



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

REGION III
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LISLE, IL 60532-4352

January 25, 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 NO. 05000315/2010005; 05000316/2010005

Dear Mr. Weber:

On December 31, 2010, 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 January 10, 2011, with you, Mr. J. Gebbie, Site Vice President, and other members of your staff.

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

Based on the results of this inspection, one NRC-identified finding of very low safety significance was identified. The finding involved a violation of NRC requirements. However, because of the very low safety significance, and because the issue was entered into your corrective action program, the NRC is treating the issue as a non-cited violation (NCV) in accordance with Section 2.3.2 of the NRC Enforcement Policy. Additionally, three licensee-identified violations are listed in Section 4OA7 of this report.

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

L. Weber

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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 05000315/2010005; 05000316/2010005
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: 05000315/2010005; 05000316/2010005

Licensee: Indiana Michigan Power Company

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

Location: Bridgman, MI

Dates: October 1 through December 31, 2010

Inspectors: J. Lennartz, Senior Resident Inspector
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Branch 6
Division of Reactor Projects

Enclosure

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SUMMARY OF FINDINGS

IR 05000315/2010005, 05000316/2010005; 10/01/2010 – 12/31/2010; D. C. Cook Nuclear Power Plant, Units 1 & 2; Outage Activities

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

A. NRC-Identified and Self-Revealed Findings

Cornerstone: Barrier Integrity

Green. The inspectors identified a finding of very low safety significance with an associated NCV of Technical Specification (TS) 5.4.1 for the failure to adequately preplan and perform maintenance on the containment building divider barrier seal in accordance with Regulatory Guide 1.33. Specifically, the work package to perform maintenance on the containment divider barrier seal did not contain sufficient guidance. Consequently, the seal was reinstalled improperly and was unknowingly inoperable on November 30, 2010, when the plant was placed in an operating mode (Mode 4) in which the seal was required to be operable per TS 3.6.13. This issue was entered into the licensee's corrective action program as AR 2010-12968.

This finding affected the Barrier Integrity cornerstone and was more than minor because it was sufficiently similar to more than minor example 5.a in IMC 0612, Appendix E, and the issue could adversely affect the cornerstone objective to provide reasonable assurance that the containment protects the public from radionuclide releases caused by accidents or events. This finding was of very low safety significance because the safety function guidelines for core heat removal, inventory control, power availability, containment integrity, and reactivity control were met. This finding is associated with a cross-cutting aspect in the work practices component of the human performance cross-cutting area. Specifically, supervisory and management oversight of work activities were inadequate to ensure the containment divider barrier seal modification was properly installed (H.4 (C)). (Section 1R20)

Licensee-Identified Violations

Violations of very low safety significance that were identified by the licensee have been reviewed by the inspectors. Corrective actions planned or taken by the licensee have been entered into the licensee's corrective action program. These violations 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 November 12, 2010, Unit 1 power was reduced to 22 percent to allow personnel to enter containment. The containment entry was a corrective action and extent of condition review after licensee personnel identified unexpected fibrous insulation material in Unit 2 containment. After licensee personnel evaluated and concluded that an adverse condition did not exist, the unit was returned to full power.
- On December 13, 2010, Unit 1 power was reduced to 49 percent because the east main feedwater pump condenser vacuum was lowering and operators subsequently manually tripped the pump. The lowering vacuum was caused by a large influx of debris from the lake because of high winds and rough lake conditions. After both main feedwater pump condensers were cleaned, the unit was returned to full power on December 15, 2010.

Unit 2 operated at or near full power until October 6 when the unit was shut down to Mode 3, Hot Standby, to commence the Cycle 19 refueling outage. After completing refueling outage activities, the Unit 2 reactor was started up and the main generator was synchronized to grid on December 5, 2010. Unit 2 reached full power on December 9, 2010, and was at or near full power through the remainder of the inspection period.

REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01)

.1 Winter Seasonal Readiness Preparations

a. Inspection Scope

The inspectors conducted a review of the licensee's preparations for winter conditions to verify that the plant's design features and implementation of procedures were sufficient to protect mitigating systems from the effects of adverse weather. Documentation for selected risk-significant systems was reviewed to ensure that these systems would remain functional when challenged by inclement weather. During the inspection, the inspectors focused on plant specific design features and the licensee's procedures used to mitigate or respond to adverse weather conditions. Additionally, the inspectors reviewed the Updated Final Safety Analysis Report (UFSAR) and performance requirements for systems selected for inspection, and verified that operator actions were appropriate as specified by plant specific procedures. Cold weather protection, such as heat tracing and area heaters, was verified to be in operation where applicable. The inspectors also reviewed corrective action program (CAP) items to verify that the licensee was identifying adverse weather issues at an appropriate threshold and entering them into their CAP in accordance with station corrective action procedures. Specific documents reviewed during this inspection are listed in the Attachment. The

inspectors' reviews focused specifically on the following plant systems due to their risk significance or susceptibility to cold weather issues:

- Unit 1 and 2 refueling water storage and fire protection water storage tanks;
- fire pump house; and
- Unit 2 201 AB and CD 4KV transformer deluge houses.

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

b. Findings

No findings were identified.

.2 Readiness For Impending Adverse Weather Condition – High Wind

a. Inspection Scope

Because high winds were forecast for October 26 and 27, 2010, the inspectors reviewed the licensee's overall preparations for the expected weather conditions. On the evening of October 25, 2010, the inspectors walked down the 345 and 765 kilovolt switchyards to look for any loose debris that could become missiles during high winds and adversely affect offsite power stability and reliability, which could result in a plant transient. Additionally, the inspectors reviewed the licensee's procedures used to respond to the adverse weather conditions. The inspectors also verified that the licensee was identifying adverse weather issues at an appropriate threshold and entering them into its CAP in accordance with station procedures.

This inspection constituted one sample to evaluate readiness for impending adverse weather conditions.

b. Findings

No findings were identified.

1R04 Equipment Alignment (71111.04)

.1 Quarterly Partial System Walkdowns

a. Inspection Scope

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

- Unit 2 control room emergency ventilation (CREV) system;
- Unit 2 south safety injection (SI) system; and
- Unit 1/2 spent fuel pool cooling 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, 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 CAP with the appropriate significance characterization. Documents reviewed are listed in the Attachment to this report.

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

b. Findings

No findings were identified.

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 2 fire zone 6S, southwest section of auxiliary building 587' elevation;
- Unit 2 fire zones 64A and 64B, SI pump rooms;
- Unit 2 fire zone 130, turbine deck 633' elevation; and
- Unit 1 fire zone 106, auxiliary feedwater (AFW) system battery room.

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

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

b. Findings

No findings were identified.

.2 Annual Fire Protection Drill Observation (71111.05A)

a. Inspection Scope

On Friday, December 10, 2010, the inspectors observed fire brigade activation in response to a simulated fire affecting the Unit 2 main feed pump and turbine hydraulic fluid control system that required a simulated unit shutdown in parallel. During this observation, the inspectors evaluated the readiness of the plant fire brigade to fight fires. The inspectors verified that the licensee staff identified deficiencies; openly discussed them in a self-critical manner at the drill debrief, and took appropriate corrective actions. Specific attributes evaluated were:

- proper wearing of turnout gear and self-contained breathing apparatus;
- proper use and layout of fire hoses;
- employment of appropriate fire fighting techniques;
- sufficient firefighting equipment brought to the scene;
- effectiveness of fire brigade leader communications, command, and control;
- search for victims and propagation of the fire into other plant areas;
- smoke removal operations;
- utilization of pre-planned strategies;
- adherence to the pre-planned drill scenario; and
- drill objectives.

Documents reviewed are listed in the Attachment to this report.

These activities constituted one annual fire protection inspection sample as defined in IP 71111.05-05.

b. Findings

No findings were identified.

