



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

REGION III
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January 30, 2012

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

SUBJECT: D. C. COOK NUCLEAR POWER PLANT, UNITS 1 AND 2 – NRC INTEGRATED
INSPECTION REPORT 05000315/2011005 and 05000316/2011005

Dear Mr. Weber:

On December 31, 2011, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your D. C. Cook Nuclear Power Plant, Units 1 and 2. The enclosed inspection report documents the results of this inspection, which were discussed on January 18, 2012, with Mr. J. Gebbie, and other members of your staff.

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

One NRC identified finding and one self-revealed finding of very low safety significance (Green) were identified during this inspection.

These findings were determined to involve violations of NRC requirements. The NRC is treating these violations as non-cited violations (NCVs) consistent with Section 2.3.2 of the Enforcement Policy.

If you contest these NCVs, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator, Region III; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the D. C. Cook Nuclear Power Plant, Units 1 and 2.

If you disagree with a cross-cutting aspect assignment 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, Units 1 and 2.

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 (PARS) component of NRC's Agencywide Document Access and Management System (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

/RA/

John B. Giessner, Branch Chief
Branch 4
Division of Reactor Projects

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

Enclosure: Inspection Report 05000315/2011005 and 05000316/2011005
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: 05000315/2011005; 05000316/2011005

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, 2011

Inspectors: J. Lennartz, Senior Resident Inspector
P. LaFlamme, Resident Inspector
E. Davidson, Reactor Systems Engineer
T. Go, Health Physicist
E. Sanchez Santiago, Reactor Inspector
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Approved by: John B. Giessner, Chief
Branch 4
Division of Reactor Projects

Enclosure

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SUMMARY OF FINDINGS

Inspection Report 05000315/2011005, 05000316/2011005; 10/01/2011 – 12/31/2011;
D. C. Cook Nuclear Power Plant, Units 1 & 2; Inservice Inspection Activities and Refueling
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. One Green Finding was self-revealed. The findings were considered non-cited violations (NCVs) 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). Cross-cutting aspects were determined using IMC 0310, "Components Within the Cross-cutting Areas." Findings for which the SDP does not apply may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

A. NRC-Identified and Self-Revealed Findings

Cornerstone: Initiating Events

- Green. A finding of very low safety significance and associated NCV of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, procedures, and drawings," was identified by the inspectors on September 27, 2011, for the licensee's failure to follow procedure while performing a liquid dye penetrant (PT) examination on safety injection system piping weld. Specifically, on Unit 1, the examiner conducting the PT examination did not measure and hence, appropriately record indications that were identified during the PT examination. Licensee corrective actions included: re-performing the PT examination on the safety injection piping weld, re-performing the examiner's prior PT examinations conducted during the current outage to validate the PT examination results, and re-train the examiner. This issue was entered into the licensee's corrective action program (CAP) as AR 2011-11130.

The finding was determined to be more than minor because the finding, if left uncorrected, would become a more significant safety concern. Absent NRC identification, the failure to follow the PT examination procedure would have the potential to lead to a more significant safety concern. Specifically, failure to measure and hence, appropriately record all reportable indications leaves the potential to accept components with unacceptable cracks to be returned to service. Cracks in components returned to service would place safety-related piping systems at increased risk for through-wall leakage and/or failure. The licensee promptly corrected this issue and no components with unacceptable flaws were returned to service. The inspectors answered "No" to the SDP Phase I screening question for operating reactors in the Initiating Events Cornerstone, "Assuming worst case degradation, would the finding result in exceeding the Technical Specification (TS) limit for any reactor coolant system leakage or could the finding have likely affected other mitigation systems resulting in a total loss of their safety function assuming the worst case degradation"? Therefore, this finding screened as having very low safety significance (Green). This finding has a cross-cutting aspect in the area of human performance, work practices, because the licensee contracted vendor did not follow the established PT examination procedure, and the licensee did not

ensure appropriate supervisory and management oversight of work activities, including contractors, such that nuclear safety was supported. (H.4(c)). (Section 1R08.1)

- Green. One self-revealed finding of very low safety significance with an associated NCV of TS 5.4.1.a was identified for the failure to implement a procedure required during maintenance on safety-related equipment. The licensee did not follow the clearance procedure while performing maintenance on the Unit 1 reactor vessel head vent assembly. Specifically, workers did not verify that the head vent assembly was isolated from the reactor vessel prior to attempting to remove the vent hose as required by the clearance procedure. Consequently, maintenance workers breached a pressurized system that was not isolated, which resulted in a more than expected amount of reactor coolant being released from the system. For corrective actions the licensee immediately isolated the leak, modified the clearance procedure with additional instructions and communicated lessons learned to the workers. This issue was entered into the licensee's CAP as AR 2011-12207.

This finding was related to the Initiating Events cornerstone and was more than minor because it adversely affects the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. The finding is associated with the attribute of human performance. Specifically, performing maintenance on a pressurized plant system without verifying the system was properly isolated increased the likelihood of events that challenge plant stability while shutdown. 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 in accordance with a phase 1 screening using Appendix G to IMC 0609 for shutdown operations significance determination. This finding is associated with a cross-cutting aspect in the work control component of the human performance cross-cutting area. Specifically, the outage command center did not adequately coordinate work activities between maintenance and operations to ensure the reactor vessel head vent hose assembly was properly removed (H.3 (b)). (Section 1R20)

B. Licensee-Identified Violations

No violations of significance were identified.

REPORT DETAILS

Summary of Plant Status

Unit 1 was in a shutdown condition and defueled to conduct Cycle 24 refueling outage activities when the inspection period started. On October 25, 2011, the reactor was taken critical and the main generator was synchronized to the grid on October 26, 2011, which ended Cycle 24 refueling outage. Unit 1 was returned to full power on October 31, 2011.

On November 25, 2011, Unit 1 power was rapidly reduced to 57 percent when the nonsafety-related east main feedwater pump had to be removed from service because of high vibrations. Unit 1 was returned to full power on December 5, 2011, after completing the necessary repairs to the east main feedwater pump.

Unit 1 power was reduced once more to 57 percent on December 21, 2011, because of a hydraulic fluid leak on the nonsafety-related west main feedwater pump steam control valve actuator. After the hydraulic leak was repaired, Unit 1 was returned to full power on December 22, 2011, and was at full power when the inspection period ended.

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

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01)

.1 Winter Seasonal Readiness Preparations

a. Inspection Scope

The inspectors reviewed 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 1/2 turbine building screen house;
- Unit 1/2 fire protection water storage tanks; and
- Unit 1/2 600 volt and 4 kilovolt switchgear room ventilation systems.

