



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

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

November 6, 2009

Mr. Charles G. Pardee
Senior Vice President, Exelon Generation Company, LLC
President and Chief Nuclear Officer (CNO), Exelon Nuclear
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: DRESDEN NUCLEAR POWER STATION, UNITS 2 AND 3
INTEGRATED INSPECTION REPORT 05000237/2009-004;
05000249/2009-004

Dear Mr. Pardee:

On September 30, 2009, the U.S. Nuclear Regulatory Commission (NRC) completed an integrated inspection at your Dresden Nuclear Power Station, Units 2 and 3. The enclosed report documents the inspection results, which were discussed on October 13, 2009, with Mr. T. Hanley and other members of your staff.

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

The report documents two NRC-identified findings of very low safety significance (Green). One of these findings was determined to involve a violation of NRC requirements. Additionally, two licensee-identified violations are listed in Section 4OA7 of this report. However, because of the very low safety significance and because they are entered into your corrective action program, the NRC is treating these findings as non-cited violations (NCVs) consistent with Section VI.A.1 of the NRC Enforcement Policy.

If you contest any NCV, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN.: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator, Region III; 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 NRC Resident Inspector at Dresden. In addition, if you disagree with the characterization of any finding in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region III, and the NRC Resident Inspector at Dresden. The information you provide will be considered in accordance with Inspection Manual Chapter 0305.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be made 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/

Mark A. Ring, Chief
Branch 1
Division of Reactor Projects

Docket Nos. 50-237; 50-249
License Nos. DPR-19; DPR-25

Enclosure: Inspection Report 05000237/2009-004; 05000249/2009-004
w/Attachment: Supplemental Information

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket Nos: 50-237; 50-249
License Nos: DPR-19; DPR-25

Report No: 05000237/2009-004; 05000249/2009-004

Licensee: Exelon Generation Company

Facility: Dresden Nuclear Power Station, Units 2 and 3

Location: Morris, IL

Dates: July 1 through September 30, 2009

Inspectors: C. Phillips, Senior Resident Inspector
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Enclosure

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SUMMARY OF FINDINGS

IR 05000237/2009-004, 05000249/2009-004; 07/01/2009 - 09/30/2009; Dresden Nuclear Power Station, Units 2 & 3; Operability Evaluations, Surveillance Testing.

This report covers a three-month period of inspection by resident inspectors and announced baseline inspections by regional inspectors. Two Green findings were identified by the inspectors. One of the findings was considered a Non-Cited Violation (NCV) of NRC regulations. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). Cross-cutting aspects were determined using IMC 0305, "Operating Reactor Assessment Program." Findings for which the SDP does not apply may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

A. NRC-Identified and Self-Revealed Findings

Cornerstone: Initiating Events

- Green. A finding of very low safety significance was identified by NRC Inspectors for the licensee's failure to identify and replace several CR120A relays as recommended by GE SIL 229 Supplement 1. Specifically, the licensee failed to replace several CR120A relays associated with primary containment valve isolation logic which eventually resulted in a partial Group 2 logic isolation event. The licensee entered this issue into the corrective action program (CAP) as Issue Report 923691. The licensee plans to replace these CR120A relays. There was no enforcement action associated with this finding.

This finding was determined to be more than minor because it was associated with the Equipment Performance attribute of the Initiating Events Cornerstone and affected the cornerstone's objective to limit the frequency of those events that upset plant stability and challenge critical safety functions during power operations. The relay failure caused an unplanned partial Group II primary containment isolation that impacted plant operations for several days. This issue was determined to be of very low safety significance since it did not contribute to both a reactor scram and loss of a mitigating function when evaluated as a Transient Initiator. (Section 1R15)

Cornerstone: Barrier Integrity

- Green. The inspectors identified several examples of failure to follow the procedures that implemented Technical Specification (TS) 5.5.2, "Primary Coolant Sources Outside Containment." These failures were determined to represent a Green finding and a non-cited violation. Planned corrective actions associated with this violation included, but were not limited to: a revision to DTP 09, "Leak Detection and Reduction Program," to restore commitments made to the NRC; changes to the work control program to ensure that leaks identified by the Leakage Reduction Program are given a high priority; assignment of a program owner; revising operating surveillances to ensure they meet the requirements of TS 5.5.2; initiating a training program for operations and engineering personnel on TS 5.5.2; and developing an administrative limit on emergency core cooling system leakage outside the primary containment.

The finding was determined to be more than minor because the finding, if left uncorrected, would become a more significant safety concern. Specifically, the failure to track, trend, and repair leakage outside primary containment could lead to exceeding radiation exposure limits in the event of an accident. This finding was determined to have very low safety significance because the actual emergency core cooling system leakage outside the primary containment was low. This finding had a cross-cutting aspect in the area of Human Performance, Work Practices because the licensee did not effectively communicate expectations regarding procedural compliance with regard to TS 5.5.2, "Primary Coolant Sources Outside Containment." Specifically, licensee personnel failed to follow several procedural requirements because they were unaware of the requirements. H.4(b) (Section 1R22)

B. Licensee-Identified Violations

Violations of very low safety significance that were identified by the licensee have been reviewed by inspectors. Corrective actions planned or taken by the licensee have been entered into the licensee's CAP. These violations and corrective action tracking numbers are listed in Section 4OA7 of this report.

REPORT DETAILS

Summary of Plant Status

Unit 2

The unit operated at or near full power during the inspection period with the following exceptions:

On July 26, 2009, power was reduced to approximately 86 percent for a control rod pattern adjustment. The unit returned to full power the same day.

On August 9, 2009, power was reduced to approximately 82 percent for a control rod pattern adjustment. The unit returned to full power the same day.

On September 13, 2009, power was reduced to approximately 80 percent for a control rod pattern adjustment. The unit returned to full power the same day.

On September 27, 2009, power was reduced to approximately 88 percent for a control rod pattern adjustment. The unit returned to full power the same day.

Unit 3

The unit operated at or near full power during the inspection period with the following exceptions:

On September 5, 2009, power was reduced to approximately 61 percent for a control rod sequence exchange, scram time testing, and quarterly turbine valve testing. The unit returned to full power the same day.

On September 28, 2009, power was reduced to approximately 71 percent for feed water regulating valve maintenance. The unit returned to full power the same day.

1. REACTOR SAFETY

1R04 Equipment Alignment (71111.04)

.1 Quarterly Partial System Walkdowns

a. Inspection Scope

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

- 2A instrument air compressor with the 2B instrument compressor out-of-service (OOS);
- 2/3 diesel fire pump with the Unit 1 fire pump OOS;
- 3B standby liquid control pump (SBLC) with the 3A SBLC pump OOS; and
- Observed operators isolate the Unit 2 isolation condenser prior to scheduled maintenance.

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, Updated Final Safety Analysis Report (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 corrective action program (CAP) with the appropriate significance characterization. Documents reviewed are listed in the Attachment to this report.

These activities constituted four partial system walkdown samples as defined in Inspection Procedure (IP) 71111.04-05.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05)

.1 Routine Resident Inspector Tours (71111.05Q)

a. Inspection Scope

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

- Fire Zone 1.1.2.4, elevation 570', Unit 2 reactor building secondary containment;
- Fire Zone 8.2.6.A, elevation 534', control room heating, ventilation and air conditioning;
- Fire Zone 11.3, elevations 490', 509', and 517', cribhouse (circulation water pumps room, service water pumps room, ground floor); and
- Fire Zone 1.1.1.5.D, elevation 589', Unit 3 standby liquid control area.

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

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

b. Findings

No findings of significance were identified.

.2 Annual Fire Protection Drill Observation (71111.05A)

a. Inspection Scope

On July 7, 2009, the inspectors observed a fire brigade activation; Fire Drill Scenario No. 2, "Oil Storage Room Fire." Based on this observation, the inspectors evaluated the readiness of the plant fire brigade to fight fires. The inspectors verified that the licensee staff identified deficiencies; openly discussed them in a self-critical manner at the drill debrief, and took appropriate corrective actions. Specific attributes evaluated were: (1) proper wearing of turnout gear and self-contained breathing apparatus; (2) proper use and layout of fire hoses; (3) employment of appropriate fire fighting techniques; (4) sufficient firefighting equipment brought to the scene; (5) effectiveness of fire brigade leader communications, command, and control; (6) search for victims and propagation of the fire into other plant areas; (7) smoke removal operations; (8) utilization of pre-planned strategies; (9) adherence to the pre planned drill scenario; and (10) drill objectives. Documents reviewed are listed in the Attachment to this report.

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

b. Findings

No findings of significance were identified.

1R06 Flooding (71111.06)

.1 Underground Bunkers/Manholes

a. Inspection Scope

The inspectors reviewed three areas to determine if underground power and control cables were submerged. The inspectors reviewed design documents including the UFSAR to identify licensee commitments. In addition, the inspectors reviewed licensee drawings to identify areas that contained cables and had the potential for those cables to be submerged. 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 drains and to verify that the licensee complied with its commitments:

- Unit 3 turbine building cable tunnel leading to the 2/3 cribhouse; and
- Cable tunnels from Units 2 and 3 out to the 345 kv offsite power switchyard.

The specific documents reviewed are listed in the Attachment to this report. This inspection constituted one underground bunkers/manholes sample as defined in IP 71111.06-05.

b. Findings

Introduction: The inspectors identified an unresolved item regarding the regulatory requirements associated with potentially submerged safety and nonsafety-related low voltage power and control power cables.

Description: The inspectors walked down the 2/3 cribhouse, the Unit 3 cable tunnel, and the cable tunnels that lead from Units 2 and 3 out to the 345 kv offsite power switchyard to determine if cables were submerged.

The inspectors determined that low voltage (600 v) nonsafety-related control power cables that lead from the power block out to the 345 kv offsite power switchyard are routinely submerged. The inspectors also determined that the safety-related power cables for the U3 diesel generator cooling water pump were installed in a condition that was routinely submerged.

Whether or not these cables were designed for submergence and whether or not low voltage cables were subject to premature failure due to submergence is considered an unresolved item pending further NRC review. **(URI 05000237/2009004-01; 05000249/2009004-01)**

.2 Internal Flooding

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 2 containment cooling service water vault.