1R07 Annual Heat Sink Performance (71111.07)

a. Inspection Scope

The inspectors reviewed the licensee's testing of Unit 2 east and west component cooling water heat exchangers to verify that potential deficiencies did not mask the licensee's ability to detect degraded performance, to identify any common cause issues that had the potential to increase risk, and to ensure that the licensee was adequately addressing problems that could result in initiating events that would cause an increase in risk. The inspectors reviewed the licensee's observations as compared against acceptance criteria. Documents reviewed for this inspection are listed in the Attachment to this document.

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

b. Findings

No findings were identified.

1R08 Inservice Inspection Activities (71111.08P)

From October 6-19, 2010, the inspectors conducted a review of the implementation of the licensee's Inservice Inspection (ISI) Program for monitoring degradation of the Unit 2 reactor coolant system, steam generator tubes, emergency feedwater systems, risk-significant piping and components and containment systems.

The inspections described in Sections .1 through .5 below count as one inspection sample as defined by IP 71111.08-05.

.1 Piping Systems Inservice Inspection

a. Inspection Scope

The inspectors observed or reviewed the following non-destructive examinations (NDE) required by the American Society of Mechanical Engineers (ASME), Section XI, Code and/or 10 CFR 50.55a, to evaluate compliance with the ASME Code Section XI applicable ASME Code Case and Section V requirements and if any indications were detected, to determine if these were dispositioned in accordance with the ASME Code or an NRC approved alternative requirement.

- liquid penetrant examination of pipe to lug weld 2-RH-33-05-PL 1&2;
- visual examination (VT-3) of pipe support 2-GCCW-R-649 for component cooling water (CCW) system piping;
- visual examination (VT-3) of pipe support 2-GCCW-R-589 for CCW system piping; and
- visual examination (VT-3) of pipe support 2-GRH-R-508 for residual heat removal system piping.

No volumetric examinations were conducted by the licensee during this outage.

During non-destructive surface and volumetric examinations performed since the beginning of the previous refueling outage, the licensee had not identified any recordable indications. Therefore, no NRC review was completed for this inspection procedure attribute.

The inspectors reviewed the following pressure boundary welds completed for risk significant Unit 2 systems to determine if the licensee applied the pre-service non-destructive examinations and acceptance criteria required by the construction Code, ASME Section XI Code and NRC approved Code Cases. Additionally, the inspectors reviewed the welding procedure specification and supporting weld procedure qualification records to determine if the weld procedures were qualified in accordance with the requirements of the ASME Code Section IX.

- Weld repair cut mark on 2-1/2" piping located downstream of containment penetration 2-CPN-36.
- Replacement socket weld for valve 2-MS-135-1: steam generator no. 1 stop valve (2-MRV-210) inlet continuous drain valve.

b. Findings

No findings were identified.

.2 Reactor Pressure Vessel Upper Head Penetration Inspection Activities

a. Inspection Scope

For the Unit 2 vessel head, no examinations (visual or non-visual) were required this outage pursuant to 10 CFR 50.55a (g)(6)(ii)(D) requirements. Therefore, no examination was conducted by the licensee and no NRC review was completed for this inspection procedure attribute.

b. Findings

No findings were identified.

.3 Boric Acid Corrosion Control

a. Inspection Scope

The inspectors performed visual examination of the Unit 2 reactor coolant system (RCS) loop piping, including the reactor coolant pumps, and emergency core cooling systems within containment to identify boric acid leakage.

The inspectors reviewed the following licensee evaluations of RCS components with boric acid deposits to determine if degraded components were documented in the corrective action system. The inspectors also evaluated corrective actions for any degraded RCS components to determine if they met the licensee's boric acid program procedures and the ASME Code, Section XI:

- Unit 2 containment system ring header spray nozzles;
- Unit 2 reactor coolant letdown 'B' containment isolation valve; and
- Unit 2 reactor coolant pump seal upper housing.

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

- CR 00846883, boric acid leak 2-IRV-300 valve yoke;
- CR 00848358, boric acid leak 2-IMO-54 boron injection to RC loop 4;
- CR 2010-10350, boric acid leak 2-CS-447-1 RCP startup seal system bypass; and
- CR 2010-10352, boric acid leak Unit 2 lower containment vent unit number 1.

b. Findings

No findings were identified.

.4 Steam Generator Tube Inspection Activities

a. Inspection Scope

For the Unit 2 steam generators (SGs), no examinations were required during the current refueling outage pursuant to TS requirement 5.5.8 "Steam Generator Program." Therefore, the licensee did not conduct SG tube examinations and only a portion of the NRC inspection procedure could be completed for this review area. Specifically, from October 6 - 19, 2010, the inspectors performed an onsite review of documentation related to the SG ISI program to determine if:

- the size of SG tube flaws/degradation predicted by the licensee's operational assessment would remain within structural integrity limits until the next scheduled tube inspection (e.g., until the end of the next operating cycle); and
- primary-to-secondary leakage (e.g., SG tube leakage) was below 3 gallons per day or the detection threshold during the previous operating cycle.

b. Findings

No findings were identified.

.5 Identification and Resolution of Problems

a. Inspection Scope

The inspectors performed a review of ISI/SG related problems entered into the licensee's corrective action program and conducted interviews with licensee staff to determine if:

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

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

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification Program (71111.11)

a. Inspection Scope

All scheduled licensed operator requalification training was cancelled because the Unit 2 refueling outage was unexpectedly extended. Consequently, there were no opportunities to complete a licensed operator requalification program inspection sample this quarter.

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

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

- Unit 2 reactor coolant system.

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

- implementing appropriate work practices;
- identifying and addressing common cause failures;
- scoping of systems in accordance with 10 CFR 50.65(b) of the maintenance rule;
- characterizing system reliability issues for performance;
- charging unavailability for performance;
- trending key parameters for condition monitoring;
- ensuring 10 CFR 50.65(a)(1) or (a)(2) classification or re-classification; and
- verifying appropriate 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 one 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:

- planned maintenance on 345 kilovolt transformer 4 on October 16-18, 2010;
- planned maintenance on Unit 2 east and west essential service water pump bays on October 22-23, 2010; and
- planned maintenance on Unit 1 AB battery chargers, AB emergency diesel generator and the plant air compressor during the week of November 14, 2010.

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 three 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 2 containment divider barrier missing hardware;
- Unit 2 exposed insulation in containment;
- non-conservative TS surveillance requirements;
- Unit 2 steam generator upper support shim gap tolerances; and
- Unit 2 core baffle plate bolting adequacy.

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.

These operability inspections constituted five samples as defined in IP 71111.15-05.

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 AB emergency diesel generator (EDG) 18-month maintenance overhaul;
- Unit 2 CD EDG 18-month maintenance overhaul;
- Unit 2 west centrifugal charging pump seal replacement;
- Unit 2, 2-SI-158, SI loop 2 hot leg check valve repairs; and
- Unit 2 turbine driven AFW pump governor preventive maintenance.

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 five post-maintenance testing samples as defined in IP 71111.19-05.

b. Findings

No findings were identified.

1R20 Outage Activities (71111.20)

.1 Refueling Outage Activities

a. Inspection Scope

The inspectors reviewed the Outage Safety Plan (OSP) and contingency plans for the Unit 2 refueling outage (RFO), conducted October 6 to December 5, 2010, to confirm that the licensee had appropriately considered risk, industry experience, and previous site-specific problems in developing and implementing a plan that assured maintenance of defense-in-depth. During the RFO, the inspectors observed portions of the shutdown and cooldown processes and monitored licensee controls over the outage activities listed below. Documents reviewed during the inspection are listed in the Attachment to this report.

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

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

b. Findings

Introduction

The inspectors identified a finding of very low safety significance (Green) with an associated Non-Cited Violation of Technical Specification (TS) 5.4.1 for the failure to adequately pre-plan and perform maintenance on the Unit 2 containment building divider barrier seal during the Unit 2 refueling outage. Consequently, the seal was not installed properly and was unknowingly inoperable when the plant entered an operational mode in which TSs required the seal to be operable.

