



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**

REGION III  
2443 WARRENVILLE ROAD, SUITE 210  
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January 21, 2009

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 INTEGRATED INSPECTION  
REPORT 05000346/2008-005

Dear Mr. Allen:

On December 31, 2008, the U.S. Nuclear Regulatory Commission (NRC) completed an integrated inspection at your Davis-Besse Nuclear Power Station. The enclosed inspection report documents the inspection findings which were discussed on January 13, 2009, with you 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, no NRC-identified or self-revealed findings of safety significance were identified. Two licensee identified violations of very low safety significance are listed in Section 4OA7 of this report.

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 05000346/2008-005  
w/Attachment: Supplemental Information

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Letter to B. Allen from J. Cameron dated January 21, 2009

SUBJECT: DAVIS-BESSE NUCLEAR POWER STATION NRC INTEGRATED INSPECTION  
REPORT 05000346/2008-005

cc w/encl: The Honorable Dennis Kucinich  
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REPORT 05000346/2008-005

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U. S. NUCLEAR REGULATORY COMMISSION

REGION III

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

Report No: 05000346/2008005

Licensee: FirstEnergy Nuclear Operating Company (FENOC)

Facility: Davis-Besse Nuclear Power Station

Location: Oak Harbor, OH

Dates: October 1, 2008, through December 31, 2008

Inspectors: J. Rutkowski, Senior Resident Inspector  
A. Wilson, Resident Inspector  
M. Garza, Emergency Response Specialist  
T. Go, Health Physicist  
D. McNeil, Senior Operations Engineer  
J. Jacobson, Senior Reactor Inspector  
R. Murray, Reactor Engineer  
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C. Zoia, Operations Engineer

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

Enclosure

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## SUMMARY OF FINDINGS

IR 05000346/2008-005; 10/1/08 – 12/31/08; Davis-Besse Nuclear Power Station; Routine Integrated Inspection Report.

This report covers a three-month period of inspection by resident inspectors and announced baseline inspections by regional inspectors. No findings of significance were identified. 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**

No findings of significance were identified.

**B. Licensee-Identified Violations**

Violations of very low safety significance that were identified by the licensee have been reviewed by inspectors. Corrective actions planned or taken by the licensee have been entered into the licensee's corrective action program. These violations and corrective action tracking numbers are listed in Section 4OA7 of this report.

## **REPORT DETAILS**

### **Summary of Plant Status**

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

On November 23, 2008, the licensee reduced power to approximately 90 percent to perform quarterly main turbine valve testing along with main feed pump valve testing and control rod drive exercising. Operators returned reactor power to 100 percent on November 23, 2008, after completion of the testing.

On December 24, 2008, the licensee performed a rapid power reduction to approximately 20 percent power and removed the main turbine generator from service. This was in response to plant staff observing vapors coming from oil soaked turbine insulation in the vicinity of the Number 2 bearing. After replacing the oil soaked insulation and correcting an oil leak along the turbine shaft, the licensee returned the unit to 100 percent power on December 30, 2008.

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

### **1. REACTOR SAFETY**

#### **Cornerstone: Initiating Events, Mitigating Systems, and Barrier Integrity**

#### 1R01 Adverse Weather Protection - Winter Seasonal Readiness Preparations (71111.01)

##### a. Inspection Scope

The inspectors conducted a review of the licensee's preparations for winter conditions to verify that the plant's design features and implementation of procedures were sufficient to protect mitigating systems from the effects of adverse weather. Documentation for selected risk-significant systems was reviewed to ensure that these systems would remain functional when challenged by inclement weather. During the inspection, the inspectors focused on plant specific design features and the licensee's procedures used to mitigate or respond to adverse weather conditions. Additionally, the inspectors reviewed the Updated Final Safety Analysis Report (UFSAR) and performance requirements for systems selected for inspection, and verified that operator actions were appropriate as specified by plant specific procedures. Cold weather protection, such as heat tracing and area heaters, was verified to be in operation where applicable. 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. Specific documents reviewed during this inspection are listed in the Attachment. The inspectors' reviews focused specifically on the following plant systems due to their risk significance or susceptibility to cold weather issues:

- Service Water System; and
- Ultimate Heat Sink with emphasis on the ability to provide makeup water from Lake Erie.

This inspection constituted one winter seasonal readiness preparation sample as defined in IP 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:

- Switchyard, offsite power sources, and electrical flow path to safety-related buses during the scheduled outage for startup transformer 2 and motor-operated disconnect 34622 on October 7, 2008;
- Emergency Diesel Generator (EDG) train 1 during maintenance outage on EDG train 2 on October 14, 2008; and
- Auxiliary Feedwater (AFW) train 2 during maintenance outage on AFW train 1 on December 16, 2008.

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, 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 three partial system walkdown samples as defined in IP 71111.04-05.

b. Findings

No findings of significance were identified.

.2 Semi-Annual Complete System Walkdown

a. Inspection Scope

On November 19, 2008, through November 21, 2008, the inspectors performed a complete system alignment inspection of the High Pressure Injection 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 in IP 71111.04-05.

b. Findings

No findings of significance were identified.

3. 1R05 Fire Protection - 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:

- Mechanical Penetration Room 2 (Room 236; Fire Area A);
- Mechanical Penetration Room 3 (Room 303; Fire Area AB); and
- Mechanical Penetration Room 4 (Room 314; Fire Area A).

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 any minor issues identified during the inspection were entered into the licensee's CAP. Documents reviewed are listed in the Attachment to this report.

These activities constituted three quarterly fire protection inspection samples as defined in IP 71111.05-05.

b. Findings

No findings of significance were identified.

.4 1R06 Flooding - Internal Flooding (71111.06)

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 to this report. 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 following plant areas to assess the adequacy of flood mitigation equipment and verify drains and sumps were clear of debris and were operable, and that the licensee complied with its commitments:

- Condenser pit, and ventilation openings to auxiliary feedwater pump rooms and door openings to switchgear rooms which could be impacted by a circulating water line break.

This inspection constituted one internal flooding sample as defined in IP 71111.06-05.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Regualification Program (71111.11)

.1 Resident Inspector Quarterly Review (71111.11Q)

a. Inspection Scope

On November 18, 2008, the inspectors observed a crew of licensed operators in the plant's simulator during licensed operator simulator training 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. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one quarterly licensed operator requalification program sample as defined in IP 71111.11.

b. Findings

No findings of significance were identified.

.2 Facility Operating History (71111.11B)

a. Inspection Scope

The inspectors reviewed the plant's operating history from October 2006, through September 2008, to identify operating experience that was expected to be addressed by the Licensed Operator Requalification Training (LORT) program. The inspectors verified that the identified operating experience had been addressed by the facility licensee in accordance with the station's approved Systems Approach to Training (SAT) program to satisfy the requirements of 10 CFR 55.59(c). The documents reviewed during this inspection are listed in the attachment.

b. Findings

No findings of significance were identified.

.3 Licensee Requalification Examinations

a. Inspection Scope

The inspectors performed an inspection of the licensee's LORT test/examination program for compliance with the station's SAT program which would satisfy the requirements of 10 CFR 55.59(c)(4). The reviewed operating examination material consisted of six operating tests, each containing approximately two dynamic simulator scenarios and approximately six job performance measures (JPMs). The written examinations reviewed consisted of five written examinations, each containing approximately 35 questions. The inspectors reviewed the annual requalification operating test and biennial written examination material to evaluate general quality, construction, and difficulty level. The inspectors assessed the level of examination material duplication from week-to-week during the current year operating test. The examiners assessed the amount of written examination material duplication from week-to-week for the written examination administered in 2006. The inspectors reviewed the methodology for developing the examinations, including the LORT program

2-year sample plan, probabilistic risk assessment insights, previously identified operator performance deficiencies, and plant modifications. The documents reviewed during this inspection are listed in the attachment.

b. Findings

No findings of significance were identified.

.4 Licensee Administration of Requalification Examinations

a. Inspection Scope

The inspectors observed the administration of a requalification operating test to assess the licensee's effectiveness in conducting the test to ensure compliance with 10 CFR 55.59(c)(4). The inspectors evaluated the performance of one crew in parallel with the facility evaluators during three dynamic simulator scenarios and evaluated various licensed crew members concurrently with facility evaluators during the administration of several JPMs. The inspectors assessed the facility evaluators' ability to determine adequate crew and individual performance using objective, measurable standards. The inspectors observed the training staff personnel administer the operating test, including conducting pre-examination briefings, evaluations of operator performance, and individual and crew evaluations upon completion of the operating test. The inspectors evaluated the ability of the simulator to support the examinations. A specific evaluation of simulator performance was conducted and documented in the section below titled, "Conformance with Simulator Requirements Specified in 10 CFR 55.46." The documents reviewed during this inspection are listed in the attachment.

b. Findings

No findings of significance were identified.

.5 Examination Security

a. Inspection Scope

The inspectors observed and reviewed the licensee's overall licensed operator requalification examination security program related to examination physical security (e.g., access restrictions and simulator considerations) and integrity (e.g., predictability and bias) to verify compliance with 10 CFR 55.49, "Integrity of Examinations and Tests." The inspectors also reviewed the facility licensee's examination security procedure, any corrective actions related to past or present examination security problems at the facility, and the implementation of security and integrity measures (e.g., security agreements, sampling criteria, bank use, and test item repetition) throughout the examination process. The documents reviewed during this inspection are listed in the attachment.

b. Findings

No findings of significance were identified.

