

October 26, 2005

EA-04-224  
EA-03-214

Mr. Mark B. Bezilla  
Vice President-Nuclear, Davis-Besse  
FirstEnergy Nuclear Operating Company  
Davis-Besse Nuclear Power Station  
5501 North State Route 2  
Oak Harbor, OH 43449-9760

SUBJECT: DAVIS-BESSE NUCLEAR POWER STATION  
NRC INTEGRATED INSPECTION REPORT 05000346/2005008

Dear Mr. Bezilla:

On September 30, 2005, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Davis-Besse Nuclear Power Station. The enclosed inspection report documents the inspection findings which were discussed on October 4, 2005, with you and other members of your staff. Additionally, this inspection report documents special inspection activities to ensure your compliance with the March 8, 2004, Confirmatory Order (EA-03-214).

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, there was one NRC identified finding of very low safety significance which involved a violation of NRC requirements. However, because this violation was of very low safety significance and because it was entered into your Corrective Action Program, the NRC is treating the issue as a Non-Cited Violation consistent with Section VI.A of the NRC Enforcement Policy. Additionally, a licensee identified violation is listed in Section 4OA7 of this report.

If you contest the subject or severity of the Non-Cited Violation, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, D.C. 20555-0001; with copies to the Regional Administrator Region III, 2443 Warrenville Road, Suite 210, Lisle, IL 60532-4352; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, D.C. 20555-001; and the NRC Resident Inspector at Davis-Besse.

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Sincerely,

**/RA/**

Christine A. Lipa, Chief  
Branch 4  
Division of Reactor Projects

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

Enclosure: Inspection Report 05000346/2005008  
w/Attachment: Supplemental Information

cc w/encl: The Honorable Dennis Kucinich  
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J. Hagan, Senior Vice President of  
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Director, Plant Operations  
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U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No: 50-346

License No: NPF-3

Report No: 05000346/2005008

Licensee: FirstEnergy Nuclear Operating Company (FENOC)

Facility: Davis-Besse Nuclear Power Station

Location: 5501 North State Route 2  
Oak Harbor, OH 43449-9760

Dates: July 1 through September 30, 2005

Inspectors: S. Thomas, Senior Resident Inspector  
J. Rutkowski, Resident Inspector  
J. Jacobson, Senior Reactor Engineer  
G. Wright, Project Engineer

Approved by: C. Lipa, Chief  
Branch 4  
Division of Reactor Projects

Enclosure

## SUMMARY OF FINDINGS

IR 05000346/2005008; 7/1/2005 - 9/30/2005; Davis-Besse Nuclear Power Station; Other Activities.

This report covers a 13 week period of resident inspection. The inspection was conducted by Region III inspectors and resident inspectors. One Green finding associated with one Non-Cited Violation was identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). Findings for which the SDP does not apply may be "Green" or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 3, dated July 2000.

### A. Inspector-Identified and Self-Revealed Findings

#### Cornerstone: Mitigating Systems

- Green. A finding of very low safety significance was identified by the inspectors when the licensee failed to properly implement existing procedural guidance for the control of gaps between scaffolding and plant equipment and failed to properly review and document the scaffolding installation. Scaffolding was erected less than one inch from safety-related containment spray instrumentation lines and high pressure injection pump lube oil piping. The scaffolding was constructed in this manner even though there were no physical interferences which necessitated that the scaffolding to be erected with less than the procedurally permitted one inch gap. Additionally, rationale for approval of the configuration was not provided as was procedurally required. Once identified, the licensee took prompt action to review the scaffolding installation and modify the scaffolding to conform to a procedurally allowed configuration. The improperly approved scaffolding was in place approximately eight hours.

The finding was more than minor since it was associated with the attributes of protection against external factors and configuration control and affected the mitigating systems' objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The inspectors determined that the finding was of very low safety significance because there was no actual loss of function of any of the plant safety-related systems due to the placement of the scaffold. This issue was determined to be a Non-Cited Violation of 10 CFR 50, Appendix B, Criterion V. The primary cause of this violation was related to the cross-cutting area of Human Performance because licensee personnel, while having adequate procedural guidance, failed to implement the requirements of that guidance. (Section 4OA5.2).

### B. Licensee-Identified Findings

A violation of very low safety significance, which was identified by the licensee, has been reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program. The violation and corrective actions 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 approximately 100 percent power. During this inspection period, brief power reductions of less than 10 percent occurred on:

- July 3, 2005, to support main turbine valve testing;
- July 31, 2005, to support condensate pump maintenance, control rod exercises, and main turbine valve testing;
- August 28, 2005, to support main turbine valve testing and condensate pump maintenance; and
- September 25, 2005, to support main turbine valve testing.

On each occasion, upon completion of the planned testing or maintenance, power was restored to approximately 100 percent. The plant operated at approximately 100 percent power for the remainder of the inspection period.

### **1. REACTOR SAFETY**

#### **Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity, and Emergency Preparedness**

#### 1R04 Equipment Alignment

##### .1 Partial System Walkdown (71111.04Q)

##### a. Inspection Scope

The inspectors conducted partial walkdowns of the system trains listed below to determine whether the systems were correctly aligned to perform their designed safety function. The inspectors used licensee system valve line-up documents and system drawings during the walkdowns. The walkdowns included selected switch and valve position checks, and verification of electrical power to critical components. Finally, the inspectors evaluated other elements, such as material condition, housekeeping, and component labeling. The documents used for the walkdowns are listed in the Attachment. The inspectors reviewed:

- the decay heat removal (DHR) system train 1 subsequent to system restoration following performance of the DHR train 1 quarterly surveillance on July 12, 2005;
- the motor driven feedwater pump in the auxiliary feedwater mode subsequent to its return to service following a motor driven feedwater pump outage on July 28, 2005; and

- the DHR train 1 during a planned outage for pump and valve work that rendered DHR train 2 inoperable and unavailable on August 24, 2005.

This constitutes three samples.

b. Findings

No findings of significance were identified.

.2 Complete System Walkdown (71111.04S)

a. Inspection Scope

The inspectors performed one complete system walkdown of the service water system during the time period of August 8, 2005 to August 11, 2005

The inspectors reviewed operating procedures, system diagrams, Technical Specification (TS) requirements, and applicable sections of the Updated Safety Analysis Report (USAR) to ensure the correct system lineup. The inspectors verified acceptable material condition of system components, availability of electrical power to system components, and that ancillary equipment or debris did not interfere with system performance.

This constitutes one sample.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05Q)

a. Inspection Scope

The inspectors conducted fire protection inspections focused on the availability, accessibility, and condition of fire fighting equipment, the control of transient combustibles, and the condition and status of installed fire barriers. The inspectors selected fire areas for inspection based on their overall contribution to internal fire risk, as documented in the Individual Plant Examination of External Events, and their potential to impact equipment which could initiate a plant transient. Inspectors checked 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 that fire doors, dampers, and penetration seals appeared to be in satisfactory condition.

The following areas were inspected:

- mechanical penetration room 4 (Fire Area A, Room 314);
- auxiliary feed pump 1 room (Fire Area E, Rooms 237);

- station main and auxiliary transformer (Fire Area OS);
- bus tie transformer AC (Fire Area OS);
- bus tie transformer BD (Fire Area OS);
- auxiliary building elevation 545 feet (Fire Area A, Rooms 106 and 109); and
- mechanical penetration room 3 (Fire Area AB, Room 303).

This constitutes seven samples.

b. Findings

No findings of significance were identified.