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

b. Findings

No findings were identified.

1R04 Equipment Alignment (71111.04)

a. Inspection Scope

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

- Unit 1 west containment spray and spray additive systems;
- Unit 1 west motor driven auxiliary feedwater system; and
- Unit 2 west residual heat removal 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 system's function system and, therefore, potentially increase risk. The inspectors reviewed applicable operating procedures, system diagrams, UFSAR, Technical Specifications (TS) requirements, outstanding work orders, 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:

- fire zone 52, Units 1/2 auxiliary building elevation 633 west end;
- fire zone 73, Unit 1 control room HVAC equipment;
- fire zone 46C, Unit 2 emergency power system motor control room;
- fire zones 65A and 65B, Unit 2 safety injection pump rooms; and
- fire zone 56, Unit 1 auxiliary cable vault.

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

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

b. Findings

No findings were identified.

1R07 Annual Heat Sink Performance (71111.07)

a. Inspection Scope

The inspectors reviewed the licensee's testing of the Unit 1 east component cooling water and 1 CD emergency diesel generator jacket 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, the correlation of scheduled testing and the frequency of testing, and the impact of instrument

inaccuracies on test results. Inspectors also verified that test acceptance criteria considered differences between test conditions, design conditions, and testing conditions. Documents reviewed for this inspection are listed in the Attachment to this document.

This annual heat sink performance inspection constituted two samples as defined in IP 71111.07-05.

b. Findings

No findings were identified.

1R08 Inservice Inspection Activities (71111.08)

From September 26, 2011, through October 7, 2011, the inspectors reviewed the implementation of the licensee's Inservice Inspection (ISI) Program for monitoring degradation of the reactor coolant system (RCS), steam generator (SG) tubes, emergency feedwater systems, risk-significant piping and components and containment systems.

The reviews described in Sections 1R08.1, 1R08.2, 1R08.3, 1R08.4, and 1R08.5 below, count as one inspection sample as described by IP 71111.08.

.1 Piping Systems Safety Injection

a. Inspection Scope

The inspectors observed 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, and Section V requirements, and if any indications and defects were detected, to determine if these were dispositioned, in accordance with the ASME Code or an NRC approved alternative requirement:

- Ultrasonic examination (UT) of 14-inch diameter residual heat removal system weld 1-RH-29-03S;
- UT of 2.5-inch diameter safety injection (SI) system weld 1-SI-40-25S;
- UT of 14-inch residual heat removal system weld 1-RH-29-01F; and
- PT examination of a safety injection collar to pipe weld; 1-SI-22-06F.

The inspectors reviewed the following UT weld examination with a recordable indication identified during the previous refueling outage, to determine if the indication was characterized, recorded, and evaluated in accordance with the ASME Code Section XI requirements to accept the weld for continued service:

- WN247-S-1; Reactor Vessel Inlet Nozzle to Shell Weld at 247 degrees; Weld 1-N1-A;
- WN338-NS-1; Reactor Vessel Outlet Nozzle to Shell Weld at 338 degrees; Weld 1-N2B; and
- WN22-NS-1; Reactor Vessel outlet Nozzle to Shell Weld at 22 degrees; Weld 1-N3B.

The inspectors reviewed records of the following risk-significant pressure boundary ASME Code Section XI Class 2 welds fabricated since the beginning of the last refuelling outage to determine if the licensee: followed the welding procedure; applied appropriate weld filler material; and implemented the applicable Section XI or construction code non-destructive examinations and acceptance criteria. Additionally, the inspectors reviewed the welding procedure specification and supporting weld procedure qualification records to determine if the weld procedure was qualified in accordance with the requirements of Construction Code and the ASME Code Section IX.

- Class 2 chemical and volume control valve 1-CS-300W replacement due to seat leak by; and
- Class 2 emergency core cooling valve 1-IMO-225 replacement due to leak by.

b. Findings

Failure to Follow Procedure for Liquid Dye Penetrant Examination on ASME Class 1 Piping Weld

Introduction

A finding of very low safety significance and associated NCV of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, procedures, and drawings," was identified by the inspectors on September 27, 2011, for the licensee's failure to follow procedure while performing a PT examination on a safety injection system piping weld on Unit 1. Specifically, the examiner conducting the PT examination did not measure and hence, appropriately record indications that were identified during the PT examination

Description

On September 27, 2011, the inspectors identified through direct field observation that a licensee contractor had failed to follow the PT procedure when conducting an ASME Code PT examination on a safety injection piping weld.

The examiner performing the PT examination had the correct PT examination procedure available for use. However, the inspectors identified that the examiner did not have a measuring device available to measure the indications identified during the PT examination. Specifically, the PT examination procedure 12-QHP-5050-NDE-001, Revision 7, Section 7.1.3, requires the examiner to "Document ISI reportable and/or rejectable indications as explicitly as possible." However, the examiner did not have a measuring device such as a ruler to determine indication size and therefore could not determine which indications were reportable using the acceptance criteria described in the PT examination procedure. The examiner recognizing the absence of a measuring tool chose to continue with the PT examination. Several indications were revealed during the PT examination and the examiner used visual approximation to size the indications and dispositioned all indications as acceptable per PT procedure acceptance criteria. Upon further inquiry from the inspectors regarding the multiple indications that were identified, the examiner wiped away several indications leaving only 2 as potentially reportable indications without having measured or recorded any of the indications. This failure to measure indications resulted in inappropriate recording of indications identified during the PT examination on a safety-related piping weld.

Analysis

The inspectors determined that the licensee's failure to follow procedure while conducting an ASME Code PT examination on safety-related piping weld was a violation of 10 CFR Part 50, Appendix B, Criterion V, and a performance deficiency.

The finding was determined to be more than minor in accordance with Inspection Manual Chapter (IMC) 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening," dated January 1, 2010, because the finding, if left uncorrected, would become a more significant safety concern. Absent NRC identification, the failure to follow procedure while conducting PT examinations could allow for components with unacceptable cracks to be returned to service in subsequent PT examinations. Cracked components returned to service would place safety-related piping systems at increased risk for through-wall leakage and/or failure.

The inspectors determined the finding could be evaluated using the Significance Determination Process (SDP) in accordance with IMC 0609, "Significance Determination Process," Attachment 0609.04, "Phase I Initial Screening and Characterization of Findings," Table 4a for the Initiating Events Cornerstone, dated January 10, 2008. The licensee promptly corrected this issue before unacceptable flaws were returned to service. The inspectors answered "No" to the SDP Phase I screening question "Assuming worst case degradation, would the finding result in exceeding the TS limit for any reactor coolant system (RCS) leakage or could the finding have likely affected other mitigation systems resulting in a total loss of their safety function assuming the worst case degradation"? Therefore, the finding screened as having very low safety significance (Green).

