



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

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

July 26, 2012

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

**SUBJECT: DAVIS-BESSE NUCLEAR POWER STATION INTEGRATED
INSPECTION REPORT 05000346/2012003**

Dear Mr. Allen:

On June 30, 2012, 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 July 10, 2012, 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 self-revealed finding of very low safety significance was identified. This finding did not involve any violations of NRC requirements. Additionally, one licensee-identified violation is listed in Section 4OA7 of this report. The NRC is treating this violation as a non-cited violation (NCV) consistent with Section 2.3.2 of the Enforcement Policy.

If you contest the subject or severity of this finding, 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 the finding in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region III, and the NRC Resident Inspector at the Davis-Besse Nuclear Power Station.

B. Allen

-2-

In accordance with 10 CFR Part 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 Agencywide Document Access and Management 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 05000346/2012003
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: 05000346/2012003

Licensee: FirstEnergy Nuclear Operating Company (FENOC)

Facility: Davis-Besse Nuclear Power Station

Location: Oak Harbor, OH

Dates: April 1, 2012, through June 30, 2012

Inspectors: D. Kimble, Senior Resident Inspector
A. Wilson, Resident Inspector
T. Briley, Reactor Engineer
D. Jones, Reactor Inspector
M. Mitchell, Health Physicist
J. Rutkowski, Project Engineer
P. Smagacz, Reactor Engineer
J. Steffes, Reactor Engineer

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

Enclosure

TABLE OF CONTENTS

SUMMARY OF FINDINGS.....	1
REPORT DETAILS.....	3
Summary of Plant Status.....	3
1. REACTOR SAFETY.....	3
1R01 Adverse Weather Protection (71111.01).....	3
1R04 Equipment Alignment (71111.04).....	5
1R05 Fire Protection (71111.05).....	6
1R08 Inservice Inspection Activities (71111.08).....	7
1R11 Licensed Operator Requalification Program (71111.11).....	10
1R12 Maintenance Effectiveness (71111.12).....	11
1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13).....	12
1R15 Operability Determinations and Functionality Assessments (71111.15).....	14
1R18 Plant Modifications (71111.18).....	14
1R19 Post-Maintenance Testing (71111.19).....	15
1R20 Outage Activities (71111.20).....	16
1R22 Surveillance Testing (71111.22).....	20
2. RADIATION SAFETY.....	22
2RS1 Radiological Hazard Assessment and Exposure Controls (71124.01).....	22
2RS2 Occupational As-Low-As-Is-Reasonably-Achievable Planning and Controls (71124.02).....	27
2RS7 Radiological Environmental Monitoring Program (71124.07).....	28
4. OTHER ACTIVITIES.....	31
4OA1 Performance Indicator Verification (71151).....	31
4OA2 Identification and Resolution of Problems (71152).....	33
4OA3 Follow-Up of Events and Notices of Enforcement Discretion (71153).....	35
4OA6 Management Meetings.....	35
4OA7 Licensee-Identified Violation.....	36
SUPPLEMENTAL INFORMATION.....	1
Key Points of Contact.....	1
List of Items Opened, Closed and Discussed.....	2
List of Documents Reviewed.....	3
List of Acronyms Used.....	14

SUMMARY OF FINDINGS

Inspection Report (IR) 05000346/2012003; 4/1/2012-6/30/2012; Davis-Besse Nuclear Power Station; Refueling and Other Outage Activities.

This report covers a 3-month period of inspection by resident inspectors and announced baseline inspections by regional inspectors. One Green finding was identified by the inspectors. The finding did not involve any violations 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 finding of very low safety significance was identified for the licensee's failure to establish and implement technically appropriate work instructions for the drawing of oil samples from the reactor coolant pump (RCP) lower bearing reservoirs, such that when an oil sample was drawn from the RCP 1-2 lower motor bearing on May 6, 2012, the lower motor bearing was damaged by the excessive heat generated due to a lack of adequate lubrication, and control room operators were forced to conduct a rapid shutdown of the pump. Specifically, the approved work instructions called for the oil sample to be obtained with the RCP running, a practice contrary to the manufacturer's recommendations.

The finding was determined to be of more than minor significance because it was associated with the Initiating Events cornerstone attribute of procedure quality and had adversely affected the associated cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, plant stability was upset when control room operators were forced to respond to an abnormal and emergent condition on RCP 1-2 when deficient written work instructions for the collection of RCP motor bearing oil samples, calling for those oil samples to be drawn with the pumps running, caused the lower motor bearing on RCP 1-2 to be damaged by a loss of adequate lubrication. The inspectors evaluated the finding using IMC 0609, Attachment 4, "Phase 1 - Initial Screening and Characterization of Findings." Because the finding involved reactor shutdown operations in Mode 3 prior to the plant reaching the conditions for placing the Decay Heat Removal System in service, the inspectors assessed the significance of the finding using the criteria for transient initiators for reactors operating at power. 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. Consequently, the finding was determined to be of very low safety significance. This finding had a cross-cutting aspect in the area of Human Performance, Work Control component, because the licensee did not appropriately plan the work activity for the collection of RCP oil samples to incorporate risk insights that were available. Specifically, there was sufficient information available to the licensee from both the RCP manufacturer and other industry peers, including a sister facility within the

licensee's own nuclear fleet, that indicated the risk associated with obtaining oil samples from running RCPs, but these risk insights were not utilized. (H.3(a)) (Section 1R20.1)

B. Licensee-Identified Violations

A violation of very low safety significance that was identified by the licensee has been reviewed by the inspectors. Corrective actions planned or taken by the licensee have been entered into the licensee's corrective action program. This violation and 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 May 6, 2012, the unit was taken off line and the reactor shutdown to begin refueling outage (RFO) 17R. Following completion of RFO 17R, the reactor was taken critical on June 11, 2012, and the main electrical generator synchronized to the electrical power grid on June 13, 2012. Full power operation was achieved on June 15, 2012, and the unit remained operating at or near full power for the remainder of the inspection period.

1. REACTOR SAFETY

Cornerstone: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01)

.1 Readiness of Offsite and Alternate Alternating Current Power Systems

a. Inspection Scope

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

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

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

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

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

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

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

b. Findings

No findings were identified.

.2 External Flooding

a. Inspection Scope

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

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

b. Findings

No findings were identified.

.3 Readiness for Impending Adverse Weather Condition – High Wind Conditions

a. Inspection Scope

Since high wind conditions were forecast in the vicinity of the facility for April 16, 2012, the inspectors reviewed the licensee's overall preparations/protection for the expected weather conditions. On April 16, 2012, the inspectors walked down the area surrounding the 345 kV switchyard and the startup transformers, in addition to the licensee's emergency AC power systems, because their safety-related functions could be affected or required as a result of high winds or tornado-generated missiles or the loss of offsite power (LOOP). The inspectors evaluated the licensee staff's preparations against the site's procedures and determined that the staff's actions were adequate. During the inspection, the inspectors focused on plant-specific design features and the

licensee's procedures used to respond to specified adverse weather conditions. The inspectors also toured the plant grounds to look for any loose debris that could become missiles during high wind conditions. The inspectors evaluated operator staffing and accessibility of controls and indications for those systems required to control the plant. Additionally, the inspectors reviewed the USAR and performance requirements for systems selected for inspection, and verified that operator actions were appropriate as specified by plant specific procedures. The inspectors also reviewed a sample of CAP items to verify that the licensee identified adverse weather issues at an appropriate threshold and dispositioned them through the CAP in accordance with station corrective action procedures. Specific documents reviewed during this inspection are listed in the Attachment to this report.

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

b. Findings

No findings were identified.

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:

- Decay Heat (DH) Train 1 with DH Train 2 out-of-service for maintenance during the week ending April 28, 2012;
- Emergency Diesel Generators (EDGs) 1 and 2 when the Station Blackout Diesel Generator (SBODG) was unavailable for planned maintenance during the week ending April 5, 2012; and
- EDG 1 and the SBODG when EDG 2 was unavailable for planned maintenance during the weeks ending May 19, 2012, and May 26, 2012.

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

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

b. Findings

No findings were identified.

1R05 Fire Protection (71111.05)

.1 Resident Inspector Quarterly Fire Zone Inspections

a. Inspection Scope

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

- Containment Room 216 (Elevation 565', 585', 603', 623' and 643', Fire Area D);
- Containment Room 218 (Elevation 565', 585', 603', 623' and 643', Fire Area D);
- Containment Rooms 407, 410 and 410A (Elevation 603', Fire Area D);
- Clean Waste Receiver Tank Rooms No. 1 and No. 2 (Rooms 123 and 124, Fire Area A); and
- Auxiliary Feedwater (AFW) Pump Rooms No. 1 and No. 2 (Rooms 237 and 238, Fire Areas E and F).

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 to this report, 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 five quarterly fire protection zone inspection samples as defined in IP 71111.05-05.

b. Findings

No findings were identified.

1R08 Inservice Inspection Activities (71111.08)

From May 14, 2012, through May 24, 2012, the inspectors conducted a review of the implementation of the licensee's Inservice Inspection (ISI) Program for monitoring degradation of the reactor coolant system, steam generator tubes, emergency feedwater systems, risk-significant piping and components and containment systems.

The inspections described in Sections 1R08.1, 1R08.2, 1R08.3, 1R08.4, and 1R08.5 below constituted one ISI sample as defined in IP 71111.08. This inspection report completes the ISI 71111.08 inspection that began with the 2011 mid-cycle outage (17M), as documented in NRC Inspection Reports 05000346/2011004 and 05000346/2011005.

.1 Piping Systems ISI

a. Inspection Scope

The inspectors observed the following non-destructive examinations mandated by the American Society of Mechanical Engineers (ASME) Section XI Code to evaluate compliance with the ASME Code Section XI and Section V requirements and if any indications and defects were detected, to determine if these were dispositioned in accordance with the ASME Code or an NRC-approved alternative requirement:

- Ultrasonic examination (UT) of the pressurizer (PZR) 4 inch spray nozzle to safe end to pipe weld overlay (RC-PZR-WP-102);
- UT of the PZR 4 inch pipe to safe end weld overlay (RC-MK-A-90-FW56);
- UT of the PZR 2.5 inch Z/W axis relief nozzle to safe end overlay (RC-PZR-WP-91-Z/W);
- UT of the PZR 3 inch safe end to pipe weld overlay (RC-30-CCA-8-1-FW10); and
- Visual examination (VT) of rigid support (RC-M-1140/H5).

During the prior mid-cycle outage non-destructive surface and volumetric examinations, the licensee did not identify any relevant/recordable indications to be evaluated for continued service. Therefore, no NRC review was completed for this inspection procedure attribute.

Review of pressure boundary welding performed during the 2011 mid-cycle outage is documented in NRC Inspection Reports 05000346/2011004 and 05000346/2011005.

b. Findings

No findings were identified.

.2 Reactor Pressure Vessel Upper Head Penetration Inspection Activities

a. Inspection Scope

Inspection of reactor vessel upper head replacement and pre-service inspection activities performed during the 2011 mid-cycle outage are documented in NRC Inspection Reports 05000346/2011004 and 05000346/2011005.

b. Findings

No findings were identified.

.3 Boric Acid Corrosion Control

a. Inspection Scope

The inspectors performed an independent walkdown of the reactor coolant system and related lines in the containment including the under vessel penetrations, which had received a recent licensee boric acid walkdown and verified that the licensee's boric acid corrosion control (BACC) VTs emphasized locations where boric acid leaks could cause degradation of safety-significant components.

The inspectors reviewed the following licensee evaluations of reactor coolant system components with boric acid deposits to determine if degraded components were documented in the CAP. The inspectors also evaluated corrective actions for any degraded reactor coolant system components to determine if they met the ASME Section XI Code:

- CR 2012-07904; 17R BACC-A Packing Leak Was Found on MU 478A; and
- CR 2012-07734; 17R BACC-A Packing Leak Was Found On RC 2A2A.

