



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

REGION III
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April 21, 2011

Mr. Larry Weber
Senior Vice President and
Chief Nuclear Officer
Indiana Michigan Power Company
Nuclear Generation Group
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Bridgman, MI 49106

SUBJECT: D. C. COOK NUCLEAR POWER PLANT, UNITS 1 AND 2, INTEGRATED
INSPECTION REPORT 05000315/2011002; 05000316/2011002

Dear Mr. Weber:

On March 31, 2011, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your D. C. Cook Nuclear Power Plant, Units 1 and 2. The enclosed report documents the results of this inspection, which were discussed on April 14, 2011, with Mr. J. Gebbie, and other members of your staff.

The inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

Based on the results of this inspection, no findings of significance were identified.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records System (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Website at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,
/RA/

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

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

Enclosure: Inspection Report 05000315/2011002; 05000316/2011002
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: 05000315/2011002; 05000316/2011002;

Licensee: Indiana Michigan Power Company

Facility: D. C. Cook Nuclear Power Plant, Units 1 and 2

Location: Bridgman, MI

Dates: January 1 through March 31, 2011

Inspectors: J. Lennartz, Senior Resident Inspector
P. LaFlamme, Resident Inspector
T. Go, Health Physics Inspector
T. Briley, Reactor Engineer

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

Enclosure

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SUMMARY OF FINDINGS

IR 05000315/2011002, 05000316/2011002; 01/01/2011 – 03/31/2011; D. C. Cook Nuclear Power Plant, Units 1 & 2; Routine Integrated Inspection Report

This report covers a 3-month period of inspection by resident inspectors and announced baseline inspections by regional inspectors. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

A. NRC-Identified and Self-Revealed Findings

No violations of significance were identified.

B. Licensee-Identified Violations

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

REPORT DETAILS

Summary of Plant Status

Unit 1 operated at or near full power during the inspection period with the following two exceptions:

- On February 17, 2011, Unit 1 power was reduced to 49 percent to repair an emergent steam leak on the high pressure turbine extraction steam to 6B heater bleed steam check valve, 1-B-121. After the steam leak was repaired, Unit 1 returned to full power on February 18, 2011.
- On March 11, 2011, Unit 1 commenced a power reduction for a planned maintenance outage to repair the non-safety related main generator hydrogen seals and the non-safety related west main feedwater pump shaft driven lube oil pump. The Unit entered Mode 3 (Hot Standby) on March 12, 2011, where it remained during the entire maintenance outage. Following the maintenance activities, Unit 1 reactor was started up and the main generator was synchronized to the grid on March 17, 2011. Unit 1 returned to full power on March 19, 2011.

Unit 2 operated at or near full power during the entire inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

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 1 east containment spray and spray add system;
- Unit 1 turbine driven auxiliary feedwater system; and
- Unit 1 CD emergency diesel generator system.

The inspectors selected these systems based on their risk significance relative to the Reactor Safety Cornerstones at the time they were inspected. The inspectors attempted to identify any discrepancies that could impact the function of the system, and, therefore, potentially increase risk. The inspectors reviewed applicable operating procedures, system diagrams, Updated Final Safety Analysis Report (UFSAR), Technical Specification (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 corrective action program (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 Inspection Procedure (IP) 71111.04-05.

b. Findings

No findings were identified.

.2 Semi-Annual Complete System Walkdown

a. Inspection Scope

The inspectors performed a complete system alignment inspection of the Unit 2 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)

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 1 fire zone 40B, 4KV CD switchgear room 609' elevation;
- Unit 2 fire zone 47A, 4KV AB switchgear room 609' elevation;
- Unit 1 fire zones 44A/B, containment spray heat exchanger rooms 609 elevation;
- Unit 1/2 fire zone 44N, auxiliary building 609 elevation north end; and
- Unit 2 fire zone 34, east main steam valve enclosure.

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, the inspectors verified that fire hoses and extinguishers were in their designated locations and available for immediate use; that fire detectors and sprinklers were unobstructed; that transient material loading was within the analyzed limits; and fire doors, dampers, and penetration seals appeared to be in satisfactory condition. The inspectors also verified that minor issues identified during the inspection were entered into the licensee's CAP. Documents reviewed are listed in the Attachment to this report.

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

b. Findings

No findings were identified.

1R06 Flooding (71111.06)

a. Inspection Scope

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

- Unit 1 west motor driven auxiliary feedwater pump room 591 elevation.

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

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification Program (71111.11)

a. Inspection Scope

On January 18, 2011, the inspectors observed a crew of licensed operators in the plant's simulator during licensed operator requalification examinations to verify that operator performance was adequate, evaluators were identifying and documenting crew performance problems, and training was being conducted in accordance with licensee procedures. The inspectors evaluated the following areas:

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

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

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

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

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

- Unit 1 critical control room power distribution system; and
- Unit 1 main feedwater system.

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

- implementing appropriate work practices;
- identifying and addressing common cause failures;
- scoping of systems in accordance with 10 CFR 50.65(b) of the maintenance rule;
- characterizing system reliability issues for performance;
- charging unavailability for performance;

- trending key parameters for condition monitoring;
- ensuring 10 CFR 50.65(a)(1) or (a)(2) classification or re-classification; and
- verifying appropriate performance criteria for structures, systems, and components/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 two quarterly maintenance effectiveness samples as defined in IP 71111.12-05.

b. Findings

No findings were identified.

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

a. Inspection Scope

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

- emergent maintenance on Unit 2 east essential service water (ESW) pump strainer on January 13-14 and on Unit 1 east ESW pump strainer on January 15, 2011;
- planned replacement of Unit 2 east ESW pump and east ESW header vacuum breaker installation on January 30 to February 1, 2011;
- planned Unit 1 east ESW header vacuum breaker installation on February 9-11, 2011; and
- planned Unit 1 west ESW header vacuum breaker installation on February 23-24, 2011.

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.

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

b. Findings

No findings were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors reviewed the following issues:

- Unit 1 and 2 control room and offsite dose consequence analyses;
- inadequate evaluation for TSs/Technical Requirements Manual surveillance failure;
- Unit 1 motor driven auxiliary feedwater pump room fire proofing degradation; and
- control room envelope breach monitoring.

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 four samples as defined in IP 71111.15-05.

b. Findings

No findings were identified.

1R18 Plant Modifications (71111.18)

a. Inspection Scope

The following engineering design package was reviewed and selected aspects were discussed with engineering personnel:

- Unit 1 and 2 ESW header vacuum breaker installation.

This document and related documentation were reviewed for adequacy of the associated 10 CFR 50.59 safety evaluation screening, consideration of design parameters, implementation of the modification, post-modification testing, and relevant procedures, design, and licensing documents were properly updated. The inspectors observed ongoing and completed work activities to verify that installation was consistent with the design control documents. The modification consisted of installing a 3-inch

vacuum breaker capable of introducing 1200 standard cubic feet per minute of air into the ESW system, as well as a vacuum breaker isolation valve in each ESW train. This modification to the ESW system would help minimize the impact of a column-rejoining water hammer event due to a loss of offsite power and ensure ESW system integrity following such an event. Documents reviewed in the course of this inspection 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

No findings were identified.

