



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
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LISLE, IL 60532-4352

August 5, 2010

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

SUBJECT: D. C. COOK NUCLEAR POWER PLANT, UNITS 1 AND 2 INTEGRATED
INSPECTION REPORT; 05000315/2010003; 05000316/2010003

Dear Mr. Weber:

On June 30, 2010, the U. S. Nuclear Regulatory Commission (NRC) completed an inspection at your D. C. Cook Nuclear Power Plant, Units 1 and 2. The enclosed report documents the inspection results, which were discussed on July 21, 2010, with you 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 self-revealed finding of very low safety significance (Green). This finding was determined to involve a violation of NRC requirements. However, because of the very low safety significance and because it is entered into your corrective action program, the NRC is treating this finding as a non-cited violation (NCV) consistent with Section VI.A.1 of the NRC Enforcement Policy.

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

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/

James 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. 05000315/2010003; 05000316/2010003
 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. 05000315/2010003; 05000316/2010003

Licensee: Indiana Michigan Power Company

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

Location: Bridgman, MI

Dates: April 1 through June 30, 2010

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

Enclosure

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SUMMARY OF FINDINGS

IR 05000315/2010003; 05000316/2010003; 04/01/2010 – 06/30/2010 D. C. Cook Nuclear Power Plant, Units 1 & 2; Problem Identification and Resolution.

The inspection was conducted by resident and regional inspectors. The report covers a 3-month period of resident inspection. One green finding with an associated non-cited violation (NCV) was identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter 0609 "Significance Determination Process" (SDP). Cross-cutting aspects were determined using IMC 0310, "Components Within the Cross-Cutting Areas." Findings for which the SDP does not apply may be "Green," or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated July 2006.

A. NRC-Identified and Self-Revealed Findings

Cornerstone: Mitigating Systems

- Green. A finding of very low safety significance (Green) with an associated NCV of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings," was self-revealed. Specifically, licensee personnel failed to positively identify a power cable for Unit 1 AB emergency diesel generator fuel oil transfer pump 1-AB-2 while implementing a work order to remove and replace the power cable. Consequently, on April 5, 2010, the power cable for fuel oil transfer pump 1-AB-1 was cut instead of the power cable for pump 1-AB-2, which unknowingly rendered the Unit 1 AB emergency diesel generator inoperable and unavailable. Corrective actions included replacing the power cables for both fuel oil transfer pumps and correcting the labeling on the conduit. Additional planned corrective actions included revising drawings 1-1407 and 1-1407DR, and determining and implementing robust barriers to positively identify cables in the field before cutting or replacing them during planned maintenance activities. This issue was entered into the licensee's corrective action program as Action Request 2010-3656.

The inspectors determined that the performance deficiency was more than minor because it was associated with the human performance attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective of ensuring the availability of systems that respond to initiating events to prevent core damage. Specifically, the emergency diesel generator was unknowingly rendered inoperable and unavailable. This finding was of very low safety significance because a detailed Phase 3 Significance Determination Process analysis, assuming a 21-day exposure time, estimated the change in core damage frequency to be 4.6E-8, reflecting a finding of very low safety significance (Green). The dominant cut-sets involved station blackout scenarios: loss of offsite power, failure of emergency power, and failure to recover either offsite or emergency power. The inspectors concluded that this finding has a cross-cutting aspect in the work practices component of the human performance cross-cutting area. (H.4(a)) (Section 4OA2.3)

B. Licensee-Identified Violations

No violations of significance were identified.

REPORT DETAILS

Summary of Plant Status

Unit 1 was in Mode 5, Cold Shutdown, when the inspection period started. After completing refueling outage activities, the Unit 1 reactor was started up and the main generator was synchronized to grid on April 9, 2010. Unit 1 reached full power on April 13, 2010, and was at or near full power through the remainder of the inspection period.

Unit 2 was at or near full power for the duration of the inspection period.

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1. REACTOR SAFETY

1R01 Adverse Weather Protection (71111.01)

.1 Readiness of Offsite and Alternate AC Power Systems

a. Inspection Scope

The inspectors verified that plant features and procedures for operation and continued availability of offsite and alternate alternating current (AC) power systems during adverse weather were appropriate. The inspectors reviewed the licensee's procedures affecting these areas and the communications protocols between the transmission system operator (TSO) and the plant to verify that the appropriate information was being exchanged when issues arose that could impact the offsite power system. Examples of aspects considered in the inspectors' review included:

- The coordination between the TSO and the plant during off-normal or emergency events;
- The explanations for the events;
- The estimates of when the offsite power system would be returned to a normal state; and
- The notifications from the TSO to the plant when the offsite power system was returned to normal.

The inspectors also verified that plant procedures addressed measures to monitor and maintain availability and reliability of both the offsite AC power system and the onsite alternate AC power system prior to or during adverse weather conditions. Specifically, the inspectors verified that the procedures addressed the following:

- The actions to be taken when notified by the TSO that the post- trip voltage of the offsite power system at the plant would not be acceptable to assure the continued operation of the safety- related loads without transferring to the onsite power supply;
- The compensatory actions identified to be performed if it would not be possible to predict the post- trip voltage at the plant for the current grid conditions;
- A re-assessment of plant risk based on maintenance activities which could affect grid reliability, or the ability of the transmission system to provide offsite power; and

- The communications between the plant and the TSO when changes at the plant could impact the transmission system, or when the capability of the transmission system to provide adequate offsite power was challenged.

Documents reviewed are listed in the Attachment to this report. 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.

This inspection constituted one readiness of offsite and alternate AC power systems sample as defined in Inspection Procedure (IP) 71111.01-05.

b. Findings

No findings of significance were identified.

.2 Summer Seasonal Readiness Preparations

a. Inspection Scope

The inspectors performed a review of the licensee's preparations for summer weather for selected systems, including conditions that could lead to an extended drought.

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. Specific documents reviewed during this inspection are listed in the Attachment. The inspectors also reviewed CAP items to verify that the licensee was identifying adverse weather issues at an appropriate threshold and entering them into their corrective action program in accordance with station corrective action procedures. The inspectors' reviews focused specifically on the following plant systems:

- Unit 1/2 screen house;
- Unit 2 transformer 201AB and 201CD deluge houses;
- Unit 1/2 diesel fire pump house; and
- Unit 1/2 supplemental diesel generators.

This inspection constituted one seasonal adverse weather sample as defined in IP 71111.01-05.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment (71111.04)

a. Inspection Scope

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

- Unit 1/2 supplemental diesel generators;
- Unit 2 east residual heat removal train; and
- Unit 1/2 component cooling water crosstie capability.

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

These activities constituted three partial system walkdown samples 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 70, Unit 1 control room ventilation equipment room;
- Fire zone 42D, Unit 1 emergency power supply battery room;
- Fire zone 23, Unit 2 quadrant 3N cable tunnel;
- Fire zones 46 A/B, Unit 2 emergency power supply and control rod drive transfer rooms; and
- Fire zone 55, Unit 1 switchgear room cable vault.

The inspectors reviewed these areas to assess if the licensee had implemented a fire protection program that adequately controlled combustibles and ignition sources within the plant, effectively maintained fire detection and suppression capability, maintained passive fire protection features in good material condition, and implemented adequate compensatory measures for out-of-service, degraded or inoperable fire protection equipment, systems, or features in accordance with the licensee's fire plan. The inspectors selected fire areas based on their overall contribution to internal fire risk as documented in the plant's Individual Plant Examination of External Events with later

additional insights, their potential to impact equipment which could initiate or mitigate a plant transient, or their impact on the plant's ability to respond to a security event. Using the documents listed in the Attachment, the inspectors verified that fire hoses and extinguishers were in their designated locations and available for immediate use; that fire detectors and sprinklers were unobstructed; that transient material loading was within the analyzed limits; and fire doors, dampers, and penetration seals appeared to be in satisfactory condition. The inspectors also verified that minor issues identified during the inspection were entered into the licensee's CAP. Documents reviewed are listed in the Attachment to this report.

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

b. Findings

No findings of significance were identified.

1R06 Flooding (71111.06)

a. Inspection Scope

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

- Unit 1/2 essential service water motor control center panel room

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

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program (71111.11)

a. Inspection Scope

On May 11, 2010, the inspectors observed a crew of licensed operators in the plant's simulator during licensed operator requalification evaluations to verify that operator performance was adequate, evaluators were identifying and documenting crew

performance problems, and that 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 systems:

- Unit 1 control room ventilation system;
- Unit 2 control room ventilation system;
- Unit 1/2 supplemental diesel generators; and
- Unit 2 distributed ignition system.

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

- implementing appropriate work practices;
- identifying and addressing common cause failures;
- scoping of systems in accordance with 10 CFR 50.65(b) of the maintenance rule;
- characterizing system reliability issues for performance;
- charging unavailability for performance;
- trending key parameters for condition monitoring;
- ensuring 10 CFR 50.65(a)(1) or (a)(2) classification or re-classification; and
- verifying appropriate performance criteria for structures, systems, and components/functions classified as (a)(2) or appropriate and adequate goals and corrective actions for systems classified as (a)(1).

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

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

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

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

- Planned maintenance to drain the Unit 1 reactor vessel to mid-loop to perform reactor coolant system vacuum fill on April 1-2, 2010;
- Emergent maintenance to repair a faulted cable on Unit 2 reserve auxiliary transformer 201AB on April 21-23, 2010; and
- Emergent maintenance to replace fuel oil transfer pump 1-AB-1 power cable on April 23-29, 2010.

