UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
2443 WARRENVILLE ROAD, SUITE 210
LISLE, IL 60532-4352

April 19, 2011

Mr. Barry Allen
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 05000346/2011002

Dear Mr. Allen:

On March 31, 2011, 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 April 4, 2011, 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 and two self-revealed findings of very low safety significance were identified. Each of the findings also involved violations of NRC requirements. Additionally, one licensee-identified violation is described in Section 4OA7 of this report. However, because of their very low safety significance, and because the issues were entered into your corrective action program, the NRC is treating the issues as non-cited violations (NCVs) in accordance with Section 2.3.2 of the NRC Enforcement Policy.

If you contest the subject or severity of any 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.

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 05000346/2011002
w/Attachment: Supplemental Information

cc w/encl: Distribution via ListServ

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No:	50-346
License No:	NPF-3
Report No:	05000346/2011002
Licensee:	FirstEnergy Nuclear Operating Company (FENOC)
Facility:	Davis-Besse Nuclear Power Station
Location:	Oak Harbor, OH
Dates:	January 1, 2011, through March 31, 2011
Inspectors:	D. Kimble, Senior Resident Inspector J. Rutkowski, Senior Resident Inspector A. Wilson, Resident Inspector T. Go, Health Physics Inspector
Approved by:	Jamnes L. Cameron, Chief Branch 6 Division of Reactor Projects

Enclosure

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SUMMARY OF FINDINGS

Inspection Report (IR) 05000346/2011002; 1/1/11-3/31/11; Davis-Besse Nuclear Power Station; Adverse Weather Protection, Outage Activities, and Follow Up of Events and Notices of Enforcement Discretion.

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

A. NRC-Identified and Self-Revealed Findings

Cornerstone: Initiating Events

- Green. A self-revealed Green finding and associated NCV of Technical Specification (TS) 5.4.1 were identified for the licensee's failure to establish and implement procedures recommended by Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Specifically, the licensee failed to appropriately establish and implement a procedure addressing an act of nature (high wind conditions) when material adjacent to the Davis-Besse switchyard was displaced by high winds and blown into switchyard equipment causing the loss of one required offsite power circuit. The licensee included this finding in their corrective action program (CAP) as condition report (CR) 11-89062. An immediate corrective action was taken to clear the debris from the switchyard and restore the affected offsite power circuit. A corrective action was initiated to develop procedural guidance for high wind conditions, including guidance for securing material in the switchyard.

  The inspectors determined that the licensee's failure to control material near risk significant equipment, or to appropriately apply the standards in the Material Readiness and Housekeeping Inspection Procedure (IP), was a performance deficiency. The inspectors determined that the finding was more than minor because it is associated with the Initiating Events cornerstone attribute of Protection Against External Factors, and adversely affected the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions. The inspectors evaluated the finding using IMC 0609, Appendix A, Attachment 1, "Significance Determination of Reactor Inspection Findings for At-Power Situations." Using the Phase 1 SDP worksheet for the Initiating Event Cornerstone, transient initiator contributor, the inspectors determined that the finding did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions would not be available. Therefore, the finding was determined to be of very low safety significance. This finding has a cross-cutting aspect in the area of human performance, resources component, because the licensee did not ensure that an adequate procedure was available to assure nuclear safety by addressing high wind conditions and properly securing loose material near the switchyard. [H.2(c)] (Section 1R01)

Cornerstone: Mitigating Systems

- Green. A finding of very low safety significance and an associated NCV of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," were identified by the inspectors for the failure by the licensee to maintain containment trash gate 3 closed and pinned while the area was unattended and the unit was in a mode of operation in which the gate was required to be pinned and closed. Specifically, in modes 1 through 3, when the emergency core cooling recirculation sump is required to be operable, the trash gates are designed to help minimize post-accident debris loading on the recirculation sump inlet screens. The licensee entered the issue into the CAP as CR 11-88002, and immediately restored the trash gate to its proper configuration upon notification by the inspectors.

  The inspectors determined that failure of licensee personnel to close and pin trash gate 3 was contrary to licensee procedures and constituted a performance deficiency. The finding was determined to be of more than minor significance because it affected the Mitigating Systems Cornerstone objective of ensuring the capability of systems that respond to initiating events. Specifically, failure to have the trash gate closed could allow debris generated during certain loss of coolant accidents to degrade the capability of the containment emergency core cooling system (ECCS) recirculation sump. Upon conducting a Phase 1 SDP evaluation, the inspectors determined that the finding was of very low safety significance because the recirculation sump remained operable even with assuming additional debris reaching the upper sump screening in a post accident environment. This finding has a cross-cutting aspect in the area of human performance, work practices, because licensee personnel did not appropriately use human error prevention techniques to verify that the gate was closed and pinned after vacating the area. [H.4(a)] (Section 1R20)

Cornerstone: Barrier Integrity

- Green. A self-revealed Green finding and associated NCV of TS 3.6.3 were identified for an inadequate clearance that inadvertently removed control power to a containment isolation valve (CIV), SW1358, Containment Air Cooler (CAC) 3 Outlet Temperature Control Valve. Without power to control SW1358, the valve was unable to be closed for longer than allowed by TSs. The licensee included this finding in their CAP as CR 11-88594. An immediate corrective action was taken to restore control power to SW1358.

  The inspectors determined that a performance deficiency occurred when the licensee inadvertently placed a clearance that removed control power to CIV SW1358, rendering the valve inoperable and unable to be closed for longer than allowed by TSs. The inspectors determined that the finding was more than minor because it is associated with the Barrier Integrity Cornerstone attribute of Systems, Structures, and Components (SSC) and Barrier Performance, and affected the cornerstone objective of providing reasonable assurance that the physical design barriers protect the public from radionuclide releases caused by accidents or events. The inspectors evaluated the finding using IMC 0609, Appendix A, Attachment 1, "Significance Determination of Reactor Inspection Findings for At-Power Situations." Using the Phase 1 SDP worksheet for the barrier integrity cornerstone, the inspectors answered "no" to all four screening questions under the containment barrier column. Specifically, the affected penetration was associated with a closed piping system within containment such that a

significant breach in the piping would need to occur to provide a viable release pathway. In addition, CAC 1 and 2 remained operable during the period of time that the CAC 3 outlet temperature control valve was inoperable. Therefore, the finding was determined to be of very low safety significance. This finding has a cross-cutting aspect in the area of human performance, resources component, because the licensee did not ensure that personnel, equipment, procedures, and other resources were available and adequate to assure nuclear safety. [H.2(c)] (Section 4OA3)

B. Licensee-Identified Violations

A violation of very low safety significance that was identified by the licensee has been reviewed by inspectors. Corrective actions planned or taken by the licensee have been entered into the licensee's CAP. This violation and associated corrective action tracking numbers are listed in Section 4OA7 of this report.

REPORT DETAILS

Summary of Plant Status

The unit began the inspection period operating at full power. On January 8, 2011, the unit entered a planned maintenance shutdown to address various issues, including issues with the control rod drive (CRD) system. The shutdown was extended beyond its original scope by several days due to an issue with closure time of one main steam isolation valve (MSIV), MS100, which was identified during the maintenance shutdown. Following resolution of all issues, the unit returned to power operation and was synchronized to the grid on January 14, 2011. The unit continued to operate at or near full power for the remainder of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01)

.1 Readiness for Impending Adverse Weather Condition – Heavy Snowfall Conditions

a. Inspection Scope

On February 1, 2011, a station isolation warning was declared at Davis-Besse due to severe weather forecast for the Northwest Ohio area, including Davis-Besse, which predicted heavy snow and high winds. The inspectors observed the licensee's preparations and planning for the significant winter weather potential. The inspectors reviewed licensee procedures and discussed potential compensatory measures with control room personnel. The inspectors focused on plant management's actions for implementing the station's procedures for ensuring adequate personnel for safe plant operation and emergency response would be available. The inspectors conducted a site walkdown including walkdowns of various plant structures and systems to check for maintenance or other apparent deficiencies that could affect system operations during the predicted significant weather. The inspectors also reviewed corrective action program (CAP) items to verify that the licensee was identifying adverse weather issues at an appropriate threshold and entering them into their CAP in accordance with station corrective action procedures. Specific documents reviewed during this inspection are listed in the Attachment.

This inspection constituted one readiness for impending adverse weather condition sample as defined in IP 71111.01-05.

b. Findings

Introduction

A self-revealed Green finding and associated non-cited violation (NCV) of Technical Specification (TS) 5.4.1 was identified for the licensee's failure to establish and implement procedures recommended by Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Specifically, the licensee failed to appropriately establish and implement a procedure addressing an act of nature (high wind conditions) when

material adjacent to the Davis-Besse switchyard was displaced by high winds and blown into switchyard equipment causing the loss of one required offsite power circuit.

Description

At 23:13 on February 1, 2011, the control room received indication of a loss of the 345 kilovolt (KV) switchyard K Bus as indicated by air circuit breakers ACB34562 and ACB34564 going open. The report from the Operations field supervisor, who was dispatched to the switchyard, indicated that pieces of sheet metal were wrapped around the base of disconnect switch DCS34562F, and other pieces were scattered in the switchyard. Operations declared startup transformer X02 inoperable due to the loss of the K bus, which caused an unplanned entry into the action statement for limiting condition of operation (LCO) 3.8.1.A, which requires the offsite circuit to be restored within 72 hours. The switchyard was cleared of debris the following day, and the K bus was restored at 14:37 on Wednesday February 2, 2011.

On January 14, 2011, a contracted construction crew, which had been working on a Temporary Assembly Building (TAB) located adjacent to the switchyard on the northwest side, was reassigned to work on a different structure. At that time, the loose construction material at the TAB was secured by the contractor utilizing nylon rope, C-clamps, dunnage, and rail angle, per the contractor's standard operating practices and procedures. However, the procedure was silent on the method of securing material near a switchyard during high wind conditions. Prior to the event, on February 1, 2011, the National Weather Service forecast severe weather conditions overnight, including heavy snow and high winds, for the Northwest Ohio area that included Davis-Besse. Licensee management declared a station isolation warning based on the forecast snow and high winds potentially affecting access to the site. The station isolation procedure did not have procedural guidance to perform a walkdown of the switchyard. Furthermore, a review revealed that while Davis-Besse does have a procedure to address high winds during declared tornado conditions, the station lacks a procedure addressing high winds during other conditions. Before leaving work on the evening of February 1, 2011, licensee oversight conducted a walkdown of the TAB area to ensure construction material was secured. The walkdown did not identify that the methods used to secure the construction material were inadequate for the impending high wind conditions.

Licensee Procedure NOP-OP-1012, "Material Readiness and Housekeeping Inspection Program," states that material that is in or around the switchyard or high voltage lines that has the potential to become airborne with high winds and cause the loss of off-site power (LOOP) sources shall be restrained or removed. However, the housekeeping procedure does not provide a robust method of securing material near the switchyard nor is the procedure specifically used to address high wind conditions at the station. The licensee included this issue in their corrective action program (CAP) as CR 11-89062. An immediate corrective action was taken to clear the debris from the switchyard and restore the affected offsite power circuit. A corrective action was initiated to develop procedural guidance for high wind conditions, including guidance for securing material in the switchyard.