1R06 Flood Protection - External Flooding (71111.06)

a. Inspection Scope

The inspectors evaluated the licensee's preparations to mitigate the consequences of a large circulating water system rupture in the main condenser pit area. This inspection included: a review of assessments which supported the Individual Plant Examination of External Event for the Davis-Besse Nuclear Station, associated with internal flooding; and a review of licensee procedures and equipment used to mitigate the consequences of a large circulating water system break in the condenser pit area. This internal flooding scenario was chosen due to its high likelihood to be a plant trip initiator and due to its potential to impact risk significant equipment.

This constitutes one sample.

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance (71111.07A)

a. Inspection Scope

The inspectors evaluated the licensee's execution of biofouling controls for the service water system and the circulating water system. As part of this inspection, the inspectors performed a walkdown of the chemical injection systems and discussed their operation with a licensee chemistry supervisor. Additionally, the inspectors discussed the purpose of each chemical used for biofouling controls in the service water system and circulation water system, as well as the effectiveness of each chemical, with a licensee chemistry supervisor and the service water system engineer.

This constitutes one sample.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program (71111.11Q)

a. Inspection Scope

On September 1, 2005, the inspectors observed an operating crew during simulator annual requalification training associated with an emergency plan exercise and attended the post-session licensee controller critique. The inspectors reviewed crew performance in the areas of:

- clarity and formality of communications;
- ability to take timely action in a safe direction;
- ability to prioritize, interpret and respond to alarms;
- procedure use;
- oversight and direction from supervisors; and
- group dynamics.

Crew performance in these areas was compared to licensee management expectations and guidelines as presented in Davis-Besse operational and administrative procedures. The operational scenario included a reactor coolant system small break caused by a failure of a reactor coolant pump seal with a subsequent loss of offsite power and a containment breach due to a failed small bore pipe.

This constitutes one sample.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12)

.1 Emergency Diesel Generator (EDG) 1

a. Inspection Scope

The inspectors reviewed the licensee's handling of performance issues associated with EDG 1, specifically the apparent low generated voltage during unloaded conditions, a one-time unexpected load increase while synchronized with offsite power, and EDG expected response during a loss of onsite power scenario. The inspection consisted of evaluating the following specific activities:

- The licensee's use of the condition report process in identifying deficiencies and issues with EDG system equipment;
- Whether equipment performance issues were correctly categorized per the system's scoping sheet performance criteria for reliability;
- Whether the licensee was effectively tracking key parameters and recognizing trends for emergency diesel generator system condition monitoring failures;

- Appropriateness of goals and corrective actions for the long-term reliability;
- Whether the licensee's corrective actions included extent of condition; and
- Whether the maintenance rule system status classification and current reclassification appeared appropriate for the equipment's recent history.

This constitutes one sample.

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessment and Emergent Work Evaluation (71111.13)

a. Inspection Scope

The inspectors reviewed the licensee's response to risk significant activities. These activities were chosen based on their potential impact on increasing overall plant risk. The inspections were conducted to review whether the planning, control, and performance of the work were done in a manner to minimize overall plant risk and contingency plans were in place where appropriate. The licensee's daily configuration risk assessments, observations of shift turnover meetings, observations of daily plant status meetings, and the documents listed at the end of this report were used by the inspectors determine whether the equipment configurations had been properly listed, protected equipment had been identified and was being controlled where appropriate, that significant aspects of plant risk were being communicated to the necessary personnel, and existing work plans were adjusted to accommodate the change in planned equipment operability. The inspectors evaluated the following licensee activities:

- During the period of August 23, 2005, to August 26, 2005, the licensee's initial planning and work schedule associated with the planned decay heat train 2 outage which included the licensee's avoidance of other activities with evaluated higher than normal risk. Also during this time period, the inspectors reviewed the licensee's work plan adjustment in response to an issue with decay heat pump bearing oil which required an extension of the original outage window.
- On September 20, 2005, the licensee's response, discussion of risk, TS entries, and risk impact due to ongoing work and subsequent oversight action and actual work to de-energize essential 480 volt motor control center F11B. The licensee de-energized the motor control center to permit repair of the electrical stabs in the back of a breaker bucket, to check for loose foreign material, and to verify the electrical integrity of the F11B bus bars.
- On September 21, 2005, the licensee identified that up to four tight fuel defects may exist in the fuel presently in the reactor. Although no significant increase in reactor coolant activity had occurred, the licensee implemented procedure

NOP-CC-4003, "Fuel Reliability Monitoring and Assessment," Revision 01, which facilitated additional monitoring and assessment of the potential tight fuel defects.

This constitutes three samples.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors selected condition reports which discussed potential operability issues for risk significant components or systems. These condition reports and applicable licensee operability evaluations were reviewed to determine whether the operability of the components or systems were appropriately supported. The inspectors compared the operability and design criteria in the appropriate sections of the USAR to the licensee's evaluation of the issues to determine whether the components or systems were operable. Where compensatory measures were necessary to maintain operability, the inspectors determined whether compensatory measures were in place, would work as intended, and were properly controlled.

The following samples were evaluated:

- CR 05-03676: Could not Achieve Required Voltage During EDG 1 Shutdown. The inspectors observed and reviewed the licensee's response to the inability, by installed meter indication, to set unloaded EDG voltage at 4200 volts or higher on July 1, 2005. The inspectors reviewed the licensee's problem solving plan, actions to measure operating EDG parameters, and the rationale for concluding that the issue was an indication problem and did not place the EDG in a condition outside of its design requirements.
- CR 05-04235: Excessive Nitrogen Addition to Core Flood Tank Number 1. The inspectors observed and reviewed the licensee's response to increased nitrogen usage to maintain pressure in core flood tank 1. The inspectors reviewed the licensee's initial determination that the tank was operable and compared the tank pressure for 90 days to the pressure required by TS. Additionally the inspectors accompanied a licensee team on a containment entry to identify potential sources for the gas leakage. Also, the inspectors reviewed the recommendations from a problem solving team that was developing actions to address the leakage. This included reviewing the licensee's evaluation of why the leakage decreased to normal after water was added to the core flood tank.

- CR 05-3908: Adverse Trends in Borated Water Storage Tank Temperatures.  
Over a two-month period, the inspectors closely monitored a licensee identified slow increasing temperature trend of the water in the borated water storage tank. The inspectors reviewed the temperature limits for the borated water storage tank, as stated in the Davis-Besse USAR, and evaluated licensee procedures and planned compensatory actions to accurately monitor and prevent the temperature from exceeding the USAR limit.
- CR 04-04737: Fire Protection Operability Concern.  
Prior to the closure of the operability evaluation associated with this condition report, the inspectors evaluated the engineering change implemented to resolve the potential for over pressure conditions to develop in the fire suppression system located in the component cooling water room.
- CR 05-04538: Oil Leak on CCW Pump 3 Inboard Pump Bearing.  
Component cooling water pump three developed an oil leak on its inboard pump bearing sufficient to develop a pooling of oil below the bearing. The inspectors evaluated the licensee's determination that the oil leak was sufficiently small that oil could be added as needed during post accident duty time and that the post accident environment in the room would not preclude necessary oil additions.
- CR 05-04586: Failed Equipment (LIS 602) BWST.  
During a preventive maintenance activity the licensee discovered that the borated water storage tank non safety-related mechanical level measuring device had failed in a manner that potentially could introduce loose parts in the tank. The inspectors observed the licensee's discussions concerning the impact on the tank and the supply to emergency core cooling system pumps and reviewed the operability evaluation prepared for the issue. Additionally the inspectors followed the licensee's actions to retrieve the loose parts from the tank.
- CR 05-04633: #2 DH Pump Outboard Bearing Oil Sample Discolored.  
On August 22 and August 26, 2005, the licensee discovered that the oil sample drawn from the decay heat pump 2 outboard bearing appeared to contain fine particulate. The inspectors reviewed the licensee's actions for flushing the bearing reservoir and their conclusion that the as-found condition was a normal by-product of the wear-in process for new bearings.
- CR 05-04837: Faulty Contactor in D106.  
On September 9, 2005, the licensee discovered a broken electrical contact terminal associated with the running circuit for the high pressure injection pump 1 direct current lube oil pump. The inspectors observed the licensee's discussions on the issue and reviewed their conclusion that the direct current lube oil pump was not safety-related and was not required, nor could it be credited in lieu of the safety-related alternating current lube oil pump, for operability determinations associated with the high pressure injection pump.