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

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

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

.1 Operability Evaluations

a. Inspection Scope

The inspectors reviewed the following issues:

- AR 2010-0280, Unit 1 Cycle 23 Refueling Outage;
- AR 2010-0080, Aggregate operability determination evaluation for Unit 1 ice condenser;
- AR 00860832, Identified gas accumulation void in piping near 2-RH-152;
- AR 2010-1061, Aggregate evaluation of emergency core cooling system recirculation leakage;
- AR 2010-4253, Past operability determination evaluation for non-conservative value for ice basket weight acceptability; and
- AR 2010-2566, past operability evaluation of recirculation sump after foreign debris had been identified.

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

Also, additional activities were performed during the evaluation of the gas accumulation void identified in [AR 00860832](#) that were associated with TI 2515/177, "Managing gas accumulation in emergency core cooling, decay heat removal, and containment spray systems." These activities are described below in .2 of this section.

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

b. Findings

No findings of significance were identified.

.2 Operability Evaluations associated with Temporary Instruction (TI) 2515/177, "Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems."

a. Inspection Scope

The inspectors reviewed the following issue associated with the scope of GL 2008-01, "Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems":

- AR 00860832, Identified gas accumulation void in piping near 2-RH-152.

The inspectors verified that the licensee has acceptably identified the gas intrusion mechanisms that apply to this issue (TI 2515/177, Section 04.02.e). In addition, the inspectors confirmed that the identified gas accumulation void would not affect the associated emergency core cooling pumps operability during initial startup or continuous operation.

Documents reviewed are listed in the Attachment to this report.

This inspection effort counts towards the completion of TI 2515/177, which will be closed in a later Inspection Report.

b. Findings

No findings of significance were identified.

1R18 Plant Modifications (71111.18)

a. Inspection Scope

The inspectors reviewed the following temporary modifications:

- 12-TM-10-22-R0, Temporary routing of U1 AB emergency diesel generator fuel oil transfer pump power cables;
- 2-TM-10-20-R0, Lift cable leads on phases 1, 2, and 3 for transformer 2-TR201AB; and
- 1-TM-10-17-R0, Install capture plate below bearing plate and shim pack assembly for steam generator 13 upper lateral shim restraint.

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 systems. The inspectors also compared the licensee's information to operating experience information to ensure that lessons learned from other utilities had been incorporated into the licensee's decision to implement the temporary modification. The inspectors, as applicable, performed field verifications to ensure that the modifications were installed as directed; the modifications operated as expected; modification testing adequately demonstrated continued system operability, availability, and reliability; and that operation of the modifications did not impact the operability of any interfacing systems. Lastly, the inspectors discussed the temporary modification with operations, engineering, and training personnel to ensure that the

individuals were aware of how extended operation with the temporary modification in place could impact overall plant performance. Documents reviewed in the course of this inspection are listed in the Attachment to this report.

This inspection constituted three temporary modification samples as defined in IP 71111.18-05.

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing (71111.19)

a. Inspection Scope

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

- Unit 1 rod drop testing and control rod exercising for control bank D rod K6;
- Unit 1 AB emergency diesel generator fuel oil transfer pump 1-QT-106-AB1 power cable replacement;
- Unit 2 turbine driven auxiliary feed water pump preventative maintenance and relay replacement; and
- Unit 1/2 69 kilovolt emergency power auto voltage regulator testing following jumper removal.

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

b. Findings

No findings of significance were identified.

1R20 Outage Activities (71111.20)

a. Inspection Scope

The inspectors reviewed the outage schedule risk review and contingency plans for the Unit 1 Cycle 23 refueling outage (RFO), conducted March 2 to April 9, 2010, to confirm that the licensee had appropriately considered risk, industry experience, and previous site-specific problems in developing and implementing a plan that assured maintenance of defense-in-depth. During the RFO, the inspectors observed portions of the shutdown and cooldown processes and monitored licensee controls over the outage activities listed below. Documents reviewed during the inspection are listed in the Attachment to this report.

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

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

b. Findings

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 ice condenser as-left flow channel surveillance (containment isolation valve);
- Unit 1 CD emergency diesel generator load sequencing and engineered safeguard feature testing (routine);
- Unit 2 east motor driven auxiliary feed water pump test (in-service test); and
- Unit 1 controlled leakage verification test (reactor coolant system leak detection).

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

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

b. Findings

No findings of significance were identified.

1EP6 Drill Evaluation (71114.06)

.1 Emergency Preparedness Drill Observation

a. Inspection Scope

The inspectors evaluated the conduct of a routine licensee emergency preparedness drill on May 18, 2010, to identify any weaknesses and deficiencies in classification, notification, and protective action recommendation development activities. The inspectors observed emergency response operations from the emergency offsite facility to determine whether the event classification, notifications, and protective action recommendations were performed in accordance with procedures. The inspectors also attended the licensee drill critique to compare any inspector-observed weaknesses 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. As part of the inspection, the inspectors reviewed the drill package and other documents listed in the Attachment to this report.

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

b. Findings

No findings of significance were identified.

.2 Training Evolution Observation

a. Inspection Scope

The inspectors observed a simulator training evolution for licensed operators on May 11, 2010, which required emergency plan implementation. This evolution was planned to be evaluated and included in performance indicator data regarding drill and exercise performance. The inspectors observed event classification and notification activities performed by the crew, and attended the post-evolution critique for the scenario. The focus of the inspectors' activities was to note any weaknesses and deficiencies in the crew's performance and ensure that the licensee evaluators noted the same issues and entered them into the corrective action program. As part of the inspection, the inspectors reviewed the scenario package and other documents listed in the Attachment to this report.

This inspection of the licensee's training evolution with emergency preparedness drill aspects constituted one sample as defined in IP 71114.06-05.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstone: Public Radiation Safety

2RS6 Radioactive Gaseous and Liquid Effluent Treatment (71124.06)

This inspection constituted one sample as defined in IP 71124.06-5.

.1 Inspection Planning and Program Reviews (02.01)

Event Report and Effluent Report Reviews

a. Inspection Scope

The inspectors reviewed the Annual Radiological Effluent Release Report, issued April 29, 2010, to determine if the report was submitted as required by the Offsite Dose Calculation Manual (ODCM)/TSs. The inspectors reviewed anomalous results, unexpected trends, or abnormal releases identified by the licensee for further inspection to determine if they were evaluated, were entered in the corrective action program, and were adequately resolved.

The inspectors identified radioactive effluent monitor operability issues reported by the licensee as provided in effluent release reports, to review these issues during the onsite inspection, as warranted, given their relative significance and determine if the issues were entered into the corrective action program and adequately resolved.

b. Findings

No findings of significance were identified.

Offsite Dose Calculation Manual and Updated Final Safety Analysis Report Review

a. Inspection Scope

The inspectors reviewed UFSAR descriptions of the radioactive effluent monitoring systems, treatment systems, and effluent flow paths so they can be verified during inspection walkdowns. The inspectors reviewed changes to the ODCM made by the licensee since the last inspection against the guidance in NUREG-1301, 1302, and 0133, and Regulatory Guides 1.109, 1.21 and 4.1. When differences were identified, the inspectors reviewed the technical basis or evaluations of the change during the onsite inspection, to determine whether they were technically justified and maintain effluent releases as-low-as-is-reasonably-achievable.

The inspectors reviewed licensee documentation to determine if the licensee has identified any non-radioactive systems that have become contaminated as disclosed either through an event report or the ODCM since the last inspection. This review provided an intelligent sample list for the onsite inspection of any 10 CFR 50.59 evaluations and allowed a determination if any newly contaminated systems have an

unmonitored effluent discharge path to the environment, whether any required ODCM revisions were made to incorporate these new pathways and whether the associated effluents were reported in accordance with Regulatory Guide 1.21.

b. Findings

No findings of significance were identified.

Groundwater Protection Initiative Program

a. Inspection Scope

The inspectors reviewed reported groundwater monitoring results and changes to the licensee's written program for identifying and controlling contaminated spills/leaks to groundwater. During the inspection, the inspectors also performed the TI 2515/173; "Review of the Implementation of the Industry Ground Water Protection (GPI) Voluntary Initiative."

b. Findings

No findings of significance were identified.

Procedures, Special Reports, and Other Documents

a. Inspection Scope

The inspectors reviewed licensee event reports, event reports and/or special reports related to the effluent program issued since the previous inspection to identify any additional focus areas for the inspection based on the scope/breadth of problems described in these reports. The review included effluent program implementing procedures, particularly those associated with effluent sampling, effluent monitor set-point determinations, and dose calculations. The review also included copies of licensee's evaluation reports of the effluent monitoring program since the last inspection to gather insights into the licensee's program and aid in selecting areas for inspection review (smart sampling).

b. Findings

No findings of significance were identified.

.2 Walkdowns and Observations (02.02)

a. Inspection Scope

The inspectors walked down selected components of the gaseous and liquid discharge systems to verify that equipment configuration and flow paths align with the documents reviewed in 02.01 above and to assess equipment material condition. Special attention was made to identify potential unmonitored release points (such as temporary structures butted against auxiliary or containment buildings), building alterations which could impact airborne, or liquid, effluent controls, and ventilation system leakage that communicate directly with the environment.

For equipment or areas associated with the systems selected for review that were not readily accessible due to radiological conditions, the inspectors reviewed the licensee's material condition surveillance records, as applicable.

The inspectors walked down those filtered ventilation systems whose test results will be reviewed to verify that there are no conditions, such as degraded HEPA/charcoal banks, improper alignment, or system installation issues that would impact the performance, or the effluent monitoring capability, of the effluent system.

