

February 1, 2006

EA-03-0214

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 05000346/2005009

Dear Mr. Bezilla:

On December 31, 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 January 6, 2006, 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.

The report documents one NRC identified finding and one self-revealing finding of very low safety significance. One of these findings was determined to involve a violation of NRC requirements. Additionally, three licensee-identified violations which were determined to be of very low safety significance are listed in this report. However, because of the low safety significance and because they are entered into your corrective action program, the NRC is treating these violations as non-cited violations (NCVs) consistent with Section VI.A.1 of the NRC Enforcement Policy. If you contest any NCV in this report, 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
Projects Branch 4
Division of Reactor Projects

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

Enclosure: Inspection Report 05000346/2005009
w/Attachment: Supplemental Information

cc w/encl: The Honorable Dennis Kucinich
G. Leidich, President - FENOC
J. Hagan, Senior Vice President of
Operations and Chief Operating Officer
Director, Plant Operations
Manager - Regulatory Compliance
D. Jenkins, Senior Attorney, FirstEnergy
Ohio State Liaison Officer
R. Owen, Administrator, Ohio Department of Health
Public Utilities Commission of Ohio
President, Board of County Commissioners
of Lucas County
President, Ottawa County Board of Commissioners

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U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No: 50-346

License No: NPF-3

Report No: 05000346/2005009

Licensee: FirstEnergy Nuclear Operating Company (FENOC)

Facility: Davis-Besse Nuclear Power Station

Location: Oak Harbor, Ohio

Dates: October 1 through December 31, 2005

Inspectors: S. Thomas, Senior Resident Inspector
J. Rutkowski, Resident Inspector
R. Smith, Resident Inspector
J. Jacobson, Senior Reactor Engineer
A. Dahbur, Reactor Inspector
T. Ploski, Senior Emergency Preparedness Analyst
M. Bielby, Senior Operations Engineer
J. Persensky, Senior Technical Advisor - Human Factors

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

Enclosure

SUMMARY OF FINDINGS

IR 05000346/2005009; 10/1/2005 - 12/31/2005; Davis-Besse Nuclear Power Station; Adverse Weather, Maintenance Effectiveness.

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

A. NRC-Identified and Self-Revealing Findings

Cornerstone: Initiating Events

- Green. A finding of very low safety significance was identified by the inspectors for failure to control loose materials, located immediately adjacent to the switchyard, which could be carried into the switchyard by high winds. Once identified the licensee took action to relocate the material.

The issue was more than minor because, if left uncontrolled, the loose items could impact the proper operation of the switchyard and in turn lead to a more significant safety concern. The issue was of very low safety significance because the finding did not contribute to the likelihood of a primary or secondary system loss of coolant accident initiator; the finding did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions will not be available; and the finding did not increase the likelihood of a fire or internal or external flooding. The issue was not considered a violation of regulatory requirements because it did not affect safety-related structures, systems, or components. (Section 1R01)

Cornerstone: Barrier Integrity

- Green. A Green self-revealing non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion III, was identified for the licensee (1) failing to fully understand the actual system configuration during and after a system modification, (2) installing incorrect solenoid valves in the system during the engineering change implementation, and (3) not performing adequate post modification testing to verify system functionality prior to returning the channel 1 and channel 2 Containment Gas Analyzers to service. The failure resulted in the plant being operated in Mode 1 and Mode 2 with two hydrogen analyzers inoperable in excess of the allowed Technical Specification outage time. The licensee restored the Analyzers to an operable status and entered the issue into the corrective action program for resolution.

The finding is greater than minor because it: (1) involved the configuration control attribute of the Barrier Integrity Cornerstone; and (2) affected the cornerstone objective

of providing reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. This finding is unrelated to structures, systems and components that are needed to prevent accidents from leading to core damage. The inspectors used Inspection Manual Chapter (IMC) 0609, "Significance Determination Process," Appendix H, Containment SDP to evaluate this finding. Based on this evaluation, the finding has very low safety significance. The cause of the finding is related to the cross-cutting area of human performance. (Section 1R12)

B. Licensee-Identified Findings

Violations of very low safety significance, which were identified by the licensee, have been reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program. The violations 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. The licensee conducted a short planned outage from October 28, 2005, until October 31, 2005, to correct the cause of reactor coolant system identified leakage. The licensee also reduced power to approximately 60 percent to support main feed pump 2 maintenance from November 26, 2005, until November 28, 2005.

Also during this inspection period, several brief power reductions of less than 10 percent also occurred. 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, and Barrier Integrity

1R01 Adverse Weather (71111.01)

.1 Tornado and High Wind Preparation

a. Inspection Scope

The inspectors reviewed applicable licensee procedures and performed a walkdown of areas immediately adjacent to the Davis-Besse switchyard and exterior portions of the protected area. The inspectors evaluated the licensee's preparations for adverse weather, including conditions that could result from tornados and high winds. The inspectors focused on plant specific design features for the systems and implementation of the procedures for responding to or mitigating the effects of adverse weather. The inspectors also determined whether operator actions specified by plant specific procedures were appropriate.

The inspectors evaluated readiness for seasonal susceptibilities for the following systems:

- the switchyard and immediately adjacent areas; and
- exterior portions of the protected area.

This constitutes one sample.

b. Findings

Introduction

The inspectors identified a Green finding for the licensee's failure to control materials in the areas immediately adjacent to the Davis-Besse switchyard. Specifically, the

inspectors identified multiple wooden pallets stacked next to the switchyard fence, a large amount of extraneous loose materials located near the north side of the switchyard, loose material located adjacent to service building 2, and several loose small metal plates in the vicinity of the spare transformers also located near the east side of the switchyard. Once identified the licensee took action to relocate the material. No violation of regulatory requirements occurred.

Description

On November 10, 2005, the inspectors conducted a walkdown of the areas immediately adjacent to the switchyard and the exterior portions of the protected area in the vicinity of the large station transformers to assess the licensee's preparations to preclude or minimize potential damage from high velocity winds associated with severe thunderstorms or tornados. During the walkdown of the areas immediately adjacent to the switchyard, the inspectors noted multiple wooden pallets stacked next to the switchyard fence, a large amount of extraneous loose materials located near the north side of the switchyard, loose material located adjacent to service building 2, and several loose small metal plates in the vicinity of the spare transformers also located near the east side of the switchyard. The inspectors concluded that high velocity winds combined with the close proximity of these materials to the switchyard increased the potential to lose offsite power sources.

The licensee has a reactive procedure for tornado warnings which directed plant personnel to inspect the Protected Area and switchyard for potential missiles and reduce missile potentials where practical. The inspectors did not identify any procedures to prepare for adverse weather conditions with respect to tornado and high wind conditions, nor did the inspectors identify any preparatory procedures to control loose materials in the protected area or switchyard. The inspectors found no specified actions or proactive elements that required the licensee to minimize the number of missile hazards prior to seasonal susceptibilities to occurrences of high winds.