.6 Licensee Training Feedback System

a. Inspection Scope

The inspectors assessed the methods and effectiveness of the licensee's processes for revising and maintaining its LORT Program up to date, including the use of feedback from plant events and industry experience information. The inspectors reviewed the licensee's quality assurance oversight activities, including licensee training department self-assessment reports. The inspectors evaluated the licensee's ability to assess the effectiveness of its LORT program and their ability to implement appropriate corrective actions. This evaluation was performed to verify compliance with 10 CFR 55.59(c) and the licensee's SAT program. The documents reviewed during this inspection are listed in the attachment.

b. Findings

No findings of significance were identified.

.7 Licensee Remedial Training Program

a. Inspection Scope

The inspectors assessed the adequacy and effectiveness of the remedial training conducted since the previous biennial requalification examinations and the training from the current examination cycle to ensure that they addressed weaknesses in licensed operator or crew performance identified during training and plant operations. The inspectors reviewed remedial training procedures and individual remedial training plans. This evaluation was performed in accordance with 10 CFR 55.59(c) and with respect to the licensee's SAT program. The documents reviewed during this inspection are listed in the attachment.

b. Findings

No findings of significance were identified.

.8 Conformance with Operator License Conditions

a. Inspection Scope

The inspectors reviewed the facility and individual operator licensees' conformance with the requirements of 10 CFR Part 55. The inspectors reviewed the facility licensee's program for maintaining active operator licenses and to assess compliance with 10 CFR 55.53(e) and (f). The inspectors reviewed the procedural guidance and the process for tracking on-shift hours for licensed operators and which control room positions were granted watch-standing credit for maintaining active operator licenses. The inspectors reviewed the facility licensee's LORT program to assess compliance with the requalification program requirements as described by 10 CFR 55.59(c). Additionally, medical records for twelve licensed operators were reviewed for compliance with 10 CFR 55.53(l). The documents reviewed during this inspection are listed in the attachment.

b. Findings

No findings of significance were identified.

.9 Conformance with Simulator Requirements Specified in 10 CFR 55.46

a. Inspection Scope

The inspectors assessed the adequacy of the licensee's simulation facility (simulator) for use in operator licensing examinations and for satisfying experience requirements as prescribed in 10 CFR 55.46, "Simulation Facilities." The inspectors also reviewed a sample of simulator performance test records (i.e., transient tests, malfunction tests, steady state tests, and core performance tests), simulator discrepancies, and the process for ensuring continued assurance of simulator fidelity in accordance with 10 CFR 55.46. The inspectors reviewed and evaluated the discrepancy process to ensure that simulator fidelity was maintained. Open simulator discrepancies were reviewed for importance relative to the impact on 10 CFR 55.45 and 55.59 operator actions as well as on nuclear and thermal hydraulic operating characteristics. The inspectors conducted interviews with members of the licensee's simulator staff about the configuration control process and completed the IP 71111.11, Appendix C, checklist to evaluate whether or not the licensee's plant-referenced simulator was operating adequately as required by 10 CFR 55.46(c) and (d). The documents reviewed during this inspection are listed in the attachment.

b. Findings

No findings of significance were identified.

.10 Annual Operating Test Results

a. Inspection Scope

The inspectors reviewed the overall pass/fail results of the biennial written examination, the individual Job Performance Measure operating tests, and the simulator operating tests (required to be given per 10 CFR 55.59(a)(2)) administered by the licensee from September 2008, through October 2008, as part of the licensee's operator licensing requalification cycle. These results were compared to the thresholds established in Inspection Manual Chapter 0609, Appendix I, "Licensed Operator Requalification Significance Determination Process (SDP)." The evaluations were also performed to determine if the licensee effectively implemented operator requalification guidelines established in NUREG 1021, "Operator Licensing Examination Standards for Power Reactors," and Inspection Procedure 71111.11, "Licensed Operator Requalification Program." The documents reviewed during this inspection are listed in the attachment.

This represents one incomplete sample for 71111.11B.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness - (Routine Quarterly Evaluations (71111.12Q)

c. Inspection Scope

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

- Air operated valves and the Air Operated Valve Program;
- Plant Computer; and
- Freeze Protection and Heat Trace.

The inspectors reviewed events such as where ineffective equipment maintenance had resulted in equipment or operability issues 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 to this report.

This inspection constituted three quarterly maintenance effectiveness samples as defined in IP 71111.12-05.

d. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors reviewed the following issues:

- CR 08-48200 which addressed the environmental qualification standards of the internal motor winding leads for a containment spray discharge motor operated valve;
- CR 08-35827 which addressed the failure of the main turbine master trip solenoid valve to immediately reset after testing;

- CR 08-49847 which addressed an unplanned Emergency Diesel Generator 1 overspeed trip while conducting surveillance of the diesel's governor high and low speed limits and testing of the overspeed trip function; and
- CR 08-49545 which addressed continuous leakage of a small quantity of makeup water back through valve HP2B which caused pressurization of a section of high pressure injection piping downstream of High Pressure Injection Pump 2.

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 to this report.

This operability inspection constituted four samples as defined in IP 71111.15-05

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:

- Emergency Diesel Generator 2 184-day surveillance test on October 16, 2008, after a maintenance outage for two-year filter preventive maintenance tasks and other activities;
- Emergency Diesel Generator 1 184-day surveillance test on November 21, 2008, after a maintenance outage for replacement of the DC fuel pump motor, relay replacements, and other activities; and
- Auxiliary feedwater train 1 functional test on December 19, 2008, after a maintenance outage and repair of relay circuitry associated with the turbine steam supply valve.

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 to this report.

This inspection constituted three post-maintenance testing samples as defined in IP 71111.19-05.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

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-03211, "Channel Functional Test of SFRCS Actuation Channel 1 Logic for Mode 1" (Routine);
- DB-SC-03070, "Emergency Diesel Generator 1 Monthly Test" (Routine);
- DB-SS-3091; "Motor Driven Feed Pump Quarterly Test" (Inservice Testing); and
- DB-OP-1101, "Containment Entry" and DP-OP-3013, "Containment Closeout Inspection" (Routine).

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 (ASME) 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 CAP. Documents reviewed are listed in the Attachment to this report.

This inspection constituted three routine surveillance testing samples, and one inservice testing sample as defined in IP 71111.22, Sections -02 and -05.

b. Findings

No findings of significance were identified.

**Cornerstone: Emergency Preparedness**

1EP4 Emergency Action Level and Emergency Plan Changes (71114.04)

.1 Emergency Action Level and Emergency Plan Changes

a. Inspection Scope

The inspectors completed a screening review of revisions made to the licensee's emergency plan since the last plan review to determine whether the changes identified in those revisions may have reduced the effectiveness of the licensee's emergency plan. The screening review of these revisions does not constitute approval of the changes and, as such, the changes are subject to future NRC inspection to ensure the emergency plan continues to meet NRC regulations. Documents reviewed are listed in the Attachment to this report.

This emergency action level and emergency plan changes inspection constituted one sample as defined in IP 71114.04-05.

b. Findings

No findings of significance were identified.

## 2. RADIATION SAFETY

### Cornerstone: Public Radiation Safety

#### 2PS1 Radioactive Gaseous And Liquid Effluent Treatment And Monitoring Systems (71122.01)

##### .1 Inspection Planning and Identification of Instrumentation

###### a. Inspection Scope

The inspectors reviewed the configuration of the licensee's gaseous and liquid effluent processing systems to confirm that radiological discharges were properly mitigated, monitored, and evaluated with respect to public exposure. The inspectors reviewed the performance requirements contained in General Design Criteria 60 and 64 of Appendix A to 10 CFR Part 50 and in the licensee's Radiological Effluent Technical Specifications (RETS) and Offsite Dose Calculation Manual (ODCM). The inspectors also reviewed any abnormal radioactive gaseous or liquid discharges and any conditions since the last inspection when effluent radiation monitors were out-of-service to verify that the required compensatory measures were implemented. Additionally, the inspectors reviewed the licensee's quality control program to verify that the radioactive effluent sampling and analysis requirements were satisfied and that discharges of radioactive materials were adequately quantified and evaluated.

The inspectors reviewed each of the radiological effluent controls program requirements to verify that the requirements were implemented as described in the licensee's RETS. For each system modification (since the last inspection), the inspectors reviewed changes to the liquid or gaseous radioactive waste system design, procedures, or operation, as described in the Updated Final Safety Analysis Report (UFSAR) and plant procedures. The inspectors reviewed any changes that were made to the liquid or gaseous waste systems to verify that the licensee adequately evaluated the changes and maintained effluent releases as-low-as-is-reasonably-achievable (ALARA).

The inspectors reviewed changes to the ODCM made by the licensee since the last inspection to ensure consistency was maintained with respect to guidance in NUREG-1301, 1302 and 0133 and Regulatory Guides 1.109, 1.21 and 4.1. If differences were identified, the inspectors reviewed the licensee's technical basis or evaluations to verify that the changes were technically justified and documented.

For effluent monitoring instrumentation, the inspectors reviewed documentation to verify the adequacy of methods and monitoring of effluents, including any changes to effluent radiation monitor set-points. The inspectors evaluated the calculation methodology and the basis for the changes to verify the adequacy of the licensee's justification.