This constitutes eight samples.

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing (71111.19)

a. Inspection Scope

The inspectors reviewed the post-maintenance testing activities associated with the following scheduled and emergent work activities:

- troubleshooting, repair, and post maintenance calibration of the channel 2 containment vessel atmosphere hydrogen analyzer during the period of July 14 through July 18, 2005;
- replacement of the SFAS channel 4 output relay associated with valve CV5075 (containment vacuum relief isolation) on July 19, 2005;
- station blackout emergency diesel generator 6 year and 12 year planned maintenance activities on July 21 and 22, 2005;
- motor-driven feedwater pump outage on July 28, 2005;
- replacement of DHR pump 2 outboard mechanical seal and associated train valve work during the period of August 23 through August 25, 2005; and
- EDG 1 on August 31, 2004, after various work activities on the diesel and its starting air system.

The inspectors determined whether the testing was adequate for the scope of the maintenance work performed. The inspectors reviewed the acceptance criteria of the tests to ensure that the criteria were clear and that testing demonstrated operational readiness consistent with the design and licensing basis documents. Documents reviewed during this inspection are listed in the Attachment.

The inspectors attended pre-job briefings to determine whether the impact of the testing was appropriately characterized. The inspectors also observed the performance of testing to verify the procedure was followed and that all testing prerequisites were satisfied. Following the completion of tests, the inspectors walked down the affected equipment to verify removal of the test equipment and to ensure the equipment could perform the intended safety function following the test. The inspectors also reviewed the completed test data to ensure the test acceptance criteria were met for the post maintenance testing.

This constitutes six samples.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors observed the surveillance test or evaluated test data to determine whether the equipment tested met TS, USAR, and licensee procedural requirements, and also demonstrated that the equipment was capable of performing its intended safety functions. The inspectors used the documents listed in the Attachment to determine if the test met the TS frequency requirements; that the test was conducted in accordance with the procedures, including establishing the proper plant conditions and prerequisites; that the test acceptance criteria were met; and that the results of the test were properly reviewed and documented. The following surveillances were evaluated:

- DB-MI-03903, "Channel Calibration of PSL 106A, 106B, 106C and 106D, Auxiliary Feed Pump Turbine 1-1 Inlet Isolation on Low Auxiliary Feed Pump Turbine 1-1 Inlet Pressure Interlocks" (July 11, 2005);
- DB-SP-03337, "Containment Spray Train 1 Quarterly Pump and Valve Test" (August 8, 2005);
- DB-SS-04151, "Main Turbine Control Valve Test," and DB-SS-04152, "Main Turbine Combined Intermediate Valve Test" (August 28, 2005); and
- DB-SP-04400, "Spent Fuel Pool, Fuel Transfer Pit and Cask Pit Leak Detection System." (Reviewed 12 months worth of test results).

This constitutes four samples.

b. Findings

No findings of significance were identified.

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope:

The inspectors monitored the licensee's emergency preparedness drill conducted on September 1, 2005, from various locations and perspectives. The observations included licensee preparations, evaluation of drill conduct, review of the drill critiques, and the identification of weaknesses and deficiencies. The inspectors reviewed the licensee's scenario and preparations to determine if the drill evolution was of appropriate scope to be included in the performance indicator statistics. The inspectors observed drill activities and personnel performance in the simulator control room, the technical support center, and the emergency operating facility. The inspectors evaluated the effectiveness of the licensee's communications, the accuracy of situation evaluations, and the timeliness of required reporting (simulated) of event related information to the appropriate agencies. Finally, the inspectors reviewed the licensee's drill critique to determine whether weaknesses and deficiencies were acknowledged and appropriate corrective actions identified.

This constitutes one sample.

b. Findings:

No findings of significance were identified.

**4. OTHER ACTIVITIES**

4OA2 Identification and Resolution of Problems (71152)

.1 Daily Review

a. Inspection Scope

As required by Inspection Procedure 71152, Identification and Resolution of Problems, and in order to help identify repetitive equipment deficiencies or specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into the licensee's Corrective Action Program (CAP). This screening was accomplished by reviewing documents entered into the licensee's CAP and review of document packages prepared for the licensee's daily Management Alignment and Ownership Meetings.

b. Findings

No findings of significance were identified.

4OA3 Event Followup (71153)

.1 (Closed) Licensee Event Report (LER) 05000346/1997-004-01: Reactor Coolant Pump Motor Oil Piping Not Protected From Leakage As Required Per 10CFR50, Appendix R.

The original LER documented the licensee's identification that portions of the oil piping for each of the reactor coolant pump motors were located outside of the Appendix R required oil collection system enclosures. The piping sections included: the source connections for three pressure switches; a pressure gauge for the lift oil pump system; and a portion of piping for the lower bearing remote oil fill connection. Inspectors reviewed this LER and documented its closure in IR 05000346/1997009.

During a 10 CFR 50.9 review project conducted during RFO 13, the licensee discovered that the original LER had failed to document the results of a previous review of the reactor coolant pump oil collection system for NRC Information Notice 94-058. On March 26, 2004, the licensee submitted Revision 01 to LER 05000346/1997-004. The LER revision corrected the incomplete information in the original submittal, and updated the status of corrective actions associated with this event. The NRC determined that the original submittal of the LER was not complete and accurate in all material respects and dispositioned the issue as a Severity Level IV NCV of 10 CFR 50.9, documented in IR 05000346/2005007.

Following a review of the additional information contained in Revision 1 to the LER, inspectors determined that licensee corrective actions to address the material conditions documented in the original LER were sufficient. This LER is closed.

This constitutes one sample.

.2 (Closed) LER 05000346/2003-001-03: Potential Inability of Air-Operated Valves to Function During Design Basis Accidents.

On March 31, 2003, the licensee submitted LER 05000346/2003-001-00, which documented the potential that several air-operated valves may not function during design basis conditions.

On August 18, 2003, the licensee submitted LER 05000346/2003-001-01, which, in part, addressed additional air-operated valves identified during the licensee's extent of condition review associated with LER 05000346/2003-001.

On November 26, 2003, the licensee submitted LER 0500346/2003-001-02, which documented the licensee's evaluation of the risk significance of identified air-operated valve deficiencies and provided updates on the completion of corrective actions implemented to correct the deficiencies.

On March 22, 2004, inspectors completed their evaluation of the event, and documented the closure of LER 05000346/2003-001, and Revisions 01 and 02 in IR 05000346/2004002. The documentation included an evaluation of the risk significance of the event, one inspector identified NCV and three licensees identified NCVs..

In October 2004, a Safety System Functional Failure Reconciliation Project was completed by Idaho National Engineering and Environmental Laboratory, along with the Nuclear Energy Institute and the NRC, which reviewed apparent discrepancies with past reporting of safety system functional failures. As a result of this project, the licensee confirmed that this event, which was originally reported as an operation or condition prohibited by TS, should also have been reported as a loss of safety function.

