



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
REGION III
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February 3, 2016

Mr. Brian D. Boles
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Davis-Besse Nuclear Power Station
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Oak Harbor, OH 43449-9760

**SUBJECT: DAVIS-BESSE NUCLEAR POWER STATION—NRC INTEGRATED INSPECTION
REPORT 05000346/2015004**

Dear Mr. Boles:

On December 31, 2015, 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 January 14, 2016, with Mr. Doug Saltz, Director of Site Operations, and other members of your staff.

Based on the results of this inspection, the NRC identified one finding of very-low safety significance (Green). This finding was also determined to involve a violation of NRC requirements. Additionally, one licensee-identified violation is listed in Section 40A7. However, because of their very-low safety significance, and because the issues were entered into your corrective action program, the NRC is treating the issues as Non-Cited Violations (NCVs), in accordance with Section 2.3.2, of the NRC's Enforcement Policy.

If you contest the subject or severity of these NCVs, 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 copies to: (1) the Regional Administrator, Region III; (2) the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and (3) the NRC Resident Inspector at the Davis-Besse Nuclear Power Station.

B. Boles

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In accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) 2.390, "Public Inspections, Exemptions, Requests for Withholding," 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's Public Document Room or from the Publicly Available Records (PARS) component of the NRC's Agencywide Documents Access and Management System (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

/RA/

Jamnes L. Cameron, Chief
Branch 4
Division of Reactor Projects

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

Enclosure:
IR 05000346/2015004

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No: 50-346

License No: NPF-3

Report No: 05000346/2015004

Licensee: FirstEnergy Nuclear Operating Company (FENOC)

Facility: Davis-Besse Nuclear Power Station

Location: Oak Harbor, OH

Dates: October 1, 2015, through December 31, 2015

Inspectors: D. Kimble, Senior Resident Inspector
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Division of Reactor Projects

Enclosure

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SUMMARY

Inspection Report 05000346/2015004; 10/01/2015–12/31/2015; Davis-Besse Nuclear Power Station; Other 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 was considered a non-cited violation (NCV) of NRC regulations. The significance of inspection findings is indicated by their color (i.e., greater than Green, or Green, White, Yellow, Red) and determined using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" dated April 29, 2015. Cross-cutting aspects are determined using IMC 0310, "Aspects Within the Cross-Cutting Areas" effective date December 4, 2014. All violations of NRC requirements are dispositioned in accordance with the NRC's Enforcement Policy dated February 4, 2015. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process" Revision 5, dated February 2014.

NRC-Identified and Self-Revealed Findings

Cornerstone: Mitigating Systems

Green. The inspectors identified a finding of very low safety significance (Green), and an associated NCV of Title 10, Code of Federal Regulations (CFR), Part 50, Appendix B, Criterion III, "Design Control," for the licensee's failure to have adequate analysis related to the degraded voltage relay (DVR) setpoints as specified in Technical Specifications. Specifically, the licensee's analysis failed to demonstrate that the DVR setpoints would provide adequate starting and running voltage to safety-related equipment during the most limiting case accident loading. This issue was entered into the licensee's corrective action program (CAP). Corrective actions planned and completed by the licensee included analysis to determine the appropriate DVR setpoints and interim compensatory measures to maintain minimum voltage on 4160 volts alternating current (Vac) essential buses above 4070 Vac to ensure adequate voltage for safety-related components.

This finding was of more than minor safety significance because it affected the Design Control attribute of the Mitigating Systems Cornerstone of reactor safety, and adversely impacted the cornerstone objective of ensuring the availability, reliability, and capability of the site's 4160 Vac safety-related electrical buses. Specifically, the licensee failed to perform and maintain an analysis demonstrating that all safety-related loads had adequate starting voltage at the DVR setpoint. The finding was determined to be of very low safety significance since the finding did not result in a loss of operability of any system or component. The inspectors determined that there was no cross-cutting aspect associated with this finding because the finding represented a legacy issue that was not representative of current licensee performance. (Section 40A5.1)

Licensee-Identified Findings

Cornerstone: Barrier Integrity

A violation of very low safety significance that was identified by the licensee has been reviewed by the NRC. Corrective actions taken or planned by the licensee have been entered into the licensee's CAP. This violation and CAP 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 November 28, 2015, an unexpected integrated control system (ICS) runback occurred due to an ICS Reactor Coolant Pump (RCP) No. 2–2 status input failure. Plant operators using manual controls halted the runback and stabilized the unit at approximately 87 percent power. Following completion of repairs to a faulty fuse assembly within the ICS, operators returned the unit to operation at full power on November 29, 2015. With the exception of minor power reductions of a few percent power for planned surveillance tests, the unit continued to operate at or near full power for the remainder of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity, and Emergency Preparedness

1R01 Adverse Weather Protection (71111.01)

.1 Readiness for Impending Adverse Weather Condition—Severe Thunderstorm Conditions

a. Inspection Scope

During the week ending on October 31, 2015, a line of severe thunderstorms moved through Northwest Ohio and the area where the licensee's facility is located. The inspectors observed the licensee's preparations and planning for the onset of the adverse weather. The inspectors reviewed licensee procedures and discussed potential compensatory measures with control room personnel. The inspectors focused on plant management's actions for implementing the station's procedures for ensuring adequate personnel for safe plant operation and emergency response would be available. The inspectors conducted a visual inspection of the site, including walkdowns of various plant structures and systems to check for maintenance or other apparent deficiencies that could affect system operations during the predicted significant weather. The inspectors also reviewed corrective action program (CAP) items to verify that the licensee was identifying adverse weather issues at an appropriate threshold and entering them into their CAP in accordance with station corrective action procedures. Documents reviewed are listed in the Attachment to this report.

These reviews by the inspectors constituted a single readiness for impending adverse weather condition inspection sample as defined in Inspection Procedure (IP) 71111.01-05.

b. Findings

No findings were identified.

.2 Winter Seasonal Readiness Preparations

a. Inspection Scope

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

- Main, Station Auxiliary, and No. 1 and No. 2 startup transformers; and
- Borated water storage tank and associated piping.

These reviews by the inspectors constituted a single winter seasonal readiness preparations inspection sample as defined in IP 71111.01-05.

b. Findings

No findings were identified.

.3 External Flooding

a. Inspection Scope

During the course of the inspection period, the inspectors evaluated the design, material condition, and procedures for coping with the design basis probable maximum flood. The evaluation included a review to check for deviations from the descriptions provided in the 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 checked underground bunkers/manholes subject to flooding that contained multiple train or multiple function risk-significant cables. Additionally, the inspectors reviewed the licensee's off-normal procedure for mitigating flooding to ensure it could be implemented as written.

These reviews by the inspectors constituted a single external flooding inspection 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 physical alignment verifications of the following risk-significant systems:

- Emergency Diesel Generator (EDG) No. 2 during the period when EDG No. 1 was out of service for planned maintenance during the week ending October 24, 2015; and
- Station blackout diesel generator (SBODG) during the period when EDG No. 2 was out of service for planned maintenance during the week ending November 7, 2015.

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, 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 by the inspectors constituted two partial system alignment verification inspection samples as defined in IP 71111.04–05.

b. Findings

No findings were identified.

1R05 Fire Protection (71111.05)

.1 Quarterly Fire Protection Zone Inspections

a. Inspection Scope

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

- Emergency Core Cooling System Pump Room 1–2; Auxiliary Building Elevation 545' and 555' (Room 115—Fire Area A) during the week ending October 24, 2015;
- Mechanical Penetration Room No. 1; Auxiliary Building Elevation 565' (Rooms 202, 208, and 208DC—Fire Area AB) during the week ending October 31, 2015; and
- Mechanical Penetration Room No. 4; Auxiliary Building Elevation 585' (Room 314—Fire Area A) during the week ending October 31, 2015.

The inspectors reviewed areas to assess if the licensee had implemented a fire protection program that adequately controlled combustibles and ignition sources within the plant, effectively maintained fire detection and suppression capability, maintained passive fire protection features in good material condition, and implemented adequate compensatory measures for out-of-service, degraded or inoperable fire protection equipment, systems, or features in accordance with the licensee's fire plan. The inspectors selected fire areas based on their overall contribution to internal fire risk as documented in the plant's Individual Plant Examination of External Events with later additional insights, their potential to impact equipment which could initiate or mitigate a plant transient, or their impact on the plant's ability to respond to a security event. 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 three quarterly fire protection zone inspection tour samples as defined in IP 71111.05–05.

b. Findings

No findings were identified.

1R11 Licensed Operator Regualification Program (71111.11)

.1 Resident Inspector Quarterly Review of Licensed Operator Simulator Training

a. Inspection Scope

On November 25, 2015, the inspectors observed a crew of licensed operators in the plant's simulator during a graded simulator scenario. The graded scenario observed was part of the licensee's Annual Operating Test, as required by 10 CFR 55.59(a). The

inspectors verified that operator performance was adequate, evaluators were identifying and documenting crew performance problems, and that training was being conducted in accordance with licensee procedures. In addition, the inspectors verified that the licensee's personnel were observing NRC examination security protocols to ensure that the integrity of the graded scenario was being protected from being compromised. The inspectors evaluated the following areas:

- 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 abnormal and emergency procedures by the crew;
- Control board manipulations;
- The oversight and direction provided by licensed senior reactor operators; and
- The ability of the crew to identify and implement appropriate TS actions and emergency plan (EP) 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.

These observations and activities by the inspectors constituted a single quarterly licensed operator requalification program simulator training inspection sample as defined in IP 71111.11-05.

b. Findings

No findings were identified.

.2 Resident Inspector Quarterly Observation of Control Room Activities

a. Inspection Scope

During the course of the inspection period, the inspectors performed several 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:

- Plant power maneuvering and reactivity manipulations in support of Reactor Trip Breaker 'B' periodic testing during the week ending October 24, 2015;
- Operator response to a trip of the running temporary electric station air compressor (SAC) and entry into the station's abnormal operating procedure for lowering instrument air header pressure during the week ending November 14, 2015;
- Operator response to an automatic plant runback caused by an ICS instrument malfunction during the week ending December 5, 2015; and

- Plant power maneuvering and reactivity manipulations in support of control rod exercise testing and main turbine valve testing during the week ending December 26, 2015.

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 senior reactor operators 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.

These observation activities by the inspectors of operator performance in the station's control room constituted a single quarterly inspection sample as defined in IP 71111.11-05.

b. Findings

No findings were identified.

.3 Annual Operating Test Results

a. Inspection Scope

The inspectors reviewed the overall pass/fail results of the Annual Operating Test administered by the licensee from the week of October 19, 2015, through the week of December 14, 2015, as required by Title 10 of the Code of Federal Regulations (10 CFR) 55.59(a). The results were compared to the thresholds established in Inspection Manual Chapter (IMC) 0609, Appendix I, "Licensed Operator Requalification Significance Determination Process," to assess the overall adequacy of the licensee's Licensed Operator Requalification Training Program to meet the requirements of 10 CFR 55.59.

These reviews by the inspectors constituted a single annual licensed operator requalification examination results inspection sample 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 degraded performance issues involving the following risk-significant systems:

- Room coolers and associated equipment for the station's emergency core cooling systems; and
- Service and instrument air system.

