance of the document or any part of it, unless this is stated in the body of the inspection report.

1R01 Adverse Weather Protection

Procedures:
- DB-OP-01300; Switchyard Management; Revision 3
- DB-SC-03023; Off-Site AC Sources Lined Up and Available; Revision 19
- NOP-OP-1003; Grid Reliability Protocol; Revision 0
- NOP-OP-1007; Risk Determination; Revision 5

Work Orders:
- WO 200225471; PM 6382 Replace Winter Oil

Other:
- American Transmission Systems Inc/First Energy Nuclear Operating Company Generator Interconnection and Operating Agreement; February 22, 2001

1R04 Equipment Alignment

Condition Reports:
- CR 08-35349; SW 1357 Stroked Only Partially
- CR 08-35465; SW 1358 Actuator Vent Valve Was Not In Correct Position

Procedures:
- DB-OP-6012; Decay Heat and Low Pressure Injection System Operating Procedure; Revision 36
- DB-OP-6013; Containment Spray System; Revision 16
- DB-OP-6233; Auxiliary Feedwater System; Revision 22
- DB-OP-6261; Service Water System Operating Procedure; Revision 32
- DB-OP-6262; Component Cooling Water System Procedure; Revision 16
- DB-OP-6316; Diesel Generator Operating Procedure; Revision 37
- DB-PF-03272; Post Maintenance Valve Test; Revision 4

Drawings:
- OS-5; Containment Spray System; Revision 11
- OS-17A, Sheet 1; Auxiliary Feedwater System; Revision 22
- OS-17B, Sheet 1; Auxiliary Feedwater Pumps and Turbines; Revision 24
- OS-20, Sheet 1; Service Water System; Revision 78
- OS-21, Sheet 1; Component Cooling Water System; Revision 33
- OS-41A, Sheet 1; Emergency Diesel Generator Systems; Revision 28
- OS-41A, Sheet 2; Emergency Diesel Generator Systems; Revision 26
- OS-41B; Emergency Diesel Generator Air Start/Engine Air System; Revision 34
- OS-41C; Emergency Diesel Generator Diesel Oil System; Revision 16
-

Work Orders:
- WO 200274933; Rebuild Bowl Assembly Service Water Pump;
- WO 200316376; Traveling Screen Replacement Baskets;

1R05 Fire Protection

Procedures:
- PFP-AB-105; Pre-Fire Plan, ECCS Pump Room #1, Room 105; Revision 7
- PFP-AB-318; Fire Pre-Plan, Diesel Generator 1-1 Room; Revision 6;
- PFP-IS-53; Fire Pre-Plan, Service Water Valve Room 2 and Pipe Tunnel to Water Treatment Building; Revision 2;

Drawings:
- A-221F; Fire Protection General Floor Plan El. 545' and 555'; Revision 9
- A-222F; Fire Protection General Floor Plan El. 565'; Revision 15
- A-223F, Fire Protection General Floor Plan El. 585', Revision 20
- A-230F; Fire Protection Intake Structure; Revision 9

Other:
- Davis-Besse Fire Hazard Analysis Report

1R06 Flooding

Condition Reports:
- 08-39741; Internal Flooding When Service Water Pump 1 Strainer Placed in Service;

Procedures:
- RA-EP-02830; Flooding; Revision 2
- RA-EP-02880; Internal Flooding; Revision 3

Other:
- Calculation 15.50; Evaluation of Fire Suppression System Impact on Auxiliary Building and Intake Structure Flooding; Revision 1
- Calculation C-CSS-099.20-024; Assessment of Cover Plates and Slab for Flood Loads on Pump Holes at Intake Structure Slab EL 576'; Revision 1
- Calculation C-ME-021-02-003; Domestic Water Flooding of SW Tunnel; Revision 0
- Calculation C-NSA-99-16.47; Core Damage Frequency Due to Flooding of the Service Water Pump Room; Revision 0

1R11 Licensed Operator Requalification Program

Procedures:
- DBBP-TRAN-0017; Conduct of Simulator Training; Revision 4
- DBBP-TRAN-0502; Development and Conduct of Continuing Training Simulator Evaluations; Revision 5