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)

.1 Resident Inspector Quarterly Review (71111.11Q)

a. Inspection Scope

On August 3, 2009, the inspectors observed a crew of licensed operators in the plant's simulator during licensed operator requalification examinations to verify that operator performance was adequate, evaluators were identifying and documenting crew performance problems and training was being conducted in accordance with licensee procedures. The inspectors evaluated the following areas:

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

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

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

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12)

.1 Routine Quarterly Evaluations (71111.12Q)

a. Inspection Scope

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

- U3 isolation condenser; and
- U2 containment cooling service water / low pressure coolant injection.

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 that the licensee's actions to address system performance or condition problems in terms of the following:

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

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

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

b. Findings

No findings of significance were identified.

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

.1 Maintenance Risk Assessments and Emergent Work Control

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:

- U3 Yellow risk due to 3A standby liquid control pump out-of-service;
- 2B instrument air compressor failure;
- U2 Yellow risk due to U2 isolation condenser work; and
- U3 Yellow risk due to U3 Division II containment cooling service water inoperable.

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

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

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors reviewed the following issues:

- IR 931407, "2B Instrument Air Receiver Degradation;"
- IR 923691, "Fuse 3-0595-719, Drywell & Torus Vent and Purge Blown;"
- IR 858582, "NRC Senior Resident Inspector Concerns on U2 HPCI [high pressure coolant injection] Flow Indications;"
- IR 911650, "Unexpected LPCI [low pressure coolant injection] Pump Seal Flow High Alarm (U2);"
- IR 949212, "2/3 Emergency Diesel Generator 'A' Starting Air System is Degraded;" and
- IR 955812, "2/3 'A' SBTG [standby gas treatment] Not Achieving Proper Flow with RBV [reactor building ventilation] Running."

The inspectors selected these potential operability issues based on the risk significance of the associated components and systems. The inspectors evaluated the technical adequacy of the evaluations to ensure that TS operability was properly justified and the subject component or system remained available such that no unrecognized increase in risk occurred. The inspectors compared the operability and design criteria in the appropriate sections of the TS and UFSAR to the licensee's evaluations, to determine whether the components or systems were operable. Where compensatory measures were required to maintain operability, the inspectors determined whether the measures in place would function as intended and were properly controlled. The inspectors

determined, where appropriate, compliance with bounding limitations associated with the evaluations. Additionally, the inspectors also reviewed a sampling of corrective action documents to verify that the licensee was identifying and correcting any deficiencies associated with operability evaluations. Documents reviewed are listed in the Attachment to this report.

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

b. Findings

(1) Failure to identify and replace CR120A relays as recommended by GE SIL 229 Supplement 1

Introduction: A finding of very low safety significance was identified by NRC Inspectors for the licensee's failure to identify and replace several CR120A relays as recommended by GE SIL 229, "GE CR120A Relay Aging," Supplement 1. Specifically, the licensee failed to replace several CR120A relays associated with primary containment valve isolation logic which eventually resulted in a partial Group 2 logic isolation event.

Description: On May 25, 2009, the "Unit 3 Drywell O₂ content HI alarm" recorder failed up scale. In addition, several primary containment isolation valves went closed. The licensee determined that fuse 3-0595-719, "Drywell & Torus Vent and Purge" in the 903-3 panel had blown which resulted in a partial Group II primary containment isolation. On May 25, at 4:42 p.m., the licensee replaced fuse 3-0595-719 with a like-for-like component. At 4:49 p.m., fuse 3-0595-719 blew again. Troubleshooting determined that relay CR9208A (A GE CR120A type relay) failed due to a burnt coil inside of it. The licensee determined the failed relay to be the cause of the blown fuse and the resulting Group II isolation. The licensee replaced that particular relay.

When reviewing the equipment apparent cause evaluation report (EACE) for IR 923691, the licensee performed an internal and external search of operating experience that revealed failures of the CR120A relays at other plants. The EACE mentioned an IR referencing a fire at Peach Bottom, which resulted from these GE CR120A relays. Because of this event NRC Bulletin 78-01, "Flammable Contact - Arm Retainers in G.E. CR120A Relays" and GE SIL 229 were generated. The GE SIL 229 recommended boiling water reactor owners replace the contact arm retainers of all type CR120A relays marked with a manufacturing date code between May 1968 and January 1973 with improved, self extinguishing flame resistant contact arm retainers. Supplement 1 to GE SIL 229 recommended the licensee replace CR120A relay coils that were continuously energized because of a history of early failures at various plants in various safety systems.

The licensee planned to address GE SIL 229 Supplement 1 by replacing the relays identified in the SIL during outages in the 1994 time frame. The inspectors identified that the licensee's extent of condition for this event was inadequate. The inspectors identified that the licensee missed replacing the relay that caused this event along with about seven others. The licensee missed replacing this relay in the 1994 time frame because it was in a junction box and not an electrical panel like the others. Junction boxes were not part of the licensee's search criteria at the time. The licensee's EACE/root cause analysis concluded that the relay had an open coil and that its damage indicated that a short might have occurred over a long period of time, prior to blowing the

fuse. The report also indicated that the relay failure appears to have occurred from time in-service coupled with elevated temperatures and that the relay was most likely 35 years old or older.

Analysis: The inspectors determined that the licensee's failure to identify and replace several CR120A relays as recommended by GE SIL 229 Supplement 1 was a performance deficiency. Specifically, the licensee's failure to replace CR120A relay coils, as requested by GE SIL 229 Supplement 1, resulted in the failure of fuse 3-0595-719 which resulted in a partial Group II primary containment isolation.

This finding was determined to be more than minor because the failure to replace the aged CR120A relays was associated with the Initiating Events Cornerstone Equipment Performance attribute and affected the cornerstone objective to limit the frequency of those events that upset plant stability and challenge critical safety functions during power operations. The relay failure caused an unplanned partial Group II primary containment isolation that impacted plant operations for several days. The inspectors reviewed Table 4a in Inspection Manual Chapter Attachment 0609.04, dated January 10, 2008. This issue was determined to be of very low safety significance (Green) since it did not contribute to both a reactor scram and loss of a mitigating function when evaluated as a Transient Initiator. The inspectors did not identify a crosscutting aspect associated with this finding.

Enforcement: Enforcement action does not apply because the performance deficiency did not involve a violation of regulatory requirements and was determined to be of very low safety significance. The licensee plans to replace these CR120A relays. This finding was entered into the licensee's corrective action program as IR 923691.

(FIN 05000237/2009004-02; 05000249/2009004-02)

(2) Low Pressure Coolant Injection (LPCI) Pump Mechanical Seals

Introduction: The inspectors identified an unresolved item regarding the non-safety related classification of the Unit 2 and Unit 3 low pressure coolant injection pump (LPCI) mechanical seals.

Description: On July 6, 2009, the 2A LPCI pump seal was replaced under Work Order 548808-01. A non-safety related seal was used. The licensee performed an evaluation (D-93-003-0858-00) in 1993 stating that it was acceptable to use a non-safety related seal in the LPCI and core spray pumps. The inspectors questioned the evaluation because of the very limited explanation and justification for the classification downgrade. For example, the licensee stated that a seal failure in any form would only result in minor seal leakage with no technical justification for that assumption. The licensee performed another evaluation EC 376561, "Safety Classification of LPCI Pump Shaft Seals." The inspectors reviewed this evaluation and found it lacking in technical justification also. The licensee has stated that a pump seal failure will only result in minor leakage with no justification other than it has never had more than minor leakage in the past. The inspectors planned to review this technical explanation.

Whether or not the LPCI and core spray pumps on both units are in conformance with regulatory requirements is considered an unresolved item pending further NRC review.

(URI 05000237/2009004-03; 05000249/2009004-03)

(3) NRC Inspector-Identified Control Room Alarm Isolation Valve Out-of-Position

Introduction: The inspectors identified an unresolved item regarding the reason why valve 2-1501-42A, U2 low pressure coolant injection (LPCI) A pump gland leak-off, was found out-of-position.

Description: On September 24, 2009, the inspectors identified that the 2-1501-42A valve was out-of-position. The inspectors were reviewing the 2A LPCI pump seal leak-off configuration as part of an evaluation of the mechanical seal safety classification. The inspectors reported the valve position to shift management and operations department personnel verified the valve was not in the position described in DOP 2-1500-M1, "LPCI System Mechanical Checklist," Revision 39. This issue was documented in Issue Report (IR) 969490, "LPCI Gland Seal Leak-off Isolation Found Closed." With the valve closed instead of open a control room alarm (902-3 C-6) for LPCI pump seal leakage would not have alarmed for the 2A LPCI pump had the seal failed during operation. On July 6, 2009, the 2A LPCI pump seal was replaced under Work Order 548808-01.

The issue is considered an unresolved item pending NRC review of the licensee's evaluation of the valve position versus the requirements of DOP 2-1500-M1.

(URI 05000237/2009004-04; 05000249/2009004-04)

1R18 Plant Modifications (71111.18)

.1 Temporary Plant Modification

a. Inspection Scope

The inspectors reviewed the following temporary modification:

- Air operated valve 3-1599-61 gagged open to allow torus water transfer.

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 system. 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 one temporary modification sample as defined in IP 71111.18-05.

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing (71111.19)

.1 Post-Maintenance Testing

a. Inspection Scope

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

- WO 548808, "D2 12Y PM Replace 'A' LPCI Pump Mechanical Seal;"
- WO 1256829, "2/3 EDG [emergency diesel generator] 'A' Starting Air System is Degraded;"
- WO 1258155, "3A SBLC [standby liquid control] Failed Quarterly IST [in-service test] Surveillance;"
- WO 866529-01 "D2 4Y PM Replace Barton 288 Movement Calibration;" and
- WO 1270114, "U2 EDG Expansion Tank Connection Leak."

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

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

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

.1 Surveillance Testing

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:

- WO 1247330-01, "Quarterly LPCI Pump Operability Test (in-service test);"
- WO 1233955, "D3 Quarterly TS 3A SBLC [standby liquid control] Pump Test for IST (in-service testing);"
- IR 959888, "Possible Degrading of 2B DWEDS [drywell equipment drain sump] Pump (RCS);" and
- WO 1247274, "D2/3 1M TS Unit Diesel Generator Operability."

