UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
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January 13, 2010

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

SUBJECT: DAVIS-BESSE NUCLEAR POWER STATION INTEGRATED INSPECTION REPORT 05000346/2009-005

Dear Mr. Allen:

On December 31, 2009, the U.S. Nuclear Regulatory Commission (NRC) completed an integrated inspection at your Davis-Besse Nuclear Power Station. The enclosed inspection report documents the inspection findings which were discussed on January 5, 2010, with you and other members of your staff.

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

Based on the results of this inspection, two NRC-identified and two self-revealed findings of very low safety significance were identified. Three of the findings involved a violation of NRC requirements. Additionally, licensee-identified violations are listed in Section 4OA7 of this report. However, because of their very low safety significance, and because the issues were entered into your corrective action program, the NRC is treating the issues as non-cited violations (NCVs) in accordance with Section VI.A.1 of the NRC Enforcement Policy.

If you contest the subject or severity of a Non-Cited Violation, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with a copy to the Regional Administrator, U.S. Nuclear Regulatory Commission - Region III, 2443 Warrenville Road, Suite 210, Lisle, IL 60532-4352; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the Resident Inspector Office at the Davis-Besse Nuclear Power Station. In addition, if you disagree with the characterization of any finding in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region III, and the NRC Resident Inspector at the Davis-Besse Nuclear Power Station. The information that you provide will be considered in accordance with Inspection Manual Chapter 0305.

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

Sincerely,

/RA/

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

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

Enclosure: Inspection Report 05000346/2009-005
w/Attachment: Supplemental Information

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U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No:	50-346
License No:	NPF-3
Report No:	05000346/2009-005
Licensee:	FirstEnergy Nuclear Operating Company (FENOC)
Facility:	Davis-Besse Nuclear Power Station
Location:	Oak Harbor, OH
Dates:	October 1, 2009, through December 31, 2009
Inspectors:	J. Rutkowski, Senior Resident Inspector A. Wilson, Resident Inspector D. McNeil, Senior Operations Engineer R. Russell, Emergency Preparedness Inspector
Approved by:	Jamnes L. Cameron, Chief Branch 6 Division of Reactor Projects

Enclosure

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SUMMARY OF FINDINGS

IR 05000346/2009-005; 10/1/09-12/31/09; Davis-Besse Nuclear Power Station; Operability Evaluations and Surveillance Testing.

This report covers a 3-month period of inspection by resident inspectors and announced baseline inspections by regional inspectors. Four Green findings were identified by the inspectors or were self-revealed. Three of the findings were considered Non-Cited Violations (NCVs) of NRC regulations. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). Findings for which the SDP does not apply may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

A. NRC-Identified and Self-Revealed Findings

Cornerstone: Mitigating Systems

Green: A self-revealed finding of very low safety significance and associated NCV of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was identified for the failure to correctly install auxiliary contacts for service water strainer 2 in accordance with the appropriate instructions, procedures, and drawings. The incorrect configuration of the auxiliary contacts resulted in the strainer being unable to perform its design function. Corrective actions included replacement of the starter contactor with the auxiliary contacts in the correct configuration.

The finding is more than minor because it affected the design control attribute of the mitigating systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the incorrect wiring of the strainer starter contactor resulted in thermal overload trips of the strainer which caused it to be inoperable. The inspectors determined that the finding was of very low safety significance because service water train 2 remained operable and there was no loss of safety function of the service water system. The inspectors did not assign a cross-cutting aspect associated with this finding because the concern was not indicative of current plant performance. The performance deficiency occurred during a work activity performed in 2004. (Section 1R15)

Green: The inspectors identified a finding of very low safety significance and associated NCV of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the removal of insulation from auxiliary feedwater pump 1 turbine inlet piping which was left uninstalled for approximately 2 weeks without engineering review required by procedure. Corrective action was to replace the insulation.

The finding is more than minor because it was associated with the mitigating systems cornerstone attribute of equipment performance and affected the cornerstone objective of ensuring the availability, reliability, and capability of the auxiliary feedwater system train 1 which is designed to respond to initiating events to prevent undesirable consequences. Specifically, the removal of insulation from the auxiliary feedwater system would cause additional heat to escape from the turbine during operation and could cause reduction in assumed life of environmentally qualified (EQ) equipment within

the room associated with the auxiliary feedwater system. The inspectors determined that the finding was of very low safety significance because it did not result in any inoperability of required equipment and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. This finding has a cross-cutting aspect in the area of human performance, work control component, because the licensee did not appropriately coordinate auxiliary feedwater leak inspection activities and incorporate actions to address the operational impact of work activities. Specifically, the licensee did not consider, in the removal of insulation on auxiliary feedwater train 1, procedure requirements provided to ensure that insulation removal activities did not have unnecessary detrimental effects on EQ equipment (H.3(b)). (Section 1R15)

Green: The inspectors identified a finding of very low safety significance for the licensee's failure to implement motor operated valve (MOV) as-found testing which the licensee specified as a to-be-implemented program improvement. No violation of NRC requirements was identified. Corrective action included changing MOV preventive maintenance tasks to include as-found testing.

The finding was determined to be more than minor because the finding was associated with the Mitigating Systems cornerstone attribute of equipment performance and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the licensee's periodic testing of the capability of MOVs was required to be reviewed and adjusted to appropriately account for actuator degradation to assure MOVs operability between tests. The licensee intended to use as-found testing to verify its actuator degradation assumptions and testing intervals but failed to ensure that as-found testing was being accomplished. The inspectors determined that the finding was of very low safety significance because it did not result in any inoperability of required equipment and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. This finding has a cross-cutting aspect in the area of human performance, resource component, because the licensee failed to ensure that complete and accurate work packages were available to personnel. Specifically, although the licensee intended to perform as-found diagnostic testing of MOVs, as was advised in governing procedures, work order packages for preventive maintenance activities for MOVs were not modified during the pre-job review process to specify as-found testing (H.2.(c)). (Section 1R22)

Cornerstone: Barrier Integrity

Green: A self-revealed finding of very low safety significance and associated NCV of Technical Specification (TS) Limiting Condition for Operation 3.6.6, Condition E, was identified for having two required trains of containment air cooler (CAC) fans inoperable for a period longer than allowed by TS. An inadequate design change installed Potter and Brumfield (P&B) rotary relays in the containment air cooling fan circuitry. The use of the P&B relays in this application could cause a failure of the CAC to start in slow speed upon receipt of a valid safety features actuation signal. As an immediate corrective action, the operating CAC fans were shifted from fast-speed alignment to the slow-speed alignment used for accidents, which eliminated the relay issue and allowed them to be declared operable. The P&B relay contacts have since been modified to alter the CAC control circuitry and correct the deficiency.

The finding was determined to be more than minor because the finding was similar to IMC 0612, Appendix E, Example 3.a, in that a design modification error was significant enough that the modification required revision or rework to resolve operability concerns. Specifically, the design change that installed the P&B relays in the CAC fan circuitry rendered both trains of containment air cooling inoperable. The finding affected the Barrier Integrity cornerstone since the CACs are designed to limit the pressure and temperature in containment following a design basis loss-of-coolant accident. The finding was determined to be of very low safety significance because the inspectors answered "no" to all four screening questions under the Containment Barrier column in IMC 0609, "Significance Determination Process," Appendix A, Attachment 0609.04, "Phase 1 - Initial Screening and Characterization of Findings," Table 4a. The inspectors did not identify a cross-cutting aspect associated with this finding because the concern was not indicative of current plant performance. The inadequate design change to install the P&B relays was implemented in 2001. (Section 1R15)

B. Licensee-Identified Violations

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

REPORT DETAILS

Summary of Plant Status

During the inspection period, the plant operated at 100 percent power except for two minor power reductions for scheduled testing. On November 1, 2009, power was reduced to 97 percent for moderator temperature coefficient testing, and, on December 13, 2009, power was reduced to 91 percent for main turbine valve testing. At the conclusion of each testing period, power was returned to 100 percent.

1. REACTOR SAFETY

Cornerstone: Initiating Events, Mitigating Systems, and Barrier Integrity

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

a. Inspection Scope

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

- emergency diesel generators (EDGs);
- service water system; and
- ultimate heat sink with emphasis on the ability to provide makeup water from Lake Erie.

This inspection constituted one winter seasonal readiness preparation sample as defined in Inspection Procedure (IP) 71111.01-05.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment (71111.04)

.1 Quarterly Partial System Walkdowns

a. Inspection Scope

The inspectors performed a partial system walkdown of the following risk-significant system:

- auxiliary feedwater train 2 during the inoperability of auxiliary feedwater train 1 for planned maintenance on November 17, 2009.

The inspectors selected this system based on its risk significance relative to the Reactor Safety cornerstones at the time it was inspected. The inspectors attempted to identify any discrepancies that could impact the function of the system, and therefore, potentially increase risk. The inspectors reviewed applicable operating procedures, system diagrams, UFSAR, Technical Specification (TS) requirements, outstanding work orders (WOs), condition reports (CRs), and the impact of ongoing work activities on redundant trains of equipment in order to identify conditions that could have rendered the system incapable of performing its intended functions. The inspectors also walked down accessible portions of the system to verify system components and support equipment were aligned correctly and operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no obvious deficiencies. The inspectors also verified that the licensee had properly identified and resolved equipment alignment problems that could cause initiating events or impact the capability of mitigating systems or barriers and entered them into the CAP with the appropriate significance characterization. Documents reviewed are listed in the Attachment.