Other:
- ORQ-EPE-S235; TBV Fails Open, Loss of C2 Bus, Loss of all TPCW Pumps; Revision 0

1R12 Maintenance Effectiveness

Condition Reports:
- CR 04-05445; Maintenance Rule (A)(1) Evaluation of the ICS/NNI System
- CR 06-02709; ICS Does Not Maintain Desired Power Level
- CR 06-02845; Failed Goal for ICS (A)(1) Action Plan
- CR 07-19158; Caldon System Trouble Alarm
- CR 08-34538; SP7A Demand Went Instantaneously to 100% When Placed in Auto
- CR 08-34643; Incorrect ICS Relay Module Types Specified For Replacement
- CR 08-35524; The Doors and Hatches System Has Exceeded its MR (A)(1) Action Plan Goals
- CR 08-37954; Intermittent Loss of Power To Caldon Cabinet
- CR 08-38351; Caldon LEFM Unit Failure

Drawings:
- C-1594; Barrier Functional List; Revision 3
- C-1596; Door Functional List; Revision 5

Procedures:
- DB-OP-2532; Loss of NNI/ICS Power; Revision 7
- DB-OP-6401; Integrated Control System Operating Procedure; Revision 6
- NOP-ER-3004; FENOC Maintenance Rule Program; Revision 0

Work Orders:
- WO 200309454; Replace ICS Modules
- Notification 600319153; C5761 ICS Repair

Other:
- Calculation 15.50; Evaluation of Fire Suppression System Impact on Auxiliary Building and Intake Structure Flooding; Revision 1
- Failure Report – Davis-Besse Doors and Hatches, January 1, 2005 to June 1, 2008; Generated June 27, 2008
- Maintenance Rule Program Manual; Revision 24
- Maintenance Rule Expert Panel Meeting Minutes from April 10, 2008, Meeting
- Plant Health Report; 1st Quarter 2008
- USAR Section 7.7.1.2; Integrated Control System

1R13 Maintenance Risk Assessments and Emergent Work Control

Condition Reports:
- CR 03-06950; Potential Inoperability of CREVS Train 2 Water Cooled Condenser
- CR 07-29963; CREVS Train 2 Compressor Tripped During DB-SS-03042 Monthly Test
- CR 08-34173; CREVS Train 1 Low Refrigerant Charge
- CR 08-36684; CREVS Train 1 Compressor Trip During Monthly Test DB-SS-03041
- CR 08-38969; Refrigerant Leak on SW5897
- CR 08-40248; Valve DH 1A Removed from DH Train 2 Outage at T+01 Work Week
- CR 08-40249; 2nd Deferral Of PM for PM 5463 SW5897 Replace Elastomers
- CR 08-40879; Unexpected Drop in CREVS Suction Pressure
- CR 08-40917; RIS 2006-17 Guidance Not Used for PDS2685B Evaluation

Procedures:
- DBBP-OPS-0003; On-line Risk Management Process; Revision 6
- DB-OP-6505; Control Room Emergency Ventilation System Procedure; Revision 10
- NOP-OP-1007; Risk Determination; Revision 5

Work Orders:
- WO 200157605; PM 5463 SW5897 Replace Elastomers
- Notification 600460888; Refrigerant Leak on SW5897

Other
- Level 1 Schedule Fragnet; DH Train 2 Outage; Revision 0, 1, and 2
- Level 3 Schedule titled “Downpower-MFP Work,” April 25 to April 27, 2008; Undated
- Level 3 Schedule titled “Downpower-MFP Work,” June 6 to June 9, 2008; Undated
- Maintenance Risk Summary; Week Starting April 28, 2008; Revision 0
- Maintenance Risk Summary; Week Starting May 18, 2008; Revision 0 and 1
- Maintenance Risk Summary; Week Starting May 26, 2008; Revision 0
- Maintenance Risk Summary; Week Starting June 1, 2008; Revision 0, 1 and 2
- Work Implementation Schedule, Subsystem Sort; produced on April 25, 28, and 30, 2008
- Work Implementation Schedule, Subsystem Sort; produced on May 20, 21, and 22, 2008
- Work Implementation Schedule, Subsystem Sort; produced on May 26, and 28, 2008
- Work Implementation Schedule, Subsystem Sort; produced on June 4 and 5, 2008
- Tagout Clearance EDB-Sub064-01-01; Reactor Coolant Drain Tank; May 20, 2008