The inspectors reviewed the following corrective actions related to evidence of boric acid leakage to determine if the corrective actions completed were consistent with the requirements of the ASME Code Section XI and 10 CFR Part 50, Appendix B, Criterion XVI:

- CR 2012-07993; VT-2 Examination of Reactor Coolant Pump (RCP) 1-1 Class 1 Bolting Test Zone RC13; and
- CR 2012-07765; 17R BACC-A Packing Leak Was Found on SF69.

b. Findings

No findings were identified.

.4 Steam Generator Tube Inspection Activities

a. Inspection Scope

The NRC inspectors observed acquisition of eddy current (ET) data, interviewed ET data analysts, and reviewed documentation related to the Steam Generator Tube (SG) ISI program to determine if:

- In-situ SG tube pressure testing screening criteria used were consistent with those identified in the Electric Power Research Institute (EPRI) TR-107620, SG In-Situ Pressure Test Guidelines and that these criteria were properly applied to screen degraded SG tubes for in-situ pressure testing;
- The numbers and sizes of SG tube flaws/degradation identified was bound by the licensee's previous outage Operational Assessment predictions;

- The SG tube ET examination scope and expansion criteria were sufficient to meet the TSs, and the EPRI 1003138, Pressurized Water Reactor Steam Generator Examination Guidelines – Revision 6;
- The SG tube ET examination scope included potential areas of tube degradation identified in prior outage SG tube inspections and/or as identified in NRC generic industry operating experience applicable to these SG tubes;
- The licensee identified new tube degradation mechanisms and implemented adequate extent of condition inspection scope and repairs for the new tube degradation mechanism;
- The licensee implemented repair methods which were consistent with the repair processes allowed in the plant TS requirements and to determine if qualified depth sizing methods were applied to degraded tubes accepted for continued service;
- The licensee implemented an inappropriate “plug on detection” tube repair threshold (e.g., no attempt at sizing of flaws to confirm tube integrity);
- The licensee primary-to-secondary leakage (e.g., SG tube leakage) was below three gallons/day, or the detection threshold during the previous operating cycle;
- The ET probes and equipment configurations used to acquire data from the SG tubes were qualified to detect the known/expected types of SG tube degradation in accordance with Appendix H, Performance Demonstration for Eddy Current Examination, of EPRI 1003138, Pressurized Water Reactor Steam Generator Examination Guidelines, Revision 6; and
- The licensee performed secondary side SG inspections for location and removal of foreign materials.

The licensee did not perform in-situ pressure testing of SG tubes. Therefore, no NRC review was completed for this inspection attribute.

b. Findings

No findings were identified.

.5 Identification and Resolution of Problems

a. Inspection Scope

The inspectors performed a review of ISI/SG-related problems entered into the licensee’s CAP and conducted interviews with licensee staff to determine if:

- The licensee had established an appropriate threshold for identifying ISI/SG-related problems;
- The licensee had performed a root cause (if applicable) and taken appropriate corrective actions; and
- The licensee had evaluated operating experience and industry generic issues related to ISI and pressure boundary integrity.

The inspectors performed these reviews to evaluate compliance with 10 CFR Part 50, Appendix B, Criterion XVI, “Corrective Action,” requirements. The corrective action documents reviewed by the inspectors are listed in the Attachment to this report.

b. Findings

No findings were identified.

1R11 Licensed Operator Regualification Program (71111.11)

.1 Resident Inspector Quarterly Review of Licensed Operator Regualification (71111.11Q)

a. Inspection Scope

On April 5, 2012, the inspectors observed a crew of licensed operators in the plant's simulator during two licensed operator training scenarios to verify that operator performance was adequate, evaluators were identifying and documenting crew performance problems, and that training was being conducted in accordance with licensee procedures. The inspectors evaluated the following areas:

- Licensed operator performance;
- The crew's clarity and formality of communications;
- The ability of the crew to take timely and conservative actions;
- The crew's prioritization, interpretation, and verification of annunciator alarms;
- The correct use and implementation of abnormal and emergency procedures;
- Control board manipulations;
- The oversight and direction provided by licensed senior reactor operators (SROs); and
- The ability of the crew 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 simulator sample as defined in IP 71111.11-05.

b. Findings

No findings were identified.

.2 Resident Inspector Quarterly Observation of Control Room Activities (71111.11Q)

a. Inspection Scope

During the course of the inspection period, the inspectors performed numerous observations of licensed operator performance in the plant's control room to verify that operator performance was adequate and that plant evolutions were being conducted in accordance with approved plant procedures. Specific activities observed that involved a heightened tempo of activities or periods of elevated risk included, but were not limited to:

- Reactor shutdown and plant cooldown activities during the week ending May 12, 2012;

- Emergent plant cooldown activities to support repairs to the RCP 1-2 seal cavity vent line during the week ending June 9, 2012; and
- Reactor and plant startup activities during the week ending June 16, 2012.

The inspectors evaluated the following areas during the course of the control room observations:

- Licensed operator performance;
- The clarity and formality of communications;
- The ability of the crew to take timely and conservative actions;
- The crew's prioritization, interpretation, and verification of annunciator alarms;
- The correct use and implementation of normal operating, annunciator alarm response, and abnormal operating procedures by the crew;
- Control board manipulations;
- The oversight and direction provided by on-watch SROs and plant management personnel; and
- The ability of the crew to identify and implement appropriate TS 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 observation sample of operator performance in the plant's control room as defined in IP 71111.11-05.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12)

.1 Routine Quarterly Evaluations

a. Inspection Scope

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

- Auxiliary Feedwater (AFW) System; and
- Cathodic Protection System.

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

- Implementing appropriate work practices;
- Identifying and addressing common cause failures;
- Scoping of systems in accordance with 10 CFR 50.65(b) of the maintenance rule;
- Characterizing system reliability issues for performance;

- Charging unavailability for performance;
- Trending key parameters for condition monitoring;
- Ensuring 10 CFR 50.65(a)(1) or (a)(2) classification or re-classification; and
- Verifying appropriate performance criteria for structures, systems, and components (SSCs)/functions classified as (a)(2), or appropriate and adequate goals and corrective actions for systems classified as (a)(1).

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

The inspectors' reviews constituted two quarterly maintenance effectiveness inspection 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 Maintenance Risk Assessments and Emergent Work Control

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:

- Emergent work associated with loss of the Bayshore 345 kV offsite power line during the week ending April 14, 2012, as documented in CR 2012-05656;
- Emergent work associated with a mechanical seal failure on DH Pump No. 2 during the week ending May 12, 2012, as documented in CR 2012-07520; and
- Emergent work associated with repairs to a pinhole leak on the vent line for the RCP 1-2 mechanical seal cavity during the week ending June 9, 2012, as documented in CR 2012-09381.

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

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

b. Findings

No findings were identified.

.2 NRC Confirmatory Action Letter (CAL) No. 3-11-001, Action No. 6 – Boroscopic Examination of Uncracked Concrete Shield Building Core Bore Locations During Refuel Outage 17R; and NRC CAL No. 3-11-001, Action No. 7 – Boroscopic Examination of Cracked Concrete Shield Building Core Bore Locations During Refuel Outage 17R

a. Inspection Scope

During a mid-cycle outage to replace the reactor vessel closure head (RVCH) in late 2011, the licensee identified laminar cracking in the safety-related shield building of the containment system while performing hydrodemolition operations to create a shield building maintenance access opening. Based on an evaluation of the licensee's extent-of-condition and technical analysis of the shield building laminar cracking, the NRC staff concluded that the licensee had provided reasonable assurance that the shield building was capable of performing its safety functions. In order to provide continued long-term confidence, the licensee agreed to several follow-on actions. On December 2, 2011, the NRC issued CAL No. 3-11-001 (ADAMS Accession No. ML11336A355) to formally document the follow-on actions committed to by the licensee.

The inspectors reviewed the licensee's evaluation and management of plant risk for the subject maintenance work activities to verify that the appropriate risk assessments were performed prior to engaging in the work. The inspectors reviewed the scope of the work and verified plant conditions were consistent with the risk assessment. The inspectors also reviewed applicable TS requirements and any restrictions on the work activities imposed by the licensee's engineering work package. During the weeks ending May 12, 2012, and May 19, 2012, the following work activities were directly observed by the inspectors:

- Borescopic inspection activities conducted in the plant by the licensee's staff of existing shield building core bore locations that did not contain cracked concrete to verify that no cracks had migrated into the previously uncracked concrete; and
- Borescopic inspection activities conducted in the plant by the licensee's staff of existing shield building core bore locations that contained concrete cracking to verify that the characterization and status of the cracks had remained unchanged.

The inspectors verified that the licensee's inspections were thorough and that the results and conclusions obtained by the licensee's staff were reasonable. Specific documents reviewed during this inspection are listed in the Attachment to this report.

The inspectors' review and observation of these maintenance activities constituted one inspection sample as defined in IP 71111.13-05.

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments (71111.15)

.1 Operability and Functionality Evaluations

a. Inspection Scope

The inspectors reviewed the following issues:

- The functionality and availability of the Main Steam Safety Valves during on-line setpoint lift testing, as documented in CR 2012-07009;
- The operability of DH Pump 1 with outboard motor bearing oil leakage, as documented in CR 2012-07827;
- The operability of the EDGs 1 and 2 with rusting noted on the EDG exhaust pipe supports, as documented in CR 2012-07088;
- The operability of the reactor vessel closure head with rust stains noted on it during the initial visual inspections performed during refuel outage 17R, as documented in CR 2012-07702; and
- The operability of Intermediate Range Nuclear Instruments, NI-3 and NI-4, with a noted disagreement in measured neutron flux levels, as documented in CR 2012-09611.

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

The inspectors' reviews of these operability and functionality evaluations constituted five inspection samples as defined in IP 71111.15-05.

b. Findings

No findings were identified.

1R18 Plant Modifications (71111.18)

.1 Permanent Plant Modifications

a. Inspection Scope

The inspectors reviewed the following permanent modifications to the facility:

- EDG No. 1 and No. 2 exhaust line stack height reduction and exhaust silencer replacements; and
- Installation of the AREVA Fixed Incore Detector Monitoring System.

The inspectors reviewed the configuration changes and associated 10 CFR Part 50.59 safety evaluation documents against the design basis, the USAR, and the TS, as applicable, to verify that the modifications did not affect the operability or availability of any safety-related systems, or systems important to safety. The inspectors observed ongoing and completed work activities to ensure that the modifications were installed as directed and consistent with the design control documents; the modifications operated as expected; post-modification testing adequately demonstrated continued system operability, availability, and reliability; and that operation of the modifications did not impact the operability of any interfacing systems. As applicable, the inspectors verified that relevant procedure, design, and licensing documents were properly updated. Lastly, the inspectors discussed the plant modifications with operations, engineering, and training personnel to ensure that the individuals were aware of how the operation with the plant modifications in place could impact overall plant performance. Documents reviewed in the course of this inspection are listed in the Attachment to this report.

The inspectors' reviews of these permanent plant modifications constituted two inspection samples as defined in IP 71111.18-05.

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19)

.1 Post-Maintenance Testing

a. Inspection Scope

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

- EDG 1 fast start during the week ending May 19, 2012, following EDG 1 exhaust and silencer replacement;
- Functional testing of No. 2 DH Pump following emergent replacement of the pump's mechanical seal during the week ending May 19, 2012;
- Rotational motor testing of RCP 1-2 following emergent repairs to the lower pump motor bearing during the week ending May 19, 2012;
- EDG 2 fast start (184-day surveillance) during the week ending May 19, 2012, following EDG 2 exhaust and silencer replacement;
- Radiography on various AFW field welds following replacement of several safety-related motor-operated valves during the week ending May 26, 2012;
- Palfinger auxiliary crane base moment test lift in containment during the week ending May 26, 2012, following installation in the containment building;
- High pressure injection (HPI) valve HP2A testing during the week ending May 26, 2012, following valve actuator replacement;

- SBODG during the week ending May 26, 2012, following governor relay replacements;
- No. 2 AFW Pump response time test during the week ending June 9, 2012, following outboard bearing and governor maintenance;
- Zero power physics testing during the week ending June 16, 2012, following RFO 17R;
- Circulating water pump 1 return to service during the week ending June 16, 2012, following bearing replacement; and
- Control rod assembly insertion timing tests during the week ending June 16, 2012.