On May 27, 2005, the licensee submitted LER 05000346/2003-001-03, which, in part, documented that the original event should have also been characterized as a loss of safety function and that modifications which restored the functionality of the identified air-operated valves had been completed. The inspectors evaluated the information documented in the revision and determined that there was no additional information that would change the inspectors' assessment of the event as previously documented in inspection report 05000346/2004002. This LER is closed.

This constitutes one sample.

.3 (Closed) LER 05000346/2005-003-00: Containment Electrical Penetration Not Equipped with Backup Electrical Fault Protection.

On March 23, 2005, the licensee identified that a circuit feeding a lighting panel inside containment had not been included in the calculation performed to evaluate primary and backup circuit protection for power circuits associated with containment electrical penetrations. Immediate corrective action was to de-energize the circuit. Subsequent investigation determined the electrical penetration was not adequately protected in the event of a single failure of the 30-amp breaker providing primary protection for the circuit during a design-assumed maximum over current condition. Under the design assumptions used by the licensee, in the event of the failure of the primary protection, licensee evaluation could not conclusively prove that the penetration could perform its containment function with potential damage from the over current condition. The licensee stated that the circuit will remain de-energized during normal plant operations or adequate backup fault protection will be provided for the circuit.

The licensee reported similar issues in LER 05000346/1990-005. The LER documented a total of 34 electrical circuits involving five penetrations that did not have backup fault protection in accordance with the design basis of the plant. The licensee's design review conducted at that time did not identify the circuit discussed in LER 05000346/2005-003 because, as stated by the licensee in the current LER, the database and drawing used for the 1990 event to identify affected circuits did not list the circuit identified in the current LER. LER 05000346/1990-005 was reviewed by the NRC and closed in IR 05000346/1991-009.

In the root cause analysis report associated with the event described in the current LER, the licensee concluded that the root cause of the event was inadequate or incomplete design aspects in that it was inappropriate to use a single drawing as a sole design input for identification of circuits that had to be included in the calculation for adequacy of fault protection for circuits associated with containment electrical penetrations. Additionally the report identified that a January 2003 condition report (CR 03-00608) identified that the lighting circuit, discussed in the current LER, had not been considered in the original calculations covering fault protection for circuits penetrating containment. That condition report concluded that the circuit fault protection was adequate.

The licensee-identified finding of failure to properly identify the inadequate circuit fault protection in preparing LER 05000346/1990-005 and in CR 03-00608 is a violation of Criterion XVI, "Correction Action," of Appendix B to 10CFR50. The finding is more than minor because it involves the design control and configuration attributes of maintaining the functionality of the containment and affects the barrier integrity objective of providing reasonable assurance that containment physical design barriers protect the public from radionuclide releases caused by accidents or events. The finding was considered to have low safety significance because it did not result in an actual open pathway in the physical integrity of the containment or adversely impact the atmospheric pressure control function of the containment. The enforcement aspects of the violation are discussed in Section 4OA7. This LER is closed.

This constitutes one sample.

#### 4OA4 Cross-Cutting Aspects of Findings

A finding described in 4OA5.2 of this report had, as its primary cause, a human performance deficiency in that licensee personnel, failed to adequately implement requirements contained in the procedure for scaffold erection.

#### 4OA5 Other Activities

##### .1 Review of Institute of Nuclear Power Operations Report

The inspectors completed a review of the Institute of Nuclear Power Operations (INPO) final Davis-Besse Accreditation Report for technical training and engineering programs that was transmitted by INPO letter dated July 22, 2005

##### .2 Operational Readiness of Offsite Power (Temporary Instruction 2515/163)

The objective of Temporary Instruction (TI) 2515/163, "Operational Readiness of Offsite Power," was to confirm, through inspections and interviews, the operational readiness of offsite power (OSP) systems in accordance with NRC requirements. The inspectors reviewed licensee procedures and discussed the attributes identified in TI 2515/163 with licensee personnel during the 2<sup>nd</sup> Quarter of CY2005. The results of the inspectors' review were forwarded to Office of Nuclear Reactor Regulation (NRR) for additional review and evaluation.

Following review and evaluation by the NRR staff, several follow-up questions were sent back to the inspectors for discussion with licensee personnel. The results of the inspectors' review and discussion of the follow-up questions, performed during the 3<sup>rd</sup> Quarter of CY2005, were again forwarded to NRR for evaluation.

##### .3 Scaffolding Erection over HPI Pump 2

###### a. Inspection Scope

On September 19, 2005, the inspectors, during a tour of the auxiliary building, reviewed installed scaffolding for conformance with site procedures. The inspectors evaluated the licensee's response to items questioned by the inspectors.

###### b. Findings

###### Introduction

A finding of very low significance (Green) was identified by the inspectors for a violation of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings" involving scaffolding erection for upcoming planned maintenance activities. During a walkdown of the Emergency Core Cooling System (ECCS) train 2 pumps, the inspectors identified that a scaffold had been built within 1 inch of safety-related components without the proper review and documentation by on-shift operations management.

## Description

On September 19, 2005, with the plant at approximately 100% power, the inspectors toured the auxiliary building and reviewed the tagging and configuration of two scaffolds that were erected for work on a control rod drive cooling water booster pump motor and for the work on a containment spray valve located above HPI pump 2. The inspectors observed that both sets of scaffolds were erected less than one inch from plant equipment, piping, or instrument tubing. The inspectors observed that the tagging posted on the scaffolding had notations indicating erection with less than 1 inch clearance and the notation had been initialed. The inspectors had specific concern with the scaffold over the HPI pump because in one location it was close to the high pressure pump 2 oil reservoir and in another location was against instrument tubing associated with flow measurement of containment spray pump 2. At the time of the tour, all ECCS train 1 and train 2 pumps were considerable operable by the licensee.

The inspectors questioned the on-shift management concerning the rationale for approving scaffolding less than 1 inch from installed plant equipment. Procedure DB-MS-01637, "Scaffolding Erection and Removal," states that when minimum size gaps (one inch for adequately restrained scaffolding) cannot be met due to interferences then operations on-shift management shall determine the consequences, if any, to station equipment prior to the scaffold erection. Additionally the review is to include a determination of the effect of the scaffold as it pertains to the ability of operators to complete tasks under emergency conditions and that review shall be recorded on the scaffolding identification tag comment section. Rationale for authorizing less than one inch clearance was not on the scaffold tags viewed by the inspectors.

On-shift management reviewed the two installations and determined that the scaffold erection associated with the control rod drive cooling pump was adequate and documented the subsequent review on the scaffold identification tag. Additionally the inspectors found that the clearance was subsequently increased by a minor change in the height of the scaffolding boards. On-shift operations management, after discussion with engineering, determined that the clearances associated with the high pressure injection pump scaffold were not acceptable. Subsequently, personnel were brought into the plant to modify the scaffold and a condition report was initiated (CR 05-05055). The scaffold over the high pressure injection pump 2 was in-place in its original configuration for approximately eight hours.

## Analysis

The inspectors determined that the failure to properly review scaffolding, with less than one inch clearance from safety-related equipment, prior to erection, as required by DB-MS-01637, "Scaffolding Erection and Removal," was a performance deficiency warranting a significance determination. The finding was more than minor since it was associated with the attributes of protection against external factors and configuration control and affected the mitigating systems' objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The inspectors evaluated the finding using IMC 0609, Appendix A, Phase 1 screening, including seismic screening criteria, and determined

that the finding was of very low safety significance because there was no actual loss of function of any of the systems due to the scaffold. The finding also affected the cross-cutting area of Human Performance because, while existing procedure guidance was available, personnel did not adequately implement that guidance and the review that was conducted prior to questioning by the inspector did not identify the issue.

