



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**

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

August 4, 2009

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

**SUBJECT: D. C. COOK NUCLEAR POWER PLANT, UNITS 1 AND 2 INTEGRATED  
INSPECTION REPORT 05000315/2009003; 05000316/2009003**

Dear Mr. Jensen:

On June 30, 2009, 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 inspection results, which were discussed on July 13, 2009, with Mr. R. Hruby and other members of your staff.

This 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.

The report documents three NRC-identified findings of very low safety significance (Green). These findings were determined to involve violations of NRC requirements. Additionally, two licensee-identified violations which were determined to be of very low safety significance are listed in this report. However, because of the very low safety significance and because they are entered into your corrective action program, the NRC is treating these findings as non-cited violations (NCVs) consistent with Section VI.A.1 of the NRC Enforcement Policy. If you contest any NCV, 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 D. C. Cook. In addition, if you disagree with the characterization of 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 D.C. Cook. The information you provide will be considered in accordance with Inspection Manual Chapter 0305.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and 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 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 No. 05000315/2009003; 05000316/2009003  
w/Attachment: Supplemental Information

cc w/encl: L. Weber, Site Vice President  
J. Gebbie, Plant Manager  
O. Isiogu, Michigan Public Service Commission  
Michigan Department of Environmental Quality  
Planning Manager, Emergency Management and Homeland  
Security Division, Michigan State Police Department  
T. Strong, State Liaison Officer

J. Jensen

-2-

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and 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 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 05000315/2009003; 05000316/2009003  
w/Attachment: Supplemental Information

cc w/encl: L. Weber, Site Vice President  
J. Gebbie, Plant Manager  
O. Isiogu, Michigan Public Service Commission  
Michigan Department of Environmental Quality  
Planning Manager, Emergency Management and Homeland  
Security Division, Michigan State Police Department  
T. Strong, State Liaison Officer

DOCUMENT NAME: G:\Cook\DC Cook 2009 003.doc

Publicly Available       Non-Publicly Available       Sensitive       Non-Sensitive  
To receive a copy of this document, indicate in the concurrence box "C" = Copy without attach/encl "E" = Copy with attach/encl "N" = No copy

OFFICE	RIII	RIII						
NAME	PVoss:dtp JLC for	JCameron						
DATE	08/04/09	08/04/09						

**OFFICIAL RECORD COPY**

Letter to J. Jensen from J. Cameron dated August 4, 2009

SUBJECT: D. C. COOK NUCLEAR POWER PLANT, UNITS 1 AND 2 INTEGRATED  
INSPECTION REPORT 05000315/2009003; 05000316/2009003

DISTRIBUTION:

Susan Bagley

RidsNrrDorLpl3-1 Resource

RidsNrrPMDCCook Resource

RidsNrrDirIrib Resource

Cynthia Pederson

Kenneth Obrien

Jared Heck

Allan Barker

Jeannie Choe

Linda Linn

DRPIII

DRSIII

Patricia Buckley

Tammy Tomczak

[ROPreports Resource](#)

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

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

Report Nos. 05000315/2009003; 05000316/2009003

Licensee: Indiana Michigan Power Company

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

Location: Bridgman, MI

Dates: April 1 through June 30, 2009

Inspectors: J. Lennartz, Senior Resident Inspector  
P. LaFlamme, Resident Inspector  
J. Jacobson, Senior Reactor Inspector  
M. Phalen, Health Physicist  
W. Jessup, General Engineer

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

Enclosure

## TABLE OF CONTENTS

SUMMARY OF FINDINGS .....	1
Report details .....	4
Summary of Plant Status.....	4
1. REACTOR SAFETY.....	4
1R01 Adverse Weather Protection (71111.01) .....	4
1R04 Equipment Alignment (71111.04).....	6
1R05 Fire Protection (71111.05) .....	8
1R07 Annual Heat Sink Performance (71111.07).....	9
1R08 Inservice Inspection Activities (71111.08P).....	9
1R12 Maintenance Effectiveness (71111.12) .....	12
1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13).....	13
1R15 Operability Evaluations (71111.15) .....	15
1R18 Plant Modifications (71111.18).....	16
1R19 Post-Maintenance Testing (71111.19) .....	16
1R20 Outage Activities (71111.20).....	17
1R22 Surveillance Testing (71111.22).....	21
2. RADIATION SAFETY .....	22
2OS1 Access Control to Radiologically Significant Areas (71121.01) .....	22
2OS2 As-Low-As-Is-Reasonably-Achievable (ALARA) Planning And Controls (71121.02) .....	26
4. OTHER ACTIVITIES .....	28
4OA1 Performance Indicator Verification (71151).....	28
4OA2 Identification and Resolution of Problems (71152) .....	31
4OA3 Follow-Up of Events and Notices of Enforcement Discretion (71153) .....	33
4OA5 Other Activities.....	33
4OA6 Management Meetings .....	34
4OA7 Licensee-Identified Violations .....	35
KEY POINTS OF CONTACT .....	1
LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED .....	1
LIST OF DOCUMENTS REVIEWED.....	2
LIST OF ACRONYMS USED .....	9

## SUMMARY OF FINDINGS

IR 05000315/2009003; 05000316/2009003; 04/01/2009 – 06/30/2009 D.C. Cook Nuclear Power Plant, Units 1 & 2; Equipment Alignment, Maintenance Risk Assessments and Emergent Work Control, and Refueling and Other Outage Activities.

The inspection was conducted by resident and regional inspectors. The report covers a 3-month period of resident inspection. Three green findings with associated non-cited violations were identified. 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 0305, "Operating Reactor Assessment Program." 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 July 2006.

### A. NRC-Identified and Self-Revealed Findings

#### **Cornerstone: Mitigating Systems**

- Green. The inspectors identified one finding of very low safety significance with an associated Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action." Specifically, the inspectors identified a gap in the remote strainer waterway for the emergency core cooling recirculation sump that was greater than the gap size allowed by the surveillance test acceptance criteria. Consequently, debris larger than the allowed particle size could enter the emergency core cooling recirculation sump. For corrective actions, the gap in the remote strainer waterway was repaired prior to Unit 2 entering Mode 4, Hot Shutdown, which required the recirculation sump to be operable. Licensee personnel also completed a past operability determination, which concluded that while the gap in the waterway was a nonconforming condition, there was reasonable assurance that the recirculation sump was operable and that the nonconformance would have had an insignificant impact on the recirculation sump function of providing a filtered supply of water during the recirculation phase of a loss of coolant accident. This issue was entered into the licensee's corrective action program as condition report AR 00850005.

This finding was more than minor because it was related to the design control attribute of the mitigation systems cornerstone and adversely affected the cornerstone objective of ensuring the availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the gap in the remote strainer waterway could result in larger than allowed debris entering the emergency core cooling recirculation sump, which could impact the reliability and capability of long term decay heat removal cooling systems. This finding was of very low safety significance because no loss of safety function actually occurred and the finding was not potentially risk significant due to a seismic, flooding, or severe weather initiating event. This finding was associated with a cross-cutting aspect in the area of human performance regarding work control—work planning (H.3 (a)). (Section 1R20)

## **Cornerstone: Miscellaneous**

- Green. The inspectors identified a finding of very low safety significance with an associated Non-Cited Violation of Technical Specification 5.4.1 for the failure to adequately maintain a complete and accurate abnormal operating procedure (AOP) in accordance with Regulatory Guide 1.33 regarding the required actions for a loss of spent fuel pit (SFP) cooling. Specifically, a valve specified by the AOP as a method to add water to the SFP had been removed by a plant modification. Consequently, the AOP contained inaccurate guidance that under certain circumstances, such as a loss of the other methods specified in the AOP to add water to the SFP, could hinder an operator's ability to mitigate a loss of SFP cooling. This issue was entered into the licensee's corrective action program as AR 00849705.

The inspectors concluded that this issue could become a more significant safety concern if left uncorrected and was therefore more than a minor concern. This finding was of very low safety significance because it did not result in an actual loss of SFP cooling or inventory. This finding was associated with a cross-cutting aspect in the area of problem identification and resolution regarding the corrective action program—low threshold for identifying issues (P.1 (a)). (Section 1R04)

- Green. The inspectors identified one finding of very low safety significance with an associated Non-Cited Violation of 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," during planned maintenance on the 69 kilovolt emergency power system on June 2, 2009. Specifically, the on-line maintenance risk assessment for the planned maintenance failed to include the risk-significant supplemental emergency diesel generators. Consequently, the increase in risk for the planned work was underestimated. As an immediate corrective action licensee personnel re-performed the risk assessment to verify that the risk status remained green; that no risk management actions were required; and that a condition of significant risk was not missed due to the error. Other corrective actions included sending a generic communication to operations and work control personnel to make them aware of the issue and to ensure that they understood how the supplemental diesel generators were represented in the on-line risk program so that plant risk would be appropriately assessed during future emergency power system maintenance. This issue was entered into the licensee's corrective action program as condition report AR 00852616.

This finding was more than minor because the licensees' on-line risk assessment for the 69 kilovolt emergency power system planned maintenance failed to include the risk-significant supplemental diesel generators, which were unavailable during the maintenance. This finding was of very low safety significance because the incremental core damage probability and the incremental large early release probability risk deficit values were less than 1.0E-6 after the risk assessment was recalculated to include the supplemental diesel generators. This finding was associated with a cross-cutting aspect in the area of human performance regarding work practices—human error prevention techniques (H.4 (a)). (Section 1R13)

## **B. 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 remained in Mode 5, Cold Shutdown, during the entire inspection period.

Unit 2 was in Mode 6, refueling, when the inspection period started. Following the refueling outage, Unit 2 reactor startup was completed on April 29, 2009, and the main generator was initially synchronized to grid on May 1. After obtaining vibration data, the main turbine was tripped and additional maintenance was completed to balance the main turbine while the reactor was maintained in Mode 2, Startup. The generator was synchronized to the grid on May 6, 2009, after main turbine balancing was completed and plant power escalation commenced. Unit 2 reached full power on May 10, 2009, and was at full power when the inspection period ended.

### **Cornerstone: Initiating Events, Mitigating Systems, and Barrier Integrity**

#### **1. REACTOR SAFETY**

##### 1R01 Adverse Weather Protection (71111.01)

##### .1 Summer Seasonal Readiness Preparations

##### a. Inspection Scope

The inspectors performed a review of the licensee's preparations for summer weather for selected systems, including problems that could result from extended high temperatures.

