UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
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LISLE, IL 60532-4352

February 10, 2015

Mr. Larry Weber
Senior VP and Chief Nuclear Officer
Indiana Michigan Power Company
Nuclear Generation Group
One Cook Place
Bridgman, MI 49106

SUBJECT: DONALD C. COOK NUCLEAR POWER PLANT, UNITS 1 AND 2
NRC INTEGRATED INSPECTION REPORT 05000315/2014005;
05000316/2014005

Dear Mr. Weber:

On December 31, 2014, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Donald C. Cook Nuclear Power Plant, Units 1 and 2. The enclosed report documents the results of this inspection, which were discussed on January 20, 2015, with yourself and members of your staff.

Based on the results of this inspection, three NRC-identified and two self-revealed findings of very low safety significance were identified. The findings involved violations of NRC requirements. However, because of their very low safety significance, and because the issues were entered into your corrective action program, the NRC is treating the issues as non-cited violations (NCVs) in accordance with Section 2.3.2 of the NRC Enforcement Policy

If you contest the subject or severity of 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 a copy to the Regional Administrator, U.S. Nuclear Regulatory Commission - Region III, 2443 Warrenville Road, Suite 210, Lisle, IL 60532-4352; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the Resident Inspector Office at the Donald C. Cook Nuclear Power Plant. In addition, if you disagree with the cross-cutting aspect assigned to any finding in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region III, and the NRC Resident Inspector at the Donald C. Cook Nuclear Power Plant.

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/

Kenneth Riemer, Chief
Branch 2
Division of Reactor Projects

Docket Nos. 50-315; 50-316
License Nos. DPR-58; DPR-74

Enclosure:
IR 05000315/2014005; 05000316/2014005
w/Attachment: Supplemental Information

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket Nos:	05000315; 05000316
License Nos:	DPR-58; DPR-74
Report No:	05000315/2014005; 05000316/2014005
Licensee:	Indiana Michigan Power Company
Facility:	Donald C. Cook Nuclear Power Plant, Units 1 and 2
Location:	Bridgman, MI
Dates:	October 1 through December 31, 2014
Inspectors:	J. Ellegood, Senior Resident Inspector T. Taylor, Resident Inspector J. Cassidy, Senior Health Physicist M. Garza, Emergency Response Specialist T. Go, Health Physicist J. Lennartz, Project Engineer M. Mitchell, Health Physicist M. Phalen, Senior Health Physicist E. Sanchez Santiago, Reactor Inspector
Approved by:	Kenneth Riemer, Chief Branch 2 Division of Reactor Projects

Enclosure

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SUMMARY OF FINDINGS

Inspection Report 05000315/2014005, 05000316/2014005; 10/01/2014 – 12/31/2014; Donald C. Cook Nuclear Power Plant, Units 1 and 2; Operability Determinations and Functional Assessments; Plant Modifications; Post-Maintenance Testing; Radiological Hazard Assessment and Exposure Controls.

This report covers a 3-month period of inspection by resident inspectors and announced baseline inspections by regional inspectors. Three Green findings were identified by the inspectors. Additionally, there were two Green self-revealed findings. The findings were considered non-cited violations (NCVs) 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 June 2, 2011. 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 July 9, 2013. 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.

Cornerstone: Mitigating Systems

- Green. A finding of very low safety significance, with an associated non-cited violation of 10 CFR Part 50, Appendix B, Criterion 16, "Corrective Actions," was identified by the inspectors for the licensee's failure to promptly identify and correct a condition adverse to quality (CAQ) associated with Unit 1 Turbine-Driven Auxiliary Feedwater (TDAFW) pump turbine bearing oil. Specifically, the licensee failed to identify that water was entering the oil system after leakage had been identified directly above one of the TDAFW pump turbine bearings. On April 7, 2014, a cooling water leak was identified above the outboard turbine bearing. The leak was classified as about 1 drop-per-minute (dpm). On April 11, 2014, the licensee discovered the turbine bearing oil level was above the maximum mark on an attached sight glass. Several possible reasons were postulated for the high level (which had been steady in-band for over a year), such as rising turbine building temperatures and the fact that it was not uncommon for personnel to do 'unnecessary' oil adds to the machine. Oil was drained out until level returned to the maximum mark. On May 22, 2014, the licensee again noted oil level to be above the maximum mark. Oil was drained again, and similar reasons provided for the level increase. Further, a statement was made that oil level had been steady for the past month, neglecting the previous high level condition. In parallel, NRC inspectors had questioned why level was being maintained at the maximum mark when the operator logs and a sign stated level should be kept at the minimum mark. On May 23, the licensee decided to drain the oil system; 620 ml of water was found. New oil was added, and a temporary modification was installed which directed leakage away from the bearing. The issue was entered into the Corrective Action Program (CAP), and an apparent cause evaluation later determined the leakage to be the primary intrusion pathway for the water.

  The issue was more-than-minor because it adversely affected the Configuration Control attribute of the Mitigating Systems Cornerstone, whose objective is to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Additionally, if left uncorrected, the issue could lead to a more significant safety concern. The inspectors assessed the finding for

significance using IMC 0609, “Significance Determination Process.” Per Appendix A, the finding screened as Green, or very low safety significance, in Exhibit 2. Specifically, all questions were answered ‘no’ under Section A for findings related to Mitigating Structures, Systems and Components (SSCs) and Functionality. The inspectors reviewed the licensee’s past operability evaluation and concluded that given the projected amount of water that could be entrained in the oil during operation, along with the duration of operation assumed in the safety analyses, that operability of the pump would be maintained. The finding had an associated cross-cutting aspect in the Human Performance area, specifically, H.11, Challenge the Unknown. Regarding the TDAFW oil system, the licensee rationalized why the level was increasing without sufficient investigation given the significance of the system, and did not seek further information that was readily available regarding appropriate oil levels. (Section 1R15)

- Green. A finding of very low safety significance, with an associated non-cited violation of Technical Specification (TS) 5.4, “Procedures,” was self-revealed when a vacuum was inadvertently drawn on the AB Fuel Oil Storage Tank (FOST) during preparations for surveillance activities. The vacuum caused an indication of lowering level in the tank, alarms, and an unplanned TS Limiting Condition for Operation (LCO) action statement entry. The licensee was performing work activities in preparation for a leak test of the FOST. The general sequence of activities should have been a loosening of the vent filter for the tank, a transfer of fuel from the FOST to the Emergency Diesel Generator (EDG) day tanks, removal of the FOST from service, and finally removal of the vent filter so test equipment could be connected to the tank. Due to ambiguous work instruction steps and activities not being adequately controlled to ensure the proper sequence occurred, workers first removed the vent filter completely and placed a Foreign Material Exclusion (FME) bag over the vent. When operators later transferred fuel, a vacuum was drawn in the tank and level appeared to be going down. Utilizing a manual method of level measurement (which had also been affected by the vacuum), operators determined fuel was actually being lost from the tank to the environment. Shortly thereafter, the bag was found and removed, and level restored to normal (there was no actual loss of fuel). Technical Specification 5.4, “Procedures,” states, in part, that written procedures shall be established, implemented, and maintained covering the applicable procedures recommended in Regulatory Guide 1.33. Regulatory Guide 1.33 states, in part, that maintenance that can affect the performance of safety-related equipment should be properly preplanned and performed in accordance with written procedures, documented instructions, or drawings appropriate to the circumstances. Contrary to these requirements, the FOST surveillance was performed with inadequate instructions and was not coordinated appropriately. The licensee entered the issue into the CAP and performed a root cause analysis.

  The performance deficiency was more than minor because it adversely impacted the Configuration Control attribute of the Mitigating Systems cornerstone, whose objective is ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The finding screened as Green, or very low safety significance, utilizing IMC 0609, Appendix A, “The Significance Determination Process for Findings at Power.” Specifically, all questions were answered ‘no’ under Section A of Exhibit 2 for Mitigating Systems, since that was the affected cornerstone. The FME bag was installed, which rendered the AB FOST inoperable, for approximately 16 hours. This was less than the TS allowed outage time of 48 hours. The finding had an associated cross-cutting aspect in the human performance area, specifically, H.5, Work Management. Work activities should be planned, controlled, and executed with

nuclear safety as the overriding priority. Contrary to the tenets of the cross-cutting aspect, the work was planned and executed with inadequate work instructions. Further, there was a lack of coordination between a number of work groups and activities associated with the test. (Section 1R15)

- Green. A finding of very low safety significance, with an associated non- violation of TS 5.4, "Procedures," was self-revealed on November 1, 2014, when the Unit 1 TDAFW pump tripped during an emergent dual-unit shutdown. Both units were taken offline by operators due to debris intrusion from Lake Michigan into the cooling water screenhouse. The TDAFW pump started as expected but shutdown after a few minutes of operation. Investigation by the licensee revealed that a cover for the trip solenoid had been installed incorrectly. The cover was relatively loose and had been placed near components involved with the proper latching of the Trip and Throttle valve (TTV) (the valve which opens to let steam in to turn the pump on). After refuting several possible causes and running the pump several times for testing, the licensee determined the likely cause of the trip was the misplaced enclosure, which could have interfered with the proper latching of the TTV. Technical Specification 5.4, "Procedures," states, in part, that written procedures shall be established, implemented, and maintained covering the applicable procedures recommended in Regulatory Guide 1.33. Regulatory Guide 1.33 states, in part, that maintenance that can affect the performance of safety-related equipment should be properly preplanned and performed in accordance with written procedures, documented instructions, or drawings appropriate to the circumstances. Contrary to these requirements, the cause of the misplaced enclosure was due to a lack of detailed instructions regarding the installation and removal of the enclosure. The enclosure was most recently affected by maintenance performed during the fall 2014 refueling outage. The licensee worked with the vendor and reinstalled the enclosure correctly. The Unit 2 TDAFW pump trip solenoid enclosure was also found out of position and corrected. The licensee entered the issue into the CAP.

  The performance deficiency was more than minor because it adversely impacted the Configuration Control attribute of the Mitigating Systems cornerstone, whose objective is ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The inspectors utilized IMC 0609 Appendix A, "The Significance Determination Process for Findings at Power," to assess the significance of the finding. Per Exhibit 2, the finding represented a loss of function for one train of Auxiliary Feedwater (AFW) for greater than the TS allowed outage time. Therefore, the inspectors consulted the regional Senior Reactor Analyst for a detailed risk evaluation. The inspectors considered the Unit 1 TDAFW pump inoperable since the last successful surveillance on October 23, 2014. Given the evidence available, this was the likely opportunity for the conditions to be established to set-up the improper engagement between the TTV and the trip hook. In the detailed analysis, the finding screened as Green, or very low safety significance. The finding had an associated cross-cutting aspect in the area of human performance, specifically, H.8, Procedure Adherence. During maintenance, work proceeded on the trip enclosure despite a lack of detailed instructions on the removal/installation of the enclosure. (Section 1R19)

  Cornerstone: Barrier Integrity

- Green. The inspectors identified a non- violation of 10 CFR Part 50, Appendix B, Criterion 3 "Design Control," for the licensee's inadequate radiological review of permanently removing the Auxiliary Missile Blocks (AMBs) from the Unit 1 and Unit 2

containment accident shields. The finding was determined to be more than minor because it was associated with the Barrier Integrity Cornerstone attribute of design control; and adversely affected the cornerstone objective of maintaining radiological barrier functionality of the safety-related accident shield. Specifically, the failure to control plant design and adequately evaluate the radiological effects of permanently removing the AMBs from the Unit 1 and Unit 2 containment accident shields did not ensure that the accident shield will provide its design function to ensure safe radiation levels outside the containment building following a maximum design basis accident.