This finding has a cross-cutting aspect in the area of human performance, work practices, because the licensee contracted vendor did not follow the established PT examination procedure and the licensee did not ensure appropriate supervisory and management oversight of work activities, including contractors, such that nuclear safety was supported. The inspectors reached this conclusion based on evaluation of the preliminary results of the licensee's investigation, which identified inadequate work oversight as the primary cause of this finding. (H.4(c))

Enforcement

Title 10 CFR 50, Appendix B, Criteria V, "Instructions, Procedures, and Drawings," requires, in part, that activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings. Licensee procedure, 12-QHP-5050-NDE-001, Revision 7, "Liquid Penetrant Examination," Step 7.1.3, requires examiner to "Document ISI reportable and/or rejectable indications as explicitly as possible. This should include the nature of the indication if known, its location, size, and orientation to other indications when applicable." Step 5.2.4.b states that "Indications in welds, base material, support attachments, pressure retaining bolting, and components other than pressure retaining bolting that equal or exceed the criteria listed in this section shall be reported." Steps 5.2.4.d 3-6 of procedure 12-QHP-5050-NDE-001, Revision 7, provide a dimensional criterion used in determining if an indication is reportable and/or rejectable.

Contrary to the above, on September 27, 2011, the inspectors identified through direct field observation that a licensee contractor had failed to follow the PT examination procedure 12-QHP-5050-NDE-001, Revision 7, when conducting an ASME Code PT

examination on a safety injection piping weld. Specifically, the examiner conducting the PT examination did not measure any of the indications that were identified and did not use the dimensional criteria of Steps 5.2.4.d 3-6 to determine if the indications were reportable and/or rejectable and hence, did not appropriately record these indications in accordance with Step 7.1.3 of procedure 12-QHP-5050-NDE-001, Revision 7, during the PT examination. Because of the very low safety significance of this finding and because the issue was entered into the CAP, as AR 2011-11130, it will be treated as an NCV, consistent with Section 2.3.2 of the NRC Enforcement Policy (NCV 05000315/2011005-01, Failure to Follow Procedure for PT Examination on ASME Class 1 Piping Weld).

.2 Reactor Pressure Vessel Upper Head Penetration Inspection Activities

a. Inspection Scope

For the reactor vessel head, a bare metal visual examination was required this outage pursuant to 10 CFR 50.55a(g)(6)(ii)(D).

The inspectors observed the bare metal visual examination conducted on the reactor vessel head at each of the penetration nozzles to determine if the activities were conducted in accordance with the requirements of ASME Code Case N-729-1 and 10 CFR 50.55a(g)(6)(ii)(D). Specifically, to determine:

- if the required visual examination scope/coverage was achieved and limitations (if applicable were recorded), in accordance with the licensee procedures;
- if the licensee criteria for visual examination quality and instructions for resolving interference and masking issues were adequate; and
- for indications of potential through-wall leakage, that the licensee entered the condition into the corrective action system and implemented appropriate corrective actions.

b. Findings

No findings were identified.

.3 Boric Acid Corrosion Control

a. Inspection Scope

The inspectors independently walked down the Unit 1 RCS loop piping, including the reactor coolant pumps, pressurizer and emergency core cooling systems within containment to identify boric acid leakage. The inspectors then reviewed the walkdown performed by the licensee to ensure that components with boric acid deposits were identified and entered into the CAP. The inspectors observed these examinations to determine whether the licensee focused on locations where boric acid leaks can cause degradation of safety significant components.

The inspectors reviewed the following licensee evaluations of components with boric acid deposits to determine if the affected components were documented and properly evaluated in the corrective action system. Specifically, the inspectors evaluated the licensee's corrective actions to determine if degraded components met the component Construction Code and/or the ASME Section XI Code.

- AR 2010-12391-1; Data Sheet 1 and BA Evaluation for AR 2010-12414;
- AR 2010-11945-2; Data Sheet 1 and BA Evaluation for AR 2010-11945;
- AR 2010-12518-1; Data Sheet 1 and BA Evaluation for AR 2010-12518;
- AR 2010-12414; Data Sheet 1 and BA Evaluation for AR 2010-12912; and
- AR 00828718/552855170; Data Sheet 1 and BA Evaluation for AR 00828718.

The inspectors reviewed the following corrective action documents 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.

- AR 2010-10059; 1 QDA-11 Boric Acid Found by Drain Valve;
- AR 2010-10346; No. 24 RCP Seal Leakage;
- AR 2010-10356; Boric Acid was Identified on the CTS Spray Nozzle;
- AR 2010-11945; Boric Acid Leak in U2 Containment Basement from Crane Wall Penetrations;
- AR 2010-12414; 2-RH-117 has an Active Packing Leak; and
- AR 2010-12518; BA Identified on 2-NS-621 (RC Loop No. 3 HL Sample Shutoff Valve).

b. Findings

No findings were identified.

.4 Steam Generator Tube Inspection Activities

a. Inspection Scope

The NRC inspectors observed acquisition of eddy current (ET) data, reviewed video-recordings of the SG secondary side visual examination and cleaning, interviewed ET data analysts, and reviewed documentation related to the SG ISI program to determine if:

- the numbers and sizes of SG tube flaws/degradation identified were consistent with the licensee's previous outage Operational Assessment predictions;
- the SG tube ET examination scope and expansion criteria were sufficient to meet the TSs, and the Electric Power Research Institute (EPRI) TR-107569, Pressurized Water Reactor Steam Generator Examination Guidelines;
- the SG tube ET examination scope included potential areas of tube degradation identified in prior outage SG tube inspections and/or as identified in NRC generic industry operating experience applicable to these SG tubes;
- the licensee identified new tube degradation mechanisms and implemented adequate extent of condition inspection scope and repairs for the new tube degradation mechanism;
- the licensee implemented repair methods, which were consistent with the repair processes allowed in the plant TS requirements and to determine if qualified depth sizing methods were applied to degraded tubes accepted for continued service;
- the licensee implemented an inappropriate "plug on detection" tube repair threshold (e.g., no attempt at sizing of flaws to confirm tube integrity);

- the licensee primary-to-secondary leakage (e.g., SG tube leakage) was below 3 gallons-per-day or the detection threshold during the previous operating cycle;
- the ET probes and equipment configurations used to acquire data from the SG tubes were qualified to detect the known/expected types of SG tube degradation in accordance with Appendix H, Performance Demonstration for Eddy Current Examination, of EPRI TR-107569, Pressurized Water Reactor Steam Generator Examination Guidelines;
- the licensee performed secondary side SG inspections for location and removal of foreign materials;
- the licensee implemented repairs for SG tubes damaged by foreign material; and
- foreign objects were left within the secondary side of the SGs, and if so, that the licensee implemented evaluations, which included the effects of foreign object migration and/or tube fretting damage.

b. Findings

No findings were identified.