These activities constituted one partial system walkdown sample as defined in IP 71111.04-05.

b. Findings

No findings of significance were identified.

.2 Semi-Annual Complete System Walkdown

a. Inspection Scope

On December 4, 2009, the inspectors performed a complete system alignment inspection of the decay heat removal system to verify the functional capability of the system. This system was selected because it was considered both safety significant and risk significant in the licensee's probabilistic risk assessment. The inspectors walked down the system to review mechanical and electrical equipment line ups, electrical power availability, system pressure and temperature indications, as appropriate, component labeling, component lubrication, component and equipment cooling, hangers and supports, operability of support systems, and to ensure that ancillary equipment or debris did not interfere with equipment operation. A review of a sample of past and outstanding WOs was performed to determine whether any deficiencies significantly affected the system function. In addition, the inspectors

reviewed the CAP database to ensure that system equipment alignment problems were being identified and appropriately resolved. Documents reviewed are listed in the Attachment.

Also, additional activities were performed during this system walkdown that were associated with Temporary Instruction (TI) 2515/177, "Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems." These activities are described in the next section.

These activities constituted one complete system walkdown sample as defined in IP 71111.04-05.

b. Findings

No findings of significance were identified.

.3 System Walkdown Associated with TI 2515/177, "Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems"

a. Inspection Scope

On December 4, 2009, the inspectors conducted a walkdown of the decay heat removal system in sufficient detail to reasonably assure the acceptability of the licensee's walkdowns (TI 2515/177, Section 04.02.d). The inspectors also verified that the information obtained during the licensee's walkdown was consistent with the items identified during the inspector's independent walkdown (TI 2515/177, Section 04.02.c.3).

In addition, the inspectors verified that the licensee had isometric drawings that describe the decay heat removal system configurations and had acceptably confirmed the accuracy of the drawings (TI 2515/177, Section 04.02.a). The inspectors verified the following related to the isometric drawings:

- high point vents were identified;
- high points that do not have vents were acceptably recognizable;
- other areas where gas can accumulate and potentially impact subject system operability, such as at orifices in horizontal pipes, isolated branch lines, heat exchangers, improperly sloped piping, and under closed valves, were acceptably described in the drawings or in referenced documentation;
- horizontal pipe centerline elevation deviations and pipe slopes in nominally horizontal lines that exceed specified criteria were identified;
- all pipes and fittings were clearly shown; and
- the drawings were up-to-date with respect to recent hardware changes and that any discrepancies between as-built configurations and the drawings were documented and entered into the CAP for resolution.

The inspectors verified that Piping and Instrumentation Diagrams (P&IDs) accurately described the subject systems, that they were up-to-date with respect to recent hardware changes, and any discrepancies between as-built configurations, the isometric drawings, and the P&IDs were documented and entered into the CAP for resolution (TI 2515/177, Section 04.02.b).

Documents reviewed are listed in the Attachment to this report.

This inspection effort counts towards the completion of TI 2515/177 which will be closed in a later inspection report.

b. Findings

No findings of significance were identified.

1R05 Fire Protection: Routine Resident Inspector Tours (71111.05Q)

a. Inspection Scope

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

- station battery rooms A and B (Rooms 429B and 428A, Fire Areas Y and X);
- component cooling pump and heat exchanger room (Room 328, Fire Area UU);
- turbine generator lube oil tank room (Room 432, Fire Area II); and
- station blackout diesel generator room (Service Building 6).

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

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

b. Findings

No findings of significance were identified.

1R06 Flooding: Underground Vaults (71111.06)

a. Inspection Scope

The inspectors selected underground bunkers/manholes subject to flooding that contained cables whose failure could disable risk-significant equipment. The inspectors determined if the cables were submerged, that splices were intact, and that appropriate cable support structures were in place. In those areas where dewatering devices were used, such as a sump pump, the device was operable and level alarm circuits were set appropriately to ensure that the cables would not be submerged. In those areas without dewatering devices, the inspectors verified if drainage of the area was available, or if the cables were qualified for submergence conditions. The inspectors also reviewed the licensee's corrective action documents with respect to past submerged cable issues identified in the CAP to verify the adequacy of the corrective actions. The inspectors performed a walkdown of the following underground bunkers/manholes subject to flooding:

- manhole 3004;
- manhole 3045; and
- manhole 3001 (completed in third quarter 2009 as documented in Inspection Report 05000346/2009-004).

This inspection constituted one underground vaults sample as defined in IP 71111.06-05.

b. Findings

Introduction: The inspectors determined that an unresolved item (URI) existed concerning the wetting of medium voltage cables in manhole 3045 and specifically cables BPGD302C, C1, D, and D1. These cables are normally energized and would carry the output of the station blackout diesel generator, when running, to 4160 volt bus D2.

Description: On November 5, 2009, the inspectors observed that manhole 3045 was opened for scoping of future design changes and that the manhole was flooded, with the electrical cables submerged. The inspectors subsequently determined that this manhole did not contain any safety-related medium voltage cables, but did contain medium voltage cables that were normally energized for delivering the 4160 volt output of the station blackout diesel generator to station bus D2. In discussions with plant personnel, the inspectors also learned that this manhole communicated via underground conduits with at least two other manholes and that finding the manholes flooded was a common occurrence. Manhole 3045 and the other manholes that connected to this manhole were not provided with sump pump capability. Manhole 3045 was found filled with water on June 4, 2009. The normal inspection interval for this manhole was specified as every 3 years.

The inspectors noted that the cables for the output of the station blackout diesel generator were in the station's medium voltage wetted cable replacement program; the existing cables were installed in 1991. The inspectors' visual observation of the cables in the manhole did not provide any indication that would question cable present operability. The inspectors did request information on the design of the cables and on

commitments associated with the availability of the station blackout diesel generator. The licensee provided the requested information to the inspectors, but the inspectors did not have an opportunity to complete review of the material before the end of the inspection period. Therefore, this issue is considered an unresolved item (URI 05000346/2009005-01) pending completion of the inspectors' review of the licensee provided information. The licensee entered the issue in their CAP as CR 09-67489.

1R11 Licensed Operator Requalification Program (71111.11)

.1 Resident Inspector Quarterly Review (71111.11Q)

a. Inspection Scope

On October 6, 2009, the inspectors observed a crew of licensed operators in the plant's simulator during licensed operator requalification examinations to verify that operator performance was adequate, evaluators were identifying and documenting crew performance problems, and training was being conducted in accordance with licensee procedures. The inspectors evaluated the following areas:

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

The crew's performance in these areas was compared to pre-established operator action expectations and successful critical task completion requirements. Documents reviewed are listed in the Attachment to this report.

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

b. Findings

No findings of significance were identified.

.2 Annual Operating Test Results (71111.11B)

a. Inspection Scope

The inspectors reviewed the overall pass/fail results of the individual job performance measure operating tests, and the simulator operating tests (required to be given per 10 CFR 55.59(a)(2)) administered by the licensee from November 2009 through December 2009 as part of the licensee's operator licensing requalification cycle. These results were compared to the thresholds established in Inspection Manual Chapter 0609, Appendix I, "Licensed Operator Requalification Significance Determination Process

(SDP)." The evaluations were also performed to determine if the licensee effectively implemented operator requalification guidelines established in NUREG 1021, "Operator Licensing Examination Standards for Power Reactors," and Inspection Procedure 71111.11, "Licensed Operator Requalification Program." The documents reviewed during this inspection are listed in the Attachment.

This inspection constituted one biennial inspection sample as defined in Inspection Procedure 71111.11B.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

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

- auxiliary feedwater system.

The inspectors reviewed events such as where ineffective equipment maintenance had resulted in valid or invalid system transients and independently verified the licensee's actions to address system performance or condition problems in terms of the following:

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

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

This inspection constituted one quarterly maintenance effectiveness sample as defined in IP 71111.12-05.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

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

- work activities scheduled for the week of October 25, 2009, which included emergency diesel generator testing, backup service water strainer planned maintenance, and on-line replacement of two components within the main turbine generator's electro-hydraulic control cabinet; and
- work activities scheduled and emergent for the week of November 8, 2009, which included electric fire relief valve replacement, auxiliary feedwater train 2 outage, replacement of several switchyard coupling capacitors, and addressing an issue with potential foreign material in the auxiliary feedwater turbine governor.

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

These maintenance risk assessments and emergent work control activities constituted two samples as defined in IP 71111.13-05.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors reviewed the following issues:

- CR 09-65315 which documented an abnormal noise observed during the emergency diesel generator 1 monthly test;
- CR 09-65837 which documented the operation of the CACs, during normal operation, in slow speed due to discovered issues with relays that could, with the proper conditions, not properly actuate;
- CR 09-66487 which documented that insulation was removed from the auxiliary feed pump 1 turbine and turbine inlet valves for a period of approximately 2 weeks;

- CR 09-66756 which discovered the condensate storage tank vacuum breakers were not listed in plant drawings and had not been tested for functionality;
- CR 09-66816 which documented the potential for having broken hold-down springs in the upper end fittings of the nuclear fuel within the core; and
- CR 09-67657 which evaluated the past operability of service water train 2 after the auxiliary contacts for the strainer were found wired incorrectly.

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

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

b. Findings

(1) Insulation Removed from Auxiliary Feedwater Pump 1 Turbine Inlet Piping

Introduction: A finding of very low safety significance (Green) and associated non-cited violation (NCV) of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was identified by the inspectors for the removal of insulation from auxiliary feedwater pump 1 turbine inlet piping, which was left uninstalled for approximately 2 weeks without engineering review required by procedure.