The inspectors evaluated the finding using the Significance Determination Process (SDP) in accordance with IMC 0609, "Significance Determination Process," Attachment 0609.04, "Initial Characterization of Findings," dated June 19, 2012. Because the finding impacted the Barrier Integrity Cornerstone, the inspectors screened the finding through IMC 0609, Appendix A, "The Significance Determination Process for Findings At-Power," dated June 19, 2012, using Exhibit 3, "Barrier Integrity Screening Questions." The finding screened as very-low safety significance (Green) because the finding only represented a degradation of the radiological barrier function provided for the Auxiliary Building. The inspectors determined the cause of this finding did not represent current licensee performance and, thus, no cross-cutting aspect was assigned. (Section 1R18)

Cornerstone: Occupational Radiation Safety

- Green. The inspectors identified a finding of very-low safety significance for inadequate procedures used to verify Locked High Radiation Controls in the Unit 2 Containment with an associated non- violation of TS 5.4, "Procedures." As a result, weekly, from November 1, 2013, to March 2014, multiple Radiation Protection Technicians verified the Unit 2 Upper Containment Cavity Gate was locked; however it did not secure the area against unauthorized access.

  The inspectors determined that the performance deficiency was more than minor because if left uncorrected the performance deficiency could lead to a more significant safety concern. Specifically, the failure to identify deficient Locked High Radiation Area (LHRA) controls could result in unintentional exposure to high levels of radiation. The finding was determined to be of very-low safety significance because the problem was not an as-low-as-is-reasonably-achievable (ALARA) planning issue, there was no overexposure, nor substantial potential for an overexposure, and the licensee's ability to assess dose was not compromised. The inspectors did not identify a corresponding cross-cutting aspect for this performance deficiency. The licensee entered the deficiency in their Corrective Action Program as Action Request (AR) 2014-9001 immediately upon discovery and presentation by the inspectors. (Section 2RS1.1)

REPORT DETAILS

Summary of Plant Status

Unit 1 began the inspection period in a refueling outage. On October 29, 2014, the plant was restored to 100 percent power. On November 1, rough lake conditions generated substantial amounts of debris that clogged trash racks and travelling screens. The licensee manually tripped the reactor and maintained the plant in hot standby (Mode 3). On November 8, the licensee restored the plant to 100 percent power.

Unit 2 began the inspection period at 100 percent power. On November 1, 2014, rough lake conditions generated substantial amounts of debris that clogged trash racks and travelling screens. The licensee reduced power to 50 percent to reduce circulating water flow. Conditions continued to degrade; therefore the licensee manually tripped the reactor. The licensee cooled down and entered Mode 5 to repair an intermediate range nuclear instrument. On November 13, the plant was restored to 100 percent power.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01)

.1 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 Final Safety Analysis Report (UFSAR) and performance requirements for systems selected for inspection, and verified that operator actions were appropriate as specified by plant specific procedures. Cold weather protection, such as heat tracing and area heaters, was verified to be in operation where applicable. The inspectors also reviewed 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:

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

b. Findings

No findings were identified.

.2 Readiness for Impending Adverse Weather Condition—High Wind Conditions

a. Inspection Scope

On November 6, 2014, the National Weather Service predicted high winds and rough lake conditions in the vicinity of the plant. Since debris intrusion during similar conditions the previous week had resulted in damage to equipment and a dual unit plant trip, the inspectors validated the site's readiness for the adverse weather. The inspectors reviewed the licensee's overall preparations/protection for the expected weather conditions. The inspectors walked down the service water screen house to assess the licensee progress on repairing trash racks and traveling water screens. The inspectors evaluated the licensee staff's preparations against the site's procedures and determined that the staff's actions were adequate. During the inspection, the inspectors focused on actions taken to minimize debris intrusion and operators preparations to address degradation of raw water systems. The inspectors also reviewed a sample of CAP items to verify that the licensee identified adverse weather issues at an appropriate threshold and disposed them through the CAP in accordance with station corrective action procedures. Documents reviewed are listed in the Attachment to this report.

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

b. Findings

No findings were identified.

1R04 Equipment Alignment (71111.04)

.1 Quarterly Partial System Walkdowns

a. Inspection Scope

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

- Unit 2 Residual Heat Removal system after maintenance;
- Unit 2 Steam Generator (SG) power-operated relief valves during maintenance on other power-operated relief valves; and
- Unit 2 AFW during maintenance on a single train.

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, UFSAR, TS requirements, outstanding work orders (WOs), condition reports, and the impact of ongoing work activities on redundant trains of equipment in order to identify conditions that could have rendered the systems incapable of performing their intended functions. The inspectors also walked down accessible portions of the systems to verify system components and support equipment were aligned correctly and operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no obvious deficiencies. The inspectors also verified that the licensee had properly

identified and resolved equipment alignment problems that could cause initiating events or impact the capability of mitigating systems or barriers and entered them into the CAP with the appropriate significance characterization. Documents reviewed are listed in the Attachment to this report.

These activities constituted three partial system walkdown samples as defined in IP 71111.04–05.

b. Findings

No findings were identified.

.2 Semiannual Complete System Walkdown

a. Inspection Scope

On December 30, 2014, the inspectors completed a complete system alignment inspection of the Unit 1 Containment Spray system to verify the functional capability of the system. This system was selected because it was considered both safety significant and risk significant in the licensee's probabilistic risk assessment. The inspectors walked down the system to review mechanical and electrical equipment lineups; electrical power availability; system pressure and temperature indications, as appropriate; component labeling; component lubrication; component and equipment cooling; hangers and supports; operability of support systems; and to ensure that ancillary equipment or debris did not interfere with equipment operation. A review of a sample of past and outstanding WOs was performed to determine whether any deficiencies significantly affected the system function. In addition, the inspectors reviewed the CAP database to ensure that system equipment alignment problems were being identified and appropriately resolved. Documents reviewed are listed in the Attachment to this report.

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

b. Findings

No findings were identified.

1R05 Fire Protection (71111.05)

.1 Routine Resident Inspector Tours (71111.05Q)

a. Inspection Scope

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

- Unit 2 AB EDG;
- Unit 2 CD EDG;
- Unit 2 Quadrant cable tunnels; and
- Unit 1 Essential Service Water Motor Control Center Room.

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

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

b. Findings

No findings were identified.

1R06 Flooding (71111.06)

.1 Underground Vaults

a. Inspection Scope

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

- Bunkers/manholes containing security cabling; and
- Bunkers/manholes with safety-related cabling supporting technical specification offsite power sources

Specific documents reviewed during this inspection are listed in the Attachment to this report. This inspection constituted one underground vaults sample as defined in IP 71111.06–05.

b. Findings

No findings were identified.

1R07 Annual Heat Sink Performance (71111.07)

a. Inspection Scope

The inspectors reviewed the licensee's inspection of Unit 1 CD EDG north air aftercooler to verify that potential deficiencies did not mask the licensee's ability to detect degraded performance, to identify any common cause issues that had the potential to increase risk, and to ensure that the licensee was adequately addressing problems that could result in initiating events that would cause an increase in risk. The inspectors observed licensee visual observations of the internals of the heat exchanger to verify cleanliness of the heat exchanger. Additionally, the inspectors reviewed eddy current testing results and interviewed heat exchanger program engineers. Documents reviewed for this inspection are listed in the Attachment to this document.

This annual heat sink performance inspection constituted one sample as defined in IP 71111.07-05.

b. Findings

No findings were identified.

1R08 Inservice Inspection Activities (71111.08P)

From September 29, 2014, through October 10, 2014, the inspector conducted a review of the implementation of the licensee's Inservice Inspection (ISI) Program for monitoring degradation of the Unit 1 Reactor Coolant System (RCS), steam generator tubes, Emergency Feedwater Systems, Risk Significant Piping and Components, and Containment Systems.

The inspections described in Sections 1R08.1, 1R08.2, IR08.3, IR08.4, and 1R08.5 below constituted one inservice inspection sample as defined in IP 71111.08-05.

.1 Piping Systems Inservice Inspection

a. Inspection Scope

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

- Ultrasonic (UT) examination of ASME Code Class 2, risk informed (R-A), pipe to elbow weld, 1-FW-12-02S;
- UT of ASME Code Class 1, Pressurizer Relief Nozzle inner Radius; 6"-1-RC-7-IRS;

- UT of ASME Code Class 1; Pressurizer Spray Nozzle Inner Radius; 4"-1-RC-10-IRS; and
- Magnetic Particle (MT) Examination of ASME Code Class 1, Pressurizer Vessel Support; 1-PRZ-26.

There were no recordable indications identified during the previous refueling outage.

The inspectors reviewed NDE records associated with the following pressure boundary welds completed for risk significant components during the current refueling outage to determine whether the licensee applied the pre-service NDE and acceptance criteria required by the Construction Code and ASME Code, Section XI. Additionally, the inspectors reviewed the welding procedure specification and supporting weld procedure qualification records to determine whether the weld procedure was qualified in accordance with the requirements of Construction Code and the ASME Code Section IX:

- Welds OW-1, OW-2 and OW-3 associated with replacement valve 1-CS-314 (Work Order 55440759-5); and
- Welds OW-1 and OW-2 associated with replacement valve 1-NLI-112-V1 (Work Order 55390312-01)

The inspectors also reviewed NDE records associated with the following pressure boundary welds completed for risk significant systems since the beginning of the last refueling:

- Welds OW-1, 2, 3, 4, 5 and OW-6 associated with replacement of valve 1-NFP-222-V2 (Work Order 55421212-10/13); and
- Welds OW-1 associated with the installation of pipe support 1-ARC-S4012 (WO Order 55404504-06).

b. Findings

No findings were identified.

.2 Reactor Pressure Vessel Upper Head Penetration Inspection Activities

a. Inspection Scope

For the Unit 1 reactor vessel head, no examination was required pursuant to 10 CFR 50.55a(g)(6)(ii)(D) for the current refueling outage. Therefore, no NRC review was completed for this inspection procedure attribute.

b. Findings

No findings were identified.

.3 Boric Acid Corrosion Control (BACC)

a. Inspection Scope

The inspectors observed the licensee's BACC visual examinations for portions of the RCS, connected systems, and verified whether these visual examinations emphasized

locations where boric acid leaks can cause degradation of safety significant components.

The inspectors reviewed the following licensee evaluations of RCS components with Boric Acid deposits to determine whether degraded components were documented in the corrective action system. The inspectors also evaluated corrective actions for any degraded RCS components to determine whether they met the component Construction Code, ASME Section XI Code, and/or NRC approved alternative:

- AR 2013-4317; 1-QRV-114, body to bonnet leak;
- AR 2013-4625;1-CS-448-1 has a BA leak;
- AR 2013-5096; No. 14 SG cold leg nozzle dam leakage;
- AR 2013-6839; U1C25 Refueling Cavity Leakage; and
- AR 2013-7061; 1-RH-147W has Boric Acid on Body to Bonnet.

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

- AR 2013-0534; 12-CS-185 has a body to bonnet leak;
- AR 2014-9459; 12-CS-185 has a ruptured diaphragm;
- AR 2013-7220; Reactor Head and Pressure Vent Piping Area;
- AR 2013-7355; 1-NFP-240 has evidence of prior test fitting leakage; and
- AR 2013-7067; 1-RH-107W leaks by at 0.095 ml/min.

b. Findings

No findings were identified.

.4 Steam Generator Tube Inspection Activities

a. Inspection Scope

The NRC inspectors observed acquisition of eddy current (ET) data, interviewed ET data analysts, and reviewed documentation related to the SG ISI Program to determine whether:

- the numbers and sizes of SG tube flaws/degradation identified was consistent with the licensee's previous outage Operational Assessment predictions;
- the SG tube ET examination scope and expansion criteria were sufficient to meet the Technical Specifications, and the Electric Power Research Institute (EPRI) Document 1013706, Pressurized Water Reactor Steam Generator Examination Guidelines;
- the SG tube ET examination scope included potential areas of tube degradation identified in prior outage SG tube inspections and/or as identified in NRC generic industry operating experience applicable to these SG tubes;
- the licensee-identified new tube degradation mechanisms and implemented adequate extent of condition inspection scope and repairs for the new tube degradation mechanism;
- the licensee implemented qualified depth sizing methods to degraded tubes accepted for continued service;

- the ET probes and equipment configurations used to acquire data from the SG tubes were qualified to detect the known/expected types of SG tube degradation in accordance with Appendix H, Performance Demonstration for Eddy Current Examination, of EPRI Document 1013706, Pressurized Water Reactor Steam Generator Examination Guidelines;
- the licensee performed secondary side SG inspections for location and removal of foreign materials;
- The licensee implemented repairs for SG tubes damaged by foreign material; and
- Foreign objects were left within the secondary side of the SGs, and if so, that the licensee implemented evaluations, which included the effects of foreign object migration and/or tube fretting damage.

b. Findings

No findings were identified.