.5 Identification and Resolution of Problems

a. Inspection Scope

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

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

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

b. Findings

No findings were identified.

1R11 Licensed Operator Regualification Program (71111.11)

.1 Annual Operating Test Results (71111.11A)

a. Inspection

During a May 2011 Regualification Training Program Inspection, the inspectors reviewed the overall pass/fail results of the Annual Operating Test, administered by the licensee from February 8 through March 11, 2011, as required by 10 CFR 55.59(a), which was incorrectly documented as one biennial sample.

The inspection actually constituted one annual licensed operator requalification inspection sample as defined in IP 71111.11-05.

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 Unit 1 dual emergency service water pump outage on October 6-7, 2011;
- planned work on Unit 1 east residual heat removal heat exchanger outlet valve, 1-ICM-311 and emergent work to replace Unit 2 power range nuclear instrument NI-43 upper drawer isolation amplifier during the week of October 10, 2011;
- planned work on Unit 1 to drain the RCS to reduced inventory and emergent work to flush the Unit 2 plant air compressor lube oil strainers on October 17-18, 2011;
- emergent work on Unit 2 reactor coolant system loop 3 T-hot channel and on Unit 2 west control air dryer on November 8-9, 2011; and
- emergent work to replace a starting relay on supplemental diesel generator 1 and planned work to replace the motor on Unit 2 west essential service water pump on December 13-15, 2011.

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

These maintenance risk assessments and emergent work control activities constituted five 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:

- Mode 4 aggregate operability review for Unit 1 cycle 24;

- Unit 1 integrated containment isolation valve leak rate evaluation;
- Unit 1 letdown metering orifice installed backwards;
- Unit 1 containment divider barrier seal gap assessment evaluation;
- Unit 1 ice condenser aggregate operability review; and
- Unit 2 CD 250 volt battery bus ground.

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

This operability inspection constituted six samples as defined in IP 71111.15-05.

b. Findings

No findings were identified.

1R18 Plant Modifications (71111.18)

a. Inspection Scope

The inspectors reviewed the following modification:

- Unit 1 east and west essential service water pump semi-permanent scaffold installations.

The inspectors reviewed the configuration changes and associated 10 CFR 50.59 safety evaluation screening against the design basis, the UFSAR, and the TS, as applicable, to verify that the modification did not affect the operability or availability of the affected system. The inspectors, as applicable, completed work activities to ensure that the modification was installed as directed and consistent with the design control documents; the modifications were restrained as specified per design; and that the modification did not impact the operability of any interfacing systems. As applicable, the inspectors verified that relevant procedure, design, drawings and licensing documents were properly updated. Lastly, the inspectors discussed the plant modification with operations, engineering, and training personnel to ensure that the individuals were aware of how the operation with the plant modification in place could impact overall plant performance. Documents reviewed in the course of this inspection are listed in the Attachment to this report.

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

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19)

a. Inspection Scope

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

- Unit 1 AB emergency diesel generator (EDG) 18-month maintenance overhaul;
- Unit 1 CD EDG 18-month maintenance overhaul;
- Unit 1 east centrifugal charging pump rotor replacement;
- Unit 1 containment spray heat exchanger essential service water outlet valve, WMO-717, replacement;
- Unit 1 turbine driven auxiliary feed water pump trip and throttle valve refurbishment;
- Unit 1/2 supplemental diesel generator relay module replacement; and
- Unit 2 west essential service water pump motor replacement.

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

This inspection constituted seven 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 1 refueling outage (RFO), conducted September 21 to October 26, 2011, 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

One self-revealed finding of very low safety significance (Green) with an associated NCV of TS 5.4.1.a was identified for the failure to follow the clearance procedure while performing maintenance on the Unit 1 reactor vessel head vent assembly during the Unit 1 refueling outage. Specifically, workers did not verify that the head vent assembly was

isolated from the reactor vessel prior to attempting to remove the vent hose, which resulted in breaching a pressurized system.

Description

On October 18, 2011, with Unit 1 in Mode 5 and RCS pressure at approximately 100 psi, licensee personnel were in the process of removing the reactor head vent hose in accordance with the Reactor Vent Hose Installation and Removal procedure. Removing the vent hose required unbolting a flange from the reactor vessel head vent assembly. Prior to removing the vent hose, 1-RC-132, reactor vessel head vent outlet to the pressure relief tank outlet valve, and RC-137, reactor vessel head vent to the pressure relief tank shutoff valve, were required to be closed. Clearance R-RCS-RCSI-0414 directed operators to close and tag RC-132, and the Reactor Coolant System Vacuum Fill procedure directed operators to close RC-137 prior to maintenance removing the vent hose. After the operators had been dispatched to close RC-132 and RC-137, operations personnel reported to the Outage Command Center (OCC) that the clearance was in effect. However, at this time RC-137 had not yet been shut. Based on the operations report, the OCC communicated to maintenance that the clearance was in effect and to proceed with removing the reactor vessel head vent hose. The inspectors noted that clearance R-RCS-RCSI-0414 required maintenance workers to first verify the vent hose assembly was isolated prior to loosening the flange. Specifically the clearance stated, "Verify 1-RC-137 is closed on the head prior to breaching its flange." However, the maintenance workers did not physically check RC-137 closed; instead they relied on the report from operations. Consequently, when the maintenance workers loosened the bolts, a more than expected amount of water leaked from the flange and the workers immediately retightened the bolts to stop the leak.

The inspectors noted that the OCC had directed the maintenance workers to remove the reactor head vent hose before operations had isolated the vent hose assembly from the reactor vessel. Additionally, the inspectors interviewed licensee personnel, reviewed the work package, procedures, control room logs and the apparent cause evaluation. The inspectors determined that a combination of inadequate communications between operations, the OCC and maintenance, coupled with a lack of procedural adherence and scheduling issues resulted in maintenance workers attempting to remove the reactor head vent hose while the vent hose assembly was still pressurized and not isolated from the reactor vessel.