These activities were selected based upon the SSC'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 (i.e., 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 TSs, the USAR, 10 CFR Part 50 requirements, licensee procedures, and various NRC generic communications to ensure that the test results adequately ensured that the equipment met the licensing basis and design requirements. In addition, the inspectors reviewed corrective action documents associated with post-maintenance tests to determine whether the licensee was identifying problems and entering them in the CAP and that the problems were being corrected commensurate with their importance to safety. Documents reviewed are listed in the Attachment to this report.

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

b. Findings

No findings were identified.

1R20 Outage Activities (71111.20)

.1 Refueling Outage Activities

a. Inspection Scope

The inspectors reviewed the licensee's outage safety plans, preparations, and contingencies for the site's 17th RFO, conducted from May 6 – June 15, 2012, to confirm that the licensee had appropriately considered risk, industry experience, and previous site-specific issues in developing and implementing a plan that assured the establishment and maintenance of defense-in-depth. During the RFO, the inspectors observed portions of the shutdown and cooldown processes and monitored licensee controls over various outage activities, including but not limited to:

- Licensee configuration management, including maintenance of defense-in-depth commensurate with the outage safety plans for key safety functions and compliance with the applicable TS when taking equipment out of service;
- Implementation of clearance activities and confirmation that tags were properly hung and equipment appropriately configured to safely support the work or testing;
- Installation and configuration of reactor coolant pressure, level, and temperature instruments to provide accurate indication, accounting for instrument error;
- Controls over the status and configuration of electrical systems to ensure that TS and outage safety plan requirements were met, and controls over switchyard activities;
- Monitoring of DH removal processes, systems, and components;
- Controls to ensure that outage work was not impacting the ability of the operators to operate the spent fuel pool cooling system;
- Reactor water inventory controls including flow paths, configurations, and alternative means for inventory addition, and controls to prevent inventory loss;
- Controls over activities that could affect reactivity;
- Maintenance of secondary containment as required by TS;
- Licensee fatigue management, as required by 10 CFR Part 26, Subpart I;
- Refueling activities, including fuel handling and spent fuel assembly inspection activities;
- Startup and ascension to full power operation, tracking of startup prerequisites, physical inspection of the primary containment just prior to closeout to verify that debris had not been left which could block emergency core cooling system (ECCS) suction strainers, low-power reactor physics testing; and
- Licensee identification and resolution of problems related to RFO activities.

Documents reviewed during the inspection are listed in the Attachment to this report.

This inspection constituted one RFO sample as defined in IP 71111.20-05.

b. Findings

Oil Sample Drawn From Running Reactor Coolant Pump Resulted in Entry into Abnormal Operating Procedure and Reactor Coolant Pump Shutdown

Introduction

A self-revealed finding of very low safety significance (Green) was identified for the licensee's failure to establish and implement technically appropriate work instructions for the drawing of oil samples from the RCP lower bearing reservoirs, such that when an oil sample was drawn from the RCP 1-2 lower motor bearing on May 6, 2012, the lower motor bearing was damaged by the excessive heat generated due to a lack of adequate lubrication, and control room operators were forced to conduct a rapid shutdown of the pump. Specifically, the approved work instructions called for the oil sample to be obtained with the RCP running, a practice contrary to the manufacturer's recommendations.

Description

On May 6, 2012, at the beginning of the 17th RFO, mechanical maintenance personnel prepared to take oil samples from the upper and lower motor bearing reservoirs on the RCP motors. The WO being utilized specifically stated that the samples were to be obtained while the RCPs were still running. A later investigation into this incident by the licensee would reveal that the site's maintenance and engineering personnel believed that this was necessary in order to obtain appropriately representative oil samples.

Because of the plant shutdown activities that were in progress, control room operators were very heavily tasked. While they did not believe that the RCP motor oil sampling activities would necessarily cause any problems, they had specifically directed that maintenance personnel inform them just before the oil samples were to be drawn so that the operators could access and monitor key RCP parameters via the plant computer during the evolution.

At about 4:53 a.m., maintenance personnel entered the containment building and in accordance with their approved, written work instructions drew approximately 1.5 gallons of oil from both the RCP 1-1 and the RCP 1-2 lower motor bearing reservoirs. The maintenance personnel who drew these oil samples stated that they had contacted the control room prior to the sampling evolution, as they had been directed; however, due to the high-tempo activity in the control room at the time, the appropriate control room operators either did not receive this notification or did not understand the true nature of the communication that was made. As a result, control room operators did not focus additional monitoring efforts on the RCP parameters during the oil sampling evolution, as had been their intention prior to the work being performed.

Almost immediately as the maintenance personnel began to draw their oil sample, the plant computer recorded a low oil level alarm for the RCP 1-2 lower motor bearing. At approximately 5:00 a.m., the same plant computer alarm was received for the RCP 1-1 lower motor bearing, and about a minute later at 5:01 a.m., the plant computer recorded a high temperature alarm on the RCP 1-2 lower motor bearing at approximately 194 deg F.

The design of the plant computer alarm summary screen only allows for 24 computer alarms to be displayed at a given time. Any additional alarms are recorded, but are not displayed until the 24 on the screen are acknowledged. Plant computer records show that there were 33 computer alarms received in the 3 minutes prior to the initial computer low oil level alarm for the RCP 1-2 lower motor bearing at 4:53 a.m., and 35 received in the 3 minutes after this alarm. There were approximately 4,500 computer alarms recorded by the control room alarm printer between midnight and 5:00 a.m. on May 6, 2012. Due to a combination of factors that included poor communications between control room operators and the maintenance personnel drawing the oil samples, the extremely high activity and workload in the control room due to the plant shutdown, and the design of the plant computer alarm display, none of the above plant computer alarms related to the out-of-specification conditions on the RCP 1-1 or RCP 1-2 lower motor bearings were noted by the control room operators. Had the operators noted any of these alarms, the site's abnormal operating procedure for the RCPs, DB-OP-02515, would have been entered and directed the operators to perform a rapid shutdown of RCP 1-2 to prevent damage to the lower motor bearing.

At approximately 5:33 a.m., the maintenance personnel who had drawn the RCP oil samples exited the containment building and contacted the control room to inform the on-shift operators that the sampling evolutions were complete. The maintenance personnel also informed the control room operators that because the maintenance personnel performing the activity had reached their allotted stay time for working in the hot temperatures of the containment building, the lower motor bearing reservoir oil levels for RCPs 1-1 and 1-2 had not been returned to normal. At this point, control room operators became aware of the out-of-specification conditions on the RCP 1-1 or RCP 1-2 lower motor bearings and entered DB-OP-02515, "Reactor Coolant Pumps and Motors Abnormal Operation." Based on the low oil level and high bearing temperature on the lower motor bearing for RCP 1-2, the operators performed a rapid shutdown of RCP 1-2. By this time, however, the lower motor bearing for RCP 1-2 had been damaged by lack of proper lubrication to the extent that it had to be replaced.

Following the event, the licensee conducted an investigation into its cause. The following conclusions resulted from that investigation:

- The direct cause of the damage to the RCP 1-2 lower motor bearing was a lack of adequate lubrication;
- The amount of oil collected for the sample, approximately 1.5 gallons as directed by the written and approved work instructions, was unnecessarily excessive; and
- The site was an outlier with respect to the rest of the nuclear industry in that most other sites, per the manufacturer's recommendations, collect RCP oil samples with the pumps secured.

The licensee had entered this issue into their CAP as CRs 2012-07279, 2012-07291, and 2012-07523. Corrective actions taken by the licensee included, but were not limited to, changes to the standard work instructions for RCP oil sampling to specify the drawing of the oil samples with the pumps secured and enhancements to the Operations standards for control room personnel performance to address the issues with operator awareness during high-tempo periods of activity.

Analysis

The inspectors determined that the licensee's practice of obtaining RCP motor bearing oil samples with the pumps running was contrary to established industry standards and the manufacturer's recommendations, and as such constituted a performance deficiency that was reasonably within the licensee's ability to foresee and correct and should have been prevented.

The inspectors reviewed this issue using the guidance contained in Appendix B, Issue Screening, of IMC 0612, Power Reactor Inspection Reports, and determined that it was of more than minor safety significance and constituted a finding. The issue was determined to be associated with the Initiating Events cornerstone attribute of procedure quality, and had adversely affected the associated cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, plant stability was upset when control room operators were forced to respond to an abnormal and emergent condition on RCP 1-2 when deficient written work instructions for the collection of RCP motor bearing oil samples, calling for those oil samples to be drawn with the pumps

running, caused the lower motor bearing on RCP 1-2 to be damaged by a loss of adequate lubrication.

The inspectors evaluated the finding using IMC 0609, Attachment 4, Phase 1 - Initial Screening and Characterization of Findings. Because the finding involved reactor shutdown operations in Mode 3 prior to the plant reaching the conditions for placing the DH Removal System in service, the inspectors assessed the significance of the finding using the criteria for transient initiators for reactors operating at power. 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. Consequently, 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, Work Control component, because the licensee did not appropriately plan the work activity for the collection of RCP oil samples to incorporate risk insights that were available. Specifically, there was sufficient information available to the licensee from both the RCP manufacturer and other industry peers, including a sister facility within the licensee's own nuclear fleet, that indicated the risk associated with obtaining oil samples from running RCPs, but these risk insights were not utilized. (H.3(a))

Enforcement

The inspectors concluded that the licensee did not comply with the standards and expectations for establishing, implementing, and maintaining technically adequate written work instructions for the collection of oil samples from the site's RCP motor bearing reservoirs. This finding, however, did not involve a corresponding violation of NRC requirements. Specifically, the inspectors determined that the work instructions for obtaining oil samples from RCP motor bearing reservoirs are not covered under the nuclear quality assurance requirements set forth in 10 CFR Part 50, Appendix B. Additionally, the inspectors also determined that these work instructions are not covered under TS 5.4.1(a), which requires the licensee to establish, implement, and maintain applicable written procedures for the safety-related systems and activities recommended in RG 1.33, Revision 2, Appendix A. (FIN 05000346/2012003-01)

1R22 Surveillance Testing (71111.22)

.1 Surveillance Testing

a. Inspection Scope

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

- DB-SP-03338; "Containment Spray Train 2 Quarterly Pump and Valve Test," during the week ending April 28, 2012 (routine);
- DB-SC-03077, "Emergency Diesel Generator 2 184-Day Test," during the week ending May 26, 2012 (routine);
- DB-PF-03001; "Main Steam Safety Valve Setpoint Test," during the week ending May 5, 2012 (inservice testing (IST));

- DB-PF-03008, “Containment Local Leakage Rate Tests,” {Local Leak Rate Test CV 5011B – Containment Air Sample Isolation Valve} during the week ending May 12, 2012 (containment isolation valve (CIV));
- DB-PF-03008, “Containment Local Leakage Rate Tests,” {Local Leak Rate Test CV 5076 – Containment Vessel Vacuum Breaker Penetration 8G, and CV 5077 – Containment Vessel Vacuum Breaker Penetration 8H} during the week ending May 26, 2012 (CIV); and
- DB-PF-03010, “Reactor Coolant System Leakage Test,” during the week ending June 16, 2012 (reactor coolant system leakage).