.5 Identification and Resolution of Problems

a. Inspection Scope

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

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

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

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification Program (71111.11)

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

a. Inspection Scope

On November 19, 2014, the inspectors observed a crew of licensed operators in the plant's simulator during licensed operator requalification training to verify that operator performance was adequate, evaluators were identifying and documenting crew performance problems and training was being conducted in accordance with licensee procedures. The inspectors evaluated the following areas:

- licensed operator performance;

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

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

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

b. Findings

No findings were identified.

.2 Resident Inspector Quarterly Observation of Heightened Activity or Risk (71111.11Q)

a. Inspection Scope

On October 17-18, 2014, the inspectors observed the drain-down and vacuum fill of the RCS during the Unit 1 refueling outage. This was a high-risk (Orange) activity planned during the outage. The inspectors evaluated the following areas:

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

The performance in these areas was compared to pre-established operator action expectations, procedural compliance and task completion requirements. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one quarterly licensed operator heightened activity/risk sample as defined in IP 71111.11, and was done in conjunction with the requirements of IP 71111.20.

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

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

- Nuclear Instrumentation;
- Main Steam;
- Anticipated Transient Without Scram Mitigating System Actuation Circuitry; and
- Rod Position Indication

The inspectors reviewed events such as where ineffective equipment maintenance had 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 SSC's/functions classified as (a)(2), or appropriate and adequate goals and corrective actions for systems classified as (a)(1).

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

This inspection constituted four quarterly maintenance effectiveness samples as defined in IP 71111.12–05.

b. Findings

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

a. Inspection Scope

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

- Rough lake conditions during emergent trash rack work;
- Essential service water flow verification work concurrent with EDG testing; and
- Emergent repairs to the Unit 2 Motor-Driven Auxiliary Feedwater (MDAFW) pump room ventilation unit

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.

Documents reviewed during this inspection are listed in the Attachment to this report. These maintenance risk assessments and emergent work control activities constituted three samples as defined in IP 71111.13–05.

b. Findings

No findings were identified.

1R15 Operability Determinations and Functional Assessments (71111.15)

a. Inspection Scope

The inspectors reviewed the following issues:

- Main Steam Safety Valves lift during dual-unit trip;
- Water intrusion into the Unit 1 TDAFW turbine bearings;
- Question regarding TDAFW pump mission time;
- Inability to make new ice during the Unit 1 refueling outage;
- Inadvertent placement of FME bag on AB Fuel Oil Storage Tank vent;
- Failure of automatic load tapping of Unit 2 Reserve Auxiliary Transformer and failure of automatic generator trip during dual-unit trip; and
- Leakby on a Unit 2 AFW flow control valve.

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 UFSAR to the licensee's evaluations to determine whether the components or systems were operable. Where compensatory measures were required to maintain operability, the inspectors determined whether the measures in place would function as intended and were properly controlled. The inspectors determined, where appropriate, compliance with bounding limitations associated with the evaluations. Additionally, the inspectors reviewed a sampling of corrective action documents to verify that the licensee was identifying and correcting any deficiencies associated with operability evaluations. Documents reviewed are listed in the Attachment to this report.

This operability inspection constituted seven samples as defined in IP 71111.15–05.

b. Findings

(1) Failure to Identify Conditions Adverse to Quality Associated with the Unit 1 TDAFW Pump Turbine Oil System

Introduction: A finding of very low safety significance (Green) with an associated NCV of 10 CFR Part 50, Appendix B, Criterion 16, "Corrective Actions," was identified by the inspectors for the licensee's failure to promptly identify and correct a CAQ associated with Unit 1 TDAFW pump turbine bearing oil. Specifically, the licensee failed to identify that water was entering the Unit 1 TDAFW pump turbine bearing oil system after leakage had been identified directly above one of the TDAFW pump turbine bearings.

Description: On April 7, 2014, the licensee identified a 1 dpm leak from the Unit 1 TDAFW pump governor cooling pipe located directly above the outboard turbine bearing. An AR was written (AR 2014-4473) which determined that due to the leak rate and the apparent lack of any equipment impacts, there were no operability concerns. On April 11, 2014, the licensee discovered that the turbine bearing oil level was approximately 0.5 inches above the MAXIMUM mark on the sight glass. Level had been recorded in the logs as being within band for over a year without any prior evidence of high level. Additionally, there were no evolutions that had been performed which would explain the high level. The licensee generated AR 2014-4684 to document this condition. The AR documented several possible reasons for the unexplained level rise. One was that turbine building temperature had gone up. Another was that it was not uncommon for personnel to unnecessarily add oil to the machine from time to time. No other information was provided to validate either potential cause. Additionally, there was no mention of the leak identified above one of the turbine bearings four days prior. No formal monitoring plan was established. An action was created to sample the oil for water, but as of six weeks later, a work order had not been finalized and scheduled. The only other action was a 'lessons-learned' that was created for Mechanical Maintenance department regarding unnecessary oil adds. The response to the action from the group was that they don't typically do oil adds, but that they "discussed the topic anyway." The inspectors reviewed reference information with respect to oil levels and their importance to machine operability. According to the vendor manual, EPRI guidance on Terry turbines, and an AR the licensee evaluated in 2012, oil level is extremely critical in the turbine bearing pedestals. The references all concluded that oil level above the MAXIMUM mark could lead to oil frothing, which could affect stable operation of the turbine and loss of oil from the system. Further, the references, along with the plant logs, stated that oil level should be kept at or slightly above the MINIMUM mark. Action Request 2014-4684 concluded that in April 2013, the reservoir was "over-filled" to the MAXIMUM mark. No further information was provided on why this occurred or why it was acceptable to stay at the MAXIMUM mark. One quart of oil was drained from the turbine bearing pedestals, bringing the level back to near the MAXIMUM mark. Approximately five weeks later, an NRC inspector touring the plant questioned why level was near the MAXIMUM mark given a placard near the sight glass said to keep level at the MINIMUM mark (which aligned with the references above). The licensee generated an AR (2014-6315) about one week later on May 22 when the inspector asked about the condition again. In the AR, they documented the NRC observation and also the fact that an operator had noted level to be above the MAXIMUM mark by approximately 0.25 inches. Oil was again drained from the machine, this time to right above the MINIMUM mark. The operability assessment (which was not documented until the following day), stated that at time of discovery, the

machine was operable because of “oil level not affecting operability of the turbine” and a “history of overfilling that sometimes required draining of the oil.” Further, a statement was made that there had been a consistent oil level trend for the past month. Again, the leakage above the bearing was not discussed. There was no discussion of the previous high-level condition from April 11. On May 23, the licensee decided to completely drain the oil and sample it for water; 620 ml of water was found in the 2.5 gallon system. New oil was added, and an apparent cause evaluation was performed. The evaluation concluded that leakage above the bearing housing (documented originally in AR 2014-4473), combined with a small casing steam leak that condensed above the housing while the machine was in operation, caused the water intrusion in the bearing oil. Later evaluation determined the leak rate from the pipe had increased to 8 dpm in standby, and while running the leak rate was 20 dpm. The leakage sources were diverted away from the bearing housing with a temporary modification pending repairs (which were completed in the September-October 2014 refueling outage). Based on the above, the inspectors concluded the licensee had sufficient information to promptly identify and correct water intrusion into the TDAFW turbine bearing oil system on April 11 and May 22, 2014. Additionally, the licensee failed to identify the potential operability impacts (as described in the multiple references above) on April 11 and May 22 when oil level was above the MAXIMUM mark. Water intrusion into safety-related oil systems is a CAQ.

Analysis: The failure to promptly identify and correct a CAQ, as required by 10 CFR Part 50, Appendix B, Criterion 16, associated with water intrusion into the TDAFW turbine oil system was an issue warranting further review in the SDP. Per IMC 0612, Appendix B, “Issue Screening,” dated September 7, 2012, the issue was more-than-minor because it adversely affected the Configuration Control attribute of the Mitigating Systems Cornerstone, whose objective is to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Additionally, if left uncorrected, the issue could lead to a more significant safety concern. Specifically, not recognizing water intrusion into safety-related oil systems can impact operability and affect how safety equipment operates.

The inspectors assessed the finding for significance using IMC 0609, “Significance Determination Process,” issued June 2, 2012. Per Appendix A, “The Significance Determination Process (SDP) for Findings-at-Power,” issued June 19, 2012, the finding screened as Green, or very low safety significance, in Exhibit 2. Specifically, all questions were answered ‘no’ under Section A for findings related to Mitigating SSCs and Functionality. The inspectors reviewed the licensee’s past operability evaluation and concluded that given the projected amount of water that could be entrained in the oil during operation, along with the duration of operation assumed in the safety analyses, that operability of the pump would be maintained.

The inspectors determined the finding had an associated cross-cutting aspect in the Human Performance area, specifically, H.11, Challenge the Unknown. Some of the tenets of H.11, as described in NUREG-2165, Safety Culture Common Language Initiative, Section QA.2, Questioning Attitude, are that individuals avoid complacency and continuously challenge existing conditions in order to identify discrepancies that might result in error or inappropriate action. Further, it states that individuals challenge unanticipated results rather than rationalize them, and that abnormal indications are not attributed to ‘indication problems.’ Regarding the TDAFW oil system, the licensee rationalized why the level was increasing without sufficient investigation given the

significance of the system, and did not seek further information that was readily available regarding appropriate oil levels.

Enforcement: 10 CFR Part 50, Appendix B, Criterion 16, "Corrective Action," requires, in part, that conditions adverse to quality, such as deficiencies, defective material and equipment, and nonconformances are promptly identified and corrected.

Contrary to the above, between April 11 and May 23, 2014, the licensee failed to promptly identify and correct a CAQ. Specifically, the licensee failed to promptly identify and correct water intrusion into the safety-related Unit 1 TDAFW pump oil system despite multiple opportunities to do so. On April 7, the licensee became aware of a water leak directly above the TDAFW pump turbine outboard bearing. On April 11, and May 22, the licensee learned that the oil level had exceeded the MAXIMUM mark. The actions taken (draining the oil level) did not correct the condition adverse to quality in that water continued to leak into the oil. On May 23, the licensee drained the oil system and discovered approximately 620 ml of water.

For immediate corrective actions, the licensee added new oil to the system and installed a temporary modification to prevent further water intrusion. Further corrective actions included an apparent cause evaluation and past operability evaluation. Permanent repairs to the cooling water leak above the bearing were completed during the Fall 2014 refueling outage. The licensee initiated AR-2014-6315 to document the condition and track corrective actions.

This violation is being treated as an NCV, consistent with Section 2.3.2 of the Enforcement Policy because it was of very low safety significance and was entered into the licensee's CAP**. (NCV 05000315/2014005-01; Failure to Identify Conditions Adverse to Quality associated with the Unit 1 TDAFW Pump Turbine Oil System)**

(2) Unplanned Inoperability of the AB Fuel Oil Storage Tank During Maintenance

Introduction: A finding of very low safety significance (Green) with an associated NCV of TS 5.4, "Procedures," was self-revealed when a vacuum was inadvertently drawn on the AB FOST during preparations for surveillance activities. The vacuum caused an indication of lowering level in the tank, alarms, and an unplanned TS LCO action statement entry.