1R15 Operability Evaluations

Condition Reports:
- CR 08-38871; Main Steamline Room Temperatures Above 110 F
- CR 08-41021; AFPT Governor Failing to Control Speed at LSS of 1100-1200 RPM
- CR 08-41022; Maintenance Adjustment of AFPT2 Governor
- CR 08-41499; Incorrect M&TE Selected for Calibration of RCS Flow Transmitters
- CR 08-41501; Out of Tolerance M&TE Results in FT-RC01A2/RC01B2 To Exceed Tolerance

Procedures:
- DB-MI-03062; Calibration of FT-RC01A2 (Loop 2) and FT-RC01B2 (Loop 1) RCS Flow Transmitters to RPS Channel 2; Revision 8
- DP-OP-06233; Auxiliary Feedwater System; Revision 23
- DB-OP-06513; Auxiliary Building Non-Radioactive Areas Ventilation; Revision 15
- DP-SP-03160; AFP 2 Quarterly Test; Revision 19

Work Orders:
- WO 200324426; AFP 2 Response Time

Other
- Calculation C-ECS-202.01-003; Arrhenius Time-Weighted Average Temperature for Various Rooms in the Auxiliary Building; Revision 1
- USAR Section 7.2; Reactor Protection System

1R18 Plant Modifications

Condition Reports:
- CR 08-39204; FW10 Steam Leak

Procedures:
- DB-MM-09067; Temporary Leak Sealing; Revision 12
- NOP-CC-2003; Engineering Changes; Revision 12

Work Orders:
- WO 200320103; FW10 On-Line Leak Sealing – ECP/TM 08-0284-00

Other:
- ECP 08-0284-00; Temporary Modification Installation for Leak Seal Repair for FW10; Revision 0
- ECP 08-0284-01; Temporary Modification Restoration for Leak Seal Repair for FW10; Revision 0
- USAR Section 10.4.7; Condensate and Feedwater System

1R19 Post Maintenance Testing

Condition Reports:
- CR 08-37633; F159 (EDG 1) Filter Select lever Not in Both Position (NRC Identified)
- CR 08-40662; PDS-2685B Found Out of Tolerance

Drawings
- M-233A; Emergency Core Cooling Systems Piping – Borated Water Supply; Revision 17
- M-233B; Emergency Core Cooling System Pump Suction Piping; Revision 22
- M-233C; Decay Heat Removal System Piping – Normal Cooldown; Revision 18
- M-233F; Low Pressure Injection System Piping – Auxiliary Building; Revision 19
- OS-4, Sheet 1; Decay Heat Removal/Low Pressure injection System; Revision 45
- OS-12A, Sheet 2; Main Feedwater System; Revision 27
- OS-12C, Sheet 1; Main Feedwater Pump and Turbine Lube Oil System; Revision 16

Procedures:
- DB-ME-9114; Molded Case Breaker Inspection and Test; Revision 12
- DB-MI-3014; Channel Functional Test of Reactor Trip Breaker C, RPS Channel 4 Reactor Trip Module Logic, and ARTS Channel 4 Output Logic; Revision 17
- DB-MI-3204; Channel Functional Test and Calibration of SFRCS Actuation Channel 2, Steam Generator Differential Pressure Inputs; Revision 9
- DB-MM-9320; Emergency and Station Blackout Diesel Engine Maintenance; Revision 13
- DB-MM-9344; Emergency and Station Blackout Diesel Engine 4 Year Maintenance; Revision 0
- DB-MM-9347; Emergency and Station Blackout Diesel Engine 2 Year Maintenance of Fuel Oil Filters and Various Inspections; Revision 2
- DB-OP-6012; Decay Heat and Low Pressure Injection System Operating Procedure; Revision 36
- DB-OP-6316; Diesel Generator Operating Procedure; Revision 37
- DB-PF-3027; Service Water Train 2 Valve Test; Revision 23
- DB-PF-9307; Operation of Motor Monitoring Equipment; Revision 4
- DB-SC-3071; Emergency Diesel Generator 2 Monthly Test; Revision 16
- DB-SP-3137; Decay Heat Train 2 Pump and Valve Test; Revision 18
- DB-SP-3212; Venting of ECCS Piping; Revision 11