Description: On October 2, 2009, insulation was removed on the auxiliary feedwater system train 1 to investigate a body to bonnet leak on a valve in the system. The insulation removed was on the turbine trip valve (ICS38C) and governor valve (ISC38B) in close proximity to the turbine's outboard bearing. The insulation was not replaced until October 19, 2009. On that date, the inspectors questioned the system engineer on the impact of not having insulation installed for approximately 2 weeks. The licensee documented the question and investigation results in CR 09-66487 and replaced the insulation.

The insulation removal was performed under the tool pouch maintenance procedure, DB-WM-9001, which did not require formal planning and is limited to work that will be accomplished in one shift. The work was performed under the verbal direction of a Senior Reactor Operator, which is allowed by procedure. Since there was no formal planning, some requirements of Procedure DB-MS-9020, "Installation and Removal of Insulation Outside Containment," were not considered. The procedure required that engineering be contacted for insulation removal requirements and for any required

compensatory measures, if necessary, for environmentally qualified (EQ) equipment within the rooms. This was not accomplished.

Removal of insulation from the steam lines and valves of the auxiliary feedwater turbine would cause higher than normal temperatures in the feedwater pump rooms when the turbine was in operation and potentially affect the life of EQ equipment in the room. Additionally, the inspectors' review of previous events found that the licensee had determined that missing or incorrectly installed insulation on the auxiliary feedwater pump turbines can raise the metal temperature of the turbine outboard bearing (CR 04-2576 and CR 05-1691) and cause it to approach limits specified in operating procedures. In the instances previously reviewed, the temperature did not rise to a level requiring the auxiliary feedwater pumps to be considered inoperable. The licensee has placards on the turbines stating that insulation is critical to bearing temperatures and that the system engineer or the maintenance services superintendent should be contacted prior to insulation removal. The placard was in place on turbine 1 when the insulation was removed.

During the period of October 2 through October 19, 2009, auxiliary feedwater pump 1 turbine was not operated except for approximately 1 hour on October 2, 2009, during the search for the body-to-bonnet leak.

Analysis: The inspectors determined that the lack of proper control of the insulation removal on auxiliary feedwater pump train 1 components was contrary to the requirements specified in DB-MS-9020 and was a performance deficiency.

The finding was determined to be more than minor because the finding was associated with the Mitigating Systems cornerstone attribute of equipment performance and affected the cornerstone objective of ensuring the availability, reliability, and capability of the auxiliary feedwater system train 1, which is designed to respond to initiating events to prevent undesirable consequences. Specifically, the removal of insulation from the auxiliary feedwater system would cause additional heat to escape from the turbine during operation and could cause reduction in assumed life of EQ equipment within the room and associated with the auxiliary feedwater system. Additionally, the potential exists for increased turbine outboard bearing temperatures, which would challenge the margin to bearing operating limits.

The inspectors determined the finding could be evaluated using the SDP in accordance with IMC 0609, "Significance Determination Process," Attachment 0609.04, "Phase 1 - Initial Screening and Characterization of Findings," Table 4a for the Mitigating Systems cornerstone, since the auxiliary feedwater system is designed to mitigate consequences from the loss of normal heat sink systems. The inspectors determined that the finding was of very low safety significance (Green) because it did not result in any inoperability of required equipment and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event .

This finding has a cross-cutting aspect in the area of human performance, work control component, because the licensee did not appropriately coordinate auxiliary feedwater leak inspection activities and incorporate actions to address the operational impact of work activities. Specifically, the licensee did not consider, in the removal of insulation on auxiliary feedwater train 1, the requirements in DB-MS-9020, which were provided to

ensure that insulation removal activities did not have unnecessary detrimental effects on EQ equipment. (H.3(b))

Enforcement: 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," requires, in part, that activities affecting quality be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and be accomplished in accordance with these instructions, procedures, or drawings.

Contrary to the above, during the period of October 2, 2009, to October 19, 2009, the licensee failed to accomplish requirements that it prescribed for activities affecting quality. Specifically, licensee personnel removed insulation from the auxiliary feedwater system train 1 without having a required review done for the potential impacts on EQ equipment that could be affected by additional radiated heat from the auxiliary feedwater turbine if the auxiliary feedwater train was required to operate. Because this violation was of very low safety significance and it was entered into the licensee's CAP as CR 09-66487, this violation is being treated as an NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy (NCV 05000346/2009005-02)

(2) Misapplication of Potter and Brumfield Relays in CAC Circuitry

Introduction: A self-revealed finding of very low safety significance (Green) and associated NCV of TS Limiting Condition for Operation (LCO) 3.6.6, Condition E was identified for having two required trains of CAC fans inoperable for a period longer than allowed by TS.

Description: NRC Information Notice 92-19 describes misapplication of Potter and Brumfield (P&B) rotary relays - specifically, when the relay's own contacts are solely used to set and reset the relay solenoid coils. As a result of this misapplication, a relay race condition can appear. Consequently, a mid-position failure may occur due to a partial AC waveform being applied to the coil. On October 12, 2009, CR 09-65068 was written to document the misapplication of P&B rotary relays used at Davis-Besse.

On October 13, 2009, the licensee reviewed the issue for the CAC relays. The relays provide a start signal for slow speed operation and provide an interlock for the service water inlet and outlet valves. The misapplication of the relays may cause them to fail in an intermediate mechanical position. This would result in the failure of the CAC to start in slow speed upon receipt of a valid safety features actuation signal. Upon discovery, both CAC trains, which were operating in their normal fast-speed alignment, were declared inoperable. The operating CAC fans were subsequently shifted from fast-speed alignment to the slow-speed alignment used for accidents, which eliminated the relay issue and allowed them to be declared operable.

The condition was discovered after reviewing a recent failure of the slow-speed contact relay during a CAC 3 surveillance test on September 28, 2009. An investigation revealed that similar failures had revealed themselves during testing and routine operation of the CAC system in June 2009, March 2008, and June 2004. The issue was evaluated at the root cause level under CR 09-65837. Past history revealed that when NRC Information Notice 92-18 was issued, there were no P&B relays installed at Davis-Besse. However, in 1999 the P&B relays were identified as a replacement for the relays that were then installed in the CAC fan circuits. The design

change did not incorporate the operating experience from IN 92-18. The P&B relays were installed in 2000 and 2001.

Analysis: The inspectors determined that the misapplication of P&B relays in the CAC circuitry was a performance deficiency. The finding was compared to the list of examples in IMC 0612, Appendix E, "Examples of Minor Issues." The finding is more than minor because it is similar to example 3.a, in that a design modification error was significant enough that the modification required revision or rework to resolve operability concerns. Specifically, the design change that installed the P&B relays in the CAC fan circuitry rendered both trains of containment air cooling inoperable. Therefore, the finding was evaluated using IMC 0609, "Significance Determination Process," Appendix A, Attachment 0609.04, "Phase 1 - Initial Screening and Characterization of Findings," Table 4a for the Barrier Integrity cornerstone since the CACs are designed to limit the pressure and temperature in containment following a design basis loss-of-coolant accident. The inspectors answered "no" to all four screening questions under the Containment Barrier column and determined that the finding was of very low safety significance (Green). The inspectors did not identify a cross-cutting aspect associated with this finding because the concern was not indicative of current plant performance. The inadequate design change to install the P&B relays was implemented in 2001.

Enforcement: Technical Specification LCO 3.6.6 Condition E addresses the condition when two containment air cooler trains are inoperable. The LCO requires one containment air cooler train to be restored to operable within 72 hours. Contrary to the above, the misapplication of P&B relays in the CAC fan circuitry rendered both trains of CACs inoperable for a period longer than 72 hours. This condition existed since a design change installed the P&B relays in 2000 and 2001. As an immediate corrective action, the operating CAC fans were shifted from fast-speed alignment to the slow-speed alignment used for accidents, which eliminated the relay issue and allowed them to be declared operable. The P&B relay contacts have since been modified to alter the CAC control circuitry and correct the deficiency. Because this violation was of very low safety significance and since it was entered in the licensee's CAP (CR 09-65837), this violation is being treated as an NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy. (NCV 05000346/2009005-03)

(3) Incorrect Configuration of Auxiliary Contacts on Service Water Strainer 2

Introduction: A self-revealed finding of very low safety significance (Green) and associated NCV of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was identified for the failure to correctly install auxiliary contacts for service water strainer 2 in accordance with the appropriate instructions, procedures and drawings. The incorrect configuration of the auxiliary contacts resulted in the strainer being unable to perform its design function.

Description: On October 20, 2009, CR 09-66298 was written to document excessive chattering of the motor starter associated with service water strainer 2 when it was being energized. During troubleshooting of the condition, the licensee identified auxiliary contacts that had been installed opposite of that prescribed by the wiring diagram. The normally open auxiliary contact was swapped with the normally closed auxiliary contact resulting in severe chatter in the starter contactor. The contact chatter resulted in a trip of the strainer thermal overload circuit causing the strainer to become inoperable.

In June 2004, WO 200060879 was written to replace the obsolete auxiliary contacts that were installed in the motor starter for service water strainer 2. New auxiliary contacts were to be placed in locations 13/13A and 9A/9 in accordance with the wiring diagram (E-008-00078). The specific details of the work activities could not be recalled by workers; however, a review of the log associated with the WO revealed that the normally open and normally closed contacts had been reversed in locations 9A/9 and 13/13A.