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;
- Test data and results were accurate, complete, within limits, and valid;
- Test equipment was removed after testing;
- Where applicable for IST activities, testing was performed in accordance with the applicable version of Section XI, ASMEs code, and reference values were consistent with the system design basis;
- Where applicable, test results not meeting acceptance criteria were addressed with an adequate operability evaluation or the system or component was declared inoperable;
- Where applicable, actual conditions encountering high resistance electrical contacts were such that the intended safety function could still be accomplished;
- Prior procedure changes had not provided an opportunity to identify problems encountered during the performance of the surveillance or calibration test;
- Equipment was returned to a position or status required to support the performance of its safety functions; and
- All problems identified during the testing were appropriately documented and dispositioned in the CAP.

Documents reviewed are listed in the Attachment to this report.

These reviews by the inspectors constituted two routine surveillance testing samples, a single inservice testing sample, two containment isolation valve inspection samples, and

a single reactor coolant system leak detection inspection sample as defined in IP 71111.22, Sections -02 and -05.

b. Findings

No findings were identified.

2. RADIATION SAFETY

Cornerstones: Occupational Radiation and Safety and Public Radiation Safety

2RS1 Radiological Hazard Assessment and Exposure Controls (71124.01)

This inspection constituted a partial sample as defined in IP 71124.01-05.

.1 Inspection Planning (02.01)

a. Inspection Scope

The inspectors reviewed all licensee performance indicators (PIs) for the occupational exposure cornerstone for follow-up. The inspectors reviewed the results of radiation protection (RP) program audits (e.g., licensee's quality assurance audits or other independent audits). The inspectors reviewed any reports of operational occurrences related to occupational radiation safety since the last inspection. The inspectors reviewed the results of the audit and operational report reviews to gain insights into overall licensee performance.

b. Findings

No findings were identified.

.2 Radiological Hazard Assessment (02.02)

a. Inspection Scope

The inspectors determined if there have been changes to plant operations since the last inspection that may result in a significant new radiological hazard for onsite workers or members of the public. The inspectors evaluated whether the licensee assessed the potential impact of these changes and has implemented periodic monitoring, as appropriate, to detect and quantify the radiological hazard.

The inspectors reviewed the last two radiological surveys from selected plant areas and evaluated whether the thoroughness and frequency of the surveys were appropriate for the given radiological hazard.

The inspectors conducted walkdowns of the facility, including radioactive waste processing, storage, and handling areas to evaluate material conditions and performed independent radiation measurements to verify conditions.

The inspectors selected the following radiologically risk-significant work activities that involved exposure to radiation:

- Removal and installation of the upper and lower SG man-ways and diaphragms;
- Reactor head disassembly and reassembly; and
- SG platform work.

For these work activities, the inspectors assessed whether the pre-work surveys performed were appropriate to identify and quantify the radiological hazard and to establish adequate protective measures. The inspectors evaluated the radiological survey program to determine if hazards were properly identified, including the following:

- Identification of hot particles;
- The presence of alpha emitters;
- The potential for airborne radioactive materials, including the potential presence of transuranics and/or other hard-to-detect radioactive materials (this evaluation may include licensee-planned entry into non-routinely entered areas subject to previous contamination from failed fuel);
- The hazards associated with work activities that could suddenly and severely increase radiological conditions and that the licensee has established a means to inform workers of changes that could significantly impact their occupational dose; and
- Severe radiation field dose gradients that could result in non-uniform exposures of the body.

The inspectors observed work in potential airborne areas and evaluated whether the air samples were representative of the breathing air zone. The inspectors evaluated whether continuous air monitors were located in areas with low background to minimize false alarms and were representative of actual work areas. The inspectors evaluated the licensee's program for monitoring levels of loose surface contamination in areas of the plant with the potential for the contamination to become airborne.

b. Findings

No findings were identified.

.3 Instructions to Workers (02.03)

a. Inspection Scope

The inspectors selected various containers holding non-exempt licensed radioactive materials that may cause unplanned or inadvertent exposure of workers, and assessed whether the containers were labeled and controlled in accordance with 10 CFR 20.1904, "Labeling Containers," or met the requirements of 10 CFR 20.1905(g), "Exemptions To Labeling Requirements."

The inspectors reviewed the following radiation work permits (RWPs) used to access high radiation areas and evaluated the specified work control instructions or control barriers:

- RWP 2012-5104, Reactor Head Disassembly/Reassembly Work Activities;
- RWP 2012-5303, Remove/Install Man-way Covers and Diaphragms; and
- RWP 2012-5302, Once-Through SG Platform Work.

For these RWPs, the inspectors assessed whether allowable stay times or permissible dose (including from the intake of radioactive material) for radiologically significant work under each RWP were clearly identified. The inspectors evaluated whether electronic personal dosimeter alarm set-points were in conformance with survey indications and plant policy.

The inspectors reviewed selected occurrences where a worker's electronic personal dosimeter noticeably malfunctioned or alarmed. The inspectors evaluated whether workers responded appropriately to the off-normal condition. The inspectors assessed whether the issue was included in the corrective action program and dose evaluations were conducted as appropriate.

For work activities that could suddenly and severely increase radiological conditions, the inspectors assessed the licensee's means to inform workers of changes that could significantly impact their occupational dose.

b. Findings

No findings were identified.

.4 Contamination and Radioactive Material Control (02.04)

a. Inspection Scope

The inspectors observed locations where the licensee monitors potentially contaminated material leaving the radiological control area and inspected the methods used for control, survey, and release from these areas. The inspectors observed the performance of personnel surveying and releasing material for unrestricted use and evaluated whether the work was performed in accordance with plant procedures and whether the procedures were sufficient to control the spread of contamination and prevent unintended release of radioactive materials from the site. The inspectors assessed whether the radiation monitoring instrumentation had appropriate sensitivity for the types of radiation present.

The inspectors reviewed the licensee's criteria for the survey and release of potentially contaminated material. The inspectors evaluated whether there was guidance on how to respond to an alarm that indicates the presence of licensed radioactive material.

The inspectors reviewed the licensee's procedures and records to verify that the radiation detection instrumentation was used at its typical sensitivity level based on appropriate counting parameters. The inspectors assessed whether or not the licensee has established a de facto "release limit" by altering the instrument's typical sensitivity through such methods as raising the energy discriminator level or locating the instrument in a high-radiation background area.

b. Findings

No findings were identified.

.5 Radiological Hazards Control and Work Coverage (02.05)

a. Inspection Scope

The inspectors evaluated ambient radiological conditions (e.g., radiation levels or potential radiation levels) during tours of the facility. The inspectors assessed whether the conditions were consistent with applicable posted surveys, RWPs, and worker briefings.

The inspectors evaluated the adequacy of radiological controls, such as required surveys, RP job coverage (including audio and visual surveillance for remote job coverage), and contamination controls. The inspectors evaluated the licensee's use of electronic personal dosimeters in high noise areas as high radiation area monitoring devices.

The inspectors assessed whether radiation monitoring devices were placed on the individual's body consistent with licensee procedures. The inspectors assessed whether the dosimeter was placed in the location of highest expected dose or that the licensee properly employed an NRC-approved method of determining effective dose equivalent.

The inspectors reviewed the application of dosimetry to effectively monitor exposure to personnel in high radiation work areas with significant dose rate gradients.

The inspectors reviewed the following RWPs for work within airborne radioactivity areas with the potential for individual worker internal exposures:

- Removal and installation of the upper and lower SG man-ways and diaphragms;
- Reactor head disassembly and reassembly; and
- SG platform work.

For these RWPs, the inspectors evaluated airborne radioactive controls and monitoring, including potential for significant airborne levels (e.g., grinding, grit blasting, system breaches, entry into tanks, cubicles, and reactor cavities). The inspectors assessed barrier (e.g., tent or glove box) integrity and temporary high-efficiency particulate air ventilation system operation.

The inspectors examined the posting and physical controls for selected high radiation areas and very-high-radiation areas to verify conformance with the occupational PI.

b. Findings

No findings were identified.

.6 Risk-Significant High Radiation Area and Very-High Radiation Area Controls (02.06)

a. Inspection Scope

The inspectors discussed with the RP manager the controls and procedures for high-risk high radiation areas and very-high radiation areas. The inspectors discussed methods employed by the licensee to provide stricter control of very-high radiation area access as specified in 10 CFR 20.1602, "Control of Access to Very-High Radiation Areas," and Regulatory Guide 8.38, "Control of Access to High and Very-High Radiation Areas of

Nuclear Plants.” The inspectors assessed whether any changes to licensee procedures substantially reduce the effectiveness and level of worker protection.

The inspectors discussed the controls in place for special areas that have the potential to become very-high-radiation areas during certain plant operations with first-line health physics supervisors (or equivalent positions having backshift health physics oversight authority). The inspectors assessed whether these plant operations require communication beforehand with the health physics group, so as to allow corresponding timely actions to properly post, control, and monitor the radiation hazards including re-access authorization.

The inspectors evaluated licensee controls for very-high-radiation areas and areas with the potential to become a very-high-radiation area to ensure that an individual was not able to gain unauthorized access to the very-high-radiation area.

b. Findings

No findings were identified.

.7 Radiation Worker Performance (02.07)

a. Inspection Scope

The inspectors observed radiation worker performance with respect to stated RP work requirements. The inspectors assessed whether workers were aware of the radiological conditions in their workplace and the RWP controls/limits in place, and whether their performance reflected the level of radiological hazards present.

b. Findings

No findings were identified.

.8 Radiation Protection Technician Proficiency (02.08)

a. Inspection Scope

The inspectors observed the performance of the RP technicians with respect to all RP work requirements. The inspectors evaluated whether technicians were aware of the radiological conditions in their workplace and the RWP controls/limits, and whether their performance was consistent with their training and qualifications with respect to the radiological hazards and work activities.

b. Findings

No findings were identified.

2RS2 Occupational As-Low-As-Is-Reasonably-Achievable Planning and Controls (71124.02)

This inspection constituted a partial sample as defined in IP 71124.02-05.

.1 Inspection Planning (02.01)

a. Inspection Scope

The inspectors reviewed pertinent information regarding plant collective exposure history, current exposure trends, and ongoing or planned activities in order to assess current performance and exposure challenges. The inspectors reviewed the plant's 3-year rolling average collective exposure.

The inspectors reviewed the site-specific trends in collective exposures (using NUREG-0713, "Occupational Radiation Exposure at Commercial Nuclear Power Reactors and Other Facilities," and plant historical data) and source term (average contact dose rate with reactor coolant piping) measurements.

The inspectors reviewed site-specific procedures associated with maintaining occupational exposures As-Low-As-Is-Reasonably-Achievable (ALARA), which included a review of processes used to estimate and track exposures from specific work activities.

b. Findings

No findings were identified.

.2 Radiological Work Planning (02.02)

a. Inspection Scope

The inspectors selected the following work activities of the highest exposure significance:

- Removal and installation of the upper and lower SG man-ways and diaphragms;
- Reactor head disassembly and reassembly; and
- SG platform work.

The inspectors reviewed the ALARA work activity evaluations, exposure estimates, and exposure mitigation requirements. The inspectors determined whether the licensee reasonably grouped the radiological work into work activities, based on historical precedence, industry norms, and/or special circumstances.

The inspectors assessed whether the licensee's planning identified appropriate dose mitigation features; considered alternate mitigation features; and defined reasonable dose goals. The inspectors evaluated whether the licensee's ALARA assessment had taken into account decreased worker efficiency from use of respiratory protective devices and/or heat stress mitigation equipment (e.g., ice vests). The inspectors determined whether the licensee's work planning considered the use of remote technologies (e.g., tele-dosimetry, remote visual monitoring, and robotics) as a means to reduce dose and the use of dose reduction insights from industry operating experience and plant-specific lessons learned. The inspectors assessed the integration of ALARA requirements into work procedure and RWP documents.

b. Findings

No findings were identified.