The inspectors reviewed the licensee's program for identifying, assessing, and controlling contaminated spills and leaks. The inspectors also reviewed any new effluent discharge pathways (such as significant continuing leakage to ground water that continues to impact the environment if not remediated) to verify that the ODCM was updated to include the new pathway. The inspectors reviewed the radiological effluent release report for 2007 in order to determine if anomalous or unexpected results were identified by the licensee, entered in the CAP, and adequately resolved.

The inspectors reviewed the significant changes in reported dose values from the previous radiological effluent release report, and the inspectors evaluated the factors, which may have resulted in the change. If the change was not explained as being influenced by an operational issue (e.g., fuel integrity, extended outage, or major decontamination efforts), the inspectors independently assessed the licensee's offsite dose calculations to verify that the licensee's calculations were adequately performed and were consistent with regulatory requirements.

The inspectors reviewed the licensee's correlation between the effluent release reports and the environmental monitoring results, as provided in Section IV.B.2 of Appendix I to 10 CFR Part 50. In addition, the inspectors reviewed the licensee audit results to determine whether the licensee met the requirements specified by the RETS/ODCM.

This inspection constitutes one sample as defined by Inspection Procedure 71122.01-5.

b. Findings

No findings of significance were identified.

.2 Onsite Inspection

a. Inspection Scope

The inspectors performed a walkdown of selected components of the gaseous and liquid discharge systems (e.g., gas compressors, demineralizers and filters (in use or in standby), tanks, and vessels) and reviewed current system configuration with respect to the description in the UFSAR. The inspectors evaluated temporary waste processing activities, system modifications, and the equipment material condition. For equipment or areas that were not readily accessible, the inspectors reviewed the licensee's material condition surveillance records, as applicable.

During system walkdowns, the inspectors assessed the operability of selected point of discharge effluent radiation monitoring instruments and flow measurement devices. The effluent radiation monitor alarm set point values were reviewed to verify that the set points were consistent with RETS/ODCM requirements.

The inspectors observed the licensee's sampling of liquid and gaseous radioactive waste (e.g., sampling of waste steams) and observed selected portions of the routine processing and discharge of radioactive effluents. The inspectors assessed whether the appropriate treatment equipment was used and whether the radioactive effluent was processed and discharged in accordance with RETS/ODCM requirements, including the projected doses to members of the public.

The inspectors interviewed staff concerning effluent discharges made with inoperable (declared out-of-service) effluent radiation monitors to determine if appropriate compensatory sampling and radiological analyses were conducted at the frequency specified in the RETS/ODCM. For compensatory sampling methods, the inspectors reviewed the licensee's practices to determine if representative samples were obtained and if the licensee routinely relied on the use of compensatory sampling in lieu of adequate system maintenance or calibration of effluent monitors.

The inspectors reviewed surveillance test results for non-safety-related ventilation and gaseous discharge systems high efficiency particulate air (HEPA) and charcoal filtration) to verify that the systems were operating within the specified acceptance criteria. In addition, the inspectors assessed the methodology the licensee used to determine the stack/vent flow rates to verify that the flow rates were consistent with the RETS/ODCM.

The inspectors reviewed the licensee's program for identifying any normally non-radioactive systems that may have become radioactively contaminated to determine if evaluations (e.g., 10 CFR 50.59 evaluations) were performed per IE Bulletin 80-10. The inspectors did not identify unidentified contaminated systems that may have been unmonitored discharge pathways to the environment.

The inspectors reviewed instrument maintenance and calibration records (i.e., both installed and counting room equipment) associated with effluent monitoring and reviewed quality control records for the radiation measurement instruments. The inspectors performed this review to identify any degraded equipment performance and to assess corrective actions, as applicable.

The inspectors reviewed the radionuclides that were included by the licensee in its effluent source term to determine if all applicable radionuclides were included (within detectability standards) in the licensee's evaluation of effluents. The inspectors reviewed waste stream analyses (10 CFR Part 61 analyses) to determine if hard-to-detect radionuclides were also included in the source term analysis.

The inspectors reviewed the meteorological dispersion and deposition factors and the hydrogeologic characteristics used in the licensee's ODCM and effluent dose calculations to verify that appropriate factors were used for public dose calculations. The inspectors also reviewed the land-use census to verify that the licensee had included any new public dose receptors or pathways.

The inspectors reviewed the annual dose calculations to ensure that the licensee had properly demonstrated compliance with 10 CFR Part 50, Appendix I, and TS dose criteria.

The inspectors reviewed and assessed the licensee's implementation of the voluntary NEI/Industry Ground Water Protection Initiative (GPI). The inspectors reviewed changes made to the GPI, monitoring results of the GPI, identified leakage or spill events and entries made into 10 CFR 50.75(g) records, and evaluations of leaks or spills, including any remediation actions taken for effectiveness. The inspectors reviewed licensee records to identify any abnormal gaseous or liquid tank discharges (e.g., discharges resulting from misaligned valves, valve leak-by, etc.) to determine if the licensee had implemented the required actions. The inspectors reviewed onsite contamination events involving contamination of ground water and assessed whether the source of the leak or spill was identified and mitigated. The inspectors reviewed licensee records to verify that significant leaks and spills were properly documented in the licensee's CAP and/or in the decommissioning file, per 10 CFR 50.75(g). The inspectors reviewed the licensee's records to determine if sufficient radiological surveys were performed to evaluate the extent of the contamination and the radiological source term, and the inspectors reviewed survey/evaluation records to verify that the licensee had considered hard-to-detect radionuclides, as applicable.

The inspectors assessed if the licensee evaluated and analyzed any new or additional effluent discharge pathways as a result of a spill, leak, abnormal, or unexpected liquid discharge or gaseous discharges. The inspectors reviewed whether the licensee monitored groundwater discharges and determined if significant leaks and spills had been properly documented. Specifically, on October 22, 2008, the licensee notified NRC that it discovered a leak in the turbine building sump discharge line during an excavation of a Fire Protection System within the protected area. This line was a three-inch carbon steel pipe sump discharge line to the settling basins, where it is eventually discharged via a monitored outfall to the environment. The leak was determined to be more than 100 gallons; however, the licensee was unable to determine how long the line was leaking. An analysis of the water from the leaking pipe was determined to contain approximately 37,000 picocuries per liter (pCi/l) tritium. These tritium levels were consistent with tritium levels in the condensate-feedwater systems of the turbine building. During the time of inspection, the licensee replaced 140 feet of piping of the discharge line, as well as the piping to the turbine sump. The inspectors evaluated whether the licensee's program included provision for required or voluntary offsite notifications to State and local officials, and the Nuclear Regulatory Commission (NRC). The licensee made notification regarding the leak to the State of Ohio, Lucas County and Ottawa County government agencies, and the NRC regarding the leak at 0900 on October 23, 2008. The inspectors also evaluated the licensee's actions to assess the leak and to determine any offsite impact to verify compliance with NRC requirements.

The inspectors assessed the licensee's program that evaluated discharges from onsite surface water bodies (ponds, retention basins, lakes) that contain or potentially contain radioactivity and the potential for leakage from these onsite surface water bodies into the ground water. The inspectors assessed if the licensee accounted for discharges from these surface water bodies as part of its effluent release reports and reviewed routine groundwater monitoring results to assess whether the licensee monitored for unknown leakage. The inspectors reviewed the licensee's records to verify that the licensee sufficiently evaluated monitoring results, properly documented and reported the results, entered any abnormal results into its CAP, and implemented adequate corrective actions. Additionally, the inspectors reviewed the licensee's self-assessments, audits, and event reports that involved unanticipated offsite discharges of radioactive material.

The inspectors reviewed the results of the inter-laboratory comparison program to assess the quality of radioactive effluent sample analyses. The inspectors reviewed the licensee's effluent sampling records (sampling locations, sample analyses results, flow rates, and source term) for radioactive liquid and gaseous effluents to verify that the licensee's information satisfied the requirements of 10 CFR 20.1501.

This inspection constitutes one sample as defined by IP 71122.01-5.

b. Findings

No findings of significance were identified.

### .3 Identification and Resolution of Problems

#### a. Inspection Scope

The inspectors reviewed the licensee's self-assessments, audits, LERs, and Special Reports related to the radioactive effluent treatment and monitoring program since the last inspection to determine if identified problems were entered into the CAP for resolution. The inspectors also assessed whether the licensee's self-assessment program was capable of identifying repetitive deficiencies or significant individual deficiencies in problem identification and resolution.

The inspectors reviewed corrective action reports from the radioactive effluent treatment and monitoring program since the previous inspection, interviewed staff, and reviewed documents to determine if the following activities were 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 Non-Cited Violations (NCVs) tracked in the corrective action system;
- implementation/consideration of risk significant operational experience feedback; and
- ensuring problems were identified, characterized, prioritized, entered into a corrective action, and resolved.

This inspection constitutes one sample as defined by IP 71122.01-5.

#### b. Findings

No findings of significance were identified.

## 4. **OTHER ACTIVITIES**

### **Cornerstone: Initiating Events, Mitigating Systems, Barrier Integrity, Emergency Preparedness, Occupational Radiation Safety, Public Radiation Safety, and Physical Protection**

#### 40A1 Performance Indicator Verification (71151)

##### .1 Mitigating Systems Performance Index - Heat Removal System

###### a. Inspection Scope

The inspectors sampled licensee submittals for the Mitigating Systems Performance Index - Heat Removal System performance indicator for the period from the third quarter of 2007 through the third 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, MSPI derivation reports, and NRC Integrated Inspection Reports for the period of the third quarter of 2007 through the third quarter of 2008 to validate the accuracy of the submittals. The inspectors reviewed the MSPI component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee’s issue report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator and none were identified. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one MSPI heat removal system sample as defined in IP 71151-05.

b. Findings

No findings of significance were identified.