Description

On November 30, 2010, approximately four hours after Unit 2 had ascended from Mode 5 (Cold Shutdown) to Mode 4 (Hot Shutdown), the inspectors toured upper containment to verify that containment integrity requirements were met and that work performed in containment had been adequately completed prior to startup. During their tour, the inspectors identified a containment building divider barrier seal section that was not properly installed. Specifically, a fastener was missing from the seal backing plate and an adjacent fastener was not engaged properly, which rendered the divider barrier seal inoperable per TS 3.6.13, "Divider Barrier Integrity."

The divider barrier seal forms a separation between upper and lower containment to ensure that steam from a loss-of-coolant accident in lower containment is directed through the ice condenser for cooling and to maintain containment pressure within design limits. The inoperable divider barrier seal section was located adjacent to a modification the licensee had performed on the seal during the outage. The adjacent section was removed to ensure the seal modification was properly installed. However, the original work package did not contain sufficient guidance to remove or reinstall the adjacent section. Consequently, the maintenance workers did not properly reinstall the adjacent containment divider barrier seal section after completing the seal modification.

The inspectors reviewed the work package, interviewed engineering and management oversight and determined that a combination of insufficient work package scope, pre-planning, scheduling issues, and reassigning work from one craft to another resulted in the adjacent divider barrier seal section being installed improperly. Consequently, the seal was unknowingly inoperable when the plant entered an operational mode (Mode 4) in which the seal was required to be operable per TS 3.6.13.

Analysis:

The inspectors determined that the failure to properly pre-plan and perform maintenance on safety-related equipment was a performance deficiency that warranted an evaluation in accordance with the Significance Determination Process (SDP). In accordance with Inspection Manual Chapter (IMC) 0612, Appendix E, "Examples of Minor Issues," this issue was more than minor because it was sufficiently similar to more than minor Example 5.a in that the containment building divider barrier seal was returned to service without being properly installed. Consequently, the divider barrier seal was inoperable when the plant entered Mode 4 and TS 3.6.13 required the seal to be operable. In addition, the issue was associated with the Barrier Integrity cornerstone attributes of procedure quality and human performance and could adversely affect the cornerstone objective to provide reasonable assurance that the containment protects the public from radionuclide releases caused by accidents or events.

Because Unit 2 was shutdown, the inspectors utilized Checklist 1 contained in Attachment 1 of IMC 0609, Appendix G, "Shutdown Operations Significance Determination Process", and determined that the finding did not require a Phase 2 or Phase 3 analysis because the safety function guidelines for core heat removal, inventory control, power availability, containment integrity, and reactivity control were met.

The inspectors concluded that this finding was associated with a cross-cutting aspect in the work practices component of the human performance cross-cutting area. Specifically, supervisory and management oversight of work activities were inadequate

to ensure the containment divider barrier seal modification was properly installed (H.4 (c)).

Enforcement

Technical Specification 5.4.1.a requires that written procedures be established, implemented, and maintained for the activities specified in Regulatory Guide 1.33, Revision 2, Appendix A. Regulatory Guide 1.33, states, in part, that maintenance that can affect the performance of safety-related equipment should be properly pre-planned and performed with written procedures.

Contrary to the above, during the 2010 Unit 2 Cycle 19 refueling outage, licensee personnel failed to adequately pre-plan and perform maintenance on the containment building divider barrier seal. Specifically, the work package to perform maintenance on the containment divider barrier seal did not contain sufficient guidance. Consequently, that seal was reinstalled improperly and was unknowingly inoperable on November 30, 2010, when the plant was placed in an operating mode (Mode 4) in which the seal was required to be operable per TS 3.6.13. As a corrective action the licensee repaired the divider barrier seal the same day, which restored the seal to operable and restored compliance with TS 3.6.13. Because this violation was of very low safety significance, was not repetitive or willful, and was entered into the licensee's corrective action program as AR 201012968, this violation is being treated as an NCV consistent with Section 2.3.2 of the NRC Enforcement Policy (NCV 05000316/2010005-01, Failure to Properly Preplan and Perform Maintenance on Safety-related Equipment).

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 CREV surveillance (routine);
- Unit 2 ice condenser total ice mass verification surveillance test (ice condenser/containment isolation valve); and
- Unit 2 local leak rate surveillance test (containment isolation valve).

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

- did preconditioning occur;
- were the effects of the testing adequately addressed by control room personnel or engineers prior to the commencement of the testing;
- were acceptance criteria clearly stated, demonstrated operational readiness, and consistent with the system design basis;
- plant equipment calibration was correct, accurate, and properly documented;
- as-left setpoints were within required ranges; and the calibration frequency were 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, ASMEs code, and reference values were consistent with the system design basis;
- where applicable, test results not meeting acceptance criteria were addressed with an adequate operability evaluation or the system or component was declared inoperable;
- where applicable 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 one routine surveillance testing sample and two containment isolation valve samples as defined in IP 71111.22, Sections -02 and -05.

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness

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

a. Inspection Scope

Since the last NRC inspection of this program area, emergency action level and Emergency Plan changes were implemented based on your determination, in accordance with 10 CFR 50.54(q), that the changes resulted in no decrease in effectiveness of the Plan, and that the revised Plan as changed continues to meet the requirements of 10 CFR 50.47(b) and Appendix E to 10 CFR Part 50. Revisions to the emergency action levels and Emergency Plan were reviewed by the inspectors in the D C. Cook Nuclear Power Plant Emergency Plan, Revision 28. The inspectors conducted a sampling review of the Emergency Plan changes and a review of the emergency action level changes to evaluate for potential decreases in effectiveness of the Plan. However, this review does not constitute formal NRC approval of the changes. Therefore, these changes remain subject to future NRC inspection in their entirety.

This emergency action level and emergency plan changes inspection constituted one sample as defined in IP 71114.04-05.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

2RS1 Radiological Hazard Assessment and Exposure Controls (71124.01)

The inspection activities supplement those documented in Inspection Report 05000315/2010-002; 05000316/2010-002, and constitute one complete sample as defined in IP 71124.01-05.

.1 Instructions to Workers (02.03)

a. Inspection Scope

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

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

b. Findings

No findings were identified.

.2 Contamination and Radioactive Material Control (02.04)

a. Inspection Scope

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

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

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

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

b. Findings

No findings were identified.

.3 Radiological Hazards Control and Work Coverage (02.05)

a. Inspection Scope

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

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

b. Findings

No findings were identified.

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

a. Inspection Scope

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

b. Findings

No findings were identified.

.5 Radiation Worker Performance (02.07)

a. Inspection Scope

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

b. Findings

No findings were identified.

.6 Radiation Protection Technician Proficiency (02.08)

a. Inspection Scope

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

b. Findings

No findings were identified.

.7 Problem Identification and Resolution (02.09)

a. Inspection Scope

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

b. Findings

No findings were identified.

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

The inspection activities supplement those documented in Inspection Report 05000315/2010-002; 05000316/2010-002, and constitute a partial sample as defined in IP 71124.02-05.

.1 Radiological Work Planning (02.02)

a. Inspection Scope

The inspectors compared the results achieved (dose rate reductions, person-rem used) with the intended dose established in the licensee's As-Low-As-Is-Reasonably-Achievable (ALARA) planning for these work activities. The inspectors compared the person-hour estimates provided by maintenance planning and other groups to the radiation protection group with the actual work activity time requirements, and evaluated the accuracy of these time estimates. The inspectors assessed the reasons (e.g., failure to adequately plan the activity, failure to provide sufficient work controls) for any inconsistencies between intended and actual work activity doses.

The inspectors determined whether post-job reviews were conducted and if identified problems were entered into the licensee's corrective action program.

b. Findings

No findings were identified.

.2 Source Term Reduction and Control (02.04)

a. Inspection Scope

The inspectors used licensee records to determine the historical trends and current status of significant tracked plant source terms known to contribute to elevated facility aggregate exposure. The inspectors assessed whether the licensee had made allowances or developed contingency plans for expected changes in the source term as the result of changes in plant fuel performance issues or changes in plant primary chemistry.

b. Findings

No findings were identified.

3. OTHER ACTIVITIES

4OA2 Identification and Resolution of Problems (71152)

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

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

a. Inspection Scope

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

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

b. Findings

No findings were identified.