The inspectors reviewed events such as where ineffective equipment maintenance had or could have resulted in valid or invalid automatic actuations of engineered safeguards systems 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 systems, structures, and components (SSCs)/functions classified as (a)(2), or appropriate and adequate goals and corrective actions for systems classified as (a)(1).

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

These maintenance effectiveness review activities conducted by the inspectors constituted two 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 maintenance activities to replace a faulty 15 Volts direct current (Vdc) power supply (Power Supply No. 408) associated with Safety Features Actuation System (SFAS) Channel No. 4 during the week ending October 24, 2015;
- Planned maintenance activities associated with a No. 2 EDG work window during the week ending November 7, 2015;
- Inspection of the reactor containment at-power (high radiological risk) during the week ending November 14, 2015;
- Planned maintenance activities associated with Low Pressure Injection Train No. 1 during the week ending November 21, 2015; and
- Emergent maintenance activities to replace a faulty ICS fuse associated with RCP 2–2 that resulted in a plant runback during the week ending December 5, 2015.

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.

The inspectors' review of these maintenance risk assessments and emergent work control activities constituted five inspection samples as defined in IP 71111.13–05.

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments (71111.15)

.1 Operability Evaluations

a. Inspection Scope

The inspectors reviewed the following issues:

- Out of specification nuclear engineering basic maneuvering acceptance criteria (BMAC) for core location L–13, as documented in CR 2015–14060;
- The inadvertent grounding of a dredging barge on top of the safety-related service water (SW) return to the intake forebay, as documented in CR 2015-14780; and
- The acceptability of the reactor coolant system (RCS) end-of-cycle moderator temperature coefficient (MTC) following required TS testing, as documented in CR 2015–14893.

The inspectors selected these potential operability issues based on the risk significance of the associated components and systems. The inspectors evaluated the technical

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

The review of these operability determinations and functionality assessments by the inspectors constituted three inspection samples as defined in IP 71111.15-05.

b. Findings

No findings were identified.

.2 Periodic Review of Operator Workarounds

a. Inspection Scope

Operator workarounds (OWAs) are operator actions taken to compensate for degraded or non-conforming conditions. Operator workarounds that cannot be implemented effectively can contribute to an increase in overall plant risk. As a result, the inspectors verified that the licensee is identifying OWAs at an appropriate threshold, entering them into the CAP, and addressing them in a manner that effectively manages the related adverse effects. As part of the review, the inspectors considered all existing plant conditions and the cumulative impact of the entire population of OWAs put in place by the licensee.

During the weeks ending December 5, 2015, through December 19, 2015, the inspectors evaluated the licensee's OWAs with respect to mitigating systems to determine if the functions of the mitigating systems were adversely impacted. Additionally, the inspectors assessed whether or not the OWAs had adversely impacted any operator's ability to implement abnormal or emergency operating procedures. The inspectors placed particular emphasis on any OWAs that had not been effectively evaluated by the licensee; that had been formalized or proceduralized as the long-term corrective actions for a degraded or nonconforming condition (and therefore may not have been properly tracked by the licensee); and that may have increased the potential for human error, such as OWAs that:

- Required operations that were not consistent with current training and system knowledge;
- Required a change from longstanding operational practices;
- Required operation of a system or component in a manner that was inconsistent with similar systems or components;
- Created the potential for the compensatory action to be performed on equipment or under conditions for which it was not intended;

- Impaired access to required indications, increased dependence on oral communications, or impacted the timeliness of time-critical event mitigating actions under adverse environmental conditions;
- Required the use of equipment and interfaces that had not been designed with consideration of the task being performed;
- Required the licensee to assess and manage an increase in risk; or
- Required a license amendment in accordance with 10 CFR 50.59.

Documents reviewed are listed in the Attachment to this report.

These activities by the inspectors constituted a single OWAs review inspection sample as required by IP 71111.15, Section 02.01(a).

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19)

.1 Quarterly Resident Inspector Observation and Review of Post-Maintenance Testing Activities

a. Inspection Scope

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

- Operational and functional testing of CV2001B, the Channel No. 2 SFAS and reactor protection system containment isolation valve for the channel's containment sensing line, following planned motor-operated valve (MOV) maintenance during the week ending October 10, 2015;
- Operational and functional testing of SFAS Channel No. 4 following corrective maintenance to replace a faulty 15 Vdc channel power supply during the week ending October 24, 2015;
- Operational and functional testing of EDG No. 2 following planned preventative maintenance during the week ending November 7, 2015;
- Operational and functional testing of SAC No. 1 following planned replacement during the weeks ending November 21, 2015, through December 19, 2015; and
- Operational and functional testing of Makeup Pump No. 1 following preventive maintenance inspection of the couplings, gear box, and lube oil cooler during the week ending December 19, 2015.

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 (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 the PMTs to determine whether the licensee was identifying problems and entering them in the CAP and that the problems were being corrected commensurate with their importance to safety. Documents reviewed are listed in the Attachment to this report.

The inspectors' reviews of these activities constituted five PMT inspection samples as defined in IP 71111.19–05.

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22)

.1 Surveillance Testing

a. Inspection Scope

The inspectors reviewed the results for the following testing 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:

- Quarterly inservice pump and valve functional testing of Containment Spray Train No. 2 during the week ending October 31, 2015 (inservice test);
- Monthly functional testing of the SBODG during the week ending October 3, 2015 (routine); and
- Periodic main turbine valve testing during the week ending December 26, 2015 (routine).

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

- Did preconditioning occur;
- The effects of the testing were adequately addressed by control room personnel or engineers prior to the commencement of the testing;
- Acceptance criteria were clearly stated, demonstrated operational readiness, and were 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;
- That measuring and test equipment calibration was current;
- That test equipment was used within the required range and accuracy;
- That applicable prerequisites described in the test procedures were satisfied;
- That 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;

- That test data and results were accurate, complete, within limits, and valid;
- That test equipment was removed after testing;
- Where applicable for inservice testing activities, testing was performed in accordance with the applicable version of Section XI, American Society of Mechanical Engineers code, and reference values were consistent with the system design basis;
- Where applicable, that test results not meeting acceptance criteria were addressed with an adequate operability evaluation or the system or component was declared inoperable;
- Where applicable for safety-related instrument control surveillance tests, that reference setting data were accurately incorporated in the test procedure;
- Where applicable, that actual conditions encountering high resistance electrical contacts were such that the intended safety function could still be accomplished;
- That prior procedure changes had not provided an opportunity to identify problems encountered during the performance of the surveillance or calibration test;
- That equipment was returned to a position or status required to support the performance of its safety functions; and
- That 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 activities conducted by the inspectors constituted two routine surveillance testing inspection samples and a single inservice testing inspection sample as defined in IP 71111.22, Sections –02 and –05.

b. Findings

No findings were identified.

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

.1 Emergency Action Level and Emergency Plan Changes

a. Inspection Scope

The regional inspectors performed an in-office review of the latest revisions to the EP, Emergency Action Levels (EAL), and EAL Bases document to determine if these changes decreased the effectiveness of the EP. The inspectors also performed a review of the licensee's 10 CFR 50.54(q) change process, and EP change documentation to ensure proper implementation for maintaining EP integrity.

The NRC's review was not documented in a safety evaluation report, and did not constitute approval of licensee-generated changes; therefore, this revision is subject to future inspection. The specific documents reviewed during this inspection are listed in the Attachment to this report.

These reviews by the inspectors constituted a single EAL and EP Change inspection sample as defined in IP 71114.04.

b. Findings

No findings were identified.

2. RADIATION SAFETY

Cornerstones: Occupational Radiation Safety and Public Radiation Safety

2RS1 Radiological Hazard Assessment and Exposure Controls (71124.01)

The inspection activities supplement those documented in NRC Integrated Inspection Report (IR) 05000346/2015002, and constituted one complete 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 on-site 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:

- Radiation Work Permit (RWP) 2015–1039; Transfer Spent Resin/Filter High Integrity Container; Revision 1;
- RWP 2015–1018; Sluice Spent Resin Via the East or West Header to the Spent Resin Tank; Revision 0; and
- RWP 2015–1069; License Renewal Work Activities in the Radiologically Controlled Area; Revision 0.

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 can 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 RWPs used to access high radiation areas and evaluated the specified work control instructions or control barriers:

- RWP 2015–1039; Transfer Spent Resin/Filter High Integrity Container; Revision 1;
- RWP 2015–1018; Sluice Spent Resin Via the East or West Header to the Spent Resin Tank; Revision 0; and
- RWP 2015–1069; License Renewal Work Activities in the Radiologically Controlled Area; Revision 0.

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 CAP 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 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 determined there was no ongoing work in areas within airborne radioactivity areas or increased potential for individual worker internal exposures.

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 licensee's physical and programmatic controls for highly activated or contaminated materials (i.e., nonfuel) stored within spent fuel and other storage pools. The inspectors assessed whether appropriate controls (i.e., administrative and physical controls) were in place to preclude inadvertent removal of these materials from the pool.

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.

.5 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.

The inspectors reviewed radiological problem reports since the last inspection that found the cause of the event to be human performance errors. The inspectors evaluated whether there was an observable pattern traceable to a similar cause. The inspectors assessed whether this perspective matched the corrective action approach taken by the licensee to resolve the reported problems. The inspectors discussed with the RP manager any problems with the corrective actions planned or taken.

b. Findings

No findings were identified.

.6 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.

The inspectors reviewed radiological problem reports since the last inspection that found the cause of the event to be RP technician error. The inspectors evaluated whether there was an observable pattern traceable to a similar cause. The inspectors assessed whether this perspective matched the corrective action approach taken by the licensee to resolve the reported problems.

b. Findings

No findings were identified.

.7 Problem Identification and Resolution (02.09)

a. Inspection Scope

The inspectors evaluated whether problems associated with radiation monitoring and exposure control were being identified by the licensee at an appropriate threshold, and were properly addressed for resolution in the licensee's CAP. The inspectors assessed the appropriateness of the corrective actions for a selected sample of problems documented by the licensee that involve radiation monitoring and exposure controls. The inspectors assessed the licensee's process for applying operating experience to their plant.

b. Findings

No findings were identified.

2RS5 Radiation Monitoring Instrumentation (71124.05)

The following activities by the inspectors supplement those documented in NRC Integrated IR 05000346/2014005. Combined, they constitute a single completed inspection sample as defined in IP 71124.05-05.

.1 Calibration and Testing Program (02.03)

a. Post-Accident Monitoring Instrumentation

(1) Inspection Scope

The inspectors selected the containment high-range monitors and reviewed the calibration documentation since the last inspection.

The inspectors assessed whether an electronic calibration was completed for all range decades above 10 rem/hour and whether, at least 1 decade at or below 10 rem/hour, was calibrated using an appropriate radiation source.

The inspectors assessed whether calibration acceptance criteria were reasonable; accounting for the large measuring range and the intended purpose of the instruments.

The inspectors selected effluent/process monitors that were relied on by the licensee in its emergency operating procedures as a basis for triggering EALs and subsequent emergency classifications, or to make protective action recommendations during an accident. The inspectors evaluated the calibration and availability of these instruments.

The inspectors reviewed the licensee's capability to collect high-range, post-accident iodine effluent samples.

As available, the inspectors observed electronic and radiation calibration of these instruments to assess conformity with the licensee's calibration and test protocols.

