



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**

REGION III  
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January 26, 2010

Mr. Joseph Jensen  
Senior Vice President and  
Chief Nuclear Officer  
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Nuclear Generation Group  
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Bridgman, MI 49106

**SUBJECT: D. C. COOK NUCLEAR POWER PLANT, UNITS 1 AND 2 INTEGRATED  
INSPECTION REPORT 05000315/2009005; 05000316/2009005**

Dear Mr. Jensen:

On December 31, 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 January 11, 2010, with Mr. L. Weber 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 one NRC-identified and one self-revealed finding of very low safety significance (Green). These findings were determined to involve violations of NRC requirements. 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.

J. Jensen

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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 by Kenneth Riemer for/**

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. 05000315/2009005; 05000316/2009005  
w/Attachment: Supplemental Information

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

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

Report Nos. 05000315/2009005; 05000316/2009005

Licensee: Indiana Michigan Power Company

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

Location: Bridgman, MI

Dates: October 1 through December 31, 2009

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

Enclosure

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## SUMMARY OF FINDINGS

IR 05000315/2009005; 05000316/2009005; 10/01/2009 – 12/31/2009 D.C. Cook Nuclear Power Plant, Units 1 & 2; Flood Protection, Problem Identification and Resolution

This report covers a 3-month period of resident inspection and announced baseline inspections in radiation protection and emergency preparedness by regional inspectors. Two 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: Initiating Events**

Green. The inspectors identified a finding of very low safety significance with an associated Non-Cited Violation of 10 CFR Part 50 Appendix B, Criterion III, "Design Control," for failing to maintain safety-related cables in an environment for which they were designed. Specifically, frequently submerged safety-related cables in manholes MH1PA, MH1PB, MH1PC, and MH1PD were designed to be moisture resistant and not completely submerged in water. For corrective actions, the frequency for conducting preventive maintenance to inspect the manholes for water and pump out the water, as needed, was reduced from monthly to weekly for manhole MH1PA and to biweekly for manholes MH1PB, MH1PC, and MH1PD. In addition, engineering personnel were evaluating permanent solutions to prevent the manholes from filling with water, which would eliminate the need for manual pumping. This finding was entered into the licensee's corrective action program as AR 00859564.

This finding affected the Initiating Events cornerstone and was more than minor because the issue could become a more significant safety concern if left uncorrected. Specifically, allowing safety-related cables to be repeatedly submerged in water in underground manholes could degrade the cable insulation and result in cable failure. The finding was of very low safety significance because the finding does not contribute to both the likelihood of a reactor trip and the likelihood that mitigating equipment or functions would be lost. This finding was associated with a cross-cutting aspect in the area of problem identification and resolution in corrective action program – corrective actions (P.1.(d)). (Section 1R06)

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

Green. One self-revealed finding of very low safety significance with an associated Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion XV, "Non-conforming Materials, Parts, or Components," was identified for installing non-conforming parts on the safety-related emergency diesel generators. Specifically, the licensee installed several Delivery Valve Holder (DVH) assemblies that were fabricated using material previously identified as being prone to cracking, non-conforming, on all four

safety-related Emergency Diesel Generators (EDG). Consequently, on June 10, 2009, during an operability run for the Unit 2 CD EDG, a DVH cracked, which resulted in a fuel oil leak on the 6F fuel injector line. For corrective actions, the licensee replaced all non-conforming DVHs with new DVHs that were fabricated using materials that were not prone to cracking. Additional corrective actions included revising several procedures associated with the dedication plan and receipt inspection program. This issue was entered into the licensee's corrective action program as condition report AR 00852905.

This finding affected the Mitigating Systems cornerstone and was more than minor because the issue could become a more significant safety concern if left uncorrected. Specifically, installing non-conforming parts on safety-related equipment under certain circumstances could result in the subsequent degradation or loss of equipment required for safe shut down of the plant. This finding was of very low safety significance because the finding is a qualification deficiency that did not result in the loss of operability or functionality of the EDGs. This finding was associated with a cross-cutting aspect in the area of human performance – resources (H.2 (c)). (Section 4OA2)

## REPORT DETAILS

### Summary of Plant Status

Unit 1 was in Mode 5, Cold Shutdown, when the inspection period began. Unit 1 restart activities commenced on November 21, 2009, following a 15-month outage to repair the damaged plant equipment that resulted from the turbine high vibrations event on September 20, 2008. The Unit entered Mode 1, Power Operations, on December 18, 2009. Plant operators initially synchronized the main generator to the grid on December 19, 2009, and subsequently removed from the grid for planned maintenance and testing. Following the planned activities, operators synchronized the main generator to the grid on December 20, 2009, and Unit 1 reached full power on December 22, 2009. Unit 1 was at full power when the inspection period ended.

Unit 2 was at full power during the entire inspection period.

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

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

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

###### a. Inspection Scope

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

- auxiliary building 4 Kilo Volt safety-related switchgear room;
- auxiliary building fuel handling area;
- fire pump house; and
- supplemental diesel generator enclosures.

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

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment (71111.04)

.1 Quarterly Partial System Walkdowns

a. Inspection Scope

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

- Unit 1 available equipment options for core cooling strategy;
- Unit 2 west train of residual heat removal; and
- Unit 1 west train of residual heat removal.

The inspectors selected these systems based on their risk significance relative to the Reactor Safety Cornerstones at the time they were inspected. The inspectors attempted to identify any discrepancies that could impact the function of the system, and, therefore, potentially increase risk. The inspectors reviewed applicable operating procedures, system diagrams, UFSAR, Technical Specification (TS) requirements, outstanding work orders (WOs), condition reports, and the impact of ongoing work activities on redundant trains of equipment in order to identify conditions that could have rendered the systems incapable of performing their intended functions. The inspectors also walked down accessible portions of the systems to verify system components and support equipment were aligned correctly and operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no obvious deficiencies. The inspectors also verified that the licensee had properly identified and resolved equipment alignment problems that could cause Initiating Events (IEs) or impact the capability of MSs or barriers and entered them into the 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

No findings of significance were identified.

.2 Semiannual Complete System Walkdown

a. Inspection Scope

In November 2009, the inspectors performed a complete system alignment inspection of the Unit 1 auxiliary feedwater system to verify the functional capability of the system. This system was selected because it was considered both safety significant and risk significant in the licensee's probabilistic risk assessment. The inspectors walked down the system to review mechanical and electrical equipment line ups, electrical power availability, system pressure and temperature indications, as appropriate, component

labeling, component lubrication, component and equipment cooling, hangers and supports, operability of support systems, and to ensure that ancillary equipment or debris did not interfere with equipment operation. A review of a sample of past and outstanding WOs was performed to determine whether any deficiencies significantly affected the system function. In addition, the inspectors reviewed the CAP database to ensure that system equipment alignment problems were being identified and appropriately resolved. Documents reviewed are listed in the Attachment.

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

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05)

a. Inspection Scope

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

- Fire Zone 8G, Unit 1 Reactor Cable Tunnel Quadrant 4
- Fire Zone 29G, Unit 1/2 Screen House Motor Control Room For Essential Service Water
- Fire Zone 38, Unit 1 Auxiliary Building Quadrant 2 Penetration Cable Tunnel
- Fire Zone 51, Unit 1/2 Auxiliary Building 633 Elevation East End

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

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

b. Findings

No findings of significance were identified.

1R06 Flooding (71111.06)

a. Inspection Scope

The inspectors reviewed preventive maintenance activities for the following four manholes, which contained risk-significant cables and were subject to flooding:

- 4 kilovolt (kV) manholes MH1PA and MH1PB; and
- 34.5 kV manholes MH1PC and MH1PD.

Through direct observation, the inspectors determined if the cables were submerged in water; verified that the cables were intact; and, that the support structures were not degraded. The inspectors also verified that licensee personnel completed inspection activities in accordance with plant procedures.

In addition, the inspectors reviewed the licensee's corrective action documents with respect to past flood-related items identified in the corrective action program to verify the adequacy of the corrective actions. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one flooding sample regarding annual review of cables located in underground manholes as defined in IP 71111.06-05.

b. Findings

Introduction

The inspectors identified a finding of very low safety significance with an associated Non-Cited Violation (NCV) of 10 CFR Part 50, Appendix B, Criterion III, "Design Control." Specifically, licensee personnel failed to maintain safety-related cables in underground manholes from becoming repeatedly submerged, which resulted in subjecting the cables to an environment for which they were not qualified.