.3 Selected Issue Followup Inspection: Failure of 22 Reactor Coolant Pump Seal

a. Inspection Scope

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

- AR 00854754, Failure of 22 Reactor Coolant Pump Seal Requires Forced Outage.

The inspectors discussed the evaluations and associated corrective actions with licensee personnel and verified the following attributes during their review of the root 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 root 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.

.4 Semiannual Trend Review

a. Inspection Scope

The inspectors performed a review of the licensee's CAP and associated documents to identify trends that could indicate the existence of a more significant safety issue. The inspectors' review was focused on repetitive equipment issues, but also considered the results of daily inspector CAP item screening discussed in Section 4OA2.2 above, licensee trending efforts, and licensee human performance results. The inspectors' review nominally considered the 6 month period of April 2010 through September 2010, although some examples expanded beyond those dates where the scope of the trend warranted.

The review also included issues documented outside the normal CAP in monthly and quarterly trend reports and system health reports. The inspectors compared and contrasted their results with the results contained in the licensee's CAP trending reports. Corrective actions associated with a sample of the issues identified in the licensee's trending reports were reviewed for adequacy. Documents reviewed are listed in the Attachment to this report.

This review constitutes one semiannual trend inspection sample as defined in IP 71152-05.

b. Findings

No findings were identified.

4OA3 Followup of Events and Notices of Enforcement Discretion (71153)

.1 (Closed) Licensee Event Report 05000315/2009-001-00: Manual Reactor Trip Due to Reactor Coolant Pump Seal Degradation

The inspectors reviewed the events and circumstances surrounding the July 26, 2009, Unit 2 manual reactor trip. The inspectors reviewed control room logs and condition report (CR) 00854754, Failure of 22 RCP Seal Requires Forced Outage, to verify that the event was accurately reported.

On July 26, 2009, the Unit 2 operators initiated a manual reactor trip from 100 percent power in accordance with plant procedures in response to a degraded reactor coolant pump seal. The licensee's root cause evaluation was in progress and had not been completed prior to submitting this Licensee Event Report (LER). A supplementary LER was submitted and reviewed by the inspectors as documented in Section 4OA3.2 of this inspection report. The inspectors verified that the reactor trip was uncomplicated, all major components functioned as designed, and that operator actions were appropriate.

This LER is closed.

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

.2 (Closed) Licensee Event Report 05000315/2009-001-01 : Manual Reactor Trip Due to Reactor Coolant Pump Seal Degradation Caused By Accumulation of Corrosion Products

The inspectors reviewed the events and circumstances surrounding the July 26, 2009, Unit 2 manual reactor trip; the root cause analysis titled, "Failure of 22 Reactor Coolant Pump Seal Requires Forced Outage, CR 00854754," dated October 30, 2009; and the licensee's corrective action review board actions associated with the root cause analysis.

The licensee's root cause analysis determined that the RCP seal package failed because of foreign material buildup on the double delta seal ring. The licensee further determined that the foreign material consisted of corrosion products originating within the seal injection system and had been present in the system before the seal package was replaced during the previous 2009 spring outage. Based on reviewing the data presented in the root cause analyses, interviews with engineering staff and review of operating experience; the inspectors concluded that the licensee's conclusion was reasonable.

This LER is closed.

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

.3 Operator Performance During Loss of Containment Chilled Water System

a. Inspection Scope

On November 5, 2010, power was lost to the Unit 1 non-safety-related containment chilled water system. As a result, lower containment temperature increased above the TS limit and TS 3.6.5, Containment Air Temperature, action A.1 was entered, which required temperature to be restored within 8 hours. Control room operators responded in accordance with Abnormal Operating Procedure 1-OHP-4022-028-001, Loss of Containment Chilled Water, to restore containment cooling. Containment temperature lowered to within TS limits within 16 minutes, which restored compliance with TS 3.6.5 and required action A.1 was exited. The inspectors observed control room operator response to verify that operator actions were in accordance with plant procedures and checked instrumentation to verify that containment temperatures were restored to the TS specified limits.

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

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

b. Findings

No findings of significance were identified.

.4 Loss of Unit 1 East Main Feed Pump Due to Debris in the Main Feed Pump Condenser

a. Inspection Scope

On December 13, 2010, Unit 1 power was reduced to 49 percent because the east main feedwater pump condenser vacuum was lowering and operators subsequently manually tripped the pump. The lowering vacuum was caused by a large influx of debris from the lake because of high winds and rough lake conditions. After both main feed water pump condensers were cleaned, the unit was returned to full power on December 15, 2010. 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 followup review constituted one sample as defined in IP 71153-05

b. Findings

No findings of significance were identified.

4OA5 Other Activities

.1 Reactor Coolant System Dissimilar Metal Butt Welds (Temporary Instruction 2515/172)

a. Inspection Scope

The inspectors conducted a review of licensee activities regarding dissimilar metal butt weld mitigation and inspection implemented in accordance with the industry self-imposed mandatory requirements of Materials Reliability Program -139, "Primary System Piping Butt Weld Inspection and Evaluation Guidelines." Temporary Instruction (TI) 2515/172, "Reactor Coolant System Dissimilar Metal Butt Welds" was issued February 21, 2008, to support the evaluation of the licensees' implementation of MRP-139. Subsequent to that, TI 2515/172, Revision 1 was issued on May 27, 2010.

Inspections of Unit 2 activities related to TI 2515/172, Revision 0 are complete and were documented in NRC Inspection Reports (IRs) 50-316/2009003, 50-316/2008003, and 50-316/2008004.

From October 6 – 19, 2010, the inspectors conducted a review of the implementation of the licensee's MRP-139 Program and associated ISI Program per the guidance in TI 2515/172, Revision 1. Specifically, the inspectors reviewed sections of the TI 2515/172 described below:

- Section 03.01 of TI/172, Revision 1 – Implementation of the Baseline MRP-139 Inspections. The inspectors reviewed the Unit 2 baseline inspection scope, categorization, and inspection schedule per MRP-139. No deviations from the plans or schedules previously reviewed in IRs 50-316/2009003, 50-316/2008003, and 50-316/2008004 were identified. This section of TI/172 Revision 1 is complete; and
- Section 03.06 of TI/172, Revision 1 – Inservice Inspection Program. The inspectors reviewed the licensee's Unit 2 Inservice Inspection Program to identify any

deviations from the MRP-139 examination requirements. No deviations were identified. This section of TI/172, Revision 1 is complete.

The following sections of TI 2515/172, Revision 1 were not applicable to this outage inspection because the licensee did not perform any MRP-139 activities associated with these sections:

- Section 03.02 of TI/172, Revision 1 – Evaluation of Volumetric Examinations. Not applicable. Licensee did not perform any volumetric examinations on Unit 2 per MRP-139 during this outage;
- Section 03.03 of TI/172, Revision 1 – Evaluation of Weld Overlays. Not applicable. Licensee did not perform any weld overlay activities on Unit 2 during this outage;
- Section 03.04 of TI/172, Revision 1 – MSIP. Not applicable. Licensee did not perform any MSIP on Unit 2 during this outage; and
- Section 03.05 of TI/172, Revision 1 – Evaluation of Weld Onlays and Inlays. Not applicable. Licensee did not perform any weld onlay or inlay activities on Unit 2 during this outage.

b. Observations

D. C Cook Unit 2 is a Westinghouse 4 loop design with dissimilar metal butt welds (DMBW) containing 82/182 material on six pressurizer nozzle welds. The Unit 2 reactor pressure vessel nozzle welds are stainless steel material; and therefore, not within the scope of MRP-139. By the end of 2006, the licensee had completed mitigation for each of the Unit 2 pressurizer nozzle DMBW by installation of a full structural weld overlay that included performance demonstration initiative qualified ultrasonic testing preservice examination for the required weld volume.

The inspectors concluded that the licensee activities and plans complied with the MRP-139 inspection or mitigation requirements and applicable Code requirements and relief requests. No deviations from MRP-139 requirements were identified Unit 2.