.3 Verification of Dose Estimates and Exposure Tracking Systems (02.03)

a. Inspection Scope

The inspectors reviewed the assumptions and basis (including dose rate and man-hour estimates) for the current annual collective exposure estimate for reasonable accuracy for select ALARA work packages. The inspectors reviewed applicable procedures to determine the methodology for estimating exposures from specific work activities and the intended dose outcome.

The inspectors evaluated whether the licensee had established measures to track, trend, and if necessary, to reduce occupational doses for ongoing work activities. The inspectors assessed whether trigger points or criteria were established to prompt additional reviews and/or additional ALARA planning and controls.

b. Findings

No findings were identified.

.4 Radiation Worker Performance (02.05)

a. Inspection Scope

The inspectors observed radiation worker and RP technician performance during work activities being performed in radiation areas, airborne radioactivity areas, or high radiation areas. The inspectors evaluated whether workers demonstrated the ALARA philosophy in practice (e.g., workers are familiar with the work activity scope and tools to be used, workers used ALARA low-dose waiting areas) and whether there were any procedure compliance issues (e.g., workers are not complying with work activity controls). The inspectors observed radiation worker performance to assess whether the training and skill level was sufficient with respect to the radiological hazards and the work involved.

b. Findings

No findings were identified.

2RS7 Radiological Environmental Monitoring Program (71124.07)

This inspection constituted one complete sample as defined in IP 71124.07-05.

.1 Inspection Planning (02.01)

a. Inspection Scope

The inspectors reviewed the annual radiological environmental operating reports and the results of any licensee assessments since the last inspection to assess whether the radiological environmental monitoring program was implemented in accordance with the TSs and Offsite Dose Calculation Manual (ODCM). This review included reported

changes to the ODCM with respect to environmental monitoring, commitments in terms of sampling locations, monitoring and measurement frequencies, land use census, inter-laboratory comparison program, and analysis of data.

The inspectors reviewed the ODCM to identify locations of environmental monitoring stations.

The inspectors reviewed the USAR for information regarding the environmental monitoring program and meteorological monitoring instrumentation.

The inspectors reviewed quality assurance audit results of the program to assist in choosing inspection “smart samples” and audits and technical evaluations performed on the vendor laboratory program.

The inspectors reviewed the annual effluent release report and the 10 CFR Part 61, “Licensing Requirements for Land Disposal of Radioactive Waste,” report to determine whether the licensee was sampling, as appropriate, for the predominant and dose-causing radionuclides likely to be released in effluents.

b. Findings

No findings were identified.

.2 Site Inspection (02.02)

a. Inspection Scope

The inspectors walked down select air sampling stations and thermoluminescent dosimeter (TLD) monitoring stations to determine whether they were located as described in the ODCM and to determine the equipment material condition. Consistent with smart sampling, the air sampling stations were selected based on the locations with the highest X/Q, D/Q wind sectors, and TLDs were selected based on the most risk-significant locations (e.g., those that have the highest potential for public dose impact).

For the air samplers and TLDs selected, the inspectors reviewed the calibration and maintenance records to evaluate whether they demonstrated adequate operability of these components. Additionally, the review included the calibration and maintenance records of select composite water samplers.

The inspectors assessed whether the licensee had initiated sampling of other appropriate media upon loss of a required sampling station.

The inspectors observed the collection and preparation of environmental samples from different environmental media (e.g., ground and surface water, milk, vegetation, sediment, and soil) as available to determine if environmental sampling was representative of the release pathways as specified in the ODCM and if sampling techniques were in accordance with procedures.

Based on direct observation and review of records, the inspectors assessed whether the meteorological instruments were operable, calibrated, and maintained in accordance with guidance contained in the USAR, NRC Regulatory Guide 1.23,

“Meteorological Monitoring Programs for Nuclear Power Plants,” and licensee procedures. The inspectors assessed whether the meteorological data readout and recording instruments in the control room and, if applicable, at the tower were operable.

The inspectors evaluated whether missed and/or anomalous environmental samples were identified and reported in the annual environmental monitoring report. The inspectors selected events that involved a missed sample, inoperable sampler, lost TLD, or anomalous measurement to determine if the licensee had identified the cause and had implemented corrective actions. The inspectors reviewed the licensee’s assessment of any positive sample results (i.e., licensed radioactive material detected above the lower limits of detection (LLDs) and reviewed the associated radioactive effluent release data that was the source of the released material.

The inspectors selected SSCs that involved or could reasonably involve licensed material for which there is a credible mechanism for licensed material to reach ground water, and assessed whether the licensee had implemented a sampling and monitoring program sufficient to detect leakage of these SSCs to ground water.

The inspectors evaluated whether records, as required by 10 CFR 50.75(g), of leaks, spills, and remediation since the previous inspection were retained in a retrievable manner.

The inspectors reviewed any significant changes made by the licensee to the ODCM as the result of changes to the land census, long-term meteorological conditions (3-year average), or modifications to the sampler stations since the last inspection. They reviewed technical justifications for any changed sampling locations to evaluate whether the licensee performed the reviews required to ensure that the changes did not affect its ability to monitor the impacts of radioactive effluent releases on the environment.

The inspectors assessed whether the appropriate detection sensitivities with respect to TS/ODCM were used for counting samples (i.e., the samples meet the TSs/ODCM required LLDs). The licensee uses a vendor laboratory to analyze the radiological environmental monitoring program samples so the inspectors reviewed the results of the vendor’s quality control program, including the inter-laboratory comparison, to assess the adequacy of the vendor’s program.

The inspectors reviewed the results of the licensee’s inter-laboratory comparison program to evaluate the adequacy of environmental sample analyses performed by the licensee. The inspectors assessed whether the inter-laboratory comparison test included the media/nuclide mix appropriate for the facility. If applicable, the inspectors reviewed the licensee’s determination of any bias to the data and the overall effect on the radiological environmental monitoring program.

b. Findings

No findings were identified.

.3 Identification and Resolution of Problems (02.03)

a. Inspection Scope

The inspectors assessed whether problems associated with the radiological environmental monitoring program were being identified by the licensee at an appropriate threshold and were properly addressed for resolution in the licensee's corrective action program. Additionally, they assessed the appropriateness of the corrective actions for a selected sample of problems documented by the licensee that involved the radiological environmental monitoring program.

b. Findings

No findings were identified.

4. **OTHER ACTIVITIES**

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

40A1 Performance Indicator Verification (71151)

.1 Safety System Functional Failures

a. Inspection Scope

The inspectors sampled licensee submittals for the Safety System Functional Failures PI for the period from the second quarter of 2011 through the first quarter of 2012. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the Nuclear Energy Institute (NEI) Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, dated October 2009, and NUREG-1022, "Event Reporting Guidelines 10 CFR 50.72 and 50.73" definitions and guidance, were used. The inspectors reviewed the licensee's operator narrative logs, operability assessments, maintenance rule records, maintenance WOs, issue reports, event reports and NRC Integrated Inspection Reports for the period of April 2011 through March 2012 to validate the accuracy of the submittals. The inspectors also reviewed the licensee's condition report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator. Documents reviewed are listed in the Attachment to this report.

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

b. Findings

No findings were identified.

.2 Mitigating Systems Performance Index - Emergency Alternating Current Power System

a. Inspection Scope

The inspectors sampled licensee submittals for the Mitigating Systems Performance Index (MSPI) - Emergency Alternating Current (AC) Power System performance indicator for the period from the second quarter of 2011 through the first quarter of 2012. 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, MSPI derivation reports, issue reports, event reports and NRC Integrated Inspection Reports for the period of April 2011 through March 2012 to validate the accuracy of the submittals. The inspectors reviewed the MSPI component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator. Documents reviewed are listed in the Attachment to this report.

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

b. Findings

No findings were identified.

.3 Mitigating Systems Performance Index - High Pressure Injection Systems

a. Inspection Scope

The inspectors sampled licensee submittals for the MSPI - High Pressure Injection Systems performance indicator for the period from the second quarter of 2011 through the first quarter of 2012. 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, MSPI derivation reports, event reports and NRC Integrated Inspection Reports for the period of April 2011 through March 2012 to validate the accuracy of the submittals. The inspectors reviewed the MSPI component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one MSPI high pressure injection system sample as defined in IP 71151-05.

b. Findings

No findings were identified.

.4 Radiological Effluent Technical Specification/Offsite Dose Calculation Manual
Radiological Effluent Occurrences

a. Inspection Scope

The inspectors sampled licensee submittals for the Radiological Effluent TS (RETS) ODCM Radiological Effluent Occurrences PI for the period from the second quarter 2011 through the first quarter 2012. The inspectors used PI definitions and guidance contained in the Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, dated October 2009, to determine the accuracy of the PI data reported during those periods. The inspectors reviewed the licensee's issue report database and selected individual reports generated since this indicator was last reviewed to identify any potential occurrences such as unmonitored, uncontrolled, or improperly calculated effluent releases that may have impacted offsite dose. The inspectors reviewed gaseous effluent summary data and the results of associated offsite dose calculations for selected dates to determine if indicator results were accurately reported. The inspectors also reviewed the licensee's methods for quantifying gaseous and liquid effluents and determining effluent dose. Documents reviewed are listed in the Attachment to this report.

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

b. Findings

No findings were identified.

4OA2 Identification and Resolution of Problems (71152)

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

a. Inspection Scope

As part of the various baseline 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 condition report packages.

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

b. Findings

No findings were identified.

.3 Semi-Annual Trend Review

a. Inspection Scope

The inspectors performed a review of the licensee's CAP and associated documents to identify trends that could indicate the existence of a more significant safety issue. The inspectors' review was focused on repetitive equipment issues, but also considered the results of daily inspector CAP item screening discussed in Section 40A2.2 above, licensee trending efforts, and licensee human performance results. The inspectors' review nominally considered the 6-month period of January 1, 2012, through June 30, 2012, although some examples expanded beyond those dates where the scope of the trend warranted.

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

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

b. Findings

No findings were identified.

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

.1 Event Notification 48000: Degraded Condition Due to Discovery of Pressure Boundary Leakage

a. Inspection Scope

In the evening hours of June 6, 2012, the inspectors responded to the site following the report of a small unisolable leak from the RCS, which the licensee identified during the course of normally scheduled RCS engineering inspections that take place near the end of every RFO. The pinhole leak, which was estimated to be approximately 0.1 gallons/minute, was located on a small (3/4 inch) vent line coming from the RCP 1-2 1st stage pump seal cavity. This vent line is typically only utilized during RCP maintenance, but due to its location it is normally pressurized to full RCS pressure.

The inspectors observed and reviewed the licensee's response to the event, plant parameters, and shutdown defense-in-depth status, including but not limited to:

- Mitigating systems and fission product barriers performance and integrity;
- RCS cooldown and depressurization activities;
- Realignment of the plant's affected equipment;
- Non-emergency notifications made to state and local government agencies as required by 10 CFR 50.72; and
- Development and implementation of the licensee's repair plans.

Documents reviewed in this inspection are listed in the Attachment.

This event follow-up review by the inspectors constituted a single inspection sample as defined in IP 71153-05.

b. Findings

No findings were identified.

4OA6 Management Meetings

.1 Exit Meeting Summary

On July 10, 2012, the inspectors presented the inspection results to the Site Vice President, 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. Proprietary material received during the inspection was returned to the licensee.

.2 Interim Exit Meetings

Interim exits were conducted for:

- The results of the ISI with Director Site Operations, Mr. B. Boles, and other members of the licensee staff on May 24, 2010;
- The inspection results for the areas of radiological hazard assessment and exposure controls; and occupational ALARA planning and controls with the

Site Vice President, Mr. B. Allen, and other members of the licensee staff on May 18, 2012; and

- The inspection results for the areas of radiological environmental monitoring; and RETS/ODCM radiological effluent occurrences performance indicator verification with Mr. A. Dawson, Acting Chemistry Manager, on June 22, 2012.