1R19 Post-Maintenance Testing (71111.19)

a. Inspection Scope

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

- Unit 2 east ESW discharge strainer maintenance following sand and silt intrusion;
- Unit 1 east component cooling water pump scheduled coupling repack and motor lubrication;
- Unit 1 distributed ignition system igniter B-2 and B-10 replacement;
- Unit 2 north train battery charger 2-BC-A card replacement;
- Unit 2 east ESW scheduled pump replacement;
- Unit 1 steam generator 13 power operated relief valve calibration test; and
- Unit 1 control room instrumentation distribution inverter 4 capacitor replacement.

These activities were selected based upon the structure, system, or component's ability to impact risk. The inspectors evaluated these activities for the following (as applicable): the effect of testing on the plant had been adequately addressed; testing was adequate for the maintenance performed; acceptance criteria were clear and demonstrated operational readiness; test instrumentation was appropriate; tests were performed as written in accordance with properly reviewed and approved procedures; equipment was returned to its operational status following testing (temporary modifications or jumpers required for test performance were properly removed after test completion); and test documentation was properly evaluated. The inspectors evaluated the activities against TS, the 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 seven post-maintenance testing sample as defined in IP 71111.19-05.

b. Findings

No findings were identified.

1R20 Outage Activities (71111.20)

a. Inspection Scope

The inspectors evaluated activities for a planned Unit 1 outage that began on March 12, 2011, and ended on March 17, 2011, to repair the non-safety related main generator hydrogen seal system and the non-safety related west main feedwater pump shaft driven lube oil pump. The inspectors reviewed activities to ensure that the licensee considered risk in developing, planning, and implementing the outage schedule.

The inspectors observed the reactor shutdown; reviewed outage equipment configuration and risk management; verified electrical lineups; monitored decay heat removal; verified containment cleanliness; observed reactor startup activities; and reviewed identification and resolution of problems associated with the outage.

This inspection constituted one other 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:

- Unit 2 train A solid state protection system surveillance test (routine);
- Unit 1 delta T/ Tave protection channel set 3 surveillance test (routine);
- Unit 1 east ESW system surveillance test (in-service test);
- Unit 1/2 north spent fuel pit pump surveillance test (in-service test); and
- Unit 1 steam generator 3 and 4 steam flow/feedwater flow mismatch and steam pressure protection set 1 channel operational test (routine).

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

- did preconditioning occur;
- were the effects of the testing adequately addressed by control room personnel or engineers prior to the commencement of the testing;
- were acceptance criteria clearly stated, demonstrated operational readiness, and consistent with the system design basis;
- plant equipment calibration was correct, accurate, and properly documented;

- as-left setpoints were within required ranges; and the calibration frequency was in accordance with TSs, the UFSAR, 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 three routine surveillance testing samples and two inservice testing samples as defined in IP 71111.22, Sections -02 and -05.

b. Findings

No findings were identified.

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope

The inspectors evaluated the conduct of a routine licensee emergency drill on February 1, 2011, to identify any weaknesses and deficiencies in classification, notification, and protective action recommendation development activities. The inspectors observed emergency response operations in the control room, technical support center and emergency operations facility to determine whether the event classification, notifications, and protective action recommendations were performed in accordance with procedures. The inspectors also attended the licensee drill critique to compare any inspector-observed weakness with those identified by the licensee staff in order to evaluate the critique and to verify whether the licensee staff was properly

identifying weaknesses and entering them into the CAP. As part of the inspection, the inspectors reviewed the drill package and other documents listed in the Attachment to this report.

This emergency preparedness drill inspection constituted one sample as defined in IP 71114.06-05.

b. Findings

No findings were identified.

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety

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

This inspection constituted one complete sample as defined in IP 71124.03-05.

.1 Inspection Planning (02.01)

a. Inspection Scope

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

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

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

b. Findings

No findings were identified.

.2 Engineering Controls (02.02)

a. Inspection Scope

The inspectors reviewed the licensee's use of permanent and temporary ventilation to determine whether the licensee uses ventilation systems as part of its engineering controls (in lieu of respiratory protection devices) to control airborne radioactivity. The inspectors reviewed procedural guidance for use of installed plant systems, such as containment purge, spent fuel pool ventilation, and auxiliary building ventilation, and

assessed whether the systems are used, to the extent practicable, during high-risk activities (e.g., using containment purge during cavity floodup).

The inspectors selected installed ventilation systems used to mitigate the potential for airborne radioactivity, and evaluated whether the ventilation airflow capacity, flow path (including the alignment of the suction and discharges), and filter/charcoal unit efficiencies, as appropriate, were consistent with maintaining concentrations of airborne radioactivity in work areas below the concentrations of an airborne area to the extent practicable.

The inspectors selected temporary ventilation system setups used to support work in contaminated areas. The inspectors assessed whether the use of these systems is consistent with licensee procedural guidance and as-low-as-is-reasonably-achievable (ALARA) concept.

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

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

b. Findings

No findings were identified.

.3 Use of Respiratory Protection Devices (02.03)

a. Inspection Scope

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

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

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

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

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

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

b. Findings

No findings were identified.

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

a. Inspection Scope

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

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

The inspectors determined whether appropriate mask sizes and types are available for use (i.e., in-field mask size and type match what was used in fit-testing). The inspectors determined whether on-shift operators had no facial hair that would interfere with the

sealing of the mask to the face and whether vision correction (e.g., glasses inserts or corrected lenses) was available as appropriate.

The inspectors reviewed the past 2 years of maintenance records for select self-contained breathing apparatus units used to support operator activities during accident conditions and designated as “ready for service” to assess whether any maintenance or repairs on any self-contained breathing apparatus unit’s vital components were performed by an individual, or individuals, certified by the manufacturer of the device to perform the work. The vital components typically are the pressure-demand air regulator and the low-pressure alarm. The inspectors reviewed the onsite maintenance procedures governing vital component work to determine any inconsistencies with the self-contained breathing apparatus manufacturer’s recommended practices. For those self-contained breathing apparatuses designated as “ready for service,” the inspectors determined whether the required, periodic air cylinder hydrostatic testing was documented and up to date, and the retest air cylinder markings required by the U. S. Department of Transportation were in place.

b. Findings

No findings were identified.

.5 Problem Identification and Resolution (02.05)

a. Inspection Scope

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

b. Findings

No findings were identified.

2RS4 Occupational Dose Assessment (71124.04)

This inspection constituted one complete sample as defined in IP 71124.04-05.

.1 Inspection Planning (02.01)

a. Inspection Scope

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

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

A review was conducted of the licensee procedures associated with dosimetry operations, including issuance/use of external dosimetry (routine, multibadging, extremity, neutron, etc.), assessment of internal dose (operation of whole body counter, assignment of dose based on derived air concentration-hours, urinalysis, etc.), and evaluation of and dose assessment for radiological incidents (distributed contamination, hot particles, loss of dosimetry, etc.).

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

b. Findings

No findings were identified.