Work Orders:
- WO 200215306; PM 1349–Inspect or Replace Emergency Diesel Generator 2 Components
- WO 200224579; PM 5158, BF1277 Test
- WO 200227014; PM 0293 – MVDH7A – Inspect BWST Line 2
- WO 20024196; PM 7370 – Swap Breaker
- WO 200261511; PM 0297 – MV2734 – Inspect BWST to DHP2
- WO 200323505; PDS2685B: Move and Re-wire Microswitch

Other:
- Clearance EDB-SUB049-02-002; DH Pump 2 Emergency Sump Line Relief; May 20, 2008
- Operations Evolution Order for Replacing DH 1509 and DH 1550; April 10, 2008

1R22 Surveillance Testing

Condition Reports:
- CR 08-38334; Decay Heat Pump 1 D-Axial Vibes are in the Alert Range
- CR 08-39190; BACC – CF3A1 Condition During Qtrly Containment General Area Walkdown

Procedures:
- DB-MI-03202; Channel Functional Test and Calibration of SFRCS ACH 2 Pressure Inputs; Revision 8
- DB-OP-01101; Containment Entry; Revision 6
- DB-PF-06704; Pump Performance Curves; Revision 25
- DB-SP-03136; Decay Heat Train 1 Pump and Valve Test; Revision 17
- NOBP-LP-2604; Effective Job Briefs; Revision 2

Work Orders:
- WO 200234573; Perform MI3202-001; Dated 4/22/2008
- WO 200236385; Decay Heat Train 1 Pump and Valve Test

1EP6 Drill Evaluation

Condition Reports:
- CR 08-39130; EP Drill - Simulator Control Room, April Integrated Drill
- CR 08-39284; EP Drill – EOF 4/24/08 Critique Comments
- CR 08-39287; EP Drill – Missed Performance Indicator
- CR 08-39367; EP Drill – Technical Support Center, April 2008 Integrated Drill
- CR 08-41990; EP Drill – Missed Drill Objective for Accountability
- CR 08-42002; EP Drill – Missed Drill Objective for Emergency Classification
- CR 08-42042; EP Drill – Simulator CTRM June 17, 2008
- CR 08-42194; DB-PA-08-02: Oversight Assessment of EP Drill (OSC)
- CR 08-42319; EP Drill – OSC Facility Critique

Other:
- Davis-Besse Emergency Initial and Periodic Notifications
- Davis-Besse Emergency Response Integrated Drill Manual; April 24, 2008
- Davis-Besse Emergency Response Integrated Drill Manual; June 17, 2008

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2OS2 As Low As Reasonably Achievable Planning And Controls and 2PS3 Radiological Environmental Monitoring Program And Radioactive Material Control Program

Condition Reports:
- CR 07-23488; As a Result of NEI Groundwater Sampling Initiative, Three of the Wells Showed Levels of Tritium Over 2000 pCi/L, Which Triggered Point of Notification
- CR 07-26416; Air sampler Generator by the Canal Would Not Start to Cause Air Sampler Not Running
- CR 07-29028; Contaminated Rail Road Track/Gravel in North Yard
- CR 07-31734; 10 Meter Anemometer Backup System Stopped Indicating
- CR 08-34549; The 100 Meter Anemometer Backup system Frozen
- CR 08-35005; The 75 Meter and 10 Meter Windspeed Indicators for Both Primary and Backup Met Towers Appeared Frozen
- CR 08-35948; 10 Meter Backup Windspeed Indicator Frozen
- CR 08-36628; The Power to T-1, T-2, and T-3 Air Samplers was De-energized For Over 8 Hours due to Scheduled Maintenance, Reported in The 2008 Annual REMP Report
- CR 08-33756; Primary Met Tower 10 Meter Windspeed Indicator Frozen
- CR 08-39454; ODCM-Required Air Sample Misses Due to Equipment Malfunction
- CR 08-40738; A Through-Wall Hole was Identified on a Sealand Container Used to Store Radioactive Material
- CR 08-40764; Annual Efficiency Verifications for Each of the Gamma Spectroscopy Instruments Have not Been Documented

