UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
2443 WARRENVILLE ROAD, SUITE 210
LISLE, IL 60532-4352

July 29, 2010

Mr. Michael J. Pacilio
Senior Vice President, Exelon Generation Company, LLC
President and Chief Nuclear Officer (CNO), Exelon Nuclear
4300 Winfield Road
Warrenville IL 60555

SUBJECT: BRAIDWOOD STATION, UNITS 1 AND 2 NRC INTEGRATED INSPECTION REPORT 05000456/2010003; 05000457/2010003

Dear Mr. Pacilio:

On June 30, 2010, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Braidwood Station, Units 1 and 2. The enclosed inspection report documents the inspection results, which were discussed on July 7, 2010, with Mr. A. Shahkarami 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.

Based on the results of this inspection, one self-revealed finding of very low safety significance was identified. This finding did not involve a violation of NRC requirements. In addition, two licensee identified violations are listed in Section 40A7 of this report. However, because of their very low safety significance, and because the issues were entered into your corrective action program, the NRC is treating the issues as non-cited violations in accordance with Section VI.A.1 of the NRC Enforcement Policy.

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

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure 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), accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA by Bruce L. Bartlett for/
Richard A. Skokowski, Chief
Branch 3
Division of Reactor Projects

Docket Nos. 50-456; 50-457
License Nos. NPF-72; NPF-77

Enclosure: Inspection Report 05000456/2010003; 05000457/2010003
w/Attachment: Supplemental Information

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U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket Nos:	50-456; 50-457
License Nos:	NPF-72; NPF-77
Report No:	05000456/2010003 and 05000457/2010003
Licensee:	Exelon Generation Company, LLC
Facility:	Braidwood Station, Units 1 and 2
Location:	Braceville, IL
Dates:	April 1, 2010, through June 30, 2010
Inspectors:	J. Benjamin, Senior Resident Inspector A. Garmoe, Resident Inspector C. Scott, Reactor Engineer T. Go, Health Physics Inspector M. Perry, Resident Inspector Illinois Emergency Management Agency
Approved by:	R. Skokowski, Chief Branch 3 Division of Reactor Projects

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SUMMARY OF FINDINGS

IR 05000456/2010003, 05000457/2010003; 04/01/2010 - 06/30/2010; Braidwood Station, Units 1 & 2; Follow-Up of Events and Notices of Enforcement Discretion.

This report covers a 3-month period of inspection by resident inspectors and announced baseline inspections by regional inspectors. One self-revealing finding was documented by the inspectors. This finding was not a violation of NRC regulatory requirements. 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 self-revealed on July 30, 2009, after the Unit 2 reactor tripped due to a trip of the 2C reactor coolant pump on overcurrent. The 2C reactor coolant pump tripped on overcurrent following an automatic bus transfer due to the loss of station auxiliary transformer 242-1 on a sudden pressure relay actuation. Subsequent investigation identified the cause of the 2C reactor coolant pump trip to be incorrect setpoints on the reactor coolant pump overcurrent relays. The inspector determined that this cause was not a violation of NRC requirements since the overcurrent trip function of the reactor coolant pump is not a safety-related function. The licensee entered this condition into their corrective action program. Corrective actions included: increasing the Unit 2 reactor coolant pump overcurrent relay dropout values from 75 to 90 percent, adjustment of the 2C reactor coolant pump overcurrent time delay setting, extent of condition review for Unit 1 during their next scheduled refuelling outage (Fall 2010), and a revision of station procedures to include periodic calibration of the reactor coolant pump overcurrent relays.

  This performance deficiency was considered more than minor because it impacted the Configuration Control attribute of the Initiating Events Cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. The inspectors performed a Phase 1 Significance Determination Process review for this finding using the guidance provided in IMC 0609, Attachment 4, "Initial Screening and Characterization of Findings." Based on Tables 2, "Cornerstones and Functions Degraded as a Result of the Deficiency," and 3b, "Significance Determination Process Phase 1 Screening Worksheet for Initiating Events, Mitigation Systems, and Barriers Cornerstones," in IMC 0609, Attachment 4, the inspectors determined the finding was a transient initiator contributor in the Initiating Events Cornerstone. The inspectors answered 'No' to the Transient Initiators question in the Initiating Events Cornerstone Column of IMC 0609, Attachment 4, Table 4a, "Characterization Worksheet for Initiating Event, Mitigating System, and Barrier Integrity Cornerstones," and determined that the issue was of very low safety significance. No

cross-cutting aspects were assigned to this issue since the performance deficiency was not reflective of current performance. (Section 4OA3.4)

B. Licensee-Identified Violations

Two 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 corrective action program. These violations and corrective action tracking numbers are listed in Section 4OA7 of this report.

REPORT DETAILS

Summary of Plant Status

Unit 1 operated at or near full power for the duration of the inspection period.

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

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01)

.1 Readiness of Offsite and Alternate AC Power Systems

a. Inspection Scope

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

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

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

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

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

Documents reviewed are listed in the Attachment to this report. The inspectors also reviewed corrective action program (CAP) items to verify that the licensee was identifying adverse weather issues at an appropriate threshold and entering them into their CAP in accordance with station corrective action procedures.

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

b. Findings

No findings of significance were identified.

.2 Summer Seasonal Readiness Preparations

a. Inspection Scope

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

During the inspection, the inspectors focused on plant specific design features and the licensee's procedures used to mitigate or respond to adverse weather conditions. Additionally, the inspectors reviewed the Updated Final Safety Analysis Report (UFSAR) and performance requirements for systems selected for inspection, and verified that operator actions were appropriate as specified by plant specific procedures. Specific documents reviewed during this inspection are listed in the Attachment. The inspectors also reviewed CAP items to verify that the licensee was identifying adverse weather issues at an appropriate threshold and entering them into their CAP in accordance with station corrective action procedures. The inspectors' reviews focused specifically on the following plant systems:

- Cooling Water Lake and Ultimate Heat Sink;
- Containment Chillers; and
- Auxiliary Building Ventilation.

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

b. Findings

No findings of significance were identified.

.3 Readiness for Impending Adverse Weather Condition – Tornado Watch and Tornado Warning

a. Inspection Scope

Since thunderstorms with potential tornados and high winds were forecast in the vicinity of the facility for June 5, 2010, the inspectors reviewed the licensee's overall preparations/protection for the expected weather conditions. The inspectors walked down portions of the station's off-site power supply and on-site emergency AC power systems, because their safety-related functions could be affected or required as a result of high winds or tornado-generated missiles or the loss of offsite power. The inspectors evaluated the licensee staff's preparations against the site's procedures and determined that the staff's actions were adequate. During the inspection, the inspectors focused on plant-specific design features and the licensee's procedures used to respond to specified adverse weather conditions. The inspectors also toured the plant grounds to look for any loose debris that could become missiles during a tornado. The inspectors evaluated operator staffing and accessibility of controls and indications for those systems required to control the plant. Additionally, the inspectors reviewed the UFSAR and performance requirements for systems selected for inspection, and verified that operator actions were appropriate as specified by plant specific procedures. The inspectors also reviewed a sample of CAP items to verify that the licensee identified adverse weather issues at an appropriate threshold and dispositioned them through the CAP in accordance with station corrective action procedures. Specific documents reviewed during this inspection are listed in the Attachment.

This inspection constituted one readiness for impending adverse weather condition sample as defined in IP 71111.01-05.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment (71111.04)

.1 Quarterly Partial System Walkdowns (71111.04Q)

a. Inspection Scope

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

- Unit 1 Train B Essential Service Water (SX) system during a Unit 1 Train A SX System Work Window;
- Unit 2 Train B Diesel Generator (DG) During a Unit 2 Train A DG Work Window; and
- Unit 2 Train A DG restoration following slave relay testing.

The inspectors selected these systems based on their risk significance relative to the Reactor Safety Cornerstones at the time they were inspected. The inspectors attempted to identify any discrepancies that could impact the function of the system, and, therefore, potentially increase risk. The inspectors reviewed applicable operating procedures,

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

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

b. Findings

No findings of significance were identified.