The inspectors observed selected portions of the routine processing and discharge of radioactive gaseous effluent (including sample collection and analysis) to verify that appropriate treatment equipment was used and the processing activities align with discharge permits.

The inspectors determined if the licensee has made significant changes to their effluent release points, e.g., changes subject to a 10 CFR 50.59 review or require NRC approval of alternate discharge points.

The inspectors observed selected portions of the routine processing and discharge of liquid waste (including sample collection and analysis) to verify that appropriate effluent treatment equipment is being used and that radioactive liquid waste is being processed and discharged in accordance with procedure requirements and aligns with discharge permits.

b. Findings

No findings of significance were identified.

.3 Sampling and Analyses (02.03)

a. Inspection Scope

The inspectors selected two effluent sampling activities, consistent with smart sampling, and assessed whether adequate controls have been implemented to ensure representative samples were obtained (e.g., provisions for sample line flushing, vessel recirculation, composite samplers, etc.).

The inspectors discussed and reviewed two effluent discharges made with inoperable (declared out-of-service) effluent radiation monitors to verify that controls are in place to ensure compensatory sampling is performed consistent with the Radiological Effluent Technical Specifications (RETS)/ODCM and that those controls are adequate to prevent the release of unmonitored liquid and gaseous effluents.

The inspectors determined whether the facility is routinely relying on the use of compensatory sampling in lieu of adequate system maintenance, based on the frequency of compensatory sampling since the last inspection.

The inspectors reviewed the results of the inter-laboratory comparison program to verify the quality of the radioactive effluent sample analyses and to verify that the inter-laboratory comparison program included hard-to-detect isotopes as appropriate.

b. Findings

No findings of significance were identified.

.4 Instrumentation and Equipment (02.04)

Effluent Flow Measuring Instruments

a. Inspection Scope

The inspectors reviewed the methodology the licensee uses to determine the effluent stack and vent flow rates to verify that the flow rates are consistent with RETS/ODCM or UFSAR values and that differences between assumed and actual stack and vent flow rates do not affect the results of the projected public doses.

b. Findings

No findings of significance were identified.

Air Cleaning Systems

a. Inspection Scope

The inspectors evaluated whether surveillance test results since the previous inspection for TS required ventilation effluent discharge systems, such as the Containment/Auxiliary Building Ventilation System, meet TS acceptance criteria.

b. Findings

No findings of significance were identified.

.5 Dose Calculations (02.05)

a. Inspection Scope

The inspectors reviewed all significant changes in reported dose values compared to the previous Radiological Effluent Release Report (e.g., a factor of 5, or increases that approach Appendix I criteria) to evaluate the factors which may have resulted in the change.

The inspectors reviewed one radioactive liquid and one gaseous waste discharge permits to verify that the projected doses to members of the public were accurate and based on representative samples of the discharge path.

Inspectors evaluated the methods used to determine the isotopes that are included in the source term to ensure all applicable radionuclides are included within detectability standards. The review included the current Part 61 analyses to ensure hard-to-detect radionuclides are included in the source term.

The inspectors reviewed changes in the licensee's offsite dose calculations since the last inspection to verify the changes are consistent with the ODCM and Regulatory Guide 1.109. Inspectors reviewed meteorological dispersion and deposition factors

used in the ODCM and effluent dose calculations to ensure appropriate factors are being used for public dose calculations.

The inspectors reviewed the latest Land Use Census to verify that changes (e.g., significant increases or decreases to population in the plant environs, changes in critical exposure pathways, the location of nearest member of the public or critical receptor, etc.) have been factored into the dose calculations.

For the releases reviewed above, the inspectors assessed whether the calculated doses (monthly, quarterly, and annual dose) are within the 10 CFR Part 50, Appendix I and TS dose criteria.

The inspectors selected, as available, one record of any abnormal gaseous or liquid tank discharges (e.g., discharges resulting from misaligned valves, valve leak-by, etc) to ensure the abnormal discharge was monitored by the discharge point effluent monitor. Discharges made with inoperable effluent radiation monitors, or unmonitored leakages were reviewed to ensure that an evaluation was made of the discharge to satisfy 10 CFR 20.1501 so as to account for the source term and projected doses to the public.

b. Findings

No findings of significance were identified.

.6 Groundwater Protection Initiative Implementation (02.06)

a. Inspection Scope

The inspectors assessed whether the licensee is continuing to implement the Voluntary Nuclear Energy Institute (NEI)/Industry GPI since the last inspection. The inspectors reviewed:

- monitoring results of the GPI to determine if the licensee has implemented its program as intended, and to identify any anomalous results; (Anomalous results or missed samples were reviewed to determine if the licensee has identified and addressed deficiencies through its corrective action program.)
- identified leakage or spill events and entries made into 10 CFR 50.75 (g) records to assess any remediation actions taken for effectiveness and onsite contamination events involving contamination of ground water to assess whether the source of the leak or spill was identified and mitigated; and
- unmonitored spills, leaks, or unexpected liquid or gaseous discharges, ensure that an evaluation was performed to determine the type and amount of radioactive material that was discharged, assess whether sufficient radiological surveys were performed to evaluate the extent of the contamination and the radiological source term and verify that a survey/evaluation had been performed to include consideration of hard-to-detect radionuclides.

The inspectors reviewed whether the licensee completed offsite notifications (State, local, and if appropriate, the NRC), as provided in its GPI implementing procedures.

The inspectors reviewed the evaluation of discharges from onsite surface water bodies (ponds, retention basins, lakes) that contain or potentially contain radioactivity, and the potential for ground water leakage from these onsite surface water bodies to determine if licensees are properly accounting for discharges from these surface water bodies as part of their effluent release reports.

The inspectors evaluated whether onsite ground water sample results and a description of any significant onsite leaks/spills into ground water for each calendar year was documented in the Annual Radiological Environmental Operating Report for Radiological Environmental Monitoring Program or the Annual Radiological Effluent Release Report for the RETS. For significant, new effluent discharge points (such as significant or continuing leakage to ground water that continues to impact the environment if not remediated), the inspectors determined if the ODCM was updated to include the new release point.

b. Findings

No findings of significance were identified.

.7 Problem Identification and Resolution (02.07)

a. Inspection Scope

Inspectors assessed whether problems associated with the effluent monitoring and control program are being identified by the licensee at an appropriate threshold and are properly addressed for resolution in the licensee corrective action program. In addition, they evaluated the appropriateness of the corrective actions for selected sample of problems documented by the licensee involving radiation monitoring and exposure controls.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151)

.1 Mitigating Systems Performance Index – Auxiliary Feedwater System Inspection Scope

a. Inspection Scope

The inspectors sampled licensee submittals for the Mitigating Systems Performance Index (MSPI) – Auxiliary Feedwater System performance indicator for Unit 1 and Unit 2 for the period from the second quarter 2009 through the first quarter 2010. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, were used. The inspectors reviewed the licensee's operator narrative logs, MSPI derivation reports, issue reports, event reports and NRC Integrated Inspection Reports for the period of the second quarter 2009 through the first quarter 2010 to validate the accuracy of the submittals. The inspectors reviewed the MSPI component risk coefficient to determine if it had changed by more than 25 percent in

value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator and none had been identified. Documents reviewed are listed in the Attachment to this report.

This inspection constituted two MSPI auxiliary feedwater system samples as defined in IP 71151-05.

b. Findings

No findings of significance were identified.

.2 Mitigating Systems Performance Index - Emergency AC Power System

a. Inspection Scope

The inspectors sampled licensee submittals for the MSPI - Emergency AC Power System performance indicator for Unit 1 and Unit 2 for the period from the second quarter 2009 through the first quarter 2010. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, were used. The inspectors reviewed the licensee's operator narrative logs, MSPI derivation reports, issue reports, event reports and NRC Integrated Inspection Reports for the period of the second quarter 2009 through the first quarter 2010 to validate the accuracy of the submittals. The inspectors reviewed the MSPI component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator and none had been identified. Documents reviewed are listed in the Attachment to this report.

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

b. Findings

No findings of significance were identified.

.3 Mitigating Systems Performance Index - High Pressure Injection Systems

a. Inspection Scope

The inspectors sampled licensee submittals for the MSPI - High Pressure Injection Systems performance indicator for Unit 1 and Unit 2 for the period from the second quarter 2009 through the first quarter 2010. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, were used. The inspectors reviewed the licensee's operator narrative logs, issue reports, MSPI derivation reports, event reports and NRC Integrated Inspection Reports for the period of the second quarter 2009 through the first quarter 2010 to

validate the accuracy of the submittals. The inspectors reviewed the MSPI component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator and none were identified. Documents reviewed are listed in the Attachment to this report.

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

b. Findings

No findings of significance were identified.

.4 Mitigating Systems Performance Index - Residual Heat Removal System

a. Inspection Scope

The inspectors sampled licensee submittals for the MSPI - Residual Heat Removal System performance indicator for Unit 1 and Unit 2 for the period from the second quarter 2009 through the first quarter 2010. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, were used. The inspectors reviewed the licensee's operator narrative logs, issue reports, MSPI derivation reports, event reports and NRC Integrated Inspection Reports for the period of the second quarter 2009 through the first quarter 2010 to validate the accuracy of the submittals. The inspectors reviewed the MSPI component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator and none were identified. Documents reviewed are listed in the Attachment to this report.

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

b. Findings

No findings of significance were identified.