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 Violation

The following violation of very low significance (Green) was identified by the licensee and is a violation of NRC requirements which meets the criteria of the NRC Enforcement Policy for being dispositioned as a Non-Cited Violation:

- The NRC Maintenance Rule, 10 CFR 50.65(a)(4), states that before performing maintenance activities (including but not limited to surveillance, post-maintenance testing and corrective and preventive maintenance), the licensee shall assess and manage the increase in risk that may result from the proposed maintenance activities. Contrary to the above, on June 27, 2012, the licensee failed to assess and manage the risk associated with having Startup Transformer 02 and HPI Pump 1 unavailable at the same time. The two activities were not originally scheduled to occur simultaneously, and the licensee's probabilistic risk assessment (PRA) separately evaluated these activities as Green PRA risk. However, the maintenance to the Ohio Edison offsite power line (causing Startup Transformer 02 unavailability) was moved up one day in the schedule. Also, the HPI Pump 1 testing ran later than expected and crossed into the time when Startup Transformer 02 was unavailable. The station was in Yellow PRA risk for approximately 14 minutes. Although the appropriate oversight for each activity was already assigned, risk was not managed correctly because plant personnel remained unaware of the change to Yellow risk. The licensee failed to make procedurally required communications such as unit log entries, plant public address system announcements, and changes to the station risk status display at the site's Primary Access Facility.

The inspectors reviewed this issue using the guidance contained in Appendix B, "Issue Screening," of Inspection Manual Chapter (IMC) 0612, "Power Reactor Inspection Reports." The inspectors determined that the violation was more than minor because the performance deficiency was sufficiently similar to the "more-than-minor" example 7.e in Appendix E of IMC 0612. Specifically, the overall elevated plant risk put the plant into a higher licensee-established risk category. The finding screened as very low safety significance (Green) using IMC 0609, Appendix K, "Maintenance Risk Assessment and Risk Management Significance Determination Process," using flowchart 1 for the assessment of risk deficit. The licensee had entered this issue into their CAP as CR 2012-10360. A late entry into the unit narrative log was made on June 28, 2012, documenting the unscheduled yellow PRA risk.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

B. Allen, Site Vice President
B. Boles, Director, Site Operations
K. Byrd, Director, Site Engineering
A. Dawson, Manager, Chemistry (Acting)
J. Dominy, Director, Site Maintenance
J. Hook, Manager, Design Engineering
D. Imlay, Director, Site Performance Improvement
G. Kendrick, Manager, Site Outage Management
P. McCloskey, Manager, Site Regulatory Compliance
D. Noble, Manager, Radiation Protection
W. O'Malley, Manager, Nuclear Oversight
R. Oesterle, Superintendent, Nuclear Operations
M. Parker, Manager, Site Protection
R. Patrick, Manager, Site Work Management
D. Petro, Manager, Steam Generator Replacement Project
C. Price, Director, Special Projects
M. Roelant, Manager, Site Projects
D. Saltz, Manager, Site Maintenance
C. Steenbergen, Manager, Training
T. Summers, Manager, Site Operations
L. Thomas, Manager, Nuclear Supply Chain
M. Travis, Superintendent, Radiation Protection
J. Vetter, Manager, Emergency Response
A. Wise, Manager, Technical Services
G. Wolf, Supervisor, Regulatory Compliance
K. Zellers, Supervisor, Reactor Engineering

LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

Opened

05000346/2012003-01	FIN	Oil Sample Drawn From Running RCP Resulted in Entry into Abnormal Operating Procedure and RCP Shutdown (Section 1R20.1)
---------------------	-----	---

Closed

05000346/2012003-01	FIN	Oil Sample Drawn From Running RCP Resulted in Entry into Abnormal Operating Procedure and RCP Shutdown (Section 1R20.1)
---------------------	-----	---

Discussed

05000346/-00	CAL	CAL 3-11-001, Action No. 6 – Boroscopic Examination of Uncracked Concrete Shield Building Core Bore Locations During Refuel Outage 17R (Section 1R13.2)
05000346/-00	CAL	CAL 3-11-001, Action No. 7 – Boroscopic Examination of Cracked Concrete Shield Building Core Bore Locations During Refuel Outage 17R (Section 1R13.2)

LIST OF DOCUMENTS REVIEWED

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

1R01 Adverse Weather Protection

Condition Reports:

- 2012-01991; Water Leaking From Conduit 17105A While Transferring CST

Procedures:

- RA-EP-02810; Tornado or High Winds; Revision 10
- RA-EP-02830; Flooding; Revision 2
- RA-EP-02870; Station Isolation; Revision 4
- DB-OP-01300; Switchyard Management; Revision 7
- DB-OP-02025; Davis-Besse 345 KV Switchyard Alarm Panel 25 Annunciators; Revision 07
- DB-OP-02521; Loss of AC Bus Power Sources; Revision 17
- DB-OP-02546; Degraded Grid; Revision 0
- DB-SC-03023; Off-Site AC Sources Lined Up and Available; Revision 24
- NOP-OP-1003; Grid Reliability Protocol; Revision 04

Other:

- National Weather Service Watches, Warnings & Advisories for Ottawa County; dated April 16, 2012
- American Transmission System Revised and Restated Generator Interconnection and Operating Agreement with Midwest Independent Transmission System Operator and FirstEnergy Nuclear Operating Company
- Individual Plant Examination of External Events for the Davis-Besse Nuclear Power Station Section 5.4; Floods; December 1996

1R04 Equipment Alignment

Procedures:

- DB-OP-06316; Diesel Generator Operating Procedure; Revision 50
- DB-OP-06012; Decay Heat and Low Pressure Injection Operating Procedure; Revision 52

Drawings:

- OS-004 SH 1; Decay Heat Removal/Low Pressure Injection System; Revision 50

1R05 Fire Protection

Pre-Fire Plans:

- PFP-AB-123; Clean Waste Receiver Tank Room No. 2; Revision 4
- PFP-AB-124; Clean Waste Receiver Tank Room No. 1; Revision 4
- PFP-CB-216; Steam Generator West D Ring Area, Room 216, Fire Area D; Revision 5
- PFP-CB-218; Steam Generator East D Ring Area, Room 218, Fire Area D; Revision 5
- PFP-CB-PSV1; Pressurizer, Partial Room 218, Fire Area D; Revision 5
- PFP-CB-RCP1-1; Reactor Coolant Pump 1-1, Partial Room 216, Fire Area D; Revision 5

- PFP-CB-RCP1-2; Reactor Coolant Pump 1-2, Partial Room 216, Fire Area D; Revision 5
- PFP-CB-RCP2-1; Reactor Coolant Pump 2-1, Partial Room 218, Fire Area D; Revision 5
- PFP-CB-RCP2-2; Reactor Coolant Pump 2-2, Partial Room 218, Fire Area D; Revision 5
- PFP-CB-410; East Elevation 603' and Valve Room Elevation 636', Rooms 410 and 580; Revision 4
- PFP-CB-EL603; Fuel Transfer Pool North and West 603' Elevation, Rooms 219, 407 and 410A, Fire Area D; Revision 4

Procedures:

- DB-FP-00007; Control of Transient Combustibles; Revision 11
- DB-FP-00009; Fire Protection Impairment and Fire Watch; Revision 17
- DB-PF-00018; Control of Ignition Sources; Revision 10

Drawings:

- A-221F; Fire Protection General Floor Plan El. 545'-0" & 555'-0"; Revision 9
- A-222F; Fire Protection, General Floor Plan El. 565'-0"; Revision 15
- A-223F; Fire Protection, General Floor Plan El. 585'-0"; Revision 22
- A-224F; Fire Protection, General Floor Plan El. 603'-0"; Revision 23
- A-225F; Fire Protection, General Floor Plan El. 623'-0"; Revision 18
- A-226F; Fire Protection, General Floor Plan El. 643'-0"; Revision 13

Hot Work Permits:

- Room 237 – Auxiliary Feedwater Pump 1; WO 200432014; May 15 – 21, 2012
- Room 238 – Auxiliary Feedwater Pump 2; WO 200432015; May 15 – 21, 2012

Other:

- Fire Hazard Analysis Report, Revision 24

1R08 Inservice Inspection Activities

Condition Reports:

- 2012-07918; Minimum Clearance Not Met Between Pipe and Support
- 2012-08019; Foreign Material Found In Steam Generator a Upper Channel Head
- 2012-07919; Discrepancies Found While Performing VT-3 Inspections of Hangers for Emergency Diesel Generator No. 1

Procedures:

- DB-PF-05058; Steam Generator Eddy Current Data Analysis Guidelines; Revision 10
- NOP-LP-2001; Corrective Action Program; Revisions 29 and 30
- NOP-ER-2001; Boric Acid Corrosion Control Program; Revision 10

Other:

- 54-ISI-864-003; Manual Phased Array Ultrasonic examination of Weld Overlaid Similar and Dissimilar Metal Welds; May 3, 2012
- 51-5001484-007; Qualified Eddy Current Examination Techniques for Davis-Besse; May 7, 2012
- 51-9180474-001; Davis-Besse Degradation Assessment for 17th RFO; May 9, 2012

1R11 Licensed Operator Regualification Program and Licensed Operator Performance

Simulator Guides:

- OTLC-201103: DB-S102; Loss of SFAS DC Power, RCP Seal Failure, Feedwater Rupture and Overcooling; Revision 0
- OTLC-201202: DB-S101; 201202 NLO Combined Loss of Decay Heat; Revision 0

Procedures:

- NT-OT-7001; Training and Qualification of Operations Personnel; Revision 12
- DB-OP-06902; Power Operations; Revisions 34 - 37

Business Practices:

- DBBP-TRAN-0014; License Requirements for Licensed Operators; Revision 9
- DBBP-TRAN-0021; Simulator Configuration Control; Revision 3
- DBBP-TRAN-0502; Development of Continuing Training Simulator Evaluation; Revision 7
- NOBP-TR-1112; FENOC Conduct of Simulator Training and Evaluation; Revision 1

1R12 Maintenance Effectiveness

Condition Reports:

- 2010-87597; DB-SA-10-009: East Yard Cathodic Protection System Replacement Not Tracked In CAP
- 2011-96368; Cathodic Protection Phase II Deficiencies
- 2008-48288; Leaking Pipe Found

Work Orders:

- 200452718; Check Output Voltage Cathodic Protection Rectifier No. 3
- 200462236; Cathodic Protection Phase II Punchlist
- 200371581; ECP 09-0459 Cathodic Protection Phase II
- 200396572; ECP 09-0459-5 Install Cathodic Protection Rectifier No. 4
- 200396584; ECP 09-0459-007; Install Cathodic Protection

Drawings:

- OS-17A, Sheet 1; Auxiliary Feedwater; Revision 26
- OS-17B, Sheet 1; Auxiliary Feedwater; Revision 25

Engineering Change Packages:

- 09-0459; Cathodic Protection Installation; Revision 3
- 10-0539-002; Install New Valve, Actuator and Motor for AF3879; Revision 5
- 11-0510; Install Higher Rate Actuator Spring in MS5889A/B; Revision 0

System Health Reports:

- 2011-4; System 07-01; Cathodic Protection System
- 2012-1; System 37-01; Auxiliary Feedwater System

Other:

- MRPM; Maintenance Rule Program Manual; Revision 29
- MRPM; Maintenance Rule Program Manual; Revision 30
- System Improvement Plan; Cathodic Protection System; 4th Quarter 2011
- EPIX Failure Report, Failure 477; Davis-Besse Auxiliary Feedwater; 7/21/2010
- Davis-Besse MSPI Basis Document, Revision 4