In accordance with the requirements of the relevant sections of TI 2515/172, Revision 1, for this outage, the inspectors evaluated and answered the following questions:

a. For the MRP – 139 baseline inspections:

1. Have the baseline inspections been performed or are they scheduled to be performed in accordance with MRP-139 guidance?

Yes. They have been performed during the previous Unit 2, 2009 outage.

2. Is the licensee planning to take any deviations from the MRP-139 baseline inspection scope, categorization, schedule, or method requirements of MRP-139? If so, what deviations are planned, and what is the general basis for the deviation?

No. No deviations are planned with regards to MRP-139 baseline inspection scope, categorization, schedule, or method requirements.

b. For the inservice inspection program:

1. Has the licensee prepared an MRP-139 ISI program? If not, briefly summarize the licensee's basis for not having a documented program and when the licensee plans to complete preparation of the program.

No. The licensee did not develop a separate MRP-139 program for ISI. Instead, the licensee incorporated the DMBWs including those mitigated by weld overlays into their risk informed ISI program. The inspectors noted that the completed inspections and planned DMBW inspection frequencies in the risk informed ISI program met the inspection frequency requirements of MRP-139.

2. In the MRP-139 ISI program, are the welds appropriately categorized in accordance with MRP-139? If any welds are not appropriately categorized, briefly explain the discrepancies.

Yes. Based on the inspectors' review the welds have been appropriately categorized in accordance with MRP-139.

3. In the MRP-139 inservice inspection program, are the ISI on frequencies, which may differ between the first and second 10-year intervals after the MRP-139 baseline inspection, consistent with the inservice inspection frequencies called for by MRP-139?

Yes. The inspectors reviewed the licensee's ISI schedule extending to the second 10-year interval and it is consistent with the inspection frequencies called for in MRP-139.

4. If any welds are categorized as H or I, briefly explain the licensee's basis for the categorization and the licensee's plans for addressing potential PWSCC (primary water stress corrosion cracking).

Not applicable. The inspectors confirmed that the licensee's ISI database did not include welds categorized as H or I.

5. If the licensee is planning to take deviations from the ISI, what are the deviations and what are the general bases for the deviations? Was the NEI 03-08 process for filing deviations followed?

Not applicable. The licensee does not intend to take any deviations from the ISI requirements associated with the requirements of MRP-139.

The documents reviewed by the inspector for this inspection are listed in the Attachment to this report.

4OA6 Management Meetings

.1 Exit Meeting Summary

On January 10, 2011, the inspectors presented the inspection results to Mr. J. Gebbie and other members of the licensee staff. The licensee acknowledged the issues

presented. The inspectors confirmed that none of the potential report input discussed was considered proprietary.

.2 Interim Exit Meetings

Interim exits were conducted for:

- The radiological hazard assessment and exposure controls and occupational ALARA planning and controls with Mr. J. Gebbie, Site Vice President on October 15, 2010.
- The results of the Inservice Inspection with Mr. J. Gebbie, Site Vice President, on October 19, 2010.
- The annual review of Emergency Action Level and Emergency Plan changes with Mr. D. Walton, Emergency Preparedness Senior Coordinator, via telephone on December 1, 2010.

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 violations of very low significance (Green) or Severity Level IV were identified by the licensee and are violations of NRC requirements which meet the criteria of the NRC Enforcement Policy for being dispositioned as an NCV.

- Title 10 CFR 50.59(d)(1) states, in part, that the licensee shall maintain records of changes in the facility, of changes in procedures, and of tests and experiments as described in the UFSAR. These records must include a written evaluation that provides a basis for the determination that the changes, tests, or experiments do not require a license amendment. Contrary to the above, in 2006, the licensee made changes pursuant to 10 CFR 50.59(c) to the plant as described in the UFSAR and had not performed a written evaluation which provided the bases for determining that the changes did not require a license amendment. Specifically, in 2006, the licensee applied full structural weld overlays to the pressurizer surge nozzles for both Units 1 and 2. However, the licensee did not disposition the original Leak-Before-Break analysis (LBB) as described in section 5.2.2.7 of D. C. Cook UFSAR through the 10 CFR 50.59 process. The corrective actions for this issue are being tracked in CR 00858419 and include submitting a license amendment request to the NRC for approval of updated/revised LBB analysis in 2011. This violation was of Severity Level IV as dispositioned through the guidance in NRC Enforcement Policy, Supplement I.D.
- Appendix B, Criterion III in 10 CFR Part 50 requires, in part, that design control measures shall provide for verifying or checking the adequacy of design, such as by the performance of design reviews, by the use of alternate or simplified calculational methods, or by the performance of a suitable testing program. Design control measures shall be applied to items such as the following: reactor physics, stress, thermal, hydraulic, and accident analyses; compatibility of materials; accessibility for inservice inspection, maintenance, and repair; and delineation of acceptance criteria for inspections and tests. Contrary to the above, the licensee did not perform design review and engineering calculations to check the adequacy of the original LBB analysis on pressurizer surge lines at the time of application of the pressurizer surge line weld

overlays in 2006. Specifically, in October 2009, the licensee performed a non-conformance evaluation to address the validity of the original LBB analysis on the pressurizer surge lines that had undergone full structural weld overlays in 2006. In the non-conformance evaluation, the licensee identified that an engineering/design evaluation of the original LBB analysis and fatigue analysis as applicable to the pressurizer surge lines had not been performed at the time of application of the weld overlays in 2006. The licensee has implemented corrective actions to address the revision of the original LBB analysis to account for any changes due to weld overlay application and intends to submit a license amendment request for NRC approval of this updated LBB analysis in 2011. The corrective actions related to this LBB analysis update are being tracked in CR 00858419. This violation was of very low safety significance (Green) as dispositioned through the NRC Significance Determination Process.

- Appendix B, Criterion XVI in 10 CFR Part 50 requires, in part, that measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances are promptly identified and corrected. Contrary to this, on October 15, 2010, the licensee determined that they had failed to promptly identify deficiencies associated with the Unit 2 safety-related containment divider barrier seal bolting. The licensee's evaluation concluded that TS 3.6.13, Divider Barrier Integrity, had not been met for a period beyond the allowed outage time due to the failure to identify the deficiencies. The licensee also concluded that the deficiencies were likely present during previous inspection opportunities but were not identified and/or corrected. In addition, the licensee 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. For corrective actions, the divider barrier seal bolting deficiencies were repaired during the outage. Also, 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. The finding is of very low safety significance because it screened as Green per IMC 0609 Attachment 4 by answering 'no' to all questions in Table 4a under the Barrier Cornerstone

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

D. Aubrey, Engineering Supervisor
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
Q. Lies, Plant Manager
C. Moeller, Radiation Protection Manager
R. Niedzielski, Regulatory Affairs
J. Nimitz, Regulatory Affairs Senior Licensing Activities Coordinator
K. O'Connor, Regulatory Affairs Compliance Manager
D. Rayes, General Supervisor
J. Ross, Operations Director
M. Scarpello, Regulatory Affairs Manager
D. Walton, Emergency Preparedness Senior Coordinator

Nuclear Regulatory Commission

J. Cameron, Chief, Reactor Projects Branch 6/DRP/RIII
B. Dickson, Plant Support Team Branch Chief, DRS/RIII
R. Jickling, Senior Emergency Preparedness Inspector

LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

Opened

05000316/2010005-01	NCV	Failure to Properly Preplan and Perform Maintenance on Safety-related Equipment (Section 1R20)
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Closed

05000316/2010005-01	NCV	Failure to Properly Preplan and Perform Maintenance on Safety-related Equipment (Section 1R20)
05000315/2009-001-00	LER	Manual Reactor Trip Due to Reactor Coolant Pump Seal Degradation (Section 4OA3.1)
05000315/2009-001-01	LER	Manual Reactor Trip Due to Reactor Coolant Pump Seal Degradation Caused By Accumulation of Corrosion Products (Section 4OA3.2)