.2 Semi-Annual Complete System Walkdown

a. Inspection Scope

On June 1, 2010, the inspectors performed a complete system alignment inspection of the Safety Injection (SI) accumulators to verify the functional capability of the system. This system was selected because this system was planned to be out of a normal alignment during mechanical trouble shooting activities. Additionally, the system was considered both safety significant and risk significant in the licensee's probabilistic risk assessment. The inspectors walked down the system to review mechanical and electrical equipment line ups, electrical power availability, system pressure and temperature indications, as appropriate, component labeling, hangers, and supports, operability of support systems, and to ensure that ancillary equipment or debris did not interfere with equipment operation. A review of a sample of past and outstanding WOs was performed to determine whether any deficiencies significantly affected the system function. In addition, the inspectors reviewed the CAP database to ensure that system equipment alignment problems were being identified and appropriately resolved. Documents reviewed are listed in the Attachment.

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

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05)

.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:

- Unit 2 Safe Shutdown Panel Room;
- Unit 2 Train A DG Room;
- Unit 2 Train B Auxiliary Feed Water Pump Room; and
- Technical Support Center.

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

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

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 June 1, 2010, the inspectors observed a crew of licensed operators in the plant's simulator during a licensed operator requalification examination 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:

- Unit 1 and Unit 2 Reactor Vessel Head Vent Valves; and
- Unit 1 Safety Injection (SI) Accumulator Reactor Coolant System In-leakage.

The inspectors reviewed events such as where ineffective equipment maintenance had resulted in system inoperability and unavailability. The inspectors independently verified the licensee's actions to address system performance or condition problems in terms of the following:

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

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

This inspection constitutes two quarterly maintenance effectiveness sample as defined in IP 71111.12-05.

b. Findings

Introduction: The inspectors identified an Unresolved Item (URI) related to the current Maintenance Rule (a)(2) classification of the Unit 1 and Unit 2 reactor vessel head vents. Specifically, the inspectors identified that these systems' have had significant periods of inoperability since 1998. The inspectors reviewed several inspection reports (IRs) generated by the licensee that documented longstanding issues regarding unreliable position indication and operation.

Description: During a review of the condition of the reactor vessel head vents at Braidwood, the inspectors reviewed IR 915503, which documented a long standing degraded condition. The inspectors noted that the licensee has had one flow path declared inoperable for the last three cycles on Unit 1. The reactor head vent system consists of two redundant flow paths each with two solenoid valves in series. The reactor head vents are safety-related components that are utilized in plant emergency operating procedures and severe accident management guidance documents to mitigate the consequences of an accident. Specifically, the valves are used by operators to vent non-condensable gases to the atmosphere following a loss of secondary containment. In the event the valves fail to meet the surveillance acceptance criteria, the Technical Requirements Manual allows one flow path to be isolated and de-energized if the remaining flow path is operable and available. The inspectors reviewed the performance history of the reactor head vents within the licensee's Maintenance Rule database and had several question regarding the availability and reliability of the reactor head vents.

The reactor head vent valves are classified as a low safety significant, standby structures, systems and components and thus according to licensee Maintenance Rule procedures, the station monitors reliability but not availability for these components. As such station personnel determined that these valves had sufficient reliability to ensure that this system would be capable of performing its design safety functions consistent with 10 CFR 50.65 and remain confident that the system's performance was being monitored effectively. Although the reactor head vent valves have experienced significant periods of inoperability since 1998, the reactor head vent valves have remained in 10 CFR 50.65 (a)(2). The inspectors determined that the majority of the performance issues were associated with unreliable position indication and slow valve stroke times during required surveillances. The licensee has made numerous attempts to correct the degraded condition but the maintenance has not prevented the re-occurrence of surveillance failures. The licensee contends that that the system remains functional despite unreliable position indication. The inspectors have several questions regarding the scoping and monitoring of the reactor head vent valves by the licensee's Maintenance Rule program. In the inspectors' opinion the licensee should be monitoring both reliability and availability/unavailability consistent with the NUMARC 93-01 guidance. Additionally the inspectors have questions regarding the technical justification

for the established reliability criteria and the effectiveness of monitoring the reactor vessel head vents at the system level. Further information from the licensee and communication with NRR staff is needed to resolve this issue. This URI will be opened pending a further review of the stations Maintenance Rule program and consultation with NRC experts. (URI 05000456/2010003-01; 05000457/2010003-01: Degraded Condition of Reactor Head Vent Valves)

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:

- Unit 1 Loop C Reactor Coolant Pump Seal Flow Adjustments;
- DC Bus 211 Battery Charger Failure with Unit 2 Train A Residual Heat Removal Pump Out-of-Service;
- Unit 1 Switchyard Work;
- Unit 1 Train B and Unit 2 Train B SX Trains Unavailable Due to a Flow Anomaly; and
- Unit 2 Station Auxiliary Transformer (SAT) Maintenance.

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

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

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

.1 Operability Evaluations

a. Inspection Scope

The inspectors reviewed the following issues:

- Verification of Safety-Related Breaker Control Power;
- Debris Found in Engineered Safety Feature Batteries;
- Unit 2 Residual Heat Removal Discharge Pressure Elevated;
- Unit Common Train B Control Room Ventilation System Chiller Tripped with Trouble Alarm;
- Unit 1 Loop A and Unit 1 Loop C SI Accumulator in-leakage; and
- Lack of Technical Basis for Degraded Voltage 5-Minute Delay.

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

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

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing (71111.19)

.1 Post-Maintenance Testing

a. Inspection Scope

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

- Unit 2 Train A DG Following Governor Modification;
- Unit 2 SATs Following Maintenance;
- Unit 1 Train B Heater Drain Pump Following Work Window; and
- Unit 1 Train A SX Pump Following Check Valve Replacement.

These activities were selected based upon the structure, system, or component's ability to impact risk. The inspectors evaluated these activities for the following (as applicable): the effect of testing on the plant had been adequately addressed; testing was adequate for the maintenance performed; acceptance criteria were clear and demonstrated operational readiness; test instrumentation was appropriate; tests were performed as written in accordance with properly reviewed and approved procedures; equipment was

returned to its operational status following testing (temporary modifications or jumpers required for test performance were properly removed after test completion); and test documentation was properly evaluated. The inspectors evaluated the activities against TS, the UFSAR, 10 CFR Part 50 requirements, licensee procedures, and various NRC generic communications to ensure that the test results adequately ensured that the equipment met the licensing basis and design requirements. In addition, the inspectors reviewed corrective action documents associated with post-maintenance tests to determine whether the licensee was identifying problems and entering them in the CAP and that the problems were being corrected commensurate with their importance to safety. Documents reviewed are listed in the Attachment to this report.

This inspection constituted four 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:

- Unit 2 Train A chemical and volume control valve strokes (Routine);
- Unit 2 Train B Auxiliary feedwater monthly surveillance (Routine);
- Unit 2 Train B DG engineered safety feature actuation relay (Routine);
- Battery charger 212 weekly surveillance (Routine); and
- Unit 1 Train B Residual Heat Removal American Society of Mechanical Engineers (ASME) In-service Test.

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

- did preconditioning occur;
- were the effects of the testing adequately addressed by control room personnel or engineers prior to the commencement of the testing;
- were acceptance criteria clearly stated, demonstrated operational readiness, and consistent with the system design basis;
- plant equipment calibration was correct, accurate, and properly documented;
- as-left setpoints were within required ranges; and the calibration frequency were in accordance with TSs, the UFSAR, procedures, and applicable commitments;
- measuring and test equipment calibration was current;
- test equipment was used within the required range and accuracy; applicable prerequisites described in the test procedures were satisfied;

- test frequencies met TS requirements to demonstrate operability and reliability; tests were performed in accordance with the test procedures and other applicable procedures; jumpers and lifted leads were controlled and restored where used;
- test data and results were accurate, complete, within limits, and valid;
- test equipment was removed after testing;
- where applicable for inservice testing activities, testing was performed in accordance with the applicable version of Section XI, ASME code, and reference values were consistent with the system design basis;
- where applicable, test results not meeting acceptance criteria were addressed with an adequate operability evaluation or the system or component was declared inoperable;
- where applicable for safety-related instrument control surveillance tests, reference setting data were accurately incorporated in the test procedure;
- where applicable, actual conditions encountering high resistance electrical contacts were such that the intended safety function could still be accomplished;
- prior procedure changes had not provided an opportunity to identify problems encountered during the performance of the surveillance or calibration test;
- equipment was returned to a position or status required to support the performance of its safety functions; and
- all problems identified during the testing were appropriately documented and dispositioned in the CAP.