.5 Mitigating Systems Performance Index - Cooling Water Systems

a. Inspection Scope

The inspectors sampled licensee submittals for the MSPI - Cooling Water Systems performance indicator for Unit 1 and Unit 2 for the period from the second quarter 2009 through the first quarter 2010. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, were used. The inspectors reviewed the licensee's operator narrative logs, issue reports, MSPI

derivation reports, event reports, and NRC Integrated Inspection Reports for the period of the second quarter 2009 through the first quarter 2010 to validate the accuracy of the submittals. The inspectors reviewed the MSPI component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator and none were identified. Documents reviewed are listed in the Attachment to this report.

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

b. Findings

No findings of significance were identified.

.6 Reactor Coolant System Specific Activity

a. Inspection Scope

The inspectors sampled licensee submittals for the Reactor Coolant System Specific Activity performance indicator for the period from the first quarter 2009 through the first quarter of 2010. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, was used. The inspectors reviewed the licensee's Reactor Coolant System chemistry samples, TS requirements, issue reports, event reports, and NRC Integrated Inspection Reports for the period of the first quarter 2009 through the first quarter of 2010 to validate the accuracy of the submittals. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator and none were identified. In addition to record reviews, the inspectors observed a chemistry technician obtain and analyze a reactor coolant system sample. Documents reviewed are listed in the Attachment to this report.

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

b. Findings

No findings 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 IPs 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: Inoperable Emergency Diesel Generator

a. Inspection Scope

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

- AR 2010-3656, Inoperable Emergency Diesel Generator (EDG) due to Wrong Cable Cut

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

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

A finding of very low safety significance (Green) with an associated NCV of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings," was self-revealed. Specifically, licensee personnel failed to positively identify a power cable for Unit 1 AB emergency diesel generator fuel oil transfer pump 1-AB-2 while implementing a work order to remove and replace the power cable. Consequently, on April 5, 2010, the power cable for fuel oil transfer pump 1-AB-1 was cut instead of the power cable for pump 1-AB-2, which unknowingly rendered the Unit 1 AB emergency diesel generator inoperable and unavailable.

Description:

On March 11, 2010, with Unit 1 in a refueling outage, the Unit 1 AB emergency diesel generator (1AB EDG) fuel oil transfer pump 1-AB-2 power cable (cable 1-8505R-1) was de-terminated from the pump motor for testing. Based on the cable testing, licensee personnel concluded that the cable was degraded and that the cable should be replaced. Because the cable needed to be replaced, the licensee did not re-terminate the cable to the pump motor. The 1AB EDG remained operable because only one of the two fuel oil transfer pumps is required and fuel oil transfer pump 1-AB-1 was operable. Outage management personnel subsequently decided to replace the power cable for fuel oil transfer pump 1-AB-2 online instead of adding the work to the refueling outage.

On April 5, 2010, with Unit 1 in Mode 3, (Hot Standby) the licensee de-terminated the power cable for fuel oil transfer pump 1-AB-2 (cable 1-8505R-1) from the breaker while implementing a work order (WO) to remove and replace the power cable. After the cable was de-terminated at both ends licensee personnel were unable to pull the cable out of the conduit. The cable run was approximately 500 feet long, which contributed to the difficulty in pulling the cable. Electrical maintenance personnel referenced plant drawings and located a pull box in the auxiliary building where the cable could be cut, which would allow the electricians to remove the cable from the conduit in two sections.

However, the plant drawing that was referenced (1-1407-40) was incorrect; the pull box identified on the drawing for the fuel oil transfer pump 1-AB-2 power cable (cable 1-8505R-1) actually contained the power cable for fuel oil transfer pump 1-AB-1 (cable 1-8506R-1). In addition, the in-plant labeling on the conduit leading to the pull box was also incorrectly labeled as containing cable 1-8505R-1. When the electricians opened the pull box that they believed contained the cable to be cut they missed an opportunity to recognize the incorrect drawing and plant labeling; the cable itself was correctly labeled as 1-8506R-1 but this was not identified by the electricians. Consequently, based on the drawing, in-plant labeling, and inadequate identification of the cable in the pull box, the electricians cut power cable 1-8506R-1 for fuel oil transfer pump 1-AB-1 instead of power cable 1-8505R-1 for fuel oil transfer pump 1-AB-2. As a result, both fuel oil transfer pumps were inoperable, which unknowingly rendered the 1AB EDG inoperable and unavailable.

On April 23, 2010, with Unit 1 in Mode 1, (Power Operation) the licensee was performing planned surveillance testing on the 1AB EDG when fuel oil transfer pump 1-AB-1 attempted to automatically start, as designed, due to lowering level in the fuel oil day tank. During the attempted start the associated supply breaker tripped and was damaged. The licensee declared the 1AB EDG inoperable and entered the TS 3.8.1 required action to restore the EDG to operable status within 14 days. The licensee initiated a failure investigation team, which identified that during the work on April 5, power cable 1-8506R-1 for fuel oil transfer pump 1-AB-1 had been cut instead of power cable 1-8505R-1 for fuel oil transfer pump 1-AB-2.

Licensee personnel subsequently removed and replaced the cut power cable for fuel oil transfer pump 1-AB-1. On April 29, 2010, following satisfactory post maintenance testing on fuel oil transfer pump 1-AB-1, the 1AB EDG was declared operable and TS 3.8.1 was exited. Subsequently, on May 5, 2010, the power cable for fuel oil transfer pump 1-AB-2 was satisfactorily tested following replacement, which restored operability to fuel oil transfer pump 1-AB-2.

Analysis:

The inspectors determined that the failure to positively identify the 1AB EDG fuel oil transfer pump 1-AB-2 power cable 1-8505R-1, as specified in a WO to remove and replace the power cable, was a performance deficiency. The inspectors screened this issue in accordance with IMC 0612, Appendix B and E. Traditional enforcement did not apply because the issue did not have any actual safety consequences or potential for impacting the NRC's regulatory function and was not the result of any willful violation of NRC requirements or licensee procedures. The inspectors determined that the performance deficiency was more than minor because it was associated with the human performance attribute of the Mitigating Systems Cornerstone and adversely affected the

cornerstone objective of ensuring the availability of systems that respond to initiating events to prevent core damage.

The inspectors evaluated the finding using IMC 0609, Significance Determination Process," Attachment 0609.04, "Phase 1 – Initial Screening and Characterization of Findings," Table 4a for the Mitigating Systems Cornerstone. The finding was determined to require additional significance review because the finding resulted in the actual loss of safety function of a single train for greater than its TS allowed outage time. The Region III Senior Reactor Analyst (SRA) was contacted and performed a Phase 2 risk evaluation using the risk-informed inspection notebook and pre-solved worksheets for D. C. Cook. Using an exposure time of 3-30 days the risk was yellow. The SRA continued the risk evaluation with a detailed Phase 3 SDP analysis.

The SRA performed the Phase 3 analysis using the D. C. Cook Standardized Plant Analysis Risk (SPAR) Model, Revision 3P, May 27, 2009. In addition, two Region III SRAs visited the site and discussed the analysis assumptions with site probabilistic risk assessment personnel.

Based on discussions with site probabilistic risk assessment personnel, the following modifications were made to the SPAR Model to accurately reflect current plant configuration and plant procedures:

- The logic for the supplemental diesel generators (SDGs) was changed to allow success with a single SDG. Operator actions to align a SDG to a 4kV safety bus were credited as appropriate.
- The logic for the 1AB EDG was modified to reflect the capability of this EDG to run for 30 minutes with the existing fuel in the day tank. No recovery credit was assumed for the EDG after 30 minutes of run time.
- No common cause failure was assumed.
- Offsite power non-recovery probabilities were adjusted with an additional 30 minutes allowed for recovery.

Assuming a 21-day exposure time, the SRA estimated the change in core damage frequency to be 4.6E-8, reflecting a finding of very low safety significance (Green). The dominant cut-sets involved station blackout scenarios: loss of offsite power, failure of emergency power, and failure to recover either offsite or emergency power. The licensee also performed a risk assessment and concluded the risk to be of very low safety significance.

The inspectors concluded that this finding has a cross-cutting aspect in the work practices component of the human performance cross-cutting area. Specifically, self and peer checking techniques were inadequate to positively identify the power cable that was to be removed and replaced (H.4(a)).

Enforcement:

Title 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings," requires, in part, that activities affecting quality be prescribed by documented drawings of a type appropriate to the circumstances. Contrary to the above, as of April 8, 2010,

Drawings 1-1407, Revision 40 and 1-1407DR, Revision 1 were not appropriate to the circumstances in that they incorrectly identified a pull box as containing safety-related power cable 1-8505R-1 when the pull box actually contained safety-related power cable 1-8506R-1. In addition, in-plant conduit labeling matched the drawing and was also incorrect.

Consequently, on April 8, 2010, during work associated with the Unit 1 AB EDG, safety-related power cable 1-8506R-1 for fuel oil transfer pump 1-AB-1 was cut while implementing a WO to remove and replace safety-related power cable 1-8505R-1 for fuel oil transfer pump 1-AB-2. As a result, the 1AB EDG was unknowingly rendered inoperable and unavailable.

Licensee personnel discovered the 1AB EDG inoperability and unavailability on April 25, 2010, during troubleshooting activities following a failed surveillance test on the 1AB EDG. The 1AB EDG was returned to operable status on April 29, 2010, after power was restored to fuel oil transfer pump 1-AB-1.

Corrective actions included replacing the power cables for both fuel oil transfer pumps and correcting the labeling on the conduit. Additional planned corrective actions included revising drawings 1-1407 and 1-1407DR, and determining and implementing robust barriers to positively identify cables in the field before cutting or replacing them during planned maintenance activities.