1R13 Maintenance Risk Assessments and Emergent Work Control

Condition Reports:

- 2012-05656; Loss of Bayshore Line
- 2012-07520; Leak From Decay Heat Pump 1-2
- 2012-07609; Unplanned Entry into Elevated Shutdown Risk Status
- 2012-07818; Review Station Response to Decay Heat Pump 2 Seal Leakage
- 2012-07831; PA-DB-12-02: Operability Determination was not Properly Documented
- 2012-09381; During DB-PF-03010 NOP/NOT: Active Leak on RCP 1-2 1st Seal Cavity Vent Line

Procedures:

- EN-DP-01512; Shield Building Concrete Examinations; Revision 1

Drawings:

- C-0111A; Shield Building Exterior Developed Elevation; Revision 3

1R15 Operability Determinations and Functionality Assessments

Condition Reports:

- 2012-07009; Error in DB-PF-03001, Main Steam Safety Valve Setpoint Test
- 2012-07088; Rusting of EDG Exhaust Pipe Supports
- 2012-07702; Water/Rust Staining on RPV Closure Head
- 2012-07827; Oil Leakage on DH Pump 1 Outboard Motor Bearing – Evaluation for DHR Mode
- 2012-07828; Oil Leakage on DH Pump 1 – Evaluation for LPI Mode
- 2012-08547; Water Spots and Rust Staining on Control Rod Drive Mechanism Flanges
- 2012-08730; Leakage of RCS During Control Rod Drive Mechanism (CRDM) Venting During Start-Up From 17M
- 2012-08733; White Deposits Noted on Insulation of the RPV Head
- 2012-09544; Channel Functional Test of 78A-ISNI03: Intermediate Range Neutron Flux and Rate to RPS Channel 4 Found Out of Tolerance
- 2012-09545; Difficulty in Calibrating RPS4NI1304 Within Tolerance
- 2012-09611; Intermediate Range Nuclear Instruments Are Out of Tolerance in Accordance With DB-OP-03006, Shift Channel Checks

Procedures:

- DB-PF-03001; Main Steam Safety Valve Setpoint Test; Revisions 7 and 8

1R18 Plant Modifications

Condition Reports:

- 2012-05461; EDG Exhaust Project – Removal of Tack Welds Reveal Warped Grating
- 2012-07580; Linear Indication in Structural Beam Base Metal
- 2012-08083; Exhaust Leak on New EDG 1 Silencer and Outlet Flange
- 2012-07916; Discrepancies Found While Performing VT-3 Inspections of Hangars for Emergency Diesel Generator No. 1
- 2012-07368; EDG Exhaust Project – As Found Dimensional Discrepancies with Design Drawings
- 2012-08180; ODMI for Performing EDG 1 LOPS (Loss of Power Start) Relay Testing While EDG 2 is Inoperable and Unavailable

- 2012-08754; EDG Exhaust Tornado Missile Protection
- 2012-09378; FIDMS Database Update

Engineering Change Packages:

- 10-0577-000; EDG Exhaust Line Stack Height Reduction; Revision 4

Other:

- Request for Computer Assistance – DB20120082; Fixed Incore Detector Monitoring System (FIDMS); 03/27/2012
- EER 600751402; EDG 1-1 Operability; May 21, 2012

1R19 Post Maintenance Testing

Condition Reports:

- 2012-07176; As-Left SBODG Governor Replacement Concerns
- 2012-07520; Leak From Decay Heat Pump 1-2
- 2012-07609; Unplanned Entry into Elevated Shutdown Risk Status
- 2012-07789; Minor Surface Scratches Noted During DH Pump 2 Seal Replacement
- 2012-07817; Component Cooling Water Leak From No. 2 Decay Heat Pump Inboard Bearing Housing During Clearance Restoration Following Mechanical Seal Replacement
- 2012-07831; PA-DB-12-02: Operability Determination was not Properly Documented
- 2012-07832; P42-2 Decay Heat Pump CCW Leakage 200502094
- 2012-08722; AFW JOG Project Weld Repair Required for AF3872 Weld SW G1
- 2012-08681; DB-SC-04274 SBODG Load Test Deficiency: Loss of Field Relay
- 2012-09723; DB-OP-06232 Circulating Water System Operating Procedure Does Not Contain Actions to Pre-lubricate the Circulating Water Pump Bearings

Procedures:

- DB-SC-03071; Emergency Diesel Generator 2 Monthly; Revision 27
- DB-SC-03076; Emergency Diesel Generator 1 184 Day Test; Revision 29
- DB-SC-03077; Emergency Diesel Generator 2 (184 Day Test); Revision 25
- DB-SC-03270; Control Rod Assembly Insertion Time Test; Revision 12
- DB-SC-03272; Control Rod Exercising Test; Revision 4
- DB-SC-04274; SBODG Dead-bus Load Test; Revision 07
- DB-PF-09302; Testing Motor Operated Valves; Revision 08
- DB-SP-03137; Decay Heat Train 2 Pump and Valve Test; Revision 27
- DB-SP-03166; AFP 2 Response Time Test; Revision 20
- DB-NE-03212; Zero Power Physics Testing; Revision 9
- DB-OP-06232; Circulating Water System and Cooling Tower Operation; Revision 27
- NOP-CC-2003; Engineering Changes; Revision 17

Work Orders:

- 200502094; Replace DH Pump 2 Inboard Mechanical Seal No. 3
- 200428012; AFP 2 Response Time Test

Engineering Change Packages:

- 10-0462-002; SGR-17R – New Aux Crane in Containment; Revision 7
- 10-0539-000; Modify Motor-Operated Valves AF3869, AF3870, AF3871, and AF3872; Revision 5

Radiography Plans:

- Auxiliary Feedwater Piping; Auxiliary Feedwater Pump Rooms 237/238; Approved 5/24/2012

Other:

- Aux Crane Base Moment Test Lift Plan; Revision 02

1R20 Outage Activities

Condition Reports:

- 2012-07273; CRD Malfunction when Transferring Group 4 Control Rods
- 2012-07279; RCP 1-2 Manually Tripped Due to High Motor Lower Bearing Temperature
- 2012-07291; Reactor Coolant Pump 1-2 Manually Tripped Due to High Temperature on Motor Lower Guide Bearing
- 2012-07400; Scaffold Erected in Annulus During Mode 3 Without Sufficient Clearance
- 2012-07484; Question Raised Regarding Mechanical Agitation
- 2012-07523; Operating Crew Performance Critique for Low Bearing Oil Level and High Temperature on RCP 1-2 per NOBP-TR-1122
- 2012-08098; Evaluation Needed for EDG 1 Operability During Operation of Service Water System with Loop 2 Supply Header Only
- 2012-08180; ODMI For Performing EDG 1 Loss of Power Start Relay Testing While EDG 2 is Inoperable and Unavailable
- 2012-08639; Reactor Vessel Upper Shelf Energy – Consideration of Stress Intensity in Shell Transition Region
- 2012-08640; Reactor Vessel 32 EFPY P-T Limits – Consideration of Stress Intensity Factor for Shell Transition
- 2012-08998; Upper Emergency Sump Floor Drain is Approximately 40 Percent Plugged with Debris and Top Hats Contain Small Pieces of Debris
- 2012-09122; Failed VT-3 Inspection of Containment Vessel
- 2012-09152; NRC Containment Walkdown Prior to Mode 4
- 2012-09200; DH7A Pipe Penetration in the BWST Valve Pit Sealant is Significantly Cracked
- 2012-09538; Abnormal Procedure DB-OP-02515 Entry and Manual Trip of RCP 1-2 Due to T805
- 2012-09561; ODMI: RCP 1-2 Motor Down Thrust Bearing Temperature Element (TER C53-7) Failed Causing Erroneous Temperatures at Computer Point T805: Revision 0
- 2012-09611; Intermediate Range Nuclear Instruments Are Out of Tolerance IAW DB-OP-03006, Shift Channel Checks

Procedures:

- NG-DB-00117; Shutdown Defense in Depth Assessment; Revision 12
- DB-OP-02515; Reactor Coolant Pump and Motor Abnormal Operation; Revision 11
- DB-OP-06002; RCS Draining and Nitrogen Blanketing; Revision 20
- DB-OP-06012; Decay Heat and Low Pressure Injection System Operating Procedure; Revision 52
- DB-OP-06900; Plant Heatup; Revisions 53 & 54
- DB-OP-06901; Plant Startup; Revision 33
- DB-OP-06903; Plant Cooldown; Revision 42
- DB-OP-06904; Shutdown Operations; Revision 40
- DB-OP-06911; Pre-Startup Checklist; Revision 21
- DB-OP-06912; Approach to Criticality; Revision 16
- NOP-ER-3001; Problem Solving and Decision Making; Revision 5

ASME Section XI Code Repair/Replacement Plan:

- WO 200502109; Replace RC51; Revisions 0 & 1

Radiography Plans:

- RC51; Containment Elevation 636 (PORV Room); Approved 5/30/2012

Other:

- 17 RFO Shutdown Defense In Depth Report

1R22 Surveillance Testing

Condition Reports:

- 2011-00730; DA 45 Handwheel Is Loose
- 2012-03107; 2012 CDBI Self-Assessment: Value for EDG Minimum Air Receiver Tank Pressure Required for Single Start Obtained After Preconditioning
- 2012-03186; 2012 CDBI Self-Assessment: EDG Receiver Pressure for 1 Start in Technical Specification 3.8.3, Action e, is Potentially Incorrect
- 2012-04880; EDG No. 2 Air Receiver Post Start Pressure Lower Than Allowable
- 2012-05693; MS-C-12-03-12: Issues Identified in the Documentation/Completion of Multiple Local Leak Rate Tests
- 2012-07457; Valve Wrench Used on CV556
- 2012-07590; NRC Observation – LLRT of CV5011B
- 2012-08390; EDG No. 2 (MP195-2) Fuel Oil Transfer Motor Low Polarization Index Readings
- 2012-08479; Diesel Generator Air Receiver 2-2 Disc
- 2012-09313; RC4608B Loop 1 High Point Vent is Leaking

Procedures:

- DB-SP-03338; Containment Spray Train 2 Quarterly Pump and Valve Test; Revision 21
- DB-PF-03001; Main Steam Safety Valve Setpoint Test; Revision 08
- DB-PF-03008; Containment Local Leakage Rate Tests; Revision 16
- DB-PF-03010; Reactor Coolant System Leakage Test; Revision 11
- DB-SC-03071; Emergency Diesel Generator 2 Monthly Test; Revision 27
- DB-SC-03077; Emergency Diesel Generator 2 184 Day Test; Revision 25
- DB-SC-03270; Control Rod Assembly Insertion Time Test; Revision 12
- DB-OP-06900; Plant Heatup; Revisions 53 & 54
- DBBP-DBTS-0002; Use of Leak Rate Monitor Test Equipment; Revision 3

Business Practices/Plans:

- NOBP-OP-0007; Conduct of Infrequently Performed Tests or Evolutions; Revision 4

Work Orders:

- 200415067; SC3077-001 05.000 K5-2 EDG 2 184 Day DA45
- 200494530; CTMT Vessel LLRT – Penetration No. 68B Failed Normal Refueling
- 200405192; Containment Vessel LLRT – Penetration No. 8H (CV5077)
- 200494522; Containment Vessel LLRT – Penetration No. 8G (CV5076)

Drawings:

- OS-005; Operational Schematic Containment Spray System; Revision 12

Calculations:

- C-ICE-024.01-002; Emergency Diesel Generator Air Receiver Tank Pressure Indication Uncertainty; Revision 3

Other:

- ISTP3; Third Ten Year Inservice Testing Program; Revision 13
- ASME Operation & Maintenance Code, 1995 Edition, 1996 Addenda
- ISTB1; Pump and Valve Basis Document, Volume I – Valve Basis; Revision 12
- ISTB4; Pump and Valve Basis Document, Volume IV – Maximum Allowable Leakage Rate (MALR) Basis, Revision 13