Discussed

NONE

LIST OF DOCUMENTS REVIEWED

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

1R01 Adverse Weather Protection

- 12-IHP-5040-EMP-004, Plant Winterization and De-Winterization, October 30, 2010
- 12-OHP-4022-001-010, Severe Weather, Revision 7
- AR 00823860, CST House Temp HTR
- AR 00844547, South FPST Heater Not Running With Tank at 42F
- AR 07357012, Heater in U2 CST Dog House Not Working
- AR 09063053, Temperature Control Switches are Obsolete
- AR 2010-10103, Degraded Pipe Insulation Covers For Winterization
- AR 2010-11726, 12-PP-145W is not "Warm" to the Touch
- AR 2010-3982, 2-TK-33 RWST Pipe Insulation Damage
- AR 2010-6139, U1/U2 RWST, PWST, and CST- Degraded Pipe Insulation

1R04 Equipment Alignment

- 12-OHP-4022-018-001, "Loss of Spent Fuel Pit Cooling," Revision 13
- 2-OHP-4021-008-002, Placing Emergency Core Cooling System in Standby Readiness, revision 22
- 2-OHP-4021-028-014, Attachment 1, Aligning Control Room Pressurization / Cleanup Filter System for Standby Readiness, Revision 27
- AR 00849237, 2-HV-ACR-DA-3 Not at Throttled Position After Maintenance
- AR 2010-11482, Hose in SI Rm Sump Potentially Drawing Debris in SI Sys.
- AR 2010-13819, 2-FMO-231 Has No Control Room Indication
- U2C19 Outage Status, October 18, 2010
- WO 55363658-14, Flush SI PP Suction Line at 2-SI-102, December 5, 2010

1R05 Fire Protection

- AR 2010-12368, Propane Tank Being Stored Without the Appropriate Permits
- AR 2010-12369, Trees Near the Fire Protection Water Storage Tanks
- AR 2010-13826, Procedure Violation
- AR 2010-13828, Evaluation Failure of an Individual
- FHA, Fire Hazards Analysis, Revision 14
- Fire Pre-Plan, Revision 7
- FP-E-P9500, Fire Drill 410-19-A, December 17, 2010

1R07 Annual Heat Sink Performance

- 12-EHP-8913-001-002, U2 East CCW Heat Exchanger Inspection, October 27, 2010
- 12-EHP-8913-001-002, U2 West CCW Heat Exchanger Inspection, October 12, 2010
- AR 2010-11306, 2-HE-15E, Tube Leak

1R08 Inservice Inspection Activities

- 12-QHP-5050-NDE-001, Liquid Penetrant Examination Report for 2-MS-135-1
- AR 00846104, 2-GFW-L-252 Identified Discrepancies During VT-3 Exam
- AR 00851892, Small Amount of Foreign Material Observed During Flushing of Boric Acid Storage Tank
- AR 00856263, Loss of FME Integrity in "A" Condenser in 24" Steam Line
- AR 00857281, Non-retrievable FME in the Main Condenser Tube Bundles
- AR 00857543, Insufficient Control of Foreign Material
- AR 00857993, Loss of Control of Tool in "A" Condenser
- AR 00860875, Metal Debris Found After Cleanliness Established
- AR 2010-0733, 1-GCS-R540 Identified Discrepancies During VT-3 Exam
- AR 2010-10350, 2-CS-447-1 Has Wet Boric Acid
- AR 2010-10352, Boric Acid was Identified on CLV#1
- AR 2010-10355, Dry Boric Acid Was Identified On the Spray Header Nozzle
- AR 2010-10426, Minor Housekeeping Boric Acid Leakage Tracking
- AR 2010-10516, 2 GDR-R-613 is Missing Nut on U-Bolt
- AR 2010-10902, Operability Determination Lacked Detail
- AR 2010-11028, Evaluate and Incorporate EPRI MRP-169 Revision 1-a
- AR 2010-5336, Regulatory Issue Summary 2010-06
- AR 2010-9138, Missed NDE on 2-MS-135-1 Replacement Weld during U2C18
- AR00858419, NRC Position Regarding Weld Overlays on Leak Before Break
- Document No. 51-9056553-000, Steam Generator Degradation Assessment, Unit 2, September 5, 2007
- ECC 0000046930, Weld Overlay on the Pressurizer Nozzle Welds and Safe End to Pipe Welds, Revision 1
- EHI-5070-ALLOY600, Alloy 600 Material Management Program, Revision 2
- NRC Regulatory Issue Summary 2010-007, Regulatory Requirements for Application of Weld Overlays and Other Mitigation Techniques in Piping Systems Approved for Leak-Before-Break, June 8, 2010
- Procedure 12-QHP-5050-NDE-006, Visual Examination, VT-1 and VT-3, Revision 4
- Procedure 12-QHP-5050-NDE-027, Visual Examination for Boric Acid and Condition of Component Surface, Revision 2
- Procedure 2-OHP-4030-001-002, Containment Inspection Tours, Revision 23
- Procedure PMP-7030-OPR-001, Operability Determination, Revision 18
- WO 55322564, Weld Repair of 2-½" Pipe Cut Mark Located Downstream of 2-CPN-36, April 10, 2009
- WO 55338852, Cutout and Replace Valve 2-MS-135-1, April 21, 2009
- WO 55348246, Perform PT Exam on Component 2-RH-33-05 PL 1&2, September 30, 2010
- WO 55348253, Perform VT-3 of Pipe Support 2-GCCW-R-649

1R12 Maintenance Effectiveness

- AR 00024644, There is no Provision for Checking the Preload
- AR 00072846, Westinghouse Technical Bulletin TB9104, Revision 2
- AR 00088194, Evaluate request for change to Preventive Maintenance (PM)
- AR 00864627, Evaluate PM Basis: RCP Main Flange Bolt Measurement/Stretch
- AR 07240062, Failure to Meet 30 day Expectation to Approved (a)(1)
- Maintenance Rule (a)(1) Action Plan for Reactor Coolant System
- Maintenance Rule Scoping for Reactor Coolant System
- Reactor Coolant System Health Status April 1, 2010-June 30, 2010

- Westinghouse Technical Bulletin 91-04, Revision 0, March 2, 1991
- Westinghouse Technical Bulletin 91-04, Revision 2, November 11, 2002

1R13 Maintenance Risk Assessments and Emergent Work Control

- 2-OHP-5030-001-002, Outage Risk and Technical Specification Monitoring, October 22, 2010
- Control Room Logs, October 16-18, October 22-23, November 14-19
- Daily work activity schedule, October 16-18, October 22-23, November 14-19
- IPTE Briefing Guide, Dual ESW Outage, October 22, 2010
- IPTE Briefing Guide, Transformer 4 Outage, October 16, 2010
- PMP-2291-OLR-001, Online Risk Management, Unit 1 Part 1, Configuration Risk Assessment, October 16-18, October 22-23, November 14-19
- PMP-4100-SDR-001, Plant Shutdown Safety and Risk Management, Revision 21

1R15 Operability Evaluations

- 2-EHP-4030-295-249, Containment Divider Barrier Seal Surveillance Test, Revision 6
- AR 2010-12665, Operability Eval Documented in LTR-PAFM-10-181 is Deficient
- AR 00821083, 2-FRV-230 Failed Stroke Time Closed
- AR 2010-10259, Non Conservative TS SRs 3.7.3.1 and 3.7.3.2
- AR 2010-10917, U2C19 Steam generator upper support shim gap tolerance
- AR 2010-10939, Nut missing on divider barrier seal strip
- Cook Inservice Testing Program 3rd 10-Year Interval
- DC Cook Unit 1 LER 2006-002-00, Failure to Comply with Technical Specification 3.6.13
- Procedure 2-OHP-4030-256-017CS, main and Auxiliary Feedwater Shutdown Testing, Revision 7
- Procedure EHI-5071, Inservice Testing Program Implementation, Revision 7
- Procedure OHI-4016, Conduct of Operations, Attachment 3, IST Test Criteria, Revision 21
- UFSAR Chapter 14.3, RCS Pipe Rupture, Revision 23
- Westinghouse Calculation Note CN-RIDA-10-103, Thermal-Hydraulic Evaluations for Abandoned Baffle-Former Bolt Hole Locations at D. C. Cook Unit 2, Revision 0
- WO 55255729, Main Feedwater Isolation Valve Test

