



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**

REGION III  
2443 WARRENVILLE ROAD, SUITE 210  
LISLE, IL 60532-4352

October 25, 2010

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

**SUBJECT: DAVIS-BESSE NUCLEAR POWER STATION INTEGRATED  
INSPECTION REPORT 05000346/2010004**

Dear Mr. Allen:

On September 30, 2010, the U.S. Nuclear Regulatory Commission (NRC) completed an integrated inspection at your Davis-Besse Nuclear Power Station. The enclosed report documents the results of this inspection, which were discussed on October 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, one NRC-identified finding of very low safety significance was identified. The finding involved a violation of NRC requirements. However, because of the very low safety significance, and because the issue was entered into your corrective action program, the NRC is treating the issue as a non-cited violation (NCV) in accordance with Section 2.3.2 of the NRC Enforcement Policy.

If you contest the subject or severity of this NCV, 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 cross-cutting aspect assigned to 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.

B. Allen

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In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records System (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Website 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 05000346/2010004  
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: 05000346/2010004

Licensee: FirstEnergy Nuclear Operating Company (FENOC)

Facility: Davis-Besse Nuclear Power Station

Location: Oak Harbor, OH

Dates: July 1, 2010, through September 30, 2010

Inspectors: J. Rutkowski, Senior Resident Inspector  
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Approved by: Jamnes L. Cameron, Chief  
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Division of Reactor Projects

Enclosure

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## SUMMARY OF FINDINGS

IR 05000346/2010004; 7/1/10-9/30/10; Davis-Besse Nuclear Power Station; Adverse Weather Protection.

This report covers a 3-month period of inspection by resident inspectors and announced baseline inspections by regional inspectors. One Green finding was identified by the inspectors. The finding was considered a non-cited violation (NCV) 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: Initiating Events

- Green. The inspectors identified a finding of very low safety significance (Green) and associated non-cited violation (NCV) of 10 CFR 50.65(a)(4), for the failure to implement appropriate risk management actions when conservative grid operations were declared at the station. The licensee included this finding in their corrective action program as CR 10-79727. An immediate corrective action was taken to appropriately apply orange risk controls to activities representing risk to generation or grid reliability during the period of conservative grid operations.

The inspectors determined that the failure to implement appropriate risk management actions in accordance with procedure NOP-OP-1007, "Risk Management," was a performance deficiency. In accordance with IMC 0612, Appendix E, "Examples of Minor Issues," this issue was more than minor because it was sufficiently similar to more-than-minor Example 7.f in that overall plant risk would be in a higher licensee-established risk category. The inspectors determined that the finding affected the initiating events cornerstone and could be evaluated using the SDP in accordance with IMC 0609, "Significance Determination Process." Because the finding was associated with maintenance risk management, characterization and initial screening was accomplished using IMC 0609, Appendix K, "Maintenance Risk Assessment and Risk Management Significance Determination Process." In accordance with flowchart 2, the inspectors determined the finding to be of very low safety significance (Green) because the incremental core damage probability (ICDP) at the plant during the period of conservative grid operations was less than 1.0E-6. This finding has a cross-cutting aspect in the decision-making component of the human performance cross-cutting area because, when faced with changing plant conditions, the licensee did not appropriately use a systematic process to make a risk-significant decision. (H.1(a)) (Section 1R01)

### B. Licensee-Identified Violations

No violations were identified.

## REPORT DETAILS

### Summary of Plant Status

The unit began the inspection period in Mode 1 at approximately 80 percent power while performing a planned power escalation after completion of a refueling outage. The unit reached 100 percent power on July 2, 2010. At the end of the inspection period, the plant was operating at approximately 100 percent power.

#### 1. REACTOR SAFETY

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

#### 1R01 Adverse Weather Protection (71111.01)

##### .1 Readiness of Offsite and Alternate AC Power Systems

##### a. Inspection Scope

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

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

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

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

- the communications between the plant and the TSO when changes at the plant could impact the transmission system, or when the capability of the transmission system to provide adequate offsite power was challenged.

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

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

b. Findings

Introduction: The inspectors identified a finding of very low safety significance (Green) and associated non-cited violation (NCV) of 10 CFR 50.65(a)(4), for the failure to implement appropriate risk management actions when conservative grid operations were declared at the station. Specifically, the licensee failed to recognize that a surveillance activity posed a risk to generation and grid reliability, and should have been managed under orange risk controls.

Description: On July 15, 2010, Davis-Besse was notified by the Wadsworth Control Center, the electric grid system operator, of entry into conservative grid operations. In conservative grid operations, the Wadsworth Control Center requests that plants limit maintenance, testing and operations that increase risk to reliable grid operation. These actions do not indicate a degraded grid as defined by voltage or frequency degradation, but are a proactive step at reducing risk when conditions warrant minimizing potential impact.

Nuclear operating procedure NOP-OP-1007, Risk Management, gives direction for work controls during a period of conservative grid operations. NOP-OP-1007 states that when conservative operations are reported, Work Management and Operations personnel shall assess all work for risk to generation or grid reliability. Activities that pose a risk to generation or grid reliability that would otherwise be a lower risk level than orange should be treated as orange risk level. NOP-OP-1007 states that the activity should be terminated or completed as determined by the Shift Manager based on whichever is better to reduce the risk. Orange risk activities require continuous supervisor job site coverage and management oversight of all critical steps of the activity.

Following the plant's performance of risk assessments for the work scheduled to take place on July 15, the inspectors questioned the risk level applied to a planned Instrumentation and Controls (I&C) surveillance test, "Channel Functional Test and Response Time of Reactor Coolant Pump (RCP) Monitor to Steam and Feedwater Rupture Control System (SFRCS) and Reactor Protection System (RPS) Channel 4." The testing was originally scheduled as an activity that met criteria in NOP-OP-1007 for yellow "risk to nuclear safety," but was not recognized to meet the criteria for being an activity that posed risk to generation or grid reliability. The inspectors determined that the surveillance test posed a risk to generation/grid reliability because, if performed incorrectly, it could cause an unplanned reactor trip and have an adverse effect on grid reliability. Based on the inspectors' questions, the issue was discussed with site managers. Per procedure, approval was given by Operations to perform the activity as

orange risk. All orange risk level controls were implemented for the surveillance which was completed satisfactorily.

The risk management procedure did not clearly identify what constitutes a risk to generation or grid reliability. Common practice at the plant was that “risk to nuclear safety” activities were not evaluated to determine if they met the criteria to be treated as orange risk activities during a risk assessment for conservative grid operations. The inspectors found another example of the failure to appropriately assess work for risk to generation or grid reliability during a review of past periods of conservative grid operations. Specifically, during conservative grid operations from 11:15 a.m. to 8:00 p.m. on July 8, 2010, the site performed the surveillance test, “Channel Functional Test of Reactor Trip Breaker D, RPS Channel 3 Reactor Trip Module Logic, and Anticipatory Reactor Trip System (ARTS) Channel 3 Output Logic Test.” The surveillance testing was an activity that was not properly recognized to meet the criteria for risk to generation or grid reliability, thus was not handled as an orange risk activity.

Analysis: The inspectors determined that the failure to implement appropriate risk management actions in accordance with procedure NOP-OP-1007, “Risk Management,” was a performance deficiency. In accordance with IMC 0612, Appendix E, “Examples of Minor Issues”, this issue was more than minor because it was sufficiently similar to more-than-minor Example 7.f. Specifically, the overall elevated plant risk would put the plant into a higher licensee-established risk category (orange), which would require, under plant procedures, additional risk management actions.

Subsequently, the inspectors determined that the finding affected the initiating events cornerstone and could be evaluated using the Significance Determination Process (SDP) in accordance with IMC 0609, “Significance Determination Process.” Because the finding was associated with maintenance risk management, characterization and initial screening was accomplished using IMC 0609, Appendix K, “Maintenance Risk Assessment and Risk Management Significance Determination Process.” In accordance with flowchart 2, the inspectors determined the finding to be of very low safety significance (Green) because the incremental core damage probability (ICDP) at the plant during the period of conservative grid operations was less than 1.0E-6.

This finding has a cross-cutting aspect in the decision-making component of the human performance cross-cutting area because, when faced with changing plant conditions, the licensee did not appropriately use a systematic process to make a risk-significant decision. Specifically, the licensee did not implement appropriate risk management actions when conservative grid operations were declared at the station. (H.1(a))

Enforcement: Title 10 CFR 50.65(a)(4) states, in part, that before performing maintenance activities (including but not limited to surveillance, post-maintenance (PM) testing, and corrective and preventive maintenance), the licensee shall assess and manage the increase in risk that may result from the proposed maintenance activities. Contrary to the above, during periods of conservative grid operations the licensee failed to adequately assess and manage the risk associated with surveillance activities that had the potential to trip the reactor and cause an adverse effect on grid reliability. The licensee included this finding in their CAP as CR 10-79727. An immediate corrective action was taken to appropriately apply orange risk controls to activities representing risk to generation or grid reliability during the period of conservative grid operations. Because this violation was of very low safety significance and since it was entered in the

licensee's corrective action program, this violation is being treated as an NCV, consistent with Section 2.3.2 of the NRC Enforcement Policy. **(NCV 05000346/2010004-01, "Failure to Assess and Manage Risk During Conservative Grid Operations")**

.2 External Flooding

a. Inspection Scope

The inspectors evaluated the design, material condition, and procedures for coping with the design basis probable maximum flood. The evaluation included a review to check for deviations from the descriptions provided in the Updated Safety Analysis Report (USAR) for features intended to mitigate the potential for flooding from external factors. As part of this evaluation, the inspectors checked for obstructions that could prevent draining, checked that the roofs did not contain obvious loose items that could clog drains in the event of heavy precipitation, and determined that barriers required to mitigate the flood were in place and operable. Additionally, the inspectors performed a walkdown of the protected area to identify any modification to the site which would inhibit site drainage during a probable maximum precipitation event or allow water ingress past a barrier. The inspectors also walked down the underground service water tunnel that contained multiple train cables and could be subject to flooding. The inspectors also reviewed the off-normal occurrence procedures for mitigating the design basis flood to ensure it could be implemented as written.