2RS1 Radiological Hazard Assessment and Exposure Controls

Condition Reports:

- 2012-00501; NRC Inspection: Recommend a Review of NOP-OP-5201 for Ensuring All Boxes are Opened Prior to Shipment
- 2012-02489, Locked High Radiation Area Key Left Unattended
- 2012-07602; Lift In-Progress Resulted in a Delay in Exiting a High Radiation Area
- 2012-07834; Debris Found in the Normal Sump Pump a Area During Clean-Up
- 2012-07844; Fixed Contamination Identified on Rug Outside the Radiological Control Area Exit
- 2012-08079; Radiation Protection Instrumentation Missing from Containment

Procedures:

- DB-OP-0623; Fill Drain and Purification of the Refueling Canal; Revision 16
- NOP-OP-4101; Access Controls for Radiologically Controlled Areas, Revision 04

Radiation Protection Logs:

- NOP-OP-4702-06; Air Sample Log; May 12 – 16, 2012

Radiation Protection Field Surveys:

- 2012-05135; Post Man-way/Diaphragm Removal; May 15, 2012
- 2012-05137; Post Nozzle Dam Installation Platform Decontamination Survey; May 16, 2012
- 2012-05140; Platform Survey; May 16, 2012

2RS2 Occupational ALARA Planning and Controls

Condition Reports:

- 2012-05528; Specific High Radiation Area Radiation Work Permit Lacked Instructions for Breaching a Contaminated System Delaying Gauge Installation
- 2012-07768; Trending – Radiation Worker Deficiencies in their Preparation for Radiologically Controlled Area Entry Identified and Corrected Through Observation Coaching

Procedures:

- DB-HP-01109; Significant Radiological Evolution Barriers; Revision 30
- NOP-OP-4107; Radiation Work Permit; Revision 8
- NOP-OP-4204; Special External Exposure Monitoring; Revision 6

Radiation Work Permits (RWPs):

- 2012-5104; Reactor Head Disassembly/Reassembly Work Activities; Revision 0
- 2012-5302; Once Through Steam Generator Platform Work; Revision 0
- 2012-5303; Remove/Install Man-Way Covers and Diaphragms; Revision 0

ALARA Plans:

- 2012-5104; Reactor Head Disassembly/Reassembly Work Activities; Revision 0
- 2012-5302; Once Through Steam Generator Platform Work; Revision 0
- 2012-5303; Remove/Install Man-Way Covers and Diaphragms; Revision 0

2RS7 Radiological Environmental Monitoring Program

Condition Reports:

- 2011-03032; Temporary Turbine Building Sump Line Leaking
- 2011-03404; Condenser Pit Sump discharger Leak to Ground – Tritium
- 2011-04931; Temporary Discharge Line Condenser Leak
- 2011-00532; Action Items for REMP from NRC Exit Meeting
- 2011-06387; Misposition Event Isolate Main Steam to Aux Steam 235 psig Reducer
- 2011-91561; Potential Source of Past Groundwater Tritium
- 2011-91970; Evaluation of Recommendations for Davis-Besse Groundwater Monitoring Program
- 2011-92341; Groundwater Protection Initiative Samples Not Shipped to Vendor in Timely Manner
- 2011-93149; Primary Meteorology Tower 75 Meter Wind Direction Failed
- 2011-95492; Backup Ambient Temperature Failed Low
- 2011-97362; Water from East Condenser Pit Sump Pumped to Gravel East of Circ Water Pump House
- 2011-98023; Auxiliary Boiler Drainage Goes to Storm Sewer System
- 2012-10005; Evaluation of Minimum Distance between REMP Air Samplers and Trees/Obstructions Needed

Procedures:

- DB-CN-03005; Radiological Monitoring Weekly, Semi-Monthly and Monthly Sampling; Revision 3
- DB-CN-03023; Annual Land Use Census; Revision 01
- DB-MI-04050; Instrumentation and Control Procedure – Channel Calibration of Temperature and Delta Temperature for Meteorological Tower (Primary and Back-up); Revision 05
- DB-MI-04051; Instrumentation and Control Procedure – Channel Calibration of Meteorological Monitoring System (MMS) Wind Direction and Pre-Installation Testing (Primary and Back-up); Revision 02
- DB-MI-04053; Instrumentation and Control Procedure – Channel Calibration of Meteorological Tower Precipitation, Dew Point (Primary and Back-up); Revision 01
- EN-DP-04000; Meteorological Monitoring System Channel Calibration; Revision 1
- NOBP-OP-2012; System/Work Practice Prioritization for NEI 07-07; Revision 00
- NOP-WM-1003; Nuclear Maintenance Notification Initiation, Screening and Minor Deficiency Monitoring Processes; Revision 06

Completed Surveillance Records:

- DB-ST-1010; 10 Meter Anemometer Back-up Meteorological System; May 6, 2011
- DB-ST-1010; 10 Meter Anemometer Back-up Meteorological System; November 3, 2011
- DB-ST-20079; 100 Meter Anemometer Primary Meteorological System; May 4, 2011
- DB-ST-20079; 100 Meter Anemometer Primary Meteorological System; November 2, 2011

Other:

- 2010 Annual Radiological Environmental Operating Report; May, 2011
- 2011 Annual Radiological Environmental Operating Report; May, 2012

- Davis-Besse Offsite Dose Calculation Manual; Revision 26
- SD-032C; System Description for Meteorological Monitoring System; Revision 2
- TRM 8.3.4; Meteorological Instrumentation; Revision 4

40A1 Performance Indicator Verification

Forms:

- NOBP-LP-4012-45; Safety System Functional Failures; Completed Forms for April 2011 through March 2012
- NOBP-LP-4012-46; MSPI Emergency AC Power System; Completed Forms for April 2011 through March 2012
- NOBP-LP-4012-47; MSPI High Pressure Injection System; Completed Forms for April 2011 through March 2012
- NOBP-LP-4012-58; RETS/ODCM Radiological Effluent Occurrence; Completed Forms for April 2011 through March 2012

Condition Reports:

- 2012-02105; YE103 EDG Room 1 Outlet Damper HA5329C Breaker Found Open
- 2011-92886; EDG 1 DA30 Side Pressure Control Valve Excessive Blowdown After Engine Start
- 2011-93900; Unsatisfactory DA30 Test Results
- 2011-92931; Elevated Vibration Readings for EDG 1 Soak Back Pump
- 2011-98223; DC System Issues from NRC CDBI

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 April 2011 through March 2012
- Licensee Event Report 2011-003; Radio Usage Renders Emergency Feedwater Inoperable
- Licensee Event Report 2011-004; Direct Current System Design Issues

40A2 Problem Identification and Resolution

Condition Reports:

- 2012-09308; Nuclear Safety Culture Monitoring Panel 1st Quarter 2012: "Near Miss" for Reactivity Management
- 2012-09426; DB-PA-12-02: Human Performance Trend Identified in Plant Operations

Procedures:

- NOP-LP-2001; Corrective Action Program; Revision 30
- NOBP-LP-2010; FENOC Trend Coding; Revision 10

Other:

- FENOC Quality Assurance Program Manual; Revision 16

4OA3 Followup of Events and Notices of Enforcement Discretion

Condition Reports:

- 2012-09381; During DB-PF-03010 NOP/NOT: Active Leak on RCP 1-2 1st Seal Cavity Vent Line
- 2012-09452; Failure to Establish a Root Cause Evaluation Method for CR 2012-09381

Procedures:

- DB-PF-03010; Reactor Coolant System Leakage Test; Revision 11
- DB-OP-06903; Plant Cooldown; Revision 42
- DB-OP-06904; Shutdown Operations; Revision 40
- NG-DB-00117; Shutdown Defense in Depth Assessment; Revision 12
- NOP-ER-3001; Problem Solving and Decision Making; Revision 5

NRC Event Notification Worksheet:

- EN # 48000; Degraded Condition Due to Discovery of Pressure Boundary Leakage

4OA7 Licensee-Identified Violation

Condition Reports:

- 2012-10360; Unevaluated Yellow PRA Risk Entry

Other:

- Unit Narrative Logs; dated June 28, 2012
- Davis-Besse Weekly Maintenance Risk Summary; Revision 0
- Davis-Besse Weekly Maintenance Risk Summary; Revision 1

LIST OF ACRONYMS USED

AC	Alternating Current
ADAMS	Agencywide Document Access Management System
AFW	Auxiliary Feedwater
ALARA	As-Low-As-Is-Reasonably-Achievable
ASME	American Society of Mechanical Engineers
BACC	Boric Acid Corrosion Control
CAP	Corrective Action Program
CFR	Code of Federal Regulations
CIV	Containment Isolation Valve
CR	Condition Report
DC	Direct Current
DH	Decay Heat
DRP	Division of Reactor Projects
ECCS	Emergency Core Cooling System
EDG	Emergency Diesel Generator
EP	Emergency Preparedness
EPRI	Electric Power Research Institute
ET	Eddy Current
IMC	Inspection Manual Chapter
IP	Inspection Procedure
IPEEE	Individual Plant Examination of External Events
IR	Inspection Report
ISI	Inservice Inspection
IST	Inservice Testing
kV	Kilovolt
LER	Licensee Event Report
LLD	Lower Limits of Detection
LOOP	Loss of Off-site Power
MOV	Motor-Operated Valve
NCV	Non-Cited Violation
NEI	Nuclear Energy Institute
NRC	U.S. Nuclear Regulatory Commission
ODCM	Offsite Dose Calculation Manual
PARS	Publicly Available Records System
PI	Performance Indicator
PMF	Probable Maximum Flood
PRA	Probabilistic Risk Assessment
psig	Pounds Per Square Inch Gauge
PZR	Pressurizer
RCS	Reactor Coolant System
RCP	Reactor Coolant Pump
RETS	Radiological Effluent Technical Specification
RFO	Refueling Outage
RP	Radiation Protection
RPS	Reactor Protection System
RPV	Reactor Pressure Vessel
RVCH	Reactor Vessel Closure Head
RWP	Radiation Work Permit

SBODG	Station Blackout Diesel Generator
SDP	Significance Determination Process
SRO	Senior Reactor Operator
SSC	Structures, Systems, and Components
SG	Steam Generator
SW	Service Water
TLD	Thermoluminescent Dosimeters
TS	Technical Specification
TSO	Transmission System Operator
USAR	Updated Safety Analysis Report
UT	Ultrasonic Examination
VT	Visual Examination
WO	Work Order

B. Allen

-2-

In accordance with 10 CFR Part 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 Agencywide Document Access and Management 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 05000346/2012003
w/Attachment: Supplemental Information

cc w/encl: Distribution via ListServ

DOCUMENT NAME: G:\DRPIIIDAVI\Davi 2012 003.docx

Publicly Available Non-Publicly Available Sensitive Non-Sensitive

To receive a copy of this document, indicate in the concurrence box "C" = Copy without attach/encl "E" = Copy with attach/encl "N" = No copy

OFFICE	RIII		RIII				
NAME	JRutkowski:dtp		JCameron				
DATE	07/26/12		07/26/12				

OFFICIAL RECORD COPY

Letter to B. Allen from J. Cameron dated July 26, 2012.

SUBJECT: DAVIS-BESSE NUCLEAR POWER STATION INTEGRATED
INSPECTION REPORT 05000346/2012003

DISTRIBUTION:

Silas Kennedy

RidsNrrDorLPl3-2 Resource

RidsNrrPMDavisBesse Resource

RidsNrrDirslrib Resource

Chuck Casto

Cynthia Pederson

Steven Orth

Jared Heck

Allan Barker

Carole Ariano

Linda Linn

DRPIII

DRSIII

Patricia Buckley

Tammy Tomczak

ROPreports.Resource@nrc.gov