Description

On July 29 and 30, 2009, the inspectors observed licensee personnel conduct a monthly preventive maintenance activity for safety-related cables in four underground manholes. The activity included inspecting the manholes for water, pumping out the water as needed, and documenting the results. Manholes MH1PA and MH1PD contained safety-related 4kV cables for non-preferred offsite power from the 69kV switchyard to the Unit 1 4kV safety busses. Manholes MH1PC and MH1PD contained safety-related 34.5kV cables from the switchyard to the Unit 1 preferred offsite power reserve feed auxiliary transformer 101CD.

During the maintenance activity, the inspectors noted that one row of cables in manhole MH1PA was submerged in water and that the manhole was immediately pumped dry in accordance with the preventive maintenance activity. The other three manholes

contained varying amounts of water, but not enough to submerge any cables. Based on finding water in the manholes, the inspectors reviewed data from the three previous monthly maintenance activities for all four manholes. In summary, manholes MH1PC and MH1PA contained enough water to submerge the cables in 3 of the 4 months; and, MH1PB and MH1PD contained enough water to submerge the cables in 2 of the 4 months. In all instances, the documentation indicated that the manholes were pumped dry, which was in accordance with the licensee's maintenance procedure.

Even though the cables were repeatedly being submerged, the inspectors concluded that there was not an immediate operability concern because licensee personnel also completed partial discharge testing to determine cable insulation integrity. Partial discharge testing commenced in 2004 and the test frequency was either biennial or annual, depending on the condition of the cables. The inspectors noted that the licensee tested most of the cables on an annual basis, which was conservative with respect to the vendor recommendation, based on test results, to re-test the cables within 2 years. The inspectors reviewed the 2009 test data for the cables in all four manholes. The data indicated that cable insulation integrity was not an immediate concern, in that all the cables received a test grade of "Level 2" (very low level of deterioration) or "Level 3" (some deterioration, with low probability of failure within 2 years). The inspectors also noted that these cables received a test grade of "Level 2" or "Level 3" during the partial discharge testing conducted in 2004, which demonstrated that the cable insulation integrity had not significantly degraded over the last several years.

Based on a review of the corrective action program database over a 1-year period, the inspectors noted that condition reports were not routinely initiated when cables were found submerged during the monthly maintenance. Further, the inspectors noted that the monthly preventive maintenance activity was commenced in the summer of 2006 as a corrective action from a condition report in 2004 (CR 04203063) that was generated when cables were found submerged. This corrective action also stated that engineering would evaluate the need to increase or decrease the frequency of these inspections based on a review of the documented results over a 12 to 24-month period.

However, engineering personnel had not yet evaluated the documented results from the monthly manhole inspections. Consequently, the inspection frequency had not been adjusted. Therefore, for manholes MH1PA, MH1PB, MH1PC, and MH1PD, the maintenance frequency was not adequate to prevent the cables from being submerged repeatedly, which subjected the cables to an environment for which they were not qualified.

### Analysis

The inspectors determined that failing to maintain safety-related cables in underground manholes from becoming repeatedly submerged was a licensee performance deficiency that warranted an evaluation in accordance with the Significance Determination Process (SDP).

The inspectors reviewed the samples of minor issues in Inspection Manual Chapter (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 minor. Specifically, allowing safety-related cables to be repeatedly submerged in water in underground manholes could degrade the cable insulation and result in cable failure.

Because this issue is related to offsite power, the inspectors concluded that this finding was a transient initiator contributor and therefore associated with the IEs Cornerstone. The inspectors performed a Phase 1 SDP review using the guidance provided in IMC 0609, Attachment 4, "Phase 1 - Initial Screening and Characterization of Findings." Using the IEs Cornerstone column in Table 4a, "Characterization Worksheet for IE, MSs, and Barrier Integrity (BI) Cornerstones," the inspectors determined that this finding screened as Green, very low safety significance, because the finding does not contribute to both the likelihood of a reactor trip and the likelihood that mitigating equipment or functions would be lost.

#### Cross-Cutting Aspect

The inspectors concluded that this finding has a cross-cutting aspect in the area of problem identification and resolution in corrective action program – corrective actions (P.1 (d)). Specified corrective actions to adjust the frequency, as needed, of inspecting underground manholes for water were not implemented in a timely manner to address safety-related cables from repeatedly being submerged.

#### Enforcement

The Code of Federal Regulations (CFR), Title 10, Part 50, Appendix B, Criterion III, "Design Control," requires, in part, that measures be established to ensure that applicable regulatory requirements and the design basis are correctly translated into specifications, drawings, procedures, and instructions. Contrary to the above, in April through July 2009, the licensee failed to maintain safety-related cables in an environment for which they were designed. Specifically, the cables in manholes MH1PA, MH1PB, MH1PC, and MH1PD were designed to be moisture resistant and not designed to be completely submerged in water, to which they were repeatedly subjected. For corrective actions, the frequency for completing the preventive maintenance to inspect the manholes for water and to pump out the water, as needed, was reduced from monthly to weekly for manhole MH1PA and to biweekly for manholes MH1PB, MH1PC, and MH1PD. In addition, engineering personnel were evaluating permanent solutions to prevent the manholes from filling with water, which would eliminate the need for manual pumping. Because this finding was of very low safety significance, and it was entered into the licensee's corrective action program, this violation is being treated as an NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy. This finding was entered into the licensee's corrective action program as AR 00859564 (NCV 05000315/2009005-01; 05000316/2009005-01).

#### 1R11 Licensed Operator Requalification Program (71111.11)

##### a. Inspection Scope

On October 27, 2009, the inspectors observed a crew of licensed operators in the plant's simulator during licensed operator requalification examinations to verify that operator performance was adequate, evaluators were identifying and documenting crew

performance problems and training was being conducted in accordance with licensee procedures. The inspectors evaluated the following areas:

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

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

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

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

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

- Unit 1 west essential service water pump; and
- Unit 1 turbine driven auxiliary feedwater pump discharge valve 1-FMO-221.

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 (SSCs)/functions classified as (a)(2) or appropriate and adequate goals and corrective actions for systems classified as (a)(1).

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

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

b. Findings

No findings 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:

- Maintenance activities during the week of October 19, 2009, which included planned preventive maintenance on Unit 2 component cooling water pump discharge cross-tie valve CMO-414 actuator and Unit 1 250 volt battery charger 1-BC-AB2; planned 30-year component replacement on Unit 2 N-Train battery charger 2-BC-B; and emergent maintenance on Unit 1 CD emergency diesel generator room ventilation.
- Emergent maintenance on October 29-31, 2009, on 765KV switchyard breaker 12-BC.
- Emergent maintenance on November 16-19, 2009, on supplemental diesel generator 2.
- Planned maintenance during the week of November 30, 2009, which included preventive maintenance on Unit 1 plant air compressor and 600 volt motor control centers TBG-BE and TBP-BW and Unit 2 east residual heat removal train.

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

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

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors reviewed the following action requests (AR):

- AR 00857791, 2-DG-200A Vibrated Closed
- AR 00856495, Evaluate Required Valve Position
- AR 00858983, 1-CS-523-3, Identified Air Void In Downstream Side Of Valve; and AR 00859118, 1-RH-152, Identified Air/Gas Void In 8-Inch Piping
- AR 00861093, Unit 1 Boron Injection Tank Inlet Valve Seat Leakage
- AR 00859048, Work Order Not Completed In Timely Manner
- AR 00851719, 2-NSW-420-1 Found Out Of Position

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.

1R18 Plant Modifications (71111.18)

a. Inspection Scope

The inspectors reviewed the following proceduralized temporary modification:

- 1-IHP-5040-IMP-007, Installation of Alternate Power Source and Control Power for Pressurizer Power Operated Relief Valve

The inspectors compared the temporary configuration changes and associated 10 CFR 50.59 screening and evaluation information against the design basis, the UFSAR, and the TS, as applicable, to verify that the modification did not affect the operability or availability of the affected system. The inspectors performed field verifications to ensure that the modification could be accomplished as prescribed by the procedure. Documents reviewed in the course of this inspection are listed in the Attachment to this report.