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

- did unacceptable 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 frequencies were in accordance with TSs, the UFSAR, procedures, and applicable commitments;
- measuring and test equipment calibration was current;
- test equipment was used within the required range and accuracy; applicable prerequisites described in the test procedures were satisfied;
- test frequencies met TS requirements to demonstrate operability and reliability; tests were performed in accordance with the test procedures and other applicable procedures; jumpers and lifted leads were controlled and restored where used;
- test data and results were accurate, complete, within limits, and valid;
- test equipment was removed after testing;
- where applicable for in-service testing activities, testing was performed in accordance with the applicable version of Section XI, American Society of Mechanical Engineers code, and reference values were consistent with the system design basis;
- where applicable, test results not meeting acceptance criteria were addressed with an adequate operability evaluation or the system or component was declared inoperable;
- where applicable for safety-related instrument control surveillance tests, reference setting data were accurately incorporated in the test procedure;
- where applicable, actual conditions encountering high resistance electrical contacts were such that the intended safety function could still be accomplished;

- prior procedure changes had not provided an opportunity to identify problems encountered during the performance of the surveillance or calibration test;
- equipment was returned to a position or status required to support the performance of its safety functions; and
- all problems identified during the testing were appropriately documented and dispositioned in the CAP.

Documents reviewed are listed in the Attachment to this report.

This inspection constituted two routine surveillance testing samples, one in-service testing sample, and one reactor coolant system leak detection inspection sample as defined in IP 71111.22, Sections -02 and -05.

b. Findings

(1) Failure to Follow TS 5.5.2 Implementing Procedures

Introduction: A finding of very low safety significance and associated non-cited violation of TS Section 5.5.2, "Primary Coolant Sources Outside Containment" was identified by the inspectors because the licensee was not following procedures which implemented TS 5.5.2.

Description: The inspectors followed up on IR 911650, "Unexpected LPCI Pump Seal Flow High Alarm (U2)." The inspectors asked operational shift management how this seal leakage impacted the requirements of TS 5.5.2, "Primary Coolant Sources Outside Containment." The management was not familiar with any leakage limits associated with TS 5.5.2. The inspectors then reviewed TS 5.5.2 and the implementing procedures. Technical Specification 5.5.2 was implemented by several procedures which included:

DTP 09, "Leak Detection and Reduction Program," Revision 10; and

DOS 1500-10, "LPCI System Pump Operability and Quarterly Test With Torus Available and In-service Testing (IST) Program," Revision 61.

The inspectors identified the following concerns:

Procedure DTP 09, Step G.2.e, states, a follow-up inspection on all components exhibiting leakage shall be conducted after maintenance to the component has been completed. These inspections never occurred.

Procedure DTP 09, Step G.2.h. (2), stated that, the Plant Engineering Superintendent or designee shall perform the following program review tasks: review leakage history and make recommendations to eliminate recurring problems. These reviews never occurred.

On July 20, 2009, the inspectors observed leakage from the Unit 3 Emergency Core Cooling System (ECCS) keep-fill pump. The leakage was about 1 drop per 6 seconds. This leak was identified by the licensee on October 15, 2007. The licensee wrote Deficiency Tag 182243 and IR 685106 in October 2007. Work Order 1071924 was scheduled to repair the pump on February 8, 2010. This conflicts with the concept of quick repair on leakage outside containment. Procedure DTP 09, Revision 10, Data Sheet 1, Step 4.b inspects the ECCS keep-fill system. This inspection of the

Unit 3 ECCS keep-fill system was performed on U3 on August 29, 2008, under Work Order 952714-01. The inspection results documented in the work order did not indicate any leakage or list any corrective action documentation for the seal leakage on the Unit 3 ECCS pump.

On July 30, 2009, the inspectors observed surveillance test DOS 1500-10, "LPCI System Pump Operability and Quarterly Test with Torus Available and In-service Testing (IST) Program." Step G.4, stated, "when LPCI pumps are operating, then operations personnel should conduct a visual leakage inspection of accessible LPCI piping and components with any unacceptable leakage documented on Data Sheet 2 and Work Requests initiated as necessary." The inspectors observed that the non-licensed operator did not walkdown all accessible piping during the surveillance test. The non-licensed operator never entered the torus basement area where accessible piping and valves were present. Valve 3-1501-3A had a visible packing leak that actually dripped onto the non-licensed operator. This information was not entered into Data Sheet 2 as required by the Data Sheet. The Shift Manager pointed out to the inspectors that Data Sheet 2 only required "piping leakage" not packing leakage to be reported. However, TS 5.5.2 requires the identification and repair of all leakage outside containment. Piping leakage would require an immediate operability review. In addition, Data Sheet 2 was not specifically mentioned in the text of the DOS procedure. These observations demonstrated procedure weaknesses.

In addition, the licensee identified in Apparent Cause Report 950488, "NRC Commitment Missing in Leakage Reduction Program," that several NRC commitments in the implementing procedures had been dropped or changed without contacting the NRC.

Analysis: The inspectors determined that the failure to follow the procedures that implemented TS 5.5.2 was contrary to the requirements of TS 5.5.2 and was a performance deficiency.

The finding was determined to be more than minor because the finding, if left uncorrected, would become a more significant safety concern. Specifically, the failure to track, trend, and repair leakage outside primary containment could lead to exceeding radiation exposure limits in the event of an accident. The inspectors concluded this finding was associated with the Barrier Integrity Cornerstone.

The inspectors determined the finding could be evaluated using the SDP in accordance with IMC 0609, "Significance Determination Process," Attachment 0609.04, "Phase 1 - Initial Screening and Characterization of Findings," Table 4a for the Barrier Integrity Cornerstone, because portions of the barriers between the primary and secondary containment were degraded. The licensee did not have a program in place to sufficiently evaluate the extent of the degradation. The licensee, as part of their corrective actions, re-implemented leakage detection and reduction inspections as part of routine surveillance tests and assessed the leakage outside the primary containment. The inspectors were able to answer "No" to all four questions on Table 4a under the Barrier Integrity Cornerstone. Therefore, the finding was determined to be of very low safety significance (Green).

This finding has a cross-cutting aspect in the area of Human Performance, Work Practices because the licensee did not effectively communicate expectations regarding procedural compliance with regard to the TS 5.5.2, "Primary Coolant Sources

Outside Containment.” Specifically, licensee personnel failed to follow several procedural requirements because they were unaware of the requirements. H.4(b)

Enforcement: Technical Specification Section 5.5.2 states, in part, that this program “provides controls to minimize leakage from those portions of systems outside containment that could contain highly radioactive fluids during a serious transient or accident. This program shall include preventive maintenance and periodic visual inspection requirements and integrated leak test requirements for each system at 24 month intervals.” The licensee established DTP 09, “Leak Detection and Reduction Program,” Revision 10; and DOS 1500-10, “LPCI System Pump Operability and Quarterly Test with Torus Available and In-service Testing (IST) Program,” Revision 61, as two of several implementing procedures for the leakage detection and reduction program.

DTP 09, Step G.2.e, stated that, “a follow-up inspection on all components exhibiting leakage shall be conducted after maintenance to the component has been completed.”

DTP 09, Step G.2.h. (2), stated that, “the Plant Engineering Superintendent or designee shall perform the following program review tasks: review leakage history and make recommendations to eliminate recurring problems.”

DTP 09, Revision 10, Data Sheet 1, Step 4.b inspects the ECCS keep-fill system and requires the documentation of any leakage identified.

DTP 09, Revision 10, Data Sheet 1, Step 4.b inspects the ECCS keep-fill system and requires the documentation of system leakage and corrective action documentation associated with the identification and repair of the leak.

DOS 1500-10, “LPCI System Pump Operability and Quarterly Test with Torus Available and In-service Testing (IST) Program,” Revision 61, Data Sheet 2 required the documentation of unacceptable leakage and the work request numbers.

Contrary to the above, the inspectors identified multiple examples of the licensee failing to follow the implementing procedures for TS 5.5.2. Specifically:

On April 28, 2009, the inspectors identified that the inspections required in DTP 09, Step G.2.e, never occurred;

On April 28, 2009, the inspectors identified that the reviews required by procedure DTP 09, Step G.2.h. (2), never occurred;

On August 29, 2008, the licensee performed a leakage inspection in accordance with DTP 09, Revision 10, under Work Order 952714-01. The inspection results in the work order did not document any leakage or corrective action documentation for existing seal leakage on the Unit 3 ECCS keep-fill pump. There was leakage on the system, which had been identified by the licensee and documented in Deficiency Tag 182243 and IR 685106 on October 15, 2007. On July 20, 2009, the inspectors confirmed that the leakage identified by the licensee in 2007 still existed and had not been repaired.

On July 30, 2009, the inspectors observed surveillance test DOS 1500-10, “LPCI System Pump Operability and Quarterly Test With Torus Available and In-service

Testing (IST) Program.” Valve 3-1501-3A had a visible packing leak and this information was not entered into Data Sheet 2.

Licensee planned corrective actions associated with this violation included, but were not limited to: a revision to DTP 09, “Leak Detection and Reduction Program,” to restore all commitments made to the NRC; changes to the work control program to ensure that leaks identified by the Leakage Reduction Program are given a high priority; assignment of a program owner; revising operating surveillances to ensure they meet the requirements of TS 5.5.2; initiating a training program for operations and engineering personnel on TS 5.5.2; and developing an administrative limit on emergency core cooling system leakage outside the primary containment. Because this violation was of very low safety significance and it was entered into the licensee’s corrective action program as IRs 948548, “NRC Identifies Procedural Issues Related to TRM 5.5.2;” 912765, “Leak Detection and Reduction Program;” 933298, “NRC Resident Inspector Concerns with Leak Detection Program;” 945695, “NRC Concern Regarding Leak Detection Program;” and 950488, “Missed NRC Commitments in Site Leak Reduction Program;” this violation is being treated as a Non-Cited Violation (NCV), consistent with Section VI.A.1 of the NRC Enforcement Policy. **(NCV 05000237/2009004-05; 05000249/2009004-05)**

1EP6 Drill Evaluation (71114.06)

.1 Training Observation

a. Inspection Scope

The inspector observed a simulator training evolution for licensed operators on August 10, 2009, which required emergency plan implementation by a licensee operations crew. 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. The inspectors also 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

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

.1 Inspection Planning

a. Inspection Scope

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

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

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

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

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

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

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

b. Findings

No findings of significance were identified.