.2 External Dosimetry (02.02)

a. Inspection Scope

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

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

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

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

b. Findings

No findings were identified.

.3 Internal Dosimetry (02.03)

Routine Bioassay (In Vivo)

a. Inspection Scope

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

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

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

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

b. Findings

No findings were identified.

Special Bioassay (In Vitro)

a. Inspection Scope

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

The inspectors reviewed the vendor laboratory quality assurance program and assessed whether the laboratory participated in an industry recognized cross-check program including whether out-of-tolerance results were resolved appropriately.

b. Findings

No findings were identified.

Internal Dose Assessment – Airborne Monitoring

a. Inspection Scope

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

b. Findings

No findings were identified

Internal Dose Assessment – Whole Body Count Analyses

a. Inspection Scope

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

b. Findings

No findings were identified.

.4 Special Dosimetric Situations (02.04)

Declared Pregnant Workers

a. Inspection Scope

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

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

b. Findings

No findings were identified.

Dosimeter Placement and Assessment of Effective Dose Equivalent for External Exposures

a. Inspection Scope

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

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

b. Findings

No findings were identified.

Shallow Dose Equivalent

a. Inspection Scope

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

b. Findings

No findings were identified.

Neutron Dose Assessment

a. Inspection Scope

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

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

b. Findings

No findings were identified.

Assigning Dose of Record

a. Inspection Scope

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

b. Findings

No findings were identified.

.5 Problem Identification and Resolution (02.05)

a. Inspection Scope

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

b. Findings

No findings were identified.

4. **OTHER ACTIVITIES**

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

4OA1 Performance Indicator Verification (71151)

.1 Unplanned Scrams per 7000 Critical Hours

a. Inspection Scope

The inspectors sampled licensee submittals for the Unplanned Scrams per 7000 Critical Hours PI for D. C. Cook Nuclear Power Plant Units 1 and 2 from the first quarter of 2010 through the fourth quarter of 2010. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the Nuclear Energy Institute (NEI) Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, dated October 2009, were used. The inspectors reviewed the licensee's operator narrative logs, issue reports, event reports and NRC Inspection Reports for the period of January 1, 2010, through December 31, 2010, 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 unplanned scrams per 7000 critical hours sample as defined in IP 71151-05.

b. Findings

No findings were identified.

.2 Unplanned Scrams with Complications

a. Inspection Scope

The inspectors sampled licensee submittals for the Unplanned Scrams with Complications PI for D. C. Cook Nuclear Power Plant Units 1 and 2 from the first quarter of 2010 through the fourth quarter of 2010. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, were used. The inspectors reviewed the licensee's operator narrative logs, issue reports, derate logs, Licensee Event Reports and NRC Integrated Inspection Reports for the period of January 1, 2010, through December 31, 2010, 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 unplanned scrams with complications samples as defined in IP 71151-05.

b. Findings

No findings were identified.

.3 Safety System Functional Failures

a. Inspection Scope

The inspectors sampled licensee submittals for the Safety System Functional Failures PI for D. C. Cook Nuclear Power Plant Units 1 and 2 from the first quarter of 2010 through the fourth quarter of 2010. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, and NUREG-1022, "Event Reporting Guidelines 10 CFR 50.72 and 50.73" definitions and guidance, were used. The inspectors reviewed the licensee's operator narrative logs, operability assessments, maintenance rule records, maintenance work orders, issue reports, Licensee Event Reports, and NRC Integrated Inspection Reports for the period of January 1, 2010, through December 31, 2010, 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 safety system functional failures samples as defined in IP 71151-05.

b. Findings

No findings were identified.

.4 Unplanned Transients per 7000 Critical Hours

a. Inspection Scope

The inspectors sampled licensee submittals for the Unplanned Transients per 7000 Critical Hours PI for D. C. Cook Nuclear Power Plant Units 1 and 2 from the first quarter of 2010 through the fourth quarter of 2010. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, were used. The inspectors reviewed the licensee's operator narrative logs, issue reports, de-rate logs, Licensee Event Reports, and NRC Integrated Inspection Reports for the period of January 1, 2010, through December 31, 2010, 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 unplanned transients per 7000 critical hours samples as defined in IP 71151-05.

b. Findings

No findings were identified.

.5 Reactor Coolant System Specific Activity

a. Inspection Scope

The inspectors sampled licensee submittals for the Reactor Coolant System Specific Activity PI for D. C. Cook Nuclear Power Plant Units 1 and 2 for the period from the first quarter 2010 through the fourth quarter 2010. The inspectors used PI definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, to determine the accuracy of the PI data reported during those periods. The inspectors reviewed the licensee's reactor coolant system chemistry samples, TS requirements, issue reports, event reports, and NRC Integrated Inspection Reports for the period from January 1, 2010, through December 31, 2010, 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. In addition to record reviews, the inspectors observed a chemistry technician obtain and analyze a reactor coolant system sample. Documents reviewed are listed in the Attachment to this report.

This inspection constituted two reactor coolant system specific activity samples as defined in IP 71151-05.

b. Findings

No findings were identified.

4OA2 Identification and Resolution of Problems (71152)

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

a. Inspection Scope

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

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

b. Findings

No findings were identified.

.2 Daily Corrective Action Program Reviews

a. Inspection Scope

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

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

b. Findings

No findings were identified.

.3 Selected Issue Follow-Up Inspection: Unit 2 Equipment Apparent Cause Evaluation

a. Inspection Scope

The inspectors selected the following equipment apparent cause evaluation for an in-depth review:

- AR 2010-10345-1, "Failure of Steam Dump Valves."

The inspectors discussed the evaluations and associated corrective actions with licensee personnel and verified the following attributes while reviewing the apparent cause evaluation:

- complete and accurate identification of the problem in a timely manner commensurate with its safety significance and ease of discovery;
- consideration of the extent of condition, generic implications, common cause and previous occurrences;
- classification and prioritization of the resolution of the problem, commensurate with safety significance;
- identification of the apparent and contributing causes of the problem; and
- identification of corrective actions, which were appropriately focused to correct the problem.

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

b. Findings

No findings were identified.

40A3 Follow-Up of Events and Notices of Enforcement Discretion (71153)

.1 Infrequently Performed Evolution to Reseat Unit 1 Main Generator Hydrogen Seals

a. Inspection Scope

On March 9, 2011, plant operators conducted an infrequently performed evolution to try and reseat the Unit 1 main generator hydrogen seals. The inspectors observed the pre-evolution brief and then observed the operators in the plant during the evolution. The inspectors verified that the operators conducted the evolution in accordance with plant procedures. Documents reviewed during this inspection are listed in the Attachment.

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

b. Findings

No findings were identified.