Description: On August 20, 2014, the licensee was performing work activities in preparation for an upcoming, routine leak-test of the AB FOST. The AB FOST is one of two underground tanks on site that supply fuel to the EDG's via the smaller day tanks (which are provided for each EDG and offer a more limited, immediate fuel supply). The test consists of establishing a vacuum in the tank and monitoring it for a period of time. Several support activities are required to be performed prior to the test, some of which include transfer of fuel from the FOST to the day tanks, removal of a vent cover for the FOST, and connection of vendor-supplied vacuum and test equipment to the vent. Per the overarching surveillance procedure, the basic order of activities should have been to loosen the vent cover, transfer an amount of fuel to the day tanks, remove the FOST from service, remove the vent cover, hook up the test equipment, and perform the test. During the day shift on August 20, workers went out to work on the vent cover. The associated work instruction did not provide adequate guidance on what exactly was to be done. While the intent was just to loosen the cover at that point, the 'Subject' of the

WO was “Remove manway cover and vent cover.” The instructions in the WO were written as “loosen/remove vent cover,” and under the ‘Precautions’ section the statement “Per tank procedure, as a minimum, we only have to loosen vent filter.” The workers ended up removing the cover instead of loosening it, and placed an FME bag over the vent to prevent foreign material from entering the tank. Later on night shift, operations staff commenced the transfer of fuel to the day tanks. With the FME bag installed, a vacuum was drawn on the tank. Based on the configuration of the level instruments and tank vent, the instruments indicated a lowering tank level and generated low level alarms because of the vacuum. Operators performed a back-up measurement of tank level using a dip stick, however, again, based on the tank construction, this method also showed what appeared to be a lowering tank level. With this information, operators believed an actual loss of fuel from the tank had occurred. Absent any indications in the plant of fuel leaving the system, they concluded a release to the environment may have occurred. Appropriate reports were made to state, federal, and local agencies. Additionally, the operators entered TS LCO 3.8.3 Condition A based on the observed level indications. During investigation soon after the abnormal level indications, the FME bag was found on the vent. Once removed, level in the tank returned to normal. There was no actual loss of fuel from the tank.

Analysis: The failure to have adequate instructions for performing work on safety-related equipment, as required by TS 5.4, “Procedures,” was a performance deficiency warranting further review utilizing IMC 0612, Appendix B, “Issue Screening,” issued September 7, 2012. The performance deficiency was more than minor because it adversely impacted the Configuration Control attribute of the Mitigating Systems cornerstone, whose objective is ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences.

The finding screened as Green, or very low safety significance, utilizing IMC 0609 Appendix A, “The Significance Determination Process for Findings at Power,” issued June 19, 2012. Specifically, all questions were answered ‘no’ under Section A of Exhibit 2 for Mitigating Systems, since that was the affected cornerstone. The FME bag was installed, which rendered the AB FOST inoperable, for approximately 16 hours. This was less than the TS allowed outage time of 48 hours.

The finding had an associated cross-cutting aspect in the human performance area, specifically, H.5, Work Management. Work activities should be planned, controlled, and executed with nuclear safety as the overriding priority. Contrary to the tenets of the cross-cutting aspect, the work was planned and executed with inadequate work instructions. Further, there was a lack of coordination between a number of work groups and activities associated with the test.

Enforcement: Technical Specification 5.4, “Procedures,” states, in part, that written procedures shall be established, implemented, and maintained covering the applicable procedures recommended in Regulatory Guide 1.33. Regulatory Guide 1.33 states, in part, that maintenance that can affect the performance of safety-related equipment should be properly preplanned and performed in accordance with written procedures, documented instructions, or drawings appropriate to the circumstances.

Contrary to those requirements, on August 20, 2014, the AB FOST leak test was performed with inadequate procedures and with tasks done outside the proper

sequence. As a result, the AB FOST was rendered inoperable for approximately 16 hours.

Immediate corrective actions involved the removal of an FME bag which had been placed over the AB FOST vent. The licensee also generated AR-2014-9877, which included a root cause analysis. This violation is being treated as an NCV, consistent with Section 2.3.2 of the Enforcement Policy because it was of very low safety significance and was entered into the licensee's CAP**. (NCV 05000315/2014005-02; 05000316/2014005-02; Unplanned Inoperability of the AB Fuel Oil Storage Tank During Maintenance)**

1R18 Plant Modifications (71111.18)

a. Inspection Scope

The inspectors reviewed the following modification(s):

- Permanent removal of shield/missile blocks

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

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

b. Findings

Lack of Adequate Design Review of Effects of Removing the Auxiliary Missile Blocks from the Containment Accident Shield

Introduction: A finding of very-low safety significance (Green) and associated NCV of Title 10 CFR Part 50, Appendix B, Criterion 3, "Design Control," was identified by the NRC inspectors for the licensee's inadequate radiological review of permanently removing the AMBs from the Unit 1 and Unit 2 containment accident shields.

Description: In March 2014, the NRC reviewed a licensee modification (EC-0000049191) to the Unit 1 and 2 safety-related containment accident shields. The modification consisted of permanently removing the AMBs, located in front of the primary containment equipment hatches on the 650' elevation of the Auxiliary Building. The AMBs are portable and removable shield blocks and are a part of the safety-related

containment accident shield. The AMBs are in place during power operations for shielding purposes. The AMBs are removed during plant outages to permit containment access for equipment.

The main purpose of the accident shield, as a part of original plant design and currently described in the UFSAR, Section 11.2.1.1.4, is to ensure safe radiation levels outside the containment building following a maximum design-basis accident; specifically, a large break loss-of-coolant accident (LBLOCA). The plant containment and the accident shield function (USFAR Section 11.2.1) ensure that operating personnel at the plant and the general public are protected by adequate containment shielding, post LBLOCA. This was in accordance with plant specific design Criteria 1 of 10 CFR Part 50 General Design Criteria 1 "Quality Standards and Records" of Appendix A "General Design Criteria for Nuclear Power Plants," 10 CFR Part 20 "Standards for Protection Against Radiation," and 10 CFR Part 100 "Reactor Site Criteria." The inspectors reviewed the original and current plant design configuration and determined that, prior to plant modification (EC-0000049191), the plant design met General Design Criteria 1 for radiation safety. Specifically, RG 1.69 "Concrete Radiation Shields for Nuclear Power Plants" was explicit in stating that General Design Criteria 1 for containment ensures reasonable assurance for compliance to 10 CFR Part 20 "Standards for Protection Against Radiation" under post-accident conditions. Additionally, initial plant design for the containment accident shield was consistent with RG 1.69 "Concrete Radiation Shields for Nuclear Power Plants."

Using the licensee's design basis source term, licensee calculation number RS-C-0046 "Doses and Dose Rates from Post LOCA Airborne Sources" determined that with the AMBs in place, the Post LBLOCA dose rates were:

- A nominal 31 Rem/hr at 1 second after LBLOCA at 1 inch from the AMBs; and
- A nominal 3.9 Rem/hr at 1 second after LBLOCA at 50 feet from the AMBs.

These dose rates provide for safe radiation levels outside the containment building following a maximum design-basis accident consistent with the UFSAR design statements and in accordance with the requirements of 10 CFR Part 20, "Standards for Protection Against Radiation."

The licensee provided no comparable post-modification dose rate calculations to the inspectors specific to AB 650' elevation once the AMBs were removed. However, the licensee provided information (Calculation Number RS-C-0232, Equipment Hatch Dose Rates – Gap Release; Revision 01) that showed calculated Post LBLOCA dose rates of 196.2 Rem/hr at 45 feet from the equipment hatch. Additionally, the licensee had analogous Post-LBLOCA dose rate calculations for the containment personnel hatch. These dose rates provide a frame of reference, in that, the calculations provide for no AMB shielding. However, the calculations did include shielding benefit from the inside containment crane wall (Calculation Number RS-C-0046, Doses and Dose Rates from Post LOCA Airborne Sources"). Specific calculated dose rates were:

- A nominal 36,300 Rem/hr at 1 second after LBLOCA at 1 inch from the personnel hatch; and
- A nominal 397 Rem/hr at 1 second after LBLOCA at 50 feet from the personnel hatch.

The inspectors determined that post-modification dose rates on the AB 650' elevation could result in lethal doses, as defined in NUREG/CR 6545 "Probabilistic Accident Consequence Uncertainty Analysis: Early Health Effects Uncertainty Assessment," to individuals in a very short period of time (from fractions of a second to minutes, depending on the location of personnel relative to the radiation source). By permanently removing the AMBs, the licensee failed to provide for safe radiation levels outside the containment building following a maximum design-basis accident, contrary to the design bases and inconsistent with the requirements of 10 CFR Part 20.

Additionally, 10 CFR 20.1101(b) and RG 1.69 state, in part, that the licensee shall use, to the extent practical, engineering controls based upon sound radiation principles to achieve occupational doses and doses to members of the public that are as-low-as-reasonably-achievable (ALARA). Original plant design and the plant's 40-year operational history demonstrate that plant operation with the AMBs in place was both practical and ALARA.

The licensee documented this issue in the CAP as AR 2014-13016. Corrective actions included licensee determination to achieve radiation attenuation analogous to original plant design of the AMBs in place.

Analysis: The inspectors determined that the licensee's inadequate radiological review of permanently removing the AMBs from the Unit 1 and Unit 2 containment accident shields was a performance deficiency. The performance deficiency was determined to be more than minor (Green) because it was associated with the Barrier Integrity Cornerstone attribute of design control; and adversely affected the cornerstone objective of maintaining radiological barrier functionality of the safety-related containment accident shield. Specifically, the failure to control plant design and adequately evaluate the radiological effects of permanently removing the AMBs from the Unit 1 and Unit 2 containment accident shields did not ensure that the accident shield will provide its design function to ensure safe radiation levels outside the containment building following a maximum design basis accident.

The inspectors evaluated the finding using the SDP in accordance with IMC 0609, "Significance Determination Process," Attachment 0609.04, "Initial Characterization of Findings," dated June 19, 2012. Because the finding impacted the Barrier Integrity Cornerstone, the inspectors screened the finding through IMC 0609, Appendix A, "The Significance Determination Process for Findings At-Power," dated June 19, 2012, using Exhibit 3, "Barrier Integrity Screening Questions." The finding screened as of very-low safety significance (Green) because the finding only represented a degradation of the radiological barrier function provided for the Auxiliary Building.

The inspectors determined the cause of this finding did not represent current licensee performance and, thus, no cross-cutting aspect was assigned.

Enforcement: Title 10 CFR Part 50, Appendix B, Criterion 3, "Design Control," requires, in part, that design changes be subject to design control measures commensurate with those applied to the original design.

Contrary to the above, on February 6, 2009, the licensee performed a design change and failed to subject it to design control measures commensurate with those applied to the original design. Specifically, the licensee modified the original plant design by

removing the auxiliary missile blocks from the safety-related accident shield. However, the design control measures applied to the modification failed to ensure safe radiation levels outside the containment accident shield following a design basis loss-of-coolant accident.

Because this violation was of very-low safety significance and was entered into the licensee's CAP (AR 2014-13016), this violation is being treated as an NCV, consistent with Section 2.3.2 of the NRC Enforcement Policy. **(NCV 05000315/2014005-03; 05000316/2014005-03; Radiological Impact of the Removal of the Auxiliary Shield Blocks on the Containment Accident Shield Post LBLOCA)**

1R19 Post-Maintenance Testing (71111.19)

a. Inspection Scope

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

- Unit 1 AB EDG following governor replacement;
- Unit 1 CRID III and IV maintenance;
- Unit 2 UAT breakers following failure to close;
- Unit 1 CD EDG governor replacement and aftercooler maintenance;
- Unit 1 TDAFW governor overhaul;
- Repair of Unit 2 AFW flow control valve flow retention issue;
- Repair of circuitry associated with failure of fast transfer and generator trip during dual-unit trip; and
- Unit 1 TDAFW repairs following inadvertent trip.

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

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

b. Findings

Introduction: A finding of very low safety significance (Green) with an associated NCV of TS 5.4, "Procedures," was self-revealed on November 1, 2014, when the Unit 1 TDAFW pump tripped during an emergent dual-unit shutdown. Both units were taken offline by operators due to debris intrusion from Lake Michigan into the cooling water screenhouse. The TDAFW pump started as expected but shutdown after a few minutes of operation.