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. The inspectors' reviews focused specifically on the following plant systems:

- Unit 1 and 2 Control Room Air Conditioning Units
- Unit 1 and 2 Main Transformers
- Unit 1/2 Intake Structure Fish Deterrent System

The inspectors also reviewed corrective action program items to verify that the licensee was identifying adverse weather issues at an appropriate threshold and entering them into their corrective action program in accordance with plant procedures.

This inspection constitutes one sample for seasonal extreme weather conditions as defined in Inspection Procedure (IP) 71111.01-05.

##### b. Findings

No findings of significance were identified.

.2 Summer Readiness of Offsite and Alternate AC Power Systems.

a. Inspection Scope

The inspectors performed a review of the licensee's plant features and procedures for responding to issues that could impact the offsite and onsite alternate AC (alternating current) power systems. Specially, the inspectors verified that:

- communications and coordination between the transmission system operator and the plant were in place to ensure that appropriate information is exchanged when issues arise that could impact availability of the offsite and alternate AC power systems;
- procedures sufficiently addressed actions to monitor and maintain availability and reliability of the off site and the onsite alternate AC power systems; and
- risk assessments were required for maintenance activities that could affect grid reliability or the ability of the transmission system to provide off site power.

Additionally, the inspections performed a walkdown of the 345 and 765 Kilo Volt (KV) switchyards accompanied with licensee personnel to observe the material condition of the offsite power sources. No equipment issues were identified.

This inspection constitutes one sample to evaluate the readiness of offsite and alternate AC power systems as defined in IP 71111.01-05.

b. Findings

No findings of significance were identified.

.3 Readiness For Impending Adverse Weather Condition – High Wind Conditions

a. Inspection Scope

Because high winds were forecast for May 13, 2009, the inspectors reviewed the licensee's overall preparations for the expected weather conditions. On the afternoon of May 13, 2009, the inspectors walked down the 345 and 765 KV 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 corrective action program in accordance with station procedures.

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

b. Findings

No findings of significance were identified.

## 1R04 Equipment Alignment (71111.04)

### a. Inspection Scope

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

- Priority Systems to Respond to Loss of Spent Fuel Pool Cooling
- Unit 2 Manual Containment Isolation Valves Outside Containment
- Unit 1 Plant Air 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, Technical Specification (TS) requirements, outstanding work orders (WOs), condition reports, and the impact of ongoing work activities on redundant trains of equipment in order to identify conditions that could have rendered the systems incapable of performing their intended functions. The inspectors also walked down accessible portions of the systems to verify system components and support equipment were aligned correctly and operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no obvious deficiencies. The inspectors also verified that the licensee had properly identified and resolved equipment alignment problems that could cause initiating events or impact the capability of mitigating systems or barriers and entered them into the corrective action program (CAP) with the appropriate significance characterization. Documents reviewed are listed in the Attachment.

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

### b. Findings

#### Introduction

The inspectors identified a finding of very low safety significance (Green) with an associated Non-cited Violation of TS 5.4.1 for the failure to adequately maintain a complete and accurate Abnormal Operating Procedure (AOP) to address the actions required for a loss of spent fuel pit (SFP) cooling. Consequently, the AOP contained inaccurate guidance regarding methods to add makeup water to the SFP.

#### Description

On April 8, 2009, during the Unit 2 refueling outage with the Unit 2 core completely offloaded and stored in the SFP the inspectors performed an equipment alignment on the systems specified in AOP 12-OHP-4022-018-001, "Loss of Spent Fuel Pit Cooling", to mitigate a loss of SFP cooling. The inspectors noted that the AOP listed demineralized water valve 2-DW-182 as one of three specific methods available to add water to the SFP during a loss of cooling. However, while performing the walkdown, the inspectors identified that 2-DW-182 had been removed by an ongoing plant modification. Consequently, the AOP contained inaccurate guidance for a loss of SFP cooling in that

valve 2-DW-182 could not be used as directed. The inspectors determined that the failure to maintain a complete and accurate AOP was a performance deficiency that warranted an evaluation in accordance with the significance determination process.

#### Analysis:

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 could become a more significant safety concern if left uncorrected and was therefore more than a minor concern. Specifically, the AOP contained inaccurate guidance that under certain circumstances, such as a loss of the other methods specified in the AOP to add water to the SFP, could hinder an operator's ability to mitigate a loss of spent fuel pit cooling.

Using IMC 0609, Appendix M, "Significance Determination Process Using Qualitative Criteria," the inspectors evaluated the significance of the finding. The inspectors used IMC 0609, Appendix M, Table 4.1 "Qualitative Decision-Making Attributes for NRC Management Review," and determined that the finding was of very low safety significance (Green) because it did not result in an actual loss of SFP cooling or inventory and did not negatively impact the qualitative decision-making attributes described in Table 4.1. Additionally, the procedure required that two out of three methods to add water to the SFP be available and the inspectors verified by walkdown that the other two methods were available.

This finding has a cross cutting aspect in the area of problem identification and resolution, corrective action program—low threshold for identifying issues (P.1 (a)). Licensee personnel involved in daily AOP action step walkdowns and the plant modification program both failed to identify that the procedure actions were inaccurate in that the procedure directed use of a valve which no longer existed in the plant.

#### 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 procedures used for abnormal conditions should be covered by written procedures.

Contrary to the above, on April 8, 2009, inspectors identified that licensee personnel had failed to adequately maintain a complete and accurate AOP regarding the required actions for a loss of spent fuel pit cooling. Specifically, AOP 12-OHP-4022-018-001, "Loss of Spent Fuel Pit Cooling", was inaccurate because step 13 directed use of 2-DW-182, which had been removed from the plant during a modification. Consequently, the valve could not be used as a method prescribed by the AOP to mitigate a loss of spent fuel pit cooling event. As a corrective action the licensee revised 12-OHP-4022-018-001 to address the removal of 2-DW-182. Because of the very low safety significance, this violation is being treated as a Non-Cited Violation consistent with Section VI.A of the NRC Enforcement Policy. This finding was entered into the licensee's corrective action program as AR 00849705 (NCV 05000315/2009003-01; 05000316/2009003-01).

1R05 Fire Protection (71111.05)

.1 Annual Fire Protection Drill Observation (71111.05A)

a. Inspection Scope

On May 20, 2009, the inspectors observed an unannounced fire drill for the fire brigade and control room operators. The drill scenario involved a fire in an electrical panel in the turbine building 569 foot elevation and included rescue activities for an injured person. Based on 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: (1) proper wearing of turnout gear and self-contained breathing apparatus; (2) proper use and layout of fire hoses; (3) employment of appropriate fire fighting techniques; (4) sufficient firefighting equipment brought to the scene; (5) effectiveness of fire brigade leader communications, command, and control; (6) search for victims and propagation of the fire into other plant areas; (7) smoke removal operations; (8) utilization of pre planned strategies; (9) adherence to the pre planned drill scenario; and (10) drill objectives. Documents reviewed are listed in the Attachment to this report.

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

b. Findings

No findings of significance were identified.

.2 Routine Resident Inspector Tours (71111.05Q)

a. Inspection Scope

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

- Fire Zone 74 Unit 2 Containment - Annulus
- Fire Zone 75 Unit 2 Containment – Lower Volume
- Fire Zone 39 Unit 2 Quadrant 2 Penetration Cable Tunnel
- Fire Zone 36 Unit 1/2 Spent Fuel Pit Heat Exchanger Pump Room
- Fire Zone 142, Screenhouse
- Fire Zone 17G, Unit 2 East Motor Driven Auxiliary Feedwater Pump 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 had 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 six quarterly fire protection inspection samples as defined in IP 71111.05-05.

b. Findings

No findings of significance were identified.

1R07 Annual Heat Sink Performance (71111.07)

a. Inspection Scope

The inspectors reviewed the licensee's testing of Unit 2 diesel generator lube oil and jacket water heat exchangers, and the Unit 2 west component cooling water heat exchanger 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 that were 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 of significance were identified.

1R08 Inservice Inspection Activities (71111.08P)

From March 25, 2009 through April 2, 2009, the inspectors conducted a review of the implementation of the licensee's Inservice Inspection (ISI) Program for monitoring degradation of the reactor coolant system, steam generator tubes, emergency feedwater systems, risk significant piping and components and containment systems.

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

.1 Piping Systems ISI

a. Inspection Scope

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

- Ultrasonic Examination (UT) of Safety Injection System piping welds 2-SI-57-17 and 2-SI-57-18 (observed)
- UT of Pressurizer Spray Nozzle Overlay 2-prz-21 (observed)
- Magnetic Particle Examination of Boron Injection Tank weld 2-BIT-VS-4
- Liquid Penetrant Examination of Collar to Pipe weld 2-SI-59-05

The inspectors reviewed the following volumetric examination completed since the beginning of the previous refueling outage with relevant/recordable conditions/indications accepted for continued service to determine if acceptance was in accordance with the ASME Code Section XI or an NRC approved alternative.

- G Scan Assessment of Essential Service Water Return Line for 2AB Emergency Diesel Generator

The inspectors reviewed the following pressure boundary welds completed for risk significant systems since the beginning of the last refueling outage to verify that the welding and any associated non-destructive examinations were performed in accordance with ASME Code Section XI. 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. 2-RC-22-24

- 2-RC-22-23
- 2-RC-22-22

b. Findings

No findings of significance were identified.

.2 Reactor Pressure Vessel Upper Head Penetration Inspection Activities

a. Inspection Scope

For the Unit 2 vessel head, no examination was required during the current refuel outage and the licensee did not complete one. Therefore, no NRC review was completed for this inspection procedure attribute.

b. Findings

No findings of significance were identified.

.3 Boric Acid Corrosion Control

a. Inspection Scope

The inspectors performed an independent walkdown of portions of the reactor coolant and emergency core cooling systems within containment which had received a recent licensee boric acid walkdown and verified whether the licensee's Boric Acid Corrosion Control visual examinations emphasized locations where boric acid leaks can cause degradation of safety significant components.

The inspectors reviewed the following licensee evaluations of reactor coolant system 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 reactor coolant system components to determine if they met the ASME Section XI Code AR 832411, 2-IMO-275 dry boric acid

- Action Request (AR) 846333, 2-CS-311s wet boric acid

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

- AR 821854, Dry in-active B.A. residue on components
- AR 821681, Boric acid leakage

b. Findings

No findings of significance were identified.