Licensee Procedure NG-DB-00215, "Material Readiness and Housekeeping Inspection Program," Revision 06, established responsibilities and criteria for the performance of plant material and housekeeping readiness inspections. The procedure did not address the inspection of out-of-plant material storage areas. Licensee procedure RA-EP-02810, "Tornado," Revision 03, discussed securing loose gear and material; however, this procedure would only be used if the plant was notified of a tornado watch or tornado warning. Procedure RA-EP-02810 did not establish criteria for what constituted loose gear or material. Additionally, the licensee's Quality Assurance Program Manual commits the licensee to American National Standards Institute (ANSI) N45.2.3-1973, "Housekeeping During the Construction Phase of Nuclear Power Plants" during the plant operational phase. This standard required scheduled inspections of work areas and construction practices to ensure protection of installed equipment from weather-related movement of stored items.

Analysis

The inspectors reviewed this finding using the guidance contained in Appendix B, "Issue Disposition Screening," of Inspection Manual Chapter 0612, "Power Reactor Inspection Reports." The inspectors determined that the licensee's failure to control material near risk significant equipment or to appropriately apply the standards contained within ANSI N45.2.3-1973 was a performance deficiency which affected the Initiating Events cornerstone. The inspectors determined that the finding was more than minor because, if left uncontrolled, the loose items located immediately adjacent to the switchyard would become a more significant safety concern. The inspectors determined that the finding warranted evaluation using the Significance Determination Process because the finding was associated with an increase in the likelihood of an initiating event.

The inspectors evaluated the finding using IMC 0609, Appendix A, Attachment 1, "Significance Determination of Reactor Inspection Findings for At-Power Situations." Using the Phase 1 Significance Determination Process worksheet for the initiating event cornerstone, transient initiator contributor, the inspectors determined that the finding did not contribute to the likelihood of a primary or secondary system loss of coolant accident initiator; the finding did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions would not be available; and the finding did not increase the likelihood of a fire or internal or external flooding. Therefore, the finding was determined to be of very low safety significance (Green).

Enforcement

The inspectors concluded that procedures were inadequate relative to applying housekeeping standards to risk significant equipment. Because no 10 CFR 50, Appendix B, components were impacted by the finding (FIN 05000346/2005009-01), no violation of regulatory requirements occurred. The licensee included this finding in their corrective action program as CR 06-00027.

.2 Cold Weather Preparations

a. Inspection Scope

The inspectors observed the implementation of compensatory measures, contained in procedure DP-OP-06913, "Seasonal Plant Preparation Checklist," Revision 11, on several occasions during this inspection period when frazil ice was present at the service water intake crib. The compensatory measures include increased monitoring of service water fore-bay and lake water levels and the use of portable equipment to provide an alternate means of pumping water from Lake Erie to the service water intake canal.

This constitutes one sample.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment (71111.04Q)

a. Inspection Scope

The inspectors conducted a partial walkdown of the decay heat system train 1 subsequent to system restoration following performance of the decay heat system train 2 preventive maintenance activities on November 15, 2005. The inspectors reviewed whether the system was correctly aligned to perform its designed safety function. The inspectors referenced licensee system valve line-up documents and system drawings during the walkdown. The walkdown included selected switch and valve position checks, and verification of electrical power availability to critical components. Finally, the inspectors evaluated other elements, such as material condition, housekeeping, and component labeling. The documents referenced during the performance of the walkdown are listed in the attached List of Documents Reviewed.

This constitutes one sample.

b. Findings

No findings of significance were identified.

1R05 Fire Protection

.1 Area Inspections (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:

- electrical penetration room 2 (Fire Area DC, Room 427);
- auxiliary building main corridor elevation 603 feet (Fire Area V, Room 404);
- diesel fire pump room (Fire Area BE-1, Room 51);
- safety battery rooms (Fire Areas X & Y, Rooms 428A & 429B);
- emergency diesel 1 room (Fire Area K, Room 318); and
- electrical penetration room 1 (Fire Area DG, Room 402).

This constitutes six samples.

b. Findings

No findings of significance were identified.

.2 Fire Brigade Drill (71111.05A)

a. Inspection Scope

On October 7, 2005, the inspectors observed a fire brigade activation which was required for response to a fire detection alarm in emergency diesel generator 2 room. The inspectors determined whether protective clothing/turnout gear was properly donned; the fire area was entered in a controlled manner; response times were within licensee procedural guidelines; sufficient fire fighting equipment was brought to the scene by the fire brigade to properly perform their firefighting duties; and, the fire brigade leader's fire fighting directions were thorough, clear, and effective.

This constitutes one sample.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program (71111.11)

.1 Annual Operating Test Results

a. Inspection Scope

The inspectors reviewed the overall pass/fail results of the annual operating examination which consisted of Job Performance Measure (JPM) and simulator operating tests (required to be given per 10 CFR 55.59(a)(2)) administered by the licensee. The operating testing was conducted in October, November, and December 2005. The results were compared with the significance determination process in accordance with NRC Manual Chapter 0609I, "Operator Requalification Human Performance Significance Determination Process (SDP)."

This constitutes one sample.

b. Findings

No findings of significance were identified.

.2 Resident Inspector Quarterly Review

a. Inspection Scope

On October 25, 2005, the inspectors observed an operating crew during simulator annual requalification training 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 challenges associated with the rod control system, a reactor coolant pump, and the ability to control the cool down of the reactor coolant system.

This constitutes one sample.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

The inspectors reviewed the licensee's handling of performance issues associated with the:

- station and instrument air system;
- control room emergency ventilation system with emphasis on the evaluation of control room tracer gas test results; and
- containment gas monitoring system.

The reviews consisted of evaluating the following activities:

- The licensee's use of the condition report process in identifying deficiencies and issues with 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 identifying system trends and monitoring for signs of component failures;

- Appropriateness of goals and corrective actions associated with long-term reliability;
- Whether the physical condition of the system appeared consistent with status as reflected in condition reports and open work orders;
- Whether the licensee's corrective actions included extent of condition; and
- Appropriateness of maintenance rule system status classification with emphasis on whether current reclassification appeared appropriate for the equipment's recent history.

This constitutes three samples.

b. Findings

Introduction. A self-revealing violation of 10 CFR 50, Appendix B, Criterion III, was identified during the evaluation of a failed periodic functional check associated with the containment hydrogen analyzer channel 1. The evaluation identified that during an engineering change which modified containment hydrogen analyzer channels 1 and 2, the licensee failed to: 1) identify the presence of check valves located in the drain lines for each of the analyzer's moisture separators, 2) install the correct type of solenoid operated drain valve in the drain lines for each of the analyzer's moisture separators, and 3) perform a post-maintenance test which adequately verified the function of the modified systems. The failure to ensure that design control measures were properly implemented resulted in the plant being operated in Mode 1 and Mode 2 with two hydrogen analyzers inoperable in excess of the allowed Technical Specification (TS) outage time.

Description.

Licensee Event Report 2003-005-01, "Containment Gas Analyzer Heat Exchanger Valves Found Closed Rendering the Containment Gas Analyzer Inoperable," discussed, in part, inadequate moisture removal systems associated with each of the containment gas analyzer channels. The existing systems relied on a non safety-related air supply, which may not be available post accident, for removal of water from the moisture system moisture traps. The impact of flooding the moisture traps would be that condensate would fill the analyzer piping and cause the conductivity detector to indicate erroneous containment hydrogen concentration levels. To correct this deficiency, the licensee developed and implemented Engineering Change 03-0384-00, "Containment Gas Analyzer System (CGAS) Moisture Trap Discharge." As part of this engineering change, the drain systems associated with the moisture traps for each of the CGAS channels were modified to employ gravity as the motive force to drain the moisture traps, eliminating the need for the non safety-related air supply to perform this function.