Analysis

The inspectors reviewed this finding using the guidance contained in Appendix B, "Issue Screening," of Inspection Manual Chapter (IMC) 0612, "Power Reactor IRs." The inspectors determined that the licensee's failure to control material near risk significant

equipment, or to appropriately apply the standards in the Material Readiness and Housekeeping Inspection Procedure, was a performance deficiency and was reasonably within the licensee's ability to foresee and correct, and should have been prevented. The inspectors determined that the finding was more than minor because it was associated with the Initiating Events Cornerstone attribute of Protection Against External Factors, and adversely affected the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions. Specifically, the likelihood of a LOOP was increased when the switchyard K bus was de-energized which rendered one of the two qualified offsite power sources to the onsite electrical power distribution system inoperable. The inspectors determined that the finding warranted evaluation using the significance determination process (SDP) because the finding was associated with an increase in the likelihood of an initiating event.

The inspectors evaluated the finding using IMC 0609, Appendix A, Attachment 1, "Significance Determination of Reactor Inspection Findings for At-Power Situations." Using the Phase 1 SDP worksheet for the Initiating Event Cornerstone, transient initiator contributor, the inspectors determined that the finding did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions would not be available. Therefore, the finding was determined to be of very low safety significance (Green).

This finding is associated with a cross-cutting aspect in the resources component of the human performance cross-cutting area, because the licensee did not ensure that personnel, equipment, procedures, and other resources are available and adequate to assure nuclear safety. Specifically, besides for an impending tornado condition, the licensee lacks a procedure to address high wind conditions onsite. In addition, the Material Readiness and Housekeeping procedure did not provide a robust method of securing material near the switchyard. [H.2(c)]

Enforcement

Technical Specification 5.4.1.a requires that written procedures be established, implemented, and maintained for the activities specified in Regulatory Guide 1.33, Revision 2, Appendix A. Regulatory Guide 1.33, Revision 2, Appendix A, step 6.w, requires, in part, procedures for acts of nature.

Contrary to the above, the licensee had not established a specific high winds procedure that includes guidance on the method of securing material near a switchyard during high wind conditions. At 23:13 on February 1, 2011, material that was not properly secured was carried by high winds into the switchyard, affecting plant equipment and causing the loss of one offsite power circuit. The licensee included this issue in their CAP as CR 11-89062. An immediate corrective action was taken to clear the debris from the switchyard and restore the affected offsite power circuit by 14:37 on February 2, 2011. A corrective action was initiated to develop procedural guidance for high wind conditions, including guidance for securing material in the switchyard. Because this violation was of very low safety significance and it was entered into the licensee's CAP, this violation is being treated as an NCV, consistent with Section 2.3.2 of the NRC Enforcement Policy. (NCV 05000346/2011002-01)

1R04 Equipment Alignment (71111.04)

.1 Quarterly Partial System Alignment Verifications

a. Inspection Scope

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

- auxiliary feedwater system train 1 during inoperability of train 2 for a planned preventive maintenance outage on March 1, 2011; and
- decay heat removal and low pressure injection system train 2 during inoperability of train 1 for surveillance testing on March 10, 2011.

The inspectors selected these systems based on their risk significance relative to the Reactor Safety Cornerstones at the time they were inspected. The inspectors attempted to identify any discrepancies that could impact the function of the system, and, therefore, potentially increase risk. The inspectors reviewed applicable operating procedures, system diagrams, Updated Safety Analysis Report (USAR), 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 CAP with the appropriate significance characterization. Documents reviewed are listed in the Attachment to this report.

These activities constituted two partial system alignment verification samples as defined in IP 71111.04-05.

b. Findings

No findings were identified.

1R05 Fire Protection (71111.05)

.1 Quarterly Fire Zone Inspections (71111.05Q)

a. Inspection Scope

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

- auxiliary steam boiler room (Room 331, Fire Area II);
- main feedwater heater bays, elevations 623 feet and above (Room 707, Fire Area II);

- control room A/C equipment room (Room 603, Fire Area HH); and
- mechanical penetration room 4 (Room 314, Fire Area A).

The inspectors reviewed areas to assess if the licensee had implemented a fire protection program that adequately controlled combustibles and ignition sources within the plant, effectively maintained fire detection and suppression capability, maintained passive fire protection features in good material condition, and 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. The inspectors also verified that minor issues identified during the inspection were entered into the licensee's CAP. Documents reviewed are listed in the Attachment to this report.

These activities constituted four quarterly fire protection zone inspection samples as defined in IP 71111.05-05. In addition, some of these quarterly fire protection zone inspection activities were used to satisfy the inspection requirements in Temporary Instruction (TI) 2515/183, "Followup to the Fukushima Daiichi Nuclear Station Fuel Damage Event," specific details of which may be found in NRC IR 05000346/2011011.

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 USAR, 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:

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

This inspection constituted one internal flooding sample as defined in IP 71111.06-05. In addition, a portion of the internal flooding inspection activity was used to satisfy the inspection requirements in TI 2515/183, "Followup to the Fukushima Daiichi Nuclear Station Fuel Damage Event," specific details of which may be found in NRC IR 05000346/2011011.

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification Program (71111.11)

.1 Resident Inspector Quarterly Review (71111.11Q)

a. Inspection Scope

On March 22, 2011, the inspectors observed a crew of licensed operators in the plant's simulator during licensed operator requalification training to verify that operator performance was adequate, evaluators were identifying and documenting crew performance problems, and training was being conducted in accordance with licensee procedures. The inspectors evaluated the following areas:

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

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

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

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12)

.1 Quarterly Maintenance Effectiveness Evaluations (71111.12Q)

a. Inspection Scope

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

- main steam system – MSIVs; and
- 125/250V DC system.

The inspectors reviewed events such as where equipment maintenance had resulted or could have resulted in valid or invalid plant or equipment 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.

These reviews constituted two 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)

.1 Quarterly Reviews of Maintenance Risk and Emergent Work

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:

- MSIV MS 100 stroke timing and adjustment issues;
- integrated control system troubleshooting and module replacement; and
- investigation of potential voiding in service water supply piping to auxiliary feedwater train 1.

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 reviews constituted three inspection samples as defined in IP 71111.13-05.

b. Findings

No findings were identified.

1R15 Operability Evaluations (71111.15)

.1 Quarterly Review of Operability Evaluations

a. Inspection Scope

The inspectors reviewed the following issues:

- unacceptable stroke times associated with MSIV MS 100 following maintenance, as documented in CR 11-87955; and
- acceptability of one train of control room emergency air temperature control system being inoperable while transitioning modes and entering mode 1 as documented in PRA-DB1-11-001-R00, “Risk Assessment for Entering Modes 3, 2, and/or 1 with CREATCS Train 2 Unavailable.”

The inspectors selected these issues based on the risk significance of the associated components and systems. The inspectors evaluated the technical adequacy of the licensee’s 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 other plant licensing and safety basis documents 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. Where appropriate, the inspectors evaluated 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.

These operability evaluation reviews constituted two inspection samples as defined in IP 71111.15-05.

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19)

.1 Quarterly Review of Post-Maintenance Tests

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:

- functional testing and stroke timing of MSIV MS 100 following maintenance on the pneumatic actuating system;
- functional testing of the CRD system following replacement of silicon control rectifiers (SCRs) within the CRD motor power supply return circuitry;
- diesel fire pump flow testing following fuel pump refurbishment and annual preventive maintenance; and
- pressure testing of component cooling water heat exchanger 3 following inspection of the heat exchanger, weld buildup and weld repair in the service water discharge water box.

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 and other design and licensing basis documents, 10 CFR Part 50 requirements, licensee procedures, and various NRC generic communications to ensure that the test results adequately ensured that the equipment met the licensing basis and design requirements. In addition, the inspectors reviewed corrective action documents associated with post-maintenance tests (PMTs) 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.

The inspectors' reviews of these post-maintenance testing activities constituted four inspection samples as defined in IP 71111.19-05.

b. Findings

No findings were identified.

1R20 Outage Activities (71111.20)

.1 Planned Maintenance Outage – January 2011

a. Inspection Scope

The inspectors reviewed outage activities during a planned maintenance outage originally scheduled for the weekend of January 8-9, 2011. However, due to unanticipated issues associated with the post-maintenance stroke time testing for MSIV MS 100 (see Sections 1R12, 1R13, 1R15, and 1R19 of this report), the outage was extended to January 13, 2011.

The inspectors reviewed activities to ensure that the licensee considered risk in developing, planning, and implementing the outage schedule. Additionally, the inspectors reviewed outage equipment configuration and risk management, electrical lineups, selected clearances, and identification and resolution of problems associated with the outage. Direct observations of safety significant activities were conducted by the inspectors as part of the inspection sample, including but not limited to:

- reactor shutdown and cooldown;
- control, monitoring, and removal of decay heat;
- initial entry to and control of work within the reactor containment;
- reactor containment closeout;
- primary plant heatup;
- reactor approach to criticality; and
- main turbine rollup and synchronization to the electrical grid.

This inspection constituted one non-refueling outage sample as defined in IP 71111.20-05.

b. Findings

Introduction

A finding of very low safety significance (Green) and associated NCV of 10 CFR Part 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” was identified by the inspectors for the failure to maintain containment trash gate 3 closed and pinned while the area was unattended and the unit was in mode 3.

Description

Licensee has several “trash” gates in the containment with most being on the 565 foot elevation which is the same elevation as the top of the containment post-accident emergency core cooling recirculation sump. The trash gates were designed to help minimize post-accident debris loading on the recirculation sump inlet screens. Steam line break and loss of coolant accident scenarios can generate debris from containment coatings and piping insulation. In modes 1 through 3, when the emergency core cooling recirculation sump is required to be operable, the licensee specified that the gates shall

be closed, and if so equipped, pinned in the closed position except for passage and if personnel are working inside the gates. Procedure DB-OP-3013, "Containment Daily Inspection and Containment Closeout Inspection," contained directions to have trash gates 1 and 3 load pins installed and held in place with cotter pins.

On January 8, 2011, the unit was shut down and placed in mode 3 at near normal hot shutdown pressure and temperature for planned work on the electronic portion of the control rod drive system. The licensee immediately after shutdown conducted an initial radiation survey of the containment and downgraded the containment from a locked high radiation area to a high radiation area. A short time after the down-posting, the inspectors conducted their initial inspection of the containment. The inspectors found trash gate 3 open with no personnel or equipment in the area.

Licensee investigation determined that the personnel that had performed the initial radiation survey after shutdown had opened the trash gate and, upon exiting the area, did not remember to close the gate and pin the gate closed. Upon identification of the issue by the inspectors, the gate was closed and pinned. Licensee analysis of the potential for debris reaching the sump after postulated high energy breaks, determined that in two postulated scenarios debris that would normally be impeded by trash gate 3 might make it to the sump upper level inlet screens. That debris could degrade the capability of the screens in the upper portion of the intake screening but that lower level screens would ensure sufficient capability for the sump to perform its design function.