This inspection constituted one external flooding sample as defined in IP 71111.01-05.

b. Findings

No findings were identified.

1R04 Equipment Alignment (71111.04)

.1 Quarterly Partial System Walkdowns

a. Inspection Scope

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

- decay heat and low pressure injection train 2 during a planned train 1 maintenance outage on August 3, 2010;
- high pressure injection train 1 during a planned train 2 maintenance outage on August 18, 2010;
- motor driven feedwater pump lined up as an auxiliary feedwater pump on September 13, 2010, after a maintenance outage the previous week; and
- decay heat and low pressure injection train 1 during a planned train 2 maintenance outage on September 15, 2010.

The inspectors selected these systems based on their risk significance relative to the Reactor Safety Cornerstones at the time they were inspected. The inspectors attempted to identify any discrepancies that could impact the function of the system, and therefore, potentially increase risk. The inspectors reviewed applicable operating procedures,

system diagrams, USAR, 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 systems incapable of performing their intended functions. The inspectors also walked down accessible portions of the systems to verify system components and support equipment were aligned correctly and operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no obvious deficiencies. The inspectors also verified that the licensee had properly identified and resolved equipment alignment problems that could cause initiating events or impact the capability of mitigating systems or barriers and entered them into the corrective action program (CAP) with the appropriate significance characterization. Documents reviewed are listed in the Attachment.

These activities constituted four partial system walkdown samples as defined in IP 71111.04-05.

b. Findings

No findings were identified.

1R05 Fire Protection (71111.05Q)

.1 Routine Resident Inspector Tours

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:

- cable spreading room (Room 422A, Fire Area DD);
- mechanical penetration room 3 (Room 303, Fire Area AB);
- electrical penetration room 1 (Room 402, Fire Area DG);
- clean waste receiver tank 1 room (Room 124, Fire Area A); and
- ECCS pump room 1 (Room 105, Fire Area AB).

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

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

b. Findings

No findings were identified.

1R06 Flooding (71111.06)

.1 Internal Flooding

a. Inspection Scope

The inspectors reviewed selected risk important plant design features and licensee procedures intended to protect the plant and its safety-related equipment from internal flooding events. The inspectors reviewed flood analyses and design documents, including the UFSAR, engineering calculations, and abnormal operating procedures to identify licensee commitments. The specific documents reviewed are listed in the Attachment to this report. In addition, the inspectors reviewed licensee drawings to identify areas and equipment that may be affected by internal flooding caused by the failure or misalignment of nearby sources of water, such as the fire suppression or the circulating water systems. The inspectors also reviewed the licensee's corrective action documents with respect to past flood-related items identified in the CAP to verify the adequacy of the corrective actions. The inspectors performed a walkdown of the following plant area to assess the adequacy of watertight doors and verify drains and sumps were clear of debris and were operable, and that the licensee complied with its commitments:

- service water pump and valve room.

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

b. Findings

No findings were identified.

.2 Underground Vaults

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 that the cables were not 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 that drainage of the area was available. 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 3005;
- manhole 3041; and
- manhole 3042.

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

b. Findings

No findings were identified.

1R11 Licensed Operator Regualification Program (71111.11)

.1 Resident Inspector Quarterly Review (71111.11Q)

a. Inspection Scope

On August 17, 2010, 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 were identified.

1R12 Maintenance Effectiveness (71111.12)

.1 Routine Quarterly Evaluations (71111.12Q)

a. Inspection Scope

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

- component cooling water system;
- station and instrument air system; and
- nuclear fuel.

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 (SSCs)/functions classified as (a)(2) or appropriate and adequate goals and corrective actions for systems classified as (a)(1).

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

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

b. Findings

No findings 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 during the week of July 18, 2010, which included emergent work on component cooling water heat exchanger 3, emergent work involving a failed

- control valve for auxiliary feedwater train 2, and periods of yellow risk for planned maintenance on essential 120 volt inverter YV2;
- work activities during the week of August 2, 2010, which predominantly involved planned work on decay heat train 1 components and emergent work on decay heat isolation valve DH-1B;
  - work activities during the week of August 23, 2010, which included emergent work on component cooling water heat exchanger 2, and a yellow risk activity for replacement of battery 1P cell 21; and
  - work activities during the week of September 27, 2010, which included a planned outage of emergency diesel generator 1, and emergent work on the control rod drive motor-generator set.

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 engineer, and verified plant conditions were consistent with the risk assessment. The inspectors also reviewed TS requirements and walked down portions of redundant safety systems, when applicable, to verify risk analysis assumptions were valid and applicable requirements were met.

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

b. Findings

No findings were identified.

1R15 Operability Evaluations (71111.15)

.1 Operability Evaluations

a. Inspection Scope

The inspectors reviewed the following issues:

- CR 10-79986 which documented that AF6451 (auxiliary feedwater 2 discharge control valve) failed to reach the required closed position voltage value during testing;
- CR 10-79347 which documented that seismic monitor ZT-2951 was found out of tolerance;
- CR 10-81824 which documented an inconsistency and potential non-compliance with TS 3.7.16 for spent fuel pool loading patterns; and
- CR 10-75350 and CR 10-80802 which documented deficiencies in the high energy line break analysis with emphasis on the component cooling water pump room and its ventilation systems.

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 reviewed a sampling of corrective action documents to verify that the licensee was identifying and correcting any deficiencies associated with operability evaluations. Documents reviewed are listed in the Attachment to this report.

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

b. Findings

Introduction: The inspectors identified an unresolved item (URI) concerning an inconsistency with TS 3.7.16, which described acceptable fuel loading patterns within the spent fuel pool.

Description: Limiting Condition for Operation (LCO) 3.7.16 describes the requirements for fuel assembly storage in the spent fuel pool. Spent fuel assemblies are categorized based on burnup and initial enrichment, in accordance with TS figure 3.7.16-1. The approved loading patterns applicable to each fuel assembly category are specified in the Bases. On August 26 the inspectors reviewed CR 10-81824, which documented a potential non-compliance involving loading patterns in the Spent Fuel Pool rack modules. At the time of discovery of the issue on August 26, 2010, the Bases for LCO 3.7.16 stated that "different loading patterns may be used in different rack modules, provided each rack module contains only one loading pattern." Contrary to this statement, the Davis-Besse spent fuel pool contained rack modules that used two different loading patterns. However, the spent fuel pool was configured in accordance with site procedures consistent with the criticality safety analysis. This analysis, and the use of two different loading patterns, was previously approved by the NRC in the safety evaluation report for license amendment 247.

On August 27, 2010, the licensee submitted a change to the bases of LCO 3.7.16, which added a sentence stating, "Two different loading patterns may be used in a single rack module, subject to certain additional restrictions". This sentence, which restored compliance with TS 3.7.16, was unintentionally removed from the Bases when Improved TSs were implemented at the plant on December 13, 2008. The inspectors continue to review the TS non-compliance and reporting requirements of this issue. Pending further review of the licensee's evaluation of reportability, the issue is considered an unresolved item. **(URI 05000346/2010004-02, Compliance with Spent Fuel Pool Storage Requirements)**

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:

- decay heat valve 1B (decay heat train one to reactor coolant system isolation) after scheduled preventive maintenance to the valve motor operator;
- decay heat train 1 pump and system integrity test after scheduled maintenance activities on the pump and motor which involved draining a section of the train piping;
- channel functional test and device calibration of steam-feedwater rupture control system (SFRCS) steam generator level inputs after replacement of the signal monitor devices in the SFRCS cabinet; and
- testing after replacement of relay K303 in Safety Features Actuation System (SFAS) Channel 3 to verify proper signal to the opening circuitry of core flood tank outlet isolation valve CF1B.

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 USAR, 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 four post-maintenance testing samples as defined in IP 71111.19-05.

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors reviewed the test results for the following activities to determine whether risk-significant systems and equipment were capable of performing their intended safety

function and to verify testing was conducted in accordance with applicable procedural and TS requirements:

- DB-OP-1101, "Containment Entry," on July 20, 2010 (routine);
- DB-SP-3357, "RCS Water Inventory Balance," on July 23 through July 25, 2010 (RCS Leak Detection);
- DB-SP-3151, "AFP 1 Quarterly Test," on August 2, 2010 (IST); and
- DB-SC-3071, "Emergency Diesel Generator 2 Monthly Test," on August 19, 2010 (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;
- 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;
- 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 two routine surveillance testing samples, one inservice testing sample, and one reactor coolant system leak detection inspection sample as defined in IP 71111.22, Sections -02 and -05.

b. Findings

No findings were identified.