.2 Mitigating Systems Performance Index - Residual Heat Removal System

a. Inspection Scope

The inspectors sampled licensee submittals for the Mitigating Systems Performance Index - Residual Heat Removal System performance indicator for the period from the third quarter of 2007 through the third 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, MSPI derivation reports, event reports and NRC Integrated Inspection Reports for the period of the third quarter of 2007 through the third quarter of 2008 to validate the accuracy of the submittals. The inspectors reviewed the MSPI component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee’s issue report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator and none were identified. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one MSPI residual heat removal system sample as defined in IP 71151-05.

b. Findings

No findings of significance were identified.

.3 Mitigating Systems Performance Index - Cooling Water Systems

a. Inspection Scope

The inspectors sampled licensee submittals for the Mitigating Systems Performance Index - Cooling Water Systems performance indicator for the period from the third

quarter of 2007 through the third 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, MSPI derivation reports, event reports and NRC Integrated Inspection Reports for the period of the third quarter of 2007 through the third quarter of 2008 to validate the accuracy of the submittals. The inspectors reviewed the MSPI component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator and none were identified. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one MSPI cooling water system sample as defined in IP 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 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. 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, 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 May 15, 2008 through November 15, 2008, although some examples expanded beyond those dates where the scope of the trend warranted.

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 were reviewed for adequacy.

This review constituted a single semi-annual trend inspection sample as defined in IP 71152-05.

b. Findings

No findings of significance were identified.

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

##### .1 Leakage of Water With Tritium Contamination From Condensate Demineralizer Backwash Line

###### a. Inspection Scope

The inspectors reviewed the plant's response to a leak from a three inch carbon steel line identified as the Condensate Demineralizer Backwash Line. The line also provided a flow path from the condenser pit sumps to the onsite retention ponds. The leak was identified on October 22, 2008, during building grounds excavation to determine the location of a leak in the underground fire water piping. Sampling of the water indicated tritium levels of approximately 37,000 picocuries per liter. Subsequent sampling of dirt and of water from onsite monitoring wells showed much lower levels of tritium and did not provide any indication that the leakage had migrated into offsite ground water supplies. The licensee notified state and local governments of the leakage and of their plans to mitigate any potential consequences. The licensee made a 10CFR 50.72 non-emergency notification to the NRC on October 23, 2008. Condition report 08-48288 documented the licensee's findings and actions. Documents reviewed in this inspection are listed in the Attachment.

This event follow-up review constituted one sample(s) as defined in Inspection Procedure 71153-05.

###### b. Findings

The licensee identified that the leaking pipe from the turbine building sump discharge, was not corrected in a timely manner which is a condition adverse to quality and a violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action." The enforcement elements of this violation are discussed in Section 4OA7.

##### .2 Rapid Downpower to Remove Main Turbine from Service

###### a. Inspection Scope

The inspectors reviewed the plant's response on December 24, 2008, to smoldering oil-soaked insulation on the main turbine in the vicinity of bearing Number 2. Upon identification the licensee conducted a rapid downpower and removed the main turbine from service. The reactor was maintained critical in Mode 1 with an average reactor power level of approximately 15 percent. The inspectors followed the licensee's investigation of oil coming along the turbine shaft past the oil seals and correction of restrictions to oil flow in the oil return lines associated with Number 2 bearing. Additionally, the inspectors reviewed the licensee's activities in returning the main turbine to service on December 27 and 28, 2008. Documents reviewed in this inspection are listed in the Attachment.

This event follow-up review constituted one sample as defined in Inspection Procedure 71153-05.

b. Findings

No findings of significance were identified.

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:

- Planning meeting for potential shutdown to replace reactor coolant system code safety valves on October 3, 2008.
- Plant status presentation for the Corporate Nuclear Review Board on October 8, 2008;
- Corporate Nuclear Review Board Meeting on October 10, 2008;
- Fleet Oversight third quarter brief on audits and assessments on October 15, 2008;

.2 (Closed) URI 05000346/2008004-01, Inoperability of Component Cooling Water Train 1 Ventilation

The inspectors documented in inspection report (IR) 05000346/2008004 that an unresolved item (URI) existed concerning the past operability of component cooling water (CCW) train 1 due to issues with the ventilation fan, MC75-1, provided for that equipment train. On September 10, 2008, during a maintenance planning walkdown for future work, licensee personnel observed that ventilation fan MC75-1 was running in the reverse direction. This would cause the fan to deliver, when required, less than the design ventilation flow rate and would also cause the ventilation supply to be from a source that could be hotter than the design source. Upon identification the licensee corrected the problem as documented in IR 05000346/2008004. During this inspection period the inspectors reviewed the licensee's calculations that indicated that the ventilation flow, although degraded, would have been sufficient to maintain the availability of the train 1 component cooling water system.

The licensee determined that this condition apparently existed since a maintenance activity in March 2006 and was not discovered until the maintenance planning walkdown. The improper restoration from a maintenance activity is a violation of 10 CFR 50, Appendix B, Criterion 5 "Instructions, Procedures, and Drawings" in that there were not appropriate quantitative or qualitative acceptance criteria for determining that important activities had been satisfactorily accomplished. The finding is more than minor because the ventilation flow was degraded. The finding affects the Mitigating Systems Cornerstone and was considered to have very low safety significance (Green) because the licensee calculations showed that the system would still be able to perform its function. The enforcement aspects of the violation are discussed in Section 4OA7. This URI is closed.

.3 In-Process Observation of the 2008 Safety Culture/Safety Conscious Work Environment Independent Assessment Activity

a. Inspection Scope

By letter dated June 6, 2008, (ML051610511) FENOC addressed the NRC's March 2004 Confirmatory Order requirement for Davis-Besse to perform an annual independent assessment of safety culture/safety conscious work environment (SC/SCWE). The letter stated that the 2008 SC/SCWE assessment would be conducted by Synergy Consulting Services Corporation (Synergy).

As part of the NRC's continuing oversight inspection activities at Davis-Besse, the inspectors observed the assessment team's evaluation of information gathered during four days of one-on-one interviews. The inspectors noted that Synergy had scheduled approximately 120 one-on-one interviews.

In addition to observing the Synergy team, the inspectors also observed the licensee's implementation of its Business Practice, NOBP-LP-2501, Safety Culture Assessment. The observation was to provide input to the assessment of the licensee's self assessment activities.

b. Observations and Findings

The four-person Synergy team reviewed information gathered during the interviews, assessed how the information correlated with information from other interviews and with data obtained from a written survey. In addition, the Synergy team identified areas to address during subsequent interviews. The inspectors concluded that the Synergy team appropriately evaluated individual interview results against other interviews and information obtained through the written survey. In addition, the Synergy team used the information to focus future interviews to gain additional insights into areas of interest. The final report on the independent SC/SCWE assessment is expected to be submitted to the NRC by the end of January 2009 and will be reviewed at that time.

The inspectors noted that the licensee implementation of Business Practice, NOBP-LP-2501, Safety Culture Assessment, had improved since 2007, by the licensee including additional discussions of individual organizations' ratings in different areas. However, most of the deficiencies identified during previous inspections still remain. For example, the business practice used the number of meetings held as an evaluation criteria for the quality of communications; weighting factors are not applied to individual questions in its roll-up calculations thus all questions and organizations are treated equally in assessing the site ratings. The licensee had made some efficiency improvement when dealing with rating which rely on numerical data by one organization rolling up the information from all departments; however, while an improvement in efficiency, individual organization deficiencies would not be identified. In addition, there are areas where go/no go criteria has not been considered. For example, in evaluating the effectiveness of the Safety Conscious Work Environment Review Team, the licensee had not considered, i.e., the business practice did not address, the rating if the Team identified a condition where the proposed adverse action constituted harassment, intimidation, retaliation, or discrimination.

No findings of significance were identified.

.4 Implementation of Temporary Instruction (TI) 2515/176, “Emergency Diesel Generator Technical Specification Surveillance Requirements Regarding Endurance and Margin Testing”

a. Inspection Scope

The objective of TI 2515/176 was to gather information to assess the adequacy of nuclear power plant emergency diesel generator endurance and margin testing as prescribed in plant-specific technical specifications (TS). The inspectors reviewed the licensee's TS, procedures, and calculations and interviewed licensee personnel to complete the TI. The information gathered for this TI was forwarded to the Office of Nuclear Reactor Regulation for further review and evaluation on December 17, 2008. This TI is complete at Davis-Besse Nuclear Power Station; however, this TI 2515/176 will not expire until August 31, 2009. Additional information may be required after review by the Office of Nuclear Reactor Regulation.

b. Findings

No findings of significance were identified.

.5 Quarterly Resident Inspector Observations of Security Personnel and Activities

a. Inspection Scope

During the inspection period, the inspectors conducted 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.

These quarterly resident inspector 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.