(2) 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

4OA1 Performance Indicator Verification (71151)

.1 Reactor Coolant System Leakage

a. Inspection Scope

The inspectors sampled licensee submittals for the RCS Leakage PI for the period from the third quarter 2014 through the third quarter 2015. 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 7, dated August 31, 2013, were used. The inspectors reviewed the licensee's operator logs, RCS leakage tracking data, CRs, event reports and NRC inspection reports for the period of October 2014 through September 2015 to validate the accuracy of the submittals. The inspectors also reviewed the licensee's CAP database to determine if any problems had been identified with the PI data collected or transmitted for this indicator, and none were identified. Documents reviewed are listed in the Attachment to this report.

These reviews by the inspectors constituted a single RCS Leakage PI inspection sample as defined in IP 71151-05.

b. Findings

No findings were identified.

.2 Reactor Coolant System Specific Activity

a. Inspection Scope

The inspectors sampled licensee submittals for the RCS Specific Activity PI for the period from the third quarter 2014 through the third quarter 2015. 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 7, dated August 31, 2013, were used. The inspectors reviewed the licensee's RCS chemistry samples, TS requirements, CRs, event reports, and NRC IRs to validate the accuracy of the submittals. The inspectors also reviewed the licensee's CAP database to determine if any problems had been identified with the PI data

collected or transmitted for this indicator. In addition to record reviews, the inspectors observed a chemistry technician obtain and analyze a periodic RCS sample. Documents reviewed are listed in the Attachment to this report.

These reviews by the inspectors constituted a single RCS Specific Activity PI inspection 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 they were being entered into the licensee's CAP at an appropriate threshold, that adequate attention was being given to timely corrective actions, and that adverse trends were identified and addressed. Attributes reviewed included: identification of the problem was complete and accurate; timeliness was commensurate with the safety significance; evaluation and disposition of performance issues, generic implications, common causes, contributing factors, root causes, extent-of-condition reviews, and previous occurrences reviews were proper and adequate; and that the classification, prioritization, focus, and timeliness of corrective actions were commensurate with safety and sufficient to prevent recurrence of the issue. Minor issues entered into the licensee's CAP as a result of the inspectors' observations are included in the Attachment to this report.

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

b. Findings

No findings were identified.

.2 Daily Corrective Action Program Reviews

a. Inspection Scope

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

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

b. Findings

No findings were identified.

.3 Semi-Annual Trend Review: Issues Associated with Nuclear Engineering and Reactor Core Parameters

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 inspectors CAP item screening discussed in Section 4OA2.2 above, licensee trending efforts, and licensee human performance results. The inspectors' review nominally considered the 6-month period of June 1 through December 31, 2015, although 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. Observations

During the course of the review period for this inspection sample, the inspectors noted several examples of issues involving nuclear reactor engineering and/or nuclear reactor core parameters. Specific examples associated with this trend included, but were not limited to:

- Axial power shaping rods (APSRs). During initial Cycle 19 startup tests, the licensee identified that the APSR in core location D-10 was not coupled to its drive mechanism. Plant operators were forced to declare the APSR inoperable, and nuclear reactor engineers were required to revise the Cycle 19 Core Operating Limits Report (COLR) to account for the inability to reposition the decoupled APSR during the course of the operating cycle (CR2014-08664). As the licensee's fuel vendor, AREVA, Inc., was conducting further reviews of the test data for the Cycle 19 APSR issue, they identified an anomaly with the licensee's Cycle 18 test data that ultimately indicated that the APSR in core location F-12 had been uncoupled for the entire operating cycle (CR 2015-10827). Since this condition had existed for the entire 18th operating cycle without the licensee's knowledge, the plant had been operated in a manner contrary to the licensee's TS, and the licensee was required to submit a written licensee event report (LER) documenting the issue (see Section 4OA3.3).
- Nuclear fuel pellet thermal conductivity. During the first half of the 19th operating cycle, the licensee's fuel vendor, AREVA, Inc., identified an error in the thermal

conductivity model for the computer codes used for the analysis of nuclear fuel pellet performance (CRs 2014–15953, 2014–16024, and 2014–17576). This issue ultimately resulted in nuclear reactor engineers being required to revise the Cycle 19 COLR to account for more restrictive core thermal margin limits and the submission of a written LER by the licensee to the NRC documenting the issue (see Section 4OA3.1 of NRC IR 05000346/2015003—ADAMS Accession No. ML15295A107).

- Steam generator (SG) operating level and RCS loop cold leg temperature (Tc) difference. Starting up from the SG replacement outage in May 2014, the licensee made a best estimate of the required position for the adjustable orifice plates located in the feedwater downcomer of each SG. The resulting initial operating level for each SG was acceptable, but very high with respect to predicted values. As the cycle progressed and fouling took place within the plant's main feedwater system, the operating level in each SG began to approach the limits set forth in TS 3.7.18 (CR 2014–08772). With little to no available margin to the TS 3.7.18 limits, plant operators became restricted in how much adjustment was available to balance power between RCS loops (CR 2014–18197). The condition has ultimately resulted in a somewhat uneven burnout of the Cycle 19 reactor core and required additional restrictions on the operation of the reactor (CR 2015–17030).
- Reactor core BMAC exceeded for core location L–13. During the week ending October 17, 2015, the licensee's weekly check of reactor core parameters by nuclear engineering identified that the BMAC value for core location L–13 was out of specification. This essentially meant that the relative power distribution measurements for core location L–13 were higher than the values predicted by the plant's reactor core model simulation. The licensee conferred with AREVA, Inc., on the matter. The issue was determined to be due to several contributing causes, one of which was related to the Tc difference discussed above. While the BMAC value for core location L–13 being out of specification did not in and of itself represent a challenge to any license condition or reactor core thermal limit, it did result in reactor engineers needing to yet again revise reactor operating guidance for Cycle 19 (CR 2015–14060).
- Moderator temperature coefficient end-of-cycle measurement. During the week ending October 31, 2015, the licensee performed a test to determine the value of the reactor MTC in order to satisfy the requirements of TS Surveillance Requirement 3.1.3.2. The results of this test initially indicated that the reactor MTC would be out of specification on or about December 26, 2015. The licensee again was forced to consult with their fuel vendor, AREVA, Inc., to obtain a more detailed analysis of the test data. The re-analysis of the test data using more exacting techniques resulted in an end-of-cycle extrapolated MTC value that was acceptable (CR 2015–14893).

Within the commercial nuclear industry, issues of this type usually encountered by a unit during the course of an operating cycle are fairly rare and infrequent. A single mid-cycle revision to a plant's COLR is unusual; the licensee has had to perform two such revisions for various nuclear engineering issues encountered during Cycle 19. Although these issues individually have not resulted in any adverse consequences, a potential unusual trend in this area is apparent and suggests that additional licensee investigation and possibly corrective actions may be warranted.

c. Findings

No findings were identified.

.4 Follow-Up Sample for In-Depth Review: Review of Issues Involving Oversight of Contractor Personnel

a. Inspection Scope

In 2011 the licensee implemented significant corrective actions for an apparent adverse trend related to oversight and control of contractor personnel. Specifically, CR 2011–92525 concluded, in part, that “FENOC’s oversight planning is insufficient to ensure that vulnerabilities are identified and corrected prior to an event.” This was further determined to have been particularly true for non-safety-related work or work outside the plant power block. During this most recent inspection period, the inspectors performed a review of the licensee’s CAP and associated documents to identify issues and events involving licensee contractor personnel in order to specifically assess the aspect of contractor oversight.

The inspectors’ review was predominantly focused on:

- The nature of any human performance issues identified;
- The nature and level of oversight provided by the licensee for the activities being performed by the contractor personnel; and
- The actual or potential consequences of the issue or event.

This review constituted a single follow-up inspection sample for in-depth review as defined in IP 71152–05.

b. Observations

During the course of the review for this inspection sample, the inspectors noted that the licensee has been recently challenged by a number of issues involving contractor personnel. Specific examples associated with the inspectors’ observations included, but were not limited to:

- Construction issues with the licensee’s emergency feedwater (EFW) facility. This facility is a new seismically-qualified building being constructed as part of the licensee’s response to the Fukushima Daiichi nuclear plant incident in Japan. During the construction phase for the EFW facility the licensee has experienced a number of issues involving the control and oversight of the responsible contractor. Issues identified have included such things as welding not performed in accordance with design drawings (CRs 2015–09966 and 2015–13938) and issues with the drilling and installation of the building foundation caissons (CRs 2015–10836, 2015–11198, and 2015–11303). The licensee did identify and had corrected these and the other issues identified during construction.
- Issues with the licensee’s service water intake canal dredging project. The licensee recently undertook a large project to remove accumulated silt from the bottom of the portion of the SW intake canal that serves as the facility’s ultimate heat sink for postulated accidents discussed in the USAR. During the course of the project, there were several issues involving the control and oversight of the licensee’s contractor. These issues ranged in significance from being relatively

minor, such as a contractor placing a private padlock on a gate within the facility's owner controlled area (CR 2015–15537), to potentially more significant issues, such as a contractor leaving a lighted vehicle in an area overnight that resulted in a reportable security event (see Section 4OA3.4) and a contractor placing a dredging barge along the facility's intake canal directly on top of the safety-related SW return (CR 2015–14780).

- Issues with the licensee's replacement of SAC No. 1. The licensee recently completed significant upgrades to the overall reliability of the station's service and instrument air systems, conducting wholesale replacements of SAC No. 2 and, most recently, SAC No. 1. The SAC No. 1 replacement was somewhat hampered by issues involving the licensee's control and oversight of the applicable contractor for the project. Issues that were encountered and that had to be resolved before SAC No. 1 could be commissioned into service included a bent grounding bolt, a solenoid valve that had been installed backwards, and power to a solenoid valve not connected (CRs 2015–15709, 2015–15854, 2015–15941, and 2015–15942).
- Other contractor project oversight issues. During a recent licensee project to perform miscellaneous concrete repairs to the station's cooling tower, several contractors lost their personal hard hats when the hats fell into the circulating water system cooling tower return canal. The licensee was unaware of the introduction of this foreign material into the circulating water system until the hard hats were recovered from the station's circulating water pump intake debris screens (CR 2015–16002). In another instance, scaffolding built by contractor personnel to support enhancements to the radio system used by Operations personnel created a potential challenge to the site's security plan (CR 2015–16170). In each of these cases, the issues could have been avoided through the proper use of licensee control and oversight of their contractor personnel.

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

.1 (Closed) Licensee Event Reports 05000346/2015–001–00 and 05000346/2015–001–01: Borated Water Storage Tank Rendered Inoperable Due to Use of Non-Seismic Purification System

On February 11, 2015, with the unit operating in Mode 1 at full power, inspectors conducting a scheduled component design basis team inspection identified that the seismically-qualified borated water storage tank (BWST) had been previously aligned to the non-seismic spent fuel pool (SFP) system to facilitate purification of the BWST contents. This had rendered the BWST inoperable for periods of time longer than allowed per TS 3.5.4 while the unit was operating in Modes 1 through 4. Since initial plant design, the BWST had been aligned at various times to the non-seismic SFP system for purification of the BWST contents.