**Cornerstone: Emergency Preparedness**

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

a. Inspection Scope

The inspectors evaluated the conduct of a routine licensee emergency drill on September 16, 2010, to identify any weaknesses and deficiencies in classification, notification, and protective action recommendation development activities. The inspectors observed emergency response operations in the control room simulator, technical support center, emergency operations facility, and operations support center to determine whether the event classification, notifications, and protective action recommendations were performed in accordance with procedures. The inspectors also attended the licensee drill critique to compare any inspector-observed weakness with those identified by the licensee staff in order to evaluate the critique and to verify whether the licensee staff was properly identifying weaknesses and entering them into the CAP. As part of the inspection, the inspectors reviewed the drill package and other documents listed in the Attachment to this report.

The inspectors' review of this emergency preparedness drill constituted one inspection sample as defined in IP 71114.06-05.

b. Findings

No findings were identified.

**2. RADIATION SAFETY**

**Cornerstones: Occupational and Public Radiation Safety**

2RS8 Radioactive Solid Waste Processing and Radioactive Material Handling, Storage, and Transportation (71124.08)

This inspection constituted one sample as defined in IP 71124.08-05.

.1 Inspection Planning (02.01)

a. Inspection Scope

The inspectors reviewed the solid radioactive waste system description in the Updated Final Safety Analysis Report (USAR), the Process Control Program (PCP), and the recent radiological effluent release report for information on the types, amounts, and processing of radioactive waste disposed.

The inspectors reviewed the scope of any quality assurance (QA) audit in this area since the last inspection to gain insights into the licensee's performance and inform the "smart sampling" inspection planning.

b. Findings

No findings were identified.

.2 Radioactive Material Storage (02.02)

a. Inspection Scope

The inspectors selected areas where containers of radioactive waste are stored in the Davis-Besse Radwaste building, and evaluated whether the containers were labeled in accordance with 10 CFR 20.1904, "Labeling Containers," or controlled in accordance with 10 CFR 20.1905, "Exemptions to Labeling Requirements," as appropriate.

The inspectors assessed whether the radioactive materials storage areas were controlled and posted in accordance with the requirements of 10 CFR Part 20, "Standards for Protection Against Radiation." For materials stored or used in the controlled or unrestricted areas, the inspectors evaluated whether they were secured against unauthorized removal and controlled in accordance with 10 CFR 20.1801, "Security of Stored Material," and 10 CFR 20.1802, "Control of Material Not in Storage," as appropriate.

The inspectors evaluated whether the licensee established a process for monitoring the impact of long term storage (e.g., buildup of any gases produced by waste decomposition, chemical reactions, container deformation, loss of container integrity, or re-release of free-flowing water) that was sufficient to identify potential unmonitored, unplanned releases or nonconformance with waste disposal requirements.

The inspectors selected several containers of stored radioactive materials, and assessed for signs of swelling, leakage, and deformation.

b. Findings

No findings were identified.

.3 Radioactive Waste System Walkdown (02.03)

a. Inspection Scope

The inspectors walked down accessible portions of selected radioactive waste processing systems to assess whether the current system configuration and operation agreed with the descriptions in the USAR, Offsite Dose Calculation Manual (ODCM), and PCP.

The inspectors reviewed administrative and/or physical controls (i.e., drainage and isolation of the system from other systems) to assess whether the equipment which is not in service or abandoned in place would not contribute to an unmonitored release path and/or affect operating systems or be a source of unnecessary personnel exposure. The inspectors assessed whether the licensee reviewed the safety significance of systems and equipment abandoned in place in accordance with 10 CFR 50.59, "Changes, Tests, and Experiments."

The inspectors reviewed the adequacy of changes made to the radioactive waste processing systems since the last inspection. The inspectors evaluated whether changes from what is described in the USAR were reviewed and documented in accordance with 10 CFR 50.59, as appropriate and to assess the impact on radiation doses to members of the public.

For selected processes for transferring radioactive waste resin and/or sludge discharges into shipping/disposal container, the inspectors assessed whether the waste stream mixing, sampling procedures, and methodology for waste concentration averaging were consistent with the PCP, and provided representative samples of the waste product for the purposes of waste classification as described in 10 CFR 61.55, "Waste Classification".

The inspectors assessed whether the licensee's PCP correctly described the current methods and procedures for dewatering and waste stabilization (e.g., removal of freestanding liquid).

b. Findings

No findings were identified.

.4 Waste Characterization and Classification (02.04)

a. Inspection Scope

The inspectors selected the following Davis-Besse radioactive waste streams for review:

- dry active waste stream;
- primary or reactor coolant system filter stream;
- radwaste filter stream;
- spent fuel pool crud stream; and
- secondary resin stream.

For the waste streams listed above, the inspectors assessed whether the licensee's radiochemical sample analysis results (i.e., "10 CFR Part 61" analysis) from GEL Laboratories analyses were sufficient to support radioactive waste characterization as required by 10 CFR Part 61, "Licensing Requirements for Land Disposal of Radioactive Waste." The inspectors evaluated whether the licensee's use of scaling factors and calculations to account for difficult-to-measure radionuclides was technically sound and based on current 10 CFR Part 61 analyses for the selected radioactive waste streams.

The inspectors evaluated whether changes to plant operational parameters were taken into account to: (1) maintain the validity of the waste stream composition data between the annual or biennial sample analysis update; and (2) assure that waste shipments continued to meet the requirements of 10 CFR Part 61 for the waste streams selected above.

The inspectors evaluated whether the licensee had established and maintained an adequate QA program to ensure compliance with the waste classification and characterization requirements of 10 CFR 61.55 and 10 CFR 61.56, "Waste Characteristics."

b. Findings

No findings were identified.

.5 Shipment Preparation (02.05)

a. Inspection Scope

The inspectors observed shipment packaging, surveying, labeling, marking, placarding, vehicle checks, emergency instructions, disposal manifest, shipping papers provided to the driver, and licensee verification of shipment readiness. The inspectors assessed whether the requirements of applicable transport cask certificates of compliance had been met. The inspectors evaluated whether the receiving licensee was authorized to receive the shipment packages. The inspectors evaluated whether the licensee's procedures for cask loading and closure procedures were consistent with the vendor's current approved procedures.

The inspectors interviewed radiation workers during the conduct of radioactive waste processing walkdown and observed radioactive material shipment preparation receipt activities. The inspectors assessed whether the shippers were knowledgeable of the shipping regulations and whether shipping personnel demonstrated adequate skills to accomplish the package preparation requirements for public transport with respect to:

- the licensee's response to NRC Bulletin 79-19, "Packaging of Low-Level Radioactive Waste for Transport and Burial," dated August 10, 1979; and
- Title 49 CFR Part 172, "Hazardous Materials Table, Special Provisions, Hazardous Materials Communication, Emergency Response Information, Training Requirements, and Security Plans," Subpart H, "Training."

Due to limited opportunities for direct observation, the inspectors reviewed the technical instructions presented to workers during routine training reviews of shipping papers from past shipments. The inspectors assessed whether the licensee's training program provided training to personnel responsible for the conduct of radioactive waste processing and radioactive material shipment preparation activities.

b. Findings

No findings were identified.

.6 Shipping Records (02.06)

a. Inspection Scope

The inspectors through a smart sampling process assessed whether the shipping documents indicated the proper shipper name; emergency response information and a 24-hour contact telephone number; accurate curie content and volume of material; and appropriate waste classification, transport index, and UN number for several radioactive shipments that occurred between January 2009 and August 2010. Additionally, the inspectors assessed whether the shipment placarding was consistent with the information in the shipping documentation.

b. Findings

No findings were identified.

.7 Identification and Resolution of Problems (02.07)

a. Inspection Scope

The inspectors assessed whether problems associated with radioactive waste processing, handling, storage, and transportation, were being identified by the licensee at an appropriate threshold, were properly characterized, and were properly addressed for resolution in the licensee CAP. Additionally, the inspectors evaluated whether the corrective actions were appropriate for a selected sample of problems documented by the licensee that involve radioactive waste processing, handling, storage, and transportation.

The inspectors reviewed results of selected audits performed since the last inspection of this program and evaluated the adequacy of the licensee's corrective actions for issues identified during those audits.

b. Findings

No findings were identified.

**4. OTHER ACTIVITIES**

40A1 Performance Indicator Verification (71151)

**CORNERSTONES: MITIGATING SYSTEMS, PUBLIC RADIATION SAFETY, AND OCCUPATIONAL RADIATION SAFETY**

.1 Safety System Functional Failures

a. Inspection Scope

The inspectors sampled licensee submittals for the Safety System Functional Failures performance indicator for the period from the third quarter of 2009 through the second quarter of 2010. 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 6, dated October 2009, and NUREG-1022, "Event Reporting Guidelines 10 CFR 50.72 and 50.73" definitions and guidance, were used. The inspectors reviewed the licensee's operator narrative logs, operability assessments, maintenance rule records, maintenance work orders, issue reports, event reports and NRC Integrated Inspection Reports for the period of July 2009 through June 2010 to validate the accuracy of the submittals. The inspectors also reviewed the licensee's condition report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one safety system functional failures sample as defined in IP 71151-05.

b. Findings

No findings were identified.