.2 Unit 1 Loop 3 Tave Step Increase Causing Rod Insertion

a. Inspection Scope

The inspectors reviewed the plant's response to an unexpected reactivity change due to an instrument malfunction. On February 1, 2011, with Unit 1 at 100 percent power, Loop 3 T-average appeared to increase by 1.5 degrees causing control rods to insert 1.5 steps. Operators immediately placed rod control in manual, declared Loop 3 T-cold inoperable and then tripped the associated bistable as required by TS 3.3.1. Further investigation revealed the cause to be a faulty connection to Loop 3 T-cold input signal that resulted in the T-average deviation. The inspectors verified that the Loop 3 input signal faulty connection was repaired and properly returned to service. The inspectors observed control room operator response to verify that operator actions were in accordance with plant procedures and TS.

The inspectors also verified that this issue was entered into the CAP with the appropriate significance characterization. Documents reviewed during this inspection are listed in the Attachment.

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

b. Findings

No findings were identified.

.3 Operator Performance during Unit 1 50 Percent Power Reduction

a. Inspection Scope

On February 17, 2011, Unit 1 power was reduced to 49 percent to repair a steam leak on the high pressure turbine exhaust to the 6B feedwater heater check valve, 1-121-B. After the steam leak was repaired, the unit was returned to full power on February 18, 2011. The inspectors evaluated operator performance and determined that the operator response was appropriate and in accordance with procedures and training.

The inspectors also verified that this issue was entered into the CAP with the appropriate significance characterization.

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

b. Findings

No findings were identified.

.4 (Closed) Licensee Event Report 05000315/2010-003-00: Manual Auxiliary Feedwater Actuation in Response to Manual Main Feedwater Pump Trip

This event, which occurred on December 13, 2010, resulted in the control room operators manually tripping a nonsafety-related Unit 1 east main feedwater pump and subsequently initiating auxiliary feedwater. On December 13, while at 100 percent power, the control room operators noted lowering condenser vacuum on the Unit 1 east main feedwater pump. In response, control room operators tripped the pump, and in

accordance with procedures, initiated auxiliary feedwater flow to supplement the remaining main feedwater pump. The licensee's investigation revealed that fouling on the main feedwater pump condenser cooling water side due to debris intrusion from rough lake conditions caused the decrease in condenser vacuum.

The licensee's corrective actions included inspecting and cleaning the lake cooling water side of the east and west main feedwater pump condensers. The inspectors reviewed control room logs, condition reports, procedures, causal analysis, and corrective actions and did not identify any findings of significance. Documents reviewed as part of this inspection are listed in the attachment. This Licensee Event Report (LER) is closed.

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

.5 (Closed) Licensee Event Report 05000316/2010-003-00: Changed Modes From Mode 5 to Mode 4 With Divider Barrier Inoperable

The inspectors reviewed the events and circumstances surrounding the event that occurred on November 30, 2010, when Unit 2 entered Mode 4 operation with the containment divider barrier seal inoperable, which was prohibited by TSs. This event resulted in a NRC identified Green Non-Cited Violation (NCV) which was previously documented in Inspection Report 05000315(316)/2010005.

The inspectors reviewed the licensee's apparent cause evaluation, work package, control room logs, condition reports, and corrective actions and did not identify any additional findings of significance. Documents reviewed as part of this inspection are listed in the attachment. This LER is closed.

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

.6 (Closed) Licensee Event Report 05000316/2010-001-00: Valid Actuation of Auxiliary Feedwater System in Response to Valid Steam Generator Low-Low Level Signals

The inspectors reviewed the events and circumstances surrounding the event that occurred on October 6, 2010, on Unit 2. After the reactor was manually tripped, as planned for a scheduled refueling outage, the turbine driven auxiliary feedwater pump automatically started unexpectedly. Approximately 8 minutes after the reactor trip, levels in two steam generator lowered to the low-low setpoint and caused the turbine driven auxiliary feedwater pump to automatically start per design.

Subsequent investigation by licensee personnel identified that two non-safety related steam dump valves remained partially open following the reactor trip when they should have been fully closed; an electro-pneumatic transducer in the control circuit was out of calibration. The open steam dump valves provided sufficient steam flow to the main condenser to cause a slow reactor coolant system cooldown and a mass loss from the secondary. The operators did not immediately recognize the open steam dump valves because a flow control valve in the auxiliary feedwater system did not automatically reduce flow as designed and the operators manually operated the valve to reduce flow. Therefore, the operators believed that the higher than expected auxiliary feedwater flow caused the reactor coolant system slow cooldown, which delayed diagnosing the slightly open steam dump valves. Consequently, two steam generator levels lowered to the low-low level setpoint and the turbine driven auxiliary feedwater pump started. Control

room operators then restored steam generator levels to normal and subsequently identified that two steam dump valves were partially open.

For corrective actions, the electro-pneumatic transducer in the steam dump control system was replaced during the refueling outage. Also, licensee personnel investigated why the auxiliary feedwater valve did not automatically reduce flow as designed but did not conclusively identify a cause because the condition was not repeatable. However, a time delay relay associated with the valve circuitry, which was determined to be the most likely cause, was replaced. The valve circuitry functioned satisfactorily during testing after the relay was replaced.

The inspectors reviewed control room logs, system parameters, and plant procedures to determine if operator response was appropriate and in accordance with procedures and training. The inspectors also reviewed work orders, the equipment apparent cause evaluation and associated corrective actions to verify that appropriate corrective actions had been implemented. No findings of significance were identified. Documents reviewed during this inspection are listed in the attachment. This LER is closed.

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

.7 (Closed) License Event Report 05000316/2010-002-00: Containment Divider Barrier Seal Mounting Bolts Not Properly Installed

The inspectors reviewed the events and circumstances surrounding the event that occurred on October 15, 2010, on Unit 2. During surveillance testing on the containment divider barrier, licensee personnel identified two divider barrier seal retaining bolts missing, one retaining bolt with a loose nut, and one retaining bolt with a nut missing. Based on the as-found condition, licensee personnel concluded that the discrepancies had existed, as minimum, for the entire previously completed operating cycle. Consequently, TS 3.6.13, Divider Barrier Integrity, had not been met for a period beyond the allowed outage time, which was a non-compliance with TS surveillance requirements to ensure that seal bolting was properly installed. Therefore, this event was reported as a condition prohibited by TS. While this constituted a condition prohibited by TS, an evaluation by licensee personnel concluded that the divider barrier safety function was still met.

Licensee personnel concluded that this event was caused by a lack of clear and detailed guidance in the containment divider barrier seal surveillance procedure. In addition, licensee personnel identified that a similar failure to promptly identify and correct divider barrier deficiencies had been identified in 2006, and corrective actions put in place at that time to enhance the divider barrier surveillance were not implemented. The failure to implement corrective actions was previously documented in Inspection Report 0500315(316)/2010005 as a licensee identified violation.

For corrective actions, the divider barrier seal bolting deficiencies were repaired during the outage. This issue was entered into the licensee's CAP as AR 2010-10838 and AR 2010-10939 to reevaluate the divider barrier surveillance process and to analyze the cause for the repeated issues.