The licensee determined that the cause of the event was that regulatory requirements for the separation of seismically-qualified and non seismically-qualified SSCs were not adequately incorporated into the plant's design basis documents and the USAR. The licensee entered the issue into their CAP as CR 2015–01817, and corrective actions included the establishment of administrative controls to restrict system alignments that could affect the operability of the BWST. The licensee initially reported the condition in accordance with 10 CFR 50.73(a)(2)(i)(B) as a condition which was prohibited by the

plant's TS. The inspectors had previously reviewed this issue and dispositioned it as a violation of very low safety significance (Green—NCV 05000346/2015008–05) and documented the results of that review in NRC IR 05000346/2015008 (see Section 1R21.5)(ADAMS Accession No. ML15103A639).

In addition to those actions previously performed, in response to receipt of this LER, the inspectors completed additional reviews that included, but were not limited to:

- The potential for any generic issues, including those potentially requiring reporting under 10 CFR Part 21;
- The licensee's completed cause evaluation report and additional corrective actions associated with the issue; and
- The accuracy of the information provided by the licensee in the LER.

During the course of reviewing the information contained within the LER, the inspectors noted that the licensee had specifically not identified and reported the issue as an event or condition that could have prevented the fulfillment of the safety function of structures or systems in accordance with 10 CFR 50.73(a)(2)(v). The inspectors challenged the licensee regarding this omission, since the matter of whether or not the event is reported under 10 CFR 50.73(a)(2)(v) as a potential safety system functional failure potentially provides an input into the licensee's NRC PI data used by the Reactor Oversight Program for assessment of licensee performance. In discussions with the licensee's staff, the inspectors noted that the NRC's NUREG–1022, "Event Reporting Guidelines; 10 CFR 50.72 and 50.73," Section 3.2.7, "Event or Condition that Could Have Prevented Fulfilment of a Safety Function," specifically states:

A SSC that has been declared inoperable is one in which the SSC capability is degraded to a point where it cannot perform with reasonable expectation or reliability.

The licensee entered the new issue into their CAP as CR 2015–10438. On November 2, 2015, the licensee submitted a revision to the LER that corrected the omission and designated the event as a condition that could have prevented the fulfillment of the safety function of structures or systems needed to mitigate the consequences of an accident and, therefore, reportable under the provisions of 10 CFR 50.73(A)(2)(v)(D). Further action planned by the licensee includes the addition of a comment or note with their next regular NRC PI data submittal to account for the new LER reporting classification.

The inspectors determined that the licensee's failure to properly classify the LER under all applicable 10 CFR 50.73 criteria was an issue subject to the NRC's traditional enforcement process since it had the potential to impact the agency's ability to perform its regulatory function. Specifically, the inspectors noted that the NRC Enforcement Policy (revision dated February 4, 2015), Section 6.9, "Inaccurate and Incomplete Information or Failure to Make a Required Report," considers the inaccurate and/or incomplete PI data submitted by a licensee to be a violation of more than minor significance and to constitute a Severity Level IV NCV when it causes the PI to change color from Green to White. Since in this case the reporting error had no impact on the applicable Safety System Functional Failures PI color and the licensee has plans to correct the error to include the LER within the PI reporting data, the inspectors

determined the issue to be of minor significance and not subject to any formal enforcement action. These LERs are closed.

Documents reviewed as part of 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.

.2 (Closed) Licensee Event Report 05000346/2015-003-00: Inadvertent Breaker Operation Renders Control Room Emergency Air Temperature Control System Inoperable

On June 26, 2015, at approximately 11:35 p.m. plant operators identified that the supply breaker for MOV SW1395, the SW Loop No. 2 Nonessential Isolation, was in the open position and out of its normal configuration. This condition forced plant operators to declare SW Loop No. 2 inoperable, which also required Auxiliary Feedwater (AFW) Train No. 2 to be declared inoperable as well due to the inoperability of its associated safety-related suction water supply source. With AFW Train No. 1 already inoperable for a scheduled surveillance test, the on-watch operations crew immediately began concurrent actions to rapidly restore the operability of both trains of AFW. While steps were completed to restore AFW Train No. 1 from the ongoing surveillance test, electrical checks were performed on the breaker for SW1395 to confirm that no electrical faults were present and that the breaker could be restored to its normally closed position. With both AFW trains restored to an operable status, all TS Limiting Condition for Operation (LCO) required actions were exited at approximately 1:33 a.m. on June 27, 2015. As discussed in Section 4OA3.2 of NRC Integrated IR 05000346/2015002 (ADAMS Accession No. ML15202A203), the licensee formally reported this issue to the NRC as a condition that at the time of discovery could have prevented the fulfillment of a safety function in accordance with the requirements of 10 CFR 50.72(b)(3)(v).

A detailed engineering evaluation was performed by the licensee to fully analyze the impact of MOV SW1395 being rendered incapable of automatic closure. The central part of this evaluation focused on the ability of SW Loop No. 2 to deliver sufficient flow to AFW Train No. 2 while postulating the worst case piping break in the downstream section of nonessential SW piping beyond MOV SW1395. The licensee's detailed hydraulic analysis determined that even under these conditions, SW Loop No. 2 would have been capable of delivering sufficient flow and pressure to AFW Train No. 2 to maintain AFW Train No. 2 capable of performing its intended safety function. However, the licensee's analysis also revealed that other safety-related equipment supported by SW Loop No. 2 would not have maintained operability and functionality under this condition. Specifically, the analysis showed that Control Room Emergency Air Temperature Control System (CREATCS) Train No. 2 would not have received sufficient SW flow to support its water-cooled mode of operation.

During the same time period that the supply breaker for MOV SW1395 was determined to have been in the open position and the water-cooled mode for CREATCS Train No. 2 nonfunctional, the licensee determined that CREATCS Train No. 1 had also been inoperable for planned maintenance activities. Thus, for a period of approximately 8-9 hours on June 26, 2015, both trains of CREATCS were inoperable and unavailable, which represented a condition that is prohibited by the plant's TS.

The licensee's investigation into the mispositioning of the supply breaker for MOV SW1395 identified that the breaker was most probably inadvertently bumped by

personnel performing planned maintenance on SW Pump No. 1. During the 24-hour period prior to plant operators identifying that the supply breaker for MOV SW1395 was out of its normal position, the motor for SW Pump No. 1 was undergoing a planned replacement. Personnel engaged in this maintenance activity were working in and/or travelling through the SW pump room in close proximity to the motor control center where the breaker is located, and the licensee identified multiple opportunities where the breaker could have been inadvertently moved from the closed position to the open position. Licensee corrective actions included the planned installation of protective covers over critical circuit breakers located on motor control centers in the SW pump room.

The inspectors' review of this event determined that the inadvertent opening of the MOV SW1395 supply breaker and the resultant inoperability of CREATCS Train No. 2 while CREATCS Train No. 1 was already inoperable for maintenance constituted a licensee-identified violation of TS 3.7.11, which was of very low safety significance. Further details of this licensee-identified violation are discussed in Section 4OA7.1 of this report. The licensee had entered this event into their CAP as CR 2015-08774. This LER is closed.

Documents reviewed as part of 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.

.3 (Closed) Licensee Event Report 05000346/2015-004-00: Operation During Previous Cycle with Axial Power Shaping Rod Fully Inserted

On May 9, 2014, during the start of the current operating cycle, Cycle 19, an uncoupled axial power shaping rod (APSR) was identified during the beginning of cycle Power Imbalance Detector Correlation testing. These tests were conducted to determine the relationship between the indicated out-of-core axial power distribution and the measured in-core axial power distribution and were performed during the initial power escalation by moving the APSRs. During the movement, nuclear instruments did not respond as expected in the vicinity of one APSR. The APSR was determined to be uncoupled and was declared inoperable. The licensee took appropriate actions in accordance with their TS; and their fuel vendor, AREVA, Inc., updated the plant's refuel analysis.

On August 12, 2015, while reviewing power distribution results from Cycle 18, AREVA identified that the results were similar to those predicted for Cycle 19 with the uncoupled APSR. The similarities were most apparent near the end of Cycle 18 when the APSRs were fully withdrawn as part of the cycle planned activities. The licensee further investigated the issue using Cycle 18 axial power distributions and concluded that one APSR, located in a different position from the one currently uncoupled, had been fully inserted since the beginning of the cycle and was therefore, not latched for the entirety of Cycle 18.

The operators had no indication readily available that showed an error in shaping rod position, and a misalignment could only be detected if APSR movement had been initiated. Due to the fact the operators were unaware of the uncoupled shaping rod, the appropriate TS action statements, LCO 3.1.6, 3.1.7, and 3.2.2, were not met for the entire cycle.

The licensee evaluated the safety significance of operating during Cycle 18 with an APSR uncoupled by using the Cycle 19 expected end-of-cycle results and the similarities of the two fuel cycles. The licensee concluded that the event had a very low safety significance because the misaligned APSR condition in Cycle 18 was accommodated through existing conservatisms such that normal operating limits and plant trip setpoints were preserved and safety criteria and limits were acceptable. As a result, the inspectors determined that while the issue constituted a violation of TS 3.1.6, 3.1.7, and 3.2.2, it was of minor safety significance and not subject to formal enforcement action in accordance with Section 2.3 of the NRC Enforcement Policy.

During their review, the inspectors identified that the licensee's docketed LER submittal had inadvertently omitted any discussion of TS LCO 3.2.2. While not indicative of the quality of docketed correspondence expected from a licensee, the inspectors determined that the omission did not have any material impact on the LER's safety significance or conclusions. The licensee entered the issue of the omission into their CAP as CR 2015-16920. The licensee had entered the original technical issue into their CAP as CRs 2015-10827 and 2015-10929. Corrective actions planned and completed by the licensee included inspection of the uncoupled APSRs from Cycles 18 and 19 for unusual wear or damage during the next refueling outage and revision to the APSR coupling procedure during refueling operations to require positive verification of coupling. This LER is closed.

Documents reviewed as part of 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.

.4 Event Notification 51483: Unusual Event Due to Suspicious Vehicle in Owner Controlled Area

a. Inspection Scope

At approximately 8:00 p.m. on October 20, 2015, the on-watch security shift supervisor declared a security condition at the site based on observation of an unknown truck in the marsh area of the plant near the SW intake canal. Site security personnel effectively implemented their response strategies and contacted the control room, whereupon the on-watch operations shift manager declared a Notice of Unusual Event in accordance with established plant procedures and the site's Emergency Preparedness Plan. The vehicle was searched, determined not to have been of any concern, and the Notice of Unusual Event terminated at approximately 10:29 p.m. The vehicle was a commercial dump truck belonging to a licensee contractor authorized to work in the area; as the nature of the work was ongoing, the contractor had left the vehicle on site at the end of the work day and had inadvertently left the vehicle's lights on.

The inspectors reviewed the licensee's response to the event, including but not limited to:

- The interface between operations and security personnel;
- Emergency notifications made to state and local government agencies as required by 10 CFR 50.72; and
- The licensee's causal evaluation into the circumstances surrounding the event.

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.