#### Enforcement

Criterion V, Instructions, Procedures, and Drawings,” of 10 CFR 50, Appendix B, required that activities affecting quality be prescribed by documented instructions, procedures, or drawings and that activities be accomplished in accordance with these instructions, procedures, or drawings. Licensee procedure DB-MN-0001, “Conduct of Maintenance,” was a quality related administrative procedure that specifies that scaffolding shall be tagged in accordance with DB-MS-01637, “Scaffolding Erection and Removal.” DB-MS-01637 states that when a minimum size gap of one inch cannot be met between restrained scaffolding and plant equipment due to interferences, operations on-shift management shall be contacted prior to installation and review for effect of the scaffold as it pertains to the ability to complete tasks identified in plant emergency procedures. Additionally the procedure stated that the review shall be recorded on the scaffolding identification tag comment section. Contrary to these requirements, the licensee erected scaffolding closer than one inch to safety-related equipment although interferences did not preclude larger gaps and appropriate reviews were not completed and documented as required by licensee procedures. The safety-related equipment was considered operable at the time of scaffold erection. Once identified the licensee took immediate action to bring all noted scaffolding problems into compliance with procedural requirements and entered the issue into its corrective action program (CR 05-05055). Because this violation was of very low safety significance and it was entered into the licensee’s corrective action program, this violation is being treated as an NCV, consistent with Section VI.A of the NRC Enforcement Policy. (NCV 05000346/2005008-01).

#### .4 Issuance of Confirmatory Order Modifying License to FENOC Regarding AVI Food Systems, on July 15, 2005

The NRC issued a Confirmatory Order Modifying Licensee No. NPF-3 (EA 04-224) to FENOC on July 15, 2004 to confirm recent commitments made to the U.S. Nuclear Regulatory Commission. The commitments were made by FENOC as part of a settlement agreement between FENOC and the NRC concerning an apparent violation of 10 CFR 50.7, “Employee Protection,” involving former AVI Food Services management. The NRC will evaluate implementation of these commitments during future inspections.

#### 4OA5 Other Activities (93812)

The March 8, 2004 Confirmatory Order Modifying License No. NPF-3 (EA-03-214) required, in part, that the licensee perform annual independent assessments, for a period of five years, in the areas of operations performance; organizational safety culture, including safety conscious work environment; corrective action program

implementation; and engineering program effectiveness. This section of the report documents the special inspection activities associated with those assessments that were completed during this inspection period.

.1 Independent Corrective Action Program Implementation Assessment Plan for 2005; Revision 1

By letter dated July 1, 2005, FENOC submitted revision 1 to the 2005 "Davis-Besse Nuclear Power Station Independent Corrective Action Program Implementation Assessment Plan. That revision documented the change of two members of the assessment team, including a change in team leader. Subsequent to these changes, only one person on the 2005 team also served on the 2004 team. The inspectors reviewed the qualifications of the two newest members of the team and compared them to the qualifications of the previous team members. No items of significance were identified.

.2 In-Process Evaluation of the 2005 Independent Corrective Action Program Assessment

a. Inspection Scope

As part of the inspection activities performed to verify the licensee's compliance with the requirements for independent assessments, as described in the March 8, 2004, Confirmatory Order, the inspectors reviewed the performance of the 2005 independent assessment of the licensee's corrective action program. This was the second of five required annual independent assessments of the corrective action program. In addition to observing the entrance, exit, and debrief meetings, the inspectors followed the conduct of the assessment through observing licensee discussions on the progress and issues identified during the assessment, and by reviewing condition reports developed for identified issues. The onsite portion of the assessment was conducted from July 11, 2005, through July 22, 2005. The assessment team's exit was held on August 8, 2005.

b. Findings and Observations

The team's assessment was consistent with the submitted assessment plan. Results presented at the exit and debrief meetings appeared consistent with assessment plan requirements and appeared to appropriately represent conditions and items assessed. The overall results did not appear inconsistent with the inspectors' understanding the licensee's implementation of the corrective action program. No items of significance were identified.

.3 Evaluation of the 2005 Independent Operations Assessment Final Report

a. Inspection Scope

On August 22, 2005, the licensee submitted the "Independent Assessment Report of Operations Performance for the Davis-Besse Nuclear Power Station, Year 2005." The inspectors reviewed the report for consistency with assessment results presented at the assessment exit and debrief meetings and with original drafts of the report. Additionally

the inspectors verified that the report adequately covered areas identified in the assessment plan, that conclusions were consistent with and adequately supported by information in the report, and that the licensee entered all deficiencies, identified in the report, into their corrective action program.

b. Observations and Findings

The independent assessment of Operations Performance and the final report from that assessment addressed the following topics:

- Shift turnovers;
- Control manipulations;
- Communications;
- Interdepartmental interfaces;
- Procedural usage;
- Awareness of plant and equipment status and workarounds;
- Pre-job briefings;
- Non-shift Operations management interface and oversight;
- Shift management command and control;
- Shift management's evaluation, prioritization, and disposition fo maintenance activities and emergent issues;
- Operations behaviors in the areas of questioning attitude and safety;
- Shift handling of off-normal operations;
- Observation of operator simulator training to compare crew performance, demeanor, and communication skills with actual control room operations;
- A review of condition reports associated with the Areas For Improvement documented in the August 2004 Operations Performance Assessment;
- A review of selected condition reports and associated corrective actions related to Operations Department performance; and
- A review of selected licensee self-assessment activities associated with Operations.

These topics were grouped into five general areas. The areas and Team assessment of each area are as follows:

- |  |           |
|--|-----------|
| • Shift and Meeting Observations:        | Effective |
| • Interviews:                            | Effective |
| • Condition Report Review:               | Effective |
| • Licensed Operator Continuing Training: | Effective |
| • Davis-Besse Self-Assessments:          | Effective |

Overall the assessment team concluded that the Operations Department performance was rated Effective. 'Effective' has the meaning that performance, programs, and processes are sufficient to obtain the desired results with consistency and effectiveness but that there may be one or several specific areas where improvement is needed and potentially other items that need additional attention. The assessment report identified no Areas For Improvement.

Since there were no issues that rose to the level of an Area For Improvement, the licensee did not include a formal corrective action plan as part of the Independent Assessment Report submittal. Minor issues addressed in the report were documented in the licensee's corrective action program.

c. Conclusions

The licensee complied with the year 2005 requirements for an independent assessment of Operations Performance as described in the March 8, 2004, Confirmatory Order. The results of the assessment, including the overall assessment, appear consistent with the information reviewed and documented in the final report. The overall independent assessment of Operations Performance was not inconsistent with NRC inspection findings associated with this area of licensee performance. No findings of significance were identified.

.4 Review of Engineering Program Effectiveness Independent Assessment Plan

a. Inspection Scope

As part of the inspection activities performed to verify the licensee's compliance with the requirements for independent assessments, as described in the March 8, 2004, Confirmatory Order, the inspectors verified that the licensee had submitted the required assessment plan for the Engineering Program. The licensee submitted its plan 90 days prior to the performance of the assessment (start date of November 28, 2005) in a letter to the NRC dated August 29, 2005. The inspectors reviewed the licensee's letter describing the assessment plans and evaluated the scope and depth of the plans, including the credentials, experience, objectivity, and independence of the designated assessors.

b. Observations and Findings

The inspectors verified that the individuals designated to perform the assessment were sufficiently independent from FENOC and that they brought the appropriate credentials and experience necessary to accomplish the assessment. The plan included six team members for a period of 2 weeks. The purpose of the plan was to provide an independent and comprehensive assessment of the Engineering Program effectiveness. The plan included details to assess Engineering effectiveness in the following areas:

- Plant Modification Process;
- Calculation Process;
- System Engineering;
- Corrective Action Program;
- Actions taken in response to Areas of Improvement identified during the 2004 Independent Assessment of Engineering;
- Self assessment.