Because of the very low safety significance, and because this finding was entered into the licensee's corrective action program as AR 2010-3656, this violation is being treated as an NCV consistent with Section VI.A of the NRC Enforcement Policy. **(NCV 05000315/2010003-01, Failure to Positively Identify Power Cable that was to be Removed and Replaced)**

.4 Selected Issue Followup Inspection: Fire Protection Program

a. Inspection Scope

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

- AR 00864848, Bent Deflector and Rotated Branch Line; and
- A series of AR's detailing concerns with fire seal painting, testing and physical condition with respect to operability.

The inspectors discussed the evaluations and associated corrective actions with licensee personnel and verified the following attributes during their review of the above AR's:

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

- identification of corrective actions, which were appropriately focused to correct the problem.

A thorough review of licensing history was to determine the need for suppression in fire zones 44N and 44S. A review of the corrective action timeline was to verify that the licensee maintained conformance with supplied vendor recommendation and current industry practice for testing and maintenance of fire penetration seals. Documents reviewed are listed in the Attachment to this report.

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

b. Findings

No findings of significance were identified.

.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 October 2009 through March 2010, although some examples expanded beyond those dates where the scope of the trend warranted.

The review also included issues documented outside the normal CAP in monthly and quarterly trend reports, assurance audit/post-maintenance test reports and self-assessment reports. The inspectors compared and contrasted their results with the results contained in the licensee's CAP trending reports. Corrective actions associated with a sample of the issues identified in the licensee's trending reports were reviewed for adequacy. Documents reviewed are listed in the Attachment to this report.

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

b. Findings

No findings of significance were identified.

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

.1 Unit 1 East Main Feedwater Pump Malfunction

a. Inspection Scope

The inspectors responded to the control room and conducted control panel walkdowns to verify that plant equipment operated as designed after the control room operators manually tripped the Unit 1 east main feedwater pump because of high thrust bearing

temperature alarms and high vibration alarms on May 2, 2010. The inspectors also reviewed control room logs, plant procedures and system parameters to verify that the actions taken by the control room operators were appropriate and timely. Documents reviewed are listed in the Attachment to this report.

This event followup inspection constitutes one sample as defined in IP 71153-05.

b. Findings

No findings of significance were identified.

.2 Unusual Event for Confirmed Seismic Event

a. Inspection Scope

The inspectors reviewed actions taken by licensee personnel for a declared Unusual Event on June 23, 2010. The Unusual Event was declared for Unit 1 and Unit 2 at 1428 based on emergency plan criterion N-1, "Natural or Destructive Phenomena Inside the Protected Area," after ground motion was sensed by plant personnel. Control room operators confirmed the seismic event using United States Geological Survey information. The Unusual Event was terminated at 1955 after actions directed by plant procedures had been completed, which verified that plant structures, systems and components were not adversely affected by the seismic event.

The inspectors reviewed emergency plan implementing procedures, abnormal operating procedures, control room logs, and the event notification worksheets. The inspectors verified that the event classification was accurate, that required notifications to NRC and to state and local officials were completed in a timely manner, and that control room operator actions were completed in accordance with plant procedures. The inspectors also conducted plant tours to verify that the seismic event did not cause any damage to plant equipment.

The inspectors reviewed action requests to verify that identified problems pertaining to event response were entered into the corrective action program with the appropriate significance characterization. Documents reviewed are listed in the Attachment to this report.

This event followup inspection constitutes one sample as defined in IP 71153-05.

b. Findings

No findings of significance were identified.

4OA5 Other Activities

.1 (Open) NRC TI 2515/177, "Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal and Containment Spray Systems (NRC Generic Letter 2008-01)"

As documented in Section 1R15, the inspectors confirmed the acceptability of the described licensee's actions. This inspection effort counts towards the completion of TI 2515/177 which will be closed in a later Inspection Report.

.2 (Closed) NRC Temporary Instruction 2515/173 Review of the Industry Ground Water Protection Voluntary Initiative

a. Inspection Scope

An NRC assessment was performed of the licensee's implementation of the NEI/GPI (dated August 2007 (ML072610036)). The licensee has evaluated work practices that could lead to leaks and spills, and has performed an evaluation of systems, structures, and components that contain licensed radioactive material to determine potential leak or spill mechanisms.

The licensee has completed a site characterization of geology and hydrology to determine the predominant ground water gradients and potential pathways for ground water migration from onsite locations to off-site locations. An onsite ground water monitoring program has been implemented to monitor for potential licensed radioactive leakage into groundwater. The ground water monitoring results are being reported in the annual effluent and/or environmental monitoring report. (See <http://www.nrc.gov/reactors/operating/ops-experience/tritium/plant-info.html>)

The licensee has prepared procedures for the decision making process for potential remediation of leaks and spills, including consideration of the long term decommissioning impacts. Records of leaks and spills are being recorded in the licensee's decommissioning files in accordance with 10 CFR 50.75(g).

The licensee has identified the appropriate local and state officials and has conducted briefings on the licensee's GPI. Protocols have been established for notification to these local and state officials regarding detection of leaks and spills.

b. Findings

No findings of significance were identified.

.3 Inspection of Procedures and Processes for Managing Fatigue (TI 2515/180)

a. Inspection Scope

The objective of this TI is to determine if the licensees' implementation procedures and processes required by 10 CFR Part 26, Subpart I, "Managing Fatigue," are in place to reasonably ensure the requirements specified in Subpart I are being addressed. The Temporary Instruction applies to all operating nuclear power reactor licensees but is intended to be performed for one site per utility. The inspector interfaced with the appropriate licensee staff to obtain and review licensee policies, procedures and processes necessary to complete all portions of this TI.

b. Findings

No findings of significance were identified.

4OA6 Management Meetings

.1 Exit Meeting Summary

On July 21, 2010, the inspectors presented the inspection results to Mr. J. Gebbie, and other members of the licensee staff. The licensee acknowledged the issues presented. The inspectors confirmed that none of the potential report input discussed was considered proprietary.

.2 Interim Exit Meetings

Interim exits were conducted for:

- Radiation monitoring instrumentation protective equipment inspection results were discussed with Mr. J. Gebbie, Site Vice President, on May 21, 2010.
- Temporary Instruction 2515/180, Inspection of Procedures and Processes for Managing Fatigue, inspection results were discussed with Mr. J. Gebbie, Site Vice President, on June 15, 2010.

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

.3 Regulatory Performance Meeting

On May 25, 2010, the NRC held a meeting with the licensee at the DC Cook Nuclear Power Plant to discuss the annual plant performance assessment.

.4 Public Meeting

On May 25, 2010, the NRC held a public open house meeting at the St. Joseph Public Library to engage interested members of the public on the performance of the DC Cook Nuclear Power Plant and the role of the NRC in ensuring safe plant operations. Visitors were given the opportunity to discuss with NRC representatives the overall regulatory process as well as the results of the DC Cook Nuclear Power Plant annual plant performance assessment, as completed in accordance with Section 07.04 of IMC 0305.

ATTACHMENT: SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

J. Gebbie, Site Vice President
Q. Lies, Plant Manager
J. Ross, Director, Operations
C. Hutchinson, Emergency Preparedness and Site Protective Services Manager
C. Moeller, Radiation Protection Manager
E. Merchant, Environmental Specialist
J. Newmiller, Licensing Activities Coordinator
J. Nimitz, Licensing Activities Coordinator
R. West, Regulatory Affairs – Licensing Activity Coordinator
J. Bradshaw, Site Security

Nuclear Regulatory Commission

B. Dickson, Chief, Plant Support Team, DRS/RILL
J. Cameron, Chief, Reactor Projects Branch 6, DRP/RILL
B. Palagi, Senior Operations Inspector, DRS/RILL

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000315/2010003-01	NCV	Failure to Positively Identify Power Cable that was to be Removed and Replaced (Section 4OA2.3)
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Discussed

NONE

LIST OF DOCUMENTS REVIEWED

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

1R01 Adverse Weather Protection

- 12-OHP-4022-001-010, Severe Weather, Revision 6
- 12-OHP-5030-057, Screen House Vulnerability Determination, Revision 18
- AR 00848227, Records of Seasonal Reviews Not Found
- AR 07113048, U1 Main Transformer Coolers Becoming Clogged With Debris
- AR 08007051, Unit 2, Phase 1 Main Transformer Winding Temp Reading High
- AR 08138025, Main Transformer Phase 3 Fan 4 is Not Working
- AR 2010-1494, Deficiency Noted in Summer Readiness Program
- AR 2010-3575, Fish Deterrent System Actions Not Complete By April 1st
- AR 2010-3984, 12-HV-ACA-CON-1, Auxiliary Bldg Damper Actuator needs to be replaced
- PMP-2291-OLR-001, Online Risk Management, Revision 17
- PMP-3100-IOA-001, Inter-Organizational Agreement Between the AEP Utility Operations and the AEP Nuclear Generation Group for Assistance to Cook Nuclear Plant, Revision 5
- PMP-5055-001-001, Winterization/Summerization, April 30, 2010
- Seasonal Readiness Affirmation, May 20th, 2010