Procedures:
- DB-CN-00014; Annual Radiological Environmental Operating Report Preparation and Submittal, Revision 1
- DB-CN-00015; Radiological Environmental Monitoring Program, Revision 2
- DB-CN-03004; Radiological Monitoring Quarterly, Semiannual and Annual Sampling, Revision 5
- DB-CN-03005; Radiological Monitoring Weekly, Semimonthly and Monthly Sampling, Revision 3
- DB-CN-04023; Annual Land Use Census, Revision 0
- DB-CN-04060; Effluent MDAs Data Sheets for Detector Nos. 1 and 2, Various Date
- DB-CN-10101; Nuclear Chemistry REMP Enhancement Sampling, Revision 4
- DB-CN-10105; Nuclear Chemistry REMP Leases, Revision 0
- DB-CN-03023; Surveillance Test Procedure of Annual Land Use Census, Revision 0
- DB-HP-01112; Calibration of the Gamma Spectrometer System, Revision 6
- DB-HP-01113; Radiation Protection Count Room Analysis System Operation, Revision 4
- DB-HP-01702; Transfer Handling and Storage of Radioactive Material, Revision 16
- DB-HP-01706; Radiation Protection Vehicle and Material Releases From Radiologically Restricted Areas and The Restricted Area, Revision 8
- DB-HP-04022; Preparation Of Quarterly Report of REMP Sample Analysis Results, Revision 2
- NG-DB-00244; Radioactive Material Control Program, Revision 4
- NOP-WM-7017; Contamination Control Program, Revision 1
- RA-EP-02240; Emergency Plan Implementing Procedure, Revision 3

Other:
- 2006 Davis Besse Annual Radiological Environmental Operating Report, May 1, 2007
- 2007 Davis Besse Annual Radiological Environmental Operating Report, May 1, 2008
- ALARA Plan No. 2008-1040, Removal RCDT Manway to Replace Gasket, May 19, 2008

- Davis Besse Unit-1 Technical Requirements Manual on Meteorological Instrumentation Revision 9
- DB-0420-1; Weekly ODCM Sample Collection Checklist and Monitoring Log, May 21, 2008
- DB-CN-03005; Radiological Monitoring Weekly, Semi monthly and Monthly Sampling Data, Various data 2007-2008
- DB-CN-10101; REMP Enhancement Sampling Data, May 20, 2008
- DB-HP-01452; Air sampler Calibration Data Sheet, Various 2007-08
- Fleet Oversight Quarterly Report DB-PA-07-04, Fourth Quarter 2007, December 29, 2007
- Gamma Spectroscopy LLD Confirmation Reports. Various Dates
- Groundwater Monitoring Well Installation and Report Davis Besse Nuclear Power Plant, March 18, 2008
- Meteorological 2 Monitoring System Description, May 2007
- Monthly Progress Report on REMP from Environmental Inc., February 13, 2008
- NUPIC Audit/Survey Cover Page on Environmental Inc. Report, January 18, 2007
- Offsite Dose Calculation Manual, Revision 21
- RETS/ODCM Effluent Occurrences From January 2007 through December 2007, January 12, 2008
- RWP 2008-1040; Replace Manway Gasket and Boltingon Reactor Coolant Drain Tank (RCDT), May 19, 2008

4OA1 Performance Indicator Verification

Other:
- DB Form NOBP-LP-4012-44; Initiating Events Cornerstone Indicator; April 2007 through March 2008
- Davis-Besse Integrated NRC inspection Reports 2007-003, 2007-04, 2007-05, and 2008-002

4OA2 Problem Identification and Resolution

Procedures:
- NOP-LP-2001; Corrective Action Program; Revision 18

Condition Reports:
- CR 08-41309; Actuator for DH7A Running Current is Greater Than Nameplate (NRC-Identified)