On September 29, 2005, a performance of DB-MI-04729, "Channel 1 Containment Vessel Atmospheric H2 Analyzer Condensate Moisture Removal System Inspection and Moisture Trap System Functional Test," Revision 01, revealed that the condensate would not drain from the moisture trap as required. Subsequent licensee investigations identified the following information.

- The drain line from each analyzer's moisture trap contained an undocumented check valve. Since the check valves required approximately 2 psi to operate, they would have prevented each analyzer's gravity drainage system from operating properly.
- During the implementation of the engineering change, pilot-operated solenoid valves, instead of direct acting solenoid valves, were installed in the drain line from each analyzer's moisture traps. Direct acting solenoid valves were initially selected based on the fact that the valve required no differential pressure to operate. Since the pilot-operated solenoid valves that were installed required a differential pressure of up to 1 psi to operate and the existing system configuration only provided a differential pressure of approximately 0.1 psi, the valves could have prevented each analyzer's gravity drainage system from operating properly.
- The moisture trap drainage system post-installation testing was inadequate to verify the functionality of the modification. Although an adequate post-installation test would not have prevented the configuration control issues associated with the presence of undocumented check valves or the installation of the wrong type of solenoid valve, it would have identified the latent configuration control issues prior to returning inoperable systems to service.

Technical Specification 3.6.4.1 required both hydrogen analyzers to be operable or a plant shutdown commenced in 72 hours. On October 3, 2005, based on the results of investigations, which indicated that deficient conditions impacted both hydrogen analyzers, the licensee declared both hydrogen analyzers to be inoperable. Sufficient corrective actions were completed within the 72 hour time frame, therefore, a plant shutdown was not required.

Corrective actions taken by the licensee included: the removal of the undocumented check valves from each analyzer's drain line; the replacement of the pilot-operated solenoid valves with direct acting solenoid valves; successful completion of moisture trap functional tests for both analyzers; and plans to perform a detailed configuration walkdown for the CGAS cabinet.

Analysis. In accordance with IMC 0609, Appendix A, Attachment 1, the inspectors performed an SDP Phase 1 screening and determined that the issue affected the Reactor Safety Strategic Performance Area. The finding was more than minor because it: (1) involved the configuration control attribute of the Barrier Integrity Cornerstone; and (2) affected the cornerstone objective of providing reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events.

This finding is unrelated to SSCs that are needed to prevent accidents from leading to core damage. To determine if this finding had an effect on Large Early Release Frequency, the inspectors used MC 0609, "Significance Determination Process," Appendix H, Containment Integrity SDP. The finding is characterized as a Type B finding (having no impact on Core Damage Frequency) and was compared to Table 6.1

in Appendix H. The inspectors determined that the hydrogen analyzer had no impact on the containment-related SSCs listed in Table 6.1 (i.e. containment penetration seals, containment isolation valves or purge and vent lines) and would not influence the Large Early Release Frequency. Based on this, the finding was determined to be of very low safety significance. The inspectors also determined that the primary cause of this finding was related to the cross-cutting area of human performance in that there was a lack of attention to detail in specifying valves to be installed and performing post modification testing and in that reference documents did not show all components installed in the system.

Enforcement. The performance deficiency associated with this event is the failure of the licensee to adequately implement design control measures during the implementation of the modification to the drainage systems for the channel 1 and channel 2 containment hydrogen analyzers. 10 CFR 50, Appendix B, Criterion III, Design Control, requires, in part, that design changes are required to be subjected to design control measures commensurate with those applied to the original design. Contrary to the requirements of Criterion III, licensee design control measures were inadequate during the implementation of the engineering change which modified the containment gas analyzer system moisture trap discharge system. Specifically, the licensee did not fully understand the configuration of the system during and after the modification, incorrect components were installed in the system during the engineering change implementation, and inadequate post modification testing failed to verify system functionality prior to returning the channel 1 and channel 2 containment gas analyzers to service. The failure resulted in the plant being operated in Mode 1 and Mode 2 with two hydrogen analyzers inoperable in excess of the allowed TS outage time. Because of the very low safety significance and because the issue has been entered into the licensee's corrective action program (CRs 05-05217, 05-05256, 05-5349, and 05-05379) it is being treated as a Non-Cited Violation, consistent with Section VI.A of the NRC Enforcement Policy (NCV 05000346/2005009-02).

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 reduce overall plant risk and minimize the duration where practical. Also, the inspection reviewed whether contingency plans were in place when appropriate. The inspectors utilized 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 to determine whether the equipment configurations had been properly listed, that 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 that, as necessary, existing work plans were adjusted to accommodate the change in planned equipment operability. The inspectors evaluated the following licensee activities:

- During the period of November 9, 2005 through November 10, 2005, the inspectors reviewed the licensee's initial planning and work schedule adjustments associated with the unexpected trip of reactor protection system channel 4 trip on high flux and high flux relative to flow. During this time period, the inspectors also reviewed the licensee's work plans for identifying the cause of the trip and their plans for addressing the issue.
- On October 12, 2005, the licensee determined that during the preceding work week they had unintentionally entered an orange risk condition for approximately 43 minutes while work activities were conducted in parallel that were originally evaluated for risk significance as being worked in series. The inspectors reviewed the issue including a review of the work activities and the response of the licensee's organization to the event.
- On November 15, 2005, the licensee determined that, during the preceding shift, an orange risk condition was unintentionally entered for approximately 14.1 hours. This occurred when an equipment operator was placing the component cooling water (CCW) pump 2 back in service and failed to open the CCW heater exchanger 2 service water outlet valve (SW38) as specified in the procedure he was using.
- On November 26, 2005, the licensee determined that it would be necessary to reduce reactor power to approximately 60 percent to permit removal of main feed pump 2 from service due to a step increase in vibration levels.

This constitutes four samples.

b. Findings

Two specific issues which involved Licensee-Identified Violations were identified during the review of these maintenance risk assessment and emergent work samples. These Licensee-Identified Violations are further discussed in Section 4OA7 of this report.

1R14 Personnel Performance Related to Non-routine Plant Evolutions and Events (71111.14)

a. Inspection Scope

For the non-routine events described below, the inspectors reviewed operator logs, plant computer data and strip charts as appropriate, and operator performance, to determine if the response was in accordance with plant procedures:

- On October 29, 2005, the inspectors observed portions of the power reduction from 100 percent power to approximately 12 percent and the planned trip of the reactor in preparation for a short planned outage. The inspectors focused on the operators' ability to safely and conservatively maneuver the reactor plant during the power reduction and to perform the appropriate actions subsequent to the planned reactor trip. In addition, the inspectors verified that the control room

operators safely established and maintained the plant in operational Mode 3 in preparation for the commencement of planned outage work.

- On October 30, 2005, the inspectors continuously observed control room operators perform a reactor startup from the initial pulling of the group 5 regulating control rods until the point of adding heat was reached. The inspectors reviewed whether initial plant conditions supported a reactor startup, whether estimated critical boron concentration and estimated critical rod position had been properly calculated and were current for the time the reactor startup was occurring, and whether all reactivity manipulations were being controlled in a safe and conservative manner.
- On October 31, 2005, the inspectors observed portions of the main turbine warming, initial turbine rolling, and the preparations for placing the main generator on the electric grid. The inspectors observed the control room operators parallel the main generator and synchronize it with the electric grid. The inspectors specifically reviewed the actions of the control room operators during the paralleling operation and subsequent transfer of load off the turbine bypass valves.