1R04 Equipment Alignment

- 12-IHP-6030-IMP.070, Spare Component Cooling Water Pump Control and Alarm Instrumentation, Revision 4
- 12-OHL-4030-SOM-020, Unit 12 Outside TS Tours, Days, Revision 8
- 12-OHP-4030-033-001, Supplement Diesel Generator Testing, Attachment 2, System Lineup, Revision 12
- 1-OHP-4022-016-004, Loss of Component Cooling Water, Revision 15
- 2-OHP-4021-008-002, Placing the Emergency Core Cooling System in Standby Readiness, Revision 22
- AR 00854751, Unexpected Loss of U2 Digital Control Cabinet Cooling
- AR 08275095, 2-CS-534, Identified Air/Gas in Piping
- AR 09147045, Corrosion Found on Cell 75 and Acid Around Numerous Posts
- AR 09217004, Cells 20, 45, and 114 Have Cracked Jar Covers on 1-BATT-CD
- AR 09224001, Cells 68, 110, and 112 Have Cracked Jar Covers on 1-BATT-CD
- AR 10036054, NRC Questioned ETAP Model For Induction Motors
- AR 2010-3050, SDG2 Rear Crankshaft Seal Leaking
- AR 2010-4499, 1-BATT-CD Deficiencies found
- OP-1-5135, Flow Diagram CCW Pumps and CCW Heat Exchangers, Revision 41
- OP-2-5135, Flow Diagram CCW Pumps and CCW Heat Exchangers, Revision 37
- WO 55336650, 12-OME-250-SDG1 Small Leak on Engine Cooling Water Pipe
- Work Request, 06368980, SDG2 Fuel Level Indicator Alarming – Error 10, 11

1R05 Fire Protection

- AR 00839230, Decrease in Fire Protection System Header Pressure
- AR 00845304, Pegging Pump Was Air Bound
- AR 00853658, 12-FP-371, UT of Elbow in FP Line ID Localized Thinning
- AR 00864725, Found Combustible Material in Unit 2 4KV
- AR 06366733, U-2 Roof Vents Would Not Open
- AR 06372687, Fire Hydrant Leaking
- Fire Hazards Analysis, Revision 14
- Fire Pre- Plan, Revision 7

1R06 Flooding

- MD-12-SCRN-001-N, Screen House Internal Flood Levels, Revision 2
- NED-2000-537-REP, Flooding Evaluation for AEP DC Cook Unit #2, May 19, 2000
- SD-061206-001, Flooding Evaluation Report For D. C. Cook Nuclear Power Plant, Revision 2

1R11 Licensed Operator Requalification Program

- 02-OHP-4023-E-0, Reactor Trip of Safety Injection, Revision 34
- 02-OHP-4023-E-3, Steam Generator Tube Rupture, Revision 15
- Simulator Exercise Guide, RQ-E-3501A, Cycle 3501 As-found Simulator Evaluation A, Revision 0

1R12 Maintenance Effectiveness

- 12-EHP-5035-MRP-001, Maintenance Rule Program Administration
- 2-IHP-4030-234-001, Unit 2 DIS Surveillance and Baseline Testing, July 31, 2009
- AR 00826051, SDG 2 Output Breaker Tripped Open and then Diesel Tripped
- AR 00828692, U1 Control Room Ventilation Failed Charcoal Leak Test
- AR 00829230, Loss of 69 KV Power Momentarily
- AR 00829440, ESW lines to Unit 1 South CRAC Chiller Plugged
- AR 00831869, U1 South Control Room Humidifier 1-HV-ACRA-H2 Tripped Out on Low Water Level
- AR 00845017, U2 Distributed Ignition System as Found Voltage Found OOS
- AR 00850247, DIS Igniter (B35) B Train, Observed Not Working
- AR 00851619, U1 North CRAC Fan Belt is Off
- AR 00862268, 1-SV-94S Failed as Found Set Pressure Test
- AR 00863405, U2 DIS Surveillance LDISB Low Voltages
- AR 00863478, U2 DIS Lowers Current Low
- AR 00863888, Failed PMT on 1-HV-ACRA-H1
- AR 00865111, SDG's Failed to Restore During 18 Month Surveillance
- AR 00865119, Test Failure for SDG
- AR 08339005, Unit 2 South Control Room Air Handling Unit Humidifier Tripped Off
- AR 09019003, Unit 2 North CRAC Humidifier Feed Leak
- AR 09034001, Unit 2 North CRAC Has Loose Fan Belt
- AR 2010-5545, OP Prints for the DIS Needs Transition Clarification
- Control Room Complex Ventilation System Maintenance Rule Scoping Document, March 22, 2001
- Control Room Ventilation System Health and Status Reports for Units 1 and 2, 2008 and 2009
- DB-12-HVCR, Control Room Ventilation System Design Basis Document, Revision 1

- Hydrogen Igniter System Maintenance Rule Scoping Document, Revision 2
- Maintenance Rule Action Plan for Unit 2 Distributed Ignition System Igniter failures, June 10, 2010
- Supplemental Diesel Generator Maintenance Rule Scoping Document, Revision 1
- WO 55309918-02, Lower Containment DIS System Surveillance, January 1, 2009

1R13 Maintenance Risk Assessments and Emergent Work Control

- Control Room Logs, April 1-2, April 21-29
- PMP-2291-OLR-001, Online Risk Management, Unit 1 and Unit 2 Part 1 Configuration Risk Assessment, April 21-29
- PMP-4100-SDR-001, Plant Shutdown Safety and Risk Management, Revision 019
- Schedule of daily work activities, April 1-2, April 21-29

1R15 Operability Evaluations

- 12-EHP-4030-010-262, Ice Condenser Surveillance and Operability Evaluation, Revision 7
- 12-EHP-5030-001-008, Recirculation Loop Total Leak Rate, April 8, 2010
- 12-MHP-4030-010-001, Ice Condenser Basket Weighing Surveillance, Revision 14
- 1-EHP-4030-118-001, RWST Isolation Valve Leak Test, Revision 10
- 2-RH-22, Isometric Diagram for OP-2-5143, Revision 12
- AEP-NRC-2009-47, Nine-Month Supplemental Response to GL 2008-01, July 24, 2009
- AEP-NRC-2009-80, Response to Request for Additional Information Regarding GL 2008-01, December 7, 2009
- AR 00851823, 2-RH-152 Identified Air/Gas Void in Vicinity of Vent
- AR 2010-0087, Ice Basket 1-ICESKT-16-1-6 has Newly Identified Damage
- AR 2010-0280, Perform Aggregate ODE for U1C23
- AR 2010-0384, Ice Baskets Weights Below 1400 lbf
- AR 2010-0437, FME Lost in the U1 Ice Condenser
- AR 2010-0551, U1C23 Ice Condenser Aggregate FME Evaluation
- AR 2010-0754, Ice Basket 1-ICESKT-4-9-9 Greater Than 1850 lbs
- AR 2010-1115, Non Zero Leakage on 1-IMO-263
- AR 2010-1203, Leak Test of 1-RH-130 Was 288.13 ml/min
- AR 2010-1203, Leak Test of RH-130 was 288.13 ml/min
- AR 2010-1216, 1-RH-130 Has Excessive Leakage
- AR 2010-1228, Flow Channel Blockage Exceeds 15 Percent Acceptance Criteria
- AR 2010-1297, 1-RH-130 Leak Rate is 8.06 ml/min
- AR 2010-5134, ICEMAN Software Configuration
- DB-12-RHRS, Design Basis Document for the Residual Heat Removal System, Revision 3
- DIT-B-02800-00, Integrated TS Conversion for Ice Condenser Design Information and Values, October 14, 2003
- EHI-5202, Gas Accumulation Condition Monitoring Program, Revision 0
- ENPM-12-ICE-001-N, Ice Condenser Design Basis Surveillance Requirements, Revision 1
- Generic Letter 2008-01 Gas Accumulation Walkdown Report, February, 10, 2010
- OP-2-5143.054, Flow Diagram Emerg. Core Cooling (RHR) Unit No. 2, Revision 54
- WO 55230894, Replace Packing Gland Studs Nuts Using Stainless Steel, March 15, 2010
- WO 55306143, Upgrade Electric Conductor Seal Assembly for 1-NSO-23, March 10, 2010

- WO 55306145, Upgrade Electric Conductor Seal Assembly for 1-NSO-21, March 10, 2010
- WO 55319333, Replace Stem Block for 1-ECR-10, March 16, 2010

1R18 Plant Modifications

- 12-EHP-5043-OAR-001, Owners Acceptance Review, Justification for Continued Operation for D. C. Cook Unit 1 with Failed Shim Assembly at the Steam Generator Upper Support
- 12-MHP-5021-EMP-001, Conduit Installation, Revision 1
- AR 00865914, Evaluate the seismic qualification for conduit supports
- AR 2010-2555, Steam Generator 13 Upper Lateral Restraints Inspection in Mode 3
- AR 2010-3532, Transformer 201AB Neutral/Ground Overcurrent Fault
- AR 2010-5563, Wood Board Used as Pipe Support in Aux Bldg - U2 Side

1R19 Post-Maintenance Testing

- 1-OHP-4030-112-015, Full Length Control Rod Operability Test, April 9, 2010
- 1-OHP4030-132-027AB, Attachment 5, Fuel Oil Transfer Pump 1-QT-106-AB1 Auto Start Test and Inservice Test, April 29, 2010
- 2-OHP-4030-256-017T, Turbine Driven Auxiliary Feedwater System Test, Revision 9
- AR 06357730, 12-BKR-V-4047 Racking Mechanism Deficiency
- AR 06370799, Failed PMT Warm Lead/Breaker MCCB 1-52-4-CD
- AR 2010-2865, 1-FMO-221, Evidence of Leakage at Packing
- AR 2010-2944, Unit 1 Control Rod K-6 Not Responding
- Multiple Rod Drop Measurement, Unit 1 Cycle 23, Rod K-6, April 8, 2010
- WO 55310180-66, Perform Functional Check of UPS and VR Controllers, June 8, 2010
- WO 55346456, 2-OME-39 Post-Maintenance Leak Check, May 6, 2010
- WO 55347747, Failed PMT Warm Lead/Breaker MCCB 1-52-4-CD, May 4, 2010
- WO 55350352, 2-FRV-256 Stroke Times and PMT, May 6, 2010