.2 Mitigating Systems Performance Index - Emergency AC Power System

a. Inspection Scope

The inspectors sampled licensee submittals for the Mitigating Systems Performance Index (MSPI) - Emergency AC Power System performance indicator for the period from the third quarter of 2009 through the second quarter of 2010. 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 6, dated October 2009, were used. The inspectors reviewed the licensee's operator narrative logs, MSPI derivation reports, issue reports, event reports and NRC Integrated Inspection Reports for the period of July 2009 through June 2010 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. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one MSPI emergency AC power system sample as defined in IP 71151-05.

b. Findings

No findings were identified.

.3 Mitigating Systems Performance Index - High Pressure Injection Systems

a. Inspection Scope

The inspectors sampled licensee submittals for the Mitigating Systems Performance Index - High Pressure Injection Systems performance indicator for the period from the third quarter of 2009 through the second quarter of 2010. 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 6, dated October 2009, 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 July 2009 through June 2010 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 high pressure injection system sample as defined in IP 71151-05.

b. Findings

No findings were identified.

.4 Occupational Exposure Control Effectiveness

a. Inspection Scope

The inspectors sampled licensee submittals for the occupational radiological occurrences performance indicator (PI) for the period from the first quarter 2009 through the second quarter 2010. The inspectors used PI definitions and guidance contained in the NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, dated October 2009 to determine the accuracy of the PI data reported during those periods. The inspectors reviewed the licensee's assessment of the PI for occupational radiation safety to determine if indicator related data was adequately assessed and reported. To assess the adequacy of the licensee's PI data collection and analyses, the inspectors discussed with radiation protection staff, the scope, and breadth of its data review and the results of those reviews. The inspectors independently reviewed electronic personal dosimetry dose rate and accumulated dose alarm and dose reports and the dose assignments for any intakes that occurred during the time period reviewed to determine if there were potentially unrecognized occurrences. The inspectors also conducted walkdowns of numerous locked high and very high radiation area entrances specifically in the radwaste areas to determine the adequacy of the controls in place for these areas. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one occupational radiological occurrences sample as defined in IP 71151-05.

b. Findings

No findings were identified.

.5 Radiological Effluent Technical Specifications/Offsite Dose Calculation Manual  
Radiological Effluent Occurrences

a. Inspection Scope

The inspectors sampled licensee submittals for the Radiological Effluent Technical Specifications (RETS)/Offsite Dose Calculation Manual (ODCM) radiological effluent occurrences PI for the period between the first quarter of 2009 and the second quarter of 2010. The inspectors used PI definitions and guidance contained in the NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, dated October 2009 to determine the accuracy of the PI data reported during those periods. The inspectors reviewed the licensee's issue report database and selected individual reports generated since this indicator was last reviewed to identify any potential occurrences such as unmonitored, uncontrolled, or improperly calculated effluent releases that may have impacted offsite dose. The inspectors reviewed gaseous effluent summary data and the results of associated offsite dose calculations for selected

dates between the first quarter of 2009 through the second quarter of 2010 to determine whether indicator results were accurately reported. The inspectors also reviewed the licensee's methods for quantifying gaseous and liquid effluents and determining effluent dose. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one RETS/ODCM radiological effluent occurrences sample as defined in IP 71151-05.

b. Findings

No findings were identified

4OA2 Identification and Resolution of Problems (71152)

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

a. Inspection Scope

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

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

b. Findings

No findings were identified.

.2 Daily Corrective Action Program Reviews

a. Inspection Scope

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

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

b. Findings

No findings were identified.

.3 Annual Sample: Review of Operator Workarounds

a. Inspection Scope

The inspectors evaluated the licensee's implementation of their process used to identify, document, track, and resolve operational challenges. Inspection activities included, but were not limited to, a review of the cumulative effects of the Operator Workarounds (OWAs) on system availability and the potential for improper operation of the system, for potential impacts on multiple systems, and on the ability of operators to respond to plant transients or accidents.

The inspectors performed a review of the cumulative effects of OWAs. The documents listed in the Attachment were reviewed to accomplish the objectives of the inspection procedure. The inspectors reviewed both current and historical operational challenge records to determine whether the licensee was identifying operator challenges at an appropriate threshold, had entered them into their CAP and proposed or implemented appropriate and timely corrective actions which addressed each issue. Reviews were conducted to determine if any operator challenge could increase the possibility of an Initiating Event, if the challenge was contrary to training, required a change from long-standing operational practices, or created the potential for inappropriate compensatory actions. Additionally, all temporary modifications were reviewed to identify any potential effect on the functionality of Mitigating Systems, impaired access to equipment, or required equipment uses for which the equipment was not designed. Daily plant and equipment status logs, degraded instrument logs, and operator aids or tools being used to compensate for material deficiencies were also assessed to identify any potential sources of unidentified operator workarounds.

This review constituted one operator workaround annual inspection sample as defined in IP 71152-05.

b. Findings

No findings were identified.

.4 Selected Issue Follow-Up Inspection: High Occurrence of Cross-Cutting Aspect

a. Inspection Scope

During a review of items entered in the licensee's CAP, the inspectors recognized a corrective action item (CR 10-75790) documenting the licensee's efforts to understand and correct a number of NRC-identified issues with the cross-cutting aspect associated with complete, accurate and up-to-date design documentation, procedures, and work packages (H.2(c)). The inspectors also reviewed a previous investigation (CR 08-41699) whose corrective actions were not successful in preventing a recurrence

of several conditions with similar cross-cutting issues. Specific documents reviewed are listed in the Attachment.

This review constituted one in-depth problem identification and resolution sample as defined in IP 71152-05.

b. Observations

In June 2008, the licensee identified a procedurally-driven requirement to document in a condition report the potential for a substantive cross-cutting issue due to the identification of several issues with a cross-cutting aspect of H.2(c). The licensee identified the specific issues in CR 08-41699 (Cross-Cutting Theme for Human Performance Aspect H.2(c) Documentation). Using an apparent cause evaluation process, corrective actions were developed and focused on strengthening staff use of event free tools. Effectiveness reviews for this condition report were completed in December 2008 and in March 2009. Both reviews concluded that corrective actions were effective. A manager review in August 2009 arrived at a similar conclusion. Specifically, the manager review concluded that “the investigation and the corrective action plan have adequately addressed the identified condition and barriers, and the original identified condition has been restored to acceptable performance.”

In April 2010 the licensee identified a procedurally-driven requirement to again document in a condition report (CR 10-75790) the potential for a substantive cross-cutting issue due to several issues with a cross-cutting aspect of H.2(c). Initial classification of the condition report directed a full apparent cause evaluation. Following reevaluation, the condition report was downgraded, as allowed by plant procedures, to require a limited apparent cause evaluation. The cause analysis, noting that previous actions to prevent recurrence of the condition were not successful, identified two primary apparent causes, associated with conditions associated with “Learning Organizations.” The first identified apparent cause was that the cause of some events or known problems were not correctly identified. The second identified apparent cause was that identified actions for previous conditions were either insufficient or ineffective in closing any identified performance gap or no corrective actions were identified. Corrective actions were developed to address those apparent causes. The majority of those actions were scheduled to be completed by October 2010. The contemplated corrective actions included strengthening the cause analysis requirements for NRC-identified findings.

c. Findings

No findings were identified.

.5 Selected Issue Follow-Up Inspection: Increasing Tritium Trend in Well Groundwater

a. Inspection Scope

During a review of items entered in the licensee’s CAP, the inspectors recognized a corrective action item (CR 10-76498) documenting the licensee’s efforts to understand and correct an apparent increasing trend in the tritium concentrations in on-site well MW-105A. The inspectors also reviewed an investigation (CR 10-72255) that documented a sump discharge line break that occurred in the general vicinity of well MW-105A. Other documents associated with tritium levels were included in the overall review. Specific documents reviewed are listed in the Attachment.

This review constituted one in-depth problem identification and resolution sample as defined in IP 71152-05.

b. Observations

The sampling of the on-site well MW-105A was done as part of the licensee's voluntary groundwater monitoring initiative. A sample taken from well MW-105A on January 6, 2010, had a tritium concentration of 3,799 pCi/l and was documented in CR 10-70347. The inspectors documented a review of the sample results in IR 05000346/2010002, Section 4OA3 (ADAMS Accession No. ML101170741). In April 2010 the licensee identified that the tritium level in well MW-105A had continued to increase with a sample of 4,158 pCi/l. The licensee initiated CR 10-76495, "Increasing Tritium Trend in Groundwater Well MW-105A." For this CR an apparent cause evaluation was completed and a problem solving plan was formulated.

Licensee's evaluation and problem solving plan tried to identify the source of the increasing trend and, once the source was identified, find remedies to mitigate the consequences. The licensee reviewed groundwater flow as determined in 2007 in "Groundwater Flow Characteristic Report, Davis-Besse." They also determined the apparent flow of groundwater using readings taken during sampling of the MW-105A and other wells in the groundwater sampling program. That data indicated a groundwater flow direction different from that determined in 2007. That latest estimate of groundwater flow direction caused the licensee to question their original estimate of the source of contamination in well MW-105A.