This constitutes three samples.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors selected a condition report which discussed a potential operability issue for a risk significant component or system. The condition report and applicable licensee operability evaluation were reviewed to determine whether the operability of the component or system was appropriately supported. The inspectors compared the operability and design criteria in the appropriate sections of the USAR to the licensee's evaluation of the issue to determine whether the systems was 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 sample was evaluated:

- CR 05-05184: Boron Injection Flowrate Calculation 034.009 Non-Conservative Assumptions.

The inspectors observed and reviewed the licensee's response to the identification of non-conservative acceptance criteria associated with boric acid pump 2 due to incorrect calculation assumptions associated with maximum

makeup tank pressure and minimum boric acid addition tank level. Specifically, the inspectors reviewed the licensee's initial assessment of boric acid pump 2 operability, Standing Order 05-015 and associated 10 CFR 50.59 screening document which provided guidance to operations personnel regarding the operation of boric acid pump 2, and the licensee's long term corrective actions to correct the issue.

This constitutes one sample.

b. Findings

No findings of significance were identified.

1R16 Operator Workarounds (71111.16)

.1 Resident Inspector Cumulative Review

a. Inspection Scope

The inspectors performed a review of all the existing operator workarounds and control room deficiencies to determine whether their cumulative effect had a significant impact on plant risk or on the operators' ability to respond to a transient or an accident. This involved reviewing all documented operator workarounds, control room deficiencies, and shift turnover sheets. The inspectors determined whether the licensee had appropriately classified the significance of the workarounds and deficiencies, whether the workarounds were reasonable, and whether the licensee had initiated the appropriate corrective actions, commensurate with the significance of the deficiency or workaround. In addition, the inspectors reviewed the licensee's latest operator workaround and control room deficiency quarterly aggregate impact report (dated August 18, 2005). As part of the review, the inspectors evaluated the quality of the report and assessed the impact of any items that had been added or deleted since the report was prepared.

This constitutes one sample.

b. Findings

No findings of significance were identified.

.2 Review of Turbine Bypass Valves Operator Workaround

a. Inspection Scope

The inspectors reviewed licensee actions to address a Level 1 workaround associated with turbine bypass valves SP13B3 and SP13A1. Both valves, after initial opening, demonstrated the tendency to stick approximately 1/4 open. This may require operator action to shut the associated discharge isolation valves to fully secure flow through a stuck open valve. The inspectors reviewed whether this additional action would present

a significant impact on the affected operator to perform actions to mitigate the effect of a significant plant event. The inspectors reviewed the procedures that would be used to isolate the valves and observed a demonstration by an operator of what actions he would take to isolate both valves.

This constitutes one sample.

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 testing of the safety features actuation system (SFAS) channel 1 low-low pressure bistable card during the period of October 3 through October 7, 2005;
- troubleshooting, repair, and post-maintenance testing of the reactor protection system (RPS) channel one pressure/temperature bistable during the period of October 5, 2005, through October 9, 2005;
- post-maintenance testing of the service water pump 1 and its discharge strainer on October 13, 2005, after scheduled preventive maintenance activities;
- planned maintenance and post-maintenance testing of makeup pump 1 and associated discharge valves during the period of October 25 and 26, 2005;
- troubleshooting, repair, and post-maintenance testing of the rod drive system, during the period of October 29 and 30, 2005;
- post-maintenance testing of the auxiliary feedwater pump 1 and MS 106A, steam supply valve, on November 2, 2005, after scheduled preventive maintenance activities and relay replacement;
- post-maintenance testing of auxiliary feed pump turbine 2 suction pressure interlock switch after switch replacement on November 12, 2005;
- post-maintenance testing of main feed pump 2 on November 27 and 28, 2005, after disassembly, alignment and reassembly of the main feed pump to turbine coupling to reduce pump vibrations;

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 select pre-job briefings to determine whether the impact of the testing was appropriately characterized. The inspectors also observed the performance of testing or reviewed post test results to verify the procedure was followed and that all

testing prerequisites and acceptance criteria 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.

This constitutes eight samples.

b. Findings

No findings of significance were identified.

1R20 Refueling and Outage Activities (71111.20)

a. Inspection Scope

The inspectors observed activities associated with a 3 day planned outage which began on October 29, 2005. The outage began when the reactor was tripped from approximately 12 percent power and ended when the main generator was placed on-line at approximately 12:52 on October 31, 2005. Throughout the brief outage, the plant was maintained in operational Mode 3. The inspectors reviewed the applicable transient and shutdown plant parameters, configuration management, clearance activities, shutdown risk assessments, conformance to applicable procedures, and compliance with TSs.

This constitutes one sample.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors observed surveillance tests or evaluated test data to determine whether the equipment tested met TSs, the Updated Safety Analysis Report, and licensee procedural requirements, and also demonstrated that the equipment was capable of performing its intended safety functions. The inspectors used the documents listed at the end of this report 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 recorded. The following surveillances were evaluated:

- D1 Bus Undervoltage Units Monthly Functional Test (October 18, 2005);
- Steam Feed Rupture Control System Logic Channel 2 Functional Test (October 19, 2005);

- Control Rod Assembly Insertion Time Test [for control rod 6-8 and the group 7 control rods] (October 30, 2005);
- Moderator Temperature Coefficient Measurement by Boron Swap (December 04, 2005);
- Channel Functional Test of Main Turbine and Feed Pump Turbine Hydraulic Oil Pressure Trips for Anticipatory Reactor Trip System Channel 4 (October 12, 2005) including review of potential preconditioning due to initial schedule of performing preventive maintenance tasks prior to surveillance;
- Reactor Coolant System Water Inventory Balance (December 2, 2005 through December 4, 2005);
- Decay Heat/Low Pressure Injection pump 1 quarterly test (December 28, 2005); and
- Main Turbine Master Trip Solenoid Valve operability testing and problem solving activities (December 29, 2005).

This constitutes eight samples.

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications (71111.23)

a. Inspection Scope

The inspectors reviewed the temporary modification and associated 10 CFR 50.59 screening against system requirements, including the Updated Safety Analysis Report and TS, to determine whether there were any effects on system operability or availability and if consistency with plant documentation and procedures was maintained. The inspectors observed portions of the implementation of the temporary modifications. Additionally, the inspectors reviewed the work order governing the following work:

- During the short plant outage which occurred October 29 through 31, 2005, the licensee investigated an abnormal vibration related noise emanating from the isophase duct located near the main generator bushing area during the operation of bus duct cooling when only one bus duct cooling fan was in operation. During the investigation, the licensee discovered at least one of the three damper blades associated with damper VC6052 was damaged. Since the dampers, located in the isophase air crossover duct, were normally operated fully open, the licensee decided to implement temporary modification 05-0041 to remove the six damper blades associated with dampers VC6052 and VC6053. The inspectors observed the implementation of this temporary modification and the restoration of power to the generator busses, which occurred on October 31, 2005.
- Temporary modification 05-0015 which was for installation of a metal patch for main feedpump 2 inboard seal return fillet weld with a pinhole leak in the weld between the seal housing and the first pipe nipple.