Description: On November 1, 2014, operators removed both units from service in response to excessive debris intrusion into the cooling water screenhouse. Following the trip of both reactors, AFW pumps started as expected. However, the Unit 1 TDAFW unexpectedly turned off after a few minutes of operation while operators were adjusting flow to the steam generators. Adequate flow continued to be provided by the two other AFW pumps. During the ensuing forced outage to address the debris intrusion issue, the licensee performed an investigation into why the pump tripped off. The licensee explored and ruled out causes such as a pump overspeed, failed overspeed trip circuitry, and governor control problems. The investigation included several test runs of the pump while rapidly changing demand in an effort to 'stress' the pump and replicate the trip event. During continued troubleshooting, the licensee later discovered a protective enclosure around an electronic component (the trip solenoid) had been installed incorrectly. The enclosure was relatively loose, and the licensee found by moving it slightly, it could be placed in a position where a threaded rod on the enclosure could interfere with the proper latching of the TTV for the pump. When the pump turns on, the TTV opens to admit steam to the turbine. As the valve stem moves up, an attachment engages a trip hook. The trip hook basically acts to hold the valve open. On a trip condition, such as a pump overspeed, the hook would move out of the way, allowing the valve to shut and the pump to turn off. Precise engagement between the TTV and the trip hook is required for the pump to operate correctly. In this case, the licensee's apparent cause evaluation determined the most likely cause was inadequate trip hook engagement as a result of the interference from the trip solenoid enclosure. As part of the extent-of-condition, the licensee discovered the same potential issue on the Unit 2 TDAFW pump. Further investigation revealed that the enclosure was not captured in design diagrams, and that work instructions regarding its installation/removal were not detailed. Most recently, the Unit 1 TDAFW pump trip solenoid enclosure had been removed and reinstalled during the Fall 2014 refueling outage as part of planned maintenance. Working with the pump vendor, the licensee identified the correct configuration of the enclosure and reinstalled them correctly on both pumps. The licensee tested the pump several times afterwards, and restored the Unit 1 TDAFW pump to operable status at the conclusion of the forced outage.

Analysis: The failure to have adequate instructions for performing work on safety-related equipment, as required by TS 5.4, "Procedures," was a performance deficiency warranting further review utilizing IMC 0612, Appendix B, "Issue Screening," issued September 7, 2012. The performance deficiency was more than minor because it adversely impacted the Configuration Control attribute of the Mitigating Systems cornerstone, whose objective is ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences.

The inspectors utilized IMC 0609 Appendix A, "The Significance Determination Process for Findings at Power," issued June 19, 2012, to assess the significance of the finding.

Per Exhibit 2, the finding represented a loss of function for one train of AFW for greater than the TS allowed outage time. Therefore, the inspectors consulted the regional Senior Reactor Analyst (SRA) for a detailed risk evaluation. The inspectors considered the Unit 1 TDAFW pump inoperable since the last successful surveillance on October 23. Given the evidence available, this was the likely opportunity for the conditions to be established to set-up the improper engagement between the TTV and the trip hook.

The Region III SRA used the NRC standardized plant analysis risk model for D.C. Cook to perform a detailed risk evaluation. The model has internal and external event initiators. The SRA assumed an exposure period for the condition of 9 days. The delta core damage frequency (CDF) calculated was 4.5E-7/yr, which is a finding of very low safety significance (Green). The dominant risk sequence was a fire in the turbine building, followed by a failure of main feedwater, auxiliary feedwater and feed and bleed. Since the calculated delta CDF was greater than 1E-7/yr, the SRA also considered the potential impact of the finding on large early release frequency using IMC 0609 Appendix H, "Containment Integrity Significance Determination Process." The plant has an ice condenser containment and sequences important to large early release frequency are steam generator tube rupture, inter-system loss-of-coolant accident, and station blackout. Some of the sequences that contributed to the change in CDF included station blackout sequences but their contribution was less than 1E-7/yr. The SRA concluded that the risk of this finding should be characterized by the overall change in CDF.

The finding had an associated cross-cutting aspect in the area of human performance, specifically, H.8, Procedure Adherence. Safety Culture Common Language Initiative NUREG-2165 provides an example of the aspect as "individuals review procedures before work to validate they are appropriate for scope of work, and ensure required changes are completed before implementation." Contrary to this description, work proceeded on the trip enclosure despite a lack of detailed instructions on the removal/installation of the enclosure.

Enforcement: Technical Specification 5.4, "Procedures," states, in part, that written procedures shall be established, implemented, and maintained covering the applicable procedures recommended in Regulatory Guide 1.33. Regulatory Guide 1.33 states, in part, that maintenance that can affect the performance of safety-related equipment should be properly preplanned and performed in accordance with written procedures, documented instructions, or drawings appropriate to the circumstances.

Contrary to those requirements, work was performed on the Unit 1 TDAFW pump trip solenoid enclosure with inadequate work instructions. As a result, an apparent cause evaluation determined the misplaced enclosure was the likely cause of the pump failure during an actual demand following a dual-unit trip. The violation existed from October 23, 2014, until troubleshooting and post-maintenance testing activities were completed on November 3, 2014, following the dual-unit trip.

For immediate corrective actions, the licensee initiated AR-2014-13668 and began troubleshooting activities. The licensee investigation revealed the misplaced trip solenoid enclosure to be the likely cause of the pump trip. Subsequently, the enclosures were installed in the correct position. This violation is being treated as an NCV, consistent with Section 2.3.2 of the Enforcement Policy because it was of very low safety

significance and was entered into the licensee's CAP. **(NCV 05000315/2014005-04; Inadvertent Trip of the Unit 1 TDAFW Pump)**

1R20 Outage Activities (71111.20)

.1 Refueling Outage Activities

a. Inspection Scope

The inspectors reviewed the Outage Safety Plan and contingency plans for the Unit 1 refueling outage, conducted September 24 – October 24, 2014, to confirm that the licensee had appropriately considered risk, industry experience, and previous site-specific problems in developing and implementing a plan that assured maintenance of defense-in-depth. During the refueling outage, the inspectors observed portions of the shutdown and cooldown processes and monitored licensee controls over the outage activities listed below:

- licensee configuration management, including maintenance of defense-in-depth commensurate with the Outage Safety Plan for key safety functions and compliance with the applicable TS when taking equipment out of service;
- implementation of clearance activities and confirmation that tags were properly hung and equipment appropriately configured to safely support the work or testing;
- installation and configuration of reactor coolant pressure, level, and temperature instruments to provide accurate indication, accounting for instrument error;
- controls over the status and configuration of electrical systems to ensure that TS and Outage Safety Plan requirements were met, and controls over switchyard activities;
- monitoring of decay heat removal processes, systems, and components;
- controls to ensure that outage work was not impacting the ability of the operators to operate the spent fuel pool cooling system;
- reactor water inventory controls including flow paths, configurations, and alternative means for inventory addition, and controls to prevent inventory loss;
- controls over activities that could affect reactivity;
- maintenance of secondary containment as required by TS;
- licensee fatigue management, as required by 10 CFR 26, Subpart I;
- refueling activities, including fuel handling and sipping to detect fuel assembly leakage;
- startup and ascension to full power operation, tracking of startup prerequisites, walkdown of the drywell (primary containment) to verify that debris had not been left which could block emergency core cooling system suction strainers, and reactor physics testing; and
- licensee identification and resolution of problems related to refueling outage activities.

Documents reviewed are listed in the Attachment to this report.

This inspection constituted one Refueling Outage sample as defined in IP 71111.20–05.

b. Findings

No findings were identified.

.2 Unit 1 and Unit 2 Forced Outages Commencing November 1, 2014

a. Inspection Scope

On November 1, rough lake conditions generated substantial amounts of debris that clogged trash racks and travelling screens. The licensee manually tripped the Unit 1 reactor and initially reduced power to 50 percent on the Unit 2 reactor to reduce circulating water flow. Conditions continued to degrade; therefore the licensee subsequently tripped the Unit 2 reactor. Unit 1 remained in Mode 3 and returned to 100 percent power on November 8. Unit 2 was cooled down to Mode 5 to repair an intermediate range nuclear instrument. Unit 2 was returned to 100 percent power on November 13. The inspectors toured portions of containment, observed shutdown and startup activities, assessed plant risk, and observed maintenance activities.

This inspection constituted one Forced Outage sample as defined in IP 71111.20–05.

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

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

- 1-OHP-4030-108-008R, Unit 1 ECCS Check Valve Test, (IST);
- 1-EHP-4030-134-203, Unit 1 LLRT (Containment Isolation Valve);
- 12-MHP-4030-010-004, Ice Condenser Intermediate Deck Door Surveillance, (Ice Condenser Surveillance);
- Unit 1 Control Room Emergency Ventilation Surveillance, 1-EHP-4030-128-229 (Routine); and
- Loss of Offsite Power/Loss-of-Coolant Accident Circuit Testing (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;

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

Documents reviewed are listed in the Attachment to this report.

This inspection constituted two routine surveillance testing samples, one inservice testing sample, one ice condenser surveillance, and one containment isolation valve 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)

a. Inspection Scope

The regional inspectors performed an in-office review of the latest revisions to the Emergency Plan and Emergency Plan Implementing Procedures as listed in the Attachment to this report.

The licensee transmitted the Emergency Plan and Emergency Action Level revisions to the NRC pursuant to the requirements of 10 CFR Part 50, Appendix E, Section V, “Implementing Procedures.” The NRC 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.

This Emergency Action Level and Emergency Plan Change inspection constituted one sample as defined in IP 71114.04-06.

b. Findings

Introduction: An Unresolved Item (URI) was identified because additional information is required to determine whether a performance deficiency that is more than minor exists and if a violation of 10 CFR 50.54(q)(3) occurred. The inspectors identified an issue of concern for a change to the Donald C. Cook Emergency Plan, Table 1, that reduced the number of Radiation Protection Technicians (RPTs) required to augment the on-shift emergency response organization in 60 minutes of a declared emergency and replaced them with a Radiological Assessment Coordinator (RAC) and an Environmental Assessment Coordinator (EAC).

Description. During the review, the inspectors identified a change made in Table 1 of Revision 35 to the Emergency-Plan (E-Plan), dated June 3, 2014. The change reduced the number of 60-minute response RPTs tasked with conducting offsite surveys from three RPTs to two RPTs and one EAC. The second change reduced the number of 60-minute response RPTs tasked with conducting in-plant surveys from two RPTs to one RPT and one RAC. According the licensee's 10 CFR 2014 50.54(q) screening evaluation, this change was to align the wording in Table 1 with Sections B.5.a.4 and B.5.c.4 of the E-Plan. The inspectors identified that the wording in Section B.5.a.4 and B.5.c.4 of the E-Plan had been changed to include the EAC and the RAC as 60-minute responders in Revision 19 of the plan in March of 2004. Inspectors' review of the 10 CFR 50.54(q) screening for the changes in Revision 19, identified no evaluations had been done for this change. The inspectors reviewed Revision 18 of the E-Plan and the associated March 21, 2003 licensee request for prior approval for changes to the E-plan that was conducted, approved by the NRC, and implemented in this revision. The NRC approved change request included specific numbers of RPTs for 60-minute response tasks of three RPTs for offsite surveys and 2 RPTs for onsite surveys.

The licensee indicated that the EAC and RAC were not currently qualified RPTs. This suggests a performance deficiency, due to the appearance of a reduction in effectiveness to the licensee's E-plan, without prior NRC approval. However, in order to determine if this is a performance deficiency of more than minor significance, additional information is required to understand if the RAC and EAC positions had equivalent capabilities as the qualified RPTs. The licensee has entered this issue in their Corrective Action Program as AR 2014-15685, Potential EP Finding. Compensatory actions were taken while their staff gathers additional information, which included requiring two additional qualified RPTs to respond to the Operations Support Center within 60 minutes prior to activating the facility in the event of a declared emergency. The licensee stated that it will provide the inspectors with additional information within 30 days of the exit meeting.

Therefore, a URI was identified pending additional information. Specifically, documentation demonstrating the knowledge, skills, and abilities of the EAC and RAC are equivalent to the RPTs is necessary for the inspectors to determine whether the performance deficiency is more than minor and if a violation of 10 CFR 50.54(q) occurred. **(URI 05000315/2014005–05; Changes to Minimum 60-Minute Emergency Responder Staffing Without Prior Approval)**

2. RADIATION SAFETY

2RS1 Radiological Hazard Assessment and Exposure Controls (71124.01)

The inspection activities supplement those documented in NRC Inspection Report 05000315-05000316/2014002 and constitute one complete sample as defined in Inspection Procedure 71124.01-05.