.6 Evaluation of the Independent Engineering Assessment Implementation and Final Report

a. Inspection Scope

The inspection activities were 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. This was the fifth and final of five required annual independent assessments of the engineering program. The inspectors previously verified that the licensee had submitted the required inspection plan 90 days prior to the performance of the assessment and evaluated the plan as documented in NRC Inspection Report 05000346/2008004. The current inspection activities verified implementation of the Independent Assessment at the Davis-Besse Nuclear Power Station (September 29 through October 3, 2008) in accordance with the approved plan

and reviewed the final report, submitted to the NRC on November 21, 2008. The inspectors reviewed the report to ensure that it provided an overall assessment of Engineering performance and that the Team's inspection activities supported the report's conclusions.

b. Observations and Findings

The fifth annual Davis-Besse Independent Engineering Assessment required by the Order was performed during the time period of September 22, 2008 to October 3, 2008. The NRC inspectors observed portions of the assessment activities during the second on-site week including numerous team interviews of plant staff. The interviews were found to be thorough and probing with very open communication between plant staff and the team. The inspectors also met with the team members to discuss implementation of the approved assessment plan, and performed independent evaluation of a sample of engineering products reviewed by the team. The inspectors found the team review of engineering products to be thorough and of high quality.

The team conducted a debrief at the end of on site activities and provided preliminary conclusions. The team's preliminary conclusion was that Davis-Besse Engineering Programs continue to be effective in both technical and organizational aspects and have shown improved performance in the quality of engineering products. No areas requiring improvement were identified by the team, however, two areas were preliminarily identified as needing attention. Areas needing attention (ANA) represent opportunities to further improve performance. The NRC inspectors found the implementation of the assessment plan to be acceptable.

On November 21, 2008, the licensee submitted the Independent Assessment of the Engineering Programs Effectiveness at the Davis-Besse Nuclear Power Station, final report to the NRC. This report documented the findings of that assessment.

- The Plant Modification Process was rated by the Team as Effective. This was based on the quality of Engineering Change Packages, interviews with engineers and managers, and Engineering Assessment Board performance indicator trends. A strength associated with this area was noted as a result of the workload management practices put in place over the last two years to improve refueling outage modification preparation. Further reduction in the backlog of open modifications was noted. One ANA associated with this area was identified due to the vague post modification test instructions found in a number of plant modifications.
- The Calculation Process was rated by the Team as Effective. This was based on the quality of work performed and progress made since the last independent assessment. The technical rigor of calculations has remained excellent. The backlog reduction effort is complete and backlogs are now maintained below goal levels. Although overall performance is very good in this area, major electrical calculations remain a challenge to maintain. One ANA associated with this area was identified due to inappropriate use of engineering judgment to justify deviation from the stated acceptance criteria.
- System Engineering Programs and Practices were rated by the Team as Effective. System Engineering was found to be responsive to plant problems and

supportive to operations and maintenance. Plant systems overall health was reported as Green for the second quarter of 2008, this was unchanged from the 2007 assessment. However, at the time of this assessment, four systems were Yellow status and three were Red status. That being said, a number of systems were shown to have significant health improvement since the 2007 assessment. This was deemed attributable to completion of significant system health improvement plan related work in the past year.

- Corrective Action Program Implementation was rated by the Team as Effective. Corrective action backlog goals for CR investigations and for corrective action implementation are being met. Engineering's implementation of the CAP was found to be very good to excellent. Condition Reports were found to be promptly initiated as appropriate and were appropriately classified as Significant or Adverse. One root cause evaluation and two apparent cause evaluations were reviewed by the team. These evaluations were found to be clear, concise, and met station expectations.
- Engineering implementation of the self assessment process was rated by the Team as Effective. Engineering program self-assessments were found to be consistently executed, intrusive, adding value, and of high quality. Overall, management appeared to be aggressively addressing the condition reports generated by self-assessments. The Team recommended, as in past independent assessments, that engineering management should develop a long range strategy for assessments.

The Team also reviewed progress to date of Davis-Besse's initiative to develop and implement an integrated approach to improving engineering quality, including corrective actions taken in response to the cross-cutting aspects of Human Performance / Resources / Long term plant safety associated with the Green Non-Cited Violations identified during the 2007 NRC Component Design Basis Inspection. An Action Plan was developed and discussed with the NRC. This Plan has been implemented and continues to be monitored.

FENOC Engineering recently approved a new Business Practice, NOBP-CC-2006, "Engineering Product Review". This Business Practice provides for several improvements. Specifically, the Cognizant Engineering Supervisor performs a review of the engineering product. This provides for the supervisor to directly interface with the originator and to reinforce behaviors and expectations. Also, scorecards are being utilized to promote continuous improvement of products through immediate feedback of results to the preparer and ensure quality. Results to date appear that the initiatives undertaken by FENOC and Davis-Besse are driving continuous improvement. The Team concluded that the initiatives are comprehensive both in scope and diversity. They include actions that address attention to the quality of the products, and influence personnel behavior characteristics to address human performance issues.

The Team reviewed engineering products in a number of areas and did not identify any discrepancies that were considered significant in terms of the validity of the work product, or indicative of a systematic deficiency in engineering work performance or management. The Team identified one "area of strength" and three "areas in need of attention". An area in need of attention was defined as an identified performance,

program, or process element within an area of assessment that, although sufficient to meet its basic intent, management attention is required to achieve full effectiveness and consistency. These “areas in need of attention” are not required to be addressed by formal Action Plans submitted to the NRC, but are considered for entry into the CAP by the licensee.

The Team also reviewed the licensee’s response to areas in need of attention identified during the 2007 independent assessment. One ANA associated with this area was identified due to less than fully effective resolution of issues identified during the 2007 assessment. Of the five CRs written to address ANAs, two were judged to be not effective and one was not fully effective. While the resolution of the CRs were dispositioned in accordance with FENOC procedures and policies, some dispositions were narrow in scope and in some cases did not address or resolve the problem.

c. Conclusions

The inspectors determined that the Team’s inspection activities were in accordance with the Inspection Plan and were of sufficient depth and scope to develop an adequate assessment of Engineering performance.

4OA6 Management Meetings

.1 Exit Meeting Summary

On January 13, 2009, the inspectors presented the inspection results to Mr. B. Allen, 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:

- Biennial Operator Requalification Program Inspection with Mr. R. Hovland, Davis-Besse Station Training Manager, on November 7, 2008;
- Biennial Operator Requalification Program Inspection and Requalification Examination Results via telephone with Mr. J. House, Licensed Operator Requalification Training Program Supervisor, Davis-Besse Station, November 19, 2008;
- Radioactive gaseous and liquid effluent treatment monitoring system under the public radiation safety cornerstone with Mr. Vito Kaminskis, Director of Site Operation on November 20, 2008. A telephone exit for TI 2515/176 was conducted with Gerry Wolf, Regulatory Compliance Engineer, and other Licensee staff on December 1, 2008;
- The annual review of emergency action level and emergency plan changes with the licensee's Senior Nuclear Specialist, Mr. S. Cope, via telephone on December 31, 2008; and

The inspectors confirmed that none of the potential report input discussed was considered proprietary.

#### 40A7 Licensee-Identified Violations

The following violations of very low significance (Green) were identified by the licensee and are violations of NRC requirements which meet the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600, for being dispositioned as NCVs.

##### **Cornerstone: Mitigating Systems**

- 10 CFR Part 50, Appendix B, Criterion 5 “Instructions, Procedures, and Drawings” requires that activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall include appropriate quantitative or qualitative acceptance criteria for determining important activities had been satisfactorily accomplished. Contrary to those requirements, in March 2006 licensee personnel performed activities that caused the ventilation fan MC75-1 (component cooling water train 1 ventilation system) to be returned to service rotating backwards. The discrepancy was not discovered by the licensee until September 2008. This event is documented in the licensee’s CAP as CR 08-46052. The finding is of very low safety significance because the licensee’s calculations indicate that the system would have been able to perform its design function.

##### **Cornerstone: Public Radiation Safety**

- The licensee identified a violation of 10 CFR Part 50, Appendix B, Criterion XVI, “Corrective Action,” when a condition adverse to quality, associated with a leaking pipe from the turbine building sump discharge, was not corrected in a timely manner. Condition Report 07-26481, written on September 12, 2007, identified that portions of the cathodic protection system were non-functional and that the material condition of underground piping was unknown. An action plan was approved to evaluate the condition of the underground piping; however, the work was delayed. On October 22, 2008, an excavation crew discovered water leaking from a 3-inch carbon steel pipe that runs from the turbine building sump to the settling ponds. Analysis of the water leaking from the pipe indicated the presence of tritium at a concentration of approximately 37,000 picocuries per liter. As directed by procedure, the licensee notified State of Ohio, Lucas County and Ottawa County government agencies and made a four hour non-emergency event notification to the NRC. Groundwater well sampling was performed on eleven wells during the week of October 27, 2008. Tritium concentrations from each sample were below reporting limits and had not changed significantly since the previous groundwater monitoring six months prior. There was no indication that the release migrated to off-site ground water sources. This issue was entered into the CAP as CR 08-48288. The licensee has since replaced the leaking pipe and verified its integrity. The issue is of very low safety significance because there was no radiological dose impact to a member of the public from the leak.