Additionally, while reviewing previous similar events, licensee personnel identified that a condition report dated October 16, 2007, documented that loose and missing bolts existed on the divider barrier and the divider barrier seal. The evaluation concluded that

the issue constituted a violation of TS but incorrectly concluded that the divider barrier seal was operable because the identified discrepancies did not impact the divider barrier safety function. Consequently, the condition was incorrectly determined to be not reportable. The divider barrier seal should have been considered inoperable because the surveillance requirement was not met and an LER should have been submitted at that time. However, because this issue was identified as reportable greater than three years after it occurred, an LER is not required in accordance with 10 CFR 50.73(a)(1). This issue was determined to be a licensee identified violation and is documented in section 4OA7 of this report.

The inspectors reviewed plant procedures, cause evaluations and associated corrective actions to verify that corrective actions were appropriate. No additional findings of significance were identified. Documents reviewed during this inspection are listed in the attachment. This LER is closed.

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

4OA6 Management Meetings

.1 Exit Meeting Summary

On April 14, 2011, the inspectors presented the inspection results to Mr. J. Gebbie, Site Vice President, 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 in-plant airborne radioactivity control and mitigation and occupational dose assessment under the occupational safety cornerstone with Mr. J. Gebbie, Site Vice President, on March 4, 2011. The inspectors confirmed that none of the potential report input discussed was considered proprietary. Proprietary material received during the inspection was returned to the licensee.

4OA7 Licensee-Identified Violations

The following Severity Level IV violation (very low safety significance) was identified by the licensee and is a violation of NRC requirements that met the criteria of the NRC Enforcement Policy for being dispositioned as an NCV.

- 10 CFR 50.73(a)(1) required, in part, that the licensee submit an LER for any event of the type described in this paragraph within 60 days after the discovery of the event. 10 CFR 50.73(a)(2)(i)(B) required, in part, that the licensee report any operation or condition prohibited by the plant's TS. Contrary to the above, the licensee failed to submit a required LER within 60 days after discovery on October 16, 2007, that the Unit 2 containment divider barrier seal was inoperable for greater than the allowed outage time specified in TS 3.16.13, "Divider Barrier Integrity," a condition prohibited by TS. The deficiencies that rendered the divider barrier seal inoperable were repaired on October 22, 2007, which restored the divider barrier seal to an operable status. The inspectors determined that this finding was of more than minor significance because the NRC relies on licensees to identify and report conditions or events meeting the

criteria specified in the TS and the regulations in order to perform its regulatory function. This finding is a Severity Level IV violation consistent with the guidance in NRC Enforcement Policy, Section 6.9, paragraph d.9. For corrective actions, the failure to submit a required LER was entered into the licensee's CAP as AR 2010-11280. Because this issue was identified as being reportable greater than three years after it was discovered, an LER is not required to be submitted in accordance with 10 CFR 50.73(a)(1).

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

J. Beer, Health Physicist, Primary Contact
L. Baun, Site Senior License Holder
M. Carlson, Site Support Services Vice President
H. Etheridge, Licensing Manager
J. Gebbie, Site Vice President
R. Hall, ISI Program Owner
C. Harris, Engineering Systems Manager
P. Hoppe, Acting RP Manager
Q. Lies, Plant Manager
C. Moeller, Radiation Protection Manager
N. Muralidhara, Ventilation System Engineer
R. Niedzielski, Regulatory Affairs
J. Nimitz, Regulatory Affairs Senior Licensing Activities Coordinator
K. O'Connor, Regulatory Affairs Compliance Manager
D. Raye, General Supervisor
J. Ross, Operations Director
M. Scarpello, Regulatory Affairs Manager
R. West, Regulatory Assurance

Nuclear Regulatory Commission

B. Dickson, PST, Branch Chief, DRS/RIII

LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

Opened

NONE

Closed

05000315/2010-003-00	LER	Manual Auxiliary Feedwater Actuation in Response to Manual Main Feedwater Pump Trip (Section 4OA3.4)
05000316/2010-003-00	LER	Changed Modes From Mode 5 to Mode 4 With Divider Barrier Inoperable (Section 4OA3.5)
05000316/2010-001-00	LER	Valid Actuation of Auxiliary Feedwater System in Response to Valid Steam Generator Low-Low Level Signals (Section 4OA3.6)
05000316/2010-002-00	LER	Containment Divider Barrier Seal Mounting Bolts Not Properly Installed (Section 4OA3.7)

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.

1R04 Equipment Alignment

- 1-OHP-4021-009-001, Placing the Containment Spray System in Standby Readiness, Revision 15
- 1-OHP-4021-032-032-008CD, Operating DG1CD Subsystems, March 28, 2010
- 1-OHP-4021-056-002, Auxiliary Feed Pump Operation, Revision 30
- 1-OHP-4030-114-031, Operations Weekly Surveillance Checks, Revision 17
- 2-EHP-4030-209-001, Unit 2 CTS Vacuum Breaker Check Valves, October 14, 2010
- 2-OHP-4021-009-001, Placing the Containment Spray System in Standby Readiness, Revision 14
- AR 08044063, Water Intrusion in U1 SUFT Room
- AR 00829525, RTO- Revise and issue Procedure 1-OHP-4030-114-031
- AR 00859017, STP-031 DS#1 Lacks Standby EP Acceptance Criteria
- AR 09224049, 2-ICM-265 Has Active Boric Acid Leak
- AR 09299056, TDAFP Turbine Casing Shroud Loose
- AR 2010-10197, LTOP Analysis Does Not Apply Instrument Uncertainty
- AR 2010-10735, 2-CTS -109 Breakaway Force Exceeded Max Allowable
- AR 2010-2865, 1-FMO-221, Evidence of Leakage at Packing
- AR 2010-5625, 2-WMO-718 W CTS HX Outlet Valve Motor Operator Leaking Oil
- AR 2010-8837, 1-SV-61-CD Chattering
- AR 2011-1022, 2-CTS-119E Remote Position Indicating Pin Missing
- AR 2011-1023, 2-CTS-139E Remote Position Indicating Pin Missing
- AR 2011-1074, 1-DR-AUX-373 Seal in Degraded Condition
- AR 2011-3595, Indication of Unplanned Control Valve Movement
- AR 2011-3635, Crank Vacuum Out of Band
- DB-12-AFWS, Auxiliary Feedwater System Design Basis Document, Revision 4
- OP-2-5144-58, Flow Diagram Containment Spray Unit 2, Revision 58
- WO 55088175-01, 1-FW-135 Remove /Install Insulation, West Side, December 14, 2000
- WO 5530802-01, 2-WMO-714, E CTS HX Outlet Shutoff Valve Replacement, October 28, 2010
- WO 55369513, 1-SV-61-CD Chattering, January 14, 2011
- WO 55379356, 1-DR-AUX-317 is Inoperable, March 18, 2011

1R05 Fire Protection

- 12-FPP-2270-066-001, Portable Fire Extinguisher Inspections, Revision 15
- 12-FPP-4030-066-202, Fire Detection Instrumentation Channel Operational, Revision 0
- AR 09292038, Dry Test Fire Protection Valve 1-ZFP-501
- AR 09292048, Dry Test Fire Protection Valve 1-ZFP-500
- AR 2010-7795, Portable Fire Extinguisher on Aux 650 not Correct Type
- AR 2010-9722, Degraded Fire Proofing Material
- AR 2011-2110, Cracked Rate of Rise Detector in Unit 2 Main Steam Enclosure
- AR 2011-3452, Excessive Cycling of MFP ELO Damaging FP Piping