1R19 Post-Maintenance Testing

- 12-EHP-4030-001-001, Check Valve Examination Surveillance, October 25, 2010
- 12-MHP-4030-032-046, Emergency Diesel Generator System Inspection, October 20, 2010
- 2-OHP-4021-003-001 Attachment 3, Placing the Charging and Seal Water Injection In service, October 29, 2010
- 2-OHP-4021-032-001CD, DG2CD Operation, October 30, 2010
- 2-OHP-4030-203-052W, West Centrifugal Charging Pump Operability Test, November 3, 2010
- 2-OHP-4030-208-008R Attachment 3, Loop 2 and 3 Injection Line Check Valve Test, November 3, 2010
- 2-OHP-4030-232-027AB, AB Diesel Generator Operability Test, October 20, 2010
- 2-OHP-4030-256-017T, Turbine Driven Auxiliary Feedwater System Test, December 2, 2010
- AR 2010-10957, Nonintrusive Test Indicated Degraded Valve Condition
- AR 2010-11141, Crankcase Vacuum High Out of Spec
- AR 2010-11143, DG Exhaust Temp Delta Above Log Limits
- AR 2010-11185, Fuel Oil Leak From 6R Fuel Pump Supply Elbow 2-OME-150-AB
- AR 2010-11278, QL4 Material Was Installed on 1/2- OME-39 W/O an SCD Evaluation
- AR 2010-11514, 2-OME-150-CD-EN: Broken Weld on Tube Track
- AR 2010-11550, 2-QPI-250 Leaks at Fitting When Pump Runs

- AR 2010-11552, 2-CS-535 is Leaking
- AR 2010-11554, U2 West CCP Shaft Driven Oil Pump Not Maintaining Pressure
- AR 2010-11622, Fuel Oil Leak on DG2AB Near Suction to 6R Injector
- AR 2010-11634, Tubing Rubbing on Throttle Control Linkage
- AR 2010-11635, 2-qc-255-cd-ii Not Installed on CD EDG
- AR 2010-11718, Debris Found in CD EDG Fuel Oil
- AR 2010-11772, INDUS PMT Task for 2-CD DG 55270593-06
- DIT-S-01461-00, EDG Crankcase Blower Normal Operating Band, January 18, 2005
- OP-2-5120Y-10, Flow Diagram 100# Air System HDR Diesel Generators 2AB & 2CD Unit 2, Revision 10
- OP-2-98035-37, Diesel Generator 2CD Control Elementary Diagram, Revision 37
- WO 55237543-06, PMT of U2 TDAFW, December 6, 2010
- WO 55296471, 2-DF-120C PMT Leak Inspection, October 30, 2010
- WO 55341053, Final CD Diesel Run & Operability Test (Fast Start), October 31, 2010
- WO 55341870, 2-OME-150AB-HYDACT PMT for Sample, Change Oil and Inspection, October 20, 2010
- WO 55342994-01, SI System Check Valve Test, December 1, 2010
- WO 55343242, 2-OME-150-CD-HYDACT PMT Visual Leak Inspection, October 30, 2010
- WO 55367575, Isolation of AB1 Air Receiver to Test AB2, October 20, 2010
- WO 55370564, AB Diesel Generator 2AB Slow Speed Start, October 20, 2010
- WO 55371308-12, MTM 2-SI-158-L2, Disassemble/Inspect/RPR/Reassemble, October 25, 2010
- WO 55371308-19, 2-SI-158 VT 1/3 Exams, October 26, 2010
- WO 55371308-23, 2-SI-158-L2, PMT Leak Inspections, December 4, 2010

1R20 Outage Activities

- 2-OHP-4021-001-001, Plant Heatup From Cold Shutdown to Hot Standby, Revision 59
- 2-OHP-4021-001-002, Reactor Startup, Revision 42
- 2-OHP-4021-001-004, Plant Cutdown From Hot Standby to Cold Shutdown, Revision 51
- 2-OHP-4021-001-006, Power Escalation, Revision 43
- 2-OHP-4030-001-002, Containment Inspection Tours, October 6, 2010
- 2-OHP-4030-227-037, Refueling Surveillance, Data Sheet 1, Surveillance Requirements to be Met Prior to Entry Into Mode 6, November 19, 2010
- 2-OHP-4030-227-037, Refueling Surveillance, Data Sheet 2, Surveillance Requirements to be Met Prior to Core Alterations, October 11 - 12, 2010 and November 19, 2010
- 2-OHP-4100—SDR-001, Plant Shutdown Safety and Risk Management, Revision 21
- 2-OHP-5030-001-002, Outage Risk and Technical Specification Monitoring, Revision 12
- AR 2010-10534; RCP 21 had Active Leak from Seal
- AR 2010-10585; 2-NRV-151 Inoperable for TS LCO 3.4.11
- AR 2010-10589; 2-DCR-340 Limit Switches need Adjustment
- AR 2010-10643; Flex Conduit Damaged Supporting Level Transmitter
- AR 2010-10869; Severe Piping Pitting Identified Downstream of 2-WMO-718
- AR 2010-11190; 2-OME-39: Pedestal Sliding Foot Alignment out of Tolerance
- AR 2010-11477; RCS Snubber 2-GRC-S609 is Outside Acceptance Criteria
- AR 2010-11754; 2-SV-201-CD 1 & CD 2 not Hydroed in Place
- AR 2010-11787; 2-WMO-714 Went Fully Open During Testing
- AR 2010-11969; WO 55371716 (CT insulation) Finished w/o Completing Corrective Actions
- AR 2010-12074; 2-QR-107B Alarm not Clearing at LT 1.0V
- AR 2010-12079; 2-QR-107D Alarm not Clearing at LT 1.0V
- AR 2010-12481; SI pump AC not met for 2-OHP-4030-208-008R

- AR 2010-12511; U2 West CCP pump DP High out of Spec
- AR 2010-12569; U2 lower Containment Divider Barrier does not Match Drawing
- AR 2010-12614; EOP Change to Prevent MSR Reopening on Restarting MFPs
- AR 2010-12733; 2-NRV-153 Inoperable for TS LCO 3.4.11
- AR 2010-12746; FCN-48373-007 Issued with Red Cause Code
- AR 2010-12756; AHU Access Panel Fell Off of 2-HV-CiCE-1-58
- AR 2010-12808; 2-WR-100 Dew Point Monitor is Unreliable
- AR 2010-12913, RCP #4 Seal Leak Identified During 300# Walkdown
- AR 2010-12968, NRC Inspector Identified Divider Seal Issue
- AR 2010-13019, Two Intermediate Deck Doors Have Ice on Them
- AR 2010-13095, Seal Table Leaks Identified at NOP/NOT
- EC 48373, Unit 2 Divider Barrier Seal Modifications at Gap Locations, Revision 1
- IPTE Briefing Guide, RCS Vacuum Fill, July 31, 2010
- OHI-6100, Attachment 4, Unit 2 RCS Cooldown Rate Limit Curve, October 6-8, 2010
- OHI-6100, Attachment 5A, RCS/PRZ Cooldown Record, October 6-8, 2010
- WO 55306091-08, Replace divider Barrier Seal November 20, 2010