Analysis:

The inspectors determined that breaching a pressurized system without verifying that the system was properly isolated was a performance deficiency that warranted an evaluation in accordance with the SDP. The inspectors reviewed the samples of minor issues in IMC 0612, "Power Reactor Inspection Reports," Appendix E, "Examples of Minor Issues," and determined that there were no examples related to this issue. Consistent with the guidance in IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening," the inspectors determined that this issue was associated with the Initiating Events cornerstone attribute of human performance and adversely affects the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, performing maintenance on a pressurized plant system without verifying the

system was properly isolated increased the likelihood of events that challenge plant stability while shutdown.

Because Unit 1 was shutdown, the inspectors utilized Checklist 2 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 control component of the human performance cross-cutting area. Specifically, the OCC did not adequately coordinate work activities between maintenance and operations to ensure the reactor vessel head vent hose assembly was properly removed (H.3 (b)).

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, Appendix A, Section 9, Procedures for Performing Maintenance, states, in part, that maintenance that can affect the performance of safety-related equipment should be properly pre-planned and performed in accordance with written procedures.

Contrary to the above, on October 18, 2011, the licensee failed to perform maintenance in accordance with clearance R-RCS-RCSI-0414, a procedure required by Regulatory Guide 1.33, Appendix A, Section 9, while performing maintenance on the Unit 1 reactor vessel head vent assembly. Specifically, licensee personnel failed to verify RC-137 closed, as required by clearance R-RCS-RCSI-0414, prior to removing the reactor vessel head vent hose. Consequently, maintenance workers breached a pressurized system that was not isolated, which resulted in a more than expected amount of reactor coolant being released from the system. As corrective actions, licensee personnel immediately isolated the leak, added RC-137 to the clearance with a red tag and communicated lessons learned to the workers. Because this violation was of very low safety significance, was not repetitive or willful, and was entered into the licensee's CAP as AR 2011-12207, this violation is being treated as an NCV consistent with Section 2.3.2 of the NRC Enforcement Policy (NCV 05000315/2011005-02, Failure to Follow the Clearance Procedure during 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 1 turbine driven auxiliary feed water pump response time surveillance (inservice test);
- Unit 1 local leak rate surveillance (containment isolation valve);
- Unit 1 multiple rod drop measurement surveillance (routine); and

- Unit 2 east motor driven auxiliary feed water system surveillance (inservice test).

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

- did preconditioning occur;
- were the effects of the testing adequately addressed by control room personnel or engineers prior to the commencement of the testing;
- were acceptance criteria clearly stated, demonstrated operational readiness, and consistent with the system design basis;
- plant equipment calibration was correct, accurate, and properly documented;
- as-left setpoints were within required ranges; and the calibration frequency was in accordance with TSs, the USAR, procedures, and applicable commitments;
- measuring and test equipment calibration was current;
- test equipment was used within the required range and accuracy; applicable prerequisites described in the test procedures were satisfied;
- test frequencies met TS requirements to demonstrate operability and reliability; tests were performed in accordance with the test procedures and other applicable procedures; jumpers and lifted leads were controlled and restored where used;
- test data and results were accurate, complete, within limits, and valid;
- test equipment was removed after testing;
- where applicable for inservice testing activities, testing was performed in accordance with the applicable version of Section XI, ASME 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, two inservice testing samples, and one containment isolation valve test sample as defined in IP 71111.22, Sections -02 and -05.

b. Findings

No findings were identified.

2. RADIATION SAFETY

Cornerstones: Occupational Radiation Safety

2RS02 Occupational As-Low-As-Is-Reasonable-Achievable Planning and Controls (71124.02)

These inspection activities were incorrectly documented as a partial sample in NRC Inspection Report 05000315/2010005; 05000316/2010005, dated January 25, 2011.

This inspection procedure was completed and constituted one sample as defined in IP 71124.02-05. Please refer to ADAMS Accession #s ML110250330 and ML101250243 in ADAMS for the inspection activities that completed this sample.

2RS05 Radiation Monitoring Instrumentation (71124.05)

These inspection activities were incorrectly documented as a partial sample in NRC Inspection Report 05000315/2010002; 05000316/2010002, dated May 5, 2010.

This inspection procedure was completed and constituted one complete sample as defined in IP 71124.05-05. Please refer to document ML101250243 in ADAMS for the inspection activities that completed this sample.

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 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 40A2.2 above, licensee trending efforts, and licensee human performance results. The inspectors' review nominally considered the six month period of April 2011 through September 2011, although some examples expanded beyond those dates where the scope of the trend warranted.

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

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

b. Findings

No findings were identified.

.4 Annual Sample: Review of Operator Workarounds

a. Inspection Scope

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

The inspectors performed a review of the cumulative effects of operator workarounds. The documents listed in the Attachment were reviewed to accomplish the objectives of the inspection procedure. The inspectors reviewed both current and historical operational challenge records to determine whether the licensee was identifying operator challenges at an appropriate threshold, had entered them into their CAP and proposed or implemented appropriate and timely corrective actions which addressed each issue. Reviews were conducted to determine if any operator challenge could increase the possibility of an Initiating Event, if the challenge was contrary to training, required a change from long-standing operational practices, or created the potential for inappropriate compensatory actions. Additionally, all temporary modifications were reviewed to identify any potential effect on the functionality of Mitigating Systems, impaired access to equipment, or required equipment uses for which the equipment was not designed. Daily plant and equipment status logs, were also assessed to identify any potential sources of unidentified operator workarounds.

This review constituted one operator workaround annual 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 High Vibration on Unit 1 East Main Feedwater Pump

a. Inspection Scope

On November 25, 2011, the inspectors observed control operator response to elevated vibrations on the Unit 1 east main feed pump that required a manual feed pump trip and subsequent power reduction to 57 percent power. In addition the inspectors reviewed control room logs and interviewed operators to verify that the operators responded in accordance with plant procedures.

The inspectors also reviewed action requests to verify that identified problems pertaining to the elevated vibrations and subsequent feed pump trip were entered into the CAP with the appropriate significance characterization. Documents reviewed in this inspection are listed in the Attachment.

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

b. Findings

No findings were identified.

.2 Unit 2 Loss of Containment Chilled Water

a. Inspection Scope

On November 29, 2011, the inspectors observed the Unit 2 control room operators implement Abnormal Operating Procedure, 2-OHP-4022-028-001, Loss of Containment Chilled Water, due to nonsafety-related 12 kilovolt power being lost because of a downed power line. The inspectors verified that the operators responded in accordance with the procedure and reviewed plant parameters to verify that containment temperature and pressure remained within operating limits.