4OA5 Other Activities

.1 (Closed) Unresolved Item 05000346/2014007-02: Failure to Use Worst Case 4160 Vac Bus Voltage in Design Calculations

a. Inspection Scope

During a periodic engineering inspection performed in 2014 (NRC IR 05000346/2014007; ADAMS Accession No. ML15050A150), the inspectors identified an unresolved item (URI) associated with the lack of calculations to support the degraded voltage relay (DVR) voltage setpoint as specified in plant TS. Specifically, the inspectors were concerned that the licensee did not have an analysis which demonstrated that safety-related loads could start and run at the TS DVR setpoint during a design basis accident, and concerned that the licensee lacked reasonable assurance that the DVR setpoints specified in TS could provide the required motor starting voltages for safety-related loads during required degraded voltage scenarios.

Since the time of the subject inspection, the licensee had analyzed the condition and verified that the voltage at the DVR setpoints specified in TS could provide adequate starting voltage to a sample of safety-related components. As a result of this study, the licensee implemented an interim compensatory action to maintain a minimum voltage of 4070 Volts alternating current (Vac) on either 4160 Vac essential bus (C1/D1). This value was higher than the TS DVR dropout value of 3712 Vac, and provided reasonable assurance of operability for applicable safety-related components.

The documents that were reviewed are included in the Attachment to this report. Since the inspectors review of this issue was a continuation of the inspection previously performed in conjunction with the establishment of the URI, these reviews did not constitute any separate inspection sample. This URI is closed.

b. Findings

Failure to Use Worst Case 4160 Vac Bus Voltage in Design Calculations

Introduction:

The inspectors identified a finding of very low safety significance (Green), and an associated NCV of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the licensee's failure to perform and maintain an adequate analysis related to DVR setpoints as specified in TS. Specifically, the licensee's analysis failed to demonstrate that the DVR setpoints would provide adequate starting and running voltage for safety-related equipment during most limiting case accident loading.

Description:

In the early 1980s, the licensee installed protection systems (e.g., DVR) for degraded voltage as described in the NRC letter entitled, "Statement of Staff Positions Relative to Emergency Power Systems for Operating Reactors," June 3, 1977. Staff position 1.a of this letter stated that the selection of voltage and time setpoints shall be determined from an analysis of the voltage requirements of the safety-related loads at all onsite systems distribution levels. The licensee documented their analysis of the DVR setting in design calculation C-EE015.03-008, "DVR Setpoints Calculation."

The licensee's DVR settings were set in accordance with TS Surveillance Requirement (SR) 3.3.8.2, which stated that the dropout voltage must be greater than 3712 Vac, and the pickup voltage must be greater than 3771 Vac. The licensee's methodology, as documented in their design calculation C-EE015.03-008, was to assume the minimum expected grid voltage. This was to ensure the optimization of system voltages for normal operation. However, the calculation did not fully evaluate the following:

- The starting and running voltage requirements of Class 1E motors; and
- The minimum voltage requirements for the most limiting safety-related component.

Thus, the inspectors concluded that the licensee's design calculation and subsequent TS SR value for DVR setpoints were not consistent with Staff position 1.a of the NRC letter dated June 3, 1977.

The licensee's DVR design calculation should have evaluated the expected response during all operating conditions and design basis accidents to ensure that safety-related equipment would perform requisite safety functions during degraded voltage scenarios. Additionally, the licensee's DVR setpoints were not based on the manufacturer's specified minimum operating voltages at the terminals of the equipment, nor were the setpoints based on any transient degradation of the bus voltage (i.e., voltage drops during the starting of large motors). Therefore, the analysis did not ensure that the setpoints of the DVRs would provide adequate voltage to support all of the safety-related equipment if the voltage was at the TS levels.

The licensee entered this issue into their CAP as CR 2014-17296. Immediate corrective actions taken by the licensee included the performance of an analysis to verify that the voltage at the DVR setpoints specified in TS could provide adequate starting voltage to a sample of safety-related components. This analysis also determined that a higher value

might be required for the DVR setpoints; therefore, the licensee implemented an interim compensatory action to maintain a minimum voltage of 4070 Vac on either 4160 Vac essential bus (C1/D1).

Analysis:

The licensee's failure to perform and maintain an analysis demonstrating that the DVR setpoints as specified in TS would ensure adequate voltage to safety-related equipment was contrary to 10 CFR Part 50, Appendix B, Criterion III "Design Control," and represented a performance deficiency that was reasonably within the licensee's ability to foresee and correct, and which should have been prevented. Specifically, the licensee's design calculations failed to demonstrate that the DVR setpoint would provide adequate starting and running voltage for various safety-related loads.

This performance deficiency was of more than minor safety significance and constituted a finding, because it affected the Design Control attribute of the Mitigating Systems Cornerstone of reactor safety and adversely impacted the cornerstone objective of ensuring the availability, reliability, and capability of the site's safety-related 4160 Vac electrical buses. Specifically, the licensee's failure to perform and maintain an analysis demonstrating all safety-related loads had adequate starting voltage at the DVR setpoint did not ensure the availability and capability of these components to perform their safety functions.

In accordance with NRC IMC 0609, "Significance Determination Process," Attachment 0609.04, "Initial Characterization of Findings," Table 2, the inspectors determined the finding affected the Mitigating Systems cornerstone. As a result, the inspectors determined the finding could be evaluated using Appendix A, "The Significance Determination Process for Findings At-Power," Exhibit 2 for the Mitigating Systems cornerstone screening questions. Because the finding did not result in the loss of operability or functionality of any affected structures, systems, or components, the inspectors assessed the finding as having very low safety significance (Green).

The inspectors did not identify a cross-cutting aspect associated with this finding because the finding was not confirmed to reflect current performance due to the age of the performance deficiency.

Enforcement:

Title 10 CFR Part 50, Appendix B, Criterion III, "Design Control," states, in part, that:

Measures shall be established to assure that applicable regulatory requirements and the design basis, as defined in § 50.2 and as specified in the license application, for those structures, systems, and components to which this appendix applies are correctly translated into specifications, drawings, procedures, and instructions.

Contrary to this requirement, prior to November 19, 2014, the licensee failed to establish measures to assure that the design basis for safety-related structures, systems, and components was correctly translated into specifications, drawings, procedures, and instructions establishing DVR setpoints. Specifically, the licensee's design calculation failed to demonstrate that the setpoints for the DVRs as specified in TS could provide

adequate starting voltage for safety-related components during worst case accident loading.

This violation is being treated as an NCV, consistent with Section 2.3.2 of the NRC Enforcement Policy. The violation was entered into the licensee's CAP as CR 2014-17296. (NCV 05000346/2015004-01)

.2 Autumn 2015 Groundwater Sampling Results

a. Inspection Scope

The inspectors reviewed the results of a series of expanded groundwater samples taken from wells in the plant owner-controlled area. The sampling of wells was completed as part of the licensee's voluntary groundwater monitoring initiative and in response to the results obtained earlier, as discussed in Section 4OA5 of NRC Integrated IRs 05000346/2015001 (ADAMS Accession No. ML15113B387), 05000346/2015002 (ADAMS Accession No. ML15202A203), and 05000346/2015003 (ADAMS Accession No. ML15295A107). Several of the monitoring well locations sampled as part of the licensee's ongoing investigations indicated tritium levels above the 2,000 picocuries per liter (pCi/L) groundwater monitoring program threshold requiring courtesy notifications to state and local government officials and the NRC resident inspectors. The highest tritium concentration, approximately 10,527 pCi/L from a sample obtained on February 10, 2015, was located in a monitoring well, designated MW-22S, on the west side of the plant near the BWST. The formal reporting limit threshold for tritium in groundwater samples is 30,000 pCi/L, as documented in the licensee's Offsite Dose Calculation Manual.

The licensee continues to monitor wells in accordance with their groundwater monitoring program as tritium concentrations continue to lower. The inspectors have reviewed the licensee's compliance with their stated offsite agency reporting requirements and continue to track the licensee's corrective actions.

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

b. Findings

No findings were identified.

4OA6 Management Meetings

.1 Exit Meeting Summary

On January 14, 2016, the inspectors presented the inspection results to Mr. Doug Saltz, Director of Site Operations, and other members of the licensee staff. The licensee acknowledged the issues presented. The inspectors confirmed with the licensee the scope of material reviewed that was considered to be proprietary. All proprietary information reviewed by the inspectors was controlled in accordance with appropriate NRC policies regarding sensitive unclassified information, and, as applicable, has been denoted as "proprietary" in the Attachment.

.2 Interim Exit Meetings

Interim exits were conducted for:

- The results of the annual review of EAL and EP changes with Mr. J. Vetter, Emergency Preparedness Manager, via telephone on October 16, 2015;
- The results of the routine periodic RP inspection areas with Mr. D. Saltz, Director of Site Operations, on November 19, 2015;
- The results of the engineering inspections closing URI 05000346/2014007–02 with Mr. K. Byrd, Director of Site Engineering, on December 16, 2015; and
- The results of the inspections for the 2015 annual licensed operator tests with Mr. M. Brasile, Operations Training Supervisor, via telephone on December 18, 2015.

The inspectors confirmed that none of the potential report input discussed was considered proprietary. Proprietary material received by the inspectors and reviewed in the course of these inspections 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; it meets the criteria of the NRC Enforcement Policy for being dispositioned as an NCV.

.1 Inadvertent Operation of MOV Supply Breaker Results in Inoperable CREATCS Train No. 2 with CREATCS Train No. 1 Already Inoperable for Planned Maintenance

Technical Specification 3.7.11, “Control Room Emergency Air Temperature Control System (CREATCS),” requires that two CREATCS trains be maintained operable with the unit operating in Modes 1 through 4. While this TS provides actions and allowed outage time for a single inoperable CREATCS train, there are no provisions for both CREATCS trains being simultaneously inoperable. The provisions of TS LCO 3.0.3, therefore, apply when both CREATCS trains are inoperable at the same time, and require that actions be initiated within 1 hour from the onset of the condition to:

- Be in Mode 3 within 7 hours;
- Be in Mode 4 within 13 hours; and
- Be in Mode 5 within 37 hours.

As discussed in Section 4OA3.2 of this report, contrary to the requirements of TS 3.7.11, both trains of CREATCS were inoperable for a period of approximately 8–9 hours on June 26, 2015, with the licensee taking no actions to place the unit into a Mode required by TS LCO 3.0.3. A licensee causal evaluation concluded that with CREATCS Train No. 1 already inoperable for planned maintenance, CREATCS Train No. 2 was rendered inoperable by the inadvertent opening/bumping of the supply breaker for MOV SW1395, the SW Loop No. 2 Nonessential Isolation Valve, by personnel working on planned maintenance for SW Pump No. 1.

The objective of the Barrier Integrity Cornerstone of Reactor Safety is to provide reasonable assurance that physical design barriers (fuel cladding, RCS, and containment) protect the public from radionuclide releases caused by accidents or events. A key attribute of this objective involves maintaining the radiological barrier

functionality of the plant's control room, which is supported by CREATCS. In accordance with NRC IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening," the inspectors determined that the violation was of more than minor significance in that it had a direct impact on this cornerstone objective. Specifically, two independent and redundant trains of the CREATCS are required to be operable to ensure that at least one is available, assuming a single failure disables the other train. The loss of both CREATCS trains could result in equipment within the control room exceeding operational temperature limits in the event of an accident. Using NRC IMC 0609, Appendix A, "The Significance Determination Process for Findings At-Power," Exhibit 3, "Barrier Integrity Screening Questions," the inspectors determined that the violation was of very low safety significance (Green). Specifically, while the issue was not exclusively limited to the degradation of the radiological barrier function provided for the control room, it did not also simultaneously represent a degradation of the barrier function of the control room against smoke or a toxic atmosphere.