.2 Onsite Inspection

a. Inspection Scope

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

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

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

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

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

The inspectors reviewed surveillance test results for both divisions of the Standby Gas Treatment System (high efficiency particulate air (HEPA) and charcoal filtration) to verify that the systems were operating within the specified acceptance criteria and met Technical Specification requirements. In addition, the inspectors assessed the methodology the licensee used to determine the stack/vent flow rates to verify that the

flow rates were consistent with the RETS/ODCM. A licensee-identified problem with the main chimney flow rate monitor is described in Section 4OA3.

The inspectors reviewed the licensee's program for identifying any normally non-radioactive systems that may have become radioactively contaminated to determine if evaluations (e.g., 10 CFR 50.59 evaluations) were performed per IE Bulletin 80-10. The inspectors did not identify unidentified contaminated systems that may have been unmonitored discharge pathways to the environment other than the turbine building ventilation system leak described in Section 4OA3.

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

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

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

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

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

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

b. Findings

No findings of significance were identified.

.3 Identification and Resolution of Problems

a. Inspection Scope

The inspectors reviewed the licensee's self-assessments, audits, LERs, and Special Reports related to the radioactive effluent treatment and monitoring program since the last inspection to determine if identified problems were entered into the corrective action program for resolution. The inspectors also assessed whether the licensee's

self-assessment program was capable of identifying repetitive deficiencies or significant individual deficiencies in problem identification and resolution.

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

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

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

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator (PI) Verification (71151)

Cornerstone: Mitigating Systems

.1 Heat Removal System

a. Inspection Scope

The inspectors sampled licensee submittals for the Mitigating Systems Performance Index (MSPI) - Heat Removal System performance indicator for Units 2 and 3 for the period from the third quarter 2008 through the second quarter 2009. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the Nuclear Energy Institute (NEI) Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, were used. The inspectors reviewed the licensee's operator narrative logs, issue reports, event reports, MSPI derivation reports, and NRC Integrated Inspection Reports for the period of July 1, 2008, through June 30, 2009, to validate the accuracy of the submittals. The inspectors reviewed the MSPI component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the PI data

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

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

b. Findings

No findings of significance were identified.

.2 Residual Heat Removal System

a. Inspection Scope

The inspectors sampled licensee submittals for the Mitigating Systems Performance Index - Residual Heat Removal System performance indicator for Units 2 and 3 for the period from the third quarter 2008 through the second quarter 2009. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, were used. The inspectors reviewed the licensee's operator narrative logs, issue reports, MSPI derivation reports, event reports and NRC Integrated Inspection Reports for the period of July 1, 2008, through June 30, 2009, to validate the accuracy of the submittals. The inspectors reviewed the MSPI component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator and none were identified. Documents reviewed are listed in the Attachment to this report.

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

b. Findings

No findings of significance were identified.

.3 Cooling Water Systems

a. Inspection Scope

The inspectors sampled licensee submittals for the Mitigating Systems Performance Index - Cooling Water Systems performance indicator for Units 2 and 3 for the period from third quarter 2008 through the second quarter 2009. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, were used. The inspectors reviewed the licensee's operator narrative logs, issue reports, MSPI derivation reports, event reports and NRC Integrated Inspection Reports for the period July 1, 2008, through June 30, 2009, to validate the accuracy of the submittals. The inspectors reviewed the MSPI component risk coefficient to determine if it had changed by more than 25 percent in value since the previous

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

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

b. Findings

No findings of significance were identified.

Cornerstone: Public Radiation Safety

.4 Radiological Effluent Technical Specification/Offsite Dose Calculation Manual
Radiological Effluent Occurrences

a. Inspection Scope

The inspectors sampled licensee submittals for the Radiological Effluent Technical Specifications (RETS)/Offsite Dose Calculation Manual (ODCM) Radiological Effluent Occurrences performance indicator for the period of January 2008 through July 2009. The inspectors used Performance Indicator (PI) definitions and guidance contained in the NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5 to determine the accuracy of the PI data reported during those periods. The inspectors reviewed the licensee's issue report database and selected individual reports generated since this indicator was last reviewed to identify any potential occurrences such as unmonitored, uncontrolled, or improperly calculated effluent releases that may have impacted offsite dose. The inspectors reviewed gaseous effluent summary data and the results of associated offsite dose calculations for selected dates in 2008 through July 2009 to determine if indicator results were accurately reported. The inspectors also reviewed the licensee's methods for quantifying gaseous and liquid effluents and determining effluent dose. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one RETS/ODCM radiological effluent occurrences sample as defined in IP 71151-05.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems (71152)

.1 Routine Review of items Entered Into the CAP

a. Scope

As part of the various baseline inspection procedures discussed in previous sections of this report, the inspectors routinely reviewed issues during baseline inspection activities

and plant status reviews to verify that they were being entered into the licensee's CAP at an appropriate threshold, that adequate attention was being given to timely corrective actions, and that adverse trends were identified and addressed. Attributes reviewed included: the complete and accurate identification of the problem; that timeliness was commensurate with the safety significance; that evaluation and disposition of performance issues, generic implications, common causes, contributing factors, root causes, extent of condition reviews, and previous occurrences reviews were proper and adequate; and that the classification, prioritization, focus, and timeliness of corrective actions were commensurate with safety and sufficient to prevent recurrence of the issue. Minor issues entered into the licensee's CAP as a result of the inspectors' observations are included in the attached List of Documents Reviewed.

These routine reviews for the identification and resolution of problems did not constitute any additional inspection samples. Instead, by procedure, they were considered an integral part of the inspections performed during the quarter and documented in Section 1 of this report.

b. Findings

No findings of significance were identified.

.2 Daily CAP Reviews

a. Inspection Scope

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

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

b. Findings

No findings of significance were identified.

.3 In-depth Review

Annual Sample - Review of Selected Issues Involving Potential Non-Qualified Parts in Unit 2 and Unit 3 Safety-Related Hydraulic Control Unit (HCU) Components

a. Inspection Scope

The inspectors performed a focused review to evaluate the actions that Exelon has taken to address the potential that a non-qualified washer was installed in the Unit 2 30-07 HCU 126 scram valve during the November 2005 Unit 2 outage (IR 919876). This washer is used in the valve's stuffing box between the packing spacer and the chevron ring packing material to provide a surface for packing compression. Since the actual qualification of the washer in question is unknown, the inspectors reviewed this issue

with the conservative mindset that a non-qualified washer was currently installed. The inspectors reviewed the licensee's operability evaluation and management of this issue within the station's corrective action program and processes. In addition, the inspectors discussed this issue with knowledgeable system engineers, reviewed past scram time testing data, and directly observed the material condition of the valve in the field to identify current or past signs of packing leakage.

In addition, the inspectors performed a focused review to evaluate the licensee's assessment of a number of condition reports related to HCU parts tracking issues. The inspectors reviewed these issues to determine if the licensee has taken adequate corrective actions both individually and collectively. In addition, the inspectors reviewed these previously identified issues to ensure properly qualified parts are currently installed within HCU components.

b. Findings and Observations

No findings of significance were identified.

The inspectors determined that the licensee's operability evaluation provided reasonable assurance that control rod 30-07 was operable in the case a non-qualified washer was installed in the HCU's 126 scram valve. This determination was based on the assumption that the most probable degradation mechanism would be a higher washer corrosion rate (assuming the washer was made of a material other than the specified 316 stainless steel.) Given this higher corrosion rate, deterioration of this packing washer could result in packing leakage if the washer no longer provided a surface for compressing the packing. In addition, it was speculated that, although unlikely, significant washer corrosion could increase stem friction, which would increase control rod 30-07 scram time testing times. The licensee concluded that packing leakage and/or increased scram time testing times would be identified, correlated to this issue, evaluated, and corrective actions implemented before the control rod's operability was significantly challenged. From the time this non-conforming condition could have existed (November 2005) to the completion of this sample (September 2009), no packing leakage had been identified and all control rod 30-07 scram time testing had been within expected and acceptable parameters.

The inspectors observed that although the licensee had a reasonable basis for current and future control rod operability, the corrective action program had closed all assignments related to this issue without having an adequate basis to ultimately conclude a non-conforming condition did not exist. Although, the existence of a non-conforming condition does not necessary imply a system, structure, or component is inoperable, the condition itself must be identified and corrected in accordance with 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," requirements.

The inspectors expressed concern that since the item was closed out in the station's corrective action program and work control process, the station had lost its ability to ensure the potential non-conforming condition was identified through the use of the packing leakage and scram time testing data indicators as well as through a conclusive review such as a visual inspection upon valve disassembly. Since this condition represented a hypothetical non-conforming condition, the inspectors determined that no current performance deficiencies or violations had occurred.

In response to the inspector's considerations, the licensee initiated corrective actions to track this issue within the corrective action program (IR-969492) and to positively identify the washer's qualification (and take the necessary corrective action) during the next scheduled opportunity. In the interim, the licensee plans to monitor packing leakage or unexpected/abnormal control rod scram times as indicators that the washer could be non-conforming and/or degrading.

The inspectors reviewed selected condition reports related to HCU part tracking issues and part number discrepancies within past HCU work orders. The inspectors concluded that these examples were minor issues that had been resolved within the station's corrective action program. The inspectors determined these issues were minor since they did not involve the wrong part being installed in safety-related equipment or were administrative documentation errors.

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

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

.1 Turbine Building Ventilation System Leakage

a. Inspection Scope

The inspectors reviewed the circumstances surrounding repetitive turbine building ventilation system leakage that resulted in unmonitored releases to the environment, as reported in the Dresden Nuclear Power Station 2007 and 2008 Radioactive Effluent Release Reports. An access door in ducting leading to the Unit 2/3 main chimney was found ajar by the licensee on several occasions and for varying durations between 2006 and 2008, and by NRC inspectors in 2009. The ducting transmits turbine building ventilation exhaust that is intended to be released to the environment through the chimney. Chimney effluent is continually sampled and monitored. In each of these instances, a relatively small volume of effluent was released through the access door opening to the environment instead of through the monitored chimney stack.

The inspectors reviewed the licensee's radiological assessment of each of these abnormal releases to determine if the isotopic concentrations and volumes released were accurately calculated. The inspectors also reviewed the licensee's offsite dose analyses to verify that the environmental impact was small compared to regulatory limits, as reported by the licensee. The dose impact from each unmonitored release was less than 1 percent of the 10 CFR Part 50, Appendix I, design objective.