This constitutes two samples.

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness

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

a. Inspection Scope

The inspectors performed screening reviews of Revision 24 of the Davis-Besse Nuclear Power Station Emergency Plan and Revision 05 of associated implementing procedure RA-EP-01500 to determine whether the changes made in these revisions decreased the effectiveness of the licensee's emergency planning. The screening reviews of these revisions did not constitute an approval of the changes and, as such, the changes are subject to future NRC inspection to ensure that the emergency plan continues to meet NRC regulations.

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 CAP. This screening was accomplished by reviewing documents entered into the licensee 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.

.2 Semi-Annual Review to Identify Trends

a. Inspection Scope

As required by Inspection Procedure 71152, "Identification and Resolution of Problems," 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 inspector's review was focused on repetitive equipment issues, but also considered the results of daily inspector CAP item screening discussed in Section 4OA2.1 above, licensee trending efforts, and licensee human performance results. The inspectors' review included the 6-month period of July 2005 through December 2005. Inspectors also reviewed the Davis-Besse Oversight Assessment Report (third quarter 2005) and the most current operations department cognitive trending report (May through October, 2005). The review also included issues documented in the licensee's system health reports and maintenance rule assessments. The inspectors compared and contrasted their results with the results contained in the licensee's latest quarterly trend report. Corrective actions associated with a sample of the issues identified in the licensee's reports were reviewed for adequacy.

b. Assessment and Observations

There were no findings of significance identified. The inspectors determined that the implementation of trending was adequate. The inspectors compared the licensee process results with the results of the inspectors' daily screening and did not identify any discrepancies or potential trends that were not currently captured in the CAP or other licensee generated documents.

.3 Annual Sample: Environmental Qualification Program Elements

a. Inspection Scope

The inspectors chose to review Condition Report 05-05226, "AFW Valves FV6451 and FV6452 Silicon Rubber Seals Replacement Not Identified," and reviewed how these environmentally qualified (EQ) seals and other EQ components were identified and flagged in the work control system as requiring conformance with EQ specifications. The inspectors reviewed selected EQ governing documents and reviewed condition reports to observe if there were recurring problems with maintaining the EQ components.

b. Findings and Observations

During an environmental qualification program self-assessment, the licensee identified three maintenance procedures that did not capture EQ program requirements for auxiliary feedwater Target Rock solenoid valves, FV6451 and FV6452. The three procedures were also not identified in the procedure data base system as procedures with steps that implement EQ program requirements.

Valves FV6451 and FV6452 were added to the EQ program in the time period of 2003 after the licensee identified that components within the auxiliary feed pump rooms could be subjected to a steam environment after a high energy line break (HELB) in the turbine building. The licensee implemented a design change package (ECR-02-0627-00) to modify various components but determined that no work was necessary on valves FV6451 and FV6452 since the valves met EQ requirements even though they were not formally in the EQ program. The licensee stated in their condition report that, since no work was required under the design change package, the modification of existing procedures was overlooked. Review of existing procedures is a normal requirement for components modified by a design change.

As part of its review for the condition report, the licensee determined that valve silicon rubber seals (o-rings), used to maintain the EQ certification of valves FV6451 and FV6452, could be up to 18 years old. In previous maintenance activities on those valves the o-rings were inspected by maintenance personnel for their overall condition. There was no record found that the o-rings had been replaced. The EQ test report for the valves stated that the o-rings should be replaced at least every 10 years and recommended a 5 year replacement interval or whenever the components were disassembled. The licensee determined, after discussion with the valve manufacturer and after comparing EQ qualification test conditions with calculated room conditions after a HELB, that it was reasonable to presume that the existing valve conditions were sufficient to consider the valves functional for assumed mission times after a HELB.

As corrective action the licensee modified the relevant data bases and procedures to show that FV6451 and FV6452 were in the EQ program and to implement the requirements contained within the valves' certification package. The licensee also initiated work orders to replace the valves' o-rings at the next available opportunity.

The inspectors' review of condition reports related to EQ, review of a licensee self assessment of the EQ program, and selected review of EQ packages did not identify any items of significance. As identified by the licensee, a backlog exists for EQ package change notices and those work activities were prioritized low in the overall engineering backlog reduction effort.

4OA3 Event Followup (71153)

.1 (Closed) LER 05000346/2005002-00, Inoperable Battery Due to Procedure Deficiency and Inadequate Reviews

On May 4, 2005, in response to NRC questions during the Safety System Design and Performance Capability (SSDPC) inspection, the licensee performed a review of past Station Battery quarterly surveillance test (DB-ME-03001), and found that the voltage reading for Station Battery 2N cell number 60 was recorded on December 2003 as 2.114 volts. The voltage value was below the 2.13 volts minimum TS limits. At that time, the licensee did not implement corrective actions to restore the cell voltage within 7 days as required by TS and the surveillance test procedure. The licensee entered this issue into the corrective action program (CR 05-02415) on May 4, 2005. This issue was documented as a Non-Cited Violation (NCV 05000346/2005004-02) in Inspection Report

05000346/2005004(DRS). The inspector reviewed the licensee's corrective actions for CR 05-02415 and found them to be adequate. This LER is closed.

4OA5 Other Activities

.1 Review of Licensee Response to NRC Generic Letter 95-07

By letter dated November 29, 2004, the licensee corrected information relating to NRC Generic Letter 95-07, "Pressure Locking and Thermal Binding of Safety-Related Power Operated Gate Valves," provided to the NRC by letter dated February 13, 1996. In the February 13, 1996, letter, the licensee stated that the pressurizer vent stop valve, RC 200, was routinely opened and closed during plant operation and had not become thermally bound. The corrected information stated that the valve is normally closed and is not required to be operated in modes 1, 2, or 3, and as a result would still not become thermally bound.

By letter dated August 9, 2005, the licensee provided additional information in response to NRC staff questions concerning the possibility of RC 200 becoming thermally bound if operated in response to a small-break loss-of-coolant accident. The licensee stated that valves identical to RC 200 had not experienced thermal binding; however, the licensee still committed to take action to ensure that thermal binding of RC 200 will not occur. Specifically the licensee committed to modify two station procedures to require use of a regularly cycled valve, RC 239A, in lieu of RC 200 to initiate flow path isolation after initiation of flow and to inform operators of the procedure changes. The NRC staff reviewed the information provided and concluded that it was acceptable. Additionally, the inspectors determined that the procedures were modified and that the licensee took action to notify licensed operators.

In the NRC's safety evaluation of June 16, 1999, the NRC staff accepted valve RC 200 as not being subject to thermal binding. The information provided in the licensee's letter of February 16, 1996, was material to the NRC's decision accepting the response to Generic Letter 95-07. The submittal of incomplete and inaccurate information is a licensee identified violation of 10 CFR 50.9(a). The enforcement aspects of this violation are discussed in Section 4OA7.