The licensee, prior to the evaluations under CR 10-76495, suspected that the increases in tritium concentrations were due to a previously identified condenser pit sump discharge line break in 2008 and a March 1, 2010, break in an outage condenser de-watering line that dumped water in approximately that same location as the 2008 sump discharge line break. However, with the latest groundwater movement estimates, tritium from those break locations probably would not be seen in well MW-105A. Additionally, levels and temperatures in well MW-105A did not respond as other wells to seasonal variations. Consequently, the licensee was planning additional measures to try to determine the source of contamination in well MW-105A. The first planned step was to instrument wells to take more accurate level and temperature measurements for a period of one month to better determine groundwater movement. Results from those measurements were not available at the end of the inspection period.

The licensee did continue to sample wells in accordance with their established schedules. Samples collected in August 2010 indicated that the tritium concentration in well MW-105A decreased to 2239 pCi/l.

c. Findings

No findings were identified.

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

##### .1 Increased Frequency of Filter Changes for Containment Normal Range Radiation Monitors

###### a. Inspection Scope

The inspectors reviewed the plant's response to an increase in the frequency of filter changes for the containment normal range radiation monitors, RE4597AA and RE4597BA. On July 10, 2010, a condition report was written which identified that the particulate filter for RE4597BA was replaced on June 24, 2010, June 26, 2010, and July 10, 2010, due to low flow conditions. RE4597AA needed a filter replacement on July 2, 2010, and July 6, 2010, due to low flow conditions. The frequency of filter changes was higher than expected, driving the plant to identify the cause of the issue. A problem solving team identified that an increase in filter changes shortly after a reactor startup was consistent with past performance. A review of reactor coolant system (RCS) leakage data did not identify any abnormal conditions. A containment entry was made on July 20, 2010, to confirm that there was no evidence of an RCS leak in containment. Documents reviewed in this inspection are listed in the Attachment.

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

###### b. Findings

No findings were identified.

##### .2 Increased Pump Down Frequency of the Containment Normal Sump

###### a. Inspection Scope

The inspectors reviewed the plant's response to an increase in the pump down rate of the containment normal sump. On July 30, 2010, CR 10-79087 identified an apparent rise in the frequency of containment normal sump pump out. Initial response determined the source of the increased leakage was the lifting of the containment drain header relief valve, RC754, indicative of a drain valve leak into the containment drain header. An operations evolution order was used to open the containment isolation valves on the containment drain header piping, to confirm that the leakage was originating from a cold leg drain valve or a steam generator drain valve, which are connected to the containment drain header piping. With the drain header containment isolation valves open, the drain header leakage will empty into the reactor coolant drain tank and can be quantified and classified as identified RCS leakage. Measurement of the drain header leakage is calculated daily and has been quantified at approximately 0.1 gallons per minute (gpm). An operational decision making paper was issued to provide guidance to the plant for operating with containment drain header leakage. The guidance limited the drainage into the reactor coolant drain tank to 1 gpm. Documents reviewed in this inspection are listed in the Attachment.

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

b. Findings

No findings were identified.

.3 (Closed) Licensee Event Reports 05000346/2009-001-00 and 05000346/2009-001-01: Containment Air Cooler Fans Inoperable Due to Misapplication of Potter and Brumfield Rotary Relays

(Closed) Unresolved Item 05000346/2010002-05: Potential Missed Reporting Requirement for Inoperable Containment Air Coolers

On October 13, 2009, the licensee identified that there had been a prior misapplication of "Potter and Brumfield Rotary Relays" in the control circuitry of the station's containment air coolers (CACs) during a design change in 2000 and 2001, and that this misapplication potentially affected the ability of the coolers to automatically switch from the normal high speed fan operation to post-emergency core cooling system (ECCS) actuation low speed fan operation. The licensee manually switched the fans to slow speed operation to restore CAC operability in response to the identification of this condition.

The inspectors reviewed the event and determined that the misapplication of the relays constituted a finding of very low safety significance and an associated violation of NRC requirements. The analysis of this finding and associated violation were documented in a prior NRC inspection report (see NRC IR 05000346/2009005, Section 1R15; ADAMS Accession No. ML100140080).

On December 14, 2009, the licensee submitted Licensee Event Report (LER) 2009-001-00 in accordance with 10 CFR 50.73(a)(2)(i)(B) as an operation or condition prohibited by the TSs. Subsequent to the licensee's submittal of this LER, the inspectors engaged in a series of discussions with the licensee's staff regarding the possibility that the event should have been classified as an event or condition that could have prevented fulfillment of a safety function under 10 CFR 50.72(b)(3)(v) and 50.73(a)(2)(v). As a result of these discussions, the licensee re-reviewed the event and determined that a revision to the LER was appropriate. Revision 1 to the LER was submitted by the licensee to the NRC on August 26, 2010.

The event was entered into the licensee's CAP as CRs 09-65068, 09-65778, 09-65837, and 10-79188. No additional findings or violations of NRC requirements were identified during the inspectors' review of these LERs. Documents reviewed as part of this inspection are listed in the Attachment. These LERs and the associated URI are closed.

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

.4 (Closed) Licensee Event Report 05000346/2009-002-00: Vibration Induced Failure of Temperature Instrument Results in Operation Above Licensed Power Limit

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 from Steam Generator 2 at the inlet to the high-pressure turbine. This temperature is used as an input into the secondary heat balance calculation, which in turn is used to calculate reactor power. The licensee's review of the issue identified that the lower temperature indicated from T476 produced an indicated

reactor power level approximately 0.27 percent lower than actual power level. This created a condition whereby the reactor could be erroneously operated at a power level higher than intended.

The 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 licensee's CAP as CR 09-69162.

This issue was reviewed by the inspectors at the time that it was identified. Since the issue involved only a very small potential to have affected the fuel cladding barrier and did not affect the reactor coolant system or containment barriers, the inspectors concluded that it represented a licensee-identified violation of the facility's operating license of very low safety significance. This licensee-identified violation was previously documented in Section 4OA7 of NRC IR 05000346/2009005 (ADAMS Accession No. ML100140080). No additional findings or violations of NRC requirements were identified during the inspectors' review of this LER. Documents reviewed as part of this inspection are listed in the Attachment. This LER is closed.

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

#### 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:

- decay heat train 1 outage work readiness challenge meeting on July 28, 2010;
- decay heat system train review for determination of need to go to a higher generation risk status on August 4, 2010;
- Fleet Oversight debrief on September 17, 2010, of audit findings from a review of Chemistry department activities; and
- Plant Operations Review Committee meeting on September 23, 2010, for a review of changes to security department procedures.

##### .2 (Closed) Unresolved Item 05000346/2009003-01: Loss of Switchyard J Bus

Inspection Report 05000346/2009003 (ADAMS Accession No. ML092050661) opened an unresolved item (URI) concerning the loss of the 345 KV switchyard J Bus. The J Bus was de-energized upon a catastrophic failure of the J Bus phase B capacitive coupled potential device (CCPD) at 12:49 a.m. on June 25, 2009. The event required the licensee to declare one offsite AC source inoperable and enter TS LCO 3.8.1(a) requiring restoration of one offsite circuit within 72 hours. The licensee failed to immediately recognize that the emergency action level conditions for an Alert had been

met based on the explosion of the CCPD. An after-the-fact Alert declaration was made at 7:50 a.m. on June 25, 2009.

Inspection Report 05000346/2009004 (ADAMS Accession No. ML092950186) documented a self-revealed green finding for the failure to implement a maintenance strategy to replace a CCPD in a timely manner. The CCPD had been installed beyond the 25-year life expectancy. Furthermore, a preliminary white finding was identified in IR 05000346/2009503 (ADAMS Accession No. ML093620814) for the failure to implement the emergency classification and action level scheme during the actual event which required declaring an Alert after an explosion in the switchyard. On February 25, 2010, the NRC issued the final significance determination, which concluded that the inspection finding was appropriately characterized as White, a finding with low to moderate safety significance that may require additional NRC inspections. Refer to Inspection Reports 05000346/2009004 and 05000346/2009503 for the enforcement aspects associated with this item. This URI is closed.