The scope and depth of the proposed plan appeared adequate to accomplish the objective of assessing Engineering Program effectiveness. The NRC inspectors plan to

observe portions of the assessment activities and attend the exit meeting at the conclusion of on site activities, and the NRC will review the assessment team report when submitted.

.5 Evaluation of the 2005 Independent Corrective Action Program Assessment Final Report

a. Inspection Scope

On September 19, 2005, the licensee submitted the final report for the “Corrective Action Program Implementation Independent Assessment with Action Plans - Year 2005.” The inspectors reviewed the report for consistency with assessment results presented at the assessment exit and debrief meetings and with original drafts of the report. Additionally, the inspectors verified that the report adequately covered areas identified in the assessment plan, that conclusions were consistent with and adequately supported by information in the report, and that the licensee developed action plans to properly address any Areas For Improvement.

b. Findings and Observations

The independent assessment of the corrective action program and the final report from that assessment addressed the following areas:

- Status of corrective actions from the 2004 independent assessment of the corrective action program;
- Review of condition reports for accuracy of identification, classification, and categorization;
- Evaluation and resolution of problems;
- Corrective action implementation and effectiveness;
- Effectiveness of program trending;
- Effect of program backlogs;
- Effectiveness of internal assessment activities; and
- Evaluation of open corrective actions taken in response to NRC corrective action team inspection (CATI) items (NRC IR 05000346/2003010).

The team concluded that the licensee’s overall implementation of the corrective action program was Effective. “Effective” has the meaning that performance, programs, and processes are sufficient to obtain the desired results with consistency and effectiveness but that there may be several specific areas where improvement is needed and potentially other items that need additional attention. Of the eight general areas assessed, three were rated as marginally effective. Those areas and the reasons for the rating were:

- Evaluation and Resolution of Problems: The assessment team found that the organization was frequently achieving the basic intent of the corrective action program but was experiencing challenges to being sufficiently self-critical including deficiencies of timeliness, accuracy, and thoroughness.

- Evaluation of Corrective Action Program Backlogs: The assessment team found that the licensee has a large number of backlogged work open items and the average age of the more significant condition adverse to quality corrective actions and effectiveness reviews continued to increase since the last independent assessment.
- Evaluation of Open Corrective Actions from the CATI: The assessment team determined that, for the most part, no significant action had been taken since the last independent assessment on several of the remaining open corrective actions identified to resolve issues discussed in the CATI report and that it appeared that some of the items, with the planned effort, might never be closed due to resources being applied to higher priority issues.

The assessment report also identified four “Areas For Improvement.” An Area For Improvement is defined as an identified performance, program, or process element that requires improvement to obtain the desired results with consistency and effectiveness. The Areas For Improvement were:

- The timeliness of conducting root and apparent cause evaluations, investigations, and overall completions of corrective actions were noted as a challenge in reviews of several evaluations;
- The average age of open significant condition adverse to quality, conditions adverse to quality, condition report corrective actions, and remedial corrective action items should be reduced;
- A significant number of a condition report causal evaluations were assessed as too narrow or otherwise inadequate, sometimes resulting in limited corrective actions;
- While equipment trending made some progress since the last assessment, equipment trending remained behind the industry in the ability to determine common equipment failure issues as well as predicting and preventing future equipment failures.

The licensee developed action plans for each Area for Improvement and included them with the submittal of the final assessment report. The majority of the corrective actions to address the Areas for Improvement have been completed or are scheduled to be completed by the end of CY2005. In regards to the quality of condition report investigations, the licensee plans to develop an improvement plan that will include input from benchmarking. While that plan is scheduled to be developed in 2005, individual improvement actions may extend beyond 2005. Equipment trending issues will be addressed as a FENOC fleet issue using, in part, preventive maintenance templates developed by the Electric Power Research Institute and other utilities. The current schedule for these activities extends to December 31, 2007.

c. Conclusions

The licensee complied with the year 2005 requirement for an independent assessment of the corrective action program as described in the March 8, 2004, Confirmatory Order. The results of the assessment, including the overall assessment, appear consistent with

the information reviewed and documented in the final report. The licensee's action plans for Areas for Improvement appear reasonable and, if implemented properly, could increase the effectiveness of specific areas of the corrective action program. The overall independent assessments of the corrective action program and the assessment of individual areas of the corrective action program appear consistent with NRC inspection findings associated with the licensee's corrective action program. No findings of significance were identified.

.6 Review of Organizational Safety Culture and Safety Conscious Work Environment Independent Assessment Plan

a. Inspection Scope

As part of the inspection activities performed to verify the licensee's compliance with the requirements for independent assessments, as described in the March 8, 2004, Confirmatory Order, the inspectors verified that the licensee had submitted the required assessment plan for the Organizational Safety Culture and Safety Conscious Work Environment Independent Assessment. The licensee submitted its plan 90 days prior to the performance of the assessment in a letter to the NRC, dated August 3, 2005. The inspectors reviewed the licensee's letter describing the assessment plans and evaluated the scope and depth of the plans, including the credentials, experience, objectivity, and independence of the designated assessors.

b. Observations and Findings

The inspectors verified that the individuals designated to perform the assessment were sufficiently independent from FENOC and that they brought the appropriate credentials and experience necessary to accomplish the assessment. The plan included four team members for a period of greater than two weeks. The purpose of the plan was to provide an independent and comprehensive assessment of organizational safety culture and safety conscious work environment at Davis-Besse. The plan included details to assess safety culture and safety conscious work environment in the following areas:

- Functional analysis of available documentation;
- Structured interviews and behavioral anchored Rating Scales;
- Behavioral Checklists; and
- Organizational Safety Culture Survey;

The scope and depth of the proposed plan appeared adequate to accomplish the objective of assessing safety culture and safety conscious work environment. The NRC inspectors will observe portions of the assessment activities and attend the exit meeting at the conclusion of on site activities. The NRC will review the independent assessment team report when it is issued.

#### 4OA7 Licensee-Identified Violations

The following violation of very low safety significance (Green) was identified by the licensee and is a violation of NRC requirements which meet the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600, for being dispositions as an NCV.

- Criterion XVI, "Corrective Action," of 10CFR50 Appendix B requires that measures will be established to assure that conditions adverse to quality, such as deficiencies and nonconformances, are promptly identified and corrected. Contrary to this, in March 2005, the licensee identified that an electrical circuit penetrating the containment boundary did not have fault protection consistent with the licensee's design basis and that this condition could have been identified on two previous occasions. One occasion was in 1990 and the other was in 2003. This was identified in licensees' condition reports 05-01849, 05-01872, and 05-02761. The finding is of very low safety significance because it did not represent an actual open pathway in the physical integrity of the reactor containment and the licensee initiated action to de-energize the circuit.

ATTACHMENT: SUPPLEMENTAL INFORMATION

**SUPPLEMENTAL INFORMATION**

**KEY POINTS OF CONTACT**

Licensee Personnel

B. Allen, Director, Plant Operation  
M. Bezilla, Site Vice President  
B. Boles, Manager, Plant Engineering  
R. Farrell, Director, Site Maintenance  
J. Grabnar, Manager, Design Engineering  
L. Harder, Manager, Radiation Protection  
R. Hovland, Manger, Technical Services  
R. Hruby, Manager, Nuclear Oversight  
D. Kline, Manager, Security  
S. Loehlein, Director, Station Engineering  
K. Ostrowski, Manager, Plant Operations  
C. Price, Manager, Regulatory Compliance  
R. Schrauder, Director, Performance Improvement  
M. Trump, Manager, Training

**LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED**

Open and Closed

05000346/2005008-01	NCV	Scaffolding Erected Closer to Safety Related Equipment than Permitted and Without Proper Documentation of Reviews
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Closed

05000346/1997-004-01	LER	Reactor Coolant Pump Motor Oil Piping Not Protected From Leakage As Required Per 10CFR50, Appendix R
05000346/2003-001-03	LER	Potential Inability of Air-Operated Valves to Function During Design Basis Conditions
05000346/2005-003-00	LER	Containment Electrical Penetration Not Equipped with Backup Electrical Fault Protection.