ATTACHMENT: SUPPLEMENTAL INFORMATION

## UPPLEMENTAL INFORMATION

### KEY POINTS OF CONTACT

#### Licensee

B. Boles, Director, Site Maintenance  
G. Chung, Gaseous, Liquid & HVAC Radiation Monitors System Engineer  
S. Cope, Senior Nuclear Specialist  
L. Harder, Manager, Radiation Protection  
D. Hartnett, Shift Manager Operations Training  
R. Hovland, Training Manager  
J. House, Training  
V. Kaminskis, Director, Site Operations  
D. Moul, Director, Site Engineering  
A. Percival, Sr. Nuclear Technologist, Chemistry  
C. Price, Director, Site Performance Improvement  
C. Stenbergen, Superintendent Operations Training  
J. Vetter, Emergency Response Manager  
G. Wolf, Regulatory Compliance Engineer  
D. Wuokko, Acting Manager, Regulatory Compliance

### LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

#### Opened

None

#### Closed

05000346/20080040-01	URI	Inoperability of Component Cooling Water Train 1 Ventilation
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## LIST OF DOCUMENTS REVIEWED

The following is a list of documents reviewed during the inspection. Inclusion on this list does not imply that the NRC inspectors 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

#### Procedures:

- DB-OP-6331; Freeze Protection and Electrical Heat Trace; Revision 18
- DB-OP-6913; Seasonal Plant Preparation Checklist; Revision 19

#### Work Orders:

- WO 200233699; PM 6381, Replace EDG Summer Oil and Intake Air Filter

#### Other:

- USAR Section 9.2.1; Service Water System
- USAR Section 9.2.5; Ultimate Heat Sink

### 1R04 Equipment Alignment

#### Condition Reports:

- CR 03-10726; HPI Pump #1 Conduit Support Foundation Is Not Completely Installed
- CR 08-45438; Gas Void Detected Below HP 1510
- CR 08-45439; Gas Void Detected at HP61
- CR 08-46573; Air Void Found in High Pressure Injection Piping

#### Procedures:

- DB-OP-6011; High Pressure Injection System; Revision 21
- DB-OP-6233; Auxiliary Feedwater System; Revision 25
- DB-OP-6311; 345 KV Switchyard Number 1 Transformer, Number 11 Transformer, and Startup Transformers; Revision 17
- DB-OP-6316; Diesel Generator Operating Procedure; Revision 39

#### Drawings:

- OS-3; High Pressure Injection System; Revision 31
- OS-17A, Sheet 1; Auxiliary Feedwater System; Revision 22
- OS-17B, Sheet 1, Auxiliary Feedwater Pumps and Turbines; Revision 24
- 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 Systems Air Start/Engine Air System; Revision 35
- OS-41C, Emergency Diesel Generator Diesel Oil System; Revision 16
- OS-56, Sheet 1; 345KV System; Revision 7
- OS-57, Sheet 1; 13.8KV System; Revision 6
- OS-57, Sheet 2; 13.8KV System; Revision 6

#### Other:

- Switching Order 08-4178D; 345 KV Bus Section Between ABSW's 34622, 34625, and 34626 Including Startup Transformer 2, 345/13.8 KV; October 7, 2008

- Clearance EDB-Sub003-03-001; Startup Transformer X02; October 7, 2008
- Plant Health Report, Second Quarter 2008

### 1R05 Fire Protection

#### Condition Reports:

- CR 04-7431; RFA to Evaluated Shadow Shielding in MPR 2 for Midcycle Outage
- CR 05-1379; Re-evaluate Shielding RFA CR 04-07341 for Installation Greater than 90 Days

#### Procedures:

- DB-PFP-AB-303; No. 3 Mechanical Penetration Room, Rooms 303 and 303PC, Fire Area AB; Revision 5

#### Drawings:

- A-222F; Fire Protection General Floor Plan El. 565'-0"; Revision 15
- A-223F; Fire Protection General Floor Plan El. 585'-0"; Revision 20

#### Other:

- Davis-Besse Fire Hazards Analysis Report

### 1R06 Flooding

#### Calculations:

- C-ECS-099.16-134; Circulating Water Expansion Joint Rupture at Condenser Inlet; Revision 1
- Bechtel 77-343-2; Condenser Pit Flood Pump Flow Rates; Revision 0

#### Procedures:

- DB-OP-2517; Circulating Water Pump Trip/Circulating Water System Ruptures; Revision 3

#### Drawings:

- E48B, Sheet 1A; Circulating Water Pump Motors; Revision 12
- E48B, Sheet 1B; Circulating Water Pump Motors Circuit Breaker Control; Revision 15
- E48B, Sheet 2A; Circ Wtr Pmps Disch Valvs; Revision 6
- E48B, Sheet 2B; Circ Wtr Pmps Disch Valvs; Revision 8
- OS-16A; Circulating Water System; Revision 32
- OS-53, Sheet 1; Station Drainage System; Revision 30

#### Other:

- Instrument Information Sheet for PSL-3738A; Revision 1
- SAROS 96-5; Probabilistic Safety Assessment of Turbine Building Flooding; May 1996
- SD-25; System Description for Circulating Water System; Revision 3

### 1R11 Licensed Operator Requalification Program

#### Condition Reports:

- CR 08-46128; NRC 71111.11 Inspection: Simulator Readiness Snapshot Self-Assessment Results; dated September 11, 2008
- CR 08-47562; Snapshot Assessment DB-SA-08-079 – Portion of OPR Medical Exams Not Documented; dated September 29, 2008
- CR 08-47784; Self-Assessment DB-SA-08-079 – Licensed Operator Requal Program Results; dated September 29, 2008

Procedures:

- DB-NE-03212; Zero Power Physics Testing; Revision 8
- DB-OP-02000; RPS, SFAS, SFRCS Trip, or SG Tube Rupture; Revision 21
- DB-OP-02504; Rapid Shutdown; Revision 12
- DB-OP-06912; Approach to Criticality; Revision 9
- DB-SA-08-079; Snapshot Self-Assessment; dated July 9, 2008
- DBBP-TRAN-0014; License Requirements for Licensed Operators; Revision 07
- DBBP-TRAN-0017; Conduct of Simulator Training; Revision 4
- DBBP-TRAN-0021, Attachment 22; Scenario Based Testing for Simulator Guide OTLC-200802 DB-S100; dated April 3, 2008
- DBBP-TRAN-0021, Attachment 22; Scenario Based Testing for Scenario OPS-OPE-S991, SOER 99-01; dated May 7, 2008
- DBBP-TRAN-0021, Attachment 22; Scenario Based Testing for Scenario ORQ-EPE-S235; dated May 7, 2008
- DBBP-TRAN-0021, Attachment 22; Scenario Based Testing for Scenario ORQ-EPE-S102; September 26, 2008
- DBBP-TRAN-0034; Davis-Besse Operator Fundamentals Memory List; Revision 00
- DBBP-TRAN-0502; Development and Conduct of Continuing Training Simulator Evaluations; Revision 5
- NG-DB-00235; Control of Time Critical Activities; Revision 1
- NOBP-TR-1109-01; Several Examples of "Facilitated Plus/Delta" Data; Revision 01
- NOBP-TR-1109-01; Facilitated PLUS/DELTA (10 Training Cycle Packages Reviewed); dated from January 12, 2007 through October 31, 2008
- NOBP-TR-1109-02; Non-Facilitated PLUS/DELTA (10 Training Cycles Reviewed; dated from January 12, 2007 through October 31, 2008
- NOBP-TR-1109-05; Trainee Feedback – Continuing Training (10 Training Cycles); dated from January 12, 2007 through October 31, 2008
- NOP-OP-1002; Conduct of Operations; Revision 04
- NOP-TR-1001-01; Remedial/Make-Up Recommendations (Several Packages Reviewed); dated between October 5, 2006 – January 26, 2007
- NT-OT-7001; Training and Qualification of Operations Personnel; Revision 10

Other:

- DB-0657-0; Return to Active Status (8 Packages Reviewed); dates: January 10, 2007, April 9, 2007, July 11, 2007, December 19, 2007, April 1, 2008, July 1, 2008, August 7, 2008, October 1, 2008
- LER-2006-004; Potential Damage to Ventilation Dampers due to Design-Basis Tornado Differential Pressures Davis-Besse Nuclear Power Station Unit 1; Revision 2
- LER-2007-001; Station Vent Radiation Monitor in Bypass Due to Faulty Optical Isolation Board Davis-Besse Nuclear Power Station Unit 1; Revision 0
- LER-2007-002; Decay Heat Removal Discharge Piping Void Due to Inadequate Procedure for Venting Following Maintenance Davis-Besse Nuclear Power Station Unit 1; Revision 0
- LER-2008-001; Pressure Boundary Leak Found during Decay Heat Removal Drop Line Weld Overlay Davis-Besse Nuclear Power Station Unit 1; Revision 0
- OTLC-2008SC-DB1100, Licensed Operator Continuing Training Cycle 08-SC; Revision 0
- ROP Plant Issues Matrix; Davis-Besse Nuclear Power Station Unit 1; dated August 6, 2008
- L-08-334; Submittal of Requalification Examination as Requested for the NRC Inspection of the Operator Requalification Program; dated October 27, 2008
- 18 JPMs; Various In-Plant, Administrative and Simulator JPMs; Various Dates
- 9 Scenario Guides; Various Simulator Scenario Guides; Various Dates
- 5 Written Exams; Various RO and SRO Written Exams; Various Dates