The inspectors determined if the licensee's evaluations satisfied the requirements of 10 CFR 20.1501, and were reported as required. The inspectors also evaluated the licensee's corrective actions, focusing on those actions taken to prevent recurrence following the 2009 leakage. Documents reviewed are listed in the Attachment to this report.

No samples were accredited for this event follow-up.

b. Findings

No findings of significance were identified.

.2 Chimney Flow Monitor Degradation

a. Inspection Scope

The inspectors reviewed the circumstances associated with the degradation of the Unit 2/3 main chimney flow monitor, as reported by Dresden Nuclear Power Station in a February 11, 2009, letter to the NRC. The letter provided corrections to the Dresden Nuclear Power Station 2004 - 2007 Radioactive Effluent Release and Radiological Environmental Operating Reports. The inspectors reviewed the radiological (offsite dose) impact of the problem and the licensee's corrective actions. Documents reviewed are listed in the Attachment to this report.

No samples were accredited for this event follow-up.

b. Findings

Introduction: The inspectors identified an Unresolved Item (URI) concerning the impact of inaccurate, non-conservative chimney flow monitor values on the licensee's ability to make timely and accurate emergency action level (EAL) classifications for radiological effluent releases, as provided in procedure EP-AA-1004, "Radiological Emergency Plan Annex for Dresden Nuclear Power Station."

Discussion: In March 2008, the licensee identified that the chimney flow transmitter was restricted due to fouling of its flow elements. The licensee's investigation disclosed that the flow transmitter had provided inaccurate indications since April 2004. The flow indicated by the transmitter was approximately 40 percent lower than the actual chimney flow. The chimney flow data provided by the transmitter is used as a parameter to quantify gaseous effluents released to the environment. Chimney flow is also used to calculate the instantaneous noble gas concentrations released to the environment from the chimney to determine EAL classifications based on radiological effluents. As a result of the flow transmitter fouling, for a four year period beginning in 2004, gaseous effluents released through the chimney were non-conservatively calculated and reported.

The inspectors reviewed the licensee's revised effluent calculations and determined they were accurate and technically sound. While the original offsite dose determinations for 2004–2007 had been underestimated by as much as 40 percent, the corrected calculations showed that the un-assessed dose for each of those years was less than 1 percent of the 10 CFR Part 50, Appendix I, design objective. Consequently, the radiological impact of the problem was of minor safety-significance.

The inspectors reviewed the actions taken by the licensee to correct the flow monitor degradation, and actions planned to address deficiencies with the calibration of the flow monitoring system and with the licensee's surveillance program, which contributed to the extended duration of the problem.

The issue remains under review by the NRC to determine the impact of the problem on the licensee's emergency preparedness program for the timely and accurate declaration

of EAL classifications consistent with the licensee's procedures. The issue is categorized as an URI pending further NRC review. **(URI 05000237/2009004-06; 05000249/2009004-06)**

.3 Leak in Condensate Storage Tank Underground Piping

a. Inspection Scope

The inspectors reviewed the licensee's actions following its identification of elevated tritium concentrations on June 5, 2009, during routine sampling of onsite monitoring locations. The monitoring locations are designed to detect changes in the level of radioactive material in the groundwater and in the plant's storm drain system, established in response to the nuclear industry's groundwater protection initiative. Samples collected by the licensee in early June 2009, showed tritium concentrations of approximately 3 million picocuries per liter (PCi/L) from an onsite monitoring well near the leak location and lesser amounts in an adjacent storm drain line. Routine sampling performed in May 2009 did not identify any indication of leakage, which bounded the time period of the leak. Follow-up efforts by the licensee revealed a leak in an onsite underground make-up line associated with the plant's condensate storage tank system. The leak was reported to the State of Illinois and the NRC on June 6, 2009, and a news release was issued by the licensee on June 7, 2009. The leak was stopped on June 19, 2009, when the leaking pipe was isolated and drained.

The inspectors reviewed the licensee's sampling locations and results, remediation efforts and corrective actions. The purpose of the review was to determine whether the licensee identified the leak in a timely manner and performed appropriate sampling to characterize the extent and magnitude of the problem. Additionally, the inspectors reviewed the licensee's remediation efforts including actions to prevent the migration of the water leak. Sampling results reviewed included those collected from monitoring wells located near the leak, samples from adjacent storm drains, samples from areas excavated to repair the leaking line, and selected licensee monitoring wells located away from the immediate leak location. The sampling data was reviewed to determine if samples were collected from representative locations to demonstrate that 10 CFR Part 20 radionuclide concentration limits in unrestricted areas were met, and to determine if the licensee's characterization and sampling was adequate to evaluate the radiological impact of this leak consistent with 10 CFR 20.1501.

No samples were accredited for this event follow-up.

b. Findings

No findings of significance were identified.

.4 Elevated Tritium Values Identified in 2 Storm Drains Due to Through-Wall Leaks in Underground Piping

On June 5, 2009, the licensee identified elevated levels of tritium (3.2 million pico-curies per liter) in the storm drain just north of the 2/3A Condensate Storage Tank. This was documented in IR 928304. The source of the tritium was two through-wall leaks in two different underground pipelines. The inspectors reviewed the root cause report and discussed the location, cause, and repair of the leaks with the licensee. The licensee

installed a carbon fiber wrap around the existing exposed pipes. This should preclude a recurrence of this type of leakage on the piping that was repaired. The licensee has identified additional buried pipes that will be addressed with a similar repair in the spring of 2010.

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

.5 (Closed) Licensee Event Report (LER) 05000249/2008-001-01, "Unit 3 Drywell Floor Drain Sump Monitoring System Declared Inoperable"

The licensee issued a supplemental LER to include the Apparent Cause of the event and notification that Procedure MA-DR-MM-20002 was revised as a corrective action. LER 05000249/2008-001-00 was closed in Inspection Report 05000237/2009-002; 05000249/2009-002. Upon review, there were no significant changes from the initial LER, therefore this LER is closed.

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

.6 (Closed) LER 05000249/2008-003-00, "Unit 3 Unplanned Control Rod Withdrawals"

On November 3, 2008, at 10:36 a.m. (CST), with Unit 3 in a refueling outage, Dresden Nuclear Power Station operations personnel observed an unplanned withdrawal of three control rods. Control rods D-7, E-6, and E-7, withdrew and stopped at positions 06, 18, and 16, respectively, with no actions taken by the main control room personnel. All control rods were re-inserted to the full-in position at approximately 11:56 a.m. (CST). The reactor remained sub-critical during the event. The unplanned control rod withdrawals were caused by inadvertently replicating the hydraulic conditions necessary for outward rod movement during a maintenance activity that involved isolating all 177 hydraulic control units with a control rod drive pump operating.

The licensee conducted a root cause evaluation and determined that the station had not adequately incorporated industry operating experience lessons learned from similar occurrences at nuclear reactors from other countries. Incorporating these lessons learned would have been one barrier that would have precluded this event. The licensee performed an extent of condition review and updated station procedure DEOP 0500-05, "Alternate Insertion of Control Rods," to provide administrative barriers to prevent this event from reoccurring.

The LER was reviewed by the inspectors. Multiple violations of NRC requirements occurred and are documented in NRC inspection report 05000249/2009-09; "Inadvertent Control Rod Movement While Shutdown." The inspectors did not identify additional violations during this LER review. This issue has been entered into the licensee's corrective action program.

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

.7 (Closed) LER 05000237/2008-004-00, "Non-Conservative Core Spray Flow Utilized in LOCA Analysis"

On April 25, 2008, Westinghouse notified Exelon that they had identified a non-conservative error in the Dresden Unit 2 large break loss-of-coolant accident analysis. This error involved the amount of core spray flow that would actually reach the reactor core during this postulated event. This error resulted in an 80 degree Fahrenheit increase in the calculated peak cladding temperature; resulting in exceeding the 10 CFR 50.46(a)(3)(b)(1) calculated peak cladding temperature acceptance criterion of 2200 F by 30 F (Fahrenheit) (i.e., corrected calculated value was 2230 F.) Upon the discovery of the non-conservative error, the station took prompt action to apply a 3 percent maximum average planar linear heat generation rate (MAPLHGR) administrative limit/penalty to restore compliance with the requirement.

The inspectors determined that this was a Green licensee-identified finding. The inspectors identified a performance deficiency in that the licensee failed to ensure that the calculated maximum peak cladding temperature limit of 2200 F was not exceeded. Although the calculation was performed by the licensee's vendor (Westinghouse), the inspectors determined that it was ultimately the licensee's responsibility to ensure that this calculation was accurate and correct. For example, the inspectors identified that the station's acceptance review process could have identified this error. The inspectors determined that this issue was more than minor because if left uncorrected could have resulted in a more significant safety concern. The plant could have been operated within the prescribed core operating thermal limits but exceeded the maximum peak cladding temperature requirement during a large break loss-of-coolant accident. The inspectors determined that this issue was Green since the licensee had been operating within the MAPLHGR 3 percent administrative limit since the core had been started up following the November 2007 refueling outage and thus would not have exceeded the calculated peak cladding temperature limit of 2200 F.

Corrective actions in IR 767614 and LER 05000237/2008-004-00 were reviewed by the inspectors and no additional findings were identified. In addition, the inspectors independently verified that the station had been operating within the MAPLHGR penalty region since the unit was started up in November 2007. This licensee-identified finding involved a violation of 10 CFR 50.46(a)(3)(b)(1). The enforcement aspects of this finding are discussed in Section 4OA7 of this report.

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

4OA5 Other Activities

.1 Quarterly Resident Inspector Observations of Security Personnel and Activities

a. Inspection Scope

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

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

b. Findings

No findings of significance were identified.

.2 (Closed) Unresolved Item 05000249/2008005-03, "Failing to Promptly Report Inadvertent Rod Withdrawal"

This Unresolved Item (URI) was opened to determine if the November 3, 2008, Dresden Unit 3 inadvertent rod withdrawal event should have been reported under 10 CFR 50.72(b)(3)(v)(A). Although the licensee reported the event on November 18, 2008, under this criterion, the licensee concluded that the report was conservative and not required. The licensee determined that this event would have only been reported under 10 CFR 50.72(b)(3)(v)(A) if an inadvertent criticality had actually occurred. The inspectors disagreed with this assessment.