This inspection constituted one temporary modification sample 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 1 auxiliary feed water system motor operated valves 1-FMO-241 and 1-FMO-211 actuator preventive maintenance;
- Unit 1 east centrifugal charging pump high point vent modification testing;
- Unit 2 N-Train battery charger 2-BC-B 30-year component replacement;
- Unit 1 250 volt battery charger 1-BC-AB2 preventative maintenance;
- Unit 1 main turbine testing following turbine refurbishment;
- Unit 1 steam generator power operated relief valve 1-MRV-223 corrective maintenance; and
- Unit 1 reactor coolant pump number 12 balance shot.

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

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

b. Findings

No findings of significance were identified.

1R20 Outage Activities (71111.20)

.1 Unit 1 Forced Outage

a. Inspection Scope

Unit 1 was maintained in Mode 5, Cold Shutdown, until restart activities commenced on November 21, 2009, following a 15-month outage to repair the damaged main turbine that resulted from the turbine high vibrations event on September 20, 2008. Mode 1, Power Operations, was entered on December 18, 2009. With Unit 1 in Mode 5, 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.

During plant restart activities, the inspectors performed a walkdown of containment to verify that debris had not been left which could block emergency core cooling system suction strainers; and, observed portions of the plant heatup, reactor startup and ascension to full power. In addition, the inspectors reviewed corrective action documents associated with outage activities 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. Documents reviewed are listed in the Attachment to this report.

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

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 1/2 electric fire pump operability test (Routine);
- Unit 1/2 supplemental diesel generator quarterly test (Routine);
- Unit 1 south safety injection pump in-service test (In-Service Test); and
- Unit 1 containment spray system nozzle air flow test (Routine).

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

- did preconditioning occur;
- were the effects of the testing adequately addressed by control room personnel or engineers prior to the commencement of the testing;

- were acceptance criteria clearly stated, demonstrated operational readiness, and consistent with the system design basis;
- plant equipment calibration was correct, accurate, and properly documented;
- as-left setpoints were within required ranges; and the calibration frequency 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 in-service testing activities, testing was performed in accordance with the applicable version of Section XI, American Society of Mechanical Engineers code, and reference values were consistent with the system design basis;
- where applicable, test results not meeting acceptance criteria were addressed with an adequate operability evaluation or the system or component was declared inoperable;
- where applicable for safety-related instrument control surveillance tests, reference setting data were accurately incorporated in the test procedure;
- where applicable, actual conditions encountering high resistance electrical contacts were such that the intended safety function could still be accomplished;
- prior procedure changes had not provided an opportunity to identify problems encountered during the performance of the surveillance or calibration test;
- equipment was returned to a position or status required to support the performance of its safety functions; and
- all problems identified during the testing were appropriately documented and dispositioned in the CAP.

Documents reviewed are listed in the Attachment to this report.

This inspection constituted three routine surveillance testing samples and one in-service testing sample as defined in IP 71111.22, Sections -02 and -05.

b. Findings

No findings of significance were identified.

**Cornerstone: Emergency Preparedness**

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

a. Inspection Scope

Since the last NRC inspection of this program area, Emergency Plan Revision 27 was implemented based on your determination, in accordance with 10 CFR 50.54(q), that the changes resulted in no decrease in effectiveness of the Plan, and that the revised Plan

as changed continues to meet the requirements of 10 CFR 50.47(b) and Appendix E to 10 CFR Part 50. The inspectors conducted a sampling review of the Emergency Plan changes and a review of the Emergency Action Level changes to evaluate for potential decreases in effectiveness of the Plan. However, this review does not constitute formal NRC approval of the changes. Therefore, these changes remain subject to future NRC inspection in their entirety.

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

b. Findings

No findings of significance were identified.

1EP6 Drill Evaluation (71114.06)

.1 Emergency Preparedness Training Evolution

a. Inspection Scope

The inspectors observed a simulator training evolution for licensed operators on December 17, 2009, which required emergency plan implementation. Licensee emergency preparedness personnel had pre-designated that the opportunities for the Shift Manager to classify the event would be evaluated and included in the performance indicator data regarding drill and exercise performance.

The inspectors verified that the Shift Manager classified the emergency condition in an accurate and timely manner as required by the Emergency Plan implementing procedures. The inspectors also attended the licensee's drill critique to compare any inspector-observed weakness with those identified by the licensee staff in order to evaluate the critique and to verify whether the licensee staff was properly identifying weaknesses and entering them into the corrective action program. Documents reviewed are listed in the Attachment to this report.

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

b. Findings

No findings of significance were identified.

**2. RADIATION SAFETY**

**Cornerstone: Occupational Radiation Safety**

2OS1 Access Control to Radiologically Significant Areas (71121.01)

.1 Problem Identification and Resolution

a. Inspection Scope

The inspectors reviewed a sample of the licensee's self-assessments, audits, Licensee Event Reports (LERs), and Special Reports related to the access control program to verify that identified problems were entered into the CAP for resolution.

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

The inspectors reviewed corrective action reports related to access controls and any high radiation area radiological incidents (issues that did not count as Performance Indicator (PI) occurrences identified by the licensee in high radiation areas less than 1R/hr). Staff members were interviewed and corrective action documents were reviewed to verify that followup activities were being conducted in an effective and timely manner commensurate with their importance to safety and risk based on the following:

- initial problem identification, characterization, and tracking;
- disposition of operability/reportability issues;
- evaluation of safety significance/risk and priority for resolution;
- identification of repetitive problems;
- identification of contributing causes;
- identification and implementation of effective corrective actions;
- resolution of NCVs tracked in the corrective action system; and
- implementation/consideration of risk-significant operational experience feedback.

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

The inspectors evaluated the licensee's process for problem identification, characterization, and prioritization and verified that problems were entered into the CAP and resolved. For repetitive deficiencies and/or significant individual deficiencies in problem identification and resolution, the inspectors verified that the licensee's self-assessment activities were capable of identifying and addressing these deficiencies.

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

The inspectors reviewed licensee documentation packages for all PI events occurring since the last inspection to determine if any of these PI events involved dose rates in excess of 25 R/hr at 30 centimeters or in excess of 500 R/hr at 1 meter. Barriers were evaluated for failure and to determine if there were any barriers left to prevent personnel access. Unintended exposures exceeding 100 millirem total effective dose equivalent (or 5 rem shallow dose equivalent or 1.5 rem lens dose equivalent) were evaluated to determine if there were any regulatory overexposures or if there was a substantial potential for an overexposure.

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

b. Findings

No findings of significance were identified.

.2 High Risk-Significant, High Dose Rate, High Radiation Area, and Very High Radiation Area Controls

a. Inspection Scope

The inspectors held discussions with the Radiation Protection Manager concerning high dose rate, high radiation area, and very high radiation area controls and procedures, including procedural changes that had occurred since the last inspection, in order to assess whether any procedure modifications substantially reduced the effectiveness and level of worker protection.

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

The inspectors discussed with radiation protection supervisors the controls that were in place for special areas of the plant that had the potential to become very high radiation areas during certain plant operations. The inspectors assessed if plant operations required communication beforehand with the radiation protection group, so as to allow corresponding timely actions to properly post and control the radiation hazards.

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

The inspectors conducted plant walkdowns to assess the posting and locking of entrances to high dose rate high radiation areas and very high radiation areas.

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

b. Findings

No findings of significance were identified

**Cornerstone: Public Radiation Safety**

2PS1 Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems (71122.01)

.1 Inspection Planning

a. Inspection Scope

The inspectors reviewed the configuration of the licensee's gaseous and liquid effluent processing systems to confirm that radiological discharges were properly mitigated, monitored, and evaluated with respect to public exposure. The inspectors reviewed the performance requirements contained in General Design Criteria 60 and 64 of Appendix A to 10 CFR Part 50 and in the licensee's Radiological Effluent Technical Specifications (RETS) and Offsite Dose Calculation Manual (ODCM). The inspectors also reviewed any abnormal radioactive gaseous or liquid discharges and any conditions since the last inspection when effluent radiation monitors were out-of-service to verify that the required compensatory measures were implemented. Additionally, the inspectors reviewed the licensee's quality control program to verify that the radioactive

effluent sampling and analysis requirements were satisfied and that discharges of radioactive materials were adequately quantified and evaluated.

The inspectors reviewed each of the radiological effluent controls program requirements to verify that the requirements were implemented as described in the licensee's RETS. For selected system modification (since the last inspection), the inspectors reviewed changes to the liquid or gaseous radioactive waste system design, procedures, or operation, as described in the UFSAR and plant procedures.