.1 Radiological Hazard Assessment (02.02)

a. Inspection Scope

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

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

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

- Refuel Cavity Decontamination Activities;
- Steam Generator Platform Activities;
- Valve Maintenance / Repair;
- Perform Radiography in Auxiliary and Turbine Buildings and Plant Restricted Areas; and
- Reactor Pit Very High Radiation Area (VHRA) Downpost Survey.

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.

.2 Instructions to Workers (02.03)

a. Inspection Scope

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

- RWP 141100; U1C26 – Refuel Cavity Decontamination Activities;
- RWP 141148; U1C26 – Steam Generator Platform Activities;
- RWP 141145; U1C26 – Valve Maintenance / Repair;
- RWP 1 41130; U1C26 - Perform Radiography in Auxiliary & Turbine Buildings & Plant Restricted Areas; and
- RWP 141172; U1C26 – Reactor Pit VHRA Downpost Survey.

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

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.

.3 Contamination and Radioactive Material Control (02.04)

a. Inspection Scope

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

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

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

The inspectors selected several sealed sources from the licensee's inventory records and assessed whether the sources were accounted for and verified to be intact.

The inspectors evaluated whether any transactions, since the last inspection, involving nationally tracked sources were reported in accordance with 10 CFR 20.2207.

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, radiation work permits, and worker briefings.

The inspectors evaluated the adequacy of radiological controls, such as required surveys, radiation protection 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 reviewed the application of dosimetry to effectively monitor exposure to personnel in high-radiation work areas with significant dose rate gradients.

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

- RWP 141100; U1C26 – Refuel Cavity Decontamination Activities;
- RWP 141148; U1C26 – Steam Generator Platform Activities; and
- RWP 141145; U1C26 – Valve Maintenance / Repair.

For these radiation work permits, 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 performance indicator.

b. Findings

Failure to Identify Deficient Locked High Radiation Area Controls Due to Procedure Inadequacy

Introduction: An NRC identified Green NCV of TS 5.4.1, "Procedures," was identified for inadequate procedures used to verify Locked High Radiation Controls in the Unit 2 Containment.

Description: On July 24, 2014, the inspector walked down the Unit 2 containment cavity access ladder. At the time of the walkdown, the access to the cavity was posted LHRA and had a ladder cage that functioned as a ladder lock device, in addition to a four-foot high locked gate for access to the permanently installed cavity ladder. Discussions with Radiation Protection staff had identified that the ladder lock device was not in place in March 2014. Additionally, it was established that the locking cage was not placed back on the ladder following the refueling outage in October 2013 when the area was conservatively posted as a LHRA as the dose rates in the containment cavity were not in excess of 1000 millirem per hour at 30 centimeters. The inspector reviewed Survey Number CNP-1311-0001, dated November 1, 2013, which was a survey of the Final Containment Cavity Survey following the last refueling outage. This survey confirmed that the highest dose in the accessible areas of the cavity were nominally 2400 millirem per hour on contact, and 500 millirem per hour at 30 centimeters from the source with the highest readings in the cavity lift system pit area following the cavity decontamination. These dose rates would not constitute a LHRA (greater than 1000 millirem per hour at 30 centimeters.) The survey showed that the gate to the cavity ladder was posted as a LHRA.

Licensee Procedure PMP-6010-RPP-003, High, Locked High, and VHRA Access, Section 3.3.5, directs weekly LHRA and VHRA verifications. Additional procedure guidance is provided in THG-026, Locked High Radiation Area, and Very-High Radiation Weekly Verification Process, Data Sheet 1, LHRA/VHRA Status Sheet, with additional management expectations and a tracking tool for door/gate verifications while used as a field guide for verifying LHRA/VHRA controls (i.e., doors/gates). The inspector identified a substantial procedural weakness in this guidance in that the Data Sheet apparently did not provide enough detail to direct Radiation Protection Technicians (RPTs) to verify that the locked cage/ladder lock to the reactor cavity was in place and locked; a condition which is necessary to provide reasonable assurance that the area is secured against unauthorized access and cannot be easily circumvented. A review of the data verified that RP staff did not identify the missing cage/ladder lock to the Unit 2 Reactor Cavity ladder during weekly LHRA verification from November 2013 through March 2014. The NRC inspectors also reviewed the LHRA and VHRA verification documentation in the

RP station daily logs from November 2013 to March 2014 and the inspectors did not identify any discrepancies noted in the logs associated with in LHRA controls during their weekly walkdowns of LHRA and VHRA verification. A review of the Corrective Action Program documents did not identify a record of the missing ladder lock device or identification of an unlocked LHRA. Therefore the licensee was not aware of the deficient LHRA controls at the Unit 2 cavity ladder until it was discussed with the inspectors. The failure to identify deficient LHRA controls could have the potential failure to identify and report a Performance Indicator (PI) occurrence.

Analysis: The inspectors determined that there was an inadequacy in the licensee's procedure for identifying a deficient Locked High Radiation Area for the barrier in their weekly locked cage/ladder barrier to the cavity of Unit 2 containment. The inspectors determined that the procedure did not provide clear directions to assure the Radiation Protection Technician would verify the required controls for LHRA is a performance deficiency. The inspectors determined that the cause of the performance deficiency was reasonably within the licensee's ability to foresee and correct and should have been prevented.

The finding was not subject to traditional enforcement since the incident did not have a significant safety consequence, did not impact the NRC's ability to perform its regulatory function, and was not willful.

The inspectors determined that the performance deficiency was more than minor in accordance with IMC 0612, Appendix B, "Issue Screening," because if left uncorrected, the performance deficiency could lead to a more significant safety concern. Specifically, the failure to identify deficient LHRA controls could result in unintentional exposure to high levels of radiation.

The finding was assessed using the Occupational Radiation Safety SDP and was determined to be of very-low safety significance because the problem was not an ALARA planning issue, there were no overexposures nor substantial potential for overexposures given the highest dose rates present in the room, the scope of work, and the licensee's ability to assess dose was not compromised.

The inspectors did not identify a corresponding cross-cutting aspect for this performance deficiency.

Enforcement: Technical Specification 5.4.1, "Procedures," requires that written procedures shall be established, implemented and maintained covering the activities referenced in Appendix A of Regulatory Guide 1.33, Revision 2. Control of Radioactivity procedures, including limiting personnel exposure, are specified in Appendix A.

Contrary to the above, Procedure PMP-6010-RPP-003, High, Locked High, and Very-High Radiation Area Access, Section 3.3.5, LHRA and VHRA Door/Gate verification in conjunction with Procedural Guidance THG-026, Locked High Radiation Area, and Very-High Radiation Weekly Verification Process did not provide sufficient details to direct RPTs to verify that the locked cage/ladder lock to the reactor cavity was in place and locked; a condition which is necessary to provide reasonable assurance that the area is secured against unauthorized access and cannot be easily circumvented. Consequently, weekly, from November 1, 2013, to March 2014 multiple

RPTs verified the Unit 2 Upper Containment Cavity gate was locked, but did not secure the area against unauthorized access.

Corrective actions included review and revision of Procedure PMP-6010-RPP-003, High, Locked High, and Very-High Radiation Area Access, and the associated Procedural Guidance THG-026, Locked High Radiation Area and Very-High Radiation Weekly Verification. Because this violation is of very-low safety significance and it was entered into the licensee's CAP as AR 2014-9001, this violation is being treated as an NCV consistent with Section 2.3.2 of the NRC Enforcement Policy.
(NCV 05000315/2014005-06; 05000316/2014005-06; Failure to Identify Deficient Locked High Radiation Area Controls Due to Procedure Inadequacy)

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

a. Inspection Scope

The inspectors discussed with the radiation protection manager the controls and procedures for high-risk, high radiation areas and very-high radiation areas. The inspectors discussed methods employed by the licensee to provide stricter control of very-high radiation area access as specified in 10 CFR 20.1602, "Control of Access to Very-High Radiation Areas," and Regulatory Guide 8.38, "Control of Access to High and Very-High Radiation Areas of Nuclear Plants." The inspectors assessed whether any changes to licensee procedures substantially reduce the effectiveness and level of worker protection.

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

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

b. Findings

No findings were identified.

.6 Radiation Worker Performance (02.07)

a. Inspection Scope

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

b. Findings

No findings were identified.

.7 Radiation Protection Technician Proficiency (02.08)

a. Inspection Scope

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

b. Findings

No findings were identified.

.8 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 Corrective Action Program. 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.

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

The inspection activities supplement those documented in NRC Inspection Report 05000315-05000316/2014002 and constitute a partial sample as defined in Inspection Procedure 71124.02-05.

.1 Radiation Worker Performance (02.05)

a. Inspection Scope

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

b. Findings

No findings were identified.

2RS7 Radiological Environmental Monitoring Program (71124.07)

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

.1 Inspection Planning (02.01)

a. Inspection Scope

The inspectors reviewed the annual radiological environmental operating reports and the results of any licensee assessments since the last inspection to assess whether the Radiological Environmental Monitoring Program was implemented in accordance with the Technical Specifications and Offsite Dose Calculation Manual. This review included reported changes to the Offsite Dose Calculation Manual with respect to environmental monitoring, commitments in terms of sampling locations, monitoring and measurement frequencies, land use census, Inter-Laboratory Comparison Program, and analysis of data.

The inspectors reviewed the Offsite Dose Calculation Manual to identify locations of environmental monitoring stations.

The inspectors reviewed the Final Safety Analysis Report for information regarding the environmental monitoring program and meteorological monitoring instrumentation.

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

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

b. Findings

No findings were identified.

.2 Site Inspection (02.02)

a. Inspection Scope

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

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

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

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

Based on direct observation and review of records, the inspectors assessed whether the meteorological instruments were operable, calibrated, and maintained in accordance with guidance contained in the Final Safety Analysis Report, NRC Regulatory Guide 1.23, "Meteorological Monitoring Programs for Nuclear Power Plants," and licensee procedures. The inspectors assessed whether the meteorological data readout and recording instruments in the control room and, if applicable, at the tower were operable.

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

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

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

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

The inspectors assessed whether the appropriate detection sensitivities with respect to Technical Specifications/Offsite Dose Calculation Manual where used for counting

samples (i.e., the samples meet the technical specifications/Offsite Dose Calculation Manual required lower limits of detection). The inspectors reviewed quality control charts for maintaining radiation measurement instrument status and actions taken for degrading detector performance. The licensee uses a vendor laboratory to analyze the radiological environmental monitoring program samples so the inspectors reviewed the results of the vendor's quality control program, including the inter-laboratory comparison, to assess the adequacy of the vendor's program.

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

b. Findings

No findings were identified.

.3 Identification and Resolution of Problems (02.03)

a. Inspection Scope

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

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

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

4OA1 Performance Indicator Verification (71151)

.1 Mitigating Systems Performance Index - Emergency AC Power System

a. Inspection Scope

In the third quarter of 2014, the inspectors sampled licensee submittals for the Mitigating Systems Performance Index (MSPI) - Emergency AC Power System performance indicator for Donald C. Cook Unit 1 and Unit 2 for the period from the third quarter 2013 through the second quarter 2014. 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 narrative logs, MSPI derivation reports, issue reports, event reports and NRC Integrated Inspection Reports for the period of July 2013 through June 2014 to validate the accuracy of the submittals. The inspectors reviewed the MSPI component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator and none were identified. Documents reviewed are listed in the Attachment to this report. Portions of this inspection activity were credited in NRC Inspection Report 05000315-05000316/2014004.

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

b. Findings

No findings were identified.

.2 Mitigating Systems Performance Index - High Pressure Injection Systems

a. Inspection Scope

In the third quarter of 2014, the inspectors sampled licensee submittals for the Mitigating Systems Performance Index - High Pressure Injection Systems performance indicator for Donald C. Cook Unit 1 and Unit 2 for the period from the third quarter of 2013 thru the third quarter of 2014. 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 operator narrative logs, issue reports, MSPI derivation reports, event reports and NRC Integrated Inspection Reports for the period of the third quarter of 2013 thru the 2nd quarter of 2014 to validate the accuracy of the submittals. The inspectors reviewed the MSPI component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator and none were identified. Documents reviewed are listed in the Attachment to this report. Portions of this inspection activity were credited in NRC Inspection Report 05000315-05000316/2014004.