.4 Steam Generator Tube Inspection Activities

a. Inspection Scope

For the Unit 2 Steam Generators (SGs), no examination was required pursuant to the TSs during the current refueling outage. Therefore, no NRC review was completed for this inspection procedure attribute.

b. Findings

No findings of significance 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 of significance were identified.

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

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

- Containment Spray 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 performance criteria for structures, systems, and components/functions classified as (a)(2) or appropriate and adequate goals and corrective actions for systems classified as (a)(1).

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

This inspection constituted one quarterly maintenance effectiveness samples as defined in IP 71111.12-05.

b. Findings

No findings of significance 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 Unit 2 dual emergency service water pump outage on April 8 through April 9, 2009.
- Planned maintenance during the week of June 1, 2009, which included 69 KV emergency power outage, Unit 2 east component cooling water train motor operator valve preventive maintenance, Unit 1 CD emergency diesel generator surveillance testing and Unit 2 circulating water pump 21 replacement.

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 two samples as defined in IP 71111.13-05.

b. Findings

Risk Assessment for Planned Maintenance on 69 KV Emergency Power System

Introduction

The inspectors identified one finding of very low safety significance (Green) with an associated Non-Cited Violation of 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," during planned maintenance on the 69 KV emergency power system on June 2, 2009. Specifically, the on-line maintenance risk assessment that was performed failed to include the risk-significant supplemental emergency diesel generators. Consequently, the increase in risk for the planned work was underestimated.

Description

On June 2, 2009, with Unit 2 at full power, the 69 KV emergency power system was to be removed from service for planned maintenance. Prior to removing emergency power from service, a clearance was placed on both supplemental diesel generators to prevent an automatic start, as designed, when emergency power was de-energized. This clearance rendered the supplemental diesel generators unavailable at 0145 hours and

emergency power was subsequently removed from service for the planned maintenance at 0653 hours. After the maintenance was completed on the 69 KV emergency power system later that day, the clearance was restored, which returned both supplemental emergency diesel generators and the emergency power system to an available status at 1703 hours.

The inspectors reviewed the Unit 2 on-line configuration risk assessment for the planned work and noted that it included the emergency power system but the supplemental diesel generators were not included. The inspectors discussed the risk assessment with licensee personnel who indicated that the supplemental diesel generators should have been included. Consequently, the risk assessment had underestimated the increase in plant risk.

Licensee personnel recalculated the risk assessment to include the supplemental diesel generators concurrent with the emergency power system and the allowed outage time decreased from approximately 5,500 hours to approximately 450 hours. However, the overall risk status remained green and no additional risk management actions were required. The inspectors also noted that the concurrent emergency power system and supplemental diesel generator outage during the planned maintenance only existed for approximately 20 hours and that the required normal work controls, such as guarding plant equipment, were adhered to.

The inspectors determined that the failure to include the risk-significant supplemental diesel generators in the on-line risk assessment was a licensee performance deficiency that warranted an evaluation in accordance with the significance determination process.

### Analysis

The inspectors reviewed the samples of minor issues in IMC 0612, "Power Reactor Inspection Reports," Appendix E, "Examples of Minor Issues," and determined that the issue was similar to the "not minor if" statement in example 7.e. Consistent with the guidance in IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening," the inspectors determined that this issue was more than minor because as per Section 1-3.c.5(a) the performance deficiency was related to the licensees' on-line risk assessment for the 69 KV emergency power system maintenance that failed to consider the risk-significant supplemental diesel generators, which were unavailable during the maintenance.

To determine the risk deficit, the licensee re-performed the on-line maintenance risk assessment correcting those omissions that rendered the original risk assessment inadequate. This resulted in an incremental core damage probability (ICDPD) risk deficit value of 2.73E-8 and an incremental large early release probability (ICLERPD) risk deficit value of 4.70E-9. Using the risk deficit values, the inspectors used Flowchart 1, of IMC 0609, Appendix K, "Maintenance Risk Assessment and Risk Management SDP," and determined that the finding was characterized as Green.

The inspectors concluded that this finding has a cross-cutting aspect in the area of human performance in work practices—human error prevention techniques (H.4 (a)). Licensee personnel failed to use self and peer checking techniques to validate that the risk assessment was done accurately, which resulted in omitting the supplemental diesel generators and underestimating the increase in plant risk.

## Enforcement

Part 50.65(a)(4) of 10 CFR states, in part, that before performing maintenance activities, the licensee shall assess the increase in risk that may result from the proposed maintenance activity. Contrary to the above, on June 2, 2009, licensee personnel failed to include the risk-significant supplemental diesel generators in the on-line risk assessment for planned maintenance on the 69 KV emergency power system. Consequently, the increase in plant risk was not adequately assessed in that it was underestimated.

Licensee personnel entered this issue into their corrective action program as condition report AR 00852616, "Improper On-line Risk Assessment." As an immediate corrective action licensee personnel re-performed the risk assessment to verify that the risk status remained green; that no risk management actions were required; and that a condition of significant risk was not missed due to the error. Other corrective actions included sending a generic communication to operations and work control personnel to make them aware of the issue and to ensure that they understood how the supplemental diesel generators were represented in the on-line risk program so that plant risk would be appropriately assessed during future emergency power system maintenance. Because of the very low safety significance, this violation is being treated as a Non-Cited Violation consistent with Section VI.A of the NRC Enforcement Policy (NCV 05000316/2009003-02).

### 1R15 Operability Evaluations (71111.15)

#### a. Inspection Scope

The inspectors reviewed the following issues:

- AR 00848286, Unit 2 Aggregate Ice Basket Weight Evaluation
- AR 00846832, Unverified Assumption for Nozzle Loads in Reactor Coolant Pump Seal Leak Off Piping Analysis
- AR 00844125, 1-CM-306 Downstream Piping Found Void of Water
- AR 00848127, 2-WMO-214 Containment Spray Heat Exchanger Outlet Valve Actuator Broken
- AR 00847177, Unit 2 Containment Divider Barrier Operability Evaluation
- AR 00850005, Gap in Emergency Core Cooling System Sump Waterway

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 also 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 of significance were identified.

1R18 Plant Modifications (71111.18)

a. Inspection Scope

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

- EC 0000047426, "2-TR201CD Control Power Transformer Scheme Re-Design."

This modification package was reviewed for adequacy of the associated 10 CFR 50.59 safety evaluation screening; consideration of design parameters; adequacy of circuit logic scheme design changes; associated modification design documents; implementation of the modification; that the post modification test acceptance criteria were met; that relevant design and licensing documents were properly updated; that related plant staff training requirements were identified; and necessary plant procedure changes were identified and being revised. The inspectors verified, by conducting a sample field inspection, that completed work activities were consistent with the design control documents.

The modification changed the Reserve Auxiliary Transformer – Load Tap Changer control power auto transfer scheme on loss of control power from a 'make before break' to a 'break before make' relay logic scheme to prevent connecting the Normal and Backup power sources out of phase. Documents reviewed during this inspection are listed in the Attachment to this document.

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

b. Findings

No findings of significance 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 Control Room Instrument Distribution Inverter Number 3 Corrective Maintenance

- Unit 2 Rod Drop Testing Following Reactor Reassembly
- Unit 2 AB Emergency Diesel Generator 18-Month Maintenance
- Unit 2 CD Emergency Diesel Generator 18-Month Maintenance
- Unit 1 Reactor Cable Tunnel Quadrant 1 Fire Protection Carbon Dioxide Hazard 16 Selector Valve Replacement
- Unit 2 CD Emergency Diesel Generator Starting Air Pilot Operated 3-Way Control Valve Air Tubing Repairs and Fuel Injector Pump 6F Replacement

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

This inspection constituted six post-maintenance testing sample as defined in IP 71111.19-05.

b. Findings

No findings of significance 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 March 25, 2009 to May 1, 2009, 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 and fuel handling activities.
- 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 identification and resolution of problems related to RFO activities.

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

b. Findings

Gap Identified in Remote Strainer Waterway

Introduction

The inspectors identified one finding of very low safety significance (Green) with an associated Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action." Specifically, the inspectors identified a gap in the remote strainer waterway for the emergency core cooling recirculation sump that was greater than the gap size allowed by the surveillance test acceptance criteria. Consequently, debris larger than the allowed particle size could enter the emergency core cooling recirculation sump.

Description

On April 19, 2009, with Unit 2 in Mode 5, Cold Shutdown, the inspectors completed a closeout inspection of the emergency core cooling recirculation sump including the remote strainer waterway. Licensee personnel had previously completed surveillance activities to inspect the recirculation sump and waterway. The waterway connects the remote strainer to the recirculation sump. The purpose of the remote strainer is to filter the water entering the sump that would be used as a suction source for emergency core cooling during the recirculation phase of a loss of coolant accident.

During the closeout inspection, the inspectors noted that light from outside the waterway was visible inside the darkened waterway, which revealed a gap on a flanged joint in the waterway. Subsequent investigation by licensee personnel determined that the gap was a linear type approximately 0.50 inch in length and

0.070 inch tall. Surveillance Test Procedure “12-MHP-4030-031-001, Inspection of the Recirculation Sump,” Attachment 8, “Recirculation Sump Waterway Inspection and Checks,” specified that all gaps in the waterway shall be less than 1.5 millimeters (approximately 0.060 inch). Consequently, the gap at the flanged joint exceeded the surveillance test acceptance criteria and the surface area of the gap was slightly larger than that assumed for the remote strainer circular opening size of 0.125 inch. This issue was entered into the licensee’s corrective action program as AR 00850005, “Gap in Remote Strainer Waterway for the Recirculation Sump.”

Licensee personnel subsequently completed a prompt and past operability determination, which concluded that while the gap in the waterway was a nonconforming condition, there was reasonable assurance that the recirculation sump was operable. The gap in the waterway was only slightly larger in one dimension than the acceptance criteria and while the surface area of the gap was larger than that assumed for the remote strainer circular opening size of 0.125 inch, the narrow dimensions of the linear gap would prevent a significant amount of debris larger than allowed from entering the waterway. Consequently, the nonconformance would have had an insignificant impact on the recirculation sump function of providing a filtered supply of water during the recirculation phase of a loss of coolant accident.

Licensee personnel also completed an apparent cause evaluation and determined that the gap had been present since the remote strainer waterway was initially installed during the Unit 2 Cycle 17 refueling outage in September 2007. Therefore, based on the past operability determination, the recirculation sump was considered to be operable but degraded during the Unit 2 Cycle 17 operating cycle. For extent of condition, licensee personnel concluded that this issue was isolated to Unit 2 because the Unit 1 waterway was redesigned, which eliminated fit-up problems that were experienced on Unit 2, prior to being installed during the Unit 1 Cycle 22 refueling outage in the spring of 2008.