Documents reviewed are listed in the Attachment to this report.

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

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstones: Occupational and Public Radiation Safety

2RS5 Radiation Monitoring Instrumentation (71124.05)

This inspection constituted one sample as defined in IP 71124.05-5. Document reviewed are listed in the Attachment to this report.

.1 Inspection Planning (02.01)

a. Inspection Scope

The inspectors reviewed the plant UFSAR to identify radiation instruments associated with monitoring area radiological conditions including airborne radioactivity, process streams, effluents, materials/articles, and workers. Additionally, the inspectors reviewed the instrumentation and the associated TS requirements for post-accident monitoring instrumentation including instruments used for remote emergency assessment.

The inspectors reviewed a listing of in-service survey instrumentation including air samplers and small article monitors, along with instruments used to detect and analyze workers' external contamination. Additionally, the inspectors also reviewed personnel contamination monitors and a portal monitor including whole-body counters to detect workers' internal contamination. From a review of the list, the inspectors evaluated whether the licensee had an adequate number and type of instruments to support plant operations.

The inspectors reviewed selected independent evaluation reports of the radiation monitoring program since the last inspection. This review included audits of the licensee's onsite calibration facility.

The inspectors reviewed copies of the procedures that govern instrument source checks and calibrations, and focused on instruments used for monitoring transient high radiological conditions, including instruments used for underwater surveys and area radiation monitors. These procedures were reviewed for the bases of alarm set-point values as provided in the TS, UFSAR, and the set-point bases as provided in the offsite dose calculation manual.

b. Findings

No findings of significance were identified.

.2 Walkdowns and Observations (02.02)

a. Inspection Scope

The inspectors performed walk downs of following five effluent radiation monitoring systems (liquid and airborne system):

- high range containment monitor;
- liquid effluent radiation monitors;
- radwaste area vent effluent radiation monitors;
- gaseous effluent radiation monitors; and
- auxiliary building vent stack effluent monitors.

The inspectors also evaluated the flow measurement devices and all accessible point-of-discharge liquid and gaseous effluent monitors of the selected systems. The inspectors also assessed whether effluent/process monitor configurations align with offsite dose calculation manual descriptions and whether any monitors were out-of-service or degraded. The inspectors selected several portable survey instruments during the inspection to verify calibration and source check stickers and to assess instrument material condition and operability. The inspectors observed licensee staff demonstrate source checks for various types of portable survey instruments and the source checks were performed at the appropriate scales (low and high range). The inspectors walked down multiple area radiation monitors and continuous air monitors to determine whether they were appropriately positioned to the areas they were intended to monitor. Selectively, the inspectors compared monitor response via local or remote control room indications with actual area conditions for consistency.

The inspectors selected several Personnel Contamination Monitors, Portal Monitors, and Small Article Monitors and evaluated whether the periodic source checks were performed in accordance with the manufacturer's recommendations and licensee procedures.

b. Findings

No findings of significance were identified.

.3 Calibration and Testing Program (02.03)

Process and Effluent Monitors

a. Inspection Scope

The inspectors selected several effluent monitor instruments (such as gaseous and liquid) and assessed whether channel calibration and functional tests were performed consistent with Radiological Effluent TSs/Offsite Dose Calculation Manual. The inspectors evaluated whether: (a) the licensee calibrated its monitors with National Institute of Standards and Technology traceable sources; (b) the primary calibrations were adequately represented the plant nuclide mix; (c) when secondary calibration sources were used, the sources were verified by the primary calibration; and (d) the licensee's channel calibrations encompassed the instrument's alarm set-points. Additionally, inspectors also assessed whether effluent monitor alarm set-points were established as provided in the Offsite Dose Calculation Manual and station procedures and any changes to effluent monitor set-points were evaluated.

b. Findings

No findings of significance were identified.

.4 Laboratory Instrumentation

a. Inspection Scope

The inspectors reviewed daily performance checks and calibration data for selected laboratory analytical instruments to assess whether the frequency of the calibrations was adequate and for other indications of degraded instrument performance. The selected laboratory analytical instruments were used for radiological analysis such as gross alpha, gross beta using proportional counters, and gamma spectroscopy using high purity germanium and low energy beta analysis using liquid scintillation counters.

b. Findings

No findings of significance were identified.

.5 Whole Body Counter

a. Inspection Scope

The inspectors assessed whether the methods and sources used to perform whole body count functional checks before daily use of the instrument and were appropriate and aligned with the plant's isotopic mix. The inspectors also reviewed 2009 and 2010 whole body counter calibration records and evaluated whether calibration sources were representative of the plant source term and that appropriate calibration phantoms were used and inspectors. Additionally, the inspectors reviewed this data for any anomalous results or other indications of instrument performance problems.

b. Findings

No findings of significance were identified.

.6 Post-Accident Monitoring Instrumentation

a. Inspection Scope

The inspectors selected two high-range effluent monitors that were relied on by the licensee in its emergency operating procedures as a basis for triggering emergency action levels and subsequent emergency classifications, or to make protective action recommendations during an accident. The inspectors reviewed calibration documentation since the last inspection for selected containment high-range monitors and assessed whether an electronic calibration was completed for all range decades above 10 rem/hour and that at least one decade at or below 10 rem/hour was calibrated using an appropriate radiation source. In addition the inspectors reviewed and performed walkdowns of the licensee's post-accident iodine effluent samples.

b. Findings

No findings of significance were identified.

.7 Portal Monitors, Personnel Contamination Monitors, and Small Article Monitors

a. Inspection Scope

Inspectors selected each type of these instruments used on site, and assessed whether the alarm set-point values were reasonable under the circumstances to ensure that licensed materials were not released from the site. The inspectors also reviewed the calibration documentation for selected instruments and discussed the calibration methods with the licensee's instrument calibration staff to assess consistency with the manufacturer's recommendations.

b. Findings

No findings of significance were identified.

.8 Portable Survey Instruments, Area Radiation Monitors, Electronic Dosimeters, and Air Samplers/Continuous Air Monitors

a. Inspection Scope

The inspectors reviewed calibration documentation for portable survey instruments and area radiation monitors that included review of the detector measurement geometry and calibration methods. Additionally, inspectors observed the demonstration of the instrument calibrator.

The inspectors assessed whether the licensee had taken appropriate corrective actions for instruments found significantly out of calibration (greater than 50 percent) and evaluated the possible consequences of instrument use since the last successful calibration and source check.

b. Findings

No findings of significance were identified.

.9 Instrument Calibrator

a. Inspection Scope

The inspectors reviewed the current output value (spreadsheets and graphs) for the portable survey and area radiation monitors instrument calibrator units. The inspectors assessed whether periodic measurements of calibrator output were made through measurements by ion chamber/electrometer devices over the range of the instruments used. The inspectors evaluated whether this measuring device were calibrated by a facility using National Institute of Standards and Technology traceable sources and that correction factors for these measuring devices were properly applied by the licensee during this output verification.

b. Findings

No findings of significance were identified.

.10 Calibration and Check Sources

a. Inspection Scope

The inspectors reviewed the licensee's 10 CFR Part 61, "Licensing Requirements for Land Disposal of Radioactive Waste," source term to assess whether calibration sources used were representative of the types and energies of radiation encountered in the plant.

b. Findings

No findings of significance were identified.

.11 Problem Identification and Resolution (02.04)

a. Inspection Scope

The inspectors reviewed CAP reports related to exposure. The inspectors reviewed various CAP documents to determine whether problems associated with radiation monitoring instrumentation were being identified by the licensee at an appropriate threshold. Additionally, the inspectors assessed whether the corrective actions for a selected sample of these problems documented by the licensee were adequately evaluated and resolved.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151)

.1 Reactor Coolant System Specific Activity (02.01)

a. Inspection Scope

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

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

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems (71152)

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

.1 Routine Review of Items Entered into the Corrective Action Program

a. Inspection Scope

As part of the various baseline 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 Attachment.

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

b. Findings

No findings of significance were identified.

.2 Daily Corrective Action Program Reviews

a. Inspection Scope

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

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

b. Findings

No findings of significance were identified.