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

b. Findings

No findings were identified.

.3 Mitigating Systems Performance Index - Heat Removal System

a. Inspection Scope

In the third quarter of 2014, the inspectors sampled licensee submittals for the Mitigating Systems Performance Index - Heat Removal System performance indicator for Donald C. Cook Unit 1 and Unit 2 for the period from the third quarter 2013 through the second quarter 2014. 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 operator narrative logs, issue reports, event reports, MSPI derivation reports, and NRC Integrated Inspection Reports for the period of July 2013 through June 2014 to validate the accuracy of the submittals. The inspectors reviewed the MSPI component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator and none were identified. Documents reviewed are listed in the Attachment to this report. Portions of this inspection activity were credited in NRC Inspection Report 05000315-05000316/2014004.

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

b. Findings

No findings were identified.

.4 Mitigating Systems Performance Index - Residual Heat Removal System

a. Inspection Scope

In the third quarter of 2014, the inspectors sampled licensee submittals for the Mitigating Systems Performance Index - Residual Heat Removal System performance indicator for Donald C. Cook Unit 1 and Unit 2 for the period from the third quarter 2013 through the second quarter 2014. 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 operator narrative logs, issue reports, MSPI derivation reports, event reports and NRC Integrated Inspection Reports for the period of July 2013 through June 2014 to validate the accuracy of the submittals. The inspectors reviewed the MSPI component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator and none were identified. Documents reviewed are listed in the Attachment to this report. Portions of this inspection activity were credited in NRC Inspection Report 05000315-05000316/2014004.

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

b. Findings

No findings were identified.

.5 Mitigating Systems Performance Index - Cooling Water Systems

a. Inspection Scope

In the third quarter of 2014, the inspectors sampled licensee submittals for the Mitigating Systems Performance Index - Cooling Water Systems performance indicator for Donald C. Cook Unit 1 and Unit 2 for the period from the third quarter 2013 through the second quarter 2014. 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 operator narrative logs, issue reports, MSPI derivation reports, event reports and NRC Integrated Inspection Reports for the period of July 2013 through June 2014 to validate the accuracy of the submittals. The inspectors reviewed the MSPI component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator and none were identified. Documents reviewed are listed in the Attachment to this report. Portions of this inspection activity were credited in NRC Inspection Report 05000315-05000316/2014004.

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

b. Findings

No findings were identified.

.6 Reactor Coolant System Leakage

a. Inspection Scope

The inspectors sampled licensee submittals for the RCS Leakage performance indicator for both Unit 1 and 2 for the period from the fourth quarter 2013 through the third quarter 2014. 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 operator logs, RCS leakage tracking data, issue reports, event reports and NRC Integrated Inspection Reports for the period of the fourth quarter 2013 through the third quarter 2014 to validate the accuracy of the submittals. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator and none were identified. Documents reviewed are listed in the Attachment to this report.

This inspection constituted two RCS leakage samples as defined in IP 71151–05.

b. Findings

No findings were identified.

.7 Reactor Coolant System Specific Activity

a. Inspection Scope

The inspectors sampled licensee submittals for the RCS specific activity Performance Indicator for D.C. Cook Nuclear Power Plant Units 1 and 2 for the period from the third quarter 2013 through the third quarter 2014. The inspectors used Performance Indicator definitions and guidance contained in the Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, dated August 2013, to determine the accuracy of the Performance Indicator data reported during those periods. The inspectors reviewed the licensee's RCS chemistry samples, Technical Specification requirements, issue reports, event reports, and NRC Integrated Inspection Reports to validate the accuracy of the submittals. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the Performance Indicator data collected or transmitted for this indicator and none were identified. In addition to record reviews, the inspectors observed a chemistry technician obtain and analyze a RCS sample. Documents reviewed are listed in the Attachment to this report.

This inspection constituted two RCS specific activity samples as defined in IP 71151-05.

b. Findings

No findings were identified.

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

a. Inspection Scope

The inspectors sampled licensee submittals for the radiological effluent Technical Specification/Offsite Dose Calculation Manual radiological effluent occurrences Performance Indicator for the period from the third quarter 2013 through the third quarter 2014. The inspectors used Performance Indicator definitions and guidance contained in the Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, dated August 2013, to determine the accuracy of the Performance Indicator data reported during those periods. The inspectors reviewed the licensee's issue report database and selected individual reports generated since this indicator was last reviewed to identify any potential occurrences such as unmonitored, uncontrolled, or improperly calculated effluent releases that may have impacted offsite dose. The inspectors reviewed gaseous effluent summary data and the results of associated offsite dose calculations for selected dates to determine if indicator results were accurately reported. The inspectors also reviewed the licensee's methods for quantifying gaseous and liquid effluents and determining effluent dose. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one Radiological Effluent Technical Specification/Offsite Dose Calculation Manual radiological effluent occurrences sample as defined in IP 71151 05.

b. Findings

No findings were identified.

.9 Occupational Exposure Control Effectiveness

a. Inspection Scope

The inspectors sampled licensee submittals for the Occupational Exposure Control Effectiveness Performance Indicator for the period from the third quarter 2013 through the third quarter 2014. The inspectors used Performance Indicator definitions and guidance contained in the Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, dated August 2013, to determine the accuracy of the Performance Indicator data reported during those periods. The inspectors reviewed the licensee's assessment of the Performance Indicator for occupational radiation safety to determine if the indicator related data was adequately assessed and reported. To assess the adequacy of the licensee's Performance Indicator data collection and analyses, the inspectors discussed with radiation protection staff the scope and breadth of its data review and the results of those reviews. The inspectors independently reviewed electronic personal dosimetry dose rate and accumulated dose alarms and dose reports and the dose assignments for any intakes that occurred during the time period reviewed to determine if there were potentially unrecognized occurrences. The inspectors also conducted walkdowns of numerous locked high and very-high radiation area entrances to determine the adequacy of the controls in place for these areas. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one occupational exposure control effectiveness sample as defined in IP 71151-05.

b. Findings

No findings were identified.

4OA2 Identification and Resolution of Problems (71152)

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

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

a. Inspection Scope

As part of the various baseline inspection procedures discussed in previous sections of this report, the inspectors routinely reviewed issues during baseline inspection activities and plant status reviews to verify 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 followup, the inspectors performed a daily screening of items entered into the licensee's CAP. This review was accomplished through inspection of the station's daily condition report packages.

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

b. Findings

No findings were identified.

.3 Semiannual Trend Review

a. Inspection Scope

The inspectors performed a review of the licensee's CAP and associated documents to identify trends that could indicate the existence of a more significant safety issue. The inspectors' review was focused on repetitive equipment issues, but also considered the results of daily inspector CAP item screening discussed in Section 4OA2.2 above, licensee trending efforts, and licensee human performance results. The inspectors' review nominally considered the 6-month period of July 2014 through December 2014, although some examples expanded beyond those dates where the scope of the trend warranted.

The review also included issues documented outside the normal CAP in major equipment problem lists, repetitive and/or rework maintenance lists, departmental problem/challenges lists, system health reports, quality assurance audit/surveillance

reports, self-assessment reports, and Maintenance Rule assessments. The inspectors compared and contrasted their results with the results contained in the licensee's CAP trending reports. Corrective actions associated with a sample of the issues identified in the licensee's trending reports were reviewed for adequacy.

The inspectors observed some weaknesses in different aspects of the operability determination process. There were some instances where AR's were written but were not flagged for an operability review. Some had been already identified by the licensee upon questioning by the inspectors, others had not. In these cases, the inspectors did not find any instances where equipment should have been called inoperable but was not. The inspectors also found a functionality assessment associated with fire pumps where necessary compensatory measures were not formalized until the inspectors had questioned the assessment. During the period of review, there were two NRC identified findings with identified weaknesses in the operability determination process. One was documented in NRC Inspection Report 2014004 and dealt with a failure to provide adequate technical justification for operability of a TDAFW pump with respect to governor oil levels. Another issue is documented in Section 1R15 of this report and dealt with, in part, appropriate oil levels for TDAFW bearings. The inspectors discussed the observations with licensee staff, who agreed with the assessment.

The inspectors also observed weaknesses in work planning and execution. Multiple instances were identified of scheduled work activities that had to be de-conflicted the day/week of execution. In some cases, procedures had to be revised to support work, or post-maintenance test activities changed to appropriately cover the scope of work near time of execution. In some cases, where changes were made or expanded scope encountered, the plant risk summary sheet (a vehicle by which the plant risk is conveyed to the site) was not updated appropriately. A finding in Section 1R15 of this report documents a case where inadequate planning and execution unexpectedly rendered a diesel fuel oil storage tank inoperable. Inspectors have discussed the issue with licensee staff, who agreed with the assessment.

This review constituted one semiannual trend inspection sample as defined in IP 71152–05.

b. Findings

No findings were identified.

.4 Selected Issue Followup Inspection: Review of Operator Workarounds

a. Inspection Scope

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

The inspectors performed a review of the cumulative effects of OWAs. The documents listed in the Attachment to this report were reviewed to accomplish the objectives of the inspection procedure. The inspectors reviewed both current and historical operational

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

This review constituted one in depth review of a selected issue sample (operator work arounds) as defined in IP 71152–05.

b. Findings

No findings were identified.

.5 Selected Issue Follow-up Inspection: Follow-up to Previous NRC Findings

a. Inspection Scope

The inspectors selected a sample of previously issued NRC findings to assess the adequacy of licensee corrective actions. Two instances were identified where the technical issues had been adequately addressed; however, it appeared there were no corrective actions for underlying performance issues. In one case, a finding was issued regarding a change in the system pressures at which the fire pumps would automatically start (NCV 05000315-05000316/2013009-02). While the licensee was able to eventually show the new setpoints were acceptable, nothing was done to explore potential breakdowns in the engineering change process or in human performance that allowed the change to occur without the additional reviews being done to begin with. In another example, FIN 05000315-05000316/2013002-02 was issued for a failure to follow the guidance in the operability determination procedure. Subsequently, the licensee used methods that were acceptable to validate the past operability of Emergency Core Cooling piping when a void was discovered. However, any underlying issues in human performance or in the operability determination process were not explored at the time. The licensee acknowledged the inspectors' observations.

Regarding the finding discussed above for the fire pump starting setpoints, the inspectors also identified that changes had been made to the plant design basis since the licensee's previous corrective actions were completed. Pursuant to the change to NFPA-805 standards of fire protection, additional sprinklers were added to the required Technical Requirements Manual fire suppression systems. When this occurred, the licensee did not re-review the impacts on the fire pump starting setpoint issue which was the subject of the NRC finding. Based on inspector questions, the licensee re-instituted compensatory measures to restore functionality of the fire suppression system pending approval of new calculations that will incorporate the new systems and starting setpoints of the fire pumps. Additionally, the inspectors questioned the adequacy of current fire pump surveillance tests in light of the NRC finding. The inspectors discovered the

licensee had already identified a discrepancy between the surveillance tests and design requirements and had written an AR in September of 2014. Basically, a pump could degrade to a point where it would still pass a surveillance, yet not meet all aspects of the design calculation requirements for the fire suppression system. The licensee was able to demonstrate the pumps had not degraded to a point outside the design requirements, and was working to resolve the discrepancy between the tests and design requirements.

This review constituted one in-depth review of a selected issue sample as defined in IP 71152–05.

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

.1 Dual Unit Trip Caused by Debris Intrusion in the Forebay

a. Inspection Scope

On November 1, 2014, the inspectors responded to the site following a dual unit trip caused by debris intrusion in the forebay of the screenhouse. During the evening of October 31, and early morning of November 1, rough lake conditions and high wind mobilized and transported a large mass of sea grass and other debris. This debris entered the D.C. Cook intake structure and collected on trash racks and travelling screens in the fore bay. Prior to the unit shutdown, the licensee monitored forebay conditions and took actions to maintain the travelling screens clean. However, the rate of debris intrusion exceeded the equipment's ability to clean the screens. As differential pressure increased across the screens, the licensee entered the Degraded Forebay abnormal procedure. The licensee reduced power in Unit 2 to 50 percent and secured a circulating water pump. However, conditions in the fore bay continued to degrade to the point that the licensee had to manually trip both units. This action allowed the licensee to secure all circulating water pumps thus protecting the safety-related service water system.