The inspectors also noted that in addition to this instance, several prior opportunities existed for licensee personnel to identify the nonconforming condition during modification testing and inspections after the waterway was initially installed in September 2007. Licensee personnel attributed these failures to a lack of rigor during the inspections and a contributing factor was that the gap was in a difficult area to inspect. The inspectors reviewed the operability determinations and the cause evaluation as documented in AR 00850005 and did not identify any issues of significance.

The inspectors determined that the failure to identify the gap in the remote strainer waterway during surveillance testing was a licensee performance deficiency that warranted an evaluation in accordance with the significance determination process.

### Analysis

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 more than minor because it was related to the design control attribute of the mitigation systems cornerstone and adversely affected the cornerstone objective of ensuring the availability, reliability and capability of systems

that respond to initiating events to prevent undesirable consequences. Specifically, the gap in the remote strainer waterway could result in larger than allowed debris entering the emergency core cooling recirculation sump, which could impact the reliability and capability of long term decay heat removal cooling systems.

Using IMC 0609, Attachment 0609.04, "Phase 1 – Initial Screening and Characterization of Findings," the inspectors answered no to all five questions in the Mitigation System Cornerstone column of Table 4a. Therefore, this finding screened as Green and was considered to be of very low safety significance.

The inspectors concluded that this finding has a cross-cutting aspect in the area of human performance in work control—work planning (H.3(a)). Licensee personnel failed to appropriately plan work activities by incorporating job site environmental conditions which may impact human performance. Licensee personnel used a flashlight while inspecting inside the darkened remote strainer waterway, which prevented licensee personnel from seeing the light penetrating the gap from outside the waterway.

### Enforcement

Criterion XVI, "Corrective Action," of 10 CFR Part 50, Appendix B, states, in part, that measures shall be established to assure that conditions adverse to quality, such as nonconformances, are promptly identified and corrected. Contrary to the above, on April 18, 2009, licensee personnel failed to identify a nonconformance in the remote strainer waterway for the emergency core cooling recirculation sump while performing Surveillance Test Procedure 12-MHP-4030-031-001, "Inspection of the Recirculation Sump," Attachment 8, "Recirculation Sump Waterway Inspection and Checks." Specifically, a gap existed in the remote strainer waterway that was larger than that allowed by the surveillance test acceptance criteria. Consequently, debris larger than the particle size allowed could enter the emergency core cooling recirculation sump.

Licensee personnel entered this issue into their corrective action program as condition report AR 00850005. For corrective actions, the gap in the remote strainer waterway was repaired on April 21, 2009, prior to Unit 2 entering Mode 4, Hot Shutdown, which required the recirculation sump to be operable. Planned corrective actions included a revision to procedure 12-MHP-4030-031-001 to include an inspection using light from outside the waterway to identify gaps. Because of the very low safety significance this violation is being treated as a Non-Cited Violation consistent with Section VI.A of the NRC Enforcement Policy (NCV 05000316/2009003-03).

## .2 Unit 1 Forced Outage

### a. Inspection Scope

Unit 1 was maintained in Mode 5, Cold Shutdown, following the main turbine high vibration event on September 20, 2008. The inspectors conducted outage inspection activities, which included: assessing the licensee's control of plant configuration and management of shutdown risk; reviewing configuration management to verify that the licensee maintained defense-in-depth with respect to shutdown risk; and verified that systems required for decay heat removal were appropriately controlled and maintained. Outage inspection activities will be completed when Unit 1 is returned to service.

An inspection sample was not completed during this inspection period.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

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

- Unit 2 Local Leak Rate Surveillance Test (Local Leak Rate)
- Unit 2 Ice Condenser Floor Drains and Flapper Valves Surveillance (Ice Condenser)
- Unit 2 CD Battery Discharge Test and 24 Month Surveillance Requirements (routine)
- Unit 2 Ice Condenser Basket Weighing Surveillance (Ice Condenser)
- Unit 2 Simultaneous Start of AB and CD Diesel Generators (routine)
- Unit 1 Ice Condenser Lower Inlet Door Surveillance (Ice Condenser)
- Unit 2 AB Emergency Diesel Generator Jacket Water Pump In-Service Test (In-Service Test)

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

- 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, 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 two routine surveillance testing samples, one inservice testing sample, and four containment isolation valve (which included three ice condenser surveillance) samples as defined in IP 71111.22, Sections -02 and -05.

b. Findings

No findings of significance were identified.

**Cornerstone: Emergency Preparedness**

**2. RADIATION SAFETY**

2OS1 Access Control to Radiologically Significant Areas (71121.01)

.1 Review of Licensee Performance Indicators for the Occupational Exposure Cornerstone

a. Inspection Scope

The inspectors reviewed the licensee's Occupational Exposure Control Cornerstone performance indicator (PI) to determine whether the conditions resulting in any PI occurrences had been evaluated and whether identified problems had been entered into the licensee's CAP for resolution.

This inspection constitutes one sample as defined in IP 71121.01-5.

b. Findings

No findings of significance were identified.

.2 Plant Walkdowns and Radiation Work Permit Reviews

a. Inspection Scope

The inspectors reviewed licensee controls and surveys in the following radiologically significant work areas within radiation areas, high radiation areas, and airborne

radioactivity areas in the plant to determine if radiological controls including surveys, postings, and barricades were acceptable:

- Upper Containment Refueling Cavity;
- RHR Heat Exchanger Room (West) – MOVATs;
- Lower Containment Scaffold Builds; and
- Lower Containment Valve Repairs.

This inspection constitutes one sample as defined in IP 71121.01-5.

The inspectors reviewed the radiation work permits (RWPs) and work packages used to access these areas and other high radiation work areas. The inspectors assessed the work control instructions and control barriers specified by the licensee. Electronic dosimeter alarm set points for both integrated dose and dose rate were evaluated for conformity with survey indications and plant policy. The inspectors interviewed workers to verify that they were aware of the actions required if their electronic dosimeters noticeably malfunctioned or alarmed.

This inspection constitutes one sample as defined in IP 71121.01-5.

The inspectors walked down and surveyed (using an NRC survey meter) these areas to verify that the prescribed RWP, procedure, and engineering controls were in place; that licensee surveys and postings were complete and accurate; and that air samplers were properly located.

This inspection constitutes one sample as defined in IP 71121.01-5.

The inspectors reviewed RWPs for airborne radioactivity areas to verify barrier integrity and engineering controls performance (e.g., high-efficiency particulate air ventilation system operation) and to determine if there was a potential for individual worker internal exposures in excess of 50 millirem committed effective dose equivalent:

- Upper Containment Refueling Cavity; and
- Lower Containment Valve Repairs.

Work areas having a history of, or the potential for, airborne transuranics were evaluated to verify that the licensee had considered the potential for transuranic isotopes and had provided appropriate worker protection.

This inspection constitutes one sample as defined in IP 71121.01-5.

The inspectors assessed the adequacy of the licensee's internal dose assessment process for internal exposures in excess of 50 millirem committed effective dose equivalent. There were no internal exposures greater than 50 millirem committed effective dose equivalent.

This inspection constitutes one sample as defined in IP 71121.01-5.

The inspectors also reviewed the licensee's physical and programmatic controls for highly activated and/or contaminated materials (non-fuel) stored within the spent fuel pool or other storage pools.

This inspection constitutes one sample as defined in IP 71121.01-5.

b. Findings

No findings of significance were identified.

.3 Job-In-Progress Reviews

a. Inspection Scope

The inspectors observed the following jobs that were being performed in radiation areas, airborne radioactivity areas, or high radiation areas for observation of work activities that presented the greatest radiological risk to workers:

- Upper Containment Refueling Cavity;
- RHR Heat Exchanger Room (West) – MOVATs;
- Lower Containment Scaffold Builds;
- Lower Containment Valve Repairs; and
- RCP Seal Maintenance Activities.

The inspectors reviewed radiological job requirements for these activities, including RWP requirements and work procedure requirements.

This inspection constitutes one sample as defined in IP 71121.01-5.

Job performance was observed with respect to the radiological control requirements to assess whether radiological conditions in the work area were adequately communicated to workers through pre-job briefings and postings. The inspectors evaluated the adequacy of radiological controls, including required radiation, contamination, and airborne surveys for system breaches; radiation protection job coverage, including any applicable audio and visual surveillance for remote job coverage; and contamination controls.

This inspection constitutes one sample as defined in IP 71121.01-5.

The inspectors reviewed radiological work in high radiation work areas having significant dose rate gradients to evaluate whether the licensee adequately monitored exposure to personnel and to assess the adequacy of licensee controls. These work areas involved areas where the dose rate gradients were severe; thereby increasing the necessity of providing multiple dosimeters or enhanced job controls.

This inspection constitutes one sample as defined in IP 71121.01-5.

b. Findings

No findings of significance were identified.

.4 Radiation Worker Performance

a. Inspection Scope

During job performance observations, the inspectors evaluated radiation worker performance with respect to stated radiation safety work requirements. The inspectors evaluated whether workers were aware of any significant radiological conditions in their workplace, of the RWP controls and limits in place, and of the level of radiological hazards present. The inspectors also observed worker performance to determine if workers accounted for these radiological hazards.

This inspection constitutes one sample as defined in IP 71121.01-5.

The inspectors reviewed radiological problem reports for which the cause of the event was due to radiation worker errors to determine if there was an observable pattern traceable to a similar cause and to determine if this perspective matched the corrective action approach taken by the licensee to resolve the reported problems. Problems or issues with planned or completed corrective actions were discussed with the Radiation Protection Manager.

This inspection constitutes one sample as defined in IP 71121.01-5.

b. Findings

No findings of significance were identified.

.5 Radiation Protection Technician Proficiency

a. Inspection Scope

During job performance observations, the inspectors evaluated radiation protection technician performance with respect to radiation safety work requirements. The inspectors evaluated whether technicians were aware of the radiological conditions in their workplace, the RWP controls and limits in place, and if their performance was consistent with their training and qualifications with respect to the radiological hazards and work activities.

This inspection constitutes one sample as defined in IP 71121.01-5.