Analysis

The inspectors determined that failure of licensee personnel to self-check and close and pin trash gate 3 after visiting the area was contrary to licensee expectations including the requirements of containment closeout procedures and was a performance deficiency.

The finding was determined to be more than minor because the finding was associated with the Mitigation Systems Cornerstone attribute of equipment performance and affected the cornerstone objective of ensuring the capability of systems that respond to initiating events. Specifically, failure to have the trash gate closed could allow debris generated during certain loss of coolant accidents to degrade the capability of the containment emergency core cooling system recirculation sump.

The inspectors determined the finding could be evaluated using the SDP in accordance with IMC 0609, "Significance Determination Process," Attachment 0609.04, "Phase 1 - Initial Screening and Characterization of Findings," Table 4a for the Mitigation Systems. Containment trash gate 3 is one of several trash gates inside containment designed to assist in ensuring long-term core heat removal capability after a loss of coolant accident. The trash gates assist in minimizing the amount and type of debris that could reach the containment recirculation sump inlet screens. The finding was of very low safety significance (Green) because the recirculation sump remained operable even with assuming additional debris reaching the upper sump screening in a post accident environment and the answers to the Phase 1 screening questions were "no."

This finding has a cross-cutting aspect in the area of human performance, work practices, because licensee personnel did not appropriately use human error prevention techniques. Specifically, a licensee technician after exiting the area behind the trash gate, did not self-check and verify that he had closed and pinned the gate. [H.4(a)]

Enforcement

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

Contrary to the above, on January 8, 2011, the licensee failed to comply with a requirement in a station procedure. Specifically, while the plant was in Mode 3, licensee personnel failed to close and pin containment trash gate 3, a requirement of station procedures, after completing a radiation survey of the area. Because this violation was of very low safety significance and it was entered into the licensee's CAP as CR 11-88002, this violation is being treated as an NCV, consistent with Section 2.3.2 of the NRC Enforcement Policy. (NCV 05000346/2011002-02).

1R22 Surveillance Testing (71111.22)

.1 Surveillance Testing

a. Inspection Scope

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

- DB-SC-03071; "Emergency Diesel Generator 2 Monthly Test," on January 6, 2011 (routine);
- DB-OP-3013; "Containment Daily Inspection and Containment Closeout Inspection," on January 8, 2011 (routine);
- DB-SP-4159; "Auxiliary Feedwater Pump 2 Monthly Test," on January 7, 2011 (routine);
- DB-SP-3136; "Decay Heat Train 1 Pump and Valve Test," on January 18, 2011 (IST); and
- DB-PF-3008; "Containment Local Leakage Rate Tests," on January 11, 2011, for containment purge isolation valves CV5007 and CV5008 (isolation valve).

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

- did preconditioning occur;
- were the effects of the testing adequately addressed by control room personnel or engineers prior to the commencement of the testing;
- were acceptance criteria clearly stated, demonstrated operational readiness, and consistent with the system design basis;
- plant equipment calibration was correct, accurate, and properly documented;
- as-left setpoints were within required ranges; and the calibration frequency was in accordance with TSs, the USAR, procedures, and applicable commitments;
- measuring and test equipment calibration was current;
- test equipment was used within the required range and accuracy; applicable prerequisites described in the test procedures were satisfied;

- test frequencies met TS requirements to demonstrate operability and reliability; tests were performed in accordance with the test procedures and other applicable procedures; jumpers and lifted leads were controlled and restored where used;
- 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;
- test data and results were accurate, complete, within limits, and valid;
- test equipment was removed after testing;
- where applicable, test results not meeting acceptance criteria were addressed with an adequate operability evaluation or the system or component was declared inoperable;
- prior procedure changes had not provided an opportunity to identify problems encountered during the performance of the surveillance or calibration test;
- equipment was returned to a position or status required to support the performance of its safety functions; and
- all problems identified during the testing were appropriately documented and dispositioned in the CAP.

Documents reviewed are listed in the Attachment to this report.

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

b. Findings

No findings were identified.

1EP6 Drill Evaluation (71114.06)

.1 Quarterly Emergency Preparedness Drill Observations

a. Inspection Scope

The inspectors evaluated the conduct of routine licensee emergency drills on February 10, 2011, and March 10, 2011, to identify any weaknesses and deficiencies in classification, notification, and protective action recommendation development activities. The inspectors observed emergency response operations in the simulator control room, technical support center, and emergency operations facility 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.

These emergency preparedness (EP) drill observations constituted two inspection samples as defined in IP 71114.06-05.

b. Findings

No findings were identified.

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety

2RS3 In-Plant Airborne Radioactivity Control and Mitigation (71124.03)

Completion of the following elements, 1 through 5, constituted one complete inspection sample as defined in IP 71124.03-05.

.1 Inspection Planning (02.01)

a. Inspection Scope

The inspectors reviewed the plant USAR to identify areas of the plant designed as potential airborne radiation areas and any associated ventilation systems or airborne monitoring instrumentation. Instrumentation review included continuous air monitors (continuous air monitors and particulate-iodine-noble-gas-type instruments) used to identify changing airborne radiological conditions such that actions to prevent an overexposure may be taken. The review included an overview of the respiratory protection program and a description of the types of devices used. The inspectors reviewed USAR, TSs, and EP documents to identify location and quantity of respiratory protection devices stored for emergency use.

Inspectors reviewed the licensee's procedures for maintenance, inspection, and use of respiratory protection equipment including self-contained breathing apparatus as well as procedures for air quality maintenance.

The inspectors reviewed reported performance indicators (PIs) to identify any related to unintended dose resulting from intakes of radioactive material.

b. Findings

No findings were identified.

.2 Engineering Controls (02.02)

a. Inspection Scope

The inspectors reviewed the licensee's use of permanent and temporary ventilation to determine whether the licensee uses ventilation systems as part of its engineering controls (in lieu of respiratory protection devices) to control airborne radioactivity. The inspectors reviewed procedural guidance for use of installed plant systems, such as containment purge, fuel handling ventilation, and auxiliary building ventilation, and assessed whether the systems are used, to the extent practicable, during high-risk activities (e.g., using containment purge during cavity floodup).

The inspectors selected installed ventilation systems used to mitigate the potential for airborne radioactivity, and evaluated whether the ventilation airflow capacity, flow path

(including the alignment of the suction and discharges), and filter/charcoal unit efficiencies, as appropriate, were consistent with maintaining concentrations of airborne radioactivity in work areas below the concentrations of an airborne area to the extent practicable.

The inspectors selected temporary ventilation system setups (high-efficiency particulate air/charcoal negative pressure units, down draft tables, tents, metal "Kelly buildings," and other enclosures) used to support work in contaminated areas. The inspectors assessed whether the use of these systems is consistent with licensee procedural guidance and as-low-as-is-reasonably-achievable (ALARA) concept.

The inspectors reviewed airborne monitoring protocols by selecting installed systems used to monitor and warn of changing airborne concentrations in the plant and evaluating whether the alarms and setpoints are sufficient to prompt licensee/worker action to ensure that doses are maintained within the limits of 10 CFR Part 20 and the ALARA concept.

The inspectors assessed whether the licensee had established trigger points (e.g., the Electric Power Research Institute's "Alpha Monitoring Guidelines for Operating Nuclear Power Stations") for evaluating levels of airborne beta-emitting (e.g., plutonium-241) and alpha-emitting radionuclides.

b. Findings

No findings were identified.

.3 Use of Respiratory Protection Devices (02.03)

a. Inspection Scope

For those situations where it is impractical to employ engineering controls to minimize airborne radioactivity, the inspectors assessed whether the licensee provided respiratory protective devices such that occupational doses are ALARA. The inspectors selected work activities where respiratory protection devices were used to limit the intake of radioactive materials, and assessed whether the licensee performed an evaluation concluding that further engineering controls were not practical and that the use of respirators is ALARA. The inspectors also evaluated whether the licensee had established means (such as routine bio-assay) to determine if the level of protection (protection factor) provided by the respiratory protection devices during use was at least as good as that assumed in the licensee's work controls and dose assessment.

The inspectors assessed whether respiratory protection devices used to limit the intake of radioactive materials were certified by the National Institute for Occupational Safety and Health/Mine Safety and Health Administration or have been approved by the NRC per 10 CFR 20.1703(b). The inspectors selected work activities where respiratory protection devices were used. The inspectors evaluated whether the devices were used consistent with their National Institute for Occupational Safety and Health/Mine Safety and Health Administration certification or any conditions of their NRC approval.

The inspectors reviewed records of air testing for supplied-air devices and self-contained breathing apparatus bottles to assess whether the air used in these devices meets or exceeds Grade D quality. The inspectors reviewed plant breathing air supply systems to

determine whether they meet the minimum pressure and airflow requirements for the devices in use.

The inspectors selected several individuals qualified to use respiratory protection devices, and assessed whether they have been deemed fit to use the devices by a physician.

The inspectors selected several individuals assigned to wear a respiratory protection device and observed them donning, doffing, and functionally checking the device as appropriate. Through interviews with these individuals, the inspectors evaluated whether they knew how to safely use the device and how to properly respond to any device malfunction or unusual occurrence (loss of power, loss of air, etc.).

The inspectors chose multiple respiratory protection devices staged and ready for use in the plant or stocked for issuance for use. The inspectors assessed the physical condition of the device components (mask or hood, harnesses, air lines, regulators, air bottles, etc.) and reviewed records of routine inspection for each. The inspectors selected several of the devices and reviewed records of maintenance on the vital components (e.g., pressure regulators, inhalation/exhalation valves, hose couplings).

b. Findings

No findings were identified.

.4 Self-Contained Breathing Apparatus for Emergency Use (02.04)

a. Inspection Scope

Based on the USAR, TS, and emergency operating procedure requirements, the inspectors reviewed the status and surveillance records of self-contained breathing apparatuses staged in-plant for use during emergencies. The inspectors reviewed the licensee's capability for refilling and transporting self-contained breathing apparatus air bottles to and from the control room and operations support center during emergency conditions.

The inspectors selected several individuals on control room shift crews and from designated departments currently assigned emergency duties (e.g., onsite search and rescue duties) to assess whether control room operators and other emergency response and radiation protection (RP) personnel (assigned in-plant search and rescue duties or as required by emergency operating procedures or the emergency plan) were trained and qualified in the use of self-contained breathing apparatuses. The inspectors evaluated whether personnel assigned to refill bottles were trained and qualified for that task.

The inspectors determined whether appropriate mask sizes and types are available for use (i.e., in-field mask size and type match what was used in fit-testing). The inspectors determined whether on-shift operators had no facial hair that would interfere with the sealing of the mask to the face and whether vision correction (e.g., glasses inserts or corrected lenses) was available as appropriate.