- 9 HZP Physics Tests; Simulator Tests N2b, N1a, N1b, N1c, N1d, N1e, N1f, N1g, and N3; Various Dates
- TEST: 08 TAB 11; Maximum Power Load Rejection with No Reactor Trip; dated October 17, 2008
- TEST: 08 TAB 01; Manual Reactor Trip; dated July 29, 2008
- TEST: 08 TAB 02; Simultaneous Trip of All MFW Pumps; dated July 29, 2008
- TEST: 08 TAB 03; Simultaneous Closure of MSIVs; dated July 29, 2008
- TEST: 08 TAB 04; Simultaneous Trip of All RCPs; dated July 29, 2008
- TEST: 08 TAB 05; Trip of One Reactor Coolant Pump; dated October 9, 2008
- TEST: 08 TAB 06; Main Turbine Trip from 40% Power – No Reactor Trip; dated October 10, 2008
- 15 Open SWOs; Simulator Work Orders of Priority 1, 2, or 3; Various Dates
- Simulator Configuration Control Committee Meeting Minutes; dated April 28, 2008
- Simulator Configuration Control Committee Meeting Minutes; dated September 10, 2008
- Simulator Configuration Control Committee Meeting Minutes; dated October 28, 2008
- Cycle 07-04 Licensed Operator Continuing Training CRC Agenda; dated June 20, 2007
- Cycle 08-03 Licensed Operator Continuing Training CRC Agenda; dated April 28, 2008
- Davis-Besse Technical Specifications 6.0 Administrative Controls, Table 6.2-1, Minimum Crew Composition; Amendment 276
- Cycle 05-03 Current Events – Time Critical Tasks; dated September 2005
- Time Critical Actions List R04; dated December 14, 2007
- Trainee Tracking; FENOC Information Tracking System; dated October 22, 2008
- Memorandum – Fourth Quarter 2006 Proficiency Status; dated January 11, 2007
- Memorandum – First Quarter 2007 Proficiency Status; dated April 9, 2007

## 1R12 Maintenance Effectiveness

### Condition Reports:

- 06-02425; Boric Acid Primary Heat Trace Inadequate
- 06-11541; Boric Acid Heat Trace Circuit 100P Failure
- 06-10887; Freeze Protection Point 119 Low Temperature
- 07-12064; Plant Process Computer Failure with Backup CPU Failing to Pickup
- 07-24754; Plant Computer Failure
- 07-29893; COIA-ENG-2007, ANA #3, System Health Activities, Plant Computer
- 08-33163; Plant Computer MUX Power Supply Failure
- 08-40935; Method For Calculating Heat Balance Without Plant Computer
- 08-37929; PPC Workstations Periodically Disconnect from and Reconnect to Plant Computer
- 08-42381; C5752D Power Supply Bad
- 08-46087; Fleet AOV Program Snapshot Assessment FL-SA-08-057 – Area for Improvement
- 08-43297; Heat Trace Deficiencies Noted During Quarterly Walkdown
- 08-46705; Plant Computer Analog Multiplexer Failure
- 08-47249; Heat Trace Deficiencies Noted During Quarterly Walkdown
- 08-47449; SOE MUX Controller Card Error

### Procedures:

- DB-OP-6331; Freeze Protection and Electrical Heat Trace; Revision 18
- NOP-ER-3602; Air Operated Valve Program Overview; Revision 2
- NOP-SS-2101; Engineering Program Management; Revision 3
- NOBP-ER-3602A; Air Operated Valve Program Categorization; Revision 2
- NOBP-ER-3602C; Air Operated Valve program Test Preparation and Evaluation; Revision 2
- NORM-ER-3301; I&C Power Supply; Revision 3

Calculations:

- C-ME-016.04-034; System Level Review for Component Cooling Water System Air Operated Valves; Revision 1
- C-ME-099.16-008; Minimum Required Thrust/Torque Calculation Methodologies for Air Operated Valves; Revision 0
- C-NSA-099.16-024; AOV Risk Ranking; Revision 1

Drawings:

- E-1027, Sheet 1; Freeze Protection Circuit Descriptions; Revision 17
- E-1027, Sheet 2; Freeze Protection Circuit Descriptions; Revision 15
- E-1027, Sheet 3; Freeze Protection Circuit Descriptions; Revision 8
- E-1027, Sheet 4; Freeze Protection Circuit Descriptions; Revision 12
- E-1027, Sheet 5; Freeze Protection Circuit Descriptions; Revision 8

Work Orders:

- 20020141; TE20307 – Boric Acid Circuit 108 – Replace Thermocouples
- 200328209; Boric Acid Heat Trace Circuit 82S
- 200314669; Freeze Protection Below Alarm Point

Other:

- AOV Setup Control Sheet for SW 1424; Revision 0
- Air-Operated Valves Equipment Failure Reports - January 2001 through August 2008; Generated October 20, 2008
- Air Operated Valve Quarterly Program Health Report; Third Quarter 2008 (No Date)
- DB-SA-07-035; Davis-Besse 2007 Air Operated Valve Program Snapshot Self-Assessment Report; July 2007
- EWR 01-0161-00; Re-sizing of Heat Trace Circuits; Revisions 0 through 15
- Freeze Protection/Heat Trace; Plant System Health Report; Second and Third Quarter 2008 (No Date)
- Heat Trace Equipment Failure Reports – January 2002 through September 2008; Generated December 1, 2008
- Maintenance Rule Program Manual; Revision 25
- SD-11A; System Description for Plant Process Computer System (PPCS); Revision 6
- Spreadsheet Showing Categorization of Air Operated Valves (No Date)
- Turbine Bypass Valve Performance Action Plan (No Date)
- USAR Section 7.10; Station Computer System

1R15 Operability Evaluations

Condition Reports:

- CR 08-35827; MTSV A Reset Time 10 Minutes Failed Test
- CR 08-35922; ODMI: Master Trip Solenoid Valve (MTSV) Resetting Failures
- CR 08-36563; MTSV A Fails to Deenergize Instantly and Fails to Reset During Test (DB-SS-04159)
- CR 08-36732; MTSV ODMI Assumption May Be Changed
- CR 08-48200; MOV Motor Lead Terminations

Procedures:

- DB-PF-9301; Preventive Maintenance for Type SMB and SB Limitorque Operators; Revision 6
- DB-SC-03080; Emergency Diesel Generator 1 Overspeed Trip Test; Revision 6
- DB-SS-4159; 24 Volt DC Master Trip Solenoid Valves Test; Revision 4

Drawings:

- M-33A; High Pressure Injection; Revision 41
- OS-3; High Pressure Injection System; Revision 31
- OS-23, Sheet 2; Turbine Electrohydraulic Control System; Revision 26
- OS-41A, Sheet 1; Emergency Diesel Generator Systems; Revision 28

Other:

- Clarification of Information Related to the Environmental Qualification of Limitorque Motorized Valve Operators; dated August 1989
- Calculation C-ME-52.01-109; Target Thrust for HP2B; Revision 2
- ECR 02-0738-00; Replace the Governors on the Emergency Diesel Generator; Revision 0
- MOV Data Package HP2B; Revision 8
- Notification 600499945; Wrong EQ Internal Winding Leads
- Qualification File No. DB1-037E; Environmental Conditions For Davis-Besse Unit No. 1; Revision 9
- SD-006; System Description for Electro-Hydraulic Control and Turbine Supervisory Instrumentation System; Revision 4
- USAR Section 10.2.4; Turbine Generator Overspeed Protection
- Unit Log Entries; November 19, 2008 through November 22, 2008

1R19 Post Maintenance Testing

Condition Reports:

- CR 08-49647; Brushes on the EDG Scored with Imbedded Copper
- CR 08-49686; EDG 1 Rotor Wire Displaced on Pole 6
- CR 08-49847; Unplanned Trip of EDG 1 During DB-SC-03080, EDG 1 Overspeed Trip Test
- CR 08-51019; MS106A Failed To Automatically Close

Procedures:

- DB-MM-9343; Emergency and Station Blackout Diesel Engine 2 Year Maintenance of Lube Oil Filters, One Revolution and Other Inspections; Revision 1
- DB-OP-3152; AFW Train 1 Level Control, Interlock, and Flow Transmitter Test; Revision 23
- DB-OP-6316; Diesel Generator Operating Procedure; Revision 39
- DB-SC-3076; Emergency Diesel Generator 1 184 Day Test; Revision 19
- DB-SC-3077; Emergency Diesel Generator 2 184 Day Test; Revision 15
- DB-SC-3080; Emergency Diesel Generator 1 Overspeed Trip Test; Revision 6

Work Orders:

- WO 200232589; PM 0728 – Clean and Inspect EDG 2
- WO 200288875; Replace EDG 1 DC Fuel Pump Motor
- WO 200349598; MS106A Failed to Auto Close

1R22 Surveillance Testing

Condition Reports:

- CR 07-30409; NRCCDB107-EDG 1 Monthly Test of 4/27/06 Recorded Inadequate Frequency Value
- CR 08-33017; Flash Inside Power Supply When Energizing SFRCS Logic Channel 4
- CR 08-33051; Internal Connection on Capacitor Found Loose in New SFRCS Power Supply
- CR 08-34545; SFRCS Trouble Annunciator (12-6-D) in Alarm for No Apparent Reason

- CR 08-43249; SFRCS Block Pressure Switch PS-3687M Found Out of Tolerance During Testing
- CR 08-43257; SFRCS Pressure Differential Switch 2686D Out of Tolerance

Procedures:

- DB-MI-03211; Channel Functional Test of SFRCS Actuation Channel 1 Logic for Mode 1; Rev. 0014
- DB-OP-1101; Containment Entry; Revision 8
- DB-OP-3013; Containment Daily Inspection and Containment Closeout Inspection; Revision 5
- DB-SC-3070; Emergency Diesel Generator 1 Monthly Test; Rev. 0018
- DB-SS-3091; Motor Driven Feed Pump Quarterly Test; Revision 11
- DBBP-ESAF-1015; Industrial Safety Requirements for Containment Entry; Revision 13

Other:

- ISTEP3; Third Ten Year Inservice Testing Program Manual
- Davis-Besse Plant Health Report 2<sup>nd</sup> Quarter 2008
- Motor Driven Feed Pump Bearing Temperature Trends During Quarterly Test; October 15, 2008

1EP4 Emergency Action Level and Emergency Plan Changes

Procedures:

- DBNPS Emergency Plan, Rev. 24 and 25
- RA-EP-01500, DBNPS Emergency Plan Implementing Procedure, Emergency Classification, Rev. 9 and 10

Other:

- 10CFR50.54(q) Evaluation/Screening

2PS1 Radioactive Gaseous And Liquid Effluent Treatment And Monitoring Systems

Condition Reports:

- CR 07-14263; Update Land Use Census Data and Procedure References in ODCM
- CR 08-30031; New and Construction Era Groundwater Monitoring Wells
- CR 08-44829; Overall Effectiveness Review of the Implementation of the NEI Groundwater Protection Initiative
- CR 08-48288; Leaking Pipe Found
- CR 08-48354; Samples Related to Soil and Gravel from the Leak
- CR 08-49800; No. 1 HPGE Detector Experiencing Intermittent Gain Shifts

Procedures:

- DB-CH-00009; Daily Energy and Efficiency Calibration Check of HPGE No. 2
- DB-CN-03008; Attachment 3: Station Vent Analysis; dated November 18, 2008
- NOP-OP-4705; Response to Contaminated Spills/Leaks; Revision 1

Other:

- 62463-96; Certificate of Calibration Standard Radionuclide Source; dated November 26, 2001
- 2007 Annual Radiological Environmental Operating Report; Including Radiological Effluent Release Report; dated April 2008
- DB-0316-0; CM&TE Evaluation of Analysis; High Purity Germanium Detector; dated August 21, 2008

- DB-CN-03008; Station Vent Releases, Weekly Radiological Monitoring, Sampling and Analysis; Revision 6
- DB-CN-03008; Station Vent Releases, Weekly Radiological Monitoring, Sampling and Analysis; dated August 11, 2008
- DB-CN-03023; Annual Land Use Census; dated July 25, 2008
- DB-M12412-004; Calibration of Channel 1 and 2 for RE4597AA, RE4597BA, RE4598AA, and RE4598BA Normal Range Radiation Monitors, dated March 4, 2008
- DB-M13401-004; Miscellaneous Waste System Outlet Radiation Monitors; dated April 15, 2008
- DB-M13401-007; Channel Calibration of Liquid Process and Waste Gas System Outlet Radiation Monitors; dated August 6, 2008
- DB-SA-08-081; Snapshot Self-Assessment Report; Ventilation Filter Testing Program; dated September 29, 2008
- Davis-Besse Offsite Dose Calculation Manual; Revision 22
- DBNPS Backwash Line Leak – Groundwater Well Sampling Week October 27, 2008
- Batch Release Reports for 2008
- Instrument Information Sheet Davis-Besse; Station Vent Flow Transmitter Calibration; dated June 25, 2008
- SR 2008-039; SR 2008-039 For Environmental Inc. Midwest Laboratory; dated October 10, 2008

#### 4OA1 Performance Indicator Verification

##### Condition Reports:

- CR 07-29587; #1 Aux Feed Pump Governor Won't Come Off Low Speed Stop

##### Procedures:

- NOBP-LP-4012; NRC Performance Indicator; Revision 3

##### Other:

- DB Form NOBP-LP-4012-48; MSPI Heat Removal System (AFW); October 2007 through September 2008
- DB Form NOBP-LP-4012-49; MSPI Residual Heat Removal System (LPI); October 2007 through September 2008
- DB Form NOBP-LP-4012-50; MSPI Support Cooling System Component Cooling Water; October 2007 through September 2008
- DB Form NOBP-LP-4012-51; MSPI Support Cooling System Service Water; October 2007 through September 2008
- Operator Logs; October 2007 through September 2008
- Davis-Besse Plant Health Report; Third Quarter 2008
- Davis-Besse MSPI Basis Document; Revision 4
- NEI 99-02; Regulatory Assessment Performance Indicator Guideline; Revision 5

#### 4OA2 Problem Identification and Resolution

##### Procedures:

- NOBP-LP-2010; CREST Trending Codes; Revision 7
- NOP-LP-2001; Corrective Action Program; Revision 19

##### Condition Reports:

- CR 08-43337; Cross-Cutting Aspects Precursor Human Error Prevention Technique (H.4.A) Trend

- CR 08-45569; Negative Trend in Maintenance Mispositioning Events Requires Aggregate Review

Other:

- Davis-Besse Nuclear Power Station Fleet Oversight Quarterly Report; Third Quarter – 2008
- Human Performance Team Report; November 2008
- DB-SA-08-054; Chemistry First Half 2008 Performance Assessment; January 1, 2008 – June 30, 2008
- DB-SA-08-058; Maintenance First Half 2008 Performance Assessment; January 1, 2008 – June 30, 2008
- DB-SA-08-059; Operations First Half 2008 Performance Assessment; January 1, 2008 – June 30, 2008
- DB-SA-08-072; Site Roll-Up Integrated Performance Assessment; January 1, 2008 – June 30, 2008

4OA3 Follow-Up of Events and Notices of Enforcement Discretion

Condition Reports:

- CR 08-48288; Leaking Pipe Found
- CR 08-48354; Tritium Detected In Sample Taken From Leak Documented in CR 08-48288
- CR 08-51296; Smoking Insulation in Area of Main Turbine Bearing # 2
- CR 08-51297; Minor Fire Due to Oil Dripping on Hot Metal on Main Turbine
- CR 08-51322; AS Found Condition of the #2 Turbine Bearing Turbine End Oil Deflector
- CR 08-51359; Main Turbine Intercept Valves Failed to Open During Attempted Turbine Roll
- CR 08-51370; DB-SS-4154, Weekly Backup O/S Trip Test Failed
- CR 06-51373; HD261B, HPFW Heater 1-6 Normal Level Control Valve Failed Open
- CR 08-51389; HD261A Will Not Open on a High Alarm Condition of FW Htr 1-6

Procedures:

- DB-OP-6202; Turbine Operating Procedure; Revision 18
- NOP-OP-4705; Response to Contaminated Spills/Leaks; Revision 1

Work Orders:

- WO 2003; MC75-1

Other:

- NRC Event Notification 44596; Offsite Notification Due To Sump Discharge Line Leakage; 10/23/2008

4OA5 Other Activities

Procedures:

- DB-SC-03070; Emergency Diesel Generator 1 Monthly Test; Revision 17
- DB-SC-03071; Emergency Diesel Generator 2 Monthly Test; Revision 16
- DB-SC-03076; Emergency Diesel Generator 1 184 Day Test; Revision 17
- DB-SC-03077; Emergency Diesel Generator 2 184 Day Test; Revision 14

Calculations:

- C-EE-015.03-008; AC Power System Analysis; Revision 4
- C-ME-016.05-002; CCW Room Ventilation With Reverse Flow of Fan; Revision 0
- C-NSA-049.01-004; Vortex Formation With ECCS Pump Suction From the BWST; Revision 2

- C-NSA-049.02-26; NPSH Licensing Basis; Revision 1, Addendum 2
- C-NSA-049.02-033; LPI Flow Evaluation Based on Test Data From DB-SP-04455, Revision 2, Addendum 1

Engineering Changes:

- ECP 06-0002-00; Modification of Masonry Wall 3267; DR Revision 1
- ECP 06-0118-00; Modify Caldon Leading Edge Flow Motor Alarm Circuit; Revision 0
- ECP 07-0014-00; Re-rate Line Class HBD-139; Revision 0

4OA7 Licensee-Identified Violations

Condition Reports:

- CR 07-26481; Buried Piping and Cathodic Protection
- CR 08-48288; Leaking Pipe Found
- CR 08-48354; Tritium Detected in Sample Taken From Leak Documented in CR 08-48288

Procedures:

- NOP-OP-4705; Response to Contaminated Spills/Leaks; Revision 1

## LIST OF ACRONYMS USED

AFW	Auxiliary Feedwater
ALARA	As-Low-As-Is-Reasonably-Achievable
ANA	Areas Needing Attention
ASME	American Society of Mechanical Engineers
CAP	Corrective Action Program
CCW	Component Cooling Water
CFR	Code of Federal Regulations
DRP	Division of Reactor Projects
DRS	Division of Reactor Safety
EDG	Emergency Diesel Generator
GPI	Ground Water Protection Initiative
I&C	Instrumentation and Controls
IMC	Inspection Manual Chapter
IP	Inspection Procedure
IR	Inspection Report
JPM	Job Performance Measure
LER	Licensee Event Report
LORT	Licensed Operator Requalification Training
NCV	Non-Cited Violation
NEI	Nuclear Energy Institute
NRC	U.S. Nuclear Regulatory Commission
ODCM	Offsite Dose Calculation Manual
pCi/l	Picocuries Per Litter
PI	Performance Indicator
PI&R	Problem Identification and Resolution
QA	Quality Assurance
PM	Post-Maintenance
RETS	Radiological Effluent Technical Specifications
RFO	Refueling Outage
SAT	Systems Approach to Training
SC/SCWE	Safety Culture/Safety Conscious Work Environment
SDP	Significance Determination Process
SYNERGY	Synergy Consulting Services Corporation
TI	Temporary Instruction
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report
USAR	Updated Safety Analysis Report
URI	Unresolved Item
WO	Work Order