The inspectors reviewed changes to the ODCM made by the licensee since the last inspection to ensure consistency was maintained with respect to guidance in NUREG-1301, 1302, and 0133 and Regulatory Guides 1.109, 1.21, and 4.1. If differences were identified, the inspectors reviewed the licensee's technical basis or evaluations to verify that the changes were technically justified and documented.

The inspectors reviewed the radiological effluent release reports for 2007 and 2008 in order to determine if anomalous or unexpected results were identified by the licensee, entered in the CAP, and adequately resolved.

The inspectors reviewed any significant changes in reported dose values from the previous radiological effluent release report, and the inspectors evaluated the factors which may have resulted in the change. If the change was not explained as being influenced by an operational issue (e.g., fuel integrity, extended outage, or major decontamination efforts), the inspectors independently assessed the licensee's offsite dose calculations to verify that the licensee's calculations were adequately performed and were consistent with regulatory requirements.

The inspectors reviewed the licensee's correlation between the effluent release reports and the environmental monitoring results, as provided in Section IV.B.2 of Appendix I to 10 CFR Part 50.

This inspection constitutes one sample as defined by IP 71122.01-5.

b. Findings

No findings of significance were identified.

.2 Onsite Inspection

a. Inspection Scope

The inspectors performed a walkdown of selected components of the gaseous and liquid discharge systems (e.g., gas compressors, demineralizers and filters [in use or in standby], tanks, and vessels, and reviewed current system configuration with respect to the description in the UFSAR. The inspectors evaluated temporary waste processing activities, system modifications, and the equipment material condition. For equipment or areas that were not readily accessible, the inspectors reviewed the licensee's material condition surveillance records, as applicable. The inspectors reviewed any changes that were made to the liquid or gaseous waste systems to verify that the licensee adequately evaluated the changes and maintained effluent releases as-low-as-is-reasonably-achievable (ALARA).

During system walkdowns, the inspectors assessed the operability of selected point of discharge effluent radiation monitoring instruments and flow measurement devices. The effluent radiation monitor alarm set point values were reviewed to verify that the set points were consistent with RETS/ODCM requirements.

For effluent monitoring instrumentation, the inspectors reviewed documentation to verify the adequacy of methods and monitoring of effluents, including any changes to effluent radiation monitor set-points. The inspectors evaluated the calculation methodology and the basis for the changes to verify the adequacy of the licensee's justification.

The inspectors observed the licensee's sampling of liquid and gaseous radioactive waste (e.g., sampling of waste steams) and observed selected portions of the routine processing and discharge of radioactive effluents if those activities occurred during the onsite inspection. Additionally, the inspectors reviewed several radioactive effluent discharge permits, assessed whether the appropriate treatment equipment was used and whether the radioactive effluent was processed and discharged in accordance with RETS/ODCM requirements, including the projected doses to members of the public.

The inspectors interviewed staff concerning effluent discharges made with inoperable (declared out-of-service) effluent radiation monitors to determine if appropriate compensatory sampling and radiological analyses were conducted at the frequency specified in the RETS/ODCM. For compensatory sampling methods, the inspectors reviewed the licensee's practices to determine if representative samples were obtained and if the licensee routinely relied on the use of compensatory sampling in lieu of adequate system maintenance or calibration of effluent monitors.

The inspectors reviewed surveillance test results for nonsafety-related ventilation and gaseous discharge systems (high efficiency particulate air and charcoal filtration) to verify that the systems were operating within the specified acceptance criteria. In addition, the inspectors assessed the methodology the licensee used to determine the stack/vent flow rates to verify that the flow rates were consistent with the RETS/ODCM.

The inspectors reviewed the licensee's program for identifying any normally non-radioactive systems that may have become radioactively contaminated to determine if evaluations (e.g., 10 CFR 50.59 evaluations) were performed per IE Bulletin 80-10. The inspectors did not identify unidentified contaminated systems that may have been unmonitored discharge pathways to the environment.

The inspectors reviewed instrument maintenance and calibration records (i.e., both installed and counting room equipment) associated with effluent monitoring and reviewed quality control records for the radiation measurement instruments. The inspectors performed this review to identify any degraded equipment performance and to assess corrective actions, as applicable.

The inspectors reviewed the radionuclides that were included by the licensee in its effluent source term to determine if all applicable radionuclides were included (within detectability standards) in the licensee's evaluation of effluents. The inspectors reviewed waste stream analyses (10 CFR Part 61 analyses) to determine if hard-to-detect radionuclides were also included in the source term analysis.

The inspectors reviewed a selection of monthly, quarterly, and annual dose calculations to ensure that the licensee had properly demonstrated compliance with 10 CFR Part 50, Appendix I, and RETS dose criteria.

The inspectors reviewed licensee records to identify any abnormal gaseous or liquid tank discharges (e.g., discharges resulting from misaligned valves, valve leak-by, etc.) to determine if the licensee had implemented the required actions. The inspectors determined if abnormal discharges were assessed and reported as part of the Annual Radioactive Effluent Release Report consistent with Regulatory Guide 1.21.

The inspectors reviewed the licensee's effluent sampling records (sampling locations, sample analyses results, flow rates, and source term) for radioactive liquid and gaseous effluents to verify that the licensee's information satisfied the requirements of 10 CFR 20.1501.

This inspection constitutes one sample as defined by IP 71122.01-5.

b. Findings

No findings of significance were identified.

.3 Identification and Resolution of Problems

a. Inspection Scope

The inspectors reviewed the licensee's self-assessments, audits, LERs, and Special Reports related to the radioactive effluent treatment and monitoring program since the last inspection to determine if identified problems were entered into the CAP for resolution. The inspectors also assessed whether the licensee's self-assessment program was capable of identifying repetitive deficiencies or significant individual deficiencies in problem identification and resolution.

The inspectors reviewed corrective action reports from the radioactive effluent treatment and monitoring program since the previous inspection, interviewed staff, and reviewed documents to determine if the following activities were conducted in an effective and timely manner commensurate with their importance to safety and risk:

- initial problem identification, characterization, and tracking;
- disposition of operability/reportability issues;
- evaluation of safety significance/risk and priority for resolution;
- identification of repetitive problems;
- identification of contributing causes;
- identification and implementation of effective corrective actions;
- resolution of NCVs tracked in the corrective action system;
- implementation/consideration of risk-significant operational experience feedback; and
- ensuring problems were identified, characterized, prioritized, entered into a corrective action, and resolved.

This inspection constitutes one sample as defined by IP 71122.01-5.

b. Findings

No findings of significance were identified.

4. **OTHER ACTIVITIES**

4OA1 Performance Indicator Verification (71151)

a. Inspection Scope

The inspectors sampled licensee submittals for the Reactor Coolant System (RCS) Specific Activity performance indicator (PI) for Unit 2 for the period from the third quarter 2008 to third quarter 2009. Unit 1 has been in extended shutdown due to the turbine high vibration event on September 20, 2008. Therefore, the licensee has not reported RCS Specific Activity since that time. To determine the accuracy of the PI data reported for Unit 2 during the specified periods, PI definitions and guidance contained in the Nuclear Energy Institute (NEI) Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, were used. The inspectors reviewed the licensee's RCS chemistry samples, TS requirements, issue reports, event reports, and NRC Integrated Inspection Reports for the period of June 2008 through August 2009, to validate the accuracy of the submittals. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator and none were identified. In addition to record reviews, the inspectors observed a chemistry technician obtain and analyze a reactor coolant system sample. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one reactor coolant system specific activity sample 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 followup, the inspectors performed a daily screening of items entered into the licensee's CAP. This review was accomplished through inspection of the station's daily condition report packages.

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

b. Findings

No findings of significance were identified.

.3 Selected Issue Followup Inspection: Root Cause Evaluation

a. Inspection Scope

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

- Root Cause Analysis Report, 2CD Emergency Diesel Generator (EDG) Fuel Leak From the 6F Fuel Injection Pump Delivery Valve Holder, AR 00852905

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

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

- identification of the root and contributing causes of the problem; and
- identification of corrective actions, which were appropriately focused to correct the problem.

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

b. Findings

Introduction

One self-revealing finding of very low safety significance (Green) with an associated Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion XV, "Non-conforming Materials, Parts, or Components," was identified for installing non-conforming parts on the safety-related emergency diesel generators (EDG).