The inspectors reviewed the past 2 years of maintenance records for select self-contained breathing apparatus units used to support operator activities during accident

conditions and designated as “ready for service” to assess whether any maintenance or repairs on any self-contained breathing apparatus unit’s vital components were performed by an individual, or individuals, certified by the manufacturer of the device to perform the work. The vital components typically are the pressure-demand air regulator and the low-pressure alarm. The inspectors reviewed the onsite maintenance procedures governing vital component work to determine any inconsistencies with the self-contained breathing apparatus manufacturer’s recommended practices. For those self-contained breathing apparatuses designated as “ready for service,” the inspectors assessed whether the required, periodic air cylinder hydrostatic testing was up to date, and the retest air cylinder markings required by the U.S. Department of Transportation were in place.

b. Findings

No findings were identified.

.5 Problem Identification and Resolution (02.05)

a. Inspection Scope

The inspectors evaluated whether problems associated with the control and mitigation of in-plant airborne radioactivity were being identified by the licensee at an appropriate threshold and were properly addressed for resolution in the licensee CAP. The inspectors assessed whether the corrective actions were appropriate for a selected sample of problems involving airborne radioactivity and were appropriately documented by the licensee.

b. Findings

No findings were identified.

2RS4 Occupational Dose Assessment (71124.04)

Completion of the following elements, 1 through 5, constituted one complete inspection sample as defined in IP 71124.04-05.

.1 Inspection Planning (02.01)

a. Inspection Scope

The inspectors reviewed the results of RP program audits related to internal and external dosimetry (e.g., licensee’s quality assurance audits, self-assessments, or other independent audits) to gain insights into overall licensee performance in the area of dose assessment and focus the inspection activities consistent with the principle of “smart sampling.”

The inspectors reviewed the most recent National Voluntary Laboratory Accreditation Program accreditation report on the vendor’s most recent results to determine the status of the contractor’s accreditation.

A review was conducted of the licensee procedures associated with dosimetry operations, including issuance/use of external dosimetry (routine, multi-badging,

extremity, neutron, etc.), assessment of internal dose (operation of whole body counter, assignment of dose based on derived air concentration-hours, urinalysis, etc.), and evaluation of and dose assessment for radiological incidents (distributed contamination, hot particles, loss of dosimetry, etc.).

The inspectors evaluated whether the licensee had established procedural requirements for determining when external and internal dosimetry is required.

b. Findings

No findings were identified.

.2 External Dosimetry (02.02)

a. Inspection Scope

The inspectors evaluated whether the licensee's dosimetry vendor is National Voluntary Laboratory Accreditation Program accredited and if the approved irradiation test categories for each type of personnel dosimeter used are consistent with the types and energies of the radiation present and the way the dosimeter is being used (e.g., to measure deep dose equivalent, shallow dose equivalent, or lens dose equivalent).

The inspectors evaluated the onsite storage of dosimeters before their issuance, during use, and before processing/reading. The inspectors also reviewed the guidance provided to rad-workers with respect to care and storage of dosimeters.

The licensee does not use non-National Voluntary Laboratory Accreditation Program accredited passive dosimeters.

The inspectors assessed the use of active dosimeters (electronic personal dosimeters) to determine if the licensee uses a "correction factor" to address the response of the electronic personal dosimeter as compared to the passive dosimeter for situations when the electronic personal dosimeter must be used to assign dose and whether the correction factor is based on sound technical principles.

The inspectors reviewed dosimetry occurrence reports or CAP documents for adverse trends related to electronic personal dosimeters, such as interference from electromagnetic frequency, dropping or bumping, failure to hear alarms, etc. The inspectors assessed whether the licensee had identified any trends and implemented appropriate corrective actions.

b. Findings

No findings were identified.

.3 Internal Dosimetry (02.03)

a. Routine Bioassay (In Vivo)

(1) Inspection Scope

The inspectors reviewed procedures used to assess the dose from internally deposited nuclides using whole body counting equipment. The inspectors evaluated whether the procedures addressed methods for differentiating between internal and external contamination, the release of contaminated individuals, the route of intake and the assignment of dose.

The inspectors reviewed the whole body count process to determine if the frequency of measurements was consistent with the biological half-life of the nuclides available for intake.

The inspectors reviewed the licensee's evaluation for use of its portal radiation monitors as a passive monitoring system to determine if instrument minimum detectable activities were adequate to determine the potential for internally deposited radionuclides sufficient to prompt additional investigation.

The inspectors selected several whole body counts and evaluated whether the counting system used had sufficient counting time/low background to ensure appropriate sensitivity for the potential radionuclides of interest. The inspectors reviewed the radionuclide library used for the count system to determine its appropriateness. The inspectors evaluated whether any anomalous count peaks/nuclides indicated in each output spectra received appropriate disposition. The inspector's reviewed the licensee's 10 CFR Part 61 data analyses to determine whether the nuclide libraries included appropriate gamma-emitting nuclides. The inspectors evaluated how the licensee accounts for hard-to-detect nuclides in the dose assessment.

(2) Findings

No findings were identified.

b. Special Bioassay (In Vitro)

(1) Inspection Scope

There was no internal dose assessments obtained using in vitro monitoring for the inspectors to review. The inspectors reviewed and assessed the adequacy of the licensee’s program for in vitro monitoring (i.e., urinalysis and fecal analysis) of radionuclides (tritium, fission products, and activation products), including collection and storage of samples.

The inspectors did not review the vendor laboratory quality assurance program, however, inspectors assessed whether the laboratory participated in an industry recognized cross-check program including whether out-of-tolerance results were resolved appropriately.

(2) Findings

No findings were identified.

c. Internal Dose Assessment – Airborne Monitoring

(1) Inspection Scope

The inspectors reviewed the licensee's program for airborne radioactivity assessment and dose assessment, as applicable, based on airborne monitoring and calculations of derived air concentration. The inspectors determined whether flow rates and collection times for air sampling equipment were adequate to allow lower limits of detection to be obtained. The inspectors also reviewed the adequacy of procedural guidance to assess internal dose if respiratory protection was used.

(2) Findings

No findings were identified.

d. Internal Dose Assessment – Whole Body Count Analyses

(1) Inspection Scope

The inspectors reviewed several dose assessments performed by the licensee using the results of whole body count analyses. The inspectors determined whether affected personnel were properly monitored with calibrated equipment and that internal exposures were assessed consistent with the licensee's procedures.

(2) Findings

No findings were identified.

.4 Special Dosimetric Situations (02.04)

a. Declared Pregnant Workers

(1) Inspection Scope

The inspectors assessed whether the licensee informs workers, as appropriate, of the risks of radiation exposure to the embryo/fetus, the regulatory aspects of declaring a pregnancy, and the specific process to be used for (voluntarily) declaring a pregnancy.

The inspectors selected individuals who had declared pregnancy during the current assessment period and evaluated whether the licensee’s radiological monitoring program for declared pregnant workers is technically adequate to assess the dose to the embryo/fetus. The inspectors reviewed exposure results and monitoring controls employed by the licensee and with respect to the requirements of 10 CFR Part 20.

(2) Findings

No findings were identified.

b. Dosimeter Placement and Assessment of Effective Dose Equivalent for External Exposures

(1) Inspection Scope

The inspectors reviewed the licensee's methodology for monitoring external dose in non-uniform radiation fields or where large dose gradients exist. The inspectors evaluated the licensee's criteria for determining when alternate monitoring, such as use of multi-badging, was to be implemented.

The inspectors reviewed dose assessments performed using multi-badging to evaluate whether the assessment was performed consistently with licensee procedures and dosimetric standards.

(2) Findings

No findings were identified.

c. Shallow Dose Equivalent

(1) Inspection Scope

The inspectors reviewed shallow dose equivalent dose assessments for adequacy. The inspectors evaluated the licensee's method (e.g., VARSKIN or similar code) for calculating shallow dose equivalent from distributed skin contamination or discrete radioactive particles.

(2) Findings

No findings were identified.

d. Neutron Dose Assessment

(1) Inspection Scope

The inspectors evaluated the licensee's neutron dosimetry program, including dosimeter types and/or survey instrumentation.

The inspectors reviewed neutron exposure situations (e.g., independent spent fuel storage installation operations or at-power containment entries) and assessed whether, (a) dosimetry and/or instrumentation was appropriate for the expected neutron spectra; (b) there was sufficient sensitivity for low dose and/or dose rate measurement; and (c) neutron dosimetry was properly calibrated. The inspectors also assessed whether interference by gamma radiation had been accounted for in the calibration and whether time and motion evaluations were representative of actual neutron exposure events, as applicable.

(2) Findings

No findings were identified.

e. Assigning Dose of Record

(1) Inspection Scope

For the special dosimetric situations reviewed in this section, the inspectors assessed how the licensee assigns dose of record for total effective dose equivalent, shallow dose equivalent, and lens dose equivalent. This included an assessment of external and internal monitoring results, supplementary information on Individual exposures (e.g., radiation incident investigation reports and skin contamination reports), and radiation surveys and/or air monitoring results when dosimetry was based on these techniques.

(2) Findings

No findings were identified.

.5 Problem Identification and Resolution (02.05)

a. Inspection Scope

The inspectors assessed whether problems associated with occupational dose assessment are being identified by the licensee at an appropriate threshold and are properly addressed for resolution in the licensee CAP. The inspectors assessed the appropriateness of the corrective actions for a selected sample of problems documented by the licensee involving occupational dose assessment.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

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

4OA1 Performance Indicator (PI) Verification (71151)

.1 Unplanned Scrams per 7000 Critical Hours

a. Inspection Scope

The inspectors sampled licensee submittals for the Unplanned Scrams per 7000 Critical Hours PI for the period from January 2010 through December 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, event reports and NRC IRs for the period to validate the accuracy of the submittals. The inspectors also reviewed the licensee's CAP 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 unplanned scrams per 7000 critical hours sample as defined in IP 71151-05.

b. Findings

No findings were identified.

.2 Unplanned Scrams with Complications

a. Inspection Scope

The inspectors sampled licensee submittals for the Unplanned Scrams with Complications PI for the period from January 2010 through December 2010. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the 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, event reports and NRC Integrated IRs for the period to validate the accuracy of the submittals. 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 unplanned scrams with complications sample as defined in IP 71151-05.

b. Findings

No findings were identified.

.3 Unplanned Transients per 7000 Critical Hours

a. Inspection Scope

The inspectors sampled licensee submittals for the Unplanned Transients per 7000 Critical Hours PI for the period from January 2010 through December 2010. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the 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, event reports and NRC Integrated IRs for the period to validate the accuracy of the submittals. 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 unplanned transients per 7000 critical hours 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 IPs 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: identification of the problem was complete and accurate; timeliness was commensurate with the safety significance; 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 Attachment to this report.

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 CR packages.

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

b. Findings

No findings were identified.