.3 Selected Issue Follow-Up Inspection: Station Improvement Plan to Address the Human Performance Conservative Decision Making Substantive Cross-cutting Issue

a. Inspection Scope

The inspector conducted a focused review to assess the progress the station has made in addressing the NRC assigned substantive cross-cutting issue in conservative decision making (H.1(b)). This cross-cutting issue was originally issued following the 2009 Mid-Cycle assessment. The issue was maintained open following the 2009 End-of-Cycle assessment based on the number of issues sharing this aspect within the assessment period and lack of effectiveness in addressing the issue.

The inspectors reviewed and assessed the completed actions the station had taken to date to address this issue. The station has taken the following actions to date:

- Completed a Root Cause investigation of the issue and determined a number of factors to focus upon;
- Provided various forums of conservative decision making training to staff and management personnel to ensure station personnel had a clear understanding of their individual roles in ensuring conservative decisions were made at an appropriate level;
- The development of a new "Designated Challenger Process" to add an additional level of scrutiny for higher level decisions that could affect plant safety;
- The completion of an Engineering Common Cause Analysis to determine how Engineering products could be improved upon;
- Training on Operability Evaluation determination expectations with shift management; and
- An extent of condition review for non-conservative TS issues.

In addition, the inspectors reviewed the licensee's plans to address the issue looking forward. Some of these actions include:

- An ongoing Operation's focus on regulatory compliance;
- Providing Operation personnel with 'Technical Conscience' training; and
- Planned actions to reinforce positive conservative design making behaviors to site personnel in various venues.

In addition to the formal improvement plan, the inspectors independently observed the station's safety culture in this area. This review was done for both planned 'proactive' decisions as well as unplanned 'reactive' decisions.

This review constituted one in-depth problem identification and resolution sample as defined in IP 71152-05. Documents reviewed are list in the attachment to this report.

b. Findings

No findings of significance were identified.

The inspectors determined that the station has devoted a significant amount of resources to address this issue. This focused effort has resulted in an improvement in the station's ability to make conservative decisions at an acceptable level. The inspectors did note, however, that while improvement had been made, sustained improvement would depend on the licensee's commitment to maintain its efforts to keep this aspect of safety culture in its forefront. The inspectors observed several examples in which a conservative decision was determined and driven by senior station management. Although a number of conservative decisions were observed at multiple levels within the station, the inspectors observed the improvement driven primarily by senior management.

The inspectors observed a number of examples that demonstrated an acceptable level of the station's ability to challenge plant deficiencies that had the potential to impact plant safety. Based on these examples, the inspector observed a general improvement across multiple departments. The examples listed occurred within this assessment period and provided some insight into the station's ability to challenge issues and make conservative decisions.

- On June 17, 2010, the Unit 2 Train B containment spray sump suction valve (2CS009B) was stroked in accordance with a scheduled TS surveillance. During restoration of the valve to the closed position, the valve only stroked partially closed and stopped. Operations entered Limiting Condition for Operation (LCO) 3.5.2 Condition A as a conservative measure. Upon further review of the LCO's TS basis, Operations determined that all requirements for transferring the ECCS suction to the SI recirculation sump were met and a LCO 3.5.2 entry was not required.

  The inspectors observed the licensee's troubleshooting efforts and cause evaluation that determined the valve failed to stroke due to a motor operator greasing issue. Although the actuator was not rebuilt during this time, the inspectors determined that the station had taken adequate action to address immediate operability and the potential for a common mode failure by testing additional valves. In addition, the inspectors observed the licensee make a conservative decision to increase the cycling interval for the 2CS009B valve to ensure the valve maintained adequate performance until a final corrective action could be implemented (e.g. actuator rebuild).

- On May 4, 2010, Operations identified that the Unit 1 Train A SX pump discharge check valve was slow to close. Operations and Engineering requested that the organization replace the valve even though the particular valve had margin to its operability threshold. This decision was based on valve history and perceived rate of degradation. The system was declared inoperable and valve replaced on June 7, 2010.

- On April 4, 2010, the licensee tested the Unit 2 Train A Diesel Generator. The DG passed the surveillance tests but Operations identified that the DG governor response was not as expected (sluggish). As a result, Operations initiated an equipment prompt investigation and the station decided that the DG would remain inoperable until the issue was resolved. A complex troubleshooting plan was developed and implemented which identified a bad fuel oil pump.

- On March 3, 2010, Operations re-performed a Unit 2 Train A DG hot restart surveillance test to ensure test data was accurate after a strip chart recorder issue had occurred. The error was verified to be administrative after the second test was performed and all DG acceptance criteria were re-verified.

- On April 24, 2010, during performance of a vendor installation procedure for the guided wave testing/monitoring system, an intermittent open circuit was identified on a 10 inch testing collar. The fault cleared itself when removed from the pipe and intermittently appeared when installed on the pipe. The vendor had no knowledge of repeat failures of these devices during installation at other facilities. The licensee made a conservative decision to install a new replacement circuit to ensure reliable operations;

- The station included a requirement to use an independent technical reviewer as part of the station modification to eliminate a portion of the circulating water blowdown vacuum breakers. The licensee implemented this requirement to ensure that the reasoning and assumptions utilized in the conceptual design were sound and could be validated as the modification was developed.

.4 Semi-Annual Trend Review

a. Inspection Scope

The inspectors performed a review of the licensee's CAP and associated documents to identify trends that could indicate the existence of a more significant safety issue. The inspectors' review was focused on repetitive equipment issues, but also considered the results of daily inspector CAP item screening discussed in Section 4OA2.2 above, licensee trending efforts, and licensee human performance results. The inspectors' review nominally considered the 6 month period of January 1, 2010 through June 30, 2010, although some examples expanded beyond those dates where the scope of the trend warranted.

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

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

b. Findings

No findings of significance were identified.

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

.4 (Closed) Licensee Event Report 05000456/2009-002-01: Safety Injection System Containment Sump Isolation Valve 1SI8811B Failed to Stroke Full Open Due to Torque Switch Assembly Corrosion

This event, which occurred on June 24, 2009, was initially reported to the NRC in Licensee Event Report (LER) 05000456/2009-002-00 on August 24, 2009. The inspectors reviewed that LER and closed it to a URI in IR 05000456/2009004; 05000457/2009004. After an initial review of the failure of valve 1SI8811B to stroke open on June 24, 2009, the inspectors concluded that the issue warranted a preliminary Yellow Finding, which was documented in IR05000456/2009007. Following review of additional information and a Regulatory Conference with the licensee, which was held on January 6, 2010, the final significance of the issue was determined to be White and was issued in IR 05000456/2010008 with Enforcement Action 09-259.

On May 7, 2010, the licensee submitted LER 05000456/2009-002-01, which updated the information provided in the initial LER discussing the failure of 1SI8811B failure to stroke open on June 24, 2009. The inspectors reviewed the additional information and determined that the information regarding the event, investigation, and corrective actions was accurate. No additional findings were identified and no additional violation of NRC requirements occurred.

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

.5 (Closed) Licensee Event Report 05000457/2009-003-00: Drain Procedure for Emergency Core Cooling System Suction Line Creates an Unanalyzed Condition Due to Inadequate Configuration Requirements

This LER reported a licensee identified condition in which Braidwood Station had periodically operated in an unanalyzed condition during which the containment sump recirculation valve was energized concurrent with auxiliary building vent and drain valves in the sump suction line being open. Following a postulated Loss of Coolant Accident (LOCA), the containment sump recirculation valve would automatically open. Coupled with the open valves in the auxiliary building, this would result in a containment bypass event as the contaminated sump water flowed into the auxiliary building.

Description: On November 10, 2009, the licensee determined that two prior work evolutions to drain a portion of the Unit 2 residual heat removal piping resulted in an unanalyzed condition. This condition was originally identified at Bryon and then at Braidwood during an operating experience review. During the two prior work evolutions, a Unit 2 residual heat removal pump was removed from service and the pump suction was intentionally drained. As no work was being performed on the containment sump recirculation valve (1SI8811B), the power was not removed from valve 1SI8811B. This left the valve in a condition where it could open automatically.

If a large break LOCA had occurred while valve 1SI8811B was energized a large amount of containment sump water would have flowed into the auxiliary building when the valve auto-opened as a part of the swap over to cold leg recirculation. This unintended flow path would have bypassed containment and could have resulted in auxiliary building flooding, increased offsite dose, and a partial loss of inventory for the Emergency Core Cooling System.