Description

On June 10, 2009, during an operability run for the Unit 2 EDG, licensee personnel discovered a fuel oil leak on the 6F fuel injector line just above the injector pump. The EDG was immediately stopped and the licensee initiated a prompt investigation.

The licensee investigation discovered that the Unit 2 CD EDG 6F Delivery Valve Holder (DVH), which is part of the fuel injector pump assembly, had been fabricated with steel previously identified by the industry as being prone to cracking and leakage. This discovery prompted additional investigations because the licensee had previously implemented a refurbishment plan to change several DVHs, including the Unit 2 CD EDG 6F DVH, using a new steel composition less prone to cracking and leakage. Further investigation determined that the dedication plan and receipt inspection plan for the fuel injector pumps was not sufficiently detailed to determine whether the DVH assembly had been fabricated using the new steel. Consequently, the non-conforming DVHs that were prone to cracking and leakage were inappropriately deemed acceptable for use during receipt inspection and subsequently installed on the EDGs. The licensee's analysis also concluded that the fuel oil leak on the Unit 2 CD EDG 6F fuel injector did not impact EDG operability.

The inspectors reviewed the licensee's root cause evaluation, AR 00852905, control room logs, design documents, operating experience, receipt inspection procedures, and corrective actions taken. For corrective actions, the licensee replaced all non-conforming DVHs with the new steel composition on all four safety-related EDGs. Additional corrective actions included revising several procedures associated with the dedication plan and receipt inspection program.

The inspectors determined that installing non-conforming parts on the safety-related EDG was a performance deficiency that warranted an evaluation in accordance with the Significance Determination Process (SDP).

Analysis:

The inspectors reviewed the samples of minor issues in Inspection Manual Chapter (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 minor. Specifically, installation of non-conforming parts on safety-related equipment under certain circumstances could result in the subsequent degradation or loss of equipment required for safe shut down of the plant.

Because this issue directly impacts the EDGs, which are required to mitigate a loss of offsite power event, the inspectors concluded that this finding was associated with the MSs Cornerstone. The inspectors performed a Phase 1 SDP review using the guidance provided in IMC 0609, Attachment 4, “Phase 1 - Initial Screening and Characterization of Findings,” and Table 4a, “Characterization Worksheet for IE, MS, and BI Cornerstones.” The inspectors determined that this finding was of very low safety significance because the finding is a qualification deficiency that did not result in the loss of operability or functionality of the emergency diesel generators.

#### Cross-cutting Aspect:

The inspectors concluded that this finding has a cross-cutting aspect in the area of human performance - resources. Specifically, the licensee’s dedication and receipt inspection procedures were not complete and accurate to prevent the installation of non-conforming parts on the safety-related EDGs. (H.2 (c))

#### Enforcement

The Code of Federal Regulations, Title 10, Part 50, Appendix B, Criterion XV, “Non-conforming Materials, Parts, or Components,” states that, “measures shall be established to control materials, parts, or components which do not conform to requirements in order to prevent their inadvertent use or installation. These measures shall include, as appropriate, procedures for identification, documentation, segregation, disposition, and notification to affected organizations. Non-conforming items shall be reviewed and accepted, rejected, repaired, or reworked in accordance with documented procedures.”

Contrary to the above, the licensee failed to establish adequate measures to ensure non-conforming parts would not be installed on safety-related equipment. Specifically, the licensee’s dedication plan and receipt inspection plan failed to identify that several DVH assemblies had not been refurbished with the new steel composition less prone to cracking and leakage. Consequently, several non-conforming DVH assemblies were deemed appropriate for use following receipt inspection. These non-conforming parts were subsequently installed on all four EDGs including the Unit 2 CD EDG 6F DVH, which subsequently cracked and leaked fuel oil while the EDG was operating on June 10, 2009. The non-conforming DVHs were subsequently replaced on all EDGs with new DVHs that were fabricated using materials not prone to cracking, with the final replacement being completed in August 2009. 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 00852905 (NCV 05000315/2009005-02; 05000/316/2009005-02).

.4 Selected Issue Followup Inspection: Unit 1 Main Turbine Structural Supports Following the September 20, 2008, Main Turbine High Vibration Event

a. Inspection Scope

On October 29-30, 2009, as a followup to the maintenance effectiveness inspection (IP 71111.12) of the Unit 1 main turbine structural supports performed March 9-13, 2009, the inspectors walked down the observable portions of the main turbine support pedestal, reviewed the status of corrective actions identified in the root cause analysis of the main turbine generator trip (Condition Report 00838732), reviewed the documented assessments of the structural supports inspection, and reviewed the licensee's repaired turbine certification report, Revision 0, which was reviewed by the Plant Operations Review Committee. In addition, the inspectors reviewed selected condition reports subsequent to the event, and received periodic briefings from the licensee regarding the status of issues related to recertifying the Unit 1 main turbine. The inspectors assessed resolution of issues that were raised during various damage assessments performed by the licensee, the turbine suppliers, and other vendors and consultants.

An independent root cause evaluation and an independent assessment of the turbine generator system had been performed by different suppliers. The inspectors reviewed a sample of issues raised in the independent root cause evaluation report to assure they were included and dispositioned in the certification report.

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

b. Findings

No findings of significance were identified.

.5 Semiannual Trend Review

a. Inspection Scope

The inspectors performed a review of the licensee's CAP and associated documents to identify trends that could indicate the existence of a more significant safety issue. The inspectors' review was focused on repetitive equipment issues, but also considered the results of daily inspector CAP item screening discussed in Section 4OA2.2 above, licensee trending efforts, and licensee human performance results. The inspectors' review nominally considered the 6 month period of January 2009 through June 2009, 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 one semiannual trend inspection sample as defined in IP 71152-05.

b. Findings

No findings of significance were identified.

.6 Annual Sample: Review of Operator Workarounds

a. Inspection Scope

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

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

This review constituted one OWA annual inspection sample as defined in IP 71152-05.

b. Findings

No findings of significance were identified.

40A5 Other Activities

.1 Review of Institute of Nuclear Power Operations Report

The inspectors reviewed the Institute of Nuclear Power Operations June 2009 Evaluation Report, Donald C. Cook Nuclear Plant, dated September 15, 2009.

.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 January 11, 2010, the inspectors presented the inspection results to Mr. L. Weber, Site Vice President, and other members of the licensee staff. The licensee acknowledged the issues presented. The inspectors confirmed that none of the potential report input discussed was considered proprietary.

.2 Interim Exit Meetings

Interim exits were conducted for:

- The results of the Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems and Access Control to Radiologically Restricted Areas inspection with the Plant Manager, Mr. J. Gebbie, on October 2, 2009.
- The annual review of Emergency Action Level and Emergency Plan changes with the licensee's Emergency Preparedness Coordinator, Mr. D. Walton, via telephone on December 22, 2009.

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

ATTACHMENT: SUPPLEMENTAL INFORMATION

## KEY POINTS OF CONTACT

### Licensee

C. Baker, Design Engineer  
T. Brown, Director of Chemistry, Environmental and Radiation Protection  
D. Foster, Environmental General Supervisor  
J. Gebbie, Plant Manager  
J. Harris, Radiation Protection Supervisor  
R. Hruby, Site Support Services Vice President  
C. Hutchinson, Emergency Preparedness Manager  
Q. Lies, Engineering Director  
C. Moeller, Radiation Protection Manager  
J. Newmiller, Licensing Activities Coordinator  
J. Nimtz, Senior Licensing Activities Coordinator  
S. Partin, Maintenance Manager  
J. Ross, Operations Director  
P. Schoepf, Manager Nuclear Regulatory Compliance  
D. Walton, Emergency Preparedness Coordinator  
L. Weber, Site Vice President  
R. West, Licensing Activity Coordinator  
C. Wohlgamuth, Environmental Supervisor, REMP Coordinator

## LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

### Opened

05000315/2009005-01; 05000316/2009005-01	NCV	Failure to maintain safety-related cables in underground manholes from becoming repeatedly submerged.
05000315/2009005-02; 05000316/2009005-02	NCV	Installation of non-conforming parts on the safety-related emergency diesel generators.

### Closed

05000315/2009005-01; 05000316/2009005-01	NCV	Failure to maintain safety-related cables in underground manholes from becoming repeatedly submerged.
05000315/2009005-02; 05000316/2009005-02	NCV	Installation of non-conforming parts on the safety-related emergency diesel generators.