As discussed in Section 4OA3.2 of this report, the licensee had entered this issue into their CAP as CR 2015-08774. Licensee corrective actions included the planned installation of protective covers over critical circuit breakers located on motor-control centers in the SW pump room.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

B. Boles, Site Vice President
M. Brasile, Operations Training Supervisor
K. Byrd, Director, Site Engineering
D. Blakely, Supervisor, Reactor Engineering
G. Cramer, Manager, Site Protection
J. Cuff, Manager, Training
J. Cunnings, Manager, Site Maintenance
A. Dawson, Manager, Chemistry
D. Hartnett, Superintendent, Operations Training
T. Henline, Manager, Site Projects
J. Hook, Manager, Design Engineering
B. Howard, Manager, Site Outage Management
D. Imlay, Director, Site Performance Improvement
B. Kremer, Manager, Site Operations
G. Laird, Manager, Technical Services Engineering
B. Matty, Manager, Plant Engineering
P. McCloskey, Manager, Site Regulatory Compliance
D. Noble, Manager, Radiation Protection
G. Nordlund, Superintendent, Radiation Protection
W. O'Malley, Manager, Nuclear Oversight
R. Oesterle, Superintendent, Nuclear Operations
R. Patrick, Manager, Site Work Management
D. Saltz, Director, Site Operations
M. Sidori, Radiation Protection Supervisor
J. Sturdavant, Regulatory Compliance
L. Thomas, Manager, Nuclear Supply Chain
J. Vetter, Manager, Emergency Response
G. Wolf, Supervisor, Regulatory Compliance

U.S. Nuclear Regulatory Commission

J. Cameron, Chief, Reactor Projects Branch 4

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

05000346/2015004-01	NCV	Failure to Use Worst Case 4160 Vac Bus Voltage In Design Calculations (Section 4OA5.1)
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Closed

05000346/2015-001-00	LER	Borated Water Storage Tank (BWST) Rendered Inoperable Due to Use of Non-Seismic Purification System (Section 4OA3.1)
05000346/2015-001-01		
05000346/2015-003-00	LER	Inadvertent Breaker Operation Renders Control Room Emergency Air Temperature Control System Inoperable (Sections 4OA3.2 and 4OA7.1)
05000346/2015-004-00	LER	Operation During Previous Cycle with Axial Power Shaping Rod Fully Inserted (Section 4OA3.3)
05000346/2014007-02	URI	Failure To Use Worst Case 4160 Vac Bus Voltage In Design Calculations (Section 4OA5.1)
05000346/2015004-01	NCV	Failure to Use Worst Case 4160 Vac Bus Voltage In Design Calculations (Section 4OA5.1)

Discussed

None

LIST OF DOCUMENTS REVIEWED

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

1R01 Adverse Weather Protection

Condition Reports:

- 2015-12064; Boric Acid Heat Trace Circuit 125 in CFPP18Q Indicates Open
- 2015-14105; Freeze Protection Point 9 on the Control Room Freeze Protection Recorder Indicates an Open Circuit
- 2015-15453; Freeze Protection Circuit 90 Doric Point Failure
- 2015-15454; Freeze Protection Circuit 125 Thermocouple Failure
- 2015-15456; Freeze Protection Circuit 90 Failed Thermocouple

Procedures:

- DB-OP-06913; Seasonal Plant Preparation Checklist; Revision 26
- RA-EP-02810; Tornado or High Winds; Revision 11
- RA-EP-02830; Flooding; Revision 3
- RA-EP-02870; Station Isolation; Revision 5
- RA-EP-02880; Internal Flooding; Revision 3

Notifications:

- 600934199; Freeze Protection Heat Trace Circuit 64 Not Working Properly; 11/19/2014
- 600991027; Freeze Protection Heat Trace Circuit 125 Open; 9/12/2015
- 601003820; Replace Borated Water Storage Tank LT1525A Weather Enclosure (O-Brien Box); 10/14/2015

1R04 Equipment Alignment

Condition Reports:

- 2015-10888; DA 31 Air Start Pressure Greater than 200 psig

Drawings:

- E-2500; Station Blackout Diesel Building Electrical Equipment Layout; Revision 5
- HL-217D; Hanger Locations Station Blackout Diesel Generator Coolant Supply and Return Piping from Radiator; Revision 1
- M-017D; Station Blackout Diesel Generator; Revision 16
- M-217D; Station Blackout Diesel Generator Coolant Supply and Return Piping from Radiator; Revision 1
- OS-041A; Emergency Diesel Generator Systems; Revision 32
- OS-041D; Station Blackout Diesel Generator Lube Oil and Jacket Water; Revision 14
- OS-041E; Station Blackout Diesel Generator Air Start / Engine Air System; Revision 17
- OS-041F; Station Blackout Diesel Generator Electrical Control and Fuel Oil System; Revision 5

Procedures:

- DB-SC-03071; Emergency Diesel Generator 2 Monthly Test; Revision 34

- DB-SC-04000; Station Blackout Diesel Generator Lined-Up to Supply Essential Bus; Revision 40
- DB-OP-06334; Station Blackout Diesel Generator Operating Procedure; Revision 22

Other:

- SD-003B; System Description for Emergency Diesel Generators and Station Blackout Diesel Generator; Revision 6

1R05 Fire Protection

Condition Reports:

- 2014-04194; Compensatory Measures for Higher Risk Fire Compartments

Procedures:

- DB-FP-00003; Pre-Fire Plan Guidelines; Revision 8
- DB-FP-00005; Fire Brigade; Revision 8
- DB-FP-00007; Control of Transient Combustibles; Revision 13
- DB-FP-00009; Fire Protection Impairment and Fire Watch; Revision 20
- DB-FP-00018; Control of Ignition Sources; Revision 12
- DB-MS-01637; Scaffolding Erection and Removal; Revision 15

Pre-Fire Plans:

- PFP-AB-115; ECCS Pump Room 1-2, Room 115, Fire Area A; Revision 5
- PFP-AB-208; No. 1 Mechanical Penetration Room and Pipeway Area, Rooms 202, 208, and 208DC, Fire Area AB; Revision 6
- PFP-AB-314; No. 4 Mechanical Penetration Room, Rooms 115CC, 314, 314CC, Fire Area A; Revision 8

Drawings:

- A-221F; Fire Protection General Floor Plan Elevation 545'-0" and 555'-0"; Revision 9
- A-222F; Fire Protection General Floor Plan Elevation 565'-0"; Revision 18
- A-223F; Fire Protection General Floor Plan Elevation 585'-0"; Revision 25

Other:

- GEN-SAF-0001; Generation Personal Safety Manual; Revision 2
- Fire Hazard Analysis Report; Revision 26
- DBP 4918AW/13; NFPA 72E—1978 Code Review for Davis-Besse Station, Zones 101, 105, 110, 113, 115, and 124; 3/29/1990

1R11 Licensed Operator Regualification Program and Licensed Operator Performance

Condition Reports:

- 2015-15334; Temporary Electric Air Compressor Trip
- 2015-15641; Crew Performance Critique For a Failure of the Temporary Electric Air Compressor (TEAC)
- 2015-15670; Crew Performance Critique For Operator Response to an Event Resulting in EDG No. 2 Running at Idle Speed with the Field Flashed
- 2015-16909; Crew Performance Critique for Operator Response to Loss of RCP Runback
- 2015-16059; ICS Failure Resulting in Runback
- 2015-16078; Improvement Opportunity for Preparation of Reactivity Plan For Power Escalation Following Runback

Procedures:

- DB-OP-02014; MSR/ICS Alarm Panel 14 Annunciators; Revision 14
- DB-OP-02528; Instrument Air System Malfunctions; Revision 22
- DB-OP-06521; Station and Instrument Air System Operating Procedure; Revision 42
- DB-OP-06401; Integrated Control System Operating Procedure; Revision 23
- DB-OP-06402; CRD Operating Procedure; Revision 25
- DB-OP-06902; Power Operations; Revisions 52 and 53
- DB-SC-03272; Control Rod Exercising Test; Revision 4
- DB-SS-04150; Main Turbine Stop Valve Test; Revision 13
- DB-SS-04151; Main Turbine Control Valve Test; Revision 15
- DB-SS-04152; Main Turbine Combined Intermediate Valve Test; Revision 10
- NOP-OP-1002; Conduct of Operations; Revision 11
- NT-OT-07001; Training and Qualification of Operations Personnel; Revision 14
- NOP-TR-1200; Conduct of Training; Revision 2
- NOP-TR-1280; FENOC Simulator Configuration Management; Revision 0
- NOP-TR-1010; Licensed Operator Requalification Exam Development; Revision 2
- NOP-OP-1013; Control of Time Critical Operator Actions, Revision 1
- NOP-LP-2001; Corrective Action Program; Revision 37
- NG-NT-00600; Training and Qualification; Revision 6
- NG-NT-00601; Control of the Plant-Referenced Simulator; Revision 3
- NG-DB-00319; Control of the Emergency Operating Procedure and Technical Bases; Revision 3

FENOC Business Practices and Reference Manuals:

- DBBP-TRAN-0014; License Requirements for Licensed Individuals; Revision 10
- DBBP-TRAN-0021; Simulator Configuration Control; Revision 4
- DBBP-TRAN-0502; Continuing Training Simulator Evaluations; Revision 11
- NOBP-TR-1112; FENOC Conduct of Simulator Training and Evaluation; Revision 2
- NOBP-TR-1123; Operator Fundamentals; Revision 2
- NOBP-TR-1151; Operating Crew Performance Critique; Revision 0
- DBBP-OPS-1013; Control of Time Critical Actions; Revision 2
- NORM-OP-1002; Conduct of Operations; Revision 5

1R12 Maintenance Effectiveness

Condition Reports:

- 2015-15392; Implementation Delays for Station Air Compressor No. 1
- 2015-15679; Temporary Electric Air Compressor Shut Down
- 2015-15709; Station Air Compressor No. 1 Issues
- 2015-15729; Temporary Diesel Air Compressor Air Dryer Trip
- 2015-15854; DC Ground Received During Station Air Compressor 1 Commissioning
- 2015-15872; Drain Valve on the TDAC Air Dryer Package is Frozen
- 2015-15941; Delays for Station Air Compressor No. 1 Replacement
- 2015-15942; Delays for Station Air Compressor No. 1 Post Modification Testing
- 2015-15992; Station Air Compressor No. 1 Replacement Extent of Condition Results
- 2015-16025; SAC 1 Functional Testing Issues
- 2012-03021; ECCS Cooler has Low Flow
- 2015-03518; Historic Performance Test Issues for ECCS Room Cooler 1
- 2013-12378; ECCS Rm Cooler 1 Flow Beginning to Trend Low
- 2011-02867; Below Minimum Wall Thickness Requirements on Service Water Piping

- 2015–15890; Thickness Measurements Below Order Acceptance Criteria on Service Water Piping
- 2015–16198; Thickness Measurements Below Order Acceptance Criteria on Service Water Piping
- 2015–16479; Thickness Measurements Below Order Acceptance Criteria on Service Water Piping
- 2015–13053; Failed Acceptance for DB–PF–04736, ECCS Room Cooler Monitoring Test