- FHA, Fire Hazards Analysis, Revision 14
- Fire Pre-Plan, Revision 7
- WO 55351314-01, 1-ZFP-500 Dry Test, November 17, 2009
- WO 55351315-01, 1-ZFP-501 Dry Test, November 17, 2009

1R06 Flooding

- AR 03231035, The Requirements of Commitment No. 399 Are Potentially Not Being Satisfied
- AR 09924260, FSAR Question Response 2.24 Disagrees With 02-OHP 4024.218, Drop 81 Relating to Operator Actions
- MD-12-CW-005-N, Flooding Due to Circulating Water Expansion Joint Failure, Revision 1
- SD-061206-001, Flooding Evaluation Report, Revision 0
- WO 55304540-01 1-DLA-701, Clean/Inspect/Calibrate Level Alarm Switch, June 14, 2010

1R11 Licensed Operator Regualification Program

- Simulator Exercise Guide, RQ-E-3507A, Cycle 3507 As-found Simulator Evaluation A, Revision 1

1R12 Maintenance Effectiveness

- AR 00852315, CCRP Inverter Abnormal Problems
- AR 2010-10731, U1 East MFP Condenser Vacuum Lowering
- AR 2010-12690, Unit 1 CCRP Inverter Failure
- AR 2010-12694, SGBD Did Not Trip When 1-DRA-300 Went to High Alarm
- AR 2010-12720, Unit 2 CCRP-INV Diodes May Contain Wrong Thermal Compound
- AR 2010-1334, Failure of U-2 CCRP Inverter
- AR 2010-13629, 1-QP-180W Fitting on EHC Hose is Leaking
- AR 2010-2050, CCRP Inv Failure
- AR 2010-3226, Perform Condition Evaluation for 2-CCRP-Inverter Failure
- AR 2010-5012, Add MFP Thrust Bumps for Proper TSI System Setup
- AR 2010-8699, Unusual Noise/Vibration from WMFP Gear Driven Oil Pump
- AR 2011-0032, 2-DCR-320 Did Not Close on a R19 High Rad Signal
- Control Room Logs, March 12-14 and November 23, 27-29, 2010
- Critical Control Room Power Distribution System Health Reports, October 1-December 31, 2010
- DB-12-FW, Main Feedwater Design Basis Document , Revision 2
- Main Feed Water (MFW) Maintenance Rule Scoping Document, March 20, 2006
- Maintenance Rule Scoping for Critical Control Room Power Distribution System, April 5, 2001
- OP-1-12050, 120/208V AC Control Room Instrument Distribution Cabinets "CRID-I" Thru "CRID-IV" Engineered Safety System, Revision 25
- OP-1-12051, 120V AC Critical Control Room Power Cabinets "CCRP-1" Thru "CCRP-3" 120/208V AC Computer Power Supply System Balance of Plant, Revision 30
- Unit 1 MFW System Health Reports, January 1, 2009 - December 31, 2010
- WO 55293661-10, 1-CCRP-INV Replacement, March 15, 2010
- WO 55360550-01, 1-CCRP-INV Failure, April 2, 2010

1R13 Maintenance Risk Assessments and Emergent Work Control

- AR 2010-1848, Unit 1 Station Batteries not Guarded as Required
- AR 2011-1804, Weekly Unit 1 AB and CD Battery Checks
- Control Room Logs, January 13-15, January 30 thru February 2, February 9-11,

- Daily work activity schedule, January 13-15, January 30 thru February 2, February 9-11, February 23-24
- PMP-2291-OLR-001, Online Risk Management, Unit 1 Part 1, Configuration Risk Assessment, January 13-15, January 30 thru February 2, February 9-11, February 23-24
- PMP-2291-WMP-001, Work Management Process Flowchart, Figure 10, Guarded Equipment Listing, Revision 14

1R15 Operability Evaluations

- 12-FPP-4030-066-019, Inspection of Inplace Fireproofing Materials, Revision 2
- 2-IHP-4030-213-012B, Containment Upper Compartment Train 'B' Normal Range Area Radiation Monitor VRS-2200 Channel Operational Test, Revision 2
- AR 00808762, Site Excellence Plan for UFSAR Dose Accident Analyses
- AR 2010-10795, Program Weakness with Control Room Envelope Breach Monitoring
- AR 2010-13635, 2-VRS-2200 Surveillance Failed 2010-13345 Basis is Incorrect
- AR 2010-13906, Inadequate Evaluation for TS/TRM Surveillance Failure
- AR 2010-5740, Control Room and Offsite Dose Consequence Analyses
- AR 2011-2079, Gouge Found in U1 WMDAFP Pyrocrete
- AR 2011-2096, Minor Cracks in Pyrocrete
- Control Room Logs, December 9-17, 2010
- DCC-CEST-180-QCF, "Fireproofing, Storage, Installation, Testing and Quality Control, Revision 2
- PRA-DOSE-016, Offsite Rod Ejection Radiological Analysis, Revision 1
- PRA-DOSE-021, Offsite Locked Rotor Radiological Analysis, Revision 1
- Technical Evaluation 11.39, Fire Protection Engineering Equivalency Evaluation, Revision 4
- Work Order 55307011, 1-HV-ACR-2 Hydrolance ESW Supply and Return Lines, March 22, 2010
- Work Order 55319357, 1-HV-ACR-1 Hydrolance ESW Supply and Return Lines, April 4, 2008

1R18 Plant Modifications

- 2-ESW-66, ESW Flow Diagram, Revision 10
- 2-GERW-R53, ESW Support Diagram, Revision 6
- AR 2011-1801, Unit 1 East Vacuum Breaker Mod
- AR 2011-1820, Minimum Distance Not Met Requiring FCN for ESW Vacuum Breaker Modification
- AR 2011-2226, Unwanted Grout Found in the Unit 1 ESW Pipe Sleeves
- DC-D-02-CS-20, Analysis of CVCS Piping and Pipe Supports from Volume Control Tank to Reactor Coolant Inlet and Outlet Filters, Revision 2
- DC-D-02-ESW-06, Piping and Piping Support Analysis for ESW U2 West Anchor, Revision 2
- EC 50563, Installation of Gate Valve and Vacuum Breaker to the 3" Essential Service Water to Control Room Air Conditioner Condenser Line, Revision 0
- OP-2-5113-E050563, Flow Diagram Essential Service Water, Revision 0

1R19 Post-Maintenance Testing

- 12-IHP-4030-082-004, AB, CD and N-Train Battery Charger Performance/Current Limit Test, January 22, 2011
- 12-IHP-6030-IMP-063, CRID 7.5 kVA Static Inverter Transfer and Auto Retransfer Tests, Revision 7
- 12-IHP-6030-IMP-355, Check of Control Room Instrumentation Distribution (CRID) Power Supply, February 25, 2011