#### 4OA6 Management Meetings

##### .1 Exit Meeting Summary

On October 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

The radioactive solid waste processing and radioactive material handling, storage, and transportation under the public and occupational radiation safety cornerstones, and two performance indicator verifications were discussed with Mr. Barry Allen, Site Vice President, on September 17, 2010. The inspectors confirmed that none of the potential report input discussed was considered proprietary

ATTACHMENT: SUPPLEMENTAL INFORMATION

## **SUPPLEMENTAL INFORMATION**

### **KEY POINTS OF CONTACT**

#### Licensee

B. Allen, Site Vice President  
B. Boles, Director, Site Operations  
K. Byrd, Director, Site Performance Improvement  
J. Dominy, Director, Site Maintenance  
V. Kaminskas, Director, Site Engineering  
P. McCloskey, Manager, Site Regulatory Compliance  
D. Noble, Radiation Protection Manager  
J. Reuter, Radwaste Supervisor

## LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

### Opened

05000346/2010004-02	URI	Compliance with Spent Fuel Pool Storage Requirements (Section 1R15.1)
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### Opened and Closed

05000346/2010004-01	NCV	Failure to Assess and Manage Risk During Conservative Grid Operations (Section 1R01.1)
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### Closed

05000346/2009-001-00	LER	Containment Air Cooler Fans Inoperable Due to Misapplication of Potter and Brumfield Rotary Relays (Section 4OA3.3)
05000346/2009-001-01	LER	Containment Air Cooler Fans Inoperable Due to Misapplication of Potter and Brumfield Rotary Relays (Section 4OA3.3)
05000346/2009-002-00	LER	Vibration Induced Failure of Temperature Instrument Results in Operation Above Licensed Power Limit (Section 4OA3.4)
05000346/2010002-05	URI	Potential Missed Reporting Requirement for Inoperable Containment Air Coolers (Section 4OA3.3)
05000346/2009003-01	URI	Loss of Switchyard J Bus (Section 4OA5.2)

## 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:

- 10-79727; Application of Orange Risk Controls During Conservative Operations of DB-OP-1007

#### Procedures:

- DB-OP-1300; Switchyard Management; Revision 6
- DB-OP-2025; Davis-Besse 345KV Switchyard Alarm Panel 25 Annunciators; Revision 6
- DB-OP-2521; Loss Of AC Bus Power Sources; Revision 13
- DB-OP-2546; Degraded Grid; Revision 0
- FE-EOP-113W; Nuclear Plant Operation During A System Emergency; Revision 2
- FE-NOP-31; Davis-Besse Voltage Alarm Procedure; Revision 4
- NOP-OP-1003; Grid Reliability Protocol; Revision 2
- NOP-OP-1007; Risk Management; Revision 7
- RA-EP-2830; Flooding; Revision 2
- RA-EP-2870; Station Isolation; Revision 4
- RA-EP-2880; Internal Flooding; Revision 3

#### Other:

- American Transmission System Revised and Restated Generator Interconnection and Operating Agreement with Midwest Independent Transmission System Operator and FirstEnergy Nuclear Operating Company
- USAR, Section 2.4.2; Floods

### 1R04 Equipment Alignment

#### Condition Reports:

- 10-75523; HPI Pump 1-1 Motor

#### Procedures:

- NOP-OP-1012; Material Readiness and Housekeeping Inspection Program; Revision 3
- DB-OP-6011; High Pressure Injection System Operating Procedure; Revision 25
- DB-OP-6012; Decay Heat and Low Pressure Injection System Operating Procedure; Revision 47 and Revision 49
- DB-OP-6224; Motor Driven Feedwater Operating Procedure; Revision 17
- DB-SP-3136; Decay Heat Train 1 Pump and Valve Test; Revision 29

#### Work Orders:

- 200421667; P42-1 – Clean BA from mechanical seals

Drawings:

- OS-3, High Pressure Injection System; Revision 29
- OS-4, Sheet 1; Decay Heat Removal/Low Pressure Injection System; Revisions 45 and 46
- OS-4, Sheet 2; Decay Heat Removal/Low Pressure Injection System; Revision 7
- OS-12A, Sheet 1; Main Feedwater System; Revision 24

1R05 Fire Protection

Procedures:

- DB-OP-2529; Fire Procedure; Revision 5
- PFP-AB-105; Protected Area Pre-Fire Plan, ECCS Pump Rm 1-1, Room 105, Fire Area AB; Revision 8
- PFP-AB-303; Protected Area Pre-Fire Plan, Auxiliary Building, Room 303; Revision 6
- PFP-AB-402; Protected Area Pre-Fire Plan, Auxiliary Building, Room 402; Revision 5

Drawings:

- A-221F; Fire Protection General Floor Plan El. 545' 0" & 555' 0"; Revision 9
- A-222F; Fire Protection General Floor Plan El. 565' 0"; Revision 15
- A-223F; Fire Protection General Floor Plan El. 585' 0"; Revision 21
- A-224F; Fire Protection General Floor Plan El. 603' 0"; Revision 23

Other:

- Fire Hazard Analysis Report; Revision 23

1R06 Flooding

Condition Reports:

- 01-2928; Intake Structure Flooding Issue With Pumps Removed

Procedures:

- RA-EP-2830; Flooding; Revision 2
- RA-EP-2880; Internal Flooding; Revision 3

Work Orders:

- 200115297; SW19 Repair
- 200143069; PM 0924 Replace SW Pump #3
- 200315786; PM 4297 MH3001 Inspect Wireway

Drawings:

- E-304; Electrical Site Plan; Revision 39

Calculations:

- C-CSS-099.20-024; Assessment of Cover Plates and Slab for Flood Loads on Pump Holes at Intake Structure Slab EL 576'-0"; Revision 1
- 054.022; Effect of Flooding From Water Treatment Building Into Tunnel, Lowest Essential Valve Located at 574'6" In Valve Room; Revision 0

Other:

- Barrier Analysis - Review of Regulatory Issue Summary 2001-09 Applicability to Order 200115297 SW19 Repair and Order 200143069 SW Pump 3 Rebuild; dated January 5, 2007

- USAR Section 2.4; Hydrology
- USAR Section 3.4; Water Level (Flood) Design Criteria

#### 1R11 Licensed Operator Requalification Program

##### Procedures:

- NOBP-TR-1109-01; Facilitated Plus/Delta—For Simulator Training and Evaluation ; August 17, 2010
- NOBP-TR-1112; FENOC Conduct of Simulator Training and Evaluation; Revision 0

##### Other:

- Simulator Training and Evaluation—Scenario and Objectives package; August 17, 2010 scenario
- Simulator Training and Evaluation—Evaluation Criteria; August 17, 2010 scenario
- Welcome Back Off-Shift Crew A/B Cycle 10-03 Training Package; August 17, 2010

#### 1R12 Maintenance Effectiveness

##### Condition Reports:

- 08-41216; SAC 2 Tripped
- 08-43956; Station Air Compressor 2 Trip
- 09-63026; Spurious Auto-Start Of SAC 1
- 09-65109; SAC 2 Lube Oil System Issues
- 09-63547; SAC 1 Tripped On High Air Temperature
- 09-66291; SAC 1 Will Exceed Its Maintenance Rule Unavailability Allowance
- 10-73321; 16RFO – Fuel Assembly NJ14HD – Fuel Defect Identified Via In-Mast Sipping
- 10-73353; CC-171 CCW From DH Cooler 1 Outlet Valve Issue
- 10-73782; Min Wall Issue on CCW Inlet Piping Elbow From Letdown Cooler DB-E25-2
- 10-74001; 16RFO – Eddy Current Testing of assembly NJ14HD Identified Clad Degradation
- 10-74961; Station Air Header Auto Drain Vlv, SA6446, Sticking Open Due To Scale In Piping
- 10-77772; Potential Debris in Cycle 17 Reinsert Fuel Assembly NJ0A2E
- 10-78585; Nuclear Fuel: Debris as a Potential Cause of NJ14HD Fuel Failure
- 10-79458; Station Air Compressor #2 Performance Issue
- 10-79525; SAC 2 Surging
- 10-79648; Corrosion of the “T” weld of the Inlet Channel for CCW Heat Exchanger # 3
- 10-79772; UT Measurements Below Corrosion Allowance for CCW Heat Exchanger # 3
- 10-79822; Air Leak On SAC 1 From Gasket At HP Cylinder To Surge Tk Flange
- 10-79880; # 3 CCW Heat Exchanger Material Condition
- 10-80403; Process Issues Associated with Return to Service of # 3 CCW Heat Exchanger
- 10-80554; Below Min Wall Readings on # 2 CCW Heat Exchanger
- 10-82761; Fuel Assembly (NJ14HD) Inspection Results Show Evidence of Debris Fretting

##### Procedures:

- DB-PF-3; Maintenance Rule; Revision 28
- Maintenance Rule Program Manual; Revision 28
- NOP-ER-3004; FENOC Maintenance Rule Program; Revision 1

##### Work Orders:

- 200366690; IA564 Leaking
- 200400747; Oil Leak On SAC 2
- 200414073; SA4, 1, 25, 55 – Repair Valve Leakby

- 200424621; C101-1 – Replace Surge Tank Gaskets
- 200424654; C140 Move BOV, Reinstall Discharge Check ECP
- 200424655; C140 – Install Drain – All Traps ECP

Drawings:

- M-36A; P&ID for CCW System; Revision 28
- M-36B; P&ID for CCW System; Revision 36
- M-36C; P&ID for CCW System; Revision 27

Other:

- 2<sup>nd</sup> Quarter 2010 Plant Health Report, Station and Instrument Air System

1R13 Maintenance Risk Assessments and Emergent Work Control

Condition Reports:

- 10-78416; AF 6451 Issue During AFW Train #2 Flowpath Verification DB-SP-03164
- 10-79343; Battery Pilot Cell Voltage Does Not Meet Battery Program Limits
- 10-79809; AF6451 Found Failed Open and De-Energized
- 10-79859; Ground Indicated ON DBP28
- 10-79880; #3 CCW Heat Exchanger Material Condition
- 10-79893; Cold Solder Joints Discovered On Control Board
- 10-79944; AFW Target Rock Control Boards Are Susceptible To Degradation Due To A DC Ground
- 10-81268; #2 CCW Heat Exchanger Door & Flange On South End Bolt Holes Not Matching Up
- 10-81757; Incorrect Position Of Inlet Port Ring For Service Water Pump Strainer #1
- 10-83201; Motor Generator Set, Motor Outboard Bearing Grease Pile

Procedures:

- DB-OP-6321; 250/125 VDC Station Switching Procedure; Revision 12
- DB-OP-6402; CRD Operating Procedure; Revision 18
- NOP-OP-1007; Risk Management; Revision 8

Work Orders:

- 200295259; PM 0699 YV2 Inverter/Rectifier
- 200314622; PM 0694, DBC1PN ME9201 Battery Charger
- 200318615; PM 1935 F15-1 Inspect SW Strainer #1
- 200358405; Replace Various Relays YV2
- 200369957; PCV2988 – Repair Air Leak
- 200392402; Assist Vendor – EDG 1 Engine Analysis Data
- 200422358; Battery Cell 1P-21 Low Volts
- 200425714; #2 CCW-SW Shell Side Thickness Below Min.
- 200431953; MG5490 – Clean and Inspect Motor

Drawings:

- OS-60, Sheet 1; 250/125V DC and 120V Instrument AC System; Revision 15

Other:

- Weekly Maintenance Risk Summary for the week of July 19, 2010; Revisions 0, 1, 2, 3, 4
- Weekly Maintenance Risk Summary for the week of August 2, 2010; Revisions 0, 1,
- Weekly Maintenance Risk Summary for the week of August 23, 2010; Revisions 0, 1, 2, 3, 4, 5
- Weekly Maintenance Risk Summary for the week of September 27, 2010; Revisions 0, 1,

## 1R15 Operability Evaluations

### Condition Reports:

- 09-61551; ZT2951 Readings Out Of Tolerance – Failed Test
- 10-75350; Turbine Building HELB Analysis Deficiency
- 10-79347; Seismic ZT-2951 Found Out Of Tolerance
- 10-79935; AFW Level Control Tests Acceptance Criteria Needs Clarification
- 10-79944; AFW Target Rock Control Boards Are Susceptible To Degradation Due To A DC Ground
- 10-79986; AF6451 Failed To Reach Required Close Position Voltage Value
- 10-80210; DB-PA-10-03: Temporary Fans Used During Performance Of Aux Feedwater Testing
- 10-80802; Turbine Building HELB Design Analysis Concerns
- 10-81824; Inconsistency Within Technical Specification Bases 3.7.16
- 10-82130; On-Shift SRO Not Immediately Notified Of Potential T.S. Compliance Issue

### Procedures:

- DBRM-EMER-5003; Equipment Important to Emergency Response; Revision 4
- DB-MI-04222; Functional Test Of Seismic Monitoring System; Revision 5
- DB-NE-00100; Fuel Handling Administration; Revision 12
- DB-SP-03160; AFP 2 Quarterly Test; Revision 23
- DB-SP-03161; AFW Train 2 Level Control, Interlock, and Flow Transmitter Test; Revision 25
- DB-SP-04159; AFP 2 Monthly Test; Revision 14
- RA-EP-01500; Emergency Classification; Revision 12
- RA-EP-02820; Earthquake; Revision 7

### Work Orders:

- 200324297; Perform AFW 2 Quarterly
- 200422235; Seismic System Found Out Of Tolerance

### Drawings:

- OS-36, Sheet 1; Turbine Building H&V System; Revision 19

### Calculations:

- C-NSA-000.02-011; Turbine Building HELB Environments; Addendum A02
- C-NSA-099.16-097; CCW Room Heatup Without Ventilation; Revision 0

### Other:

- Change Notice 10-133; Tech Spec Bases Change
- Regulatory Applicability Determination 10-033926; Tech Spec Bases Change; dated August 27, 2010
- Technical Specification 3.7.16 and Bases; Spent Fuel Pool Storage
- USAR Section 3.7.4; Criteria for Seismic Instrumentation Program

## 1R19 Post Maintenance Testing

### Condition Reports:

- 10-80797; MVDH1B Terminations Did Not Meet EQ Specifications
- 10-80857; Spliced Connection Found Inside of Conduit
- 10-80860; E-55A Sh. 64A Terminal Block Not Shown on Drawing
- 10-80886; DH1B Limit Switch Deficiency

- 10-80914; DH1B Stroking Anomalies During Testing
- 10-80925; Decay Heat Pump 1 Bearing Vibrations

Procedures:

- DB-PF-3272; Post Maintenance Valve Test
- DB-MI-03245; Channel Functional Test and Device Calibration of SFRCS Steam Generator Level Inputs 83C-ISLSP9A6, A7, B8 and B9 to Actuation Channel 1; Revision 12
- DB-SP-3136; Decay Heat Train 1 Pump and Valve Test; Revision 29
- NOBP-ER-3601D; Motor Operated Program Diagnostic Test Preparation and Evaluation; Revision 4

Work Orders:

- 200249870; Replace/Test DB-MI-03245 Signal Monitors
- 200287262; DH1B Doesn't Go Into Manual – ECP 07-0171-0
- 200359858; PM 0286 P42-1\*Meg.Lub\*DHP/MTR
- 200375693; PM 9518 C5763D – Replace Relay K303 SFAS

Drawings:

- 7749-E-19; Bistable 2; Revision J
- 7749-E-52B, Sheet 27; Reactor Cooling System CF Tank 1 & 2 Iso. Vlvs; Revision 11
- 7749-E-52B, Sheet 27A; Reactor Cooling System CF Tank 1 & 2 Iso. Vlvs Pos Indication; Revision 6
- 7749-E-30-34; Safety Features Actuation System; Revision G

1R22 Surveillance Testing

Condition Reports:

- 10-79942; MS-C-10-06-13: Required Computer Points Not Used During RCS Leak Test
- 10-79946; Substance Noted During Containment Walkdown
- 10-79948; Debris Found During Qtrly Containment Inspection
- 10-79952; Instrument Valve Tag Found Detached In Containment

Procedures:

- DB-PF-6704; Pump Performance Curves; Revision 25
- DB-OP-1101; Containment Entry; Revision 9
- DB-OP-1200; Reactor Coolant System Leakage Management; Revision 10
- DB-OP-6316; Diesel Generator Operating Procedure; Revision 46
- DB-SC-3071; Emergency Diesel Generator 2 Monthly Test; Revision 23
- DB-SP-3151; AFP 1 Quarterly Test; Revision 21
- DB-SP-3357; RCS Water Inventory Balance; Revision 16
- EN-DP-1171; Engineering Implementation of the RCS Integrated Leakage Program; Revision 2
- NG-EN-327; RCS Integrated Leakage Program; Revision 1

Drawings:

- OS-0017A, Sheet 1; Auxiliary Feedwater System; Revision 23
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Other:

- ISTB3; Pump and Valve Basis Document, Volume III, Stroke Time Basis; Revision 39

## 1EP6 Drill Evaluation

### Condition Reports:

- 10-82779; EP Drill: Search and Rescue Did Not Find the Lost Individual
- 10-82781; EP Drill: Align Drill Protected Trains with the Plant
- 10-82782; EP Drill: Gap Analysis Request
- 10-82787; EP Drill: Simulator Gaitronics Tie Into Site Not Functional at Start of Drill
- 10-82800; EP Drill: RA-EP-02000 Procedure Not Implemented Correctly During EP Drill
- 10-82804; EP Drill: Missed Accountability Objective By One Minute
- 10-82809; EP Drill: Violation of NOP-LP-1205, Visitor Control to Protected and Vital Areas
- 10-83038; ERO Drill: TSC Communications Observations

### Procedures:

- RA-EP-200; Emergency Plan Drill and Exercise Program; Revision 10
- RA-EP-550; Computerized Automated Notification System; Revision 5
- RA-EP-1500; Emergency Classification; Revision 12
- RA-EP-1600; Unusual Event; Revision 4
- RA-EP-1700; Alert; Revision 5
- RA-EP-1800; Site Area Emergency; Revision 4
- RA-EP-1900; General Emergency; Revision 5
- RA-EP-2010; Emergency Management; Revision 10
- RA-EP-2110; Emergency Notification; Revision 9
- RA-EP-2220; Emergency Operations Facility Activation and Response; Revision 7
- RA-EP-2310; Technical Support Center Activation and Response; Revision 7
- RA-EP-2320; Emergency Technical Assessment; Revision 6
- RA-EP-2820; Earthquake; Revision 7

### Other:

- DBNPS Emergency Preparedness Integrated Drill Controller Guide – September 16, 2010; Revision 0

## 2RS8 Radioactive Solid Waste Processing and Radioactive Material Handling, Storage, and Transportation (71124.08)

### Condition Reports:

- 09-51859; DB-SA-09-026 Shipment No. 08-1013; Package Surveys Were not Documented
- 09-65930; AR-00979154; Filter Storage Room in Radwaste is Full of Bagged Filters
- 09-65930; The Sluice of Resin From SRST was Placed on Hold Due to Scheduling Errors
- 10-70089; RWCP Annunciator Waste Gas Decay Tank Pressure Hi Alarmed Inadvertently; AR-00866300; RCCA Shipment Rework Required for Shipping; dated January 17, 2009
- 09-02834; Revision No. 0; 10 CFR 50.59; Regulatory Applicability Determination; Title; Radioactive Material Area Outside the Restricted Area; dated February 18, 2010