## 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 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 stated in the body of the inspection report.

### 1R01 Adverse Weather Protection

DB-OP-06913; Seasonal Plant Preparation Checklist; Revision 11

### 1R04 Equipment Alignment

DP-OP-06012; Decay Heat and Low Pressure Injection System Operating Procedure; Revision 23

Drawing OS-004, Sheet 1; Decay Heat Removal/Low Pressure Injection System; Revision 40

DB-OP-06225; MDFP Operating Procedure; Revision 11

Drawing OS-010, Sheet 1; Condensate System; Revision 14

Drawing OS-012A, Sheet 1; Main Feedwater System; Revision 23

Drawing OS-017A, Sheet 1; Auxiliary Feedwater System; Revision 20

Drawing M-033B; Decay Heat Train 1; Revision 45

Listing of Open SAP Work Orders for Decay Heat Subsystem; August 25, 2005

CR 05-03807; #1 Decay Heat Pump Vibrations in the Alert Range

DB-OP-02511; Loss of Service Water Pumps/System; Revision 09

Calculation C-NSA-011.01-014; Evaluation of Service Water Flow Balance and Service Water Pump Baseline Testing Results; dated 12/31/2003

CR 01-0350; Inadequate Design of Service Water Header Relief Valves

Davis-Besse System Health Report for Service Water System, Second Quarter 2005

DB-OP-06261; Service Water System Operating Procedure; Revision 19

Drawing OS-020, Sh. 1; Operational Schematic Service Water System; Revision 65

Drawing E-48B, Sh. 6B; Lake Water System Service Water Pump 1; Revision 13

Drawing E-48B, Sh. 6D; Lake Water System Service Water Pump 2; Revision 05

Drawing E-48B, Sh. 11B; Lake Water System Service Water Pump 3; Revision 16

Drawing E-48B, Sh. 11F; Lake Water System Service Water Pump 3; Revision 04

Drawing E-48B, Sh. 11D; Lake Water System Service Water Pump 3 Transfer Breaker; Revision 06

### 1R05 Fire Protection

Davis-Besse Nuclear Power Station Fire Hazard Analysis Report

PFP-AB-237; Auxiliary Feed Pump 1 Room 237; Revision 03

PFP-AB-314; No. 4 Mechanical Penetration Room; Revision 06

Drawing A-0223F; Fire Protection General Floor Plan EL. 585'; Revision 14

Drawing A-0221F; Fire Protection General Floor Plan EL. 545' & 555'; Revision 07

PFP-YD-PROT; Protected Area Yard, General; Revision 04

1R06 Flood Protection

Probabilistic Safety Assessment of Turbine Building Flooding at Davis-Besse;  
SAROS/95-5; May 1996  
USAR Section 3.6.2.7.2.13; Circulating Water System  
DB-OP-02517; Circulating Water Pump Trip/Circulating Water System Ruptures;  
Revision 02  
DB-OP-0602; Turbine Operating Procedure  
OS-016A; Operational Schematic - Circulating Water System; Revision 30

1R07 Heat Sink Performance

OS-048A; Operation Schematic, Chlorination System; Sheet 1; Revision 09

1R11 Licensed Operator Requalification Program

DBBP-TRAN-0017; Conduct of Simulator Training; Revision 02  
Davis-Besse Emergency Response Integrated Drill Manual; Revision 00

1R12 Maintenance Effectiveness

D-B System Health Report, Electrical/ Control Systems Window No. 8; Emergency  
Diesel Generator; Second Quarter, 2005  
DB-PF-00003; Maintenance Rule; Revision 07  
Maintenance Rule Program Manual; Revision 18

1R13 Maintenance Risk Assessment and Emergent Work Evaluation

NG-DB-00001; On-line Risk Management; Revision 03  
DBBP-OPS-0003; On-line Risk Management Process; Revision 02  
Clearance NDB-SUB049-02-040; Decay Heat Pump 2; August 22, 2005  
CR 05-03807; #1 Decay Heat Pump Vibrations in the Alert Range  
Cycle14 Work Implementation Schedule Subsystem Sort; August 23, 2005  
CR 05-04607; Work Week 535 - Risk Evaluation for AD101 Undervoltage Relay  
Calibration  
CR 05-05085; BF1147 Bucket Stabs Not Properly Connected to F11B Bus  
NOP-CC-4003; Fuel Reliability Monitoring and Assessment; Revision 01

1R15 Operability Evaluations

CR 05-03676; Could not Achieve Required Voltage During EDG 1 Shutdown  
Problem Solving Plan for CR 05-03676; EDG 1 Unloaded Voltage Condition;  
July 2, 2005  
DB-OP-06316; Diesel Generator Operating Procedure; Revision 17  
Problem Solving Plan for Nitrogen Leakage for Core Flood Tank 1; August 16, 2005  
CR 05-04235; Excessive Nitrogen Addition to Core Flood Tank Number 1  
Computer Point Trend of CF TK Press PPCS:P080; May 17, 2005, to August 15, 2005

Drawing OS-006; Core Flooding System; Revision 16  
Drawing OS-003; High Pressure Injection System; Revision 27  
CR 05-03908; Adverse Trend in Borated Water Storage Tank Temperature  
CR 05-03927; PCR - Tracking, Procedure Revisions for Calculation C-ICE-049.01-001  
DB-OP-03007; Miscellaneous Instrument Daily Checks; Revision 11  
DB-OP-06012; Decay Heat and Low Pressure Injection System Operating Procedure;  
Revision 24  
DB-OP-06015; Borated Water Storage Tank Operating Procedure; Revision 08  
Drawing OS-004; Decay Heat Removal/Low Pressure Injection System; Revision 40  
Drawing OS-047B; Fire Suppression System; Sheet 1; Revision 4  
CR 04-04737; Fire Protection Operability Concern  
CR 04-04510; CCW Heat Exchanger and Pump Room Sprinkler System  
DB-OP-06601; Wet Pipe Sprinkler Systems; Revision 3  
Drawing A-18; Space and Access Tabulation of Radiation Zones; Revision 09  
CR 05-04538; Oil Leak on CCW Pump 3 Inboard Pump Bearing  
SAP Notification 600227236; Oil Leak On Inboard Pump Bearing  
CR 05-04586; Failed Equipment (LIS 602) BWST  
CR 05-04630; BWST Float Not Found at the Top of the BWST During Boroscope  
Inspection  
CR 05-04633; #2 Pump Outboard Bearing Oil Sample Discolored  
Root Cause Analysis Report, CR 03-02753; Decay Heat Oil Pump Issues; July 2, 2003  
CR 05-04837; Faulty Contactor in D106  
CR 05-04866; D106 High Pressure Injection Pump 1 DC Lube Oil Pump Not Wired per  
E\_52B SH 64  
CR 05-04899; Work Performed Outside the Allowable Scope in an Order  
(D106 Contactor Swap)  
CR 02-08096; SHRR - HPI AC Oil Pump Bearing Degradations  
CR 02-10304; HPI Operability Issues During PM's  
DB-Rev-04-0105; Repetitive Maintenance Revision Request for PM 0495 -  
HPI Pump 1-2 AC Lube Oil Pump Motor; February 18, 2004