1R22 Surveillance Testing

- 02-EHP-4030-234-203, Unit 2 LLRT, October 29, 2010
- 12-EHP-4030-010-262, Ice Condenser Surveillance and Operability Evaluation, Revision 8
- 12-MHP-4030-010-001, Ice Condenser Basket Weighing Surveillance, October 17, 2010
- 1-EHP-4030-128-230, Unit 1 Control Room Tracer Gas Test, November 11, 2010
- 2-EHP-4030-228-229, U2 Control Room Emergency Ventilation Surveillance, October 12, 2010
- 2-EHP-4030-228-230, Unit 2 Control Room Tracer Gas Test, November 13, 2010
- 2-OHP-4030-232-217A, DG2CD Load Sequencing and ESF Testing, November 2, 2010
- AR 2010-10030, U2 Ice Baskets Aggregate Damage Review
- AR 2010-10166, U2 Ice Baskets Stuck or Unweighable Aggregate Review
- AR 2010-10217, U2 Ice Baskets Stuck or Unweighable
- AR 2010-10684, Selection of Alternate Baskets for Stuck TS Baskets U2C19
- AR 2010-10729, U2C19 Critical Path Delay Due to Control Room Pressurization Testing
- AR 2010-10950, U2 C19 LLRT Failure 2-XCR-103
- AR 2010-11036, U2 C19 LLRT Failure of 2-CCR-460, 2-CCR-462 and Closed System
- AR 2010-11127, ICEMAN Program Failed to Calculate Zone/Overall Masses
- AR 2010-11294, U2 C19 LLRT 2-CS-442-4 as Found
- AR 2010-11640, Procedure Change Needed and Clerical Error Found
- ENPM-12-ICE-001-N, Ice Condenser Design Basis Surveillance Requirements, Revision 2
- Preliminary Tracer Gas Test Data, November 14, 2010

1EP4 Emergency Action Level and Emergency Plan Changes

- Donald C. Cook Nuclear Power Plant Emergency Plan; Revisions 27 and 28

2RS1 Radiological Hazard Assessment and Exposure Controls

- 12-THP-6010-RPP-006, Radiation Work Permit Processing, Revision 28
- 12-THP-6010-RPP-015, Temporary Shielding, Revision 7
- 12-THP-6010-RPP-400, Radiological Job Coverage, Revision 11
- 12-THP-6010-RPP-401, Performance of Radiation and Contamination Survey, Revision 28
- 12-THP-6010-RPP-418, Radiological Posting, Revision 17
- 12-THP-6010-RPP-420, Radiological Controls for Radiography, Revision 4

- AR-2010-10014, a Tool Runner was Contaminated Because Not Wearing Gloves in the Upper Containment
- AR-2010-1059, Personnel was Contaminated during Removal of Cavity Seal due to Excessive Sweating
- AR-2010-10728, Contamination of Modesty Containing Co-60/Mn-54
- AR-2010-10743, Person Working in U-2 Ice Condenser Alarmed the Aptec Monitor due to Contamination
- AR-2010-7625, Worker Contaminated from Routine Tour of Auxiliary Building
- AR-2010-7813, Maintenance Personnel Opened Westinghouse New Fuel Container without Notifying RP Personnel
- AR-2010-8073, Tank not Flushed Contributed to Larger Dose to Workers
- AR-2010-9580, Beta/Gamma to Alpha Ratio of 62 Found on Incoming AREVA RCP Tools
- AR-2010-9656, Auxiliary Building 650 Contamination Monitor Failed as Found Data
- AR-2010-9867, A Contractor Individual Arrived on Site with Contamination
- National Source Tracking System: Version N. 1.2, January 15, 2010
- PMP-7110-PIP, Reactor Oversight Program Performance Indicators and Monthly Operating Report Data, Revision 13

SRS2 Occupational ALARA Planning and Controls

- ALARA Subcommittee Meeting A-10-33-36-37S, Scaffold Activities, Valve Maintenance, and Regen Room Heat Exchanger Minutes, August 26, 2010
- ALARA Subcommittee Meeting A-10-37-30F, Regen Heat Exchanger and RCP Seal Maintenance, September 23, 2010
- ALARA Subcommittee Meeting A-10-37-38F, Reconvene for Regen Heat Exchanger and Budget Approval, September 28, 2010
- AR-201-10675, Due Additional Dose from 166 mrem to 184 mrem During Cleaning of Thimble Tubes was Caused by Higher Dose Rates from the Seal Table
- AR-201-7815, Rescheduled ALARA Sub-Committee Due to Limited time to Additional Questioning
- Cool Plant UC19 ALARA Status Overview October 14, 2010
- RWP-101042, 573 Clean and Dirty Sump Tank/Pump Room Locked High Radiation Area Activities, November 05, 2009
- RWP-102123, Install, Remove, Modify Temporary Shielding in Unit-2 Containment, Auxiliary Building, and Plant Restricted Areas, September 01, 2010
- RWP-102151, U2C19-RCP Seal Maintenance Activities, Remove Lower Motor Bearing Oil Spill Pans, Instrumentation, Inspect/Replace Seal Package, Support Work on RCP, September 01, 2010
- RWP-102162, Containment Work activities, September 01, 2010
- RWP-102175, Regen Heat Exchanger Locked High Radiation Area Activities, September 01, 2010
- RWP-102187, U2C19-Under Reactor Vessel Inspections, September 01, 2010

4OA2 Identification and Resolution of Problems

- 2nd and 3rd Quarter 2010 Trend Reports
- 2-OHP-4021-002-013, Reactor Coolant System Vacuum Fill, Revision 15
- 2-OHP-SP-318, Flushing Seal Injection and Seal Return Lines, October 23, 2010
- 2-OHP-SP-321, Flushing Seal Return Line of #21 RCP, November 5, 2010
- AR 05056004, Evaluate Change to PM Program for CVCS Components
- AR 2010-10727, RCP 21 and 22 FM Found During Disassembly

- AR 2010-11082, Foreign Material Found in 23 RCP #2 Seal
- AR 2010-11253, Peer/PV Sign-off in Procedure 12-MHP-5021-002-003 Marked N/A
- AR 2010-11442, RCP #21 #1 Seal Leak Off Line Spool Piece Issue
- AR 2010-13563, 1-TWS-1 Screen Wash Pump Has No Discharge Pressure
- AR 2010-13566, Unit 1 E MFP Manually Tripped Due to Low Condenser Vacuum
- AR 2010-13627, Blocked Tube in 1-HE-10W
- PMP-7030-TND-001, Trend Analysis, Revision 01

4OA3 Followup of Events and Notices of Enforcement Discretion

- 12-MHP-5021-002-003, RCP Controlled Leakage Seal Maintenance, Revision 20
- 1-OHP-4022-028-001, Loss of Containment Chilled Water, Revision 2
- 2-OHP-SP-321, Flushing Seal Return Line of #21 RCP, November 5, 2010
- AR 00817731, Received Unexpected Alarm on Annunciator 207 Drop 34
- AR 00821101, #12 RCP Seal Exhibiting Anomalous Behavior
- AR 00853781, Rx Recirculation and Coolant Pump Seal-Related Event
- AR 2010-11775, RCP #23 Seal Leakoff Line Will Not Allow Water to Drain
- AR 2010-11939, Loss of Unit 1 Containment Cooling

LIST OF ACRONYMS USED

ADAMS	Agencywide Document Access Management System
AFW	Auxiliary Feedwater
ALARA	As-Low-As-Is-Reasonably-Achievable
ASME	American Society of Mechanical Engineers
CAP	Corrective Action Program
CCW	Component Cooling Water
CFR	Code of Federal Regulations
CREV	Control Room Emergency Ventilation
DMBW	Dissimilar Metal Butt Weld
EDG	Emergency Diesel Generator
IMC	Inspection Manual Chapter
IP	Inspection Procedure
ISI	Inservice Inspection
LBB	Leak-Before-Break
LER	Licensee Event Report
NCV	Non-Cited Violation
NDE	Non-destructive Examination
NEI	Nuclear Energy Institute
NRC	U.S. Nuclear Regulatory Commission
OSP	Outage Safety Plan
PARS	Publicly Available Records System
PWSCC	Primary Water Stress Corrosion Cracking
RCS	Reactor Coolant System
RFO	Refueling Outage
RP	Radiation Protection
SDP	Significance Determination Process
SG	Steam Generator
SI	Safety Injection
TI	Temporary Instruction
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report
WO	Work Order

L. Weber

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Sincerely,

/RA/

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

Docket Nos. 50-315; 50-316
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Letter to L. Weber from J. Cameron dated January 25, 2011.

SUBJECT: D. C. COOK NUCLEAR POWER PLANT, UNITS 1 AND 2, INTEGRATED
INSPECTION REPORT NO. 05000315/2010005; 05000316/2010005

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