Work Orders:
- 200227014; BWST Line 2 Isolation Valve Motor Operator – Perform PM 0293

Other:
- Company Nuclear Review Board March 14, 2008, Davis-Besse Meeting Minutes; April 16, 2008
- DB-PA-08-01; Fleet Oversight Quarterly Performance Report – First Quarter 2008; April 23, 2008
- DB-SA-08-023; Site Roll-Up Integrated Performance Assessment for July 1, 2007, through December 31, 2007; March 19, 2008
- Design Engineering Integrated Performance Assessment, July 1, 2007 through December 31, 2007; March 3, 2008
- Listing of Condition Reports Written from October 18, 2007, to June 15, 2008
- Operations Integrated Performance Assessment, July 1, 2007 through December 31, 2007; March 5, 2008

- Performance Improvement Section Integrated Performance Assessment, July 1, 2007 through December 31, 2007; March 4, 2008

4OA3 Followup of Events and Notices of Enforcement Discretion

Condition Reports:
- CR 07-29410; TS Violation due to Both CTRM Rad Monitors Out of Service
- CR 07-32112; Pressurizer Level Decrease While Placing DH Train 1 in Standby
- CR 08-32521; Pressure Boundary Leak Found During Decay Heat Drop Line Weld Overlay
- CR 08-38307; BF1134 DH Pump 2 LPI Suction (BWST or Emergency Sump) DH2734 Discovered Open
- CR 08-38321; Emergency High Radiation Area Entry
- CR 08-38361; Valve Mispositioning During Performance of DB-PF-03153
- CR 08-38486; TD4981 Air Supply Found Closed
- CR 08-38559; Adverse Plant Status Control Trend
- CR 08-36881; DB-OP-06011, High Pressure Injection System Procedure, Fill/Vent Procedure Deficiency
- CR 08-37644; Potential MDFP and Auxiliary Feedwater Fill and Vent Deficiencies
- CR 08-40150; DB-OP-06012, Low Pressure Injection System Procedure, Fill/Vent Procedure Deficiency
- CR 08-41285; CREVS Train 1 Make-up Air Flow Exceeds Upper Limit
- CR 08-41290; Number 1 Control Room EVS Compressor Discharge Pressure High
- CR 08-41350; Trip of Chiller 1 While Restoring from DB-SS-3710, CREVS 1 Refuel Test
- CR 08-41352; CREVS 1 Tripped on High Refrigerant Pressure While in Air Cooled Mode
- CR 08-41359; CREVS Train 1

Procedures:
- DB-OP-06011; High Pressure Injection System; Revision 21
- DB-OP-06012; Decay Heat and Low Pressure Injection System Operating Procedure; Revision 37
- DB-SC-03212; Monthly Functional Test of RE 4597AA, CTMT Vessel (East) Normal Range Radiation Monitor; Revision 11
- DB-SC-03213; Monthly Functional Test of RE 4597BA, CTMT Vessel (West) Normal Range Radiation Monitor; Revision 9
- DB-SC-03216; Quarterly Functional Test of RE 4598AA, Station Vent Normal Range Radiation Monitor; Revision 12
- DB-SC-03218; Quarterly Functional Test of RE 4598BA, Station Vent Normal Range Radiation Monitor; Revision 10

Work Orders:
- 200290589; Test Spare Optical Isolation Cards: RT4598AA

Other:
- LER 05000346/2007-001-00, Station Vent Radiation Monitor in Bypass due to Faulty Optical Isolation Board
- LER 05000346/2007-002-00, Decay Heat Removal Discharge Piping Void Due to Inadequate Procedure for Venting Following Maintenance
- LER 05000346/2008-001-00, Pressure Boundary Leak Found During Decay Heat Removal Drop Line Weld Overlay
- Post Maintenance Test Manual; Revision 31