#### 1R19 Post-Maintenance Testing

CR 05-03985; Station Blackout Diesel Failed to Start after Maintenance  
Problem Solving Plan for CR 05-03985; SBO Diesel Generator Failure to Start;  
July 22, 2005  
SAP Order 20087037; Station Blackout Diesel Generator  
DB-MM-09320; Emergency and Station Blackout Diesel Engine Maintenance;  
Revision 09  
DB-OP-06344; Station Blackout Diesel Generator Operating Procedure; Revision 08  
DB-SC-03122; SFAS Component Tests; Revision 02  
SAP Order 200160804; Replace SFAS Ch 4 Relay 4K23C Using "G4"  
DB-MI-03730; Channel Calibration of Channel 2 CTMT Vessel Atmosphere  
H2 Analyzer; Revision 07  
SAP Order 200145441; Purge H2 Analyzer CH 2 Sample Lines  
SAP Order 200129224; Motor Driven Feed Pump Quarterly Test  
DB-SS-03091; Motor Driven Feed Pump Quarterly Test; Revision 06

DBNPS Work Implementation Schedule Motor Driven Feed Pump Project Fragnet;  
dated July 22, 2005  
SAP Order 200101014; Replace Outboard Mechanical Seal on P42-2  
Drawing OS-004, Sheet 1; Decay Heat Removal/Low Pressure Injection System;  
Revision 40  
DB-SP-03137; Decay Heat Train 2 Pump and Valve Test; Revision 12  
DB-OP-06012; Decay Heat and Low Pressure Injection System Operating Procedure;  
Revision 24  
Operations Evolution Order for Decay Heat Train 2 Venting; August 25, 2005  
Clearance Restoration NDB-SUB049-02-040; Decay Heat Pump 2; August 25, 2005  
DP-OP-06316; Diesel Generator Operating Procedure; Revision 18  
CR 05-04708; Fuel Oil Leak  
DB-SC-03076; Emergency Diesel Generator 1 184 Day Test; Revision 10

#### 1R22 Surveillance Testing

DB-MI-03903; Channel Calibration of PSL 106A, 106B, 106C and 106D, Auxiliary Feed  
Pump Turbine 1-1 Inlet Isolation on Low Auxiliary Feed Pump Turbine 1-1 Inlet Pressure  
Interlocks; Revision 05  
DB-SP-03337; CS Train 1 Quarterly Pump and Valve Test; Revision 09  
Order 200129079; DB-SP-03337  
DB-SS-04151; Main Turbine Control Valve Test; Revision 06  
DB-SS-04152; Main Turbine Combined Intermediate Valve Test; Revision 06  
CR 04-04869; Combined Intermediate Valve #3 Unexpected Operation During  
DB-SS-04152  
CR 05-04654; #2 Intermediate Stop Valve Tripped Closed at 1 percent Open VS  
10 percent Open  
SAP Work Order 200109513; #3 IV Opened Before #3 ISV Was Fully Open  
DB-SP-04400; Spent Fuel Pool, Fuel Transfer Pit and Cask Pit Leak Detection System  
Test; Revision 02  
Drawing FSK - 101; Fuel Transfer Pit, Spent Fuel Pool, Cask Pit, Leak Chase Channel  
Drains to Open Funnels Monitoring System; Revision 01  
Leak Chase System Test Results Spreadsheet; January 1, 2001, to August 27, 2005;  
September 2005  
Drawing C-31-4-4; Floor Monitoring System; Revision 01  
Drawing C-31-65-2; Wall Monitoring System; Revision 02  
CR 199901581; Boric Acid Crystals and Weepage Found; September 9, 1999

#### 1EP6 Drill Evaluation

Davis-Besse Emergency Response Integrated Drill Manual; Revision 00

#### 4OA2 Identification and Resolution of Problems

CR 05-03809; NRC Resident Inspector Observations From Exit Meeting on July 8, 2005  
CR 05-04228; Inadequate Rad Worker Practices During Surveillance Testing  
CR 05-04323; NRC Issued Non-Cited Violation of 10 CFR 50, Appendix R, Section III.J  
CR 05-05055; Scaffold Erected Without Required Tolerance Above HPI Pump 2

#### 4OA3 Event Followup

Drawing M-040D; Reactor Coolant Pump and Motor; Revision 15  
PCAQR 97-0127; RCP Oil Lift System Piping is Potentially Outside of the Oil Collection System Required By Appendix R  
CR 05-01849; Containment Penetration Protection for Panel L49E1 Note Evaluated - Calc EC-118B  
CR 05-00608; SFVP: Calculation EC118B is Not Up To Date or Controlled  
CR 05-01872; Past Operability and Reportability Requested for Penetration PBP5D  
CR 05-02761; Reportability of Potential Over current Condition of Penetration PBP5D  
CR 03-00608; SFVP: Calculation EC118B is Not Up to Date or Controlled

#### 4OA5 Other Activities

Operations Standing Order 05-012; Scaffold Clearance Clarification;  
September 27, 2005  
CR 05-05055; Scaffold Erected Without Required Tolerances Above HPI Pump 2  
DB-MS-01637; Scaffolding Erection and Removal; Revision 08  
DB-MN-00001; Conduct of Maintenance; Revision 11  
SAP Notification 600241299; Evaluation for Scaffolding Requirements;  
September 29, 2005

#### 4OA5 Other Activities (93812)

DBBP-VP-0009; Management Plan for Confirmatory Order Independent Assessments;  
Revision 02  
FENOC Letter 1-3847; Submittal of Corrective Action Program Implementation  
Independent Assessment Plan for the Davis-Besse Nuclear Power Station, Revision 1;  
August 13, 2004  
FENOC Letter 1-1439; Submittal of Corrective Action Program Implementation  
Independent Assessment Report and Action Plans for the Davis-Besse Nuclear Power  
Station - Year 2005; September 19, 2005  
FENOC Letter 1-1430; Submittal of Independent Assessment Report of Operations  
Performance for the Davis-Besse Nuclear Power Station, Year 2005; August 22, 2005  
CR 05-04319; COIA-OPS-2005; Areas In Need of Attention - Operations  
CR 05-03539; COIA-OPS-2005; Vertical Communications  
CR 05-03541; COIA-OPS-2005; Operations Work Scheduling Improvement  
CR 05-03542; COIA-OPS-2005; End of Shift Critiques  
CR 05-03543; COIA-OPS-2005; Shift Mentor Program  
CR 05-03547; COIA-OPS-2005; CR 04-05916, Timeliness of Corrective Actions  
CR 05-03553; COIA-OPS-2005; Shift Schedule and Crew Morale  
CR 05-03554; COIA-OPS-2005; Control Room Demeanor

## LIST OF ACRONYMS USED

ADAMS	Agency-wide Document Access and Management System
CAP	Corrective Action Program
CATI	Corrective Action Team Inspection
CCW	Component Cooling Water
CFR	Code of Federal Regulations
CR	Condition Report
DRP	Division of Reactor Projects
DRS	Division of Reactor Safety
ECCS	Emergency Core Cooling System
EDG	Emergency Diesel Generator
FENOC	FirstEnergy Nuclear Operating Company
INPO	Institute of Nuclear Power Operations
IR	Inspection Report
LER	Licensee Event Report
NRC	United States Nuclear Regulatory Commission
NRR	Nuclear Reactor Regulations
SDP	Significance Determination Process
SFAS	Safety Features Actuation System
SSC	Structures, Systems, and Components
TI	Temporary Instruction
TS	Technical Specifications
USAR	Updated Safety Analysis Report