.3 Selected Issue Follow-Up Inspection: Inoperability of Auxiliary Feedwater Train 2

a. Inspection Scope

During a review of items entered in the licensee's CAP, the inspectors identified a corrective action (CR 10-81273) item documenting failure of the position controller board

(ZC6451) for the train 2 auxiliary feedwater pump discharge control solenoid valve. The failure caused the valve to fail open and caused train 2 of auxiliary feedwater to be inoperable for a period of approximately 18 days. The inspectors reviewed the root cause report developed for the event, researched CRs for evidence of previous similar conditions, reviewed plant design criteria for direct current (dc) power, reviewed several standards referenced by the licensee as applicable to the plant's dc power supply design, and reviewed the logic of the licensee's conclusions as to the causes of the event. 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 auxiliary feedwater pumps, upon normal actuation, go to a full operating speed of approximately 3600 rpm. Auxiliary feedwater flow to the steam generators is controlled by the position of the pump discharge control solenoid valve. Power failure to the valve's controller causes the valve to fail open. On July 17, 2010, during a flow surveillance test, the licensee identified that the valve had failed open. Subsequent investigation found power supply fuses blown on the valve position controller board (ZC6451) and some degraded board components. The licensee's immediate action, after repairs and restoration of the auxiliary feedwater system on July 20, 2010, was to frequently monitor power to the controller board and the valve.

On August 16, 2010, the licensee's investigation determined that the equipment cause of failure was the controller board experiencing a voltage higher than the board's design for a period of time sufficient to cause failure. The board's components were designed for a nominal high of approximately 140 volts direct current (Vdc). Due to the ungrounded design of the dc system and an unintentional hard ground on the system, the failed board could have been subjected to a voltage of approximately 280 Vdc. The hard ground occurred on July 2, 2010. Thus the licensee determined that the controller board may not have functioned from July 2, 2010, until the card function was returned on July 20, 2010, or a period of approximately 18 days of inoperability of auxiliary feedwater train 2. The licensee also determined that a similar failure had been detected on June 17, 2010; at that time the unit was in Mode 6.

The licensee determined that the root cause of the event was the licensee's "lack of organizational program implementation for DC ground hunting." Licensee personnel did not adequately prioritize work activities to promptly investigate and correct direct current power grounds, and there was a weakness in the organization's understanding of the potential consequences to the auxiliary feedwater discharge control solenoid valve.

c. Findings

A licensee-identified violation of TSs associated with this issue is discussed in Section 4OA7 of this report.

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

.1 Electrical Explosion/Fire Results in Notice of Unusual Event: Event Notification 46551

The inspectors reviewed the licensee's response to an electrical explosion and fire in the early morning hours of January 19, 2011. At 0232 hours, control room operators were notified of loud noises, or explosions, and an electrical fire located outside the plant on the ground level of the construction site for the licensee's new containment access facility building. The Operations Shift Manager dispatched the fire brigade at 0233 hours, and at approximately 0241 hours plant operators responding to the event opened the temporary power supply disconnects associated with the 480 Volts alternating current (Vac) cables that appeared to be the source of the fire. The electrical arcing ceased, and the fire was extinguished by the fire brigade at approximately 0243 hours.

At 0243 hours, the Shift Manager declared a UE on Emergency Action Level (EAL) HU4 due to the report of the electrical explosions. Emergency Action Level HU4 is specifically for a fire within the protected area of the site not extinguished within 15 minutes, or for an explosion within the protected area. At approximately 0358 hours, the site exited from the Unusual Event (UE).

Following the event, the licensee conducted an investigation into the apparent cause. Although the cause of the event could not be determined with absolute certainty due to the damage caused by the fire, the licensee did conclude with a high degree of certainty that the explosions and fire most probably resulted from a loose electrical connection that overheated. As noted above, the event occurred at the construction site for the licensee's new containment access facility building, which was under the control of the licensee's construction contractor. The construction contractor was using a run of temporary 480 Vac power cables to energize heaters at the construction site. The distance from the 480 Vac power supply to the temporary heaters was such that multiple cables had to be used and connected together. To protect the cables, they had been enclosed within a polyurethane tray, known commercially as a "linebacker." Unbeknownst to the personnel involved, the manufacturer's instructions for the use of the linebacker specifically prohibited enclosing electrical connections within the device. It was at one of these encapsulated electrical connections where the fire occurred.

Although the inspectors determined that the failure to observe the manufacturer's instructions for the use of the linebacker constituted a licensee performance deficiency, in accordance with NRC IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Disposition Screening," the issue was determined to have been of minor safety significance and not documentable as a self-revealed finding. Specifically, while the performance deficiency did result in a fire and entry into the licensee's emergency plan for the UE, the event occurred at a building construction site where no plant equipment was located or could have become involved. Similarly, because of the location of the event outside the plant proper, no violations of NRC requirements were identified by the inspectors during their review. Documents reviewed in this inspection are listed in the Attachment.

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

.2 Momentary Inoperability of Emergency Feedwater: Event Notification 46653

a. Inspection Scope

The inspectors reviewed the plant's response to the March 3, 2011, momentary steam generator and pressurizer level indication transients caused by electromagnetic interference from a portable radio transmission. The inspectors reviewed the licensee's response to the transient including the declaration of 2 minutes of inoperability of all trains of emergency feedwater and the decision to make an 8-hour non-emergency notification (Event Number 46653) to the NRC under 10 CFR 50.72(b)(3)(v). The inspectors also reviewed the circumstances that caused the event, why in-place requirements did not prevent the event, and the licensee's initial actions to prevent recurrence. Documents reviewed in this inspection are listed in the Attachment.

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

b. Findings

No findings were identified.

.3 (Closed) Licensee Event Report 05000346/2010-03-00: Auxiliary Feedwater Control Valve Inoperable Due to Inadequate Prioritization of DC System Ground

This event, which was initially discovered July 17, 2010, involved the failure of control board for the auxiliary feedwater train 2 pump discharge valve. This failure rendered the train inoperable. The failure was determined to be caused by higher than design voltage on the board due to a higher than normal ground on the dc power bus that was connected to the card. The licensee determined that the failure occurred approximately 18 days earlier and was the second failure of this card in a short period of time for the same reason. The licensee determined that the root cause of both failures was a lack of program implementation for finding and correcting expeditiously dc grounds and a lack of understanding of the issues that can be caused by high dc bus grounds. In addition to replacing the failed card, the licensee modified procedure DB-OP-6322, "Locating Grounds on the Station 250/125 VDC System," to strengthen the ground correction process and work prioritization process for grounds outside of an acceptable range. Licensee investigation of this event is documented in Section 4OA2 of this report; a licensee-identified NCV is discussed in Section 4OA7 of this report. Documents reviewed as part of this inspection are listed in the Attachment. This Licensee Event Report (LER) is closed.

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

.4 (Closed) Licensee Event Report 05000346/2011-02-00: Containment Air Cooler Isolation Valve Disabled Due to Drawing Omission

a. Inspection Scope

On January 22, 2011, the licensee discovered the outlet temperature control valve for Containment Air Cooler (CAC) 3 could not be closed from the control room. This containment isolation valve (CIV) had been inadvertently rendered inoperable on November 30, 2010, after electrically isolating the CAC 3 fan motor that had tripped its supply breaker when the motor was started on October 24, 2010. With the CAC 3 outlet

temperature control valve not capable of being closed, the valve was not capable of performing its design function of isolating containment as required by TS 3.6.3. A self-revealed Green finding and associated NCV was identified. This LER is closed.

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

b. Findings

Introduction

A self-revealed Green finding and associated NCV of TS 3.6.3 was identified for an inadequate clearance that inadvertently removed control power to a CIV, SW1358, CAC 3 Outlet Temperature Control Valve. Without power to control SW1358, the valve was inoperable and unable to be closed for longer than allowed by TSs.

Description

On January 22, 2011, operations attempted to stroke SW1358 closed in accordance with surveillance test Procedure DB-PF-03020, "Service Water Train 1 Valve Test." SW1358 would not close as expected when pressing the AUTO/CLOSE button in the control room. SW1358 was declared inoperable, and the plant entered the action statement of TS LCO 3.6.3 Condition C, one or more penetration flow paths with one CIV inoperable.

Upon discovery of the condition on January 22, 2011, the licensee performed an immediate investigation of why SW1358 would not close upon demand. A review of electrical diagrams revealed that the breaker contacts required for control power had been opened as a result of clearance DB-CYC-017 EDB-SUB060-05-006, installed on November 30, 2010. Previously, the supply breaker to CAC 3 had tripped on overcurrent on October 24, 2010, after placing CAC 3 in service as part of a routine equipment rotation. An initial clearance was installed on October 24 and 25 to allow troubleshooting of the CAC 3 fan motor. This clearance brought two control room annunciators into alarm. In an attempt to clear the annunciators in accordance with the licensee's black board philosophy to reduce distractions to the operating crew, a revised clearance was generated that moved the clearance boundaries closer to the CAC 3 fan motor. However, clearance DB-CYC-017 EDB-SUB060-05-006, installed on November 30, 2010, inadvertently removed control power to SW1358. The valve remained inoperable from the placement of the clearance on November 30, 2010, until discovered on January 22, 2011. Therefore, the valve had been inoperable longer than the 72 hours allowed by TS 3.6.3 Condition C, which made it reportable to the NRC. Licensee Event Report 05000346/2011-002-00 was submitted to the NRC on March 23, 2011.

The licensee submitted this issue into their CAP as CR 11-88594. The licensee determined the root cause of this event to be a lack of information on the elementary wiring diagram used to prepare the clearance for isolating the fan motor. The diagram failed to reference an additional drawing to inform the reviewer of breaker contacts that impact the power supply to the CAC 3 outlet temperature control valve controls.

Following discovery of the condition, the clearance installed on November 30, 2010, was removed and control power was restored to SW1358. The valve was properly stroked on January 23, 2011. A corrective action was initiated to revise the elementary wiring

diagrams associated with the CAC 3 fan motor and outlet temperature control valve to inform the reader of the associated interlocks between the equipment.

Analysis

The inspectors reviewed this finding using the guidance contained in Appendix B, "Issue Disposition Screening," of IMC 0612, "Power Reactor Inspection Reports." The inspectors determined that a performance deficiency occurred when the licensee inadvertently placed a clearance that removed control power to CIV SW1358, rendering the valve inoperable and unable to be closed for longer than allowed by TSs. The performance deficiency was reasonably within the licensee's ability to foresee and correct, and should have been prevented. The inspectors determined that the finding was more than minor because it was associated with the Barrier Integrity Cornerstone attribute of SSC and Barrier Performance, and affected the cornerstone objective of providing reasonable assurance that the physical design barriers protect the public from radionuclide releases caused by accidents or events. Specifically, with SW1358 unable to be closed, the valve was not capable of performing its design function of isolating containment as required by TS LCO 3.6.3.

The inspectors evaluated the finding using IMC 0609, Appendix A, Attachment 1, "Significance Determination of Reactor Inspection Findings for At-Power Situations." Using the Phase 1 SDP worksheet for the barrier integrity cornerstone, the inspectors answered "no" to all four screening questions under the containment barrier column. Specifically, the affected penetration was associated with a closed piping system within containment such that a significant breach in the piping would need to occur to provide a viable release pathway. In addition, CAC 1 and 2 remained operable during the period of time that the CAC 3 outlet temperature control valve was inoperable. Therefore, the finding was determined to be of very low safety significance (Green).