The inspectors also reviewed action requests to verify that identified problems regarding the loss of power and response to the loss of containment chilled water were entered into the CAP with the appropriate significance characterization. Documents reviewed in this inspection are listed in the Attachment.

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

b. Findings

No findings were identified.

.3 Unit 1 Loss of Heater Drain Pump

a. Inspection Scope

The inspectors reviewed the control room operator response to the Unit 1 heater drain pump trip on November 21, 2011, which required operators to immediately reduce turbine load by 45 megawatts to prevent exceeding the licensed thermal operating limit. The inspectors reviewed control room logs and interviewed operators to verify that the operators responded in accordance with plant procedures and that the 3304 megawatt thermal limit was not exceeded.

The inspectors also reviewed action requests to verify that identified problems pertaining to the trip were entered into the CAP with the appropriate significance characterization. Documents reviewed in this inspection are listed in the Attachment.

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

b. Findings

No findings were identified.

4OA6 Management Meetings

.1 Exit Meeting Summary

- On January 18, 2012, 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 exit was conducted for:

- The results of the inservice inspection with Mr. L. Weber, Chief Nuclear Officer, and other members of the licensee staff on October 7, 2011.
- Additionally the results were re-exited on October 20, 2011 with Mr. T. Woods, Performance Assurance Director, and other members of the licensee staff.

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

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

D. Cantrell, Site Senior License
M. Carlson, Site Support Services Vice President
J. Chambers, Emergency Preparedness Manager
R. Ebright, Engineering Director
H. Etheridge, Licensing Manager
J. Gebbie, Site Vice President
R. Hall, ISI Program Owner
R. Keppeler, Maintenance Manager
Q. Lies, Plant Manager
J. Nimtz, Regulatory Affairs Senior Licensing Activities Coordinator
K. O'Conner, Compliance Manager
R. Pickard, Engineering Manager
M. Scarpello, Regulatory Affairs Manager
R. West, Regulatory Assurance
T. Woods, Performance Assurance Director
S. Vazquez, Operations Director

Nuclear Regulatory Commission

J. Giessner, Chief, Reactor Projects Branch 4
J. Lennartz, D.C. Cook Senior Resident Inspector
P. LaFlamme, D.C. Cook Resident Inspector

LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

Opened

05000315/2011005-01	NCV	Failure to Follow Procedure for PT Examination on ASME Class 1 Piping Weld (1R08)
05000315/2011005-02	NCV	Failure to Follow the Clearance Procedure During Maintenance on Safety-Related Equipment (1R20)

Closed

05000315/2011005-01	NCV	Failure to Follow Procedure for PT Examination on ASME Class 1 Piping Weld (1R08)
05000315/2011005-02	NCV	Failure to Follow the Clearance Procedure During Maintenance on Safety-Related Equipment (1R20)

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 27, 2011
- AR 2011-0919, 12-DFPWS-1B-13 Found Tripped
- AR 2011-12648, Hole in Siding on Screenhouse While Performing Winterization
- AR 2011-3900, Sub Panel 12-WST, Heater Needs to Be Replaced
- PMP-5055-001-001, Winterization/ Summerization, October 31, 2011
- Seasonal Readiness Affirmation, November 3, 2011

1R04 Equipment Alignment

- 1-OHP-4021-009-001, Placing the Containment Spray System in Standby Readiness, Revision 15
- 1-OHP-4030-156-017W, West Motor Driven Auxiliary Feed Water System Test, Revision 7
- 2-OHP-4021-008-002, Placing Emergency Core Cooling System in Standby Readiness, Revision 24
- 2-OHP-4030-208-053V, E.C.C.S. Valve Position Verification, Revision 6
- AR 2010-12863, CAQ – Condition Adverse to Quality
- AR 2010-12863-1, Evaluate Valves Found Closed that Should Have Been Open
- AR 2010-12863-2, Document Basis for Mis-positioning Classification
- AR 2010-12863-3, Revise 1-OHP-4021-002-011
- AR 2010-12863-4, Revise 2-OHP-4021-002-011
- AR 2010-9131, Mis-positioning of 2-FMO-231 While Performing PM on 2-FMO-232
- AR 2011-12340, 2-MRV-243 is Leaking By Slightly
- AR 2011-12817, U1 No. 3 S/G Blowdown Low Sample Flow
- AR 2011-12995, Dry Boric Acid on 1-RH-113E
- AR 2011-13003, Discolored Boric Acid on Packing Leak
- AR 2011-13043, 1-CTS-130W Has White Dry Boric Acid on the Packing Gland
- AR 2011-13047, 1-IMO-314 Has White Dry Boric Acid on the Packing
- AR 2011-13149, U1 RWST Doghouse and Hatch Leading to RWST Pipe Tunnel Leak
- AR 2011-2604, 2-IRV-303 Control Switch Found Out of Position
- GT-2010-4505, NSRB Action Items

1R05 Fire Protection

- AR 2010-1610, Sprinkler Head Needing Evaluation
- AR 2011-0119, Fire Hose Connection Degraded
- AR 2011-0822, U-2 CRCV Halon Bottles Surveillance Failed
- AR 2011-10034, Unexpected FP Annunciator
- AR 2011-10308, Fusible Link Missing from Door to Supplemental Cooling
- AR 2011-13546, Damaged Fire Proofing Material on Cable Tray
- FHA, Fire Hazards Analysis, Revision 15
- Fire Pre-Plan, Revision 9

1R07 Annual Heat Sink Performance

- 12-EHP-8913-001-002, Heat Exchanger Inspection for CD EDG Jacket Water Cooler, October 7, 2011
- AR 2011-10958, 1-HE-15W, West Comp Cooling Water HX Zebra Mussel Shells
- AR 2011-11292, Fresh Water Shrimp Found in ESW Sys in 1-HE-47-ABS & Piping
- AR 2011-11831, Degraded Component Found during U1C24 Outage
- AR 2011-12175, Increased Silt and Mussels Noted During Sampling
- AR 2011-12222, CCW Heat Exchangers Configuration
- WOT 55353929-19, Unit 1 East Component Cooling Water Heat Exchanger, October 9, 2011