The inspectors reviewed radiological problem reports for which the cause of the event was radiation protection technician error to determine if there was an observable pattern traceable to a similar cause and to determine if this perspective matched the corrective action approach taken by the licensee to resolve the reported problems

This inspection constitutes one sample as defined in IP 71121.01-5.

b. Findings

No findings of significance were identified.

## 2OS2 As-Low-As-Is-Reasonably-Achievable (ALARA) Planning And Controls (71121.02)

### .1 Radiological Work Planning

#### a. Inspection Scope

The inspectors evaluated the licensee's process for constructing or placing shielding in high dose rate areas. The inspectors reviewed the shielding requests initiated by the radiation protection group to evaluate the estimated dose rate reduction. The inspectors also evaluated the responses of the engineering staff to the shielding requests, as applicable.

This inspection constituted one optional sample as defined in IP 71121.02-5.

#### b. Findings

No findings of significance were identified.

### .2 Verification of Dose Estimates and Exposure Tracking Systems

#### a. Inspection Scope

The inspectors reviewed the assumptions and bases for the current annual collective exposure estimate, including the applicable procedures, in order to evaluate the licensee's method for estimating work activity-specific exposures and the intended dose outcome. Dose rate and man-hour estimates were evaluated for reasonable accuracy.

This inspection constituted one required sample as defined in IP 71121.02-5.

#### b. Findings

No findings of significance were identified.

### .3 Job Site Inspections and ALARA Control

#### a. Inspection Scope

The inspectors conducted this sample in conjunction with the job observations listed under IP 71121.01 Section 3 "Job-In-Progress Reviews."

The inspectors reviewed the licensee's use of ALARA controls for the work activities. The licensee's use of engineering controls to achieve dose reductions was evaluated to verify that procedures and controls were consistent with the licensee's ALARA reviews, that sufficient shielding of radiation sources was provided, and that the dose expended to install/remove the shielding did not exceed the dose reduction benefits afforded by the shielding.

This inspection constituted one required sample as defined in IP 71121.02-5.

Job sites were observed to determine if workers used low dose waiting areas and if workers were effective in maintaining their doses ALARA by moving to the low dose waiting area when subjected to temporary work delays.

This inspection constituted one optional sample as defined in IP 71121.02-5.

The inspectors attended work briefings and observed ongoing work activities to determine if workers received appropriate on-the-job supervision to ensure the ALARA requirements are met. The inspectors assessed whether the first-line job supervisor ensured that the work activity was conducted in a dose efficient manner by minimizing work crew size and by ensuring that workers were properly trained and that proper tools and equipment were available when the job started.

This inspection constituted one optional sample as defined in IP 71121.02-5.

The inspectors reviewed exposures of individuals from selected work groups to evaluate any significant exposure variations among workers and to determine whether any significant exposure variations were the result of worker job skill differences or whether certain workers received higher doses because of poor ALARA work practices.

This inspection constituted one optional sample as defined in IP 71121.02-5.

b. Findings

No findings of significance were identified.

.4 Source-Term Reduction and Control

a. Inspection Scope

The inspectors reviewed licensee records to evaluate the historical trends and the current status of tracked plant source terms. The inspectors determined if the licensee was making allowances and was developing contingency plans for expected changes in the source term due to changes in plant fuel performance issues or changes in plant primary chemistry.

This inspection constituted one required sample as defined in IP 71121.02-5.

The inspectors verified that the licensee had developed an understanding of the plant source-term, including knowledge of input mechanisms to reduce the source term. The inspectors evaluated if the licensee had a source-term control strategy in place that included a cobalt reduction strategy, shutdown controls, and operating chemistry plan, which was designed to minimize the source-term external to the core. Other methods used by the licensee to control the source term including component and system decontamination and the use of shielding were also evaluated.

This inspection constituted one optional sample as defined in IP 71121.02-5.

The inspectors reviewed the licensee's identification of specific sources of radiation, along with exposure reduction actions and the priorities the licensee had established for implementation of those actions. The results that had been achieved against these priorities since the last refueling cycle were reviewed. For the current assessment period, source reduction evaluations were verified along with actions taken to reduce the overall source-term compared to the previous year.

This inspection constituted one optional sample as defined in IP 71121.02-5.

b. Findings

No findings of significance were identified.

.5 Radiation Worker Performance

a. Inspection Scope

Radiation worker and radiation protection technician performance was observed during work activities being performed in radiation areas, airborne radioactivity areas, and high radiation areas that presented the greatest radiological risk to workers. The inspectors evaluated whether workers demonstrated the ALARA philosophy by being familiar with the scope of the work activity and tools to be used, by utilizing ALARA low dose waiting areas, and by complying with work activity controls. Also, radiation worker training and skill levels were reviewed to determine if they were sufficient relative to the radiological hazards and the work involved.

This inspection constituted one required sample as defined in IP 71121.02-5.

b. Findings

No findings of significance were identified.

**4. OTHER ACTIVITIES**

40A1 Performance Indicator Verification (71151)

.1 Mitigating Systems Performance Index - Emergency AC Power System

a. Inspection Scope

The inspectors sampled licensee submittals for the Mitigating Systems Performance Index (MSPI) - Emergency AC Power System performance indicator for Unit 1 and Unit 2 for the period from the second quarter of 2008 through the first quarter of 2009. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, were used. The inspectors reviewed the licensee's operator narrative logs, MSPI derivation reports, issue reports, event reports and NRC Integrated Inspection Reports for the period of April 1, 2008, through March 31, 2009 to validate the accuracy of the submittals. The inspectors reviewed the MSPI component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator and none were identified. Documents reviewed are listed in the Attachment to this report.

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

b. Findings

No findings of significance were identified.

.2 Mitigating Systems Performance Index - High Pressure Injection Systems

a. Inspection Scope

The inspectors sampled licensee submittals for the Mitigating Systems Performance Index - High Pressure Injection Systems performance indicator for Unit 1 and Unit 2 for the period from the second quarter of 2008 through the first quarter of 2009. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, were used. The inspectors reviewed the licensee's operator narrative logs, issue reports, MSPI derivation reports, event reports and NRC Integrated Inspection Reports for the period of April 1, 2008, through March 31, 2009 to validate the accuracy of the submittals. The inspectors reviewed the MSPI component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator and none were identified. Documents reviewed are listed in the Attachment to this report.

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

b. Findings

No findings of significance were identified.

.3 Mitigating Systems Performance Index - Heat Removal System

a. Inspection Scope

The inspectors sampled licensee submittals for the Mitigating Systems Performance Index - Heat Removal System performance indicator for Unit 1 and Unit 2 for the period from the second quarter of 2008 through the first quarter of 2009. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, were used. The inspectors reviewed the licensee's operator narrative logs, issue reports, event reports, MSPI derivation reports, and NRC Integrated Inspection Reports for the period of April 1, 2008, through March 31, 2009, to validate the accuracy of the submittals. The inspectors reviewed the MSPI component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator and none were identified. Documents reviewed are listed in the Attachment to this report.

This inspection constituted two MSPI heat removal system samples as defined in IP 71151-05.

b. Findings

No findings of significance were identified.

.4 Mitigating Systems Performance Index - Residual Heat Removal System

a. Inspection Scope

The inspectors sampled licensee submittals for the Mitigating Systems Performance Index - Residual Heat Removal System performance indicator for Unit 1 and Unit 2 for the period from the second quarter of 2008 through the first quarter of 2009. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, were used. The inspectors reviewed the licensee's operator narrative logs, issue reports, MSPI derivation reports, event reports and NRC Integrated Inspection Reports for the period of April 1, 2008, through March 31, 2009, to validate the accuracy of the submittals. The inspectors reviewed the MSPI component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator and none were identified. Documents reviewed are listed in the Attachment to this report.

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

b. Findings

No findings of significance were identified.

.5 Mitigating Systems Performance Index - Cooling Water Systems

a. Inspection Scope

The inspectors sampled licensee submittals for the Mitigating Systems Performance Index - Cooling Water Systems performance indicator for Unit 1 and Unit 2 for the period from the second quarter of 2008 through the first quarter of 2009. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, were used. The inspectors reviewed the licensee's operator narrative logs, issue reports, MSPI derivation reports, event reports and NRC Integrated Inspection Reports for the period of April 1, 2008, through March 31, 2009 to validate the accuracy of the submittals. The inspectors reviewed the MSPI component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the PI data collected or transmitted

for this indicator and none were identified. Documents reviewed are listed in the Attachment to this report.

This inspection constituted two MSPI cooling water system samples as defined in IP 71151-05.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems (71152)

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

.1 Routine Review of items Entered Into the Corrective Action Program

a. Inspection Scope

As part of the various baseline inspection procedures discussed in previous sections of this report, the inspectors routinely reviewed issues during baseline inspection activities and plant status reviews to verify 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: the complete and accurate identification of the problem; that timeliness was commensurate with the safety significance; that 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 attached List of Documents Reviewed.

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 of significance were identified.

.2 Daily Corrective Action Program Reviews

a. Inspection Scope

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

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

b. Findings

No findings of significance were identified.

.3 Semi-Annual 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 6 month period of July 2008 through December 2008, although some examples expanded beyond those dates where the scope of the trend warranted.

The review also included issues documented outside the normal CAP such as items documented in system health reports and Maintenance Rule assessments. The inspectors compared and contrasted their results with the results contained in the licensee's CAP trending reports. Corrective actions associated with a sample of the issues identified in the licensee's trending reports were reviewed for adequacy.

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

b. Findings

No findings of significance were identified.

.4 Selected Issue Follow-Up Inspection: In-Depth Apparent Cause Evaluation

a. Inspection Scope

The inspectors selected the following action request for an in-depth review:

- In-Depth Apparent Cause Evaluation, AR 00841348, Ineffective Communications Identified by NRC Regional Management

The inspectors discussed the evaluations and associated corrective actions with licensee personnel and verified the following attributes during their review of the above apparent cause evaluation:

- complete and accurate identification of the problem in a timely manner commensurate with its safety significance and ease of discovery;
- consideration of the extent of condition, generic implications, common cause and previous occurrences;

- classification and prioritization of the resolution of the problem, commensurate with safety significance;
- identification of the contributing causes of the problem; and
- identification of corrective actions, which were appropriately focused to correct the problem.

The above constitutes completion of one in-depth problem identification and resolution sample as defined in IP 71152-05

b. Findings

No findings of significance were identified.