Since this issue was historic and not a current plant condition, no immediate corrective actions were implemented to change the plant's configuration. The licensee revised the procedure to preclude this condition from recurring

Analysis: The inspectors determined that the failure to provide adequate work instructions was a performance deficiency. This condition made the plant vulnerable to a containment bypass event. This finding is more than minor because the 1SI8811B valve being left in a closed but energized state was associated with the configuration control attribute of the Barrier Integrity Cornerstone and adversely affected the cornerstone objective to protect the public from radioactive releases caused by accidents or events.

Region III Senior Reactor Analysts evaluated the risk significance of this issue, including impact to the Mitigating System Cornerstone. The Senior Reactor Analysts determined that the Mitigating System Cornerstone was not impacted since there was no net change in core damage frequency risk. The open paths outside containment were from three 0.75-inch valves which calculation showed did not result in sufficient loss of inventory to cause a loss of the recirculation function. Further, the maintenance configuration for the system drains the suction of the associated residual heat removal train rendering it unavailable. This unavailability of the residual heat removal train is already captured as part of the average test and maintenance configuration incorporated into the base risk model. Lastly, dose considerations were evaluated and there were no adverse impacts to operators or plant equipment.

The Senior Reactor Analysts evaluated risk impact to the containment barrier. Using IMC 0609, "Significance Determination Process," Attachment .04, "Initial Screening and Characterization of Findings," the inspectors determined that the finding represented an actual open pathway in the physical integrity of reactor containment. The Senior Reactor Analysts continued the risk evaluation using IMC 0609, Appendix H, "Containment Integrity Significance Determination Process." The Senior Reactor Analysts determined this finding to be a Type B finding, which is a finding related to a degraded condition that has potentially important implications for containment without affecting the likelihood of core damage.

Appendix H Table 4.1, "Containment-Related System, Structures, and Components Considered for LERF Implications," was used to conduct an initial screening of the finding. The table includes containment isolation valves in lines "connecting reactor coolant system to environment or open systems outside containment." The LERF significance states "Small lines (<1-2 inch diameter) and lines connecting to closed systems would not generally contribute to LERF." The Senior Reactor Analysts calculated the equivalent diameter of the three 0.75-inch valves and determined that it was less than 2 inches. In addition, Table 6.2 addresses findings involving leakage rates (e.g., containment leakage). The table shows that leakage from containment to the environment that is greater than 100 percent containment volume/day is risk significant.

The Senior Reactor Analysts calculated the leakage to be less than 100 percent containment volume/day. Therefore, the Senior Reactor Analysts concluded that the risk of this finding was very low (Green).

The enforcement aspects of this finding are discussed is Section 4OA7.

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

.6 (Closed) Licensee Event Report 05000457/2010-001-00: Essential Service Water Pump 2A Braided Hose Failure Resulted in a Condition Prohibited by TS

On January 29, 2010, the license identified that a braided flexible metal hose on the Unit 2 Train A SX pump was leaking at approximately 60 drops per minute from a fitting. This hose provides a function to provide cooling and flushing water from the pump casing to the inboard seal. Initial inspection indicated that the leak was from the connection of the braided hose and was therefore not pressure boundary leakage. The applicable TS, TS 3.7.8 Condition A, was not entered at this time because the licensee determined that the leakage was not ASME Section III Class 3 pressure boundary leakage, and the leakage did not significantly the affect pump flow rate to safety-related systems.

On February 2, 2010, the licensee entered TS 3.7.8, Condition A, during a planned 2A SX strainer work window. During this work window, the flexible hose was removed, inspected, and replaced. Based on the licensee's visual inspection, no signs of failure were identified and a leakage path not determined. The licensee sent the hose to a vendor for a more detailed failure analysis.

On February 15, 2010, the station was provided with the vendor's failure analysis results. The results characterized the leak as an ASME Section III Class 3 pressure boundary pinhole leak approximately seven inches from one end of the inside hose. The licensee concluded that this leak rendered the 2A SX inoperable. Therefore, TS 3.7.8 Condition A should have been entered from the time the condition was originally identified on January 29, 2010.

Technical Specification 3.7.8, Condition A, requires, in part, that the inoperable unit-specific SX train to be restored within 72 hours. If this condition is not met, TS 3.7.8 Condition C requires the unit to be in Mode 3 within 6 hours. Therefore, the licensee violated both TS 3.7.8 Condition A and C since the system was inoperable longer than the allowed 72 hour completion time for Condition A and the 6 hours completion time for Condition C.

The licensee determined that the leak was caused by external wear from rubbing contact with the braided hose wire jacket. Corrective actions include installation of a cushioning bronze inner braid for the SX seal water flexible hoses; and providing operator training related to preventative maintenance program for the SX seal water flexible hoses; and providing operator training related to ASME code applicability and system design and on short term limiting condition for operation actions requiring assistance from other groups.

The inspectors reviewed this LER and identified a performance deficiency, in that, the licensee should have ensured that TS 3.7.8 Condition A and Condition C were met following the initial identifications of the leak. Specifically, the licensee's reliance on a

visual assessment coupled with the time allotted to take the system out of service was not adequate to ensure TS compliance. The enforcement aspects of this finding are discussed in Section 4OA7.

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

4OA5 Other Activities

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

a. Inspection Scope

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

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

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

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

b. Findings

No findings of significance were identified.

.2 (Closed) Unresolved Item 05000457/2009004-04: Unit 2 Loss of Offsite Power Coincident with a Reactor Trip Due to Loss of 2C Reactor Coolant Pump

Introduction: A Green finding with no associated violation of NRC requirements was self-revealed when, on July 30, 2009, the Unit 2 reactor tripped due to a trip of the Unit 2 Loop C (2C) Reactor Coolant Pump (RCP) on overcurrent. Specifically, the time delay setpoint for the 2C RCP overcurrent relay and the current dropout reset value for overcurrent relays on all RCPs were not set to the values in the relay setting order.

Description: At 8:59 p.m. on July 30, 2009, Unit 2 received a Sudden Pressure Relay (SPR) actuation on Station Auxiliary Transformer (SAT) 242-1. As a result, the feed breakers for SAT 242-1 and SAT 242-2 opened as designed, which de-energized 6.9 kV Busses 258 and 259. Both busses automatically transferred to Unit Auxiliary Transformers (UATs) 241-1 and 241-2. Following the transfer of Bus 258 to UAT 241-2, the 2C RCP, which is powered by Bus 258, tripped unexpectedly on overcurrent. This resulted in a Unit 2 reactor trip due to less than four RCPs running at greater than 30 percent reactor power. The reactor trip resulted in a turbine-generator trip that caused UATs 241-1 and 241-2 to become de-energized, which caused the remaining three RCPs to trip off due to loss of power to their buses. The loss of both SATs and both UATs resulted in a loss of offsite power to all Unit 2 emergency and non-emergency electrical buses. The licensee declared an Unusual Event due to a loss of offsite power greater than 15 minutes. The condition was reported to the NRC in Event Notification 45238 in accordance with 10 CFR 50.72(a)(1)(i) for declaration of the Unusual Event, 10 CFR 50.72(b)(2)(iv)(B) due to actuation of the reactor protection system while the reactor was critical, and 10 CFR 50.72(b)(3)(iv)(A) for valid actuation of the auxiliary feedwater system.

Following the reactor trip, the Unit 2 Train A and Unit 2 Train B diesel generators started and loaded 4 kV safety-related busses 241 and 242 and the Unit 2 Train A and Unit 2 Train B auxiliary feedwater pumps started, as designed. Since nonsafety-related equipment was not powered immediately following the reactor trip, operators were unable to use steam dump valves and the condenser for normal heat removal. Instead, operators were required to use a secondary method of cooling and depressurizing, which uses the auxiliary feedwater pumps to supply water to the steam generators and steam generator power operated relief valves to remove steam to the atmosphere. This process is consistent with emergency operating procedures and continued until the afternoon of July 31, 2009, when reactor coolant system pressure was low enough to place the residual heat removal system into the shutdown cooling mode.

The Unusual Event was terminated at 12:36 a.m. on August 2, 2009, when offsite power was restored to the safety-related 4 kV busses through SAT 242-2. Initial investigations by the licensee were unable to determine the cause of the SAT 242-1 sudden pressure relay actuation. Though the plant normally operates with SATs 242-1 and 242-2 tied together, each is capable of powering Unit 2 alone. Therefore, the licensee manually disconnected SAT 242-1 from SAT 242-2 and started up Unit 2 using only SAT 242-2 on August 4; Unit 2 reached full power on August 7, 2009.