1R08 Inservice Inspection Activities

- 12 QHP-5050-NDE-001, Liquid Penetrant Examination, Revision 7
- 12-QHP-5050-NDE-006, Visual Examination: VT-1 and VT-3, Revision 4
- AR 00828718, Evidence of Leakage and BA at Flange Connection, March 30, 2008
- AR 00828718/552855170, Data Sheet 1 and BA Evaluation for AR 00828718, March 30, 2008
- AR 00863314, 1-GFW-R-179, Identified Discrepancies during Visual Exam, January 13, 2010
- AR 10011030, I1C23 Section XI Repair/Replacements Planned to Wrong Code, January 11, 2010
- AR 10013050, 1-GCCW-L-236, Identified Discrepancies during VT-3 Exam, January 13, 2010
- AR 2010-10059, 1 QDA-11 Boric Acid Found by Drain Valve, September 29, 2010
- AR 2010-10346, #24 RCP Seal Leakage, November 1, 2010
- AR 2010-10356, Boric Acid was Identified on the CTS Spray Nozzle, October 6, 2010
- AR 2010-11945, Boric Acid Leak in U2 Containment Basement from Crane Wall Penetrations, November 5, 2010
- AR 2010-11945-2, Data Sheet 1 and BA Evaluation for AR 2010-11945, November 5, 2010
- AR 2010-12391-1, Data Sheet 1 and BA Evaluation for AR 2010-12414, November 17, 2010
- AR 2010-12414, 2-RH-117 has an Active Packing Leak, November 17, 2010.
- AR 2010-12414, Data Sheet 1 and BA Evaluation for AR 2010-12912, November 17, 2010
- AR 2010-12518, BA Identified on 2-NS-621 (RC Loop No. 3 HL Sample Shutoff valve), November 19, 2010
- AR 2010-12518-1, Data Sheet 1 and BA Evaluation for AR 2010-12518, November 17, 2010
- AR 2010-12606, U1 Seal Table Fittings Leak, November 22, 2010.
- AR 2010-12912, Leakage at Various Components during RHR VT-2 Inspections, November 17, 2010
- AR 2010-9182, Missing Weld Data on CVCS Vent Line Weld during U2C18, September 13, 2010
- AR 2011-11103, Reactor Vessel Upper Head Examination Results, September 28, 2011
- AR 2011-11127, Boric Acid Data Sheet 1 Evaluations not Retrievable, September 28, 2011
- AR 2011-11130, NRC Identified Liquid Penetrant Examination Concerns, September 28, 2011
- AR 2011-11191, Reportable Indications Noted During ISI PT Examination, September 29, 2011
- AR 2011-11316, Foreign Objects Discovered on the Secondary Side of SG 12, October 1, 2011
- AR 2011-11394, Seven Foreign Objects were Discovered in the Tubesheet Area in SG 13 during Remote Secondary Side Inspections, October 4, 2011
- AR 2011-11547, Step Change in Steam Generator Eddy Current Indication Count, October 5, 2011
- AR 2011-11552, Lack of Detailed Evaluation of Unsupported Piping, October 5, 2011
- AR 2011-11572, Wrong ASME XI Code Table Referenced in ISI Evaluation, October 5, 2011

- AR 2011-2165, 2-ICM-265 Boric Acid Leak, February 18, 2011
- AR 2011-9135, NRC Information Notice 2011-15, Steel Containment Degradation, August 11, 2011
- AR GT 2011-11754, Documentation of As-Left SG Tube Plugging, October 11, 2011
- AREVA 51-9041323-003, DC Cook Unit 1 Final Steam Generator Condition Monitoring and Operational Assessment Evaluation for U1C21, October 5, 2010
- ASME Procedure Qualification Record number 136, WPS 8.1TS, Revision 1
- Cook Nuclear Plant Steam Generator Program Unit 1 Primary Side Integrity Plan, Revision 5
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1R13 Maintenance Risk Assessments and Emergent Work Control

- 1-OHP-4021-002-005 RCS Draining, Revision 47
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- AR 2011-13107, Unit 2 RCS Loop 3 Thot Channel Failed Low Momentarily
- AR 2011-13131, Belt has Come Off Unit 2 West Control Air Dryer Blower
- Control Room Logs, October 6-7, October 10-14, October 17-18, November 8-9, December 13-15, 2011
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1R15 Operability Evaluations

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- 1-EHP-4030-124-001 U1 Primary Containment Leak Rate Running Total, October 21, 2011
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- 1-FCN-4458-R0-06, Field Change Notice for Installing Sealant on Divider Seal, Revision 0
- 1-OHP-4024-109 Drop 26, Annunciator 109 Response: Boric Acid, Revision 14
- 12-MHP-4030-010-001, Ice Condenser Basket Weighing Surveillance, October 16, 2011
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- 2-TM-11-22-RO, Unit 2 CD Battery Ground Input Time Delay Temporary Modification, June 22, 2011
- AR 2011-1485, 2CD Plant Battery Ground
- AR 2011-10279, U1C24 Aggregate Ice Basket Damage Evaluation
- AR 2011-11249, U1C24 failed LLRT 1-VCR-205
- AR 2011-11393, Unable to Perform LLRT 025/026 Due to Leak by of 1-NSW-239-4
- AR 2011-11748, Divider Barrier Seal Bar is Welded to the Stud
- AR 2011-11878, Divider Barrier Seal Configuration Does Not Match Surveillance Configuration
- AR 2011-11995, Minor Deficiencies Identified on Divider Barrier Seal U1C24
- AR 2011-12314, 1-NCR-109 and 1-NCR-110 LLRT Greater Than Administrative Limit
- DCP 4458, Install New Divider Barrier Seal, Revision 0
- PS-2-92044, Turbine Relay Panel Wiring Diagram, Revision 16
- PS-2-91313, DC Distribution CAB's Battery CD Wiring Diagram, Revision 7
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- 12-MHP-5021-SCF-001, Scaffolding Guidelines, Revision 14
- 1-3113A, Unit 1 ESW Pump Platforms Plan and Isometric View, Revision 1
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1R19 Post-Maintenance Testing

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- 1-OHP-4030-132-027AB, AB Diesel Generator Operability Test, October 5, 2011
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- 1-OHP-4030-156-017T, Turbine Driven Auxiliary Feed Water System Test, October 24, 2011
- AR 2011-11501, 1AB EDG Trip on Air Chest Press Extreme High
- AR 2011-11544, Packing Follower on 1-WMO-717 Does Not Engage with Valve
- AR 2011-11690, PMT Completed Without Paperwork in Hand
- AR 2011-12364, 1-FRV-220 Failed Initial Closed Stroke Timing
- AR 2011-12525, Time Delay Relay Out of Spec
- AR 2011-13097, PMT Performed Without the hardcopy WOT in Hand
- AR 2011-14406, SDG 1 Failed to Start Due To Over Cranking
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- Control Room Logs for October 4, 2011
- MD-12-ESW-073-N, PPM Evaluation of 1-WMO717 Packing Load, Revision 2
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- PMP-2291-WMP-001, Work Management Process Flowchart, Revision 17
- PS-12-91703, SDG Diesel Generator Power Distribution Wiring Diagram, Revision 7
- TDB-1-Figure 19.9, Diesel Generator Pot Settings, Revision 35
- TDB-1-Figure-15.2, Safety-related Pump Inservice Test Vibration Reference, Revision 99
- TDB-1-Figure-19.1, Power Operated Valve Stroke Time Limits, Revision 110
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- 1-OHP-4021-001-006, Power Escalation, October 26, 2011