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

.1 (Closed) Licensee Event Report (LER) 05000315/2008-006-01 "Manual Reactor Trip due to Main Turbine High Vibration", Supplement 1

The inspectors reviewed and closed LER 05000315/2008-006-00 in NRC Report 05000315/2009002 and concluded that the both the root cause analysis and subsequent corrective actions were reasonable with no issues identified. The licensee submitted this supplement to LER 05000315/2008-006-00 to further describe the root cause and corrective actions. The inspectors determined that the additional information provided in this supplement did not raise any new issues or change the conclusion of the initial review.

This LER is closed.

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

4OA5 Other Activities

.1 Reactor Coolant System Dissimilar Metal Butt Welds (TI 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.

b. Observations

Inspection of Unit 2 activities related to TI 2515/172 are complete and were documented in NRC Inspection Reports 50-316/2008003 and 50-316/2008004. The licensee has not deviated from the plans or schedules previously reviewed in these reports with respect to Unit 2.

### Volumetric Examinations

Volumetric examination of the Pressurizer Spray Nozzle overlay was observed during the current inspection and the inspector verified the examination was performed consistent with the NRC staff relief request authorization for the weld overlay and the licensee's documentation of the basis for achieving the required inspection coverage.

The inspectors verified that the above examination was performed by qualified personnel and that any deficiencies identified were appropriately dispositioned and resolved.

#### c. Findings

No findings of significance were identified.

### .2 Quarterly Resident Inspector Observations of Security Personnel and Activities

#### a. Inspection Scope

During the inspection period, the inspectors conducted observations of security force personnel and activities to ensure that the activities were consistent with licensee security procedures and regulatory requirements relating to nuclear plant security. These observations took place during both normal and off-normal plant working hours.

These quarterly resident inspector observations of security force personnel and activities did not constitute any additional inspection samples. Rather, they were considered an integral part of the inspectors' normal plant status review and inspection activities.

#### b. Findings

No findings of significance were identified.

### 4OA6 Management Meetings

#### .1 Exit Meeting Summary

On July 13, 2009, the inspectors presented the inspection results to Mr. R. Hruby and other members of the licensee staff. The licensee acknowledged the issues presented. The inspectors confirmed that none of the potential report input discussed was considered proprietary.

#### .2 Interim Exit Meetings

Interim exits were conducted for:

- The results of the ALARA planning and control program and access control to radiologically significant areas program inspection with Site Vice President, Mr. L. Weber, on April 10, 2009.
- The results of the ISI inspection with Site Vice President, Mr. L. Weber, on April 2, 2009.

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

.3 Regulatory Performance Meeting

On May 28, 2009, the NRC held a meeting with the licensee at the DC Cook Nuclear Power Plant to discuss the annual plant performance assessment.

.4 Public Meeting

On May 28, 2009, the NRC held a public open house meeting at the St. Joseph Public Library to engage interested members of the public on the performance of the DC Cook Nuclear Power Plant and the role of the NRC in ensuring safe plant operations. Visitors were given the opportunity to discuss with NRC representatives the overall regulatory process as well as the results of the DC Cook Nuclear Power Plant annual plant performance assessment, as completed in accordance with Section 06.04 of IMC 0305.

4OA7 Licensee-Identified Violations

The following violations of very low significance (Green) were identified by the licensee and are violations of NRC requirements which meet the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600, for being dispositioned as an NCV.

- Title 10 CFR 20.1801 states that the licensee shall secure from unauthorized removal or access licensed materials that are stored in controlled or unrestricted areas. Contrary to the above, on February 10, 2009, an access door to the radioactive material building (RMB), a building where radioactive materials are stored, was found unsecured. This incident was identified by and documented in the licensee's corrective action program as AR 00846010. Immediate corrective actions included securing the access door.

This issue represents a performance deficiency as defined in IMC 0612 in that the issue is the result of not meeting a requirement where the cause was reasonably within the licensee's ability to foresee and correct, and should have been prevented. This finding is more than minor because it is associated with the cornerstone attribute of program and processes for radioactive material control and the cornerstone objective for ensuring the adequate protection of the public health and safety from exposure to radioactive materials released into the public domain as a result of routine civilian nuclear reactor operation. The inspector then screened the finding for significance in accordance with IMC 0609 Appendix D "Public Radiation Safety SDP." The finding was of very low safety significance because although it did involve radioactive material control, the finding did not involve the transportation of radioactive material, and public exposure was less than 0.005 rem.

- Appendix B, Criterion V in 10 CFR Part 50 requires, in part, that activities affecting quality shall be prescribed by documented procedures and shall be accomplished in accordance with the procedures. Surveillance test procedures were prescribed to verify operability during post maintenance testing after fire protection system carbon dioxide valves were replaced. Contrary to the above, in March 2009, the licensee failed to implement the prescribed surveillance test

procedures for post maintenance testing after fire protection system carbon dioxide valves 2-FCO-102, Unit 2 Reactor Cable Tunnel Quad 4, 2-FCO-106, Unit 2 Reactor Cable Tunnel Quad 1 and 1-FCO-104, Unit 1 Reactor Cable Tunnel Quad 3 South were replaced. All three valves were subsequently tested satisfactorily in May 2009 using the prescribed surveillance test procedures. The licensee entered this violation into its corrective action program as AR 00851462, "Carbon Dioxide Valves Replaced without Proper Post Maintenance Testing." This violation was of very low safety significance because all three valves subsequently tested satisfactorily when the prescribed test procedures were performed.

ATTACHMENT: SUPPLEMENTAL INFORMATION

## KEY POINTS OF CONTACT

### Licensee

L. Bush, Operations Director  
 P. Donavin, ISI Engineer  
 D. Foster, Environmental General Supervisor  
 J. Gebbie, Plant Manager  
 V. Gupta, PA Supervisor  
 R. Hraby, Site Support Services Vice President  
 C. Hutchinson, Emergency Preparedness Manager  
 O. Juza, Radiation Protection / ALARA Coordinator  
 C. Lane, Engineering Programs Manager  
 Q. Lies, Engineering Director  
 J. Long, Environmental Specialist  
 C. Moeller, Radiation Protection Manager  
 J. Newmiller, Licensing Activities Coordinator  
 J. Nimtz, Licensing Activities Coordinator  
 P. Schoepf, Manager Nuclear Regulatory Compliance  
 L. Weber, Site Vice President  
 R. West, Regulatory Affairs

## LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

### Opened

05000315/2009003-01; 05000316/2009003-01	NCV	Failure to Maintain an Accurate Abnormal Operating Procedure for Loss of Spent Fuel Pit Cooling
05000316/2009003-02	NCV	Maintenance Rule On-line Risk Assessment Inaccurate
05000316/2009003-03	NCV	Gap in Remote Strainer Waterway

### Closed

05000315/2009003-01; 05000316/2009003-01	NCV	Failure to Maintain an Accurate Abnormal Operating Procedure for Loss of Spent Fuel Pit Cooling
05000316/2009003-02	NCV	Maintenance Rule On-line Risk Assessment Inaccurate
05000316/2009003-03	NCV	Gap in Remote Strainer Waterway
05000315/2008-006-01	LER	Manual Reactor Trip due to Main Turbine High Vibration

### Discussed

NONE

## LIST OF DOCUMENTS REVIEWED

The following is a list of documents reviewed during the inspection. Inclusion on this list does not imply that the NRC inspectors reviewed the documents in their entirety, but rather, that selected sections of 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-OHP-4022-001-010, Severe Weather, Revision 6
- 12-OHP-4023-ECA-0.0, Loss of All AC Power, Revision 19
- 12-OHP-5030-057-001, Screen House Vulnerability Determination, May 13, 2009
- AR 00841868, Unexpected Grid Disturbance Due to Off-Site Switching
- AR 00851802, Add Reference to High Wind Check of Areas Including Swyds
- AR 09135033, Loose Material & Debris in 765 KV Switchyard
- AR 09135035, Adverse Switchyard Conditions Not Documented
- CR 03133054, Issues Identified During Resident Inspector Tour of Switchyards
- CR P-99-04437, Inadequate Procedural Guidance to Respond to a Tornado Emergency
- PMP-2220-HSK-001, Housekeeping and Material Condition, Revision 4
- PMP-2291-OLR-001, On-Line Risk Management, Revision 15
- PMP-3100-IOA-001, Inter-Organizational Agreement Between the AEP Utility Operations and the AEP Nuclear Generation Group for Assistance to Cook Nuclear Plant, Revision 4
- PMP-5020-RTM-001, Restraint of Transient Material, Revision 4
- WO 55329736, Increase Torque on K2 BKR Interrupter, October 18, 2008
- WO 55333145, Replace 12-TR-4-3, Fan #10, February 11, 2009

### 1R04 Equipment Alignment

- 12-OHP-4022-018-001, Loss of Spent Fuel Pit Cooling, Revision 11
- 1-OHP-4021-064-001, Operation of Plant and Control Air Systems, Revision 23
- 2-OHP-4030-214-010, Revision 4
- 2-OHP-4030-214-035, Controlled Valve Position Logging, Revision 10
- AR 00834546, 2-ICM-265 Has Dry, Brown Boric Acid Near the Packing
- AR 00849705, Removal of Valve for the Hot Machine Shop Mod
- AR 09098065, Valve Was Removed
- OP-1-5114-108, Flow Diagram Non Essential Service Water Unit No. 1, May 11, 2009
- WO 55316128-01, 50# Control Air Line For N Heater Drain Pump ELO, June 6, 2009
- WR 06369084, U1 West CCP Pump Shaft Coming in Contact With Coupling Guard

### 1R05 Fire Protection

- AR 09140050, Page Out of Fire Brigade Not Performed
- AR 09141008, Damage Assessment Not Performed In Accordance With PMP-2270-FRP-001
- Fire Drill Pre-Plan 209-25-C, May 20, 2009
- Fire Hazards Analysis, Revision 13
- Fire Pre-Plan, Revision 4
- PMP-2270-FRP-001, Fire Response Plan, Revision 4

### 1R07 Heat Sink Performance

- 12-EHP-8913-001-002, Heat Exchanger Inspection (WO 55236655-03&04) Revision 1
- AR 09093031, Non-Compliance With ASME Section XI R/R Program
- MDS-607, Heat Exchanger Tube Plugging, Revision 7, March 31, 2009
- WO 55308244-15, West Component Cooling Water Heat Exchanger Inspection, Revision 2