Corrective actions of CR 09-66298 included replacement of the starter contactor with the auxiliary contacts in the correct configuration. A past operability evaluation concluded that the inoperable service water strainer did not affect past operability of service water train 2. Based on the licensee's evaluation, there are insufficient sources of debris that could be introduced into the service water system during a design basis seismic event or tornado that could cause blockage of the service water strainers.

In addition, the licensee determined that a thermal overload trip on the service water strainer motor could result in continuous cycling of the service water pump strainer blowdown valve (SW1380). Continuous cycling of the valve could cause it to fail in the open position, which would reduce the amount of water available to the service water loop. A review of the circuitry revealed that with a thermal overload trip on the strainer, the blowdown valve would cycle on either service water pump 2 high discharge pressure or strainer high differential pressure. During accident conditions, maximum flow is demanded through the component cooling water heat exchangers, thereby maintaining service water pump discharge pressure below the setpoint that would cause SW1380 to cycle. The strainers may start due to high discharge pressure, but the signal would likely clear relatively quickly after flowrates stabilized. Therefore, service water train 2 would have been able to provide the required flow. Corrective actions from CR 09-65481 included replacement of the relay circuit and actions to manually open the associated strainer circuit breaker if an overload condition occurs.

Analysis: The inspectors determined that the failure to correctly configure the auxiliary contacts for service water strainer 2 was a performance deficiency. The finding is more than minor because it affected the design control attribute of the Mitigating Systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the incorrect wiring of the strainer starter contactor resulted in thermal overload trips of the strainer which caused it to be inoperable. Therefore, the finding was evaluated using IMC 0609, "Significance Determination Process," Appendix A, Attachment 0609.04, "Phase 1 - Initial Screening and Characterization of Findings," Table 4a for the Mitigating Systems cornerstone. The inspectors determined that the finding was of very low safety significance (Green) because service water train 2 remained operable, and there was no loss of safety function of the service water system. The inspectors did not assign a cross-cutting aspect associated with this finding because the concern was not indicative of current plant performance. The performance deficiency was related to a work activity performed in 2004.

Enforcement: 10 CFR Part 50, Appendix B, Criterion V, requires, in part, that activities affecting quality be prescribed by and accomplished in accordance with documented instructions, procedures, and drawings. Contrary to the above, on June 24, 2004, the auxiliary contacts for service water strainer 2 starter contactor were not wired in accordance with the appropriate instructions or drawings. This condition existed until October 20, 2009, when troubleshooting on the strainer thermal overload condition

revealed that the auxiliary contacts were installed opposite of the configuration prescribed by the wiring diagram. However, because this violation was of very low safety significance and since it was entered in the licensee's CAP (CR 09-66298, CR 09-67657, CR 09-65481), this violation is being treated as an NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy. (NCV 05000346/2009005-04)

1R18 Plant Modifications: Temporary Plant Modifications (71111.18)

a. Inspection Scope

The inspectors reviewed the following temporary modification:

- 09-0780, "Add Boric Acid to Core Flood Tank 2," which provided a temporary low capacity pump to transfer a concentrated boric acid solution to a pressurized core flood tank.

The inspectors compared the temporary configuration changes and associated 10 CFR 50.59 screening and evaluation information against the design basis, the UFSAR, and the TS, as applicable, to verify that the modification did not affect the operability or availability of the affected system. The inspectors also compared the licensee's information to operating experience information to ensure that lessons learned from other utilities had been incorporated into the licensee's decision to implement the temporary modification. The inspectors, as applicable, performed field verifications to ensure that the modifications were installed as directed; the modifications operated as expected; modification testing adequately demonstrated continued system operability, availability, and reliability; and that operation of the modifications did not impact the operability of any interfacing systems. Lastly, the inspectors discussed the temporary modification with operations, engineering, and training personnel to ensure that the individuals were aware of how extended operation with the temporary modification in place could impact overall plant performance. Documents reviewed in the course of this inspection are listed in the Attachment to this report.

This inspection constituted one temporary modification sample as defined in IP 71111.18-05.

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing (71111.19)

a. Inspection Scope

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

- testing of low pressure switch PSL4535C, which provides an input from main turbine electrohydraulic oil pressure to the channel 3 of the anticipatory reactor trip system, after replacement of the switch on October 19, 2009;

- testing of component cooling water pump 1 on October 23, 2009, after planned replacement of existing surge capacitors and after cleaning and lubrication checks on the pump and motor; and
- testing of steam-feedwater rupture control system steam generator differential pressure switch PDS-2685B on November 5, 2009, after examining and exercising of the switch after a setpoint test failure with jerky mechanism motion during scheduled testing.

These activities were selected based upon the structure, system, or component's ability to impact risk. The inspectors evaluated these activities for the following (as applicable): the effect of testing on the plant had been adequately addressed; testing was adequate for the maintenance performed; acceptance criteria were clear and demonstrated operational readiness; test instrumentation was appropriate; tests were performed as written in accordance with properly reviewed and approved procedures; equipment was returned to its operational status following testing (temporary modifications or jumpers required for test performance were properly removed after test completion); and test documentation was properly evaluated. The inspectors evaluated the activities against TS, the UFSAR, 10 CFR Part 50 requirements, licensee procedures, and various NRC generic communications to ensure that the test results adequately ensured that the equipment met the licensing basis and design requirements. In addition, the inspectors reviewed corrective action documents associated with PM tests to determine whether the licensee was identifying problems and entering them in the CAP and that the problems were being corrected commensurate with their importance to safety. Documents reviewed are listed in the Attachment to this report.

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

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

.1 Surveillance Testing

a. Inspection Scope

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

- DB-MI-5225, “Nuclear Instrumentation NI 08 (RPS CH 3) Power Range Adjustment,” on October 7, 2009 (routine);
- DB-MI-3208, “Channel Functional Test/Calibration and Response Time of RCP Monitor (RC3604) to SFRCS LCH 4 and RPS CH4,” on October 8, 2009 (routine);
- DB-SC-4271, “SBODG Monthly Test,” on October 8, 2009 (routine);
- DB-SP-3136, “Decay Heat Train 1 Pump and Valve Test,” on October 22, 2009 (IST);

- DB-ME-3046, “D1 Bus Under Voltage Units Monthly Functional Test,” on November 12, 2009 (routine);
- DB-SS-4150, “Main Turbine Stop Valve Test,” DB-SS-4151, “Main Turbine Control Valve Test,” and DB-SS-4152, “Main Turbine Combined Intermediate Valve Test,” on December 13, 2009 (routine); and
- DB-OP-1101, “Containment Entry,” on December 16, 2009 (routine).

The inspectors observed in-plant activities and reviewed procedures and associated records to determine the following:

- did preconditioning occur;
- were the effects of the testing adequately addressed by control room personnel or engineers prior to the commencement of the testing;
- were acceptance criteria clearly stated, demonstrated operational readiness, and consistent with the system design basis;
- plant equipment calibration was correct, accurate, and properly documented;
- as-left setpoints were within required ranges; and the calibration frequencies were in accordance with TSs, the USAR, procedures, and applicable commitments;
- measuring and test equipment calibration was current;
- test equipment was used within the required range and accuracy; applicable prerequisites described in the test procedures were satisfied;
- test frequencies met TS requirements to demonstrate operability and reliability; tests were performed in accordance with the test procedures and other applicable procedures; jumpers and lifted leads were controlled and restored where used;
- test data and results were accurate, complete, within limits, and valid;
- test equipment was removed after testing;
- where applicable for inservice testing activities, testing was performed in accordance with the applicable version of Section XI, American Society of Mechanical Engineers code, and reference values were consistent with the system design basis;
- where applicable, test results not meeting acceptance criteria were addressed with an adequate operability evaluation or the system or component was declared inoperable;
- where applicable for safety-related instrument control surveillance tests, reference setting data were accurately incorporated in the test procedure;
- where applicable, actual conditions encountering high resistance electrical contacts were such that the intended safety function could still be accomplished;
- prior procedure changes had not provided an opportunity to identify problems encountered during the performance of the surveillance or calibration test;
- equipment was returned to a position or status required to support the performance of its safety functions; and
- all problems identified during the testing were appropriately documented and dispositioned in the CAP.

Documents reviewed are listed in the Attachment to this report.

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

b. Findings

(1) (Closed) URI 05000346/2009004-02, "Potential for Preconditioning in MOV Testing"

During observation of motor operated valve (MOV) scheduled periodic testing activities during the third quarter of 2009, the inspectors noted that the motor operator and the valve were manually operated and gear and limit switch compartments were visually inspected prior to measuring motor and valve operating characteristics. The inspectors asked how this sequencing might affect measured variables during this test and how as-found MOV data, where required, was collected such that preconditioning did not have to be considered. The licensee's response was not available for the inspectors' review before the end of the inspection period. Therefore, this issue was considered an unresolved item (URI 05000346/2009004-02) pending completion of the inspectors' review of the licensee's response. The licensee entered the issue in their CAP as CR 09-65084. The inspectors reviewed the licensee's investigation for the CR during this inspection interval. URI 05000346/2009004-02 is closed.

(2) Lack of As-Found Testing in Motor-Operated Valve Actuator Testing

Introduction: A finding of very low safety significance (Green) was identified by the inspectors for the licensee's failure to implement motor-operated valve (MOV) as-found testing which the licensee specified as a to-be-implemented program improvement. No violation of NRC requirements was identified.