### Procedures:

- DB-HP-1702; Radiation Protection Procedure; Transfer, Handling and Storage of Radioactive Material; Revision 17
- DB-HP-1706; Vehicle and Material Release from the Radiologically Controlled Area and Restricted Area; Revision 9
- NG-DB-211; Radioactive Waste Management; Revision 4
- NOP-OP-4601; Contamination Control Program; Revision. 2
- NOP-OP-5201; Shipment of Radioactive Material/Waste; Revision 1

- DB-OP-6141; Primary Solid Radioactive Waste Disposal: Revision 12
- NG-DB-244; Radioactive Material Control Program; Revision 05

Other:

- FITS Training Tracking Qualification Matrices; Chemistry and Radiation Protection; dated August 16, 2010
- Davis Besse Nuclear Power Station; Process Control Program; Revision 9
- Davis-Besse System Health Report 2010-02; Radwaste System No. 69-01; dated September 19, 2010
- GEL Laboratories LLC; Sample Analyses for DAW Smears, RCS Crud, SFP Crud, Duratek and Secondary Resin Yearly Samples; dated January 29, 2009
- GEL Laboratories LLC; Sample Analyses for Primary Resin yearly Samples; dated December 02, 2009
- GEL Laboratories LLC; Sample Analyses for Spent Resin Storage Tank Yearly Samples; dated June 17, 2009
- 09-3032; Radioactive Material, Surface Contaminated Object (SCO-II), 7, UN2913; Metal Box Shipped to Areva; dated July 09, 2010
- 09-1013; Radioactive Material, Excepted Package- Limited Quantity of Material; Sealands Containing DAW Shipped to Energy Solution, Bear Creek, Oakridge; dated December 30, 2009
- 09-1007; Radioactive Material, Low Specific activity (LSA-I), 7, UN2912, Seavans Containing DAW to Duratek, Bear Creek, Oakridge, TN; dated December 18, 2009
- 09-1005; Radioactive Material, Low Specific activity (LSA-II), 7, UN3321, Fissile Excepted, Cask of Water to Studsvik, Erwin TN; dated December 4, 2009
- 10-3045; Radioactive Material, Excepted Package, Limited Quantity of Material; 7, UN2910, Fissile Excepted; Plastic Container to Areva; dated May 05, 2010
- 10-3021; Radioactive Material; Surface Contaminated Object (SCO-II); 7, UN2913, Fissile Excepted; Metal Box to Westinghouse, Madison, PA; dated May 05, 2010
- 10-3038; Radioactive Material, Excepted Package Limited Quantity of Material; Fissile Excepted, 20ft. Metal Sealand Containing Contaminated Equipment; UN2910, 7, dated April 20, 2010
- 10-3033; Radioactive Material, Surface Contaminated Object (SCO-II); Fissile Excepted, UN2913, Shipped to Callaway Nuclear Plant; dated April 12, 2010
- 10-3022; Radioactive Material, Surface contaminated Object (SCO-II); Fissile Excepted, UN2913, to Areva, Lynchburg; TN; dated March 28, 2010
- 10-3069; Radioactive Material, Surface contaminated Object (SCO-II); Fissile Excepted, UN2913, Shipped to Beaver Valley Power Plant; dated August 24, 2010
- System Description for Spent Resin Transfer System; dated October 26, 2005
- System Description for Miscellaneous Liquid Radwaste System; dated March 14, 2005
- Use and Operation of WMG Software for Creating Containers, Samples of Waste Streams and Wastes and Waste Types

#### 40A1 Performance Indicator Verification

Forms:

- NOBP-LP-4012-45; Safety System Functional Failures; Completed Forms for July 2009 through June 2010
- NOBP-LP-4012-46; MSPI Emergency AC Power System; Completed Forms for July 2009 through June 2010
- NOBP-LP-4012-47; MSPI High Pressure Injection System; Completed Forms for July 2009 through June 2010

- NOBP-LP-4012-57 Occupational Exposure Control Effectiveness; Revision 0; From January 2009 through June 2010
- NOBP-LP-4012-58; RETS/ODCM Radiological Effluent Occurrence; Revision 0; from January 2009 through June 2010

Procedures:

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

Other:

- Select Operator Logs covering the period of July 2009 through June 2010
- NEI 99-02; Regulatory Assessment Performance Indicator Guideline; Revision 6

4OA2 Problem Identification and Resolution

Condition Reports:

- 08-41699; Cross-Cutting Theme for Human Performance Aspect H.2(c) Documentation
- 10-69704; Yellow Cross-Cutting Aspect PI for H.2(c) – Resources/Documentation
- 10-72255; Underground Line Break/Contaminated Leak - Tritium
- 10-75790; Red Cross-Cutting Aspect PI for H.2.(c) – Resources/Documentation
- 10-76498; Increasing Tritium Trend in Groundwater Well MW-105A
- 10-77425; Documentation CR – Tritium Exceeds 2000 pCi/L in Pre-Construction Wells

Procedures:

- NOP-ER-3001; Problem Solving and Decision Making; Revision 5
- NOBP-ER-3013; Equipment Failures Cause Assessment
- NOBP-LP-2011; FENOC Cause Analysis; Revision 10
- NOBP-OP-12; Operator Work-Arounds, Burdens and Control Room Deficiencies; Revision 1

Other:

- ATI Environmental Laboratory Report 8003-101-103; Tritium Results from Well Samples; August 31, 2010
- Augmented Sampling Plan for Groundwater Monitoring Well MW-105A (CR 10-70347); February 1, 2010
- ECP 10-0477-001; Temporary Leak Seal Enclosure at DB-SP5A2B; August 17, 2010
- Groundwater Flow Characteristic Report, Davis-Besse; January 16, 2007
- Operator Work-Arounds and Control Room Deficiency Lotus Notes Database as of August 24, 2010
- Ops Agenda Items; CR Deficiencies, Work-Arounds, Burdens; July 28, 2010
- Performance Indicator D-RPO-17; Operator Burdens; July 2010
- Plant Health Report-Temporary Modifications; July 2010
- Problem Solving Plan, CR 10-76498; Increasing Trend in Groundwater Protection Initiative Well MW-105A; June 4, 2010
- Quarterly Aggregate Impact Report, Operator Work-Arounds, Burdens, and Control Room Deficiencies; June 30, 2010
- Review of Recent Groundwater Protection Data (CR 10-76498); May 20, 2010

4OA3 Followup of Events and Notices of Enforcement Discretion

Condition Reports:

- 05-2165; RCS Unidentified Leakage Rise from Approximately 0.02 to 0.26 gpm
- 09-65068; Failure of CAC 3 Low Speed Contact Relay

- 09-65778; Misapplication of Potter & Brumfield MDR Rotary Relays
- 09-65837; Potter & Brumfield MDR Rotary Relay Issue Review for CACs
- 09-69162; Apparent Heat Balance Input Error (T476, TE-SP15A)
- 10-79087; Increased Frequency Of CTMT Normal Sump Pump Downs
- 10-79118; FLUS System in Alarm
- 10-79188; Missed Reporting Requirement for LER 2009-001
- 10-79200; RCS Leakage Indications – Collective Significance
- 10-79273; RE4597AA Flow Low
- 10-79346; ODMI: Operating With CTMT Drain Header Leakage Into The RCDT
- 10-79526; More Frequent Filter Changes On Containment Radiation Monitors Since Startup

Work Orders:

- 600625523; Determine Source of Drain Valve Leakage

Other:

- Operations Evolution Order; Leakage Determination Of The RC Drain Header
- RCS Leakage data from July 2, 2010 through July 12, 2010
- RCS Unidentified Leakage data for Cycle 14 through Cycle 17
- Sample of Nuclide Activity; Sample ID 201007031001; dated July 3, 2010

## LIST OF ACRONYMS USED

AC	Alternating Current
ADAMS	Agencywide Document Access Management System
CAC	Containment Air Coolers
CAP	Corrective Action Program
CCPD	Capacitive Coupled Potential Device
CFR	Code of Federal Regulations
CR	Condition Report
DRP	Division of Reactor Projects
ECCS	Emergency Core Cooling System
gpm	Gallons per minute
ICDP	Incremental Core Damage Probability
I&C	Instrumentation and Controls
IMC	Inspection Manual Chapter
IP	Inspection Procedure
IPEEE	Individual Plant Examination of External Events
IR	Inspection Report
LCO	Limiting Condition Operation
LER	Licensee Event Report
MSPI	Mitigating Systems Performance Index
NCV	Non-Cited Violation
NEI	Nuclear Energy Institute
NRC	U.S. Nuclear Regulatory Commission
ODCM	Offsite Dose Calculation Manual
OWA	Operator Workaround
PARS	Publicly Available Records
pCi/l	Pico-curies per liter
PCP	Process Control Program
PI	Performance Indicator
PM	Post-Maintenance
QA	Quality Assurance
RCP	Reactor Coolant Pump
RETS	Radiological Effluent Technical Specifications
RPS	Reactor Protection System
SDP	Significance Determination Process
SFAS	Safety Features Actuation System
SFRCS	Steam and Feedwater Rupture Control System
SSC	Structures, Systems and Components
TS	Technical Specification
TSO	Transmission System Operator
USAR	Updated Safety Analysis Report
URI	Unresolved Item
WO	Work Order

B. Allen

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Sincerely,

**/RA/**

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

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

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Letter to B. Allen from J. Cameron dated October 25, 2010.

SUBJECT: DAVIS-BESSE NUCLEAR POWER STATION INTEGRATED  
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