4OA5 Other Activities

Condition Reports:
- CR 02-02846; Containment Emergency Sump Issues, LER 2002-005
- CR 03-02439; Clearances in Cyclone Separator of Decay Heat/Low Pressure Injection Pumps
- CR 07-31904; Emergency Sump Strainer Design Issues
- CR 08-38793; COIA-SC-2007: Training and Qualification of Maintenance Personnel
- CR 08-38795; COIA-SC-2007: Ensure Nuclear Safety Priorities and Values Maintained during 15RFO
- CR 08-38798; COIA-SC-2007: Workforce Communication on funding and budget Priorities
- CR 08-38971; COIA-SC-2007: Site Protection
- CR 08-38972; COIA-SC-2007: Electrical Maintenance an Outlier Organization in Safety Culture
- CR 08-39137; COIA-SC-2007: Site Protection/Security Declined Survey Ratings
- CR 08-41719; NRC Identified – Requirements of NOP-OP-1007 Not Met
- CR 08-42370; Level of Detail on P&IDs Varies

Calculations:
- C-NSA-049.02-026; NPSH Licensing Basis Analysis for Davis-Besse LPI and CS Pumps; Revision 1, A02
- C-NSA-049.02-031; Clean Strainer Head Loss for Davis-Besse Large Passive Strainer; Revision 1
- C-NSA-049.02-032; Davis-Besse Emergency Sump Strainer Head Loss; Revision 0
- C-NSA-049.02-047; Davis-Besse Containment CFD Debris Transport Analysis; Revision 0
- C-NSA-049.02-049; Surface Areas within Containment for Latent Debris Analysis; Revision 0
- C-NSA-049.02-050; Containment Latent Debris and Latent Fiber Determination; Revision 0
- C-NSA-059.01-019; Water Level Inside Containment Post LOCA; Revision 5
- C-NSA-059.01-020; Chemical Effects Source Inventory; Revision 0
- C-NSA-059.01-021; Davis Besse Chemical Product Generation Calculation; Revision 0
- C-NSA-059.01-023; Davis Besse Containment Building LOCA Debris Generation; Revision 0
- C-NSA-060.04-003; Post LOCA Hydrogen Generation Analysis, Revision 7
- C-CSS-100.05-001; Service Level 1 Non-DBA Qualified Protective Coating Application Inventory; Revision 4, A04

Procedures:
- DBBP-OPS-3; On-Line Risk Management Process; Revision 7
- DBBP-DES1003; Containment Latent Debris Load Inventory; Revision 0
- DBE004-RPT-004; Assessment of Debris Size Acceptance on ECCS Components; Revision 0
- DB-DP-23; Label and Sign Control; Revision 6
- DB-OP-2000; RPS, SFAS, SFRCS TRIP, or SG Tube Rupture, Revision 20
- DB-OP-3013; Containment Daily Inspection and Containment Closeout Inspection; Revision 5
- DB-OP-6900; Plant Heatup; Revision 39
- DB-OP-6911; Pre-Startup Checklist; Revision 14
- DB-SP-3134; Containment Emergency Sump Visual Inspection; Revision 4
- EN-DP-1508; Containment Protective Coatings Condition Assessment Inspections; Revision 1
- NG-DB-1; On-Line Risk Management; Revision 7
- NG-DB-212; Containment Storage; Revision 4
- NG-EN-360; Nuclear Safety-Related Protective Coatings Program; Revision 0
- NOP-OP-1007; Risk Determination; Revision 5
- NOP-WM-4001; Foreign Material Exclusion; Revision 7