The licensee initiated a Root Cause Evaluation focused on why the 2C RCP unexpectedly tripped and a separate Apparent Cause Evaluation focused on why the SPR actuated on SAT 242-1.

The 2C RCP tripped on overcurrent immediately following the automatic transfer of Bus 258. An automatic bus transfer occurs to maintain a continuous supply of power to equipment by transferring from a failed power source to a healthy power source. This is designed to occur fast enough that equipment powered by the bus being transferred continues to operate. During the bus transfer there is a period of bus “dead time” when the voltage and current phase angle on the bus begin to fall behind the power system. Once reconnected to a healthy power source there are transient effects on the bus as it is brought back into sync with the power system. There are two settings, time delay, and

dropout value, on the RCP overcurrent relays that are designed to allow the transient condition on the bus to occur and dissipate before RCPs powered from the bus would trip off. There is no regulatory requirement for periodic monitoring of these parameters and the licensee's overcurrent relay calibration procedure did not include monitoring of these parameters.

The licensee tested the time delay on the 2C RCP overcurrent relays and found that Relay PR9C tripped at 83ms, shorter than the relay setting order value of 90-110ms. The licensee checked the time delays on all remaining RCP overcurrent relays and all were within the relay setting order. The licensee also checked the dropout value for all Unit 2 RCP overcurrent relays and the PR9C relay had a dropout value of 74.69 percent, which was the lowest of all relays. For relay PR9C, the cumulative effect of the low dropout value and short time delay is that the time delay will expire sooner and, since the bus current must drop to a lower value to reset the relay, the overcurrent relay will be active for a longer period of time. The PR9C overcurrent relay on the 2C RCP saw an overcurrent condition associated with the automatic bus transfer that was not intended to be seen, which is why the 2C RCP tripped on overcurrent following the automatic transfer of Bus 258 on July 30, 2009.

Following the reactor trip, the licensee changed the dropout value on all Unit 2 RCP overcurrent relays to greater than 90 percent, a setpoint that would allow a fast bus transfer to occur successfully. The licensee has corrective action assignments to check all overcurrent relay setpoints on the Unit 1 RCPs during the next (Fall 2010) refuel outage. The licensee has also revised their procedure for calibration of overcurrent relays to include functional checks and calibration of the dropout values.

The initiator of the event was the SPR actuation on SAT 242-1, which caused the automatic bus transfer that resulted in the 2C RCP trip. The licensee's investigation ruled out an actual fault as the cause of the SPR actuation. Investigation of the SPR circuit identified a varnish build up from oil intrusion on the pigtail cable, which connected the SPR relay to a junction box. Circuit continuity checks of the pigtail cable resulted in an open condition when the segments were intact. The licensee determined that the build-up of residue on the cable from oil and water intrusion acted as an insulator, which created the appearance of an open connector that caused a spurious trip of the SPR relay. The licensee subsequently replaced the connector and repaired an oil leak on SAT 242-1 prior to returning it to service on August 21, 2009. The licensee has implemented corrective action assignments to address oil leaks on other site transformers.

Analysis: The inspectors determined that the failure to use RCP overcurrent relay dropout and time delay setpoints that could accommodate automatic bus fast transfer was a performance deficiency. The inspectors reviewed IMC 0612, Appendix B, Issue Screening, and determined the finding was more than minor because it impacted the Configuration Control attribute of the Initiating Events Cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations.

The inspectors performed a Phase 1 SDP review of this finding using the guidance provided in IMC 0609, Attachment 4, "Initial Screening and Characterization of Findings." Based on Tables 2, "Cornerstones and Functions Degraded as a Result of the Deficiency," and 3b, "SDP Phase 1 Screening Worksheet for Initiating Events, Mitigation

Systems, and Barriers Cornerstones," in IMC 0609, Attachment 4, the inspectors determined the finding was a transient initiator contributor in the Initiating Events Cornerstone. The inspectors answered 'No' to the Transient Initiators question in the Initiating Events Cornerstone Column of IMC 0609, Attachment 4, Table 4a, "Characterization Worksheet for Initiating Event, Mitigating System, and Barrier Integrity Cornerstones," and determined that the issue was of very low safety significance.

This finding is not assigned a cross-cutting aspect because it is not reflective of current licensee performance.

Enforcement: The overcurrent trip function of the RCPs is not a safety-related function and is not a function used to prevent or mitigate the consequences of postulated accidents that could cause undue risk to the health and safety of the public. Therefore, this finding does not represent a violation of regulatory requirements and enforcement action does not apply. This issue was entered into the licensee's CAP program as IR 947908. (FIN 05000457/2010003-02: Unit 2 Loss of Offsite Power Coincident with a Reactor Trip Due to Loss of 2C Reactor Coolant Pump)

This URI is closed.

.3 (Closed) Unresolved Item 05000456/2009005-01; 05000457/2009005-01: Water Found in Each Underground Cable Vault

URI 05000456/2009-005-01; 05000457/2009005-01, Water found in Each Underground Cable Vault, was opened in IR 05000456/2009005; 05000457/2009005 pending a more detail review of IR 968522 by the inspectors. This issue report documented the condition of cable vaults that were accessed as part of the installation of unrelated plant modifications. None of the cable vaults reviewed contained safety-related components but did included components related to systems scoped in the Maintenance Rule (e.g., Circulating Water, Non-Essential Service Water, and auxiliary systems.)

The cable vaults that were accessed were 1E, 1Z, 2D, 2F, 2G, 2H, 2J, and X. The licensee reported that water was found in each cable vault and at least some cables were submerged in water in each cable vault. In addition to submerged cables, personnel also observed cracking of the concrete vault walls, rusting cable trays and support structures. After notification of personnel from the Office of Nuclear Reactor Regulation and discussions with various NRC personnel and determination that the performance of the cables is being monitored by the associated Maintenance Rule system performance criteria and that the licensee has plans to place sump pumps in selected vaults.

No findings of significance were identified. This URI is closed.

.4 (Closed) Unresolved Item 05000457/2009005-04: Possible Failure to Follow Stroke Time Test Procedure

URI 0500457/2009005-04, Possible Failure to Follow Stroke Time Test Procedure, was opened in IR 05000457/2009005 based on inspector review of post-maintenance testing activities on October 27, 2009, following maintenance of valve 2SX178. The inspectors noted that the test procedure was not revised following removal of a temporary modification. If the procedure revision in effect on October 27, 2009, was

followed properly, the test results would have been different than those that were attained. As a result, the inspectors questioned whether the procedure was properly followed and the licensee initiated an Apparent Cause Evaluation (ACE) to look into testing discrepancies. Since the ACE was not completed at the end of the inspection period the inspectors opened an unresolved item.

Since the conclusion of that inspection period, the inspectors reviewed the completed ACE. The ACE identified the apparent cause of the 2SX178 post maintenance test stroke discrepancies as failure to properly notify the procedure group that the temporary modification on valve 2SX178 was removed and procedures could be changed. The inspectors concluded that procedure 2BwOSR 5.5.8.SX-1B, Revision 11, was not properly followed during the valve stroke post maintenance testing on October 27, 2009, which is a performance deficiency. However, because the valve stroke time was never outside of the acceptance criteria stroke time, as demonstrated by a subsequent properly performed valve stroke, the issue screens as a performance deficiency of minor significance in accordance with IMC 0612, Appendix B. This URI is closed.

4OA6 Management Meetings

.1 Exit Meeting Summary

On July 7, 2010 the inspectors presented the inspection results to Mr. A. Shahkarami and other members of the licensee staff. The licensee acknowledged the issues presented. The inspectors confirmed that none of the potential report input discussed was considered proprietary.

.2 Interim Exit Meetings

Interim exits were conducted for:

- Radiation monitoring instrumentation protective equipment, performance indicator under the Occupational Safety Cornerstone, and implementation of the industry ground water protection voluntary initiative program were discussed with Mr. A Shahkarami, Site Vice President on June 18, 2010.

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

4OA7 Licensee-Identified Violations

The following violations of very low safety significance (Green) were identified by the licensee and are a violation of NRC requirements which meets the criteria of Section VI.A.1 of the NRC Enforcement Policy for being dispositioned as NCVs. The details of these issues are discussed on Section 4OA5 of this report.