Other:

- Davis-Besse Plant Health Report 2015 First Half
- Davis-Besse Plant Health Report 2014 Second Half
- MRPM; Maintenance Rule Program Manual; Revision 35
- Calculation 37D, Attachment 4; Minimum Allowable Pipe Wall Thickness; Revision 9
- SWRPM; NRC Generic Letter 89–13 Service Water Reliability Program Manual; Revision 1

1R13 Maintenance Risk Assessments and Emergent Work Control

Condition Reports:

- 2015–07332; As Found Power Supply Readings for SFAS Channel 4 Out of Tolerance
- 2015–14449; BA407 (R.C. PRESSURE CHANNEL FAILURE Bistable) Tripped Outside the Required Range
- 2015–15111; DO30 Check Valve Installed in Wrong Direction
- 2015–15168; EDG 2 Outage: Emergency Shutdown Performed Due to Generator Excitation at Idle Speed
- 2015–15172; Missed Operation Step During the Post Maintenance Testing of EDG No. 2, Level 3 Mispositioning
- 2015–15185; PA–DB–15–02: Mechanical Maintenance Performance During EDG No. 2 Outage Work Activities
- 2015–15205; Failure to Implement Risk Level Management and Controls as Required by NOP–OP–1007, Risk Management
- 2015–15229; PA–DB–15–02: Instrument and Controls Maintenance Performance During EDG No. 2 Outage Work Activities
- 2015–15262; EDG 2 Fuel Oil Pressures Lower After 2 and 4 Year PMs on the Fuel System
- 2015–15670; Crew Performance Critique for Operator Response to an Event Resulting in EDG No. 2 Running at Idle Speed with the Field Flashed
- 2015–16059; ICS Failure Resulting in Runback
- 2015–16909; Crew Performance Critique for Operator Response to Loss of RCP Runback
- 2015–16078; Improvement Opportunity for Preparation of Reactivity Plan For Power Escalation Following Runback

Procedures:

- DB–SC–03077; Emergency Diesel Generator 2 184 Day Test; Revision 28
- DB–OP–01101; Containment Entry; Revision 13
- DB–OP–02014; MSR/ICS Alarm Panel 14 Annunciators; Revision 14
- DB–OP–02526; Primary to Secondary Heat Transfer Upset; Revision 4
- DB–OP–03006; Miscellaneous Instrument Shift Checks; Revision 50
- DB–OP–03013; Containment Daily Inspection and Containment Closeout Inspection; Revision 10
- DB–OP–06403; Reactor Protection System (RPS) and Nuclear Instrumentation (NI) Operating Procedure; Revision 21
- DB–OP–06405; Safety Features Actuation System Procedure; Revision 13

- DB-OP-06902; Power Operations; Revision 52
- DB-SP-03113; SFAS Channel 4 Functional Test; Revision 16
- DB-SP-03446; Decay Heat Train 1 Pump and Valve Test (Mode 1-3); Revision 1
- NOP-OP-1004; Reactivity Management; Revision 13
- NOP-OP-1007; Risk Management; Revision 21

Business Practices:

- NOBP-ER-3399; Fleet Circuit Card and Power Supply Burn-In Guide; Revision 1

Work Orders:

- 200494779; PM 7488 K5-2 Replace KPD Style Relays; 11/5/2015
- 200582699; EDG 2 184 Day Test; 11/5/2015
- 200583325; SP3446-001 P42-1 DH/LPI 1-1 Quarterly; 11/17/2015
- 200631612; P41-1 License Renewal One Time Inspection Outboard Decay Heat Pump Bearing; 11/16/2015
- 200641813; Replace SFAS 15 Vdc Power Supply 408; 10/22/2015

Other:

- Davis-Besse Plant Health Report 2015 First Half
- Radiation Work Permit 2015-2010 and Associated ALARA Plan for At-Power Containment Entry; Revision 0
- Evolution Specific Reactivity Plan: Escalation to 100 Percent FP After November ICS Runback; Revision 0

1R15 Operability Determinations and Functionality Assessments

Condition Reports:

- 2015-14060; Eighth-Core Location L13 Found to Exceed Its BMAC Value
- 2015-14780; Dredging Barge on Service Water Returns to the Forebay
- 2015-14893; Moderator Temperature Coefficient (MTC) End-of-Cycle (EOC) Extrapolation More Negative than Lower Limit in COLR
- 2015-15227; Yellow Indicator for the Monthly Control Room Deficiencies / Non-Outage Performance Indicator—D-RPO-15
- 2015-16187; Red Indicator for the Monthly Control Room Deficiencies Outage/Non-Outage Performance Indicator D-RPO-15

Drawings:

- M-0041B; Primary Service Water System; Revision 72
- M-0041C; Service Water System For Containment Air Coolers; Revision 47
- OS-0020, Sheet 1; Service Water System; Revision 96
- OS-0020, Sheet 2; Service Water System; Revision 52

Procedures:

- NOBP-OP-0012; Operator Work-Arounds, Burdens, Control Room Deficiencies and Operations Aggregate Assessment; Revision 4
- NOP-LP-2001; Corrective Action Program; Revision 37

Other:

- SN-SA-2015-0267; FENOC Fleet Implementation of NOBP-OP-0012, CRDs, OBs, OWAs, and Aggregate Assessments; September 4, 2015

1R19 Post-Maintenance Testing

Condition Reports:

- 2015-07332; As Found Power Supply Readings for SFAS Channel 4 Out of Tolerance
- 2015-14449; BA407 (R.C. PRESSURE CHANNEL FAILURE Bistable) Tripped Outside the Required Range
- 2015-14997; EDG 2 Outage: Cylinder 11 & 17 Exhaust Valve Bridge Assemblies Unusually Loose
- 2015-15111; DO30 Check Valve Installed in Wrong Direction
- 2015-15138; Agastat R3X5 PMT Not as Expected
- 2015-15141; SFAS Channel 4 Sequencer Test SAX24 Relay Did Not Respond
- 2015-15142; EDG 2 Ran Unloaded for Greater Than 30 Minutes During PMT
- 2015-15168; EDG 2 Outage: Emergency Shutdown Performed Due to Generator Excitation at Idle Speed
- 2015-15172; Missed Operation Step During the Post Maintenance Testing of EDG No. 2, Level 3 Mispositioning
- 2015-15185; PA-DB-15-02: Mechanical Maintenance Performance During EDG No. 2 Outage Work Activities
- 2015-15208; EDG No. 2 Post Maintenance Test Not Performed
- 2015-15229; PA-DB-15-02: Instrument and Controls Maintenance Performance During EDG No. 2 Outage Work Activities
- 2015-15262; EDG 2 Fuel Oil Pressures Lower after 2- and 4-year PMs on the Fuel System
- 2015-15512; EDG 2 Temp Switches Found Out of Tolerance
- 2015-15670; Crew Performance Critique for Operator Response to an Event Resulting in EDG No. 2 Running at Idle Speed with the Field Flashed
- 2015-15709; Station Air Compressor No. 1 Issues
- 2015-15854; DC Ground Received During Station Air Compressor 1 Commissioning
- 2015-15941; Delays for Station Air Compressor No. 1 Replacement
- 2015-15942; Delays for Station Air Compressor No. 1 Post Modification Testing
- 2015-16025; SAC 1 Functional Testing Issues
- 2015-16834; Relief Valve MU1561 Found Bent
- 2015-16845; Makeup Pump No. 2 Outboard Pump Seal Leaks

Drawings:

- M-180Q-13; Schematic Diagram Engine Control for Emergency Diesel Generator 1-1; Revision T19
- OS-0033F; Containment Vessel Isolation and Vacuum Relief Systems; Revision 12

Procedures:

- DB-OP-01001; Administrative Control of Containment Isolation Valves; Revision 6
- DB-OP-06316; Diesel Generator Operating Procedure; Revision 57
- DB-PF-03272; Post Maintenance Valve Test; Revision 15
- DB-PF-09301; Preventive Maintenance for Type SMB and SB Limitorque Operators; Revision 9
- DB-PF-09307; Operation of Motor Monitoring Equipment; Revision 4
- DB-SC-03077; Emergency Diesel Generator 2 184 Day Test; Revision 28
- DB-SP-03113; SFAS Channel 4 Functional Test; Revision 16
- DB-SP-03371; Quarterly Makeup Pump 1 Inservice Test and Inspection; Revision 17

Business Practices:

- NOBP-ER-3399; Fleet Circuit Card and Power Supply Burn-In Guide; Revision 1

Work Orders:

- 200494779; PM 7488 K5-2 Replace KPD Style Relays; 11/5/2015
- 200582699; EDG 2 184 Day Test; 11/5/2015
- 200560397; PM 0747: Clean, Inspect, and Test MV2001 for RPS/SFAS Channel 2; 10/7/2015
- 200594398; PM 1349 K5-2 Inspect Replace DO 30 EDG 2; 11/2/2015
- 200596199; PM 10414 C3618 Test and Calibrate Agastat R3X5; 11/2/2015
- 200641813; Replace SFAS 15 Vdc Power Supply 408; 10/22/2015
- 200570163; PM 4988 P37-1 Insp Gear Drive; 8/18/2015
- 200630443; E212-1 License Renewal One Time VT Inspection MU Pump LO Cooler; 12/15/2015

1R22 Surveillance Testing

Condition Reports:

- 2015-13056; SBODG Loss of Field Relay Dropped During Monthly Test

Procedures:

- DB-SC-04271; SBODG Monthly Test; Revision 24
- DB-SP-03338; Containment Spray Train 2 Quarterly Pump and Valve Test; Revision 27
- DB-SS-04150; Main Turbine Stop Valve Test; Revision 13
- DB-SS-04151; Main Turbine Control Valve Test; Revision 15
- DB-SS-04152; Main Turbine Combined Intermediate Valve Test; Revision 10

Work Orders:

- 200579038; SBODG Monthly Test DB-SC-04271; 10/1/2015

1EP4 Emergency Action Level and Emergency Plan Changes

Condition Reports:

- 2014-16712; MS-C-14-11-24: Emergency Plan Appendix A Does not Contain All Implementing Procedures
- 2014-16713; MS-C-14-11-24: Emergency Plan not Updated with Current Evacuation Time Estimate Document
- 2014-16718; MS-C-14-11-24 Finding: 10 CFR 50 Appendix E Requirements Missing from the Emergency Plan

Procedures:

- RA-EP-01500; Emergency Classification; Revision 15
- NOP-LP-5002; Evaluation of Changes to Emergency Plans and Supporting Documents 10 CFR 50.54(q); Revision 6

Other:

- Davis-Besse Emergency Plan; Revision 30

2RS1 Radiological Hazard Assessment and Exposure Controls

Condition Reports:

- 2014-13040; Small Article Monitor Use not in Compliance with Procedure
- 2014-12508; Radioactive Material Stored in Turbine Building
- 2015-04235; Radiation Protection Equipment Failure
- 2015-05269; Step Increase in Reactor Coolant System Cobalt-58 Activity