- 1-IHP-4030-134-001, Unit 1 DIS Surveillance and Baseline Testing, January 7, 2011
- 1-IHP-6030-IMP-327, Steam Generator Atmospheric Steam Relief Control Calibration, January 27, 2011
- 1-IHP-6030-IMP-327, Steam Generator Atmospheric Steam Relief Control Calibration, January 27, 2011
- 2-OHP-4030-216-020E, East Component Cooling Water Loop Surveillance Test
- 2-OHP-4030-219-022E, East Essential Service Water System Test
- 2-OHP-4030-219-022E, East ESW Comprehensive Pump Test, February 1, 2011
- 2-OHP-4030-219-022E, East ESW Group A Test, January 14, 2011
- AR 2010-9131, Misposition of 2-FMO-231 While Performing PM on 2-FMO-232
- AR 2011-0220, Unit 1 DIS Tested Outside Acceptable
- AR 2011-0234, Train B Upper DIS Phase 3 Has Low Current Reading
- AR 2011-0302, Oil or Grease Leaked From U2 E CCW Pump Coupling
- AR 2011-0326, Acceptance Criteria Not Met for DIS
- AR 2011-0463, U2 East ESW Pump Discharge Strainer Clogged On Pump Start
- AR 2011-0613, U2 East ESW Pump d/p Was Below the Low Alert During Surveillance
- AR 2011-0619, Loss of ESW Header Pressure On Pump Swap
- AR 2011-0630, Evaluate Change to material for ESW Strainer Wedge
- AR 2011-0632, U1 EESW Pump DP Less Than Low Alert Limit
- AR 2011-0944, 2-BC-A Edge Card Connector Pins Replacement
- AR 2011-1216, Human Performance Error
- AR 2011-1216, Technicians Operated Wrong Component
- AR 2011-1327, U2 East ESW Pp Discharge Head Coating Inspection
- AR 2011-1862, U-1Crid Voltages are lower than normal
- PMP-4010-HUR-001, Human Performance Clock Reset Program, September 15, 2010
- TDB 2.15.2, Revision 86
- TDB 2-15.1, Revision 104
- WO 55365185-12, Unit 2 System Leakage VT-2 on 3" East ESW Line, February 1, 2011
- WO 55367220-01, Phase 1 Failed on Low Current @ 1-88-LDISA
- WO 55368201-03, Steam Generator PM Calibration for 1-MRV-233, January 28, 2011
- WO 55377312-01, 2-BC-A Investigate and Repair Battery Charger, January 23, 2011
- WO-55377312-02, 2-BC-A PMT, January 22, 2011

1R20 Outage Activities

- 1-OHP-4021-011-003, Power Reduction, March 12, 2011
- 1-OHP-4030-001-002, Containment Inspection Tours, March 12, 2011
- 1-OHP-4021-001-002, Reactor Startup, March 17, 2011
- AR 2011-3141, AMSAC Relay will not Change State
- AR 2011-3148, 1-TR101CD Load Tap Changer not Working in Automatic

1R22 Surveillance Testing

- 12-OHP-4030-018-130N, North Spent Fuel Pit Pump Surveillance Test, February 7, 2011
- 1-IHP-4030-102-027, Delta T/Tave Protection Set 3 Channel Operational Test and Calibration, January 5, 2011
- 1-OHP-4030-119-022E, East Essential Service Water System Test, February 10, 2011
- 2-IHP-4030-STP-510, Train A RPS and ESF Reactor Trip Breaker and SSPS Automatic Trip/Actuation Logic Operational Test, January 12, 2011

- 1-IHP-4030-151-017, Steam Generator 3 and 4 Steam Flow / Feedwater Flow Mismatch and Steam Pressure Protection Set 1 Channel Operational Test, March 30, 2011
- AR 2011-1786, 1-WRV-776 Bent Spring and Broken Cover Screw

1EP6 Drill Evaluation

- AR 2011-1487, PARS to Include KI Administration
- AR 2011-1514, BCSD Ring Down Phone Did Not Connect
- AR 2011-1500, CR Plant Announcement of GE Not Performed

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

- 12-EHP-6040-028-111, Containment Pressure Relief System Performance Test for Unit-2, Revision 04, March 25, 2010
- 12-THP-6010-RPC-515, Calibration of the Eberline Model AMS-4, Revision 03
- 12-THP-6010-RPI-805, Radiation Monitoring System Setpoints, May 04, 2010
- 1-OHP-4021-028-004, Containment Pressure Relief (CPR) System, Revision 22, CPR Release No. 11-029, March 12, 2011
- 1-OHP-4021-028-005, Operation of The Containment Purge System, Containment Purge Release Permit, Release No. G-10-05, Revision No. 25
- 2-OHP-4021-028-004, Containment Pressure Relief (CPR) System, Revision 20, CPR Release No. 11-046, March 12, 2011
- 2-OHP-4021-028-005, Operation of The Containment Purge System, Containment Purge Release Permit, Release No. G-10-12, October 05, 2010
- AR- 2010-0541, Missed Regulator Calibration for Five SCBA Units
- AR-0085700, Broken Respiratory Equipment
- AR-2010-1060, Blast Door on SCBA Fill Station was Not Functioning
- AR-2010-4050, Replaced Broken Regulator Housing
- AR-2010-5871, Failed SCBA Pack Discovered During E-Plan Drill, Defective Second Stage Regulator
- AR-2010-5880, Defective Firehawk SCBAs Discovered During E-Plan Drill
- AR-2010-6071, Potential Trend in SCBA Failures (ARs 2010-5871, 2010-5876, 2010-5880)
- AR-2010-8832, Second Stage Regulator Rebuilt for SCBA No. 121
- D12-THP-6010-RPP-009, Emergency Equipment Inventory, Revision 27
- DB-HP-01312, Testing of Portable HEPA Filtered Equipment, Revision 2
- DB-SS4045-001, High Efficiency Particulate Air (HEPA) Filters and Charcoal Absorbers Test, for Containment Purge Exhaust Charcoal Filters, July 19, 2010
- FPP-2281-RES-201, Maintenance and Repair of Respiratory Devices, Revision 07
- FPP-2281-RES-209, Operation of Bauer Fill Systems, Revision 01
- GT-00854303, New Respirator Equipment Needs to be Included in Procedure, July 14, 2009
- GT-2010-11271, Metal Burr Discovered on the MSA Firehawk M7 Air Mask SCBA Cylinder Band, October 22, 2010
- GT-2011-3120, Replace Charcoal in Unit-2 Containment Relief System Fan Unit-2 HV-CPR-1 during Unit-2 Outage in 2012, March 11, 2011
- MSA Firehawk Certified CARE Technicians, Due Date August 30, 2013
- MSA MMR Certified CARE Technicians Certification, Due Date August 2013
- PA-10-01, Performance Assurance Audit for Radiation Protection, March 10, 2009
- PMP-2281-RES-001, Control and Use of Respiratory Protection Devices, Revision 10
- Qualification Details for MSA Full Face Respirator Fit Test, MSA-FF-L, February 16, 2011
- Qualification Details for MSA Self-Contained Breathing Apparatus, GP-C-3005, February 16, 2011