- Technical Specification 3.7.8, Condition C, requires that the plant be in Mode 3 within 6 hours and Mode 5 within 36 hours if the required Actions and associated completion time of Condition A or Condition B is not met. Technical Specification 3.7.8, Condition A, requires a unit specific SX train to be restored to Operable status within 72 hours in Modes 1,2,3, and 4. Contrary to the above,

on January 2, 2010 the 2A SX train had been inoperable greater than the allowed LCO outage time after the licensee discovered the 2A SX pump seal cooling hose was leaking on January 29, 2010. This issue was determined to be of very low safety significance and was entered in the licensee's CAP.

- Title 10 CFR Part 50, Appendix B, Criterion V, "Procedures," requires, in part, that activities affecting quality shall be prescribed by documented instructions or procedures of a type appropriate to the circumstances, shall be accomplished in accordance with those instructions or procedures, and acceptance criteria shall be included in instructions or procedures to determine that important activities have been satisfactorily accomplished. Contrary to the above, Braidwood Operating Procedure (BwOP) RH-4, "Draining the RH System," Revisions 20 and 22, did not adequately control vent and drain valves during the on line draining of the RH system. This finding was determined to be of very low safety significance and was entered into the CAP.

ATTACHMENT: SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

A. Shahkarami, Site Vice President
L. Coyle, Plant Manager
K. Aleshire, Emergency Preparedness Manager
L. Antos, Security Operations Manager
K. Appel, Corporate Emergency Preparedness Manager
G. Bal, Engineering Program Manager
S. Butler, Emergency Preparedness Manager
B. Casey, Engineering Programs
P. Daly, Radiation Protection Manager
R. Gadbois, Maintenance Manager
G. Galloway, Work Control Manager
R. Gaston, Regulatory Assurance Manager
J. Knight, Nuclear Oversight Manager
T. McCool, Maintenance Director
J. Moser, Radiation Protection Manager
J. Odeen, Project Management Manager
T. Schuster, Chemistry/Environ Manager
J. Smith, Exelon Asset Manager
M. Smith, Engineering Manager

Nuclear Regulatory Commission

R. Skokowski, Chief, Reactor Projects Branch 3

LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

Opened

05000456/2010003-01; 05000457/2010003-01	URI	Degraded Condition of Reactor Head Vent Valves (Section 1R12.1)

Closed

05000456/2009-002-01	LER	Safety Injection System Containment Sump Isolation Valve 1SI18811B Failed to Stroke Full Open due to Torque Switch Assembly Corrosion (Section 4OA3.1)
05000457/2009-003-00	LER	Drain Procedure for ECCS Suction Line Creates an Unanalyzed Condition Due to Inadequate Configuration Requirements (Section 40A3.2)
05000457/2010-001-00	LER	Essential Service Water Pump 2A Braided Hose Failure Resulted in a Condition Prohibited by TS (Section 4OA3.3)

05000457/2009004-04	URI	Unit 2 Loss of Offsite Power Coincident with a Reactor Trip Due to Loss of 2C Reactor Coolant Pump (Section 4OA3.4)
05000456/2009005-01; 05000457/2009005-01	URI	Water Found in Each Underground Cable Vault (Section 4OA3.5)
05000457/2009005-04	URI	Possible Failure to Follow Stroke Time Test Procedure (Section 4OA3.6)

LIST OF DOCUMENTS REVIEWED

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

1R01 Adverse Weather Protection

- IR 1011990; Install Cooling Mechanical Seal Cooling Line on 1GC01PA; January 4, 2010
- IR 1012163; Contingency to Isolate 1SD01PA – Summer Readiness; January 4, 2010
- IR 1012165; Contingency to Isolate 1SD01PB – Summer Readiness; January 4, 2010
- IR 1013752; IEMA Concern with Cold Weather Preparations Procedure; January 7, 2010
- IR 1014634; 2B CW Pump Traveling Screens – Instrument Calibrations; December 15, 2009
- IR 1015024; 0WO01PB Equip Bed Coating Has Failed – Needs Recoating; January 7, 2010
- IR 1015025; 0WO01PA Pump Bed Plate Coating Has Failed and Needs Repair; January 7, 2010
- IR 1015378; Elevated Temperature in MCC 2AP30E, Cubicle B5 Breaker Lead; January 11, 2010
- IR 1016757; Hydra Motor Actuator Exceeded Stroke Value – 2TZ-VE003B; January 14, 2010
- IR 2027358; Issues Identified During the Operations Status 49 Report; January 16, 2010
- IR 1022168; 2C HD Pump Shaft Vibration Steadily Trending Up – 2HD01PC; January 27, 2010
- IR 1023232; UAT 141-1 – Low Oil Level – 1AP01E
- IR 1023236; UAT 241-1 – Low Oil Level – 2AP01E
- IR 1024819; Need Action Plan for Repair on Cumulative Issues on TSC HVAC; July 12, 2010
- IR 1029769; TCCPS 375332 and 376285 Close Out Issues; February 12, 2010
- IR 1030972; Site Support Needed for Summer Readiness Issue; February 16, 2010
- IR 1032502; 0AP20E “C” Phase Cooling Fan Not Running; February 18, 2010
- IR 1041441; Training: OPS SRO Missed LORT – Illness; March 11, 2010
- IR 1041461; 2SX147A AOV Work in 4/19 Week Required Reschedule – Parts; March 11, 2010
- IR 1050512; Need engineering Evaluation for Repair of 2VT02C; March 31, 2010
- IR 1058383; Summer Readiness Work Not Completed as Scheduled; April 19, 2010
- IR 1065740; Summer Readiness WO 1284364-01 Not Resolved to Continue Work; May 5, 2010
- IR 1075586; Summer Readiness Work not Complete
- IR 1077491; Entry into 0BwOA ENV-1, 1BwOA Env-1, and 2BwOA Env-1; June 5, 2010
- EN-BR-402-0005; Extreme Heat Implementation Plan; Revision 1
- EN-BR-402-0005; Extreme Heat Implementation Plan; Revision 3
- OP-AA-108-107; Switchyard Control; Revision 2
- OP-AA-108-107-1001; Station Response to Grid Capacity Conditions; Revision 2
- OP-AA-108-107-1001; Station Response to Grid Capacity Conditions; Revision 3
- OP-AA-108-107-1002; Interface Procedure Between ComEd/PECO and Exelon Generation (Nuclear/Power) for Transmission Operations; Revision 4
- OP-AA-108-107-1002; Interface Procedure Between ComEd/PECO and Exelon Generation (Nuclear/Power) for Transmission Operations; Revision 5
- 0BwOA ELEC-1; Abnormal Grid Conditions Unit 0; Revision 6
- 0BwOA ELEC-1; Abnormal Grid Conditions; Revision 7

- 0BwOA ELEC-1; Grid Conditions Unit 0; Revision 8
- 0BwOA ENV-1; Adverse Weather Conditions Unit 0; Revision 105
- 0BwOA ENV-1; Adverse Weather Conditions Unit 0; Revision 106
- 0BwOA ENV-1; Adverse Weather Conditions Unit 0; Revision 107
- 0BwOA ENV-3; Braidwood Cooling Lake Low Level, Revision 101
- 0BwOA ENV-5; Low Flow in the Kankakee River; Revision 103
- 1BwOA ENV-1; Adverse Weather Conditions Unit 1; Revision 5
- 2BwOA ENV-1; Adverse Weather Conditions Unit 2; Revision 5
- BwOP MP-26; Supplemental Main Power Transformer Cooling; Revision 0
- 0BwOS XHT-A1; Unit Common High Temperature Equipment Protection Surveillance; Revision 2
- 0BwOS XHT-A1; Unit Common High Temperature Equipment Protection Surveillance; Revision 15
- BwOP MP-26; Supplemental Main Power Transformer Cooling; Revision 1
- 2010 – Braidwood Certification Letter for Summer Readiness

1R04 Equipment Alignment

- BwOP DG-E4; Electrical Lineup – Unit 2 2B Diesel Generator; Revision 7
- BwOP DG-M4; Operating Mechanical Lineup Unit 2 2B DG; Revision 14
- BwOP SX-14, SX Train A/B Cross-Tie, Revision 2
- BwOP SX-E1, Electrical Lineup Unit 1 Essential Service Water System Operation, Revision 7
- BwOP SX-M1, Operating Mechanical Lineup Unit 1, Revision 25
- BwOP DG-E3, Electrical Lineup – Unit 2 2A Diesel Generator; Revision 7
- BwOP DG-M3, Operating/Mechanical Lineup Unit 2 2B DG, Revision 14