Description: The licensee is committed to industry requirements developed in response to Generic Letter 96-05, "Periodic Verification of Design-Basis Capability of Safety-Related Motor-Operated Valves." The licensee commitments did not require them to perform periodic as-found measurement of MOV torque and thrust characteristics. However, as stated in the NRC's "Final Safety Evaluation on Joint Owners' Group Program on Motor Operated Valve Periodic Verification," (JOG) dated September 25, 2006, licensees must address apart from the JOG program the thrust and torque delivered by the motor actuator, including addressing age-related effects on actuator performance.

In October 2006, the licensee initiated CR 06-8728 to assess and document enhancements to the MOV testing program that were listed in industry recommended engineering program guides. The CR listed the following items/requirements from the program guides:

- periodic verification testing should identify deterioration of MOV components before significant degradation occurs;
- periodic verification should be perfomed using the as-found condition of plant MOVs; and
- as-found testing shall not be scheduled to follow preventive maintenance activities as they may invalidate test results.

Additionally, CR 06-8728 stated that while the current methodology of not doing as-found testing was previously justified and acceptable, the assumed conservatism in actuator degradation estimates could not be validated by field data and the practice was not consistent with company procedures and guidelines. Since the requirement to do as-found testing was already in company procedures, the licensee assumed that

as-found testing would be added to MOV preventive maintenance work orders during pre-job reviews. This did not consistently occur.

Condition Report 09-65084 documented the inspectors' questions on preconditioning. The licensee's investigation reaffirmed that as-found MOV testing should be done and, as documented in the 2006 CR, the licensee's intention was to do as-found testing as specified in licensee procedures and in industry engineering guidance documents. The licensee's current corrective action was to initiate changes to the plant's recurring preventive maintenance orders to require as-found testing for safety-related MOVs.

Licensee's Procedures NOBP-ER-3601D, "MOV Program Diagnostic Test Preparation and Evaluation," and NOP-ER-3601, "MOV Program Overview," are procedures referenced by the licensee as specifying requirements for as-found testing of MOVs. These procedures are not classified as quality or safety-related procedures. The inspectors' review of the CR data base did not identify any MOV equipment operability issues that could be attributable to not performing as-found diagnostic testing or to not having the proper diagnostic test intervals.

Analysis: The inspectors determined that not consistently requiring as-found diagnostic testing of safety-related MOVs prior to preventive maintenance activities was contrary to licensee's stated intent of doing such testing as specified in industry engineering guides and company procedures and was a performance deficiency.

The finding was determined to be more than minor because the finding was associated with the Mitigating Systems cornerstone attribute of equipment performance and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the licensee's periodic testing of the capability of MOVs was required to be reviewed and adjusted to appropriately account for actuator degradation to assure MOV operability between tests. The licensee intended to use as-found testing to verify its actuator degradation assumptions and testing intervals, but failed to ensure that as-found testing was being accomplished.

The inspectors determined the finding could be evaluated using the SDP in accordance with IMC 0609, "Significance Determination Process," Attachment 0609.04, "Phase 1 - Initial Screening and Characterization of findings," Table 4a for the Mitigating Systems cornerstone, since safety-related MOVs are predominately in mitigating systems. The inspectors determined that the finding was of very low safety significance (Green) because it did not result in any inoperability of required equipment and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event.

This finding has a cross-cutting aspect in the area of human performance, resource component, because the licensee failed to ensure that complete and accurate work packages were available to personnel. Specifically, although the licensee intended to perform as-found diagnostic testing of MOVs, as was advised in governing procedures, WO packages for preventive maintenance activities for MOVs were not modified during the pre-job review process to specify as-found testing. (H.2.(c))

Enforcement: Because this finding does not involve a violation of regulatory requirements and has a very low safety significance, it is

identified as FIN 05000346/2009005-05, “Failure to Implement Specified As-Found Diagnostic Testing of MOVs.”

Cornerstone: Emergency Preparedness

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

a. Inspection Scope

The inspectors conducted a review of all the emergency action level changes and sampled the revisions to the emergency plan to evaluate whether the changes identified in the revisions may have decreased the effectiveness of the emergency plan. The inspection included a review of the 10 CFR 50.54(q) change process documentation. Since the last NRC emergency plan change inspection and in accordance with 10 CFR 50.54(q), Davis-Besse Emergency Plan, Revision 27, was implemented based on your determination that the changes resulted in no decrease in effectiveness of the emergency plan and the revised plan continued to meet the requirements of 10 CFR 50.47(b) and Appendix E to 10 CFR Part 50. The NRC review of the revisions does not constitute formal approval of the changes; therefore, the emergency action level and emergency plan changes remain subject to future NRC inspection in their entirety. Documents reviewed are listed in the Attachment.

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

b. Findings

No findings of significance were identified.

2. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151)

Cornerstone: Mitigating Systems

.1 Mitigating Systems Performance Index - Heat Removal System

a. Inspection Scope

The inspectors sampled licensee submittals for the Mitigating Systems Performance Index (MSPI) - Heat Removal System performance indicator for Davis-Besse for the period from the fourth quarter 2008 through the third quarter 2009. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the Nuclear Energy Institute (NEI) Document 99-02, “Regulatory Assessment Performance Indicator Guideline,” Revision 5, were used. The inspectors reviewed the licensee’s operator narrative logs, issue reports, event reports, MSPI derivation reports, and NRC Integrated Inspection Reports for the period of the fourth quarter 2008 through the third quarter 2009 to validate the accuracy of the submittals. The inspectors reviewed the MSPI component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also

reviewed the licensee's issue report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator, and none were identified. Documents reviewed are listed in the Attachment to this report.

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

b. Findings

No findings of significance were identified.

.2 Mitigating Systems Performance Index - Residual Heat Removal System

a. Inspection Scope

The inspectors sampled licensee submittals for the Mitigating Systems Performance Index - Residual Heat Removal System performance indicator for Davis-Besse for the period from the fourth quarter 2008 through the third quarter 2009. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the Nuclear Energy Institute (NEI) Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, were used. The inspectors reviewed the licensee's operator narrative logs, issue reports, MSPI derivation reports, event reports and NRC Integrated Inspection Reports for the period of the fourth quarter 2008 through the third quarter 2009 to validate the accuracy of the submittals. The inspectors reviewed the MSPI component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator. One CR noted that original data, which was corrected prior to transmittal to the NR, had missed reporting one valve stroke. Documents reviewed are listed in the Attachment to this report.

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

b. Findings

No findings of significance were identified.

.3 Mitigating Systems Performance Index - Cooling Water Systems

a. Inspection Scope

The inspectors sampled licensee submittals for the Mitigating Systems Performance Index - Cooling Water Systems performance indicator for Davis-Besse for the period from the fourth quarter 2008 through the third quarter 2009. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the Nuclear Energy Institute (NEI) Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, were used. The inspectors reviewed the licensee's operator narrative logs, issue reports, MSPI derivation reports, event reports, and NRC Integrated Inspection Reports for the period of the fourth quarter 2008 through the third

quarter 2009 to validate the accuracy of the submittals. The inspectors reviewed the MSPI component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator, and none were identified. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one MSPI cooling water system sample as defined in IP 71151-05.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems (71152)

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

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

a. Inspection Scope

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

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

b. Findings

No findings of significance were identified.

.2 Daily Corrective Action Program Reviews

a. Inspection Scope

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

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

b. Findings

No findings of significance were identified.

.3 Semi-Annual Trend Review

a. Inspection Scope

The inspectors performed a review of the licensee's CAP and associated documents to identify trends that could indicate the existence of a more significant safety issue. The inspectors' review was focused on repetitive equipment issues, but also considered the results of daily inspector CAP item screening discussed in Section 4OA2.2 above, licensee trending efforts, and licensee human performance results. The inspectors' review nominally considered the 6-month period of March 2009 through October 2009, although some examples expanded beyond those dates where the scope of the trend warranted.

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

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

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

The inspectors reviewed the plant's response during performance of the RCP Monitor to SFRCS and RPS Channel 1 Surveillance Test on October 29, 2009. During testing it was identified that the power-to-pumps bistable tripped with one simulated RCP trip from the field. This condition was unanticipated and caused RPS Channel 1 to be inoperable. A performance deficiency was identified when the licensee failed to immediately recognize that the RPS Channel was inoperable. Documents reviewed in this inspection are listed in the Attachment.

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

b. Findings

The licensee identified that the anomaly found during testing rendered the RPS Channel inoperable. Upon discovery, the licensee was in violation of TS 3.3.1, "Reactor Protection System (RPS) Instrumentation." The enforcement elements of this violation are discussed in Section 4OA7.

4OA5 Other Activities

.1 Licensee Activities and Meetings

In addition to regularly attending daily plant status meetings, the inspectors observed select portions of other licensee activities and meetings and met with licensee personnel to discuss various topics. The activities that were sampled included:

- instrument and control work group morning meeting on October 19, 2009;
- monthly performance review meeting on November 20, 2009; and
- Davis-Besse site all-hands meeting on December 4, 2009.

.2 Institute of Nuclear Power Operations (INPO) Plant Assessment Report Review

a. Inspection Scope

The inspectors reviewed the final report for the INPO plant assessment conducted in April 2009. The inspectors reviewed the report to ensure that issues identified were consistent with the NRC perspectives of licensee performance and to verify if any significant safety issues were identified that required further NRC follow-up.

b. Findings

No findings of significance were identified.

.3 Quarterly Resident Inspector Observations of Security Personnel and Activities

a. Inspection Scope

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

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

b. Findings

No findings of significance were identified.