4OA5 Other Activities (93812)

The March 8, 2004, Confirmatory Order required, in part, that the licensee perform annual independent assessments, for a period of 5 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 Review of Engineering Program Effectiveness Independent Assessment Plan and Implementation

a. Inspection Scope

The inspection activities were performed to verify the licensee's compliance with the requirement for independent assessments, as described in the March 8, 2004, Confirmatory Order Modifying License No. NPF-3. This was the second of five required annual independent assessments of the engineering program. The inspectors verified that the licensee had submitted the required inspection plan 90 days prior to the performance of the assessment, evaluated the plan, and observed on-site implementation of the assessment to verify plan completion.

b. Observations and Findings

The licensee submitted its plan (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. This review found the plan acceptable and was documented in NRC Inspection Report No. 05000346/2005008. Subsequent to this review, the licensee submitted Revision 1 of the plan on October 14, 2005. This revision was submitted to substitute one of the proposed team members. 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 three team members on site for a period of 1 week and the other three team members on site for both 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 observed portions of the assessment activities during the second on site week including 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 review of a sample of

engineering products reviewed by the team. The team conducted a debrief at the end of on site activities and provided preliminary conclusions. The team identified good improvement in several areas since the 2004 assessment and did not identify any areas for improvement. The NRC inspectors found the implementation of the assessment plan to be acceptable and will review the final team report when it becomes available.

.2 Safety Culture/Safety Conscious Work Environment Independent Assessment

On December 14, 2005, Dr. Sonja Haber of Human Performance Analysis Corp. presented to plant personnel the results of the independent assessment of Davis-Besse's Safety Culture and Safety Conscious Work Environment. She described the inspection procedure which included: functional analysis (document review), an organizational and safety culture survey, structured interviews, Behaviorally Anchored Rating Scales (BARS), and observations. They received 571 (71 percent) responses to the survey, conducted 97 interviews, 376 BARS representing 11 organizational behaviors, and conducted 70 observations of 20 different activities. The results were presented in accordance with the six characteristics of Safety Culture from model being used. She listed strengths, areas in need of attention, and areas for improvement (AFI), then rated each characteristic in regard to its effectiveness. Results were:

- “Safety is a clearly recognized value” was rated as Effective. There were several strengths and areas in need of attention but no AFIs.
- “Accountability for safety is clear” was rated as Marginally Effective. There were some strengths and areas in need of attention and one AFI - A long-term strategy to sustain commitment to safety needs to be developed. Management actions were perceived to be top down and externally driven. Two departments were singled out as having a tendency to avoid responsibility (Operations and Security).
- “Safety is integrated into all activities” was rated as Effective. There were several strengths and areas in need of attention but no AFIs.
- A “safety leadership process exists” was rated as Marginally Effective. There were some strengths and areas in need of attention and one AFI - Values and attitudes have improved since 2004, but only to 2003 levels. Leadership needed to demonstrate continued improvement and sustainability. It was also noted that some work groups (Operations, Security, maintenance, Chemistry, and Training) were not aligned on safety.
- “Safety culture is learning driven” was rated as Marginally Effective. There were some strengths and areas in need of attention and one AFI - learning from experience needs to be internalized and recognized as important.
- Safety Conscious Work Environment was rated as Effective. There were several areas in need of attention but no AFIs.

A written report with more detail is expected from Human Performance Analysis Corp. in mid-February 2006 and will be reviewed by the inspectors.

4OA6 Meetings

.1 Exit Meeting

The inspectors presented the inspection results to Mr. M. Bezilla, and other members of licensee management on January 6, 2006. The licensee acknowledged the findings presented. No proprietary information was identified.

.2 Interim Exit Meetings

Interim exits were conducted for:

- Emergency Preparedness inspection with Mr. J. Vetter on November 30, 2005; and
- Operator Requalification Program Examination Result Review with Mr. D. Lange on December 20, 2005.

4OA7 Licensee-Identified Violations

The following violations of very low safety 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 dispositions as NCVs.

- Contrary to 10 CFR 50.9(a), the licensee's letter of February 13, 1996, which submitted responses to NRC Generic Letter 95-07, "Pressure Locking and Thermal Binding of Safety-Related Power Operated Gate Valve," contained incomplete or inaccurate information on the operation of pressurizer vent stop valve, RC200. The information provided was material to the NRC's decision accepting the response to Generic Letter 95-07. Revised information was provided to the NRC by the licensee's letter of August 5, 2005. The issue of incorrect or inaccurate information was identified in the licensee's corrective action program as CR 04-00759 and CR 04-05581. This finding was processed using the traditional enforcement process and was classified as a Severity Level IV violation. This finding is of very low safety significance because there is no confirmation that the valve RC200 would not have functioned when needed. Additionally, the licensee has developed procedural steps to further ensure that the valve would not become thermally bound in an undesired position.
- Contrary to 10 CFR 50.65(a)(4), licensee personnel performed scheduled activities in a sequence that was not assessed for risk resulting in an inadvertent entry to licensee risk category of orange. On October 3, 2005, for approximately 43 minutes, licensee personnel concurrently performed scheduled activities on decay heat pump 1 and the emergency instrument air compressor. This placed the plant in an unreviewed orange risk category. This event is documented in CR 05-05334. This finding is of very low safety significance because the concurrent work activities did not represent a loss of safety function or loss of a safety train for greater than limits in TSs.

- Contrary to TS 6.8.1 and Regulatory Guide 1.33, licensee personnel positioned a valve in violation of DB-OP-01002 by not performing the required independent verification. On November 15, 2005, CCW train 2 was inoperable and it would not have been able to fulfill its safety function. This condition existed for 14.1 hours prior to discovery. This placed the plant in TS action statements and an unreviewed orange risk category. This event is documented in CR 05-05650 and CR 05-05666. This finding is of very low safety significance because the mispositioned valve event did not represent a loss of safety function or loss of a safety train for greater than limits in TSs.

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
D. Lange, License Operator Requalification Training Lead
S. Loehlein, Director, Station Engineering
K. Ostrowski, Manager, Plant Operations
C. Price, Manager, Regulatory Compliance
R. Schrauder, Director, Performance Improvement
M. Trump, Manager, Training
J. Vetter, Emergency Preparedness Manager

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000346/2005009-01	FIN	Failure to Control Loose Material Adjacent to the Switchyard
05000346/2005009-02	NCV	Inadequate Design Control During Modification of the Containment Hydrogen Analyzer Moisture Trap Drainage System

Closed

05000346/2005002-00	LER	Inoperable Battery Due to Procedure Deficiency and Inadequate Reviews
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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 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
NG-DB-00215; Material Readiness and Housekeeping Inspection Program; Revision 06
NOP-WM-4001; Foreign Material Exclusion; Revision 05
RA-EP-02810; Tornado; Revision 03
FENOC Quality Assurance Program Manual; Revision 06
ANSI N45.2.3-1973; Housekeeping During the Construction Phase of Nuclear Power Plants

1R04 Equipment Alignment

DP-OP-06012; Decay Heat and Low Pressure Injection System Operating Procedure; Revision 24
Drawing OS-004, Sheet 1; Decay Heat and Low Pressure Injection System; Revision 40