#### 1R08 Inservice Inspection Activities

- 12-QHP-5050-NDE-001, Liquid Penetrant Examination, Revision 6
- AR 821681, Boric Acid Leakage, November 2, 2007
- AR 832411, 2-IMO-275 has Dry Boric Acid, June 1, 2008
- AR 838435, Water Leaking from Insulation on ESW Return Line for 2AB EDG, September 12, 2008
- AR 846333, Wet Boric Acid on 2-CS-311s and Floor, February 13, 2009
- AR821854, Dry In-active B.A. Residue on Components, November 5, 2007
- DIT-B-03307-01, Minimum Required Pipe Wall Thickness, October 16, 2008
- ISI-PDI-UT-2, Ultrasonic Examination of Austenitic Piping Weld in Accordance With PDI-UT-2, Revision 4
- ISI-UT-350, Procedure for Acquiring Material Thickness and Weld Contours, Revision 0
- PMP-5030-001-001, Boric Acid Corrosion of Ferritic Steel Components and Materials, Revision 14, U2C18-UT-09-002, Ultrasound Calibration/Data Report for Weld 2-SI-57-17, March 27, 2009
- Radiographs for Welds 2-RC-22-24, 2-RC-22-23, 2-RC-22-22, 2-RC-22-21
- Relief Request ISIR-29, Request to Extend the Inservice Inspection Interval for Reactor Vessel Weld Examination, October 9, 2008
- Relief Request ISIR-30, Request to Extend the Inservice Inspection Interval for Reactor Vessel Weld Examination, February 27, 2009
- Report 801205.401, G-Scan Assessment of ESW Lines, October 1, 2008
- U2C18-UT-09-003, Ultrasound Calibration/Data Report for Weld 2-SI-57-18, March 27, 2009
- U2C18-UT-09-028, Ultrasound Calibration/Data Report for Pressurizer Spray Nozzle Overlay Weld 2-PRZ-21, March 31, 2009
- Ultrasonic Examination Reports for Welds 2-RC-22-24, 2-RC-22-23, 2-RC-22-22, August 28, 2007
- WDI-STD-1007 Generic Procedure for the Ultrasonic Examination of Weld Overlaid Similar and Dissimilar Metal Welds Using PDI-UT-8, Revision 2
- Welding Procedure Specification 1.2 TS, Revision 3
- WO 55246120-01, Install Loop Seals at PNNMP
- WO 55304927-01, Valve 2-MS-135-1 Handwheel Not Moving
- WO 55310069-09, Perform PT Exam on 2-SI-59-05
- WO 55310069-10, Perform MT Exam of 2-BIT-VS-4
- WO 55310069-14, Perform ISI Examinations of FW Components, Line 2-SI-57
- WO 55310069-14-15, Perform ISI Exams

#### 1R12 Maintenance Effectiveness

- Containment Spray System 24-Month Unavailability Data, April 28, 2009
- Containment Spray System Maintenance Rule Scoping Document, Revision 3
- Essential Service Water System 24-Month Unavailability Data, May 13, 2009
- Essential Service Water System Maintenance Rule Scoping Document, Revision 8
- Unit 1 and Unit 2 Essential Service Water System Health and Status Report, October 1 through December 31, 2008

- Unit 1 Containment Spray System Health and Status Report, July 1 through September 30, 2008
- Unit 2 Containment Spray System Health and Status Report, October 1 through December 31, 2008

#### 1R13 Maintenance Risk Assessments and Emergent Work Control

- 2-OHP-4030-214-021, Event Initiated Surveillances, Data Sheet 20, Inoperable Power Supply, June 2, 2009
- 2-OHP-4030-214-031, Operations Weekly Surveillance Checks, Data Sheet 1, Breaker Alignment, June 2, 2009
- Control Room Logs, April 8-10, June 1-4,
- DTG-OPS-042, ORAM Desktop Guide, Attachment 4, Unit 1 and Unit 2 Guarded Equipment Selection Guidance
- DTG-OPS-042, ORAM Desktop Guide, Attachments 2 and 3, Unit 1 and 2 Safety Function Assessment Trees
- IPTE Briefing Guide for Dual ESW Outage, April 8, 2009
- PMP-2291-OLR-001, On-Line Risk Management, Unit 2 Part 1 Configuration Risk Assessment, June 1-4
- PMP-4100-SDR-001, Plant Shutdown Safety and Risk Management, Revision 019
- Schedule of daily work activities, April 8-10, June 1-4,

#### 1R15 Operability Evaluations

- 12-EHP-4030-010-262, Ice Condenser Surveillance and Operability Evaluation, Revision 7, March 13, 2008
- 1-EHP-4030-128-003A, Train A CEQ Fan Surveillance And ESF Response Time Test, Revision 8
- 2-EHP-4030-228-003B, Train B CEQ Fan Surveillance And ESF Response Time Test, Revision 9
- AEP-NRC-2008-43, Donald C Cook Nuclear Plant Unit 1 and Unit 2 Nine-Month Response to Generic Letter 2008-01, January 11, 2008
- ALION-CAL-AEP-7354-02, DC Cook Unit 1 Operability Analysis to Evaluate Gas Void in ECCS Sump Suction Piping
- AR 00847177, Work Turned Away In T-0
- AR 00849057, 40 Month Surveillance Basket Found Un-Sat
- AR 00849958, Flow Blockage Greater Than 10% in Bays 4 and 10
- Calculation SD 990826-003, Ice Condenser Ice Basket Design, Revision 0, November 3, 2003
- DC-D-02-CS-08, Chemical Volume Control System Piping and Pipe Support Analysis, June 25, 1997
- OP-2-5147A-44, Flow Diagram Containment Ventilation, Revision 44
- WO 55308721-01, Ice Condenser Ice Basket Removal, Inspection, Repair and Installation, Revision 0, April 1, 2009

#### 1R18 Plant Modification

- EC-0000047426, 2-TR201CD Control Power Transformer Scheme Re-Design, August 29, 2008
- OP-2-12002-37, Main Auxiliary One Line Diagram Bus C and D Engineered Safety Systems (Train A), Revision 37

- OP-2-98012-E0427426, Main Transformer Cooling System Elementary Diagram (Interim Drawing Created from Revision 21)
- OP-1-98005-E047426, Transformer 201CD Temperature and Cooling Elementary Diagram (Interim Drawing Created from Revision 1)
- PS-2-91234-E047426, Transformer 201CD Wiring Diagram (Interim Drawing Created from Revision 1)
- Operations Training on EC-47420, 47424, 47425 and 47426RAT B/U Power Supply Re-Design
- AR 00804005, Fuse Blown for Back Up Power to Load TAP ChangerTR101CD
- AR00119498, Review RAT Cooling Circuits to Assess Enhancements to Cook's Design Based on Evaluation of OE-21530
- 2007-0172-00, 50.59 Screen, Revise RAT LTC Control Power Transfer Schemes, EC-47420, 47424, 47425 and 47426, August 29, 2009
- PS-2-92201-E0147426, Transformer 2, 2AB, 2CD, 201AB and 201CD Bus Wiring Diagram (Interim Drawing Created from Revision 11)
- WO 55289898 03, 2-TR201CD, 4KV Buses 2C and 2D RAT XFMR Control Panel Scheme Change, January 30, 2009

#### 1R19 Post Maintenance Testing

- 12-IHP-6030-IMP-073, Time Delay Relay Calibration, Revision 5, April 14, 2009
- 12-MHP-5021-032-023, Emergency Diesel Engine Inlet and Exhaust Hydraulic Valve Lifters Maintenance, Revision 5, April 11, 2009
- 2-EHP-4030-202-386, Multiple Rod Drop Measurements, Revision 10, April 27, 2009
- 2-OHP-4030-232-027AB, AB Diesel Generator Operability Test (Train B), Revision 10, April 7, 2009
- 2-OHP-4030-232-217A, DG2CD Load Sequencing & ESF Testing, Revision 22, April 21, 2009
- 2-OHP-4030-232-217B, DG2AB Load Sequencing & ESF Testing, Revision 24, April 6, 2009
- AR 00839670, Auto Lockout of 2-CRID-3 INV
- AR 0083970, Unit 2 CRID 3 Unexpected Alarm
- AR 00848430, CRID 3 Inverter Transferred during Loss of AC Power
- AR 00849337, CRID 3 Inverter Transferred During Loss of AC Power
- AR 00850097, DG2CD Unexpected Equipment Performance
- AR 00850292, The U1ABEDG Did Not Stop Due to Stuck Open Starting Air Valve
- AR 09090090, Fuel Tappet Dimension > .25" Item Should Be Tracked
- AR 09097046, CRID 3 Inverter Transferred During Loss of AC Power
- AR 09111018, Print Conflict With Relay Design
- CR-P-00-02445, Three Related OEs, 10596, 10615 and 10653 Involving Static Switch Control Board on SCI Inverters
- WO (Work Order) 55289898 04, 2-TR201CD, 4Kv Bus 2C and 2D Reserve auxiliary Transformer Post Maintenance and Functional Testing, April 15, 2009
- WO 55231378, 2-OME-150-CD Replace Fuel Injector Pump 6F, June 11, 2009
- WO 55308150-08, CD EDG Functional Leak Test Inspection, April 16, 2009
- WO 55309020-03, CD EDG Governor Hydraulic Actuator PMT April 16, 2009
- WO 55309565, 2-CRID-3-INV, Replace components and Perform Post Maintenance Testing, April 4, 2009
- WO 55309878-07, Perform AB DG PMT Leak Inspection/Final Run PMT, April 6, 2009
- WO 55310109, Rebuild or Replace Obsolete 1-FCO-106, May 29, 2009
- WO 55323087-07, I&C Perform PMT for 2-62-2-LQBA-DGCD in Accordance with EC-048573, April 17, 2009
- WO 55323087-12, CD EDG 2-62-VGLQF-DGCD Relay PMT, April 14, 2009

- WO 55325073-07, CD EDG PMT Replaced Fuel Pump Leak Inspections, April 17, 2009
- WO 55329496 03, Perform CRID 7.5 kVA Static Inverter Transfer and Auto Retransfer Tests, January 23, 2009
- WO 55329496 07, Perform PMT Per Procedure 12-IHP-6030-IMP-063 as Required in Support of Repairs Made on 2-CRID-3-INV, April 10, 2009
- WO 55329496 11, Perform Post Maintenance Testing on 2-CRID-3-INV, October 15, 2008
- WO 55329496 17, Perform Bench Testing of New C2 Bank Capacitors for 02-CRID-3-INV, October 11, 2008
- WO 55329496 18, Perform Bench Testing of New C1 Bank Capacitors for 02-CRID-3-INV, October 11, 2008
- WO 55343613, Unit 2 CD Emergency Diesel Generator Repair Tubing at 2-PVO-4-CD, June 10, 2009
- WO 5539705-02, CD EDG PMT Leak Inspection of Lube Oil Supply Lines, April 17, 2009
- WR 06368590, Small Oil Leaks on Engine During Maintenance Run
- WR 06368709, Valve Train Supply Line Leaking Lube Oil
- WR 06368722, Leaking Jacket Water on DG2CD Cylinder 6F