The inspectors reviewed the factors associated with the rod withdrawal event against the reporting guidance contained within NUREG-1022, Revision 2, "Event Reporting Guidelines 10 CFR 50.72 and 50.73." In addition, the inspectors discussed the details of the event and reporting criteria with subject matter experts from the Office of Nuclear Reactor Regulation (NRR) to ensure the guidance was correctly interpreted.

In summary, the inspectors concluded that the licensee should have reported this event under 10 CFR 50.72(b)(3)(v)(A) as soon as practical but within 8 hours after identifying this condition and event.

10 CFR 50.72(b)(3)(v)(A) describes, in part, any condition or event that at the time of discovery could have prevented the fulfillment of the safety function of structures or systems that are needed to: (A) Shut down the reactor and maintain it in a safe shutdown condition.

It is the NRC staff's view that the standard for "could have" be judged on the basis of a reasonable expectation of preventing fulfillment of the safety function. The intent of this reporting criteria is to capture those events where there would have been a failure of a safety system to properly complete a safety function, regardless of whether there was an actual demand.

In the case of the rod withdrawal event, the licensee had an actual "event" and "condition" in which three control rods were driven partially out of the core, had lost the ability to scram, and had exceeded the station's Technical Specification 3.1.1, "SHUTDOWN MARGIN (SDM)" requirement.

Dresden Unit 3 Technical Specification Bases state that the shutdown margin requirements are specified to ensure that:

- The reactor can be made sub-critical from all operating conditions and transients and Design Basis Events;
- The reactivity transients associated with postulated accident conditions are controllable within acceptable limits; and
- The reactor will be maintained sufficiently sub-critical to preclude inadvertent criticality in the shutdown condition.

The inspectors concluded that it was reasonable to determine that this event and condition could have prevented the capability to shutdown the reactor and maintain it in a safe shutdown condition for all provisions provided in the station's definition of SDM described above.

For example, under different circumstances, this same event could have resulted in an inadvertent criticality if the core xenon concentration was less, the three control rods were driven further out of the core, and if the reactor coolant system water temperature was colder. The inspectors concluded that these variables (or actions that could affect these variables) were not controlled.

The inspectors concluded that the licensee's failure to report this event as soon as practical, but within 8 hours after identifying the condition was a performance deficiency and a violation of 10 CFR 50.72. Although 15 days late, the inspectors determined that this issue was a minor violation because it was reported by the licensee under 10 CFR 50.72, it did not significantly affect the agency's ability to regulate, and the station had also reported the issue under the appropriate 10 CFR 50.73 criteria within the timeliness requirements of 10 CFR 50.73. In addition, the failure to promptly report this event, by itself, was not a significant issue.

The licensee has entered this condition into the CAP (IR 975366). Corrective actions included preparing and distributing to regulatory assurance and shift managers a briefing paper on this issue (IR 975366).

.3 (Closed) NRC Temporary Instruction 2515/173 Review of the Industry Groundwater Protection Voluntary Initiative

a. Inspection Scope

An NRC assessment was performed of the licensee's implementation of the Nuclear Energy Institute – Ground Water Protection Initiative (NEI-GPI) (dated August 2007 (ML072610036)) at the Dresden Nuclear Power Station. Under the voluntary initiative, each site was to have developed an effective, technically sound groundwater protection program that aligned with the NEI initiative by August 2008.

The inspectors assessed whether the licensee evaluated work practices that could lead to leaks and spills and performed an evaluation of systems, structures, and components that contain licensed radioactive material to determine potential leak or spill mechanisms.

The inspectors verified that the licensee 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 offsite locations. The inspectors also verified that an onsite ground water monitoring program had been

implemented to monitor for potential licensed radioactive leakage into groundwater and that the licensee had provisions for the reporting of its ground water monitoring results. (See <http://www.nrc.gov/reactors/operating/ops-experience/tritium/plant-info.html>)

The inspectors reviewed the licensee's procedures for the decision-making process for potential remediation of leaks and spills, including consideration of the long-term decommissioning impacts. The inspectors also verified that records of leaks and spills were being recorded in the licensee's decommissioning files in accordance with 10 CFR 50.75(g).

The inspectors reviewed the licensee's notification protocols to determine whether they were consistent with the Groundwater Protection Initiative and/or State of Illinois statutes. The inspectors assessed whether the licensee identified the appropriate local and state officials and conducted briefings on the licensee's ground water protection initiative. The inspectors also verified that protocols were established for notification of the applicable local and state officials regarding detection of leaks and spills.

b. Findings

No findings of significance were identified; however, as specified in Section 2515/173-05 of the TI, the inspectors identified the following deviations from Nuclear Energy Institute – Ground Water Protection Initiative (NEI-GPI) protocols that were not fully implemented within the licensee's program.

(1) GPI Objective 1.2 – Site Risk Assessment

- b. Identify systems, structures, and components (SSCs) that involve or could reasonably be expected to involve licensed material for which there is a credible mechanism for licensed material to reach ground water. Identify leak detection methods for each SSC for which there is a credible mechanism for licensed material to reach ground water.*

The licensee had not evaluated the integrity of the full length of underground radwaste discharge piping nor developed plans to perform the assessment of the entire line. Approximately 25 percent of the radwaste discharge piping is composed of carbon steel while the remainder is fiberglass. The fiberglass section had not been inspected for cracking. Its replacement is being considered by the licensee. The licensee plans to evaluate the integrity of the Unit 2/3 underground off-gas holdup lines; however, the evaluation is not scheduled to occur until 2011/2012, respectively.

(2) GPI Objective 1.3 – Onsite Groundwater Monitoring

- c. Establish an onsite groundwater monitoring program to ensure timely detection of inadvertent radiological releases to groundwater including analysis protocols/sensitivity requirements for groundwater and soil consistent with the licensee's existing Radiological Environmental Monitoring Program (REMP) as described in its Offsite Dose Calculation Manual (ODCM).*

The licensee had not consistently implemented its onsite groundwater monitoring program to include analyses of all analytes (i.e., radionuclides) at the associated

analytical sensitivities provided in the NEI initiative, to ensure the voluntary communication criteria in GPI objectives 2.2 and 2.3 could be met. Specifically, samples had not routinely been analyzed for analytes other than tritium as provided in the licensee's monitoring program. Moreover, ODCM/REMP specified lower limits of detection (LLDs) had not always been achieved when samples were periodically analyzed for non-tritium emitters.

- f. Establish an onsite groundwater monitoring program to ensure timely detection of inadvertent radiological releases to groundwater including a long-term program for preventative maintenance of groundwater wells.*

The licensee had not established a long-term maintenance program for its monitoring wells. While well heads were visually inspected by the licensee periodically, the integrity of the well casing, confirmation of well depth consistency, silt buildup and other preventative maintenance activities had not been developed.

(3) GPI Objective 1.4 - Remediation Process

- b. Evaluate the potential for detectible levels of licensed material resulting from planned releases of liquids and/or airborne materials.*

The licensee had not performed an evaluation of the potential for detectible levels of licensed material from planned releases of liquids and/or airborne materials (e.g., rain-out and condensation). An evaluation protocol was being developed by the licensee for future implementation.

4OA6 Management Meetings

.1 Exit Meeting Summary

On October 13, 2009, the inspectors presented the inspection results to Mr. T. Hanley, 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 Meeting

Interim exits were conducted for:

- Public radiation safety cornerstone programs for effluent monitoring/control and for groundwater monitoring with Mr. T. Hanley on August 14, 2009, and with Mr. P. Quealy and others during a teleconference on September 3, 2009.

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

4OA7 Licensee-Identified Violations

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

- 10 CFR 50.46(a)(3)(b)(1), Peak cladding temperature, requires that the calculated maximum fuel element cladding temperature shall not exceed 2200 °F for the postulated loss-of-coolant accidents described within 10 CFR 50.46. Contrary to this requirement, from November 19, 2007 to April 24, 2008, the calculated peak cladding temperature for the Unit 2 Large Break Loss of Coolant Accident Analysis was 2230 °F. This finding was entered into the licensee's corrective action program as IR 767796. The licensee implemented an immediate corrective action that assigned an administrative 3 percent reduction (penalty) in the MAPLHGR Technical Specification core operating thermal limit to offset a non-conservative error identified in the calculation. This finding is of very low safety significance because the reactor core had been operating within the established 3 percent MAPLHGR administrative limit region since the reactor was restarted from the November 2007 refueling outage.
- Technical Specification 5.4.1 requires that written procedures be established and implemented for activities provided in Regulatory Guide 1.33, Revision 2, Appendix A, dated February 1978. Procedures specified in Regulatory Guide 1.33 include procedures for performing surveillance tests on the Standby Gas Treatment (SBGT) System which are provided by licensee procedure DOS 7500-02, "SBGT System Surveillance and IST Test," Revision 46. Contrary to this requirement, on September 18, 2009, operations personnel failed to follow the instructions in procedure DOS 7500-02 to fill the 2/3 'A' SBGT loop seal as part of an in-service testing (IST) surveillance. Operations personnel misread step I.22 of DOS 7500-02 and failed to close an isolation valve associated with filling the 2/3 'A' train of SBGT loop seal. The valves had similar equipment part numbers (EPN), one was 2/3-7513A-500 and the other was 2/3-7513A-500TV. Step I.22 of DOS 7500-02 instructed the individual to close valve 2/3-7513-A-500. The individual did not question the fact that the valve thought to be correct (2/3-7513-A-500TV) was already in that position. The failure to close the isolation valve associated with this task may have resulted in introducing water into the 2/3 'A' SBGT filter which could make the system inoperable. The inspectors determined that this issue was more than minor because the licensee had to declare the 2/3 'A' train of SBGT inoperable and take the system out-of-service to perform an inspection to verify that water was not introduced into the system. In addition, online risk changed to Yellow during this evolution. This incident was identified in the licensee's corrective action program as Issue Report 966877. This finding was determined to be of very low safety significance because the inspections performed demonstrated that water was not introduced into the system.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