1R05 Fire Protection

Calculation C-FP-013.06-004; Diesel FP Room Ventilation Opening Barrier 51-W/52A-E Vent Fan Enclosure; Revision 01
CR 05-05297; Activation of Fire Brigade for Bad Detector in EDG#2 Room
Davis-Besse Nuclear Power Station Fire Hazard Analysis Report
PFP-AB-319; Diesel Generator 1-2 Room; Rooms 319 and 319A; Revision 06
PFP-AB-428A; Safety Battery Room B; Revision 03
PFP-AB-429B; Safety Battery Room A; Revision 03
DB-FP-00005; Fire Brigade; Revision 05
Drawing A-6; Shield, Turbine, Auxiliary, Off. Bldgs. General Floor Plan EL. 603'-0"; Revision 49
Drawing A-0223F; Fire Protection General Floor Plan Elev 585'; Revision 17
Drawing A-0224F; Fire Protection General Floor Plan Elev 603'; Revision 21
Drawing A-0230F; Fire Protection Water Treatment Building, Intake Structure, and Diesel Oil Storage; Revision 09
Drawing A-2401 SH 4; Fire Protection Aux. Bldg Framing Plan - EL. 623'-0"; Revision 03

1R11 Licensed Operator Requalification Program

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

1R12 Maintenance Effectiveness

CR 04-05401; Train 1 Failed to Return to the "Water Cooled" Mode upon Completion of Test
CR 04-06555; #2 CTRM Chiller Trip with #1 OOS, maintenance Rule a(1) Evaluation of CREVS

CR 05-03004; Train 2 Outside Air Intake Flow Rate Exceeds
CR 05-02973; Breaching of Control Room Pressure Boundary-CREVS Fan Shaft Seal
CR 05-05217; DB-MI-04729 Failed Test
CR 05-05256; Potential Design Deficiency in Containment H2 Analyzer Moisture Removal System
CR 05-05349; Check Valve Found in Outlet of Moisture Trap (MT9) in C3801 for AE5027
CR 05-05379; Check Valve Found in Outlet of Moisture Trap (MT10) in C3801 for AE5028
CR 05-05659; Evaluation of Preliminary Control Room Tracer Gas Tests Results
CR 05-05703; CREVS Train 2 Low Refrigerant Charge
D-B System Health Report; Second Quarter 2005
DB-MI-04729; Channel 1 Containment Vessel Atmospheric H2 Analyzer Condensate Moisture Removal System Inspection and Moisture Trap System Functional Test; Revision 00
DB-MI-04730; Channel 2 Containment Vessel Atmospheric H2 Analyzer Condensate Moisture Removal System Inspection and Moisture Trap System Functional Test; Revision 00
DB-OP-02533; Control Room Emergency Ventilation System Load Shedding; Revision 06
DB-PF-00003; Maintenance Rule; Revision 07
Drawing OS 19A, Sheet 1; Instrument Air System; Revision 24
Drawing OS 19A, Sheet 2; Instrument Air System; Revision 16
Drawing OS 19B, Sheet 1; Station Air System; Revision 21
Drawing OS 19B, Sheet 2; Station Air System; Revision 18
Listing of Work Orders for Station and Instrument Air Systems; December 2004 through December 2005; December 21, 2005
Maintenance Rule Expert Panel Meeting Minutes; December 9, 2004
WO 200140456; DB-C139: ECR 04-0351 Replace EIAC
Licensee White Paper on the Implementation of License Amendment 265
Engineering Change Package 03-0384-00; Containment Gas Analyzer System Moisture Trap Discharge
Maintenance Rule Program Manual; Revision 18
Updated Final Safety Analysis Report; Chapter 9.4.1, Control Room Air Conditioning, Heating, Cooling, and Ventilating Systems

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
CR 03-01509; RPS NI-5 Power Range Neutron Detector Intermittent Connection Problem Solving Plan for CR 05-05605; Unexpected RPS Channel 4 Trip; November 9, 2005
CR 05-05334; WW0541 Inadvertent Risk Entry
CR 05-05605; Unexpected RPS Channel 4 Trip
CR 05-05650; SW38 Found Out of Position
CR 05-05666; SW 38 Closure Placed in Orange Risk Condition
CR 50-05704; PCR Procedure DB-OP-06262 Has Inadequate IV For Some Component Manipulation

DB-OP-01002; Component Operation and Verification, Revision 02
DB-OP-06262; Component Cooling Water (CCW) System Operating Procedure,
Revision 12
WO 200176830; MI3060-001 08.00A Channel 4
WO 200176831; DB-NENI7: Troubleshoot Cause of RPS Channel 4 Trip

1R15 Operability Evaluations

CR 05-05184; Boron Injection Flowrate Calculation 034.009 Non-Conservative Assumption
Operations Standing Order 05-013; BA Pump 2 Operability, CR 05-05184

1R16 Operator Workarounds

Operator Work Arounds and Control Room Deficiencies Quarterly Aggregate Impact Report, dated August 18, 2005
Shift Manager Turnover Checklist, dated November 11, 2005
Nuclear Group Guideline/Handbook; WPG-2; Operations Equipment Issues; Revision 06
Shift Manager Turnover Checklist, dated December 15, 2005
DB-OP-00016; Temporary Configuration Control; Revision 09
DB-OP-02000; Emergency Procedure; Revision 16
DB-OP-06201; Main Steam System Operating Procedure; Revision 06
Operator Work Around - Identification Form for SP13A1, dated October 29, 2005
Operator Work Around - Identification Form for SP13B3, dated February 10, 2005
CR 04-01936; Turbine Bypass Valve SP13A3 Does Not Respond Due to Mechanical Binding
CR 05-05490; Turbine Bypass Valve SP13A1 Sticks Off Closed Seat Following Reactor Trip

1R19 Post-Maintenance Testing

DB-MI-03161; Channel Functional Test/Calibration of 48A-ISPRC02B4 Reactor Coolant Loop 1 Hot Leg Wide Range Pressure to SFAS Channel 1; Revision 04
CR 04-02452; Inadequate Vendor Assembly of Breaker BEF122 Installed Under ECR 03-0507-01
CR 05-02466; Calibration of RPS Channel 1 Did Not Achieve Desired Results
CR 05-05177; HIS 7529 400# Blk Permit Light (for SFAS Ch #1) Is Stuck On
CR 05-05237; Wrong Part Issued Under Correct Stock Code #
CR 05-05280; RPS Channel 1 Low Pressure Trip Bistable Out of Tolerance
CR 05-05289; Pressure/Temperature Trip Bistable in RPS Ch. 1 Out of Tolerance
CR 05-05550; MFPT 2 Vibrations High with Trends That Required Operator Action
CR 05-05665; PSL4931A and PSL4931B Cover Gasket Replacement
CR 05-05670; Aux Feed Water Time Delay Relays
CR 05-05678 Mode Hold Resolution Form; November 18, 2005
CR 05-05737; P12-2, Main Feed Pump As Found Data and Deficiencies
DB-ME-09100; Maintenance of Motor Control Centers; Revision 03
DB-MI-03905; Channel Calibration of PSL-4931A and PSL-4931B Auxiliary Feed Pump Turbine 1-2 Suction Pressure Interlocks; Revision 09
DB-OP-06006; Makeup and Purification System; Revision 15
DB-OP-06224; Main Feed Pump and Turbine; Revision 16