### 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-IHP-5040-EMP-004, Plant Winterization and De-Winterization, October 30, 2009
- AR 09033049, Severed Sealtite and Conduit Connection Near 12-FP-697
- AR 09171013, SDG2 Heater Runs Continuously Regardless of Need
- AR 09296038, 1-HTDP-608-B3 Has No Power
- AR 09306037, Heat Trace Breaker Tripped
- WR 06367540, Accumulation of Snow and Ice in the Exhaust Air Enclosure

### 1R04 Equipment Alignment

- 1-OHP-4021-008-002, Placing ECCS in Standby Readiness, Revision 24
- 1-OHP-4021-056-001, Filling and Venting Auxiliary Feedwater System, Revision 27
- 1-OHP-4022-017-001, Loss of RHR Cooling, Revision 18
- 2-OHP-4021-008-002, Placing ECCS in Standby Readiness, Revision 22
- 2-OHP-4021-017-003, Removing Residual Heat Removal Loop From Service, Revision 8
- AR 00854477, Air Leak for 2AB Diesel
- AR 00860770, Labels for 2-RH-128
- AR 08359026, Boric Acid Found on 1-CS-350
- AR 09316004, Broken Piping Stabilizer
- AR 09322014, Loose Shroud on Lower Half of TDAFP
- AR 09324034, Damaged U2 MS Support In ESW Pipe Tunnel
- EC 50291, 1" Main Steam Drain Piping Modification, Rev 0
- OE 08-04186, Wolf Creek Discovered RHR Steam Voiding Vulnerabilities in Mode 3 & 4, October 18, 2008
- OP 12-5166-14, Plant Arrangement Plan Below Basement Units 1 and 2, Revision 14
- OP-2-5143, Emergency Core Cooling (RHR), Revision 69
- SD-12-AUXFD-100, Auxiliary Feedwater System Description, Revision 0
- SD-12-RHR-100, Residual Heat Removal System Description, Revision 0
- WO 55345717-01, 2-OME-150-EN: Snoop Check Starting Air 2CD Emergency Diesel Generator, July 22, 2009
- WO 55345856-01, 1CD EDG Start Air Receiver Pressure, July 25, 2009
- WO 55345893-01, Air Leak at Fitting 2AB Emergency Diesel Generator Starting Air Receiver, July 21, 2009
- WO 55345896-01, Leak at Threaded Connection 1AB Emergency Diesel Generator Front Bank Starting Air, July 27, 2009
- WO 55345898-02, Air Leak at Fitting 2CD Emergency Diesel Generator, August 10, 2009
- WO 55345963-01, Air Leak for 2AB Diesel, July 21, 2009
- WR 06367284, 1-CS-350 Has Buildup of Dry Boric Acid on Pipe Cap AR 00854156, Repair Actuator Air Leak

### 1R05 Fire Protection

- AR 09284005, Scaffold Blocking Fixed Fire Extinguishers
- AR 09293049, Fire Seal Thickness Not Adequate
- AR 09361014, Fire Hydrant Leaking
- AR 09361015, Water flow at RMSB and Tripped Valve at Training Center
- Fire Hazards Analysis, Revision 14
- Fire Pre-Plan, Revision 4

### 1R06 Flooding

- AR 00856503, DEE to Evaluate Medium Voltage Cable Manhole Pumping Activities
- AR 00856810, Inspection of 4KV-34.5KV Manholes for Water
- AR 00859564, Lack of Follow-Thru on Previous Corrective Action Identified by Senior Resident
- AR 09230041, Information in 5534472-01 Not Correct
- AR 09240063, Inspection of 4KV-34.5KV Manholes for Water
- AR 09294041, Core Bore Base of 7 Medium Voltage Manhole Sumps
- AR 09300040, Seven 4KV-34.5KV Manholes Had Water
- AR 09363003, Water Found Covering Cables in MHIPC During Inspection
- AR 09363004, Water Found Covering Cables in Pit
- C4-8, Specifications for Insulated Aluminum Conductors 5000 through 35000 volts, June 30, 1972
- Condition Assessment of Cable Circuits at AEP Cook Nuclear Plant, August 23 thru September 1, 2004
- CR 04203063, Cables Within Two Electrical Medium Voltage Manholes are Submerged
- CR 05012008, Evaluate the Following Request for Change to the Preventive Maintenance Program
- EHI-5054-IMV, Non-EQ Inaccessible Medium Voltage Cable Program, Revision 0
- Report 2009-052, AEP Cook Nuclear Plant Cable System Condition Assessment, July 28-31, 2009
- Specification DCCEE-118-QCN, Power Cable for DC Cook Nuclear Plant, September 12, 1972, Revision 3
- WO 55245904-01, Monthly Medium Voltage Manhole Inspections
- WO 55324890-01, Perform Partial Discharge Testing on Cables, July 28, 2009
- WO 55324890-01, Perform Partial Discharge Testing on Cables, July 28, 2009
- WO 55344472, Inspect Medium Voltage Manholes for Water Accumulation, July 30, 2009

### 1R11 Licensed Operator Regualification Program

- Crew Periodic Simulator Evaluation, Shift B, October 27, 2009
- RQ-E-3405A, Cycle 3405 As-found Simulator Evaluation A, Revision 0

### 1R12 Maintenance Effectiveness

- AR 00811148, Determine Impact on ESW Operability to Remove Backup Air
- AR 00853532, 1-FMO-221 Will Not Close
- AR 00854985, Unit 1 West ESW Pump Hi Vibes
- Essential Service Water System 24-Month Unavailability Data, October 22, 2009
- Essential Service Water System Unit 1 and Unit 2 System Burndown, 3rd Quarter 2009

- Unit 1 and Unit 2 Essential Service Water System Health and Status Report, January 1 through March 31, 2009
- WO 55331271-14, Pump Replacement and Test, August 3, 2009

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

- Control Room Logs, October 19-23, November 16-18, November 30 thru December 4
- PMP-2291-OLR-001, Online Risk Management, Unit 2 Part 1 Configuration Risk Assessment, October 19-23, November 16-18, November 30 thru December 4
- PMP-4100-SDR-001, Plant Shutdown Safety and Risk Management, Revision 019
- Schedule of daily work activities, October 19-23, November 16-18, November 30 thru December 4
- WR 06371792, Pole #1 Bushing #2 has No Oil Visible in Sight Glass

#### 1R15 Operability Evaluations

- 1-OHP-SP-304, Fast Start of Unit 1 EDGs Without Jet Assist, Revision 0
- 2009-0248-00, 50.59 screening for special procedure 1-OHP-SP-304, September 19, 2009
- 2009-0300-00, 50.59 screening for procedure revision to 1-OHP-4021-008-002, Placing ECCS in Standby Readiness incorporating 1-SI-137 valve throttle
- 2009-0301-00, 50.59 applicability determination for procedure revision to 1-OHP-4021-008-002, Placing ECCS in Standby Readiness incorporating 1-SI-136 and 140 throttle
- AEP-NRC-2008-43, 9-Month Response to NRC Generic Letter 2008-01 issued pursuant to 10CFR50.54(f), October 14, 2008
- AR 00858429, Operation of Yokagowa Recorder
- DC Cook FPPM, Fire Protection Program Manual, Revision 12
- DIT-B-03369-01, Design Information Transmittal for throttling between-seat equalization valves for BIT outlet valves
- EHI-5202, Gas Accumulation Condition Monitoring Program, Revision 0
- ODMI 1-09-003, Operational Decision Making Issue For Charging-Letdown Mismatch, Revision 1
- OP 12-5152-14, Flow Diagram Fire Protection-Water Yard Piping Unit 1 & 2
- OP 12-5152-2, Flow Diagram Fire Protection-Water Piping at N and S Storage Tanks Unit 1 & 2
- OP 12-5152T-14, Flow Diagram Fire Protection-Water Piping in Pump House Floor El. 598'-0 Units 1 and 2
- OP-1-5128A-43, Flow Diagram Reactor Coolant Unit 1
- OP-1-5129A-28, Flow Diagram CVCS-Reactor Letdown & Charging Unit 1

#### 1R18 Plant Modifications

- 01-IHP-5040-IMP-007, Installation of Alternate Power Source and Control for Pressurizer Power Operated Relief Valve (PORV), Revision 2
- OP-1-5128A-4, Flow Diagram Reactor Coolant, Revision 48