T. Hanley, Site Vice President
S. Marik, Station Plant Manager
H. Bush, Radiation Protection Manager
B. Finley, Security Manager
D. Glick, Shipping Specialist
J. Griffin, Regulatory Assurance - NRC Coordinator
D. Gronek, Operations Director
J. Hansen, Corporate Licensing
L. Jordan, Training Director
R. Kalb, Chemistry
P. Karaba, Maintenance Director
M. Kluge, Design Engineer
D. Leggett, Nuclear Oversight Manager
R. Laburn, Radiation Protection
M. Marchionda, Regulatory Assurance Manager
P. O'Connor, Licensed Operator Requalification Training Lead
M. Overstreet, Lead Radiation Protection Supervisor
C. Podczerwinski, Maintenance Rule Coordinator
P. Quealy, Emergency Preparedness Manager
E. Rowley, Chemistry
R. Rybak, Regulatory Assurance
J. Sipek, Engineering Director
N. Starcevich, Radiation Protection Instrumentation Coordinator
J. Strmec, Chemistry Manager
S. Vercelli, Work Management Director

NRC

M. Ring, Chief, Division of Reactor Projects, Branch 1
J. Benjamin, Project Engineer

IEMA

R. Zuffa, Illinois Emergency Management Agency
R. Schulz, Illinois Emergency Management Agency

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened:

05000237/2009004-01 05000249/2009004-01	URI	Significance of Potentially Submerged Safety and Non-safety Related Low Voltage Power and Control Power Cables (1R06)
05000237/2009004-02 05000249/2009004-02	FIN	Failure to Identify and Replace CR120A Relays as Recommended by GE SIL 229 Supplement 1 (1R15)
05000237/2009004-03 05000249/2009004-03	URI	Low Pressure Coolant Injection Pump Mechanical Seals (1R15)
05000237/2009004-04 05000249/2009004-04	URI	Inspector Identified Control Room Alarm Isolation Valve Out-of-Position (1R15)
05000237/2009004-05 05000249/2009004-05	NCV	Failure to Follow Technical Specification 5.5.2 Implementing Procedures (1R22)
05000237/2009004-06 05000249/2009004-06	URI	Impact of Chimney Flow Monitor Degradation on Timely and Accurate EAL Classification (Section 4OA3)

Closed:

05000237/2009004-02 05000249/2009004-02	FIN	Failure to Identify and Replace CR120A Relays as Recommended by GE SIL 229 Supplement 1
05000237/2009004-05 05000249/2009004-05	NCV	Failure to Follow Technical Specification 5.5.2 Implementing Procedures
05000249/2008005-03	URI	Failing to Promptly Report Inadvertent Rod Withdrawal
05000249/2008-001-01	LER	Unit 3 Drywell Floor Drain Sump Monitoring System Declared Inoperable
05000249/2008-003-00	LER	Unit 3 Unplanned Control Rod Withdrawals
05000237/2008-004-00	LER	Non-Conservative Core Spray Flow Utilized in LOCA Analysis

Discussed:

None.

LIST OF DOCUMENTS REVIEWED

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

1R04 Equipment Alignment (71111.04)

- Clearance order 76030, " Replace ISO Condenser Relays per EC 355103"

1R05 Fire Protection (71111.05)

- Fire Hazards Analysis DRESDEN 2&3 Amendment 16 (Section 4.13, Fire Zone 11.3)
- Technical Specifications (specifically 5.4.1.c)
- UFSAR
- Fire Pre-Plan Fire Zone 11.3
- OP-AA-201-008 "Pre-Fire Plan Manual," Revision 2
- IR 00945149, "NRC identifies Permit on Chemical Cabinets"
- OP-DR-101-111-1001, "On-Shift Staffing Requirements," Revision 0
- DOA 0010-10, "Fire/Explosions," Revision 12
- N-NAGRS2, "Dresden Respiratory Training – MSA SCBA Device," Revision 5
- IR 968848, "Analysis of NRC Concern – Fire Pre-Plan"

1R06 Flooding (71111.06)

- UFSAR (specifically 2.4.3, 3.4.1.2.1 and 3.4.6)
- Special Report #33 dated August 20, 1973
- DOS 1500-21 Rev. 1, "CCSW Pump Vault Watertight Door Leak Test"
- DTP 70 Rev. 0, "Evaluation of CCSW Pump Vault Flood Protection Leakage Test Results"
- DOA 0010-04 Rev. 31, "Floods"

1R11 Licensed Operator Regualification Program (71111.11)

- OPEX B1-P1, Rev. 02 – Master Controller Failure/ Circ. Water Pump Trip/ Loss of Vacuum/ Hydraulic AWS/ FEF/ Unisolable Iso. Cond. Steam Line Leak into the Reactor Building/ Emergency Depressurization

1R12 Maintenance Effectiveness (71111.12)

- WO 01005984, "D2 2Y EQ 2A LPCI PMP MOTOR EQ SURV"
- WO 01005941, "D2 2Y EQ 2B LPCI PMP MOTOR EQ SURV"
- IR 00949416, "Questions Regarding LPCI Pump Motor Oil – NRC Identified"
- Oil Analysis for 2-1502-A- MUB, 3/3/2009
- Oil Analysis for 2-1502-B- MUB, 3/3/2009
- Oil Analysis for 2-1502-A- MLB, 3/3/2009
- Oil Analysis for 2-1502-B- MLB, 3/3/2009

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

- IR 963265, "3-1501-3B Valve Failure During DOS 1500-01 (LPCI Valve timing)"

1R15 Operability Evaluations (71111.15)

- Design Analysis No. DRE09-0017 "IA Receiver Tank (2-4719) Minimum Wall Thickness Requirements and re-rating Option," Revision 0
- MA-AA-716-210, Revision 8, "Performance Centered maintenance Process"
- MA-AA-716-210-1001, Revision 8, "Performance Centered Maintenance"
- IR 473360, "CR 371932 needs detailed review criteria for CR120 Relays"
- White Paper on the Safety Classification of ECCS Pump Mechanical Seals
- IR 949657, "Procedure Revision Needed for DOS 6600-01"
- UFSAR, Section 9.5.6, "Diesel Generator Starting Air System"
- WO 1248947, "D2/3 1M TS Unit Diesel Generator Operability"
- EC 376701, "SBGT Reduced Flow with RBV in Operation," Revision 0
- DOS 7500-02, "SBGT System Surveillance and IST Test," Revision 44
- DOS 7500-02, "SBGT System Surveillance and IST Test," Revision 45

1R18 Plant Modifications (71111.18)

- CC-AA-112, "Temporary Configuration Changes," Revision 14
- IR 957843, "Failed Flowsan on AOV 3-1599-61"
- EC 376856, "Gag the AO 3-1599-61 Valve Open to Allow Torus Water Transfer,"
- TCCP No. 376856, "Gag the AO 3-1599-61 Valve Open to Allow Torus Water Transfer," Revision 0
- 50.59 Evaluation No. 2009-09-002, "EC 376856/Gag PCIV 3-1599-61 Open," Revision 0

1R19 Post-Maintenance Testing (71111.19)

- DMP 1500-05, "LPCI Pump Maintenance," Revision 8
- IR 939207, "Work Orders Needed to Support 2A LPCI RTS"
- Evaluation No. D-93-003-0858-00, "Mechanical Seal for LPCI/Core Spray Pumps"
- IR 950011, "NRC Identified Use of Non-Safety Related Seal in 2A LPCI PP"
- EC 376561, "Safety Classification of LPCI Pump Shaft Seals"
- MA-AA-733-1001, "Guidance for Check Valve General Visual Inspection," Revision 6
- IR 953658, "Failed PMT"
- WO 1258155, "3A SBLC Failed Qtrly IST Surveillance"
- DMP 1100-05, "Standby Liquid Control Pump Packing and Valve Maintenance," Revision 4
- MA-MW-736-600, "Torquing and Tightening of Bolted Connections," Revision 3
- DOS 1100-04, "Standby Liquid Control System Quarterly/ Comprehensive Pump Test for the Inservice Testing (IST) Program," Revision 41
- IR 952103, "SBLC Pump Procedure DMP 11-05 Revised During Execution"
- EC 333923, "SBLC Pump and Relief Valve Modification"
- DMP 1100-05, "Standby Liquid Control Pump Packing and Valve Maintenance," Revision 5
- DRE01-0066, "Dresden Unit 2&3 Standby Liquid Control System Discharge Piping Pressure Drop," Revisions 2 and 2A
- Letter from K. M. Nicely (Exelon Generation Company, LLC) to U. S. NRC, "Additional Information Supporting Request for License Amendment to Increase Main Steam Safety Valve Lift Setpoint Tolerance and Standby Liquid Control System Enrichment," dated October 5, 2006.

- Letter from J. Honcharik (U. S. NRC) to C. M. Crane (Exelon Generation Company, LLC), "Dresden Nuclear Power Station, Units 2 and 3 – Issuance of Amendments Re: Standby Liquid Control System Sodium Pentaborate Isotopic Enrichment (TAC Nos. MD2166 and MD2167)," dated November 16, 2006.
- WO 914288, "D2 RFL TS Perform Pressure Testing of SBLC Class 1,2 Piping"
- WO 978961, "D3 RFL TS Perform Pressure Testing of SBLC Class 1,2 Piping"
- DOS 1100-03, "Standby Liquid Control Injection Test," Revision 41
- Drawing M-33, "Diagram of Standby Liquid Control Piping"
- WO 00866529-01 "D2 4Y PM Replace Barton 288 Movement Calibration"
- WO 00866531 "D2 4Y PM Replace Barton 288 Movement Calibration"
- WO 01239425, "D2 QTR TS Main Steam Line Flow Isolation"
- DIS 0250-01, "Main Steam Line High Flow Isolation Switch Channel Calibration and Channel Functional Test," Rev 29
- DIP 0250-01, "Unit 2(3) Main Steam Line High Flow Isolation Switch Maintenance," Rev 8
- Drawing M-12, "Diagram of Steam Piping," Sheet 2

1R22 Surveillance Testing (71111.22)

- DOS 1500-10, "LPCI System Pump Operability and Quarterly Test With Torus Available and Inservice Testing (IST) Program," Revision 61
- IR 948548, "NRC Identifies Procedural Issues Related to TRM 5.5.2"
- DOS 1100-04, "Standby Liquid Control System Quarterly/ Comprehensive Pump Test for the Inservice Testing (IST) Program," Revision 40
- IR 950383, "Procedure Revision for DOS 1100-04"
- DOS 1100-04, "Standby Liquid Control System Quarterly/ Comprehensive Pump Test for the Inservice Testing (IST) Program," Revision 41
- IR 951069, "3A SBLC Failed Qtrly IST Surveillance"
- WO 1258155, "3A SBLC Failed Qtrly IST Surveillance"
- IR 951479, "NRC Identified Concern with SBLC Data Taking"
- DOP 2000-24, "Drywell Sump Operation," Revision 19
- Appendix A, "Unit Daily Surveillance Log," Revision 118
- DOS 6600-01, "Diesel Generator Surveillance Tests," Revision 110
- IR 960262, "2/3 EDG Starting Air Compressor Set Point Below Normal"