.4 (Open) NRC TI 2515/177, “Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal and Containment Spray Systems (NRC Generic Letter 2008-01)”

As documented in Section 1R04, the inspectors confirmed the acceptability of the described licensee’s actions. This inspection effort counts towards the completion of TI 2515/177 which will be closed in a later inspection report.

4OA6 Management Meetings

.1 Exit Meeting Summary

On January 5, 2010, the inspectors presented the inspection results to Mr. B. Allen and other members of the licensee staff. The licensee acknowledged the issues presented. The inspectors confirmed that none of the potential report input discussed was considered proprietary.

.2 Interim Exit Meetings

Interim exits were conducted for:

- biennial operator requalification examination results via telephone with Mr. C. Steenbergen, Superintendent Operations Training, Davis-Besse Station, on December 15, 2009; and
- the annual review of emergency action level and emergency plan changes with the licensee's Regulatory Compliance Supervisor, Mr. G. Wolf via telephone on December 23, 2009.

The inspectors confirmed that none of the potential report input discussed was considered proprietary. Proprietary material, if received during the inspection, was returned to the licensee.

4OA7 Licensee-Identified Violations

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

- During testing of RCP monitor to SFRCS and RPS channel 1 surveillance test on October 29, 2009, the licensee identified that the power-to-pumps bistable tripped with one simulated RCP trip from the field. This condition was unanticipated and caused RPS channel 1 to be inoperable. A performance deficiency was identified when the licensee failed to immediately recognize that the RPS channel was inoperable. Testing commenced on RPS channel 3 and continued for 1 hour and 45 minutes until the inoperable condition on channel 1 was recognized by engineering. Technical Specification 3.3.1 requires four channels of RPS instrumentation be operable. A condition with two inoperable channels requires one channel to be placed in the trip condition and one channel placed in the bypass condition within 1 hour. Contrary to this, the licensee operated with two inoperable channels with only one channel in the bypass condition for greater than 1 hour. Upon discovery, the licensee tripped RPS channel 1 to comply with TS 3.3.1. The issue was entered into the CAP as CR 09-66984, and the RPS channel 1 RCP contact monitor module was replaced. The finding is of very low safety significance because the issue did not result in loss of functionality of the reactor protection system because two channels remained operable.

- On December 16, 2009, the licensee identified that secondary heat balance temperature input, T476, was indicating approximately 8 degrees lower than expected. T476 measures steam temperature at the inlet to the high-pressure turbine from steam generator 2. This temperature is input into the secondary heat balance calculation which is used to calculate reactor power. The licensee calculated that the lower temperature indicated from T476 produced the indicated reactor power level to be approximately 0.27 percent lower than actual power level. Davis-Besse Nuclear Power Station Operating License NPF-3, license condition 2.C.(1), authorizes the facility to be operated at steady state reactor power levels not in excess of 2817 megawatts thermal (100 percent reactor power). Contrary to this, the licensee had operated the facility at steady state full power levels of up to approximately 100.27 percent reactor power since April 2006. Upon discovery, the licensee immediately reduced reactor power and maintained it at 99.5 percent. The temperature detector, T476, was replaced on December 19, 2009, which restored functionality to the secondary heat balance calculation. The issue was entered into the CAP as CR 09-69162. The issue is of very low safety significance because it only involved the potential to affect the fuel cladding barrier and did not affect the reactor coolant system or containment barriers.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

B. Allen, Site Vice President
B. Boles, Director, Site Operations
S. Cope, Senior Nuclear Specialist, Emergency Planning
J. Dominy, Director, Site Maintenance
V. Kaminskas, Director, Site Engineering
D. Noble, Radiation Protection Manager
C. Price, Director, Site Performance Improvement
C. Steenbergen, Superintendent Operations Training
G. Wolf, Regulatory Compliance Supervisor
D. Wuokko, Manager, Regulatory Compliance

LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

Opened

05000346/2009005-01	URI	Ability of Medium Voltage Cable from Blackout Diesel to Function Long Term in Water Submerged State

Opened and Closed

05000346/2009005-02	NCV	AFW Pump 1 Operability with Removed Insulation
05000346/2009005-03	NCV	Two Required Trains of CAC Fans Inoperable
05000346/2009005-04	NCV	Incorrect Wiring of Service Water Strainer Starter 2 Contactor Causing Inoperability
05000346/2009005-05	FIN	Failure to Implement Specified As-Found Diagnostic Testing of MOVs

Closed

05000346/2009004-02	URI	Potential for Preconditioning in MOV Testing

LIST OF DOCUMENTS REVIEWED

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

1R01 Adverse Weather Protection

Condition Reports:
- 09-60707; Freeze Protection Point 17 Remote Indication Failed
- 09-65078; 2009-CDBI SA – Tornado Depressurization of the Service Water Pump Room

Procedures:
- DB-OP-06331; Freeze Protection and Electrical Heat Trace; Revision 20
- DB-OP-06521; Station Heating Operating Procedure; Revision 12
- DB-OP-06913; Seasonal Plant Preparation Checklist; Revision 20

Work Orders:
- 200284429; PM 6490, Frazil Ice Equipment Placement
- 200286553; PM 6381, EDG 2 Replace Summer Oil and Filter
- 200287897; PM 6380, EDG 1 Replace Summer Oil and Filter
- 200287904; PM 7289, Winter Prep Intake Structure Penthouse
- 200291841; Freeze Protection Circuit 70
- 200366176; Replace switch removed for BE3110

1R04 Equipment Alignment

Condition Reports:
- 08-44773; Gas Void Detected Upstream of DH200
- 08-45857; GL 08-01: The Pie Centerline at DH166 is Lower Than High Point of 4”-GCB-2
- 08-45918; Summary of Generic Letter 2008-01 ECCS Gas Voids Corrective Actions
- 08-46501; GL 08-01 – Configuration Control Discrepancy

Procedures:
- DB-OP-6012; Decay Heat and Low Pressure Injection System; Revision 43
- DB-OP-9233; Auxiliary Feedwater System; Revision 26
- DB-SP-3212; Venting of ECCS Piping; Revision 14

Work Orders:
- 200005040; P42-1: Disassemble Pump
- 200134046; BACC – DH4909B Needs To Be Repacked
- 200169663; Replace P42-1 Outboard Mechanical Seal
- 200287262; DH1B Doesn’t Go Into Manual
- 200296929; Inspect Stem Nut, Install QSS, and Test
- 200301143; DH14A – Replace Upper Flange Gasket
- 200345228; DH2797 – Replace Inlet Gasket
- 200357183; #1 LPI Pump Motor Bearing Temp High

Drawings:
- ISIM2-233A; ISI Emergency Core Cooling System Borated Water Supply; Revision 3
- ISIM2-233B; ISI Emergency Core Cooling System Pump Suction Piping; Revision 6
- ISIM2-233C; ISI Decay Heat Removal System Ctmt.-Aux. Bldg. Normal Cooldown; Revision 4
- ISIM2-233F, Sheet 1; ISI Low Pressure Injection System Auxiliary Building; Revision 6
- ISIM2-233F, Sheet 2; ISI Low Pressure Injection System Auxiliary Building; Revision 4
- ISIM2-234D, Sheet 2; ISI Containment Spray System and Spent Fuel Pool Cooling System Auxiliary Building; Revision 3
- FSK-M-GCB-1-5; Sample Piping From Decay Heat Pump P42-1; Revision 2
- FSK-M-GCB-3-1; Decay Heat Pump (P42-1) Recirculation Piping; Revision 3
- OS-4, Sheet 1; Decay Heat Removal/Low Pressure Injection System; Revision 45
- OS-17A, Sheet 1; Auxiliary Feedwater System; Revision 22
- OS-17B, Sheet 1; Auxiliary Feddwater Pumps and Turbines; Revision 24

1R05 Fire Protection

Condition Reports:
- 09-53594; Worsening abnormal noise from LVSGR Battery Room A ventilation fan; 2/15/2009

Procedures:
- DB-OP-6513; Auxiliary Building Non-Radioactive Areas Ventilation; Revision 18
- NG-DB-302; DBNPS Fire Protection Program; Revision 6
- PFP-S6-0000; Protected Area Pre-Fire Plan, Service Building 6, Laydown Area, Station Blackout Diesel; Revision 3
- PFP-TB-432; Protected Area Pre-Fire Plan, Turbine Lube Oil Room, Room 432, Fire Area II; Revision 3

Drawings:
A-223F; Fire Protection General Floor Plan El. 585’-0”; Revision 21
A-224F; Fire Protection General Floor Plan El. 603’-0”; Revision 22
09-0528-001-003; Drawing Update Notice for A-224F Revision 22

Other:
- Fire Hazard Analysis Report
- Notification 600518261; Battery Rm Vent Fan High/Abnormal Noise; 1/31/2009

1R06 Flooding

Condition Reports:
- 09-67489; NRC Concern – Submerged Cables in Electrical Manhole MH3045

Work Orders:
- 200377595; Support NRC Inspection of 2 Manholes

Drawings:
- E-304; Electrical Site Plan; Revision 39
- E-310, Sheet 2; Raceway & Grounding Manhole-Sections & Detail; Revision 8
- E-329; Raceway & Grounding Start-up Transformer 02; Revision 7
- OS-053, Sheet 2; Station Drainage System; Revision 16