#### 1R19 Post-Maintenance Testing

- 12-IHP-5030-EMP-017, Plant Batteries AB, CD Battery Charger Preventive Maintenance, October 19, 2009
- 1-EHP-4030-150-255, Verification of Main Turbine Trips, December 17, 2009

- 1-OHP-4021-082-006, Operation of 1AB & 1CD Battery Chargers
- 1-OHP-4030-156-017T, Turbine Driven Auxiliary Feedwater System Test, Revision 7
- AR 00847941, 1-NCR-108-ACT Failed PMT Leak Check
- AR 00858542, Missed PV Inspection
- AR 09215046, Unit 2 Pressurizer Heaters Overheated Connection
- AR 09289036, PMT Stroke of Steam Generator Feed From TDAFW Valves Not Documented
- EC 0000049549, GL 2008-01 Vent Modifications, Revision 0, June 16, 2009
- OHI-4016, Conduct of Operations: Guidelines, Attachment 3, IST Test Criteria, Revision 25
- WO 55272356-01, 2-BC-B 30-Year Component Replacement, October 19, 2009
- WO 55332055-15, PMT Vent Upstream of 1-QMO-225, September 30, 2009
- WO 55332055-16, PMT Vent Downstream of 1-RO-105E, September 30, 2009
- WO 55332055-18, VT-2 Visual Examination Upstream of 1-QMO-225, October 1, 2009
- WO 55332055-19, VT-2 Visual Examination Downstream of 1-RO-105E, September 30, 2009
- WO 55344952, 1-AB-N-2B Clean/Inspect Starter Contactor, October 14, 2009
- WO 55344953, 1-AB-N-1A Clean/Inspect Starter Contactor, October 14, 2009
- WO 55353928, 1-PP-45-2 Motor Install Balance Weight
- WO 55354990-16, 1-MRV-223, Investigate and Repair Air Leak on Valve, December 12, 2009
- WR 06372477 Unacceptable date during section 4.2 of 1-EHP-4030-150-255

#### 1R20 Outage Activities

- 1-OHP-4021-001-001, Plant Heatup From Cold Shutdown to Hot Standby, Revision 50
- 1-OHP-4021-001-002, Reactor Startup, Revision 40
- 1-OHP-4021-001-006, Power Escalation, Revision 53
- AR 00844160, Cell 38 Below Tech Spec Requirements
- AR 00846008, Disparity Between Units For TDAFP Linkage Lube PM
- AR 00849236, Change Made in ITS to TS 3.5.5 Formula Not Captured
- AR 00849398, SBLOCA Assessment of Reduced Recirculation Flow With RHR Spray
- AR 00850874, West CCP Discharge Check Valve Suspected of Leakby
- AR 00851900, Unit 1 Lower Inlet Door Out of Spec
- AR 00852521, 1-CCW-244-72 Leak Rate Exceeds Admin Limit
- AR 00854156, Repair Actuator Leak
- AR 00856303, U1 TDAFP Room Cooler Not Maintaining Temperature
- AR 00856495, Evaluate Required Valve Position
- AR 00856621, 1-HV-AES-2 Flow at Tech Spec Low Limit With Damper Full Open
- AR 00857965, Failed Surveillance
- AR 08297068, 1-SCR-928 Exceeded Limit Stroke Time
- AR 08307011, 1-ECR-16 Open Stroke Greater than Limit
- AR 09182003, Found Detents on 1-MRV-210 Missing Spring Plates
- S-06155-07, Unit 1 Cycle 22 Fall 2008 Forced Outage Time-to-Boil Information,
- WO 55324679, Lubricate Bearings and Governor, June 24, 2009

#### 1R22 Surveillance Testing

- 12-IHP-4030-066-001, Fire Pump Performance and Starting Sequence Tests, Revision 6
- 12-OHP-4030-033-001, Supplemental Diesel Generator Testing, November 16, 2009
- 12-OHP-4030-066-121MD, Electric Fire Pump Operability Test, October 15, 2009
- 1-EHP-4030-109-216, Containment Spray Nozzle Air Flow, October 30, 2009
- 1-OHP-4030-108-051S, South Safety Inspection Pump System Test, December 14, 2009
- AR 00856772, 1-IMO-270 Overthrust Condition
- AR 00857425, Out of Tolerance Critical Parameters

- AR 00861199, Slow Lube Oil Leak From Unit 1 North SI Pump Cooler
- AR 09288037, Motor Driven Fire Pump 12-PP-144 Failed During Surveillance Test
- AR 09289016, CTS Nozzle Air Flow Test
- AR 09296019, Correction to Lineup Sheet 2
- AR 09320024, 12-OME-250-SDG2 Tripped During The Surveillance
- WO 55271905-53, Block/Unblock a CTS Spray Nozzle to Compare With Unblock, October 23, 2009

#### 1EP4 Emergency Action Level and Emergency Plan Changes

- Donald C. Cook Nuclear Plant Emergency Plan; Revision 27
- Donald C. Cook Nuclear Plant Emergency Plan; Revision 26

#### 1EP6 Drill Evaluation (71114.06)

- AR 09351082, Failure of Individual to Correctly Classify E Plan
- EMD-32a, Michigan State Police, Nuclear Plant Event Notification, December 17, 2009
- Licensed Operator Requalification, RQ-E-3305-DEP, Cycle 3305 DEP Scenario, Revision 0

#### 2OS1 Access Control to Radiologically Significant Areas (71121.01)

- AR 850037, Wrong Radiation Work Permit Used by Untrained Workers, April 16, 2009
- PMP-6010-ALA-001, ALARA Post Work Review, Containment Scaffold, April 28, 2009
- PMP-6010-ALA-001, ALARA Post Work Review, Operations Activity, May 9, 2009
- PMP-6010-ALA-001, ALARA Post Work Review, Radiation Protection Activities in Containment, April 30, 2009
- PMP-6010-ALA-001, ALARA Post Work Review, Refuel Cavity Decontamination Activities, April 27, 2009
- PMP-6010-ALA-001, ALARA Post Work Review, Valve Maintenance, April 30, 2009
- PMP-6010-RPP-003, High, Locked High, and Very High Radiation Area Access, Revision 19
- THG-026, Locked High Radiation Area and Very High Radiation Area Weekly Verification Process, Revision 11
- U2C18 Outage Report March 2009

#### 2PS1 Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems (71122.01)

- 12 OHP-4021-006-004, Transferring Distillate From Monitor Tanks, Revision 41
- 12 OHP-4021-023-002, Release of Radioactive Waste from Gas Decay Tanks, Revision 23
- 12-THP-6020-CHM-121, Unit 2 Reactor Coolant System Sampling, Revision 4
- 12-THP-6020-CHM-322, Vent Stack Gaseous Sampling, Revision 9
- 2007 Annual Radioactive Effluent Release Report, March 28, 2008
- 2008 Annual Radioactive Effluent Release Report, April 29, 2009
- 2-OHP-4021-028-005, Operation of the Containment Purge System, Revision 25
- 839503, Evaluate Missed ODCM Vent Sample for Annual Report, October 2, 2008
- AR 816309, Flooding From Rainwater Cause Failure to Meet ODCM Sampling, July 19, 2009
- AR 827570, Iodine Samples Indicate Possible Problem with 1-VRS-1500, March 10, 2008
- AR 828719, Measureable Levels of xenon-133 and xenon-135 at Access Control, March 28, 2008
- AR 838139, Non-Compliance with ODCM Attachment 3.6, September 9, 2008
- AR 839429, Suspect ODCM Required Sample Results Not Validated, October 1, 2008