### 1R20 Outage Activities

- 12-OHP-4050-FHP-001, Refueling Procedure Guidelines, Revision 19
- 12-OHP-4050-FHP-005, Core Unload/Reload and Incore Shuffle, Revision 12
- 12-OHP-4050-FHP-023, Reactor Vessel Head Removal With Fuel In The Vessel, March 31, 2009
- 12-OHP-4050-FHP-301, Core Reload, Unit 2 Cycle 18 Core
- 2-OHP-4021-001-001, Plant Heatup From Cold Shutdown to Hot Standby, Revision 52
- 2-OHP-4021-001-002, Reactor Start-Up, Revision 39
- 2-OHP-4021-001-003, Power Reduction, Revision 36
- 2-OHP-4021-001-004, Plant Cool Down From Hot Standby To Cold Shutdown, Revision 49
- 2-OHP-4021-002-013, Reactor Coolant System Vacuum Fill, April 17, 2009
- 2-OHP-4021-050-001, Turbine Generator Normal Startup and Operation, Revision 26
- 2-OHP-4030-001-002, Containment Inspection Tours, Revision 23
- 2-OHP-4030-227-037, Refueling Surveillance, Revision 14
- AR 00848474, Exceeded Surge Line Heat Up and Cooldown Limits During Power Failure
- AR 00848559, Flood Up Tube Heat Shrink Split
- AR 00848561, Cracked Heat Shrink on Penetrations
- AR 00849230, Please Inspect Buckles on Steam Generators for Adequacy
- AR 00849236, Change Made in ITS TS 3.5.5 Formula Not Captured
- AR 00849289, Breaker Failed to Reclose Following Overcurrent Test
- AR 00849310, 2-WMO-718 Stop Limits Adjusted During 2-OHP-4030-219-022FV
- AR 00849337, CRID 3 Inverter Transferred During Loss of AC Power
- AR 00849588, Divider Barrier Seal Operability
- AR 00849746, Bolting on Recirculation Sump do not Have Full Thread Engagement
- AR 00850000, Pressurizer Surge Line Heatup Rate Exceeded
- AR 00850005, Gap in Remote Strainer Waterway for the Recirculation Sump
- AR 00850295, Damaged Glow Plug on 2-LDISA-A22
- AR 00850296, RCP Seal Leakage Got Boric Acid On Carbon Steel Bolting
- Design Information Transmittal, S-06168-01, Unit 2 Beginning of Cycle 18 Time-To-Boil Information, April 20, 2009
- OHI6100, Attachment 4, Unit 2 RCS Cooldown Rate Limit Curve, March 25, 2009
- OHI-6100, Attachment 5A, RCS/PZR Cooldown Record (0600-1800 Shift), March 25, 2009
- OHI-6100, Attachment 5B, RCS/PZR Cooldown Record (1800-0600 Shift), March 25, 2009

- U2C18 Outage Risk Review PORC Presentation
- WO 55339981, Distribution Ignition System Igniter (B35) B Train Lower
- WO 55340184, Damaged Glow Plug on 2-LDISA-A22

#### 1R22 Surveillance Testing

- 02-EHP-4030-234-203, Unit 2 LLRT, Revision 9
- 12-EHP-4030-082-003, AB, CD and N-Train Battery Discharge Test and 24 Month Surveillance Requirements, April 14, 2009
- 12-EHP-4030-082-006, AB, CD and N-Train Battery Yearly Surveillance and Maintenance, April 14, 2009
- 12-IHP-5021-EMP-008, Battery Connection Maintenance, July 14, 2008
- 12-MHP-4030-010-001, Ice Condenser Basket Weighing Surveillance, April 11, 2009
- 12-MHP-4030-010-003, Ice Condenser Lower Inlet Door Surveillance, June 2, 2009
- 12-MHP-4030-010-006, ICE Condenser Floor Drains and Flapper Valves Surveillance, Revision 5, April 18, 2009
- 2-OHP-4030-232-001, Simultaneous Start of AB and CD Diesel Generators, April 7, 2009
- 2-OHP-4030-322-027AB, AB Diesel Generator Operability Test, June 25, 2009
- AR 00832302, Surveillance required for Valves
- AR 06165002, EDG Speed Not Attainable At Times Impacting Acceptance Criteria
- AR 09098076, In-Field Correction
- AR 09104010, LLRT Mod under 55322564-04 could not be worked
- AR 09104027, 2-BATT-CD Cell #27 > .010 Below the Overall Corrected Specific Gravity
- AR 09142017, Unit 1 Lower Inlet Door Out of Specification
- Calculation 2-E-N-ELCP-250-006, 250VDC Battery 2CD System Analysis, April 2, 2009
- WO 55309873-01, Ice, May 1, 2008

#### 2OS1 Access to Control to Radiologically Significant Areas

- 12-QHP-5050-NDE-Radiographic Examination of Welds, Revision 05
- 12-THP-6010-RPP-015, Temporary Shielding, Revision 07
- 12-THP-6010-RPP-06, Radiation Work permit (RWP) Processing, Revision 26
- 12-THP-6010-RPP-101, Preparation and Control of Exposure Records and Reports, Revision 09
- 12-THP-6010-RPP-206, Internal Dose Assessment and Calculation, Revision 07
- AR 00844438, U2 Containment Personnel Airlock Assembly
- AR 00845511, Relocated HRA Posting
- AR 00846010, Access Door to RMB Radiologically Controlled Area Found Unsecured
- Dose Reduction 5-Year Plan – 2009, 2009
- Outage Dose Tracking Packages (Daily, Work Activity, Work Group), April 2009
- PMP-6010-ALA-001, ALARA Program – Review of Plant Work Activities, Revision 20
- PMP-6010-RPP-003, High, Locked High, and Very High Radiation Area Access, Revision 19
- PMP-6010-RPP-006, Radiation Work Permit Program, Revision 13

#### 2OS2 As-Low-As-Reasonably-Achievable Planning and Controls

- RWP 092103, U2C18 - Fuel RWP 092100, U2C18 - Refuel Cavity Decontamination Activities, Revision 00
- RWP 092123, U2C18 - Temporary Shielding (Containment, Auxiliary Building and Turbine Building), Revision 00

- RWP 092128, U2C18 – Valve Activities in the Auxiliary Building and Plant Restricted Areas, Revision 00
- RWP 092130, U2C18 – Perform Radiography in Auxiliary and Turbine Buildings and Plant Restricted Areas, Revision 00
- RWP 092142, U2C18 – Containment Install, Modify and Remove Scaffold, Revision 00
- RWP 092151, U2C18 – RCP Seal Maintenance Activities, Revision 00
- RWP Totals Report, April 2009
- Shuffle and Support Work, Revision 00
- Station ALARA Committee Package, April 07, 2009

#### 4OA1 Performance Indicator Verification

- Nuclear Energy Institute 99-01, Regulatory Assessment Performance Indicator Guideline, Revision 5
- PMP-7110-PIP-001, Reactor Oversight Program Performance Indicators and Monthly Operating Report Data, Revisions 10, 11, and 12
- PMP-7110-PIP-001, Data Sheet 4, Safety System Unavailable – Emergency AC Power System, April 2008 through March 2009
- PMP-7110-PIP-001, Data Sheet 5, Safety System Unavailable – High Pressure Safety Injection System, April 2008 through March 2009
- PMP-7110-PIP-001, Data Sheet 6, Safety System Unavailable – Auxiliary Feedwater System, April 2008 through March 2009
- PMP-7110-PIP-001, Data Sheet 7, Safety System Unavailable – Residual Heat Removal System, April 2008 through March 2009
- PMP-7110-PIP-001, Data Sheet 9, Safety System Unavailable – Cooling Water Systems, April 2008 through March 2009
- Unit 1 and Unit 2 Control Room Logs, April 1, 2008 through March 31, 2009
- Licensee Event Reports, April 1, 2008 through March 31, 2009

#### 4OA2 Problem Identification and Resolution

- 1-OHP-4024-101, Annunciator #101 Response: Plant Fire System, Revision 21
- AR 00838969, Failure to Make Management/NRC Phone Notification
- AR 00839083, Delayed Fire Response Due to Lack of Security Support
- AR 00839369, Delayed 1801 Fire Brigade Page Out
- AR 00841348, In-Depth Apparent Cause Evaluation for Ineffective Communications Identified by NRC Regional Management
- AR 00848855, Inadequate Work Instructions for PMT
- AR 08226064, Reason Code D5b4, D5b6 Exceeded Warning Control Limits
- AR 08263033, Repeat Maintenance Above Goal 3 Months in a Row
- PMP-4010-COM-001, Verbal Communications, Revision 11

#### 4OA3 Follow-Up of Events and Notices of Enforcement Discretion

- AR 00838732, Root Cause for Unit 1 Main Turbine Generator Trip
- D. C. Cook Unit 1 Main Turbine Damage Event Root Cause Analysis, March 10, 2009
- LER 05000315/2008-006-01, Manual Reactor Trip due to Main Turbine High Vibration, May 6, 2009

## LIST OF ACRONYMS USED

AC	Alternating Current
ADAMS	Agency Documents Access and Management System
ALARA	As-Low-As-Is-Reasonably-Achievable
AR	Action Request
ASME	American Society of Mechanical Engineers
CAP	Corrective Action Program
CFR	Code of Federal Regulations
IMC	Inspection Manual Chapter
IP	Inspection Procedure
ISI	Inservice Inspection
LER	Licensee Event Report
MSPI	Mitigating Systems Performance Index
NCV	Non-cited Violation
NEI	Nuclear Energy Institute
NRC	U.S. Nuclear Regulatory Commission
OSP	Outage Safety Plan
PARS	Publicly Available Records
PI	Performance Indicator
RFO	Refueling Outage
RWP	Radiation Work Permit
SDP	Significance Determination Process
SG	Steam Generator
TI	Temporary Instruction
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report
UT	Ultrasonic Examination
WO	Work Order