1R11 Licensed Operator Requalification Program

Other:
- Licensed Operator Requalification Training Program Operating Test Results; December 2009
- Operations Department Training Cycle 09-04 Training Document
- Simulator Guide: ORQ-EPE-S239; Revision 2

1R12 Maintenance Effectiveness

Condition Reports:
- 03-05964; Low Insulation Resistance for MC72-2, AFP Room Exh Fan 1-2 Motor
- 08-51019; WW50: MS106A Failed to Automatically Close
- 08-51149; Mounting Screws Missing from MS106A D135-R4 Relay
- 09-54569; CR 08-46981 – AFP Time Delay Relay Unacceptable PM Calibration Trend
- 09-55170; OE – Crimping of Non-Seismic AFW Recirculation Piping Not Evaluated
- 09-58314; Auxiliary Feedwater Turbine Hunting at the Low Speed Stop

Procedures:
- NOP-ER-3004; FENOC Maintenance Rule Program; Revision 1

Work Orders:
- 200002013; 02-004919-000 AF599: Replace Flex Conduit
- 200044961; MC73-2 Determ Motor and Test Cable
- 200156084; AFPT1 oil leak
- 200158855; AFPT2 oil leak
- 200207142; AFPT #1 Casing Leakage
- 200207143; AFPT #2 Casing Leakage
- 200207413; Replace K3-2 turbine outboard bearing
- 200283617; MV2598 – Operator won't stay in Manual
- 200324374; Rework AFW Exhaust Missile Barrier Walls
- 200351473; Mounting Screws for MS106A D135-R4 Relay
- 200352594; AF3869 – Repack Valve MOV

Drawings:
- OS 17A, Sheet 1; Auxiliary Feedwater System; Revision 22
- OS 17A, Sheet 2; Auxiliary Feedwater System; Revision 2
- OS 17B, Sheet 1; Auxiliary Feedwater Pumps and Turbines; Revision 24
- OS 17B, Sheet 2; Auxiliary Feedwater Pumps and Turbines; Revision 7

Other:
- Davis-Besse System Health Report; dated August 26, 2009
- Maintenance Rule Program Manual; Revision 28
- USAR Section 9.2.7; Auxiliary Feedwater System

1R13 Maintenance Risk Assessments and Emergent Work Control

Condition Reports:
- 09-67614; EDG2 Exhaust Piping Wall Thickness
- 09-67633; Foreign Material Found in Aux. Feed Pump #2 Turbine Governor
- 09-67651; Electric Work Moved Out of Execution Week Due to Emergent and Carryover Work

- 09-67657; Service Water Train 2 Found Inoperable During Past Operability Evaluation
- 09-67700; Potential for Additional FME in AFW Train 2 Governor

Work Orders:
- 200386239; EHC Control Panel Trouble Alarm in Control Room
- 200393613; Auxiliary Feedwater Pump Turbine Governor
- 200737913; EHC Cabinet 24 VDC High & Low Limits in DB-XIYMP

Other:
- Maintenance Risk Summary and Work Schedule Week of October 26, 2009; Revision 0
- Maintenance Risk Summary and Work Schedule Week of November 9, 2009; Revision 0 and 1

1R15 Operability Evaluations

Condition Reports:
- 04-2576; AFPT 2 Outboard Bearing Metal Temp Rising During Testing
- 04-4202; CAC 2 Failed To Start
- 07-26847; Elevated AFPT 2 Bearing Temperatures During DB-SP-03160
- 08-36910; Inability To Maintain SW1366 in Closed Position
- 09-59922; SW1356 Failed to Modulate While in Auto
- 09-64193; CDBI Self Assessment – No Calcs Exist for Ability of BWST/CST/FWST to Vent
- 09-65068; Failure of CAC 3 Low Speed Contact Relay
- 09-65315; Abnormal Noise Observed During Emergency Diesel Generator #1 Monthly Test
- 09-65338; Suspected Leakby of DA25
- 09-65481; SW 1380 Cycling in Manual
- 09-65778; Misapplication of Potter and Brumfield MDR Rotary Relays
- 09-65837; Potter and Brumfield MDR Rotary Relay Issue Review for CACs
- 09-65921; ODMI for Continued Operation with CACs in Slow Speed
- 09-66102; Voltage Feedback Path Present When SW Strainer 1-2, 1-3 Overload Trips
- 09-66105; CAC Slow Speed Operation Affect on Qualified Life of CTMT Equipment
- 09-66298; Incorrect Wire Configuration Identified at BF1274
- 09-66487; Insulation Removed from Steam Piping at AFPT Not Evaluated
- 09-66756; CST Vacuum Breakers Are Not Shown on the OS and P&IDs and Have No Valve Numbers
- 09-66816; Nuclear Fuel: Upper End Fitting Broken Springs at CR-3-Impact to Davis-Besse
- 09-66961; CST 1 and CST 2 Vacuum Breakers Lifted Higher Than Setting
- 09-67128; Service Water Strainers Motor Overload Act
- 09-67657; Service Water Train 2 Found Inoperable During Past Operability Evaluation

Procedures:
- DB-MS-9020; Installation and Removal of Insulation Outside Containment; Revision 1
- NOP-WM-1003; Nuclear Maintenance Notification Initiation, Screening, and Minor Deficiency Monitoring Processes; Revision 4
- NOP-WM-9001; FIN/Minor/Toolpouch/Immediate/Urgent Maintenance; Revision 5

Work Orders:
- 200053521; Aux Building Insulation Support NOT/NOP Test
- 200060879; BF1274 SW Strainer 2 Replace Aux Contacts
- 200091977; Install Insulation AFPT 1 Casing End

- 200390318; SW1380 Cycling Open and Close
- 200392390; Test CST Vacuum Breakers for Engineering

Drawings:
- E-008-00078; Westinghouse Electric Company Control Center Wiring Diagram; Revision 19
- E58B, Sheet 1A; Containment Ventilation System Ctmt Clr Fan 1; Revision 12
- E58B, Sheet 1B; Containment Ventilation System Ctmt Clr Fan 1; Revision 11
- E58B, Sheet 1C and 1D; Containment Ventilation System Ctmt Clr Fan 2; Revision 0

Other:
- NRC Information Notice 92-19; Misapplication of Potter and Brumfield MDR Rotary Relays
- ODMI; Continued Plant Operation with the Containment Air Coolers in Slow Speed; October 16, 2009
- Prompt Operabilty Determination Form for CR 09-66756; dated 10/30/2009;
- Vendor Manual C-034-00240; Vendor Manual for Varec Gage Used on Contracts 71-2051/58; Revision 4

1R18 Plant Modifications

Condition Reports:
- 09-66938; Lowering Trend of Core Flood Tank 2 Boron Concentration

Procedures:
- DB-OP-06014; Core Flooding System Procedure; Revision 20

Work Orders:
- 200394192; Install TM 09-0780, CFT2 Boric Acid Add

Drawings:
- OS-0006; Operational Schematic Core Flooding System; Revision 19

Other:
- ECP 09-0780-000; Temporary Modification – Add Boric Acid to CFT-2; Revision 0
- ECP 09-0780-001; Temporary Modification – Add Boric Acid to CFT-2; Revision 0

1R19 Post Maintenance Testing

Condition Reports:
- 09-67192; During Performance of DB-MI-3204 PDS2685B Found Out-of-Tolerance

Procedures:
- DB-MI-3204; Channel Functional Test and Calibration of SFRCS Actuation Channel 2 Steam Generator Differential Pressure Inputs; Revision 10
- DB-MI-3353; Channel Functional/Calibration Test of PSL 4535C, Main Turbine Trip, ARTS Channel 3; Revision 10
- DB-PF-3072; Component Cooling Water Pump 1 Test; Revision 14

Work Orders:
- 200253762; DB-MP43-1: Replace Surge Capacitor
- 200286521; PM 0190 MP43-1 and P43-1 Clean, Lube, Inspect

- 200338813; PM 8394 PSL4535C Replace Pressure Switch
- 200392897; Inspect PDS2685B

Other:
- Problem Solving Plan for CR 09067192; SFRCS PDS2685B Showed Signs of Mechanical Binding; November 5, 2009

1R22 Surveillance Testing

Condition Reports:
- 06-8728; MOV Program Snapshot Self Assessment Area for Improvement
- 07-26285; Main Stop Valve 2 Did Not Fast Close During The Performance of DB-SS-04150
- 08-45871; Main Stop Valve 2 Did Not Fast Close Last 10 percent During Turbine Testing Initially
- 09-56190; NI-5875 Failed Calibration; March 27, 2009
- 09-65084; NRC Question With the Motor Operated Valve PM and Testing Program
- 09-67664; Power Operated Valve Testing Process
- 09-68951; #2 Main Stop Valve Did Not Fast Close The Last 10 percent of Travel During Testing
- 09-69102; Oil Substance Noted During Containment Walkdown
- 09-69103; BACC: Boric Acid Deposits Found on MU250A
- 09-69104; Boric Acid Deposits Found on Valves
- 09-69105; Boric Acid Deposits Found on Valves
- 09-69110; Containment Entry Dose Delta