DB-PF-03016; Service Water Pump 1 Testing; Revision 12
DB-SC-03270; Control Rod Assembly Insertion Time Test of rod 6-8 and all group 7 rods; Revision 03
DB-SP-03152; AFW Train 1 Level Control, Interlock, and Flow Transmitter Test; Revision 16
DB-PF-03272; Post-maintenance Valve Test; Revision 03
DB-SP-03371; Quarterly Makeup Pump 1 Inservice Test and Inspection; Revision 07
DB-SP-04150; AFP 1 Monthly Test; Revision 05
WO 200135987; MU 197: Replace the Valve Cover Gasket
WO 200126537; PM 0170 P37-1 & MP37-1A Lub M/U Pmp & Mtr
WO 200097386; PM 3913 PSL4930X2 RPLC RLY MS106A
WO 200117471; PM 3912 - PSL4931X1 Replace Relay - MS107
WO 200124177; BE1274 CR 04-02452 CA#13 Inspect Breaker
WO 200148520; Troubleshoot RPS Ch1 Signal Converter
WO 20017163; DB-PSERC2B4: Repair/Replace
WO 200175190; Troubleshoot Auxiliary Power Supply Out Command
WO 200187676; Increasing Vibrations on MFP #2
Problem Solving Plan; RPS Channel 1 Pressure/Temperature Bistable Found Out of Tolerance (05-05289); Revision 00

1R20 Refueling and Outage Activities

CR 05-05489 Immediate Investigation; Failure of Control Rod 6-8 0 percent Light to Illuminate Following Reactor Trip
DB-OP-06225; MDFP Operating Procedure; Revision 11
DB-OP-06902; Power Operations; Revision 13
DB-OP-06903; Plant Shutdown and Cooldown; Revision 20
DB-OP-06912; Approach to Criticality; Revision 07
October 28, 2005, Shutdown Containment Entry Plan
RCS Drain Valve Leakage Plan

1R22 Surveillance Testing

CR 1999-0351; Actuation of Computer Point Associated with ARTS from Turbine Generator
CR 02-05844; SHRR ARTS: Pressure Switches Are Not Routinely Checked/Replaced
CR 05-05333; Preconditioning Concern with ARTS Pressure Switch Testing (NRC identified)
DB-ME-03046; D1 Bus Under Voltage Units Monthly Functional Test; Revision 08
DB-MI-03212; Channel Functional Test of SFRCS Actuation Channel 2 Logic for Mode 1; Revision 10
DB-MI-03354; Channel Functional Test of PSL-4533D, 4534D and 4535D; Revision 04
DB-NE-03213; Moderator Temperature Coefficient Measurement By Boron Swap; Revision 02
DB-SC-03270; Control Rod Assembly Insertion Time Test; Revision 03
DB-SP-03136; Decay Heat Train 1 Pump and Valve Test; Revision 11
DB-SP-03357; RCS Water Inventory Balance; Revision 08
DB-SS-04159; 24 Volt DC Master Trip Solenoid Valves Test; Revision 03
Drawing OS-004, Sheet 1, Decay Heat Removal/Low Pressure Injection; Revision 40

WO 200126416; Elec-Hydr Control System Trip Channel 4 ARTS Pressure
WO 200190831; Measure Voltage to the MTSV Voltage

1R23 Temporary Modifications

CR 05-03989; TM04-0014 & TM 05-0015 REV00/01, Belzona Repair MFP 2 Seal Return Weld Leak; June 09, 2005
CR 05-05561; Unable to Complete Post-maintenance Testing for TM 05-0041
CR 05-05547; TM 05-0041, Isophase Bus Duct Damper Removal Implementation Issues
CR 05-05634; TM 05-015 REV02, Belzona Repair MFP 2 Seal Return Weld Leak; November 14, 2005
NG-EN-00313; Control of Temporary Modifications; Revision 07
DB-ME-09455; Isolated Phase Bus Maintenance; Revision 03
DB-OP-02042; Isophase Bus Cooling Alarm Panel 42; Revision 02
DB-OP-06303; Isophase Bus Coolers; Revision 04
Temporary Modification 05-0015; DB-P12-2, Main Feedpump 2, Installation of Belzona Patch on Seal Return Fillet Weld Pinhole Leak; Revision 00, 01, and 02
Temporary Modification 05-0041; VC6052 and VC6053 Isophase Generator End Volume Control Dampers
WO 200140647; Inspect the Isophase Bus Air Turnaround Box for Loose or Cracked Components/Replace or Repair Components as Necessary

1EP4 Emergency Action Level and Emergency Plan Changes

Davis-Besse Nuclear Power Station Emergency Plan; Revision 24
Emergency Plan Implementing Procedure RA-EP-01500; Emergency Classification; Revision 05

4OA2 Identification and Resolution of Problems

CR 05-05226; AFW Valves FV6451 and FV6452 Silicon Rubber Seals Replacement Not Identified
CR 05-05555; Performance Trend in Operations Administrative Procedure Adherence Davis-Besse Fleet Oversight Audit Report DB-C-05-03; October 28, 2005
DB1-084; Electrical Equipment Qualification for Target Rock Model 87J-001, 87J-002, 302438-1; Revision 00
DB-SA-05-08; Focused Self Assessment Report of DB Environment Qualification Program; October 31, 2005
ECR 02-0627-00; Environmental Qualification of Connections/Termination of AFW System Equipment in Rooms 236, 237, & 238; April 11, 2003
EQPCN 100-10-10; Changes to EQ Package DB1-100; September 26, 2005
NG-EN-00306; Environmental Qualification Program; Revision 05
FENOC Condition Report Trend Summary; January 2005 - June 2005; November 18, 2005
Operations Cognitive Trending Report; May through October 2005
WO 200173219; Replace DB-FV6452 Silicon Rubber Gaskets
WO 200173183; DB-FV6452: Replace Gaskets

4OA3 Event Followup

LER 05000346/2005002-00, Mode Change - Inoperable Battery Due to Procedure Deficiency and Inadequate Revision

4OA5 Other Activities

Calculation C-NSA-016.04-004; CCW Pump NPSH Requirements; Revision 1, Addendum A01

Calculation ME-026.02-002; Tank Level Curve - Emergency Diesel Generator Fuel Oil Storage Tanks; Revision 1, Addendum 1

CR 04-06485; CO1A-ENG-2004, Accumulator Sizing Calculation SW 1424 / 1429 / 1434; October 20, 2004

CR 05-03737; More Actions Necessary to Eliminate Considerations for Thermal Binding in RC200

CR 04-06566; CO1A-ENG-2004, Noteworthy Items; October 26, 2004

CR 05-05184; Boron Injection Flowrate Calculation 034.009 Non Conservative Assumptions; September 27, 2005

CR 05-05559; Boric Acid Pumps Operability Standing Order 05-013; November 3, 2005

LIST OF ACRONYMS USED

ADAMS	Agency-wide Document Access and Management System
AFI	Area for Improvement
BARS	Behaviorally Anchored Rating Scales
CAP	Corrective Action Program
CCW	Component Cooling Water
CGAS	Containment Gas Analyzer System
CFR	Code of Federal Regulations
CR	Condition Report
DRP	Division of Reactor Projects
DRS	Division of Reactor Safety
EDG	Emergency Diesel Generator
EQ	Environmentally Qualified
FENOC	FirstEnergy Nuclear Operating Company
IR	Inspection Report
JPM	Job Performance Measure
LER	Licensee Event Report
NCV	Non-Cited Violation
NRC	United States Nuclear Regulatory Commission
SDP	Significance Determination Process
SFAS	Safety Features Actuation System
SSC	Structures, Systems, and Components
SSDPC	Safety System Design and Performance Capability
TS	Technical Specifications
USAR	Updated Safety Analysis Report