- Qualification Details for MSA Ultra Elites Personally Assigned Respirator Fit Test, February 16, 2011

2RS4 Occupational Dose Assessment (71124.04)

- 12-THP-6010-RPC-535, Calibration of the ORTEC Fastscan Whole Body Counter, May 10, 2010
- 12-THP-6010-RPC-552, Calibration of the DMC-2000S Electronic Dosimeter, Revision 05
- 12-THP-6010-RPP-007, Radiation Protection Calculation and Technical Bases Documents, Internal Dose Calculation from Hard to Detect Radionuclides, Revision 08
- 12-THP-6010-RPP-007, Radiation Protection Calculations and Technical Bases Document: Internal Dose from Hard to Detect Radionuclides, RP-06-03, June 03, 2009
- 12-THP-6010-RPP-206, Internal Dose Assessment and Calculation, Revision 07
- 12-THP-6010-RPP-212, Operation of ORTEC Fastscan Whole Body Counter, Revision 03
- AR-00855243, Worker Received Dose Rate Alarm While Welding
- AR-00862112, Third Period 2009 TLD Monitoring Blind Spike Results
- AR-00863129, Electronic Dosimeters as Found Data Could Not be Obtained
- AR-00863906, Invalid ED Dose Rate Alarm Received by Worker
- AR-20102498, Worker Received Unanticipated Electronic Dosimeter(ED) Dose Rate Alarm
- Declaration of Pregnancy Memos for the period 2010 to present
- GT-2010-11855, Quick Hit Self-Assessment, Radiation Protection and Fire Protection, February 07, 2011
- PMP-6010-RPP-200, Internal Radiation Dose Monitoring, Revision 06

4OA1 Performance Indicator Verification

- 12-OHP-5030-057-001, Screen House Vulnerability Determination, Revision 18
- AR 2010-13566, Unit 1 East MFP Manually Tripped Due to Low Condenser Vacuum
- AR 2010-4046, U1 E Main Feed Pump Tripped due to Thrust Brg Failure
- Licensee Event Reports, January 1, 2010 through December 31, 2010
- NEI 99-02, Regulatory Assessment Performance Indicator Guideline, Revision 6
- PI Summary of Cook Plant, Reactor Coolant System Activity, Between January 2010 and December 2010
- PMP-7110-PIP-001, Reactor Oversight Program Performance Indicators and Monthly Operating Report Data, Revision 13, Quarters 1, 2, 3, and 4, 2010, Units 1 and 2
- PMP-7110-PIP-001, Reactor Oversight Program Performance Indicator and Monthly Operating Report Data from First Quarter of 2010 Through Fourth Quarter 2010, In Microcuries per Gram Dose Equivalent Iodine-131

4OA2 Identification and Resolution of Problems

- AR 2010-10399, Flow Signal to 2-FMO-212 did not Cause Valve Repositioning
- Model WO 55260779-01, Perform Procedure 1-IHP-6030-IMP-128
- Model WO 55264644-01, Perform Procedure 2-IHP-6030-IMP-228
- WO 55248969, 2-62-1-MDFP and 2-62-4-MDFP Replace and Calibrate Relay, October 14, 2010
- WO 55310920, Perform Steam Dump Control Calibration Procedure, April 29, 2009
- WO 55371099, Flow Signal to 2-FMO-212 did not Cause Valve Repositioning, October 14, 2010

4OA3 Followup of Events and Notices of Enforcement Discretion

- 1-OHP-4021-001-003, Power Reductions, February 18, 2011
- 1-OHP-SP-323, Reseating the Unit 1 Main Generator Seals, March 9, 2011
- 2-OHP-4023-E-0, Reactor Trip or Safety Injection, Revision 35
- 2-OHP-4023-ES-0.1, Reactor Trip Response, Revision 25
- 2-EHP-4030-295-249, Containment Divider Barrier Seal Surveillance Test, Revision 7
- AR 2010-11280, Containment Divider Barrier Seal Missed Reportability
- AR 2010-12569, Unit 2 Lower Containment Divider Barrier Does not Match Drawing
- AR 2010-10939, Nut Missing on the Divider Barrier Seal Strip
- AR 2010-12968, NRC Identified Divider Barrier Seal Issue
- AR 2010-13566, Unit 1 East MFP Manual Trip due to Low Condenser Vacuum
- AR 2011-0463, U2 East ESW Pump Discharge Strainer Clogged on Pump Start
- AR 2011-0619, Loss of ESW Header on Pump Swap
- AR 2011-1378, U1 Loop 3 Tave Spike With Rod Motion
- AR 2011-2114, Steam Leak 1-B-120
- AR 2010-11699, Replace 2-EPT-110 due to Excessive Drifting
- AR 2010-10371, Perform Setup and Calibration of 2-URV-110
- AR 2010-10375, Perform Setup and Calibration of 2-URV-120
- AR 2010-10376, Perform Setup and Calibration of 2-URV-130
- Work Order 55372255-01, Replace, Calibrate and PMT 2-EPT-110, November 8, 2010
- Plant Operations Review Committee (PORC) 4479, Manual AFW Actuation in Response to Manual MFP Trip, February 7, 2011
- PORC 4475, Changing of Modes from Mode 5 to Mode 4 With Divider Barrier Inoperable, January 24, 2011
- U2 East ESW Pump Discharge Strainer Silt Inundation ACE, Revision 0
- Unit 1 Control Room Logs for February 1, 2011
- Unit 1 Control Room Logs for February 17, 2011
- Unit 2 Control Room Logs for November 30, 2011
- Unit 2 Control Room Logs for October 6, 2010

LIST OF ACRONYMS USED

ADAMS	Agencywide Document Access Management System
ALARA	As-Low-As-Is-Reasonably-Achievable
CAP	Corrective Action Program
CFR	Code of Federal Regulations
ESW	Essential Service Water
IP	Inspection Procedure
KV	Kilovolt
LER	Licensee Event Report
NCV	Non-Cited Violation
NEI	Nuclear Energy Institute
NRC	U.S. Nuclear Regulatory Commission
PARS	Publicly Available Records System
PI	Performance Indicator
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report
WO	Work Order



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

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

April 21, 2011

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

SUBJECT: D. C. COOK NUCLEAR POWER PLANT, UNITS 1 AND 2, INTEGRATED
INSPECTION REPORT 05000315/2011002; 05000316/2011002

Dear Mr. Weber:

On March 31, 2011, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your D. C. Cook Nuclear Power Plant, Units 1 and 2. The enclosed report documents the results of this inspection, which were discussed on April 14, 2011, with Mr. J. Gebbie, and other members of your staff.

The inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

Based on the results of this inspection, no findings of significance were identified.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records System (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Website at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

/RA/

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

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

Enclosure: Inspection Report 05000315/2011002; 05000316/2011002
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Letter to L. Weber from J. Cameron dated April 21, 2011.

SUBJECT: D. C. COOK NUCLEAR POWER PLANT, UNITS 1 AND 2, INTEGRATED
INSPECTION REPORT 05000315/2011002; 05000316/2011002

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