- AR 841536, Component Cooling Water Leak Resulting in Unplanned release, November 11, 2008
- AR 844248, Low Flow Rates on 2-VFR-315, December 28, 2008
- AR 846035, Quick-Hit Assessment of Radiological Effluent Control Program, September 9, 2009
- AR 851356, NRC Notification to Free Release Upper Parking Lot, May 13, 2009
- ESAT 9260051, Released Missile Blocks on Rail Cars Found to Have Tritium, September 17, 2009
- ESAT 9273029, Mesh Fence needs to be Secured on 618' Unit 2 Volume Control Tank Hallway, September 30, 2009
- ESAT 9274033, Dose Rate Meter Found With Invalid Sticker, September 30, 2009
- ESAT 9275011, Enhance RPP-601 Procedure per NRC Audit, October 2, 2009
- ESAT 9275029, Revise Attachment 7, "Venting the Volume Control Tank 1/2-4021-003-001", October 2, 2009
- June 2009 Doses Due to Liquid and Gaseous Effluents, July 7, 2009
- March 2009 Doses Due to Liquid and Gaseous Effluents, April 6, 2009
- PMP-6010-OSD-001, Off-Site Dose Calculation Manual, Revision 22
- Update Final Safety Analysis Report Chapter 11, Revision 22
- WO 55295112, Unit 1 Ventilation Low Range Noble Gas (1-VRS-1505), Channel Calibration, December 3, 2008
- WO 55302771, Unit 2 Ventilation Low-Range Noble Gas (2-VRS-2505), Channel Calibration, September 9, 2009
- WO 55302772, Unit 2 Ventilation Iodine (2VRA2503) Channel Calibration, June 23, 2009
- WO 55322951, Unit 1 Ventilation Iodine (1VRA1503) Channel Calibration, December 3, 2008
- WO 55324616, Batch Liquid Waste (RRS-1001) Channel Calibration, May 6, 2009
- WO 55327126, Unit 1 Ventilation Particulate (1-VRA-1501) Channel Calibration, September 9, 2009
- WO 55327204, Unit 1 Ventilation High-Range Noble Gas (1-VRS-1509), Channel Calibration, September 12, 2009
- WO 55327205, Unit 1 Ventilation Mid-Range Noble Gas (1-VRS-1507), Channel Calibration, September 9, 2009
- WO 55332850, Unit 2 Ventilation Mid-Range Noble Gas (2-VRS-2507), Channel Calibration, June 22, 2009
- WO 55332851, Unit 2 Ventilation High-Range Noble Gas (2-VRS-2509), Channel Calibration, June 27, 2009
- WO 55333423, Unit 2 Ventilation Particulate (2-VRA-2501) Channel Calibration, September 22, 2009
- WO 55342676, Radioactive Liquid Waste Effluent Monitor RRS-1000 Channel Functional Test, August 1, 2009

#### 40A1 Performance Indicator Verification (71151)

- Unit 2 Reactor Coolant System Dose Equivalent Iodine Sample Counting Data, September 29, 2009
- Unit 2 Reactor Coolant System Dose Equivalent Iodine Sample Counting Data Chart, October 1, 2008 to October 1, 2009

#### 40A2 Identification and Resolution of Problems

- AR 00822289, DCS OTDT and OPDT Turbine Runback
- AR 00829915, Repeat Trend in Active Fire Suppression Systems B3a

- AR 00848855, Inadequate Work Instructions for PMT
- AR 00853179, Reason Code B3a1 Exceeded Monthly Upper Control Limit
- AR 00858382, U2 RCS Hot Leg Temperature Instrument Failed Low
- AR 00858916, Once Clearance Request Was Associated to Several Clearances
- AR 00859470, 2-BLI-130 Differs Than 3 percent at 2-LSI-2 and Control Room
- AR 09069051, Incorrect reference in UFSAR
- AR 09070016, UCR-1820 Not Properly Incorporated into UFSAR
- AR 09070037, Fissure in Concrete
- AR 09078057, Tracking of Followup Items from NRC Structural Inspection
- AR 09098010, Voids found in concrete when removing abandoned anchor bolts
- AR 09156017, Tracker for Unit 1 System Recertification
- AR 09161033, Remove U1 MT bearing oil film pressure transmitters
- AR 09167006, Incomplete package review leads to qualification issue
- AR 09168022, Adverse Trend on Continuous Use Procedure Non-Compliance D5f
- AR 09168051, Damaged struts below expansion joint in LP exhaust hoods
- AR 09168052, Repair U1 Generator Stator Frame NDE indications by welding
- AR 09169003, Damaged struts below expansion joint in LP exhaust hoods
- AR 09171009, Turbine Project: Concrete and grout preparation
- AR 09171011, Keel base metal indication
- AR 09174045, Repair U1 Generator Stator Frame NDE indications by welding
- AR 09175017, U1 MT RI SV – marginally SAT lift check reading
- AR 09212007, Machining horizontal joint lower half casing
- AR 09225022, Unit 1 Low Pressure Turbine I-Seal Axial Clearance Issue
- AR 09231020, Lower exhaust hoods discovered warped from welding
- AR 09231037, Cracks in Unit 1 Main Generator Core Iron Bar supports
- AR 09269014, Unit 1 Turbine Trip Walkdown-Support 1-BHPD-R61
- AR 09269017, Unit 1 Turbine Trip Walkdown-Support 1-BLPD-R226
- AR 09269018, Unit 1 Turbine Trip Walkdown-Support 1-BAUX-R55
- AR 09269019, Unit 1 Turbine Trip Walkdown
- AR 09269020, Unit 1 Turbine Trip Walkdown
- AR 09269021, Unit 1 Turbine Trip Walkdown
- AR 09269022, Unit 1 Turbine Trip Walkdown
- AR 09269023, Unit 1 Turbine Trip Walkdown-Support 1-BAUX-R55
- AR 09269024, Unit 1 Turbine Trip Walkdown-Support 1-AHPD-R100
- AR 09269026, Unit 1 Turbine Trip Walkdown-Support 1-AHPD-R101
- AR 09269027, Unit 1 Turbine Trip Walkdown
- AR 09269028, Unit 1 Turbine Trip Walkdown
- AR 09269029, Unit 1 Turbine Trip Walkdown
- AR 09294048, 1-HE-9A, water leaking out bottom S middle support pillar
- AR Unit 1 Main Turbine Work Package Revision
- D. C. Cook Unit 1, Main Turbine Damage Event, 9/20/2008, Equipment Root Cause Analysis
- I&M report, D. C. Cook Unit 1 Repaired Turbine Certification Report (rev 0): dated September 30, 2009
- I&M report, Turbine-Generator Foundation Certification-Cook Unit 1 turbine-Generator Restart (rev 0): dated July 14, 2009
- Monthly Trend Status Report, Maintenance, April - June 2009
- Monthly Trend Status Report, Operations and Fire Protection, April – August 2009
- PMP-4010-OWA-001, Oversight and Control of Operator Burden, Revision 7
- Root Cause Analysis of Unit 1 Main Turbine Generator Trip, September 20, 2008, Condition Report 00838732

- Sargent & Lundy report, Turbine Pedestal Concrete and Anchor Bolt Damage Examination, Evaluation, and Repair Recommendations, S&L report SL-009932 (rev 0): dated June 18, 2009
- Sargent & Lundy report, Visual Examination of Unit 1, Turbine-generator Foundation Concrete, S&L Report No. SL-009857 (rev 0): dated June 15, 2009
- Unit 1 and 2 Total Operator Burden Index Report, September 2009
- Unit 1 Operator Burden Report, October 20, 2009
- Unit 2 Operator Burden Report, January 14, 2008
- Unit 2 Operator Burden Report, October 20, 2009

## LIST OF ACRONYMS USED

ADAMS	Agency Documents Access and Management System
ALARA	As-Low-As-is-Reasonably-Achievable
AR	Action Request
CAP	Corrective Action Program
CFR	Code of Federal Regulations
DVH	Delivery Valve Holder
EDG	Emergency Diesel Generator
IMC	Inspection Manual Chapter
IP	Inspection Procedure
kV	Kilovolt
LER	Licensee Event Report
NCV	Non-Cited Violation
NEI	Nuclear Energy Institute
NRC	U.S. Nuclear Regulatory Commission
ODCM	Offsite Dose Calculation Manual
OWA	Operator Workaround
PARS	Publicly Available Records
PI	Performance Indicator
RCS	Reactor Coolant System
REMP	Radiological Environmental Monitoring Program
RETS	Radiological Effluent Technical Specifications
SDP	Significance Determination Process
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report
WO	Work Order

J. Jensen

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Sincerely,

**/RA by Kenneth Riemer for/**  
James L. Cameron, Chief  
Branch 6  
Division of Reactor Projects

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

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Letter to J. Jensen from J. Cameron dated January 26, 2010.

SUBJECT: D. C. COOK NUCLEAR POWER PLANT, UNITS 1 AND 2 INTEGRATED  
INSPECTION REPORT 05000315/2009005; 05000316/2009005

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