This finding had a cross-cutting aspect in the area of human performance, resources component, because the licensee did not ensure that personnel, equipment, procedures, and other resources were available and adequate to assure nuclear safety. Specifically, there was a lack of information on the elementary wiring diagram used to prepare the clearance for isolating the fan motor. The diagram failed to reference an additional drawing to inform the reviewer of breaker contacts that impact the power supply to the CAC 3 outlet temperature control valve controls. (H.2(c))

Enforcement

Technical Specification LCO 3.6.3 requires that each CIV be operable. With one or more penetration flow paths with one CIV inoperable, Condition C of TS LCO 3.6.3 requires that the affected penetration flow path be isolated within 72 hours.

Contrary to the above, a clearance installed on November 30, 2010, inadvertently removed control power to CIV SW1358, CAC 3 Outlet Temperature Control Valve. The valve remained inoperable from the placement of the clearance on November 30, 2010, until discovered on January 22, 2011. Therefore, the valve had been inoperable longer than the 72 hours allowed by TS LCO 3.6.3 Condition C. The licensee included this issue in their CAP as CR 11-88594. Following discovery of the condition, the clearance installed on November 30, 2010, was removed and control power was restored to SW1358. The valve was properly stroked on January 23, 2011. A corrective action was initiated to revise the elementary wiring diagrams associated with the CAC 3 fan motor

and outlet temperature control valve, to inform the reader of the associated interlocks between the equipment. Because this finding violation was of very low safety significance and it was entered into the licensee's CAP, this violation is being treated as an NCV, consistent with the Enforcement Policy. (NCV 05000346/2011002-03)

4OA5 Other Activities

.1 Groundwater Sampling Results

a. Inspection Scope

The inspectors reviewed the results of groundwater samples taken from wells in the plant owner controlled area. The sampling of wells was completed as part of the licensee's voluntary groundwater monitoring initiative. All of the wells in the most recently reviewed groundwater samples contained less than 1,500 picocuries per liter (pCi/L) of tritium. Sample results above the 2,000 pCi/L groundwater monitoring program threshold require making courtesy notifications to state and local government officials and the NRC resident inspectors. The formal reporting limit threshold is 30,000 pCi/L, as documented in the licensee's Offsite Dose Calculation Manual. The licensee has observed fluctuating concentrations of tritium in several monitoring wells, most notably in wells to the north and northeast of the power block. The licensee's report determined the source event does not appear to be related to the 2008 condensate line leak west of the power block as was previously believed, based on the detection of elevated tritium concentrations on the north side of the plant and groundwater flow from west to east. The licensee will continue to investigate and monitor wells in accordance with their groundwater monitoring program. The inspectors reviewed the licensee's compliance to their stated offsite agency reporting requirements.

These routine reviews for samples to detect tritium in groundwater did not constitute any additional inspection samples. Instead, they were considered as part of the inspectors' daily plant status monitoring activities.

b. Findings

No findings were identified.

.2 Courtesy Notification of Discharge Line Leak Containing Tritium

a. Inspection Scope

The inspectors reviewed the licensee's response to a minor turbine building sump discharge water line leak on March 29, 2011. A coupling in the discharge line separated causing an unknown quantity of turbine building sump water to spill onto the ground near one of the licensee's settling basins, where the water was intended to be discharged. A subsequent sample of the liquid spilled indicated no detectable gamma activities, but approximately 7,340 pCi/L of tritium. Sample results above the 2,000 pCi/L groundwater monitoring program threshold require the licensee to make courtesy notifications to state and local government officials and the NRC resident inspectors. These courtesy notifications were performed by the licensee in accordance with their programmatic requirements later the same day. The formal reporting limit threshold is 30,000 pCi/L, as documented in the licensee's Offsite Dose Calculation Manual.

The inspectors' review of this issue did not constitute any additional inspection samples. It was, instead, considered as part of the inspectors' daily plant status monitoring activities. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

4OA6 Management Meetings

.1 Exit Meeting Summary

On April 4, 2011, 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

An interim exit meeting was conducted for:

- In-plant airborne radioactivity control and mitigation and occupational dose assessment under the occupational safety cornerstone with Mr. B. Allen, Site Vice President, on January 21, 2011.

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

4OA7 Licensee-Identified Violations

The following violation of very low safety significance (Green) was identified by the licensee and is a violation of NRC requirements which meets the criteria of Section VI.A.1 of the NRC Enforcement Policy for being dispositioned as an NCV.

- Technical Specification 3.7.5 B requires that an inoperable auxiliary feedwater train be restored to operable status in 72 hours. Contrary to this, in August 2010, the licensee determined that auxiliary feedwater train 2, because of a failed position controller board for the pump's discharge valve, had been inoperable for a period of approximately 18 days. The licensee's investigation determined that the failure was attributable to the controller board experiencing a voltage higher than the board's design for a period of time sufficient to cause failure and that the higher voltage was caused by a ground on the dc bus power supply to the board. The licensee also determined that there was a previous failure of the same board for the same reason and that the licensee had failed to recognize the potential significance of a direct current bus ground and failed to assign proper priority for finding and eliminating the ground. The licensee documented the condition in CR 10-81273.

  Inspection Manual Chapter 0609,"Significance Determination Process," screening indicated a need to perform Phase 3 internal and external events analyses for determining the significance of the event. These analyses were

performed by the Region III Senior Reactor Analyst staff. The total estimated delta core damage frequency (CDF) for the 18-day exposure time was the sum of the internal events contribution (4.2E-7/yr) and the external events contribution (3.4E-7/yr) or 7.6E-7/yr. Based on the Phase 3 analysis, the inspectors determined that the finding was of very low safety-significance.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

B. Allen, Site Vice President
J. Barron, Manager, Site Projects
P. Boissoneault; Manager, Chemistry
B. Boles, Director, Site Operations
K. Byrd, Director, Site Performance Improvement
J. Cuff, Manager, Site Maintenance (Acting)
J. Dominy, Director, Site Maintenance
A. Garza, ALARA Specialist (Lead for Set Point Manual)
G. Hayes, Supervisor, Reactor Engineering
J. Hook, Manager, Design Engineering
R. Hovland, Manager, Training
V. Kaminskas, Director, Site Engineering
G. Kendrick, Manager, Site Outage Management
P. McCloskey, Manager, Site Regulatory Compliance
D. Noble, Manager, Radiation Protection
M. Parker, Manager, Site Protection
R. Patrick, Manager, Site Work Management
A. Percival, Sr. Chemistry Technologist (Liquid Radwaste and Effluent Analysis)
S. Plymale, Manager, Site Operations
C. Price, Director, Special Projects
J. Rogers, Manager, Steam Generator Replacement Project
D. Saltz, Superintendent, Nuclear Operations
J. Scott, Supervisor, RP
C. Steenbergen, Superintendent, Operations Training
J. Sturdavant, Regulatory Compliance
T. Summers, Manager, Plant Engineering
L. Thomas, Manager, Nuclear Supply Chain
S. Trickett, Superintendent, Radiation Protection
J. Vetter, Manager, Emergency Response
A. Wise, Manager, Technical Services
G. Wolf, Supervisor, Regulatory Compliance

LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

Opened

05000346/2011002-01	NCV	Failure to Adequately Control Construction Material Adjacent to the Switchyard (Section 1R01.1)
05000346/2011002-02	NCV	Containment ECCS Recirculation Sump Reliability Degraded Due to Unfastened Debris Gate (Section 1R20.1)
05000346/2011002-03	NCV	Inadvertent Removal of Control Power to Containment Air Cooler Isolation Valve (Section 4OA3.4)

Closed

05000346/2011002-01	NCV	Failure to Adequately Control Construction Material Adjacent to the Switchyard (Section 1R01.1)
05000346/2011002-02	NCV	Containment ECCS Recirculation Sump Reliability Degraded Due to Unfastened Debris Gate (Section 1R20.1)
05000346/2010-03-00	LER	Auxiliary Feedwater Control Valve Inoperable Due to Inadequate Prioritization of DC System Ground (Section 4OA3.3)
05000346/2011-02-00	LER	Containment Air Cooler Isolation Valve Disabled Due to Drawing Omission (Section 4OA3.4)
05000346/2011002-03	NCV	Inadvertent Removal of Control Power to Containment Air Cooler Isolation Valve (Section 4OA3.4)

Discussed

None

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 IR.

1R01 Adverse Weather Protection

Condition Reports:
- 11-89062; K Bus Lost Due To Sheet Metal Debris In Switchyard
- 11-89148; Station Isolation Warning Declared Due To Snow Storm – Assess Response
- 11-89180; Fatigue Rule Assessment During Station Isolation Warning
- 11-89805; DB-PA-11-01: Debris Identified In Laydown Area Potential Entering Switchyard

Procedures:
- NOP-OP-1003; Grid Reliability Protocol; Revision 03
- NOP-OP-1012; Material Readiness and Housekeeping Inspection Program; Revision 05
- RA-EP-02810; Tornado; Revision 08
- RA-EP-02870; Station Isolation; Revision 04

Other:
- Form DBEP 0915-00; Minimum Station Isolation Staffing
- Unit Operating Logs; February 2, 2011

1R04 Equipment Alignment

Procedures:
- DB-OP-06012; Decay Heat and Low Pressure Injection System Operating Procedure; Revision 50
- DB-OP-06233; Auxiliary Feedwater System; Revision 30

Drawings:
- OS-0004, Sheet 1; Decay Heat Removal / Low Pressure Injection System; Revision 48
- OS-0017A, Sheet 1; Auxiliary Feedwater System; Revision 23
- OS-0017B, Sheet 1; Auxiliary Feedwater Pumps and Turbines; Revision 25

1R05 Fire Protection

Condition Reports:
- 10-85948; Missing 3M T-49 Aluminum Tape on 3M Appendix R Fire Wrap Insulation
- 11-88685; C-3732B in Alarm for Room 314

Procedures:
- DB-FP-00009; Fire Protection Impairment and Fire Watch; Revision 13
- DB-OP-02529; Fire Procedure (Abnormal); Revision 05
- PFP-AB-314; No. 4 Mechanical Penetration Room, Rooms 115CC, 314 and 314CC, Fire Area A; Revision 8
- PFP-AB-602; A/C Equipment Room and Records and Storage Area, Rooms 603 and 603A, Fire Area HH; Revision 4

Drawings:
- A-223F; Fire Protection, General Floor Plan El 585'-0"; Revision 21
- A-226F; Fire Protection, General Floor Plan El 643'-0"; Revision 13

Other:
- Fire Hazard Analysis Report; Revision 24

1R06 Flooding

Condition Reports:
- 11-90226; Rising Water Level In The Turbine Building Condenser Pit Sumps
- 11-90324; Temp Pumps Installed In Condenser Pit East & West Sumps w/o Proper Reviews
- 11-90442; Degraded Sump Pumps In East and West Condensate Pits
- 11-90835; Condenser Sump Pump Discharge Line Found Partially Blocked

Procedures:
- RA-EP-02830; Flooding; Revision 2
- RA-EP-02880; Internal Flooding; Revision 3