1EP6 Drill Evaluation (71114.06)

- OPEX B1-P1, Rev. 02 – Master Controller Failure/ Circ. Water Pump Trip/ Loss of Vacuum/ Hydraulic AWS/ FEF/ Unisolable Iso. Cond. Steam Line Leak into the Reactor Building/ Emergency Depressurization

2PS1 Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems

- Dresden Nuclear Power Station Offsite Dose Calculation Manual, Revision 8
- Dresden Nuclear Power Station 2007 and 2008 Radioactive Effluent Release Reports; dated April 29, 2008 and April 24, 2009
- Dresden Unmonitored Effluent Release Calculation, DUR-2007-04, Tritium Released through the Storm Sewer System; dated April 28, 2008
- CY-DR-170-215; Unit 2/3 Main Chimney Sampling; Revision 3
- DCP-2000-28; River Discharge; Revision 22
- 10 CFR 50.75(g) File 99-003; Radwaste Line Discharge Valve Leak Area; dated April 22, 1999

- 10 CFR 50.75(g) File 2006-001; Unit 2/3 'B' Condensate Storage Tank Release; dated February 28, 2007
- 10 CFR 50.75(g) File 2007-001; Unit 2 Isolation Condenser Actuation; dated April 28, 2007
- AR 00880407; NRC identified Potential Unmonitored Release Path; dated February 13, 2009
- AR 00684095; Abnormally High Flow through the Reactor Building Ventilation Stack; dated October 12, 2007
- AR 00700156; Service Water Liquid Process Radiation Monitor High Alarm; dated November 16, 2007
- CY-AA-130-200; Instrument Standardization & Performance Check Quality Control Schedule; Revision 8, and Associated Quality Control Charts for Liquid Scintillation Detectors No. 2900TR and 2555TR; January 2008 - July 2009
- Efficiency Calibrations and LLD Determinations High Purity Germanium Detectors No. 33P308, 2997068, 8973769, 8973824 and 36P407; dated various periods between 2005 - 2008
- DRS 5821-56; Unit 2/3 Chimney Particulate, Iodine and Noble Gas (SPING) Calibration; dated September 29, 2008
- DIS 1700-14; Unit 2/3 Chimney SPING-4 Calibrations; dated September 25, 2008 and February 15, 2007
- DIS 1700-23; Unit 2/3 Chimney GE Monitor Calibration; dated April 8, 2008
- DIS 1700-13; Unit 2/3 Chimney GE Sampling System Flowrator Calibrations; dated April 27, 2006 and April 17, 2008
- DIS 2000-03; Unit 2/3 Radwaste River Effluent Radiation Monitor Calibration; dated June 26, 2006
- DIS 3900-06; Unit 2 Service Water Effluent Radiation Monitor Calibration; dated December 8, 2008
- DIS 5700-02; Unit 2/3 reactor building Vent Stack Flow Monitor Calibration; dated June 30, 2008
- Results of Analytics Radiochemistry Cross Check Program - Dresden Station; Second Quarter 2007 - Third Quarter 2008
- Focused Area Self-Assessment Report - Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems; dated April 23, 2009
- DIS 7500-11; Results of 'A' & 'B' Train Tests of SBTG HEPA Filters; dated September 11, 2008 and October 2, 2007
- DIS 7500-07; Results of 'A' and 'B' Train Laboratory Tests of Charcoal Sample Iodine Removal Efficiency and Freon R-11 Leak Tests; dated September 15 and 25, 2008 and October 2 and October 10, 2007
- AR 00639859 and Associated Common Cause Analysis Report; Unit 2/3 Reactor Building and Chimney SPINGs Showing Increased Maintenance; dated June 13, 2007 and September 7, 2007
- Functional Failure Cause Determination Evaluation for AR 00726193; Process Radiation Monitor Z17-1 (Chimney SPING Sampler); dated April 7, 2008
- AR 00748193; Unit 2/3 Chimney Radiation Monitor PLC Failure; dated March 11, 2008
- AR 00732642; Chimney Noble Gas High Range Monitor; dated February 6, 2008
- AR 00736072; Enter ODCM Action Statement Due to Victoreen SPING Repair Problems; dated February 14, 2008

4OA1 Performance Indicator (PI) Verification (71151)

- Data Summaries/Sample Results and Monthly Dose Calculations from Gaseous and Liquid Effluents for January 2008 - July 2009
- "Reactor Oversight Program MSPI Bases Document Dresden Nuclear Generating Station," April 1, 2006
- "Reactor Oversight Program MSPI Bases Document Dresden Nuclear Generating Station," April 1, 2006
- Drawing M-29, "Diagram of LP Coolant Injection Piping," Sheet 1
- Drawing M-360, "Diagram of LP Coolant Injection Piping," Sheet 2

4OA2 Identification and Resolution of Problems (71152)

- Unit 2 Control Rod Scram Time Testing Data from November 2005 to September 2005
- IR 919876, "Conflicting Opinion RE: Condition Adverse to Quality"
- IR 397497, "Parts Installed During GE HCU Maintenance, Not Properly Issued WO"
- IR 904791, "NOC Notes WO Documentation Errors"
- IR 905313, "NOS Notes historical Documentation Error"
- IR 969492, " NRC Inspector Questions Regarding Unit 2 HCU Washer in Valve"

4OA3 Follow-Up of Events

- Dresden Abnormal Effluent Release Calculations, DUR-2008-01 and DUR-2009-02, Unit 2/3 Chimney Duct Access Door Open; dated February 6, 2009 and August 21, 2009
- Corrections to Dresden Nuclear Power Station Annual Radioactive Effluent Release Reports for 2004, 2005, 2006 and 2007 and Annual Radiological Environmental Operating Reports for 2004, 2005 and 2006; forwarded by letter dated February 11, 2009
- AR 00755596; Potential Unit 2/3 Chimney Flow Issue; March 27, 2008
- AR 00753881; Turbine Building Exhaust Duct Inspection Troubleshooting Results; dated March 23, 2008
- DIS 5700-03; Unit 2/3 Chimney Flow Monitor Calibration and Functional Check; dated July 18, 2005, May 18, 2007 and May 21, 2009
- AR 00941485; Leak Identified on Unit 2/3 Condensate Storage Tank Cross-Tie; dated July 13, 2009
- July 6, 2009 Written Follow-up Report to the NRC on Release of Radionuclide

4OA5 Other Activities

- Conestoga-Rovers and Associates Hydrogeologic Investigation Report for Dresden Generating Station; dated September 2006
- Dresden Station Buried Piping Risk Analysis and Inspection Status Summary; August 1, 2009
- CY-DR-170-2061; Dresden Precipitation Study - Recapture of Tritium; Revision 0
- Self-Assessment Report - Radiological Groundwater Protection; dated December 16, 2007
- AR 00952639; NRC Audit of Site Groundwater Monitoring Program; dated August 12, 2009
- CY-DR-170-2060; Dresden Radiological Groundwater Protection Program Supplemental Monitoring; Revision 5
- CY-DR-170-4160; Dresden Radiological Groundwater Protection Program Sample Point Data and Standard Control Limits; Revision 1
- EN-AA-407; Response to Unplanned Discharges of Licensed Radionuclides to Groundwater, Surface Water and Soil; Revision 1

- CY-AA-170-4000; Radiological Groundwater Protection Program Implementation; Revision 4
- NUREG-1022, Revision 2, "Event Reporting Guidelines 10 CFR 50.72 and 50.72"

4OA7 Licensee-Identified Violations

- IR 00767796, Non-Conservative Core Spray Flow in LOCA Analysis
- IR 00767614 (Corporate AR), Non-Conservative Core Spray Flow in DR and QC LOCA Analysis
- LER 05000237/2008-004-00, "Non-Conservative Core Spray Flow Utilized in LOCA Analysis"

LIST OF ACRONYMS USED

CAP	Corrective Action Program
CCSW	Containment Cooling Service Water
ODCM	Offsite Dose Calculation Manual
CFR	Code of Federal Regulations
CRD	Control Rod Drive
CST	Central Standard Time
D2	Dresden Unit 2
DRP	Division of Reactor Projects
EAL	Emergency Action Level
EACE	Equipment Apparent Cause Evaluation
EC	Engineering Change
EDG	Emergency Diesel Generator
F	Fahrenheit
KV	Kilovolt
GE	General Electric
HEPA	High Efficiency Particulate Air
HPCI	High Pressure Coolant Injection
HCU	Hydraulic Control Unit
IMC	Inspection Manual Chapter
IP	Inspection Procedure
IR	Issue Report
IST	In-service Test
LER	Licensee Event Report
LPCI	Low Pressure Coolant Injection
MAPLHGR	Maximum Average Planar Linear Heat Generation Rate
MSPI	Mitigating Systems Performance Index
NCV	Non-Cited Violation
NEI	Nuclear Energy Institute
NRC	Nuclear Regulatory Commission
NRR	Office of Nuclear Reactor Regulation
ODCM	Offsite Dose Calculation Manual
OOS	Out-of-Service
PARS	Publicly Available Records
PI	Performance Indicator
PM	Planned or Preventative Maintenance, or Post-Maintenance
RCS	Reactor Coolant System
RETS	Radiological Effluent Technical Specification
SBGT	Standby Gas Treatment
SBLC	Standby Liquid Control
SDP	Significance Determination Process
SDM	Shutdown Margin
SSC	Structures, Systems and Components
TS	Technical Specification
U2	Unit 2
U3	Unit 3
UFSAR	Updated Final Safety Analysis Report
URI	Unresolved Item
V	Volt
WO	Work Order

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Sincerely,

/RA/

Mark A. Ring, Chief
Branch 1
Division of Reactor Projects

Docket Nos. 50-237; 50-249
License Nos. DPR-19; DPR-25

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Letter to C. Pardee from M. Ring dated November 6, 2009

SUBJECT: DRESDEN NUCLEAR POWER STATION, UNITS 2 AND 3
INTEGRATED INSPECTION REPORT 05000237/2009-004;
05000249/2009-004

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