1R20 Outage Activities

- 12-EHP-4050-FHP-301, Core Reload, Unit 1 Cycle 23 Core Map
- 12-MHP-4030-031-001, Inspection of the Recirculation Sump, Revision 14
- 1-OHP-4021-001-001, Plant Heatup from Cold Shutdown to Hot Standby, Revision 50
- 1-OHP-4021-001-002, Reactor Startup, Revision 42
- 1-OHP-4021-002-013, Reactor Coolant System Vacuum Fill, Revision 15
- 1-OHP-4030-001-002, Containment Inspection Tours, Revision 29
- 1-OHP-5030-001-002, Outage Risk and TS Monitoring, Revision 11
- AR 2010-0747, Failure of Containment Spray to Actuate
- AR 2010-0929, 1-CCR-455 Failed AF LLRT leaking 2100 sccm
- AR 2010-0933, Unit 1 Upper Divider Barrier Seal Inspection
- AR 2010-1307, Tube Nose Broke and Left 2 Pieces in the CCW Heat Exchanger
- AR 2010-1357, 1-TS-441A Broken Wiring Connection
- AR 2010-1376, Replace 1-BLI-140,
- AR 2010-1535, Safety Valve Failed to Lift During Testing
- AR 2010-1543 1-NS-357 Failed AF LLRT With 25,500 sccm Leakage
- AR 2010-1766, Track Completion of Channel Operational Test
- AR 2010-1788, Unable to Calibrate the Test Module Inside 1-NRI-35
- AR 2010-1801, RWST Isolation Valve Leak Test
- AR 2010-1804, Reactor Vessel Core Support Lug Bolting Anomalies

- AR 2010-1860, Breaker in MCC Cubicle 1-ABV-D3B Failed Testing
- AR 2010-1910, Relays Will Not Calibrate AR 03322049, NRC Resident had Observations of the Lower Containment and RHR Recirculation Sump
- AR 2010-2119, 1-RH-104E and 1-RH-104W not Manually Stroked
- AR 2010-2644, 1-DCR-202 Re-opened When Safety Injection Signal Was Reset
- OHI-6100, Control of Operations Heatup and Cookdown Rate Limit Curves, Revision 11
- PMP-2060-FFD-002, Performance of Fatigue Assessments, Data Sheet 1, Fatigue Assessment, March 3 – April 9, 2010
- PMP-4100-SDR-001, Plant Shutdown Safety and Risk Assessment, Revision 20
- WO 55317315-01, 1-CCR-455 PMT Leak Inspection, April 3, 2010
- WO 55317315-01, 1-CCR-455 Rebuild Valve and Actuator, March 24, 2010
- WO 55359629-03, Perform Partial Retest per Attachment #3 of 1-OHP-403-132-717B, March 21, 2010

1R22 Surveillance Testing

- 12-IHP-4030-082-002, AB, CD and N-Train Battery Quarterly Surveillance and Maintenance, Revision 18
- 12-MHP-4030-010-002, Ice Condenser Flow Channel Surveillance, March 28, 2010
- 1-OHP-4030-103-052L, Controlled Leakage Verification Test, June 17, 2010
- 1-OHP-4030-132-217A, DG1CD Load Sequencing and ESF Testing, April 4, 2010
- 2-OHP-4030-256-017E, East Motor Driven Auxiliary Feedwater System Test, June 9, 2010
- AR 00127996, Fire in Unit 2 Control Room in a Fire Protection Resistor
- AR 00826231, NRC Question Regarding Battery Surveillance Procedure
- AR 00849313, Cells 1, 3, 4, 5, and 51 are > .010 Points below the Average S.G.
- AR 00849389, Vibes on East MDAFP Greater Than Alert Limits
- AR 00852583, U2 SSPS Train A Multiplexer Test Switch is Degraded
- Control Room Logs, April 2-4
- DB-12-AFWs, Design Basis Document for the Auxiliary Feedwater System, Revision 4
- Tech Data Book Figures 2-15.1, Revision 100, 2-15.2, Revision 83, 2-19.1, Revision 97

1EP6 Drill Evaluation

- AR 2010-4726, Incorrect Team Paged Out for Schedule Drill
- AR 2010-4820, Lessons Learned May 18 Emergency Preparedness Exercise
- AR 2010-4909, No EOF Operator for May 18 Exercise
- AR 2010-5110, Radio Frequency Use In OSC needs to be evaluated
- EMD-32a, Michigan State Police, Nuclear Plant Event Notification, May 11, 2010
- PMP-2080-EPP-101, Emergency Classification, Revision 14 PMP-2080-EPP-100, Emergency Response, Revision 18

2RS6 Radioactive Gaseous and Liquid Effluent Treatment (71124.06)

- 02-IHP-4030-213-018, Unit Vent Effluent Monitor VRS-2500, Quarterly Surveillance for Low and High Range Noble Gas, December 21, 2009
- 02-IHP-4030-213-027, Turbine Gland Exhaust Condenser Vent Gaseous Effluent Flow, SFR-201 Channel Operational Test and Calibration, May 07, 2009
- 02-IHP-4030-213-027, Turbine Gland Steam Exhaust Condenser Vent Gaseous Effluent, Channel Operational Test and Calibration, December 22, 2009
- 02-IHP-4030-213-028, Steam Jet Air Ejector Monitor SRA-2900 Channel Functional Test, December 8, 2009

- 12-OHP-4021-006-004, Transferring Distillate from Monitor Tanks, Revision 43
- 12-THP-6010-RPC-810, Eberline Radiation Monitoring System Channel Restoration, 2-VRS-2500, Low range Beta Gas Radiation Detector, Iodine Radiation Detector, Iodine Background Channel, June 23, 2009
- 12-THP-6010-RPI-805, Radiation Monitoring System Setpoints on Eberline RMS Channel Parameter File, November 03, 2009
- 12-THP-6010-RPI-805, Radiation Monitoring System Setpoints, RMS High Alarm Setpoint, SRA-2905, Unit 2 Steam Jet Air Ejector Low Range Noble Gas Radiation Monitor, November 30, 2009
- 12THP-6010-Rpp-007, Radiation Protection Calculation and Technical Bases Documents Per Part-61 Analysis, April 29, 2009
- DC Cook Nuclear Plant Units 1 and 2, Annual Radioactive Effluent Release Report, January 1, 2009, Through December 31, 2009
- DC Cook Nuclear Plant Units 1 and 2, Radiological Environmental Operating Report 2009
- December 2009 Doses due to Liquid and Gaseous Effluents based on Units 1 and 2 at Mode 1 at 100 percent
- Eberline Radiation Monitoring System and Westinghouse Radiation Monitoring System Component Locator
- PMP-6010-OSD-001, Off-Site Dose Calculation Manual, Revision No. 023

4OA1 Performance Indicator Verification

- 12-THP-4030-002-208, Primary to Secondary Leak Rate, Revision No. 10
- 12-THP-6020-CHM-101, Reactor Coolant System Dose Equivalent I-131 Determinations, Revision No. 31
- AR 00852784, U2 CD Diesel Generator Failure During Surveillance Run
- AR 00856309, West RHR Pump Failed Surveillance
- Licensee Event Reports, April 1, 2009 through March 31, 2010
- PI Summary Paperwork for Reactor Coolant System Activity for DC Cook Unit-1 and Unit -2 from First Quarter 2009 Through the First Quarter 2010
- PMP-7110-PIP-001, Data Sheet 4, Safety System Unavailable – Emergency AC Power System, April 2009 through March 2010
- PMP-7110-PIP-001, Data Sheet 5, Safety System Unavailable – High Pressure Safety Injection System, April 2009 through March 2010
- PMP-7110-PIP-001, Data Sheet 6, Safety System Unavailable – Auxiliary Feedwater System, April 2009 through March 2010
- PMP-7110-PIP-001, Data Sheet 7, Safety System Unavailable – Residual Heat Removal System, April 2008 through March 2009
- PMP-7110-PIP-001, Data Sheet 9, Safety System Unavailable – Cooling Water Systems, April 2009 through March 2010
- PMP-7110-PIP-001, Reactor Oversight Program Performance Indicators and Monthly Operating Report Data, Revisions 12 and 13
- PMP-7110-PIP-001, Reactor Oversight Program Performance Indicators and Monthly Operating Report Data, Revision No. 12
- Unit 1 and Unit 2 Control Room Logs, April 1, 2009 through March 31, 2010

4OA2 Identification and Resolution of Problems

- 12-AEP-PHCO-2176, Fire Protection Auxiliary Building EL. 609'-0" Sh. 6, 01
- 12-AEP-PHCO-A-609-EW, Fire Protection EL 609'-0"Auxiliary Bldg. EAST/WEST Piping Corridors Sh. 37, 0