Other:
- A-024Q; Specification for Operational Phase for Field Coating Inside Containment; Revision 9
- ECP 03-0216; Modify High Pressure Injection Pump Tubing; Revision 0
- ECP 03-0263; Low Pressure Injection Cyclone Separators; Revision 3
- ECP 03-0291; Containment Spray cyclone separators; Revision 4
- ECP 03-503; High Pressure Injection Mechanical Seal Cyclone Separator; Revision 1
- ECR 02-0512; Emergency Sump Strainer Modification; Revision 5
- EWR 02-0329; Containment Vessel Dome Coating; Revision 0
- L-08-036; Supplemental Response to Generic Letter 2004-02, "Potential Impact of Debris Blockage on Emergency Recirculation During Design Basis Accidents at Pressurized Water Reactors"; February 28, 2008
- Letter FENOC to NRC, dated February 12, 2008, "Submittal of the Operations Performance Independent Assessment Plan for the Davis-Besse Nuclear Power Station – Year 2008
- Letter FENOC to NRC, dated June 11, 2007, "Submittal of the Organizational Safety Culture and Safety Conscious Work Environment Independent Assessment Plan for the Davis-Besse Nuclear Power Station - Year 2007" (ML071640189)
- Letter FENOC to NRC, dated November 8, 2007, "Submittal of the Organizational Safety Culture and Safety Conscious Work Environment Independent Assessment Plan for the Davis-Besse Nuclear Power Station - Year 2007, Revision 1" (ML073170697)
- Letter FENOC to NRC, dated January 27, 2008, "Submittal of the 2007 Organizational Safety Culture and Safety Conscious Work Environment Independent Assessment Report for the Davis-Besse Nuclear Power Station," (ML080300183)
- M-197N; Technical Specification for Operational Phase for Furnishing and Installation of Insulation Inside Containment; Revision 2
- M-034; Emerg Core Cooling System CTMT Spray and Core Flooding Systems; Revision 63
- MPR-2547; Davis-Besse HPI Pump Post-LOCA Debris Operation Issue Resolution Final Summary Report; Revision 0
- Serial 3128; Response to NRC Generic Letter 2004-02; March 4, 2005
- Serial 3165; Response to Request for Additional Information on Generic Letter 2004-02; July 26, 2005
- Serial 3187; Response to Generic Letter 2004-02, "Potential Impact of Debris Blockage on Emergency Recirculation During Design Basis Accidents at Pressurized-Water Reactors"; September 1, 2005
- WCAP 16530-NP; Evaluation of Post-Accident Chemical Effects in Containment Sump Fluids to Support GSI-191; February 2006
- WCAP-16568-P; Jet Impingement Testing to Determine the Zone of Influence (ZOI) for DBA-Qualified/Acceptable Coatings; Revision 0
- Wyle Laboratories Test Report WLTR10489; Debris Laden Flow Test Results on Two Cyclone Separators for First Energy; October 3, 2003
- UCN 03-002U; ECR 02-0512 (Emergency Sump Screens); April 3, 2003
- UCN 03-082U; Corrective Action G201 03-05136-1; January 23, 2008
- UCN 2007-081; C-NSA-048, R00 and C-NSA-052.01-011, R01; January 7, 2008
- UCN 2008-016; Calculation C-NSA-049.02-026 R1, A02; February 5, 2008

LIST OF ACRONYMS USED

AC	Alternating Current
AFI	Area for Improvement
ALARA	As-Low-As-Is-Reasonably-Achievable
ASME	American Society of Mechanical Engineers
CAP	Corrective Action Program
CDF	Core Damage Frequency
CFD	Computational Fluid Dynamics
CFR	Code of Federal Regulations
CR	Condition Report
CREVS	Control Room Emergency Ventilation System
CS	Containment Spray
CY	Calendar Year or Cycled Condensate
DH	Decay Heat
DRP	Division of Reactor Projects
ECCS	Emergency Core Cooling System
ECP	Engineering Change Package
EDG	Emergency Diesel Generator
FENOC	FirstEnergy Nuclear Operating
GL	Generic Letter
HPI	High Pressure Injection
IMC	Inspection Manual Chapter
IP	Inspection Procedure
IR	Inspection Report
LER	Licensee Event Report
LPI	Low Pressure Injection
NCV	Non-Cited Violation
NEI	Nuclear Energy Institute
NPSH	Net Positive Suction Head
NRC	U.S. Nuclear Regulatory Commission
P&ID	Piping and Instrument Drawing
PI	Performance Indicator
PI&R	Problem Identification and Resolution
PM	Post Maintenance
psig	Pounds Per Square Inch Gauge
PWSCC	Primary Water Stress Corrosion Cracking
RCS	Reactor Coolant System
RMI	Reflective Metal Insulation
SC	Safety Culture
SCWE	Safety Conscious Work Environment
SDP	Significance Determination Process
SSC	Systems, Structures, and Components
SW	Service Water
TI	Temporary Instruction
TS	Technical Specification
TSO	Transmission System Operator
UFSAR	Updated Final Safety Analysis Report
USAR	Updated Safety Analysis Report