- 1-OHP-4021-002-013, Reactor Coolant System Vacuum Fill, Attachment 6, Vacuum Fill Contingencies, Revision 19
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- 1-OHP-4030-127-041, Refueling Integrity, Revision 17
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- AR 2011-10304, Incomplete Fatigue Assessments
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- AR 2011-10881, Steam Generators Snubbers Functional Testing
- AR 2011-11265, MTE Supervisor Violated Working Hours Requirement
- AR 2011-11416, 1-ICM-311 Has Open Pullout Thrust Above the Max Allowable
- AR 2011-11552, Lack of Detailed Engineering Evaluation of Unsupported Piping
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- DWG 1-5663, Unit 1 RCS Loop Details, Revision 11
- ICP-01458, EDG Timing Relay Tolerances for 1-62-SIS-T11A8 & 1-62-SIS-T11D7, Revision 0
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- TS 3.4.3, RCS Pressure and Temperature Limits
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1R22 Surveillance Testing

- 1-EHP-4030-102-386 Multiple Rod Drop Measurements, Revision 11
- 1-EHP-4030-134-001, Unit 1 Primary Containment Leak Rate Running Total, October 21, 2011
- 1-OHP-4030-102-017, RCS Pressure Isolation Valves Leak Rate Surveillance Test, Revision 6
- 1-OHP-4030-156-017R, Auxiliary Feed Water Pump Response Time, October 24, 2011
- 2-OHP-4030-256-017E, East Motor Driven Auxiliary Feedwater System Test, November 10, 2011
- AR 2011-10739, 1-SI-158-L2/L3 Is Exceeding the Leakage Limit
- AR 2011-12674, 1-WCR-962 Greater Than IST Max Limit
- AR2011-11249, U1C24 Failed LLRT 1-VCR-205
- AR2011-11306, U1C24 Failed LLRT 1-CCW-243-25
- AR2011-11858, U1C24 As-Found LLRT Failure of 1-NS-357

- AR2011-12160, 1-R-157 Failed AF LLRT
- AR2011-12314, 1-NCR-109 and 1-NCR-110 LLRT Greater Than Administrative Limit
- EHI-5300, DC Cook Nuclear Plant Containment leakage Rate Testing Program (Appendix J), Revision 7
- OHI-4016, Conduct of Operations Guidelines
- TDB-1-Figure-15.1, Safety-related Pump Inservice Test Hydraulic Reference, Revision 121
- TDB-1-Figure-19.1, Power Operated Valve Stroke Time Limits, Revision 110
- WO55390806-04, 1-SI-158-L3 Perform Leak Inspection (PMT)
- WO55390811-04, 1-SI-158-L2 Perform Leak Inspection (PMT)

4OA2 Identification and Resolution of Problems

- 2nd and 3rd Quarter 2011 Trend Reports
- AR 2011-0758, Cognitive Trend on Increase in MRULE Functional Failures
- AR 2011-14579, Trend Evaluation Deficiencies
- AR 2011-5342, Potential Trend with E8t Code
- AR 2011-9659, AFP Tube Plugging and FME
- AR 2011-9727, Adverse Trend: E3s2-Hoses/Tubing
- Control Room Deficiencies sorted by Online/Outage, December 22, 2011
- PMP-2291-WMP-001, Work Management Process Flowchart, Revision 17
- PMP-7030-TND-001, Trend Analysis, April – September 2011
- Supplemental Diesel Generator Maintenance Rule Scoping Document, May 24, 2007
- Two-Year Unavailability Report for the Supplemental Diesel Generator System, December 12, 2011
- Unit 1 and Unit 2 Operator Burden Reports, December 21, 2011

4OA3 Followup of Events and Notices of Enforcement Discretion

- 1-OHP-4021-011-001, At Power Operation Including Load Swings, Revision 27
- 1-OHP-4022-001-006, Rapid Power Reduction Response, November 25, 2011
- 1-OHP-4022-055-001, Loss of One Main Feed Pump, November 25, 2011
- 2-OHP-4021-028-001, Containment Ventilation, Data Sheet 1, Containment Air Temperature Monitoring, November 29, 2011
- 2-OHP-4022-028-001, Loss of Containment Chilled Water, November 29, 2011
- AR 2011-130964, Received East MFPT Pump Thrust Bearing Hi Wear Alarm
- AR 2011-13616, South Heater Drain Pump Trip
- AR 2011-13813, Loss of Power to Transformer 7
- AR 2011-13833, Procedure Deviation Used for Loss of Containment Cooling Abnormal
- AR 2011-13837, Containment Cooling Bus Undervoltage Alarm Failed to Alarm
- AR 2011-13910, Containment Chilled Water System Procedure Enhancements
- MD-12-HV-049-N, Revised Lower Containment Temperature Measurement Methodology, Revision 2
- NEI Position Statement, Guidance to Licensees on Complying with the Licensed Power Limit, Revision 0
- OHI-4000, Conduct of Operations: Standards, Revision 63
- OHI-4023, Abnormal/Emergency Procedure Users Guide
- RIS 2007-21, Adherence to Licensed Power Limits, Revision 1
- Safety Evaluation Regarding Endorsement of NEI Guidance for Adhering to the Licensed Thermal Power Limit, October 8, 2008

LIST OF ACRONYMS USED

ADAMS	Agencywide Document Access Management System
ASME	American Society of Mechanical Engineers
CAP	Corrective Action Program
CFR	Code of Federal Regulations
EDG	Emergency Diesel Generator
ET	Eddy Current
IMC	Inspection Manual Chapter
ISI	Inservice Inspection
IP	Inspection Procedure
NCV	Non-Cited Violation
NRC	U.S. Nuclear Regulatory Commission
OCC	Outage Command Center
OSP	Outage Safety Plan
PARS	Publicly Available Records System
PT	Liquid Dye Penetrant
RCS	Reactor Coolant System
RFO	Refueling Outage
SDP	Significance Determination Process
SG	Steam Generator
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report
UT	Ultrasonic Examination

L. Weber

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Sincerely,

/RA/

John B. Giessner, Branch Chief
Branch 4
Division of Reactor Projects

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

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