Following the plant trip, the licensee notified the resident inspector who responded to the site. The inspectors verified licensee actions in the control rooms were consistent with plant procedures. In addition, the inspectors focused on performance of safety-related equipment supplied with service water. The inspectors concluded that the service water system had not been impacted by the debris intrusion.

As part of the plant shutdown, several plant SSC's did not perform as expected. For Unit 2, auto transfer between the unit auxiliary transformer and reserve auxiliary transformer on turbine trip did not occur. Auto transfer did occur after the licensee manually inserted a generator trip. The licensee replaced a failed relay associated with a turbine stop valve to correct the condition. In addition, a relay on the unit two reserve auxiliary transformer failed that precluded auto-stepping of the transformer; the licensee replaced this relay prior to unit startup.

On Unit 1, the turbine driven auxiliary feedwater pump tripped while the licensee throttled flow. Because both MDAFW pumps were operable, the licensee used the MDAFW pumps for steam generator level control. The inspectors identified a finding as documented in Section 1R15 of this report. Additionally, on Unit 2, an AFW flow control valve appeared to not respond to a flow retention signal. The flow retention circuit acts to prevent excessive flows to the steam generators from the AFW pumps by throttling

closed flow control valves. Upon investigation, given instrument tolerances, tests of the circuitry, time delay settings, and actual measured flow, it was determined the system acted appropriately.

In addition, three steam safety valves lifted prior to their nominal set point tolerance band. In reviewing the condition, the licensee documented that set point surveillances are conducted using a defined set of conditions that allow the safeties to achieve repeatable lift setpoints. For an installed safety, several factors can influence actual lift pressure. These factors include vibration and temperature transients. As a result, the licensee concluded that the valves responded in a fashion consistent with the design of the valves. The licensee plans on performing lift tests on the valves during the next refueling outage to confirm valve operability.

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

b. Findings

No findings were identified.

4OA6 Management Meetings

.1 Exit Meeting Summary

On January 20, 2015, the inspectors presented the inspection results to Mr. L. Weber and other members of the licensee staff. The licensee acknowledged the issues presented. The inspectors confirmed that none of the potential report input discussed was considered proprietary.

.2 Interim Exit Meetings

Interim exits were conducted for:

- The results of the inservice inspection were discussed with site vice president, Mr. J. Gebbie on October 10, 2014;
- The inspection results for the areas of radiological hazard assessment and exposure controls; occupational ALARA planning and controls; and occupational exposure control effectiveness performance indicator verification with Mr. J. Gebbie, Site Vice President, on October 17, 2014;
- The inspection results for the area of radiological hazard assessment and exposure controls with Mr. J. Gebbe, Site Vice President, on October 29, 2014;
- The inspection results for the areas of radiological environmental monitoring; and RCS specific activity and RETS/ODCM radiological effluent occurrences performance indicator verification with Mr. J. Gebbe, Site Vice President, on November 7, 2014;
- The results of the inspection of the permanent removal of shield/missile blocks with Mr. L. Weber, Chief Nuclear Officer, and other members of the licensee staff on December 01, 2014; and
- The Annual Review of Emergency Action Level and Emergency Plan Changes with the Licensee's Chief Nuclear Officer, Mr. L. Weber, on January 12, 2015.

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

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

L. Weber, Chief Nuclear Officer
J. Gebbie, Site Vice President
L. Baun, Director Performance Assurance
J. Beer, Principal Health Physicist
D. Bronicki, Interim Radiation Protection Manager
R. Hall, ISI Program Owner
J. Harner, Environmental Manager
G. Hill, Supervisor Nuclear Safety Analysis
S. Lies, Vice President Engineering
S. Mitchell, Regulatory Affairs
D. Miller, Health Physicist
J. Nimtz, Senior Licensing Activity Coordinator
J. Ross, Engineering Director
M. Scarpello, Regulatory Affairs Manager
P. Schoepf, Nuclear Site Services Director
R. Sieber, Emergency Preparedness Manager

Nuclear Regulatory Commission

K. Riemer, Chief, Reactor Projects Branch 2
R. Daley, Chief, Engineering Branch 3
B. Dickson, Chief, Health Physics and Incident Response
N. Feliz-Adorno, Reactor Engineer
J. Gilliam; Reactor Engineer
M. Mitchell, Health Physicist

LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

Opened

05000315/2014005-01	NCV	Failure to Identify Conditions Adverse to Quality associated with the Unit 1 TDAFW Pump Turbine Oil System (Section 1R15.b(1))
05000315/2014005-02; 05000316/2014005-02	NCV	Unplanned Inoperability of the AB Fuel Oil Storage Tank during Maintenance (Section 1R15.b(2))
05000315/2014005-03; 05000316/2014005-03	NCV	Inadequate Review of Radiological Impact of the Removal of the Auxiliary Shield Blocks on the Containment Accident Shield Post LBLOCA (Section 1R18)
05000315/2014005-04	NCV	Inadvertent Trip of the Unit 1 TDAFW Pump (Section 1R19)
05000315/2014005-05	URI	Changes to Minimum 60-Minute Emergency Responder Staffing Without Prior Approval (Section 1EP4)
05000315/2014005-06; 05000316/2014005-06	NCV	Failure To Identify Deficient Locked High Radiation Area Controls Due To Procedure Inadequacy (Section 2RS1.4)

Closed

05000315/2014005-01	NCV	Failure to Identify Conditions Adverse to Quality associated with the Unit 1 TDAFW Pump Turbine Oil System (Section 1R15.b(1))
05000315/2014005-02; 05000316/2014005-02	NCV	Unplanned Inoperability of the AB Fuel Oil Storage Tank during Maintenance (Section 1R15.b(2))
05000315/2014005-03; 05000316/2014005-03	NCV	Inadequate Review of Radiological Impact of the Removal of the Auxiliary Shield Blocks on the Containment Accident Shield Post LBLOCA (Section 1R18)
05000315/2014005-04	NCV	Inadvertent Trip of the Unit 1 TDAFW Pump (Section 1R19)
05000315/2014005-06; 05000316/2014005-06	NCV	Failure To Identify Deficient Locked High Radiation Area Controls Due To Procedure Inadequacy (Section 2RS1.4)

Discussed

None

LIST OF DOCUMENTS REVIEWED

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

1R01 Adverse Weather Protection

- 12-IHP-5040-EMP-004, Plant Winterization and De-Winterization, Revision 21
- 12-OHP-4022-057-001, Screen House Forebay Degraded Condition, Revision 7
- 12-OHP-5030-057-001, Screen House Vulnerability Determination, Revision 22
- AR-2014-14403, 12-HV-DGH Appears to Have Failed
- Cook Seasonal Readiness Affirmation Letter, November 11, 2014
- PMP-5055-001-001, Winterization/Summerization Checklist, Revision 22

1R04 Equipment Alignment

- 2-OHP-4021-017-002, Placing in Service the Residual Heat Removal System, Revision 24
- 2-OHP-4030-217-050W, West Residual Heat Removal Train Operability Test, Modes 1-4, Revision 14
- AR-2014-14089, CTS Nozzle Leaking
- AR-2014-8502, Possible PORV Leakby
- Drawing OP-1-5144-51, Containment Spray
- Drawing OP-2-5105D-22, Steam Generating System
- Drawing OP-2-5106A-55, Aux Feedwater
- List of Open Work Orders, Unit 1 Containment Spray System

1R05 Fire Protection

- AR 2014-15683, Combustible Material Stored in 2AB DB FO Transfer Pump Room
- AR-2014-12540, Unattended Test Equipment
- CNP Fire Safety Analysis, Report R1900-007-AA32, Fire Area 32, June 2011
- Fire Hazards Analysis, Revision 16
- PMP-2270-CCM-001, Control of Combustible Materials, Revision 24
- PMP-2270-WBG-001, Welding, Burning, and Grinding Activities, Revision 23

1R06 Flooding

- 12-1141-53, 34.5Kv & 4 Kv Power Duct Runs & Control Cable Pipe Runs in Plant Yard Area, April 4, 1971

1R07 Heat Sink Performance

- 12-EHP-8913-001-002, Heat Exchanger Inspection, Revision 9
- D.C. Cook Commitment Change Number CC-0218, Regarding Heat Exchanger Inspection Program, March 10, 2003
- Fall 2014 U1C26 Eddy Current Inspection Results, 1-HE-47-CDN Heat Exchanger
- NRC Generic Letter 89-13, Service Water System Problems Affecting Safety-Related Equipment, July 18, 1989

1R08 Inservice Inspection Activities

- 12-EHP-5037-SGP-004, Steam Generator Foreign Object Disposition, Revision 5
- 12-EHP-5070-NDE-DMW, Ultrasonic Examination of ASME Section XI, Appendix VIII, Supplement 10 Dissimilar Metal Welds, Revision 0
- 12-QHP-5050-NDE-002, Magnetic Particle Examination, Revision 6
- 12-QHP-5050-NDE-010, Radiographic Examination of Welds, Revision 6
- 1-EHP-4030-102-001, Steam Generator Primary Side Surveillance, Revision 10
- AR 2012-12105, Water Pooling Around U2 CST
- AR 2013-0534, 12-CS-185 has a Body to Bonnet Leak
- AR 2013-4317, 1-QRV-114, Body to Bonnet Leak
- AR 2013-4625, 1-CS-448-1 has a BA Leak
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- Unit 1 and Unit 2 Operator Burden Report, November 18, 2014 and December 4, 2014
- Unit 1 and Unit 2 Supervisor Turnover Checklist, December 4, 2014

4OA3 Identification and Resolution of Problems

- 12-OHP-4022-057-001, Screen House Forebay Degraded Condition, Revision 7
- AR 2014-13669 Task 2, Unit 1 Post-trip Report
- AR 2014-13669 Task 3, Unit 2 Post-trip Report
- E-0, Reactor Trip or Safety Injection, Revision 38
- ES-0.1, Reactor Trip Response, Revision 28
- Ltr Lee Baun to Cook Leadership, Performance Assurance Semi-Monthly Roll-Up Report, December 22, 2014

LIST OF ACRONYMS USED

ADAMS	Agencywide Document Access Management System
AFW	Auxiliary Feedwater
ALARA	As-Low-As-Reasonably-Achievable
AMB	Auxiliary Missile Blocks
AR	Action Request
ASME	American Society for Mechanical Engineers
BACC	Boric Acid Corrosion Control
CAP	Corrective Action Program
CAQ	Condition Adverse to Quality
CDF	Core Damage Frequency
CFR	Code of Federal Regulations
dpm	drops per minute
EAC	Environmental Assessment Coordinator
EDG	Emergency Diesel Generator
EPRI	Electric Power Research Institute
ET	Eddy Current
FME	Foreign Material Exclusion
FOST	Fuel Oil Storage Tank
ISI	Inservice Inspection
LBLOCA	Large Break Loss-of-Coolant Accident
LHRA	Locked High Radiation Area
LOCA	Loss-of-Coolant Accident
IMC	Inspection Manual Chapter
IP	Inspection Procedure
IR	Inspection Report
LCO	Limiting Condition for Operation
MDAFW	Motor-Driven Auxiliary Feedwater
MSPI	Mitigating Systems Performance Index
NCV	Non- Violation
NDE	Non-destructive Examination
NEI	Nuclear Energy Institute
NRC	U.S. Nuclear Regulatory Commission
PARS	Publicly Available Records System
PI	Performance Indicator
RAC	Radiological Assessment Coordinator
RCS	Reactor Coolant System
RG	Regulatory Guide
RPT	Radiation Protection Technician
SDP	Significance Determination Process
SG	Steam Generator
SRA	Senior Reactor Analyst
SSC	Structure, System and Component
TDAFW	Turbine-Driven Auxiliary Feedwater
TS	Technical Specification

TTV	Trip and Throttle Valve
UFSAR	Updated Final Safety Analysis Report
URI	Unresolved Item
UT	Ultrasonic Test
WO	Work Order

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Sincerely,

/RA/

Kenneth Riemer, Chief
Branch 2
Division of Reactor Projects

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