Calculations:
- C-ECS-099.16-134; Circulating Water Expansion Joint Rupture at Condenser Inlet; Revision 1
- 48.13; Condenser Pit Flood Pump Flow Rates; Revision 0
- 48.17; Condenser Pit Flood Pump; Revision 0
- 58.8; Flood Level In AFP Rooms Due to Various Line Breaks; Revision 0

Other:
- SAROS 96-5; Probabilistic Safety Assessment of Turbine Building Flooding at Davis-Besse; dated May 1996
- USAR Section 3.4; Water Level (Flood) Design Criteria
- USAR Section 3.6.2.7.2.13; Circulating Water System

1R11 Licensed Operator Requalification Program

Operations Training Simulator Guide:
- OTLL-2011SA DB-5101; Revision 0; 2/17/2011

1R12 Maintenance Effectiveness

Condition Reports:
- 08-34163; DBC2PN Voltage Swing With D/C Low Voltage Alarm Light On
- 09-61352; Circuit Boards Not Available To Implement Battery Charger Maintenance Strategy
- 09-64192; DBC-2N Charger Test DB-ME-03003 Failed
- 10-79416; Battery Charger 1N Load Test Suspended Due To Elevated Room Temperatures
- 10-80864; Battery Charger 1N Trips Source Breaker
- 10-82679; DCMCC1 Ground Indication Out Of Tolerance
- 10-87358; DBC-1N Not Maintaining Battery 1N Terminal Voltage
- 11-87955; MS 100 Closure Time Greater than Max Allowable During DB-SP-034445 Testing
- 11-88006; MS 100 Speed Control Valve Positions Were Found Incorrect
- 11-88066; Potential Misapplication of TS 3.0.5 for MSIV Stroking
- 11-88232; MSIV Lessons Learned not Adequately Incorporated to Preclude Restart Delay
- 11-88985; DC Ground On Exciter Field Breaker Closing Circuit

- 11-88986; PM 5396 – Deferral For BE1190 Breaker Replacement, Order 200294985
- 11-89694; Battery Charger 1N Fails To Load After Circuit Board Refurbishment

Procedures:
- NOP-ER-3004; FENOC Maintenance Rule Program; Revision 01

Work Orders:
- 200341094; Replace Motor MC78-1, PERP 0311
- 200353267; PM 8853 DBC1N Replace Control Components
- 200353272; PM 8854 DBC1P Replace Control Components
- 200353276; PM 8855 DBC1PN Replace Control Components
- 200353284; PM 8856 DBC2N Replace Control Components
- 200353285; PM 8857 DBC2P Replace Control Components
- 200353289; PM 8859 DBC2PN Replace Control Components
- 200365467; V1356: DC Ground Detected
- 200389986; Replace Charger DBC1N – ECR 20-0707
- 200442122; DBC-1N Voltage Stability

Drawings:
- E-2013H; Station 125VDC Distribution System Failure Analysis Manual Introduction; Revision 2

Other:
- DBPM-BATT-0001; Battery Monitoring and Maintenance Program; Revision 0
- M-304-00014; Rockwell-Edwards/Flowserve: Installation and Maintenance Instructions for 36” x 32” x 36” Figure 612 GJMMNTY Main Steam Isolation Valve; Revision 08
- MRPM; Maintenance Rule Program Manual; Revision 28 and 29
- NORM-ER-3106; FENOC Battery Systems; Revision 3
- SD-007; System Description for 125/250VDC and 120V Instrument AC System

1R13 Maintenance Risk Assessments and Emergent Work Control

Condition Reports:
- 11-87955; MS 100 Closure Time Greater than Max Allowable During DB-SP-034445 Testing
- 11-88006; MS 100 Speed Control Valve Positions Were Found Incorrect
- 11-88066; Potential Misapplication of TS 3.0.5 for MSIV Stroking
- 11-88232; MSIV Lessons Learned not Adequately Incorporated to Preclude Restart Delay
- 11-90035; Plant Transient Occurred When Attempting To Place Rx Demand Station to Auto
- 11-90593; Potential Inadequate Refill of SW Train 1 Piping to AFP1 Suction

Procedures:
- DB-OP-02014;MSR/ICS Alarm Panel 14 Annunciators; Revision 5
- DB-OP-06402; CRD Operating Procedure; Revision 19

Work Orders:
- 200360646; SOER 97-1 Gas Intrusion
- 200449553; ICS Issue

Drawings:
- M-206 G; Auxiliary & Start-Up Feed Pumps Suction and Recirculation; Revision 21
- OS-17A, Sheet 1; Auxiliary Feedwater System; Revision 23

Other:
- M-304-00014; Rockwell-Edwards/Flowserve: Installation and Maintenance Instructions for 36” x 32” x 36” Figure 612 GJMMNTY Main Steam Isolation Valve; Revision 08

1R15 Operability Evaluations

Condition Reports:
- 11-87783; Refrigerant Leaks Indicated on CREATCS Train 2
- 11-87955; MS 100 Closure Time Greater than Max Allowable During DB-SP-034445 Testing

Procedures:
- DB-OP-6911; Pre-Startup Checklist; Revision 20

Other:
- LCO 3.0.4; Mode Change with LCO Not Met; Amendment 279
- M-304-00014; Rockwell-Edwards/Flowserve: Installation and Maintenance Instructions for 36” x 32” x 36” Figure 612 GJMMNTY Main Steam Isolation Valve; Revision 08
- PRA-DB1-11-001-R00; Risk Assessment for Entering Modes 3, 2, and/or 1 With CREATCS Train 2 Unavailable; Revision 0
- TS 3.7.11; Control Room Emergency Air Temperature Control System; Amendment 279

1R19 Post Maintenance Testing

Condition Reports:
- 10-80388; Below Minimum Wall Thickness on CCW Heat Exchanger #3
- 11-87861; Start of Flange Distortion from Weld Repair on #3 CCW Ht. Exchanger WO200426314
- 11-87955; MS100 Closure Time Greater Than Max Allowable During DB-SP-03445 Testing
- 11-87965; Procedure DB-SP-03445 Wording Clarification Required
- 11-88301; K-6 Fire Pump Diesel Did Not Pass PMT for Engine RPM
- 11-88643; Diesel Fire Pump Could Not Obtain Rated Speed
- 11-89368; DFP Will Not Exceed 1900 RPM Post Maintenance Testing
- 11-89442; Potential Miss of PMT on the Diesel Fire Pump
- 11-89464; Additional PMT Identified For Diesel Fire Pump Fuel Oil Pump Replacement
- 11-89538; Diesel Fire Pump Battery
- 11-89559; CCW Head Exchanger E22-3 Straightening & Welding Issue @ 90 & 270 Degrees
- 11-89574; As-Found Documentation of Low Diesel Fire Pump Speed
- 11-90033; Additional Weld Indications #3 CCW CH Head to Tube Sheet Weld Cover Passes
- 11-90209; WW1110 Work Delay; Job Extension Due to Emergent Issues with CCW#3 Heat Exchanger
- 11-90322; Crack in Weld on #3 CCW HX

Procedures:
- DB-FP-04047; Diesel Fire Pump Test; Revision 11
- DB-FP-04049; Diesel Fire Pump Tests; Revision 13
- DB-MM-09065; Main Steam Isolation Valve Maintenance; Revision 09
- DB-MM-09104; Fire Pump Diesel Engine Maintenance; Revision 08
- DB-MM-09374; Straightening Component Cooling Water Heat Exchanger(s) Using Heat and Mechanical Straightening Techniques; Revision 0
- DB-OP-06402; CRD Operating Procedure; Revision 19
- DB-SP-03445; SFRCS Channel 2 Trip of MS100 and MS101; Revision 10

Work Orders:
- 200299433; PM 1378, Inspect Diesel Fire Pump 1-1
- 200375595; PM 5973, Refurbish Fuel Pump
- 200426314; Component Cooling Water Heat Exchanger 3

Calculations:
- DB-SC-03255; SFRCS Overall Time Response Calculation; Revision 07

Other:
- M-304-00014; Rockwell-Edwards/Flowserve: Installation and Maintenance Instructions
- 36" x 32" x 36" Figure 612 GJMMNTY Main Steam Isolation Valve; Revision 08

1R20 Outage Activities

Condition Reports:
- 11-87934; Metal Equipment ID Tag for CC489 Detached From Valve; 1/8/2011
- 11-87948; 17CRD BACC – A Packing Leak Was Found On MU1A; 1/8/2011
- 11-87955; MS 100 Closure Time Greater than Max Allowable During DB-SP-034445 Testing

Procedures:
- DB-NE-06202; Reactivity Balance Calculations; Revision 07
- DB-OP-03013; Containment Daily Inspection & Containment Closeout Inspection; Revision 06
- DB-OP-06201; Main Steam System Operating Procedure; Revision 11
- DB-OP-06202; Turbine Operating Procedure; Revision 21
- DB-OP-06203; Moisture Separator-Reheater Operating Procedure; Revision 16
- DB-OP-06204; EHC System Operating Procedure; Revision 22
- DB-OP-06402; CRD Operating Procedure; Revision 19
- DB-OP-06901; Plant Startup; Revision 32
- DB-OP-06902; Power Operations; Revision 30
- DB-OP-06911; Pre-Startup Checklist; Revision 20
- DB-OP-06912; Approach to Criticality; Revision 13

Calculations:
- NOBP-OP-1004-02; Evolution Specific Reactivity Plan; Cycle 17 Shutdown for Control Rod Drive System Repairs (1/7/2011 – 1/10/2011); Revision 0

Other:
- January 2011 CRD Outage Work Implementation Schedule

1R22 Surveillance Testing

Condition Reports:
- 11-87842; EDG 2 Oil Leak Near AC LO Pump Suction

Procedures:
- DBBP-DBTS-2; Use of Leak Rate Monitor Test Equipment; Revision 2
- DB-OP-1101; Containment Entry; Revision 9
- DB-OP-3013; Containment Daily Inspection and Containment Closeout Inspection; Revision 6
- DB-OP-06316; Diesel Generator Operating Procedure; Revision 48
- DB-PF-205; Containment Leakage Test Program; Revision 4
- DB-SP-4159; AFP2 Monthly Test; Revision 14

- DB-PF-3008; Containment Local Leakage Rate Tests; Revision 15
- DB-PF-6704; Pump Performance Curves; Revision 26
- DB-SC-03071; Emergency Diesel Generator 2 Monthly Test; Revision 23
- DB-SP-3136; Decay Heat Train 1 Pump and Valve Test; Revision 29

Other:
- ISTP3, Third 10 Year Inservice Testing Program

1EP6 Drill Evaluation

Condition Reports:
- 11-89557; EP Drill – Confusion With Periodic Update Form Completion
- 11-89648; EP Drill – Evaluate The Take Cover Response For OSC Personnel
- 11-89649; EP Drill – Completed Emergency Team Briefer Form (DBEP-024-03) Needs Improvement

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

Other:
- DBNPS Emergency Preparedness Integrated Drill Controller Guide – February 10, 2011; Revision 0