1R05 Fire Protection

- Braidwood Station Pre-Fire Plans; Control Room – Elevation 451”-0”; 1D-75
- Braidwood Station Pre-Fire Plans; Unit 2 Diesel Drivel Auxiliary Feedwater Pump – Elevation 383’-0”; 1S-41
- Braidwood Station Pre-Fire Plans, AB Radwaste & Remote Shutdown Panel; FZ11
- Braidwood Pre-Fire Plan Map; Figure 2..3-8; Main floor at El. 451”-0”; Sheets 1 and 4
- Braidwood Pre-Fire Plan Map; Figure 2.3-13; Floor Plan El. 383”-0”; Sheet 1
- Drawing 20E-0-3772; Lighting Auxiliary Building Control Room Plan El. 451”-0”; March 5, 1993
- Drawing 20E-0-3772A; Lighting Auxiliary Building Control Room Reflected Ceiling Plan; June 27, 1977
- OP-AA-201-2002; Fire Event Report Dated 5/17/2010
  IR 1069907, Fire in OWX04J Valve Status Light Socket

1R11 Licensed Operator Requalification Program

- LORT Simulator Exam, June 1, 2010

1R12 Maintenance Effectiveness

- BwOP SI-11, Fill and Vent of SI Accumulator, Revision 15
- BwOP RC-15, Reactor Head Vents, Revision 9
- BwOP RC-22, Reactor Head Vent Cycling Operations
- IR 1081318, NRC Concerns on SI8811 Local Actions

- EQ-GEN040; Braidwood Station Justification and Analysis (Valcor Solenoid Valves); Revision 3B
- ER-AA-310; Implementation of the Maintenance rule; Revision 8
- BwAP 1340-5T3, Vendor Manual (2928) Solenoid Valves, Revision 0
- NRC Part 9900 Technical Guidance, Maintenance – Preconditioning of Structures , Systems, and Components Before Determining Operability, Issue Date September 9, 1998
- Technical Requirements Manual, TRM Discussion of Changes- TRM Sec. 3.4, Revision B Markup
- Technical Specification Bases, Reactor Coolant System, Amendment No. 89
- Technical Specification, Reactor Coolant System, Amendment No. 89
- Technical Requirements Manual, TRM Sec. 3.4, Revision 37
- NUREG 0737, Clarification of TMI Action Plan Requirements, November 1980
- 1BwFR-H.1, Response to Loss of Secondary Heat Sink Unit 1, Revision 202
- 1BwFR-C.1, Response to Inadequate Core Cooling Unit1, Revision 200
- BwAR 1-14-E4, RX head Vent Temperature High, Revision 5E2
- Expert Panel Meeting Minutes, Reactor Coolant, July 24, 2000
- Expert Panel Meeting Minutes, Reactor Coolant, April 15, 1999
- Expert Panel Meeting Minutes, Reactor Coolant, May 6, 1999
- IR 915503; NOS IDS Long Standing Degraded RX Head Vent Valve Issues, May 4, 2009
- WO 1099722 01; OP RC Valve Stroke Test (Tech Spec for Head Vent FLW Verification), April 15, 2009
- WO 528957-01; Fab and Install Valve Assembly- Contingency A1R15
- OWA Aggregate Review Report, 4th Quarter 2009
- C/O 733307, 1RC014A Reactor Vessel Head Vent Valve (A1R14) Adjust Limit Switches for Proper Identification, April 16, 2009
- 1BwOSR 5.5.8.RC-1, Reactor Coolant System Valve Stroke and Indication Test Surveillance, Rev 2
- 1BwOS TRM 3.4.e.2, Reactor Head Vent Path Valve Cycle Surveillance, Revision 1
- W/O 007944914; RX Head Vent VLV Cycle 18 Month Surveillance, April 30, 2006
- W/O 00920322; RX Head Vent VLV Cycle 18 Month Surveillance, October 22, 2007
- WO 00748261 01; OP RC Valve Stroke Test (Tech Spec for Head Vent FLW Verification), April 30, 2006
- W/O 01076439; RX Head Vent VLV Cycle 18 Month Surveillance, April 16, 2009
- WO 00917744 01; OP RC Valve Stroke Test (Tech Spec for Head Vent FLW Verification), October 22, 2007
- 1BwOP RC-15, Reactor Head Vent, Revision 9
- ER-AA-310-1103, Maintenance Rule- Performance Criteria Selection, Revision 3
- ER-AA-310-1104, Maintenance Rule- Performance Monitoring, Revision 8
- IR 901419; 1RC014A Closed Light Went Out When 1RC014B Stroked (DUP), April 1, 2009
- IR 920417; 1RC014A Stroked Too Slow –Limit Switch, April 14, 2009
- IR 915503 03; Rx Head Vent Valves, August 11, 2009
- IR 1064922; 2RC014C Shows Dual at 2PM11J; May 3, 2010
- IR 331722; 2RC014 Head Vent Valve Package Active RCS LKG. Borated, October 23, 2004
- IR 266402; External Leakage (1RC014 Sol. VA. Assemblies), October 23, 2004
- IR 695907, NRC ID'D Question W/ Past Operability in IRS 678641/ 687349, November 7, 2007
- IR 774791; Insulation. Between RX Head Vent Valves 2RC14A/C & 2RC14B/D Missing, May 12, 2008
- IR 265533; 1RC014A Indicates Dual When Stroked, November 19, 2004
- IR 265561; 1RC014D Open Light Indication Does Not Work, November 20, 2004

- IR 985692; 2RC014A Has Dual Indication in the Closed Position, October 28, 2009
- IR 953224; IR 915503 Says Replace 1RC014A in A1R15, August 13, 2009
- IR 901386; Light Indication Lost While Attempting to Close 1RC014A, April 1, 2009
- IR 1022011; Equipment Status Tag (EST) Review for OWA; January 27, 2010
- IR 480439; 1FSV-RC014A RX Head Vent Does Not Indicate Closed, April 18, 2006
- IR 678641; 1RC014A Slow to Indicate Full Open at PM11J, October 2, 2007
- IR 920417; 1RC014A Stroked Too Slow- Limit Switch, April 14, 2009
- IR 687349; 1FSV-RC014A Slow to Operate, Maybe Unreliable, October 2, 2007
- IR 255770; Need ENG Review of New Qual. Report For 1RC014A-D VLVS, September 22, 2004
- NUMARC 93-01; Industry Guideline For Monitoring The Effectiveness of Maintenance at Nuclear Power Plants, Revision 2

1R13 Maintenance Risk Assessments and Emergent Work Control

- IR 0217097; OE18158 – 250 Volt Battery Electrical Arc Indent; April 27, 2004
- IR 1026764; FME Event – Debris Inside DC Battery 111 Cell 19 – 1C01E; February 6, 2010
- IR 1026766; FME Event – Debris Found in DC Battery 211 Cell 9; February 6, 2010
- IR 1026767; Corrosion on 2DC01E; February 6, 2010
- IR 1044098; CDBI: NRC Identified Concern with Timeliness of Maintenance; March 17, 2010
- IR 1045496; FME Event – Specks in Some Cells – 1DC07E; March 21, 2010
- IR 1046483; High Total Inter-Cell Resistance; March 23, 2010
- IR 1046518; Acceptance Criteria Exceeded and not Noted in Surveillance; March 23, 2010
- IR 1046538; Data Table Missing in Tech Spec Surveillance; March 23, 2010
- IR 1049036; Battery Charger Timer Not Working; March 28, 2010
- IR 1050521; Revise EMD Procedures; March 31, 2010
- IR 1051684; NRC Question on Protected Equipment; April 2, 2010
- IR 1054412; Evidence of Corrosion on ESF Battery Bank 212 – 2DC02E; April 9, 2010
- IR 1058982; Recurring Identification of Battery Corrosion; April 25, 2010
- IR 1057333; Debris Found in Battery 212 Cells – 2DC02E; April 16, 2010
- IR 1057500; 2DC02E – Jar Lid Cracks; April 