Procedures:
- DB-ME-3046; D1 Bus Under Voltage Units Monthly Functional Test; Revision 20
- DB-MI-3208; Channel Functional Test/Calibration and Response Time of RCP Monitor (RC3604) to SFRCS LCH 4 and RPS CH 4; Revision 15
- DB-MI-5254; Nuclear Instrumentation NI 05 (RPS CH 2) Power Range Adjustment; Revision 10
- DB-MI-5255; Nuclear Instrumentation NI 08 (RPS CH 3) Power Range Adjustment; Revision 10
- DB-OP-1101; Containment Entry; Revision 9
- DB-SC-04271; SBODG Monthly Test; Revision 17
- DB-SP-3136; Decay Heat Train 1 Pump and Valve Test; Revision 26
- DB-SS-4150; Main Turbine Stop Valve Test; Revision 11
- DB-SS-4151; Main Turbine Control Valve Test; Revision 11
- DB-SS-4152; Main Turbine Combine Intermediate Valve Test; Revision 7
- NOBP-ER-3601C; MOV Program Periodic Verification; Revision 3
- NOBP-ER-3601D; MOV Program Diagnostic Test Preparation and Evaluation; Revision 3
- NOP-ER-3601; MOV Program Overview; Revision 4

Drawings:
- J-102 Sheet 50, Loop Diagram RPS CH 3 Power Range NI8 Flux (RPS-NI8)
- SF-3A Sheet 11, SFRCS Internal Schematic Diagram Input Circuits Logic CH 4

Other:
- ALARA Plan # 2009-2002: Task 2; dated December 15, 2009
- Curve 14.34g; Decay Heat Pump 1 DP vs. Flow IST Acceptance Criteria for Quarterly Surveillance Test; Revision 25

- DB-SS-06-23; Snapshot Assessment, Align the MOV Program with INPO MOV Engineering Program Guide EPG-03; October 30, 2006
- ISTP3; Third 10 Year Inservice Testing Program; December 4, 2008`
- ISTB6; Pump and Valve Basis Document, Engineering Positions; Revision 2
- NED-95-20089; Centerior Energy Position Paper on Stem/Stem Nut Coefficient of Friction and Load Sensitive Behavior; August 8, 1995
- NRC's Final Safety Evaluation on Joint Owners' Group Program on MOV Periodic Verification; September 25, 2006
- NRC Final Supplement to Safety Evaluation for Joint Owners' Group MOV Periodic Verification Program; September 18, 2008
- NUREG-1482; Guidelines for Inservice Testing at Nuclear Power Plants; Revision 1

1EP4 <u>Emergency Action Level and Emergency Plan Changes</u>

Procedures:
- DBRM-EMER-1500A; Davis-Besse Emergency Action Level Basis Document; Revision 0
- RA-EP-01500; Emergency Classification; Revision 11
- RA-EP-01600; Unusual Event; Revision 4
- RA-EP-01700; Alert; Revision 5
- RA-EP-01800; Site Area Emergency; Revision 4
- RA-EP-01900; General Emergency; Revision 5
- RA-EP-03340; Offsite Dose Assessment; Revision 4

Other:
- 10 CFR 50.54(q) Change Package; Number DB2009-16-00; RA-EP-01500; Emergency Classification; Revision 11
- 10 CFR 50.54(q) Change Package; Number DB2009-23-00; RA-EP-01600; Unusual Event; Revision 4
- 10 CFR 50.54(q) Change Package; Number DB2009-24-00; RA-EP-01700; Alert; Revision 5
- 10 CFR 50.54(q) Change Package; Number DB2009-25-00; RA-EP-01800; Site Area Emergency; Revision 4
- 10 CFR 50.54(q) Change Package; Number DB 2009-26-00; RA-EP-01900; General Emergency; Revision 5
- 10 CFR 50.54(q) Change Package; Number DB2009-27-00; Davis-Besse Emergency Plan; Revision 27
- 10 CFR 50.54(q) Change Package; Number DB2009-30-00; RA-EP-02240; Offsite Dose Assessment, Revision 4
- Davis-Besse Emergency Plan; Revision 27
- FENOC Letter; Subject: Davis-Besse Nuclear Power Station, Docket Number 50-346, License No. NPF-3, Review and Approval of a Revision to the Davis-Besse Nuclear Power Station (NEI 99-01, Revision 5) Emergency Action Levels Resulting from the Effects of Thermally Induced Current (TIC) on the Containment High Range Radiation Monitors (TAC No. MD7913)

<u>4OA1 Performance Indicator Verification</u>

Condition Reports:
- 09-51584; MSPI Data Submitted to Site Regulatory Compliance Was Incomplete

Other:
- Davis-Besse MSPI Basis Document; Revision 4

- Form NOBP-LP-4012-41; MSPI Support Cooling System (SW); Forms for October 2008 through September 2009
- Form NOBP-LP-4012-48; MSPI Heat Removal System (AFW); Forms for October 2008 through September 2009
- Form NOBP-LP-4012-49; MSPI Residual Heat Removal System (LPI); Forms for October 2008 through September 2009
- Form NOBP-LP-4012-50; MSPI Support Cooling System (CCW); Forms for October 2008 through September 2009
- NEI 99-02; Regulatory Assessment Performance Indicator Guideline; Revision 5
- NOBP-LP-4012; NRC Performance Indicators; Revision No. 03

4OA2 Problem Identification and Resolution

Condition Reports:
- 09-57487; Containment Spray Pump 1 Exhibiting Upward Vibration Trend
- 09-57606; Indicated Safety Valve leakage to Quench Tank
- 09-57849; Unacceptable Level of Performance In Chemistry Organization
- 09-59984; DB-IPAT 09-1: Chemistry Parameters Category (CC01) Indicates an Adverse Trend
- 09-62289; Missed Opportunity to Identify an Area for Improvement
- 09-63106; DB-IPAT-09-33, Site Trend Identified in Work Planning/Preparation/Scheduling
- 09-64722; Increase Trend Identified in August Precursor Error Rate
- 09-67468; Potential Exam Failure Trend

Procedures:
- NOBP-LP-2010; Crest Trending Codes; Revision 9
- NOBP-LP-2018; Integrated Performance Assessment and Trending; Revision 5

Other:
- Cause Code Recurrence Listing for Period of March 1, 2009, through November 1, 2009; Generated November 10, 2009
- DB-C-09-06-04/06; Quality Assurance Audit Report on Fire Protection; July 9, 2009
- DB-IPAT-09-21; Integrated Performance Assessment and Trending, Human Performance 2009; August 5, 2009
- DB-IPAT-09-33; Integrated Performance Assessment and Trending, Site Roll-Up; August 13, 2009
- DB-PA-09-2; Fleet Oversight Second Quarter 2009 Report; July 24, 2009
- DB-PA-09-3; Fleet Oversight Third Quarter 2009 Report; October 29, 2009
- DB-SA-09-59; Equipment Failures Cause Assessment; August 28, 2009
- DB-SA-09-63; Davis-Besse Third Quarterly Safety Culture Monitoring Assessment; September 28, 2009

4OA3 Followup of Events and Notices of Enforcement Discretion

Condition Reports:
- 09-66895; Power Pumps Bistable Tripped with One Trip Input from Field
- 09-66984; Human Performance Tool Improvement Opportunities During RCP Monitor SFRCS Test

Procedures:
- DB-MI-03205; Channel Functional Test/Calibration and Response Time of RCP Monitor (RC3601) to SFRCS LCH 1 and RPS CH 1; Revision 14

Work Orders:
- 200392459; Simple Troubleshooting Plan, RPS Channel 1

Other:
- Unit Logs; dated October 29, 2009

4OA7 Licensee-Identified Violations

Condition Reports:
- 09-69162; Apparent Heat Balance Input Error (T476, TE-SP15A)

Procedures:
- DB-NE-3230; RPS Daily Heat Balance Check; Revision 14

Work Orders:
- 200396865; Troubleshoot T-476 Computer Point & TESP15A

Other:
- NRC Regulatory Issue Summary 2007-21, Rev. 1, Adherence To Licensed Power Limits
- Post Maintenance Test Manual; Revision 33
- Unit Logs; December 17, 2009

LIST OF ACRONYMS USED

AC	Alternating Current
ADAMS	Agencywide Document Access Management System
ALARA	As-Low-As-Is-Reasonably-Achievable
ASME	American Society of Mechanical Engineers
CAC	Containment Air Cooler
CAP	Corrective Action Program
CFR	Code of Federal Regulations
CR	Condition Report
DRP	Division of Reactor Projects
EDG	Emergency Diesel Generator
EQ	Environmentally Qualified
IMC	Inspection Manual Chapter
IN	Information Notice
INPO	Institute of Nuclear Power Operations
IP	Inspection Procedure
IR	Issue Report
LCO	Limiting Condition for Operation
MOV	Motor-Operated Valve
MSPI	Mitigating Systems Performance Index
NCV	Non-Cited Violation
NEI	Nuclear Energy Institute
NRC	U.S. Nuclear Regulatory Commission
PARS	Publicly Available Records
P&B	Potter and Brumfield
P&IDs	Piping and Instrumentation Diagrams
PI	Performance Indicator
PM	Post Maintenance
RCP	Reactor Coolant Pump
RPS	Reactor Protection System
SDP	Significance Determination Process
SFRCS	Steam-Feedwater Rupture Control System
SSC	Systems, Structures, and Components
TI	Temporary Instruction
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report
URI	Unresolved Item
USAR	Updated Safety Analysis Report
WO	Work Order

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

Sincerely,

/RA/

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

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

Enclosure: Inspection Report 05000346/2009-005
w/Attachment: Supplemental Information

cc w/encl: Distribution via ListServ

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Letter to B. Allen from J. Cameron dated January 13, 2010.

SUBJECT: DAVIS-BESSE NUCLEAR POWER STATION INTEGRATED INSPECTION REPORT 05000346/2009-005

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