- 2015-06713; Contamination Found Outside a Posted Contaminated Area within the RCA
- 2015-07191; Dose Rate Alarm Due to Dropped Electronic Dosimeter
- 2015-00214; Groundwater Tritium Concentration in Monitoring Well (MW-37S Above 2,000 pCi/l)
- 2015-07682; Small Article Monitor Failed Source Check
- 2015-08999; Unidentified Water on Floor in Room 211
- 2015-12536; SN-SA 2015-0181, Radiological Survey Issues
- 2015-13351; Radiation Protection Latent Performance Errors Identified on September 2015
- 2015-15307; Workers Coached on Requirements for Moving Radioactive Material Outside the Protected Area

Procedures:

- NOP-OP-4703; Determination of Alpha Monitoring Levels; Revision 3
- NOP-OP-4702; Air Sampling; Revision 5
- NOP-OP-4107; Radiation Work Permit (RWP); Revision 14
- NOP-OP-4201; Routine External Exposure Monitoring; Revision 2
- DB-CH-06000; Post-Accident Sampling System Operation and Analysis; Revision 13

Other:

- Electronic Dosimeter Alarm Logs; November 2014, to November 2015
- Alpha Smear Analysis Data; January 2015
- Alpha Area Level Assessment; April 9, 2015
- Standing Order 2015001; Alpha Contamination Risk Level Assignments; Revision 1
- Radioactive Material and Radioactive Waste Inventory Logs
- Radiological Survey Form Records; Various Records
- Radiological Air Sample Form Records; Various Records

2RS5 Radiation Monitoring Instrumentation

Procedures:

- DB-MI-04510; Channel Calibration of RE4598AB and RE4598BB Station Vent Accident Range Radiation Monitors; Revision 18
- DB-MI-03408; Channel Calibration of 79A-ISR4596B Containment High Range Radiation Monitor Channel 2; Revision 6

Other:

- Calculation; Station Vent Radiation Monitor Sample Line Losses; Revision 1

4OA1 Performance Indicator Verification

Condition Reports:

- 2015-10531; System Monitoring: RCP Seal Leakage Increase

Forms:

- NOBP-LP-4012-53; Reactor Coolant System Leakage; Revision 0

FENOC Business Practices:

- NOBP-LP-4012; NRC Performance Indicators; Revision 5

Procedures:

- DB-SP-03357; RCS Water Inventory Balance; Revision 19

- DB-CH-06002; Sampling System Nuclear Areas; Revision 31

Other:

- Select Operator Logs covering the period of October 2014 through September 2015
- RCS Dose Equivalent Iodine Data; Third Quarter of 2014, through Third Quarter of 2015

40A2 Problem Identification and Resolution

Condition Reports:

- 2011-88391; Fire in Building Construction Area
- 2011-92525; CNRB Concerns with Events at Site
- 2014-08664; Axial Power Shaping Rod (APSR) in Core Location D-10 Decoupled
- 2014-08772; SG Operate Levels High
- 2014-11238; ODML: Operational Guidance with Axial Power Shaping Rod (APSR) 8-2 (Core Location D-10) Uncoupled, Revision 01
- 2014-15953; Pellet Thermal Conductivity Degradation Modeling: Non-Conservative
- 2014-16024; Fq and Imbalance Temporary Limitations Due to Pellet Thermal Conductivity Analyses
- 2014-17576; Deficiency in Methodology Used for Emergency Core Cooling System Performance Requirements
- 2014-18197; Steam Generator Operating Levels Impacting Core Design and Core Operation
- 2015-09680; EFW Soil Retaining System Construction
- 2015-09966; EFW Temporary Earth Retention System Extent of Condition for Deficient Welds
- 2015-10793; Error Likely Situation Due to FENOC Drawing Control Process Comprehension by Vendor
- 2015-10827; During Cycle 18 the Axial Power Shaping Rod (APSR) in Core Location F12 Appears to Have Been Uncoupled From the Lead Screw for the Entire Cycle
- 2015-10836; EFW Drilled Pier Construction
- 2015-11198; Drilled Pier Caisson No. 23 not Positioned Per Design
- 2015-11303; As Built Checks of EFW Caissons Found 6 Which are not Positioned per Design Drawing Fukushima
- 2015-12456; Pile Integrity Retest Identified Probable Defect for EFW Drilled Pier No. 28
- 2015-13938; EFW Project—Welding Not in Accordance with Design Drawings
- 2015-14060; Eighth-Core Location L13 Found to Exceed Its BMAC Value
- 2015-14403; NRC Integrated Inspection Observation: CAP Implementation Challenges
- 2015-14780; Dredging Barge on SW Returns to the Fore Bay
- 2015-14893; Moderator Temperature Coefficient (MTC) End-of-Cycle (EOC) Extrapolation More Negative than Lower Limit in COLR
- 2015-15537; Additional Lock Placed on Marsh Gate
- 2015-15854; DC Ground Received During Station Air Compressor 1 Commissioning
- 2015-15941; Delays for Station Air Compressor No. 1 Replacement
- 2015-15942; Delays for Station Air Compressor No. 1 Post Modification Testing
- 2015-15992; Station Air Compressor No. 1 Replacement Extent of Condition Results
- 2015-16002; Foreign Material Recovered From Circulating Water Canal
- 2015-16025; SAC 1 Functional Testing Issues
- 2015-16170; Scaffolding Built Challenges Access Control Restrictions
- 2015-17030; Revised Temporary Guidance for Operation with Non-Zero Delta Tc

Procedures:

- NOP-LP-2001; Corrective Action Program; Revision 37

Business Practices:

- NOBP–WM–2502; Management and Oversight of On-Site Supplemental Personnel; Revision 10

4OA3 Followup of Events and Notices of Enforcement Discretion

Condition Reports:

- 2015–01817; NRC CDBI 2015—Operability of BWST While on SFP Purification
- 2015–03869; Unable to Purify Borated Water Storage Tank Contents in Modes 1–4
- 2015–05632; NRC-NCV: CDBI—Failure to Comply with T.S. 3.5.4 (BWST)
- 2015–08774; BF1277 for SW1395 Tripped Open
- 2015–10438; NRC Question on Reportability of BWST While on SFP Purification
- 2015–10827; During Cycle 18 the Axial Power Shaping Rod (APSR) in Core Location F12 Appears to Have Been Uncoupled From the Lead Screw for the Entire Cycle
- 2015–10929; Nuclear Fuel: FENOC Core Follow Activities did not discover the Uncoupled APSR in F12 during Cycle 18
- 2015–14332; Unusual Event Declared Due to Security Condition
- 2015–14826; PORC Action Item: Share Lessons Learned from Revision 01 to LER 15–001
- 2015–16920; LER 2015–004 Did Not Document TS LCO 3.2.2 Was Also Not Met For Cycle 18 APSR Issue

NRC Event Notification System (ENS) Forms:

- Event Notification 51185; Both Auxiliary Feedwater Trains Declared Inoperable; 6/27/2015
- Event Notification 51483; Unusual Event Due to Suspicious Vehicle in Owner Controlled Area; 10/20/2015

Procedures:

- NOP–OP–1015; Event Notifications; Revision 2
- NOP–LP–2001; Corrective Action Program; Revision 37

Business Practices:

- NOBP–OP–1015; Event Notifications; Revision 3

Other:

- Cycle 18 Core Operating Limits Report; Revision 0
- Cycle 19 Core Operating Limits Report; Revision 0
- Cycle 19 Core Operating Limits Report; Revision 1

4OA5 Other Activities

Condition Reports:

- 2014–17296; 2014 50.59 Inspection: Davis-Besse Does Not Have an Analysis to Satisfy Item 1 of RIS 2011–12
- 2015–00214; Groundwater Tritium Concentration in Monitoring Well (MW–37S) Above 2,000 pCi/liter
- 2015–01455; Elevated Tritium Concentrations in Seven Groundwater Monitoring Wells
- 2015–01639; Water Containing 1 Million pCi/L Tritium on the Floor in the Borated Water Storage Tank Pit
- 2015–02108; Groundwater Tritium Results Greater Than Courtesy Notification Level of 2000 pCi/l

- 2015-03642; Several Davis-Besse March Groundwater Well Tritium Samples Over 2,000 pCi/liter
- 2015-07189; Fourteen of Thirty-One Groundwater Samples Over 2,000 PicoCuries/Liter (pCi/L) Tritium
- 2015-08570; BWST Decreasing Long Term Level Trend
- 2015-12043; Review Impact of Elimination of Monitoring Well (MW) 22 S/D

Procedures:

- NOP-OP-1015; Event Notifications; Revision 2
- NOP-OP-2012; Groundwater Monitoring; Revision 8
- NOP-OP-4705; Response to Contaminated Spills/Leaks; Revision 7
- DB-OP-01300; Switchyard Management; Revision 9
- DB-OP-02001; Electrical Distribution Alarm Panel 1 Annunciators; Revision 30

Business Practices:

- NOBP-OP-1015; Event Notifications; Revision 3

Drawings:

- E-1, Sheet 1; AC Electrical System One Line Diagram; Revision 37

Calculations

- C-EE-015.03-008; AC Power System Analysis Calculation

Other:

- Groundwater Monitoring Well Data covering the period of January 2014 through December 2015

40A7 Licensee-Identified Violations

Condition Reports:

- 2015-08774; BF1277 for SW1395 Tripped Open

NRC Event Notification System (ENS) Forms:

- Event Notification 51185; Both Auxiliary Feedwater Trains Declared Inoperable; 6/27/2015

LIST OF ACRONYMS USED

ADAMS	Agencywide Document Access Management System
AFW	Auxiliary Feedwater
APSR	Axial Power Shaping Rod
BMAC	Basic Maneuvering Acceptance Criteria
BWST	Borated Water Storage Tank
CAP	Corrective Action Program
CFR	Code of Federal Regulations
COLR	Core Operating Limits Report
CR	Condition Report
CREATCS	Control Room Emergency Air Temperature Control System
CRD	Control Rod Drive
DRP	Division of Reactor Projects
DVR	Degraded Voltage Relay
EAL	Emergency Action Level
EDG	Emergency Diesel Generator
EFW	Emergency Feedwater
EP	Emergency Plan
ICS	Integrated Control System
IMC	Inspection Manual Chapter
IP	Inspection Procedure
IR	Inspection Report
LCO	Limiting Condition for Operation
LER	Licensee Event Report
MOV	Motor-Operated Valve
MTC	Moderator Temperature Coefficient
NCV	Non-Cited Violation
NEI	Nuclear Energy Institute
NRC	U.S. Nuclear Regulatory Commission
OWA	Operator Workaround
PARS	Publicly Available Records System
pCi/L	Picocuries Per Liter
PI	Performance Indicator
PMT	Post-Maintenance Testing
psig	Pounds Per Square Inch Gauge
RCP	Reactor Coolant Pump
RCS	Reactor Coolant System
RP	Radiation Protection
RWP	Radiation Work Permit
SAC	Station Air Compressor
SBODG	Station Blackout Diesel Generator
SFAS	Safety Features Actuation System
SFP	Spent Fuel Pool
SG	Steam Generator
SR	Surveillance Requirement
SSC	Systems, Structures, and Components
SW	Service Water
Tc	RCS Cold Leg Temperature
TS	Technical Specification
USAR	Updated Safety Analysis Report

URI	Unresolved Item
Vac	Volts Alternating Current
Vdc	Volts Direct Current

B. Boles

-2-

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Sincerely,

/RA/

James L. Cameron, Chief
Branch 4
Division of Reactor Projects

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