2RS3 In-Plant Airborne Radioactivity Control and Mitigation

Condition Reports:
- 09-53143; User Advisory Notice for the Firehawk M7 SCBA; 2/5/2009
- 10-75833; M7 SCBA Supply Depleted due to Equipment Malfunction Affected Training; 4/23/2010
- 10-80530; Containment Purge Exhaust Charcoal Filters Exceeded the Acceptance Criteria due to Bypass Leakage; 7/19/2010
- 10-81949; SCBA Charging Tank New Relief Valve is Leaking; 10/30/2010
- 10-83622; Containment Air Purge Exhaust Filter Fails In-place Leakage Test; 10/4/2010
- 10-83622; Investigation Summary; Replace the Containment Purge Exhaust Charcoal Filter; Track Order No. 200432510; 11/3/2010
- 10-83644; Less Than Adequate Supply of SCBA for Live Fire Training; 9/30/2010
- 10-83757; Lab Hood Exhaust Carbon Filter Sample Did Not Meet Acceptance Criteria; 10/5/2010
- 11-88650; Containment Air Sampling Level 3 Miss-position Event; dated 1/24/2011

- 11-88903; Containment Purge Filter Differential Pressure Issue Timelines Repair Issue; 1/28/2011
- 11-88905; Lab Hood Exhaust Filter Differential Pressure Issue during NRC Exit; 1/28/2011
- 11-89008; Emergency Responder Respirator Corrective Lens Availability During NRC Exit; 1/28/2011

Procedures:
- DB-HP-01312; Testing of Portable HEPA Filtered Equipment; Revision 2
- DB-HP-06000; Operation of Air Compressors; Revision 9
- DB-OP-06512; Auxiliary Building Radioactive Ventilation System; Revision 17
- DB-SA-10-003; Radiological Air Sampling; dated September 9, 2010
- DB-SS-03253; Emergency Ventilation System (EVS) Train Two Refueling Interval or Special test; dated March 26, 2009
- DB-SS-04044; Lab Hood Exhaust Filter Refueling Test; Revision 4
- DB-SS- 04044; Laboratory Exhaust Filter Refueling Test Data; Revision 4;
- DB-SS-04045; High Efficiency Particulate Air (HEPA) Filter and Charcoal Adsorbers Test; Revision 6
- DB-SS4045-001; High Efficiency Particulate Air (HEPA) Filters and Charcoal Absorbers Test; dated October 22, 2008
- DB-SS4045-001; High Efficiency Particulate Air (HEPA) Filters and Charcoal Absorbers Test; for Containment Purge Exhaust Charcoal Filters; dated July 19, 2010
- MS-C-09-10-03; Davis Besse Working Checklist Radiation Protection; SCBA Maintenance
- MS-C-09-10-03; Fleet Oversight Audit Report; Radiation Protection and Radwaste; dated October 1, 2009
- MS-C-10-08-02; Fleet Oversight Audit Report; Chemistry and Environmental; dated October 8, 2010
- NOP-OP-4310; Firehawk M7 Self-Contained Breathing Apparatus; Revision 5
- SA-DB-10-006; Radioactive Effluents Implementation; dated February 11, 2010

Other:
- Baver Compressor; Grade D Air Quality Analysis; dated January 25, 2011
- Davis Besse Nuclear Power Station Air Compressor; Air Quality Analysis by Breathing Air Systems; Issue Date November 4, 2010
- Davis Besse Power Station, Individual Qualified for Respirator Issue Report
- SCBA Qualification and Verity Fit Test and Physical; dated January 18, 2011
- System Description for Auxiliary Building Radioactive Area HVAC System; dated October 13, 2010

2RS4 Occupational Dose Assessment

Procedures:
- DB-HP-01322; Fast Scan Efficiency Calibration Verification; dated April 30, 2010
- DB-HP-01436; Calibration Data Sheet; Merlin Gerin (MG) Calibration Source in CDM-21; dated from December 29, 2009 through January 21, 2011
- NOP-OP-4204; Special External Exposure Monitoring; Revision 3
- NOP-OP-4204-09; Neutron Radiation Exposure Tracking; dated from July 7, 2009 through November 11, 2010
- NOP-OP-4206; Bioassays Program; dated January 28, 2009

Condition Reports:
- 09-55341; Erroneous Dosimeter Alarm; 3/13/2009
- 10-72843; Individual Receive Internal Dose; 3/7/2010

Other:
- Calibration Certificate MG Dosimeter Calibrator FENOC DBNPS Radiation Protection; dated January 3, 2011
- Declaration of Pregnancy; dated September 02, 2010
- NVLAP Accreditation for Marion Technologies (GDS), Inc.; NVLAP Code No. 100555-0
- Routine TLD/DRD Comparison Report between July 10 and September 30, 2010

4OA1 Performance Indicator Verification

Forms:
- NOBP-LP-4012-44; Initiating Events Cornerstone Indicators; Completed Forms for January 2010 through December 2010

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

Other:
- NEI 99-02; Regulatory Assessment Performance Indicator Guideline; Revision 6
- Select Operator Logs covering the period of January 2010 through December 2010

4OA2 Problem Identification and Resolution

Condition Reports:
- 10-75132; Out of Spec Grounds on DCMCC2
- 10-76467; Aux Feed Pump 2 Target Rock Controller Will Not Calibrate Per DB-MI-3658
- 10-76595; DCMCC1 Ground Indication Out of Spec
- 10-78415; AFW Flow Limits Exceeded Due to Unexpected Response of AF6451
- 10-78416; AF6451 Issue During AFW Train 2 Flowpath Verification DB-SP-3164
- 10-78435; Potential Rework Issue for ZC6451
- 10-79897; While Performing DB-MI-3658 Found Ripple Voltage Out of Desired Range
- 10-79979; Installation Procedure for DB-ZC6451, DB-ZC6452, DB-ZC6459, DB-ZC6460
- 10-79986; AF6451 Failed to Reach Required Close Position Voltage Value
- 10-81205; Plant Equipment Supplied by the 125 VDC Battery System May Be Under Rated
- 10-81273; Past Operability Review of AFW Positioner ZC6451
- 10-81521; Ground Indication on DCMCC2

Procedures:
- DB-OP-6322; Locating Grounds on the Station 250/125 VDC System; Revision 4
- NOBP-LP-2010; Crest Trending Codes; Revision x
- NOP-LP-2001; Corrective Action Program; Revision x

Other:
- E-2013H; Station 125VDC Distribution System Failure Analysis Manual; Revision 2
- IEEE Std 946-1992; Recommended Practice for the Design of DC Auxiliary Power Systems for Generating Stations
- NRC Information Note 94-80; Inadequate DC Ground Detection in Direct Current Distribution Systems

4OA3 Followup of Events and Notices of Enforcement Discretion

Condition Reports:
- 10-81273; Past Operability Review of AFW Positioner ZC6451
- 11-88391; Fire in Building Construction Area
- 11-88594; Inability To Close CTMT Isolation Valve SW1358 (CAC 3 Outlet) From the Control Room
- 11-90050; Containment Air Cooling System Procedure, Extent of Condition
- 11-90198; CR11-88594 Extent of Cause Of Lack Of Drawing Information
- 11-90403; Received Unexpected Annunciator Alarms 14-4-E and 14-4-F

Procedures:
- DB-OP-2519; Serious Control Room Fire; Revision 16
- DB-OP-06016; Containment Air Cooling System Procedure; Revision 28
- DB-OP-06261; Service Water System Operating Procedure; Revision 45
- DB-OP-6322; Locating Grounds on the Station 250/125 VDC System; Revision 4
- DB-OP-6411; Radio Communication System; Revision 7
- DB-PF-03020; Service Water Train 1 Valve Test; Revision 33
- NOP-OP-1001; Clearance/Tagging Program; Revision 14

- Drawings:
- E-48B, Sheet 33A; Lake Water System CTMT Air Clr 1-3 Out Vlv; Revision 5
- E-58B, Sheet 2A and 2C; Elementary Wiring Diagrams CTMT Ventilation System CTMT CLR Fan 3; Revision 13
- OS-59, Sheet 1; 480/240/120 V AC System; Revision 11

Other:
- Clearance EDB-SUB060-05-006; Containment Air Cooler Fan 3
- Clearance EDB-SUB060-05-006A; Containment Air Cooler Fan 3
- Davis-Besse News Flash dated March 4, 2011
- ISTP3; Third Ten Year Inservice Testing Program; Revision 10
- ISTP3; Third Ten Year Inservice Testing Program; Revision 10
- SD-018; Service Water System Description; Revision 4
- SD-022B; Containment Air Cooling and Recirculation; Revision 4
- Unit Operating Logs, dated January 23, 2011
- ISTP3; Third Ten Year Inservice Testing Program; Revision 10

4OA5 Other Activities

Condition Reports:
- 11-91925; Turbine Building Sump Outage Discharge Line Leak

Procedures:
- NOBP-LP-5012; Communicating Events of Potential Public Interest; Revision 0
- NOP-OP-4705; Response to Contaminated Spills/Leaks; Revision 5

4OA7 Licensee-Identified Violations

Condition Reports:
- 10-81273; Past Operability Review of AFW Positioner ZC6451

LIST OF ACRONYMS USED

ADAMS	Agencywide Document Access Management System
ALARA	As-Low-As-Is-Reasonably-Achievable
ASME	American Society of Mechanical Engineers
B&PV	Boiler & Pressure Vessel
CAC	Containment Air Cooler
CAP	Corrective Action Program
CDF	Core Damage Frequency
CFR	Code of Federal Regulations
CIV	Containment Isolation Valve
CR	Condition Report
dc	Direct Current
DRP	Division of Reactor Projects
EAL	Emergency Action Level
ECCS	Emergency Core Cooling System
EP	Emergency Preparedness
IMC	Inspection Manual Chapter
IP	Inspection Procedure
IPEEE	Individual Plant Examination of External Events
IR	Inspection Report
IST	Inservice Testing
KV	Kilovolt
LCO	Limiting Condition for Operation
LER	Licensee Event Report
LOOP	Loss of Off-site Power
MSIV	Main Steam Isolation Valve
NCV	Non-Cited Violation
NEI	Nuclear Energy Institute
NRC	U.S. Nuclear Regulatory Commission
PARS	Publicly Available Records System
PI	Performance Indicator
pCi/L	picocuries per liter
PI&R	Problem Identification and Resolution
PM	Post Maintenance
PMT	Post Maintenance Tests
RFO	Refueling Outage
RP	Radiation Protection
SDP	Significance Determination Process
SSC	Systems, Structures, and Components
TAB	Temporary Assembly Building
TS	Technical Specification(s)
UE	Unusual Event
USAR	Updated Safety Analysis Report
URI	Unresolved Item
Vac	Volts Alternating Current
Vdc	Volts Direct Current
WO	Work Order

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Sincerely,

/RA/

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

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Letter to B. Allen from J. Cameron dated April 19, 2011.

SUBJECT: DAVIS-BESSE NUCLEAR POWER STATION INTEGRATED INSPECTION REPORT 05000346/2011002

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