- 12-AEP-PHCO-A-609-N, Fire Protection EL 609'-0" Auxiliary. Bldg. Piping Phase III Sh. 38, 0
- 12-AEP-PHCO-A-609-S, Fire Protection EL 609'-0" Auxiliary Bldg. Section Views Phase III Sh. 34-36, 0
- First Quarter 2010 Trend Report
- Fourth Quarter 2009 Trend Report
- AEP:NRC:00428A, Fire Protection Rule (45 FR 76602), March 27, 1981
- AEP:NRC:0692E, Fire Protection – Appendix ‘R’, Section III G Compliance, March 31, 1983
- AEP:NRC:0692H, Fire Protection 10 CFR 50 Appendix R Section III G Exemptions and Review of Safe Shutdown Analysis Report, August 22, 1983
- AEP:NRC:3054-15, Response to Nuclear Regulatory Commission Generic Letter 2003-02: Control Room Habitability, December 4, 2003
- AEP:NRC:9636B, Potential Problems with Fire Barrier Penetration Seals, June 8, 1994
- AR 00848855, Inadequate Work Instructions for PMT
- AR 00855125, Procedure Use and Adherence
- AR 00862900, 2010 Department Trend Reporting
- AR 00864010, Loss of Contractor Control
- AR 00864848, Bent deflector and rotated branch line
- AR 2010-0145, Repair of Fire Seal W5966
- AR 2010-0159, Repair of Fire Seal W9109
- AR 2010-0187, Repair of Fire Seal W9990
- AR 2010-0655, Sprinkler Head Needing Repair
- AR 2010-0840, CE for Common Cause on Cross-Cutting Code “Human Performance- Work Practices”
- AR 2010-0853, Trend Evaluation of U1C23 Modification Issues
- AR 2010-1162, Re-evaluate Fire Seal W9445
- AR 2010-1614, Sprinkler Head Found with Bent Deflector
- AR 2010-1711, Repair Fire Protection Piping Hanger Support
- AR 2010-1839, Sprinkler Head Rotated out of Normal Position
- AR 2010-3211, Maslon Cloth Tied to a Sprinkler Head, Aux Building 609' el.,
- AR 2010-3216, Extension cord routed through 20' Separation Area
- AR 2010-3229, Misaiming of Unit 1 LSI 4 & 6 Emergency Battery Lamp
- AR 2010-3245, Remote chain operator Aux. 587 Hanging on FP piping
- AR 2010-3939, Trend Commonality Evaluation
- eSAT 08235013, Documentation of Non-Compliances Under NFPA 805 Project
- eSAT 09012061, Fire Protection Piping
- eSAT 09048010, Fire Protection Piping
- eSAT 09155035, Degraded Fire Seal W3999 Needs Replaced
- eSAT 09210045, Gap 108G-24 Inoperable
- eSAT 09210051, Inoperable Fire Seal 109G-25
- eSAT 09211033, Several Fire seals are Exhibiting Edge Curl
- eSAT 09226013, Non-Compliance of NFPA 805 & Lack of Integrated Proj Sched
- eSAT 09246002, Unconnected Fire Sprinkler Piping Swivel Hangers
- eSAT 09281045, Degraded Fire Seal
- eSAT 09286046, Piece of Fire Seal Missing
- eSAT 09288012, Fire Seal F-8108 Needs Repaired
- eSAT 09301018, Upgrade of Penetration Seal F8173
- eSAT 09301019, Upgrade of Penetration Seal W9464
- eSAT 09307056, Fire Seals Need Functionality Evaluation
- eSAT 09315044, Gouge in Fire Seal
- eSAT 09315049, Unit 2 CR Penetration Seal Repair
- eSAT 09344019, Flex Pipe Through fire seal

- eSAT 09344024, Fire Seal Painted Over
- eSAT 09344030, Fire Seal Painted Over
- eSAT 09344033, Painted Fire Seal
- eSAT 09344036, Painted Fire Seal
- eSAT 10005031, Air Movement Through Fire Seal
- eSAT 10021013, Gaps and Air Flow in Fire Seal
- eSAT 10021015, Gaps and Air Movement in Fire Seal
- eSAT 10021033, Gaps and Air Flow in Fire Seal
- eSAT 10021036, Gaps and Air Movement in Fire Seal
- eSAT 10021044, Fire Seal Painted Over
- eSAT 10022021, Hole in Fire Seal
- eSAT 10022022, Gap in Fire Seal
- eSAT 10027048, Painted Fire Seal
- eSAT 10028007, Flex Pipe Through Fire Seal
- eSAT 10028019, Painted Fire Seal
- eSAT 10028020, Painted Fire Seal
- eSAT 10028037, Combustible material through fire seal
- eSAT 10028038, Combustible material in seal
- eSAT 10028042, Painted Fire Seal
- eSAT 10028043, Painted Fire Seal
- eSAT 10028045, Painted Fire Seal
- eSAT 10028048, Painted Fire Seal
- eSAT 10028049, Painted Fire Seal
- eSAT 10028052, Painted Fire Seal
- eSAT 10029042, Repair Fire Seal W9224
- eSAT 10034043, Repair Fire Seal W9445
- ES-Fire-0601-QCF, Fire Rated Seals
- Fire Hazards Analysis; Fire Zone 44S and 44N, 14
- GT 2010-1098, Evaluation of Sprinkler Head Position
- License Amendment Nos. 31 and 12, SER supporting Amendment NOS.31 and 12 to License NOS. DPR-58 and DPR-74, July 31, 1979
- PMP-2110-CPS-001, Clearance Permit System, Revision 26
- SER N83133, Exemption from Requirements of App. R to 10 CFR 50, Sections III.G and III.O, December 23, 1983
- TE 11.43, NRC Generic Letter 86-10 Technical Evaluation; Spatial Fire Separation between alternate shutdown components with no intervening combustibles, February 25, 2003
- TE 12.22, NRC Generic Letter 86-10 Technical Evaluation; Analysis of Sprinkler System NFPA 13-1983 Code Conformance Review, August 5, 2003

4OA3 Followup of Events and Notices of Enforcement Discretion

- 1-OHP-4022, Rapid Power Reduction, Revision 8
- 1-OHP-4022-001-007, Earthquake, Revision 10
- 1-OHP-4022-055-001, Loss of One Main Feed Pump, Revision 7
- AR 2010-4046, U1 E Main Feed Pump Tripped due to Thrust Bearing Failure
- AR 2010-6224, Procedure RNO Kicks Out Wrong Step
- PMP-2080-EPP-100, Emergency Response, Revision 19
- PMP-2080-EPP-101, Emergency Classification, Revision 14
- Reactor Plant Event Notification Worksheet, EN # 46037, June 23, 2010

4OA5 Other Activities

- 10 CFR-50.75(g) File, April 23, 2010
- 12-EHP-5070-BPI-001, Buried Pipe Inspection and Mitigation Program, Revision No. 0
- 12-THP-6010-RPC-810, Eberline Radiation Monitoring System Channel Restoration, Revision 12
- 12-THP-6010RPP-634, Collection of REMP Groundwater Samples, Revision No. 10
- 12-THP-6010-RPP-707, Action Response for Tritium Concentration Greater Than or Equal to 1E-5 uCi.ml in the Turbine Room Sump (TRS), Revision No. 2c
- AR-008367374, Re-performed Evaluation of ANI 07-01 Buried Piping
- AR-00848816, Tritium In the Turbine Room Sump Above RPP-707 Action Response Levels
- AR-2010-4114, Evaluate Positive Tritium Sample Results from Well Number MW-24
- DC Cook Nuclear Plant Units 1 and 2, Annual Radioactive Effluent Release Report, January 1, 2009, Through December 31, 2009
- DC Cook Nuclear Plant Units 1 and 2, Radiological Environmental Operating Report 2009
- EHI-5070-BPI, Buried Pipe Inspection Program, Revision No. 1
- ENVI-8916-GPI-001, Groundwater Protection Program, Revision No. 0
- Generic Plant Access Training, Revision Date 4/2/2010
- Groundwater Protection Initiative Pre-Audit Assessment, Environmental Department, April 23, 2010
- GT-00861078, NEI Buried Pipe Integrity Initiative, November 24, 2009
- Hydrological Evaluation of the Donald C. Cook Nuclear Plant, Bridgman, Michigan, Prepared by American Electric Power Service Corporation, in July 2007
- Michigan Utilities January 2010 Conference Call Meeting, January 28, 2010
- NEI 07-07, NEI Groundwater Protection Initiative NEI Peer Assessment Report, February 18, 2009
- PMP-2060-FFD-001, Fitness-for-Duty Program, Revision 2
- PMP-2060-FFD-002, Performance of Fatigue Assessments, Revision 2
- PMP-2060-WHL-001, Work Hour Limitations for Covered Individuals, Revision 001
- PMP-2060-WHL-003, Work Hour Review and Reporting, Revision 002
- PMP-6010-OSD-001, Off-Site Dose Calculation Manual, Revision No. 023
- Quick Hit Self-Assessment GT 2010-8537 SPS-Security, Fatigue Management Process
- Spent Fuel Pool, Unit 1 and 2, and Gaseous Effluent Tritium 2001 through 2009

LIST OF ACRONYMS USED

AC	Alternating Current
ADAMS	Agency Documents Access and Management System
AR	Action Request
CAP	Corrective Action Program
CFR	Code of Federal Regulations
EDG	Emergency Diesel Generator
GPI	Groundwater Protection Initiative
IP	Inspection Procedure
MSPI	Mitigating Systems Performance Index
NCV	Non-Cited Violation
NEI	Nuclear Energy Institute
NRC	U.S. Nuclear Regulatory Commission
ODCM	Offsite Dose Calculation Manual
PARS	Publicly Available Records
PI	Performance Indicator
RETS	Radiological Effluent Technical Specifications
RFO	Refueling Outage
SDG	Supplemental Diesel Generator
SRA	Senior Reactor Analyst
TI	Temporary Instruction
TS	Technical Specification
TSO	Transmission System Operator
UFSAR	Updated Final Safety Analysis Report
WO	Work Order

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Sincerely,

/RA/

Jamnes 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 L. Weber from J. Cameron dated August 5, 2010.

SUBJECT: D. C. COOK NUCLEAR POWER PLANT, UNITS 1 AND 2 INTEGRATED
INSPECTION REPORT 05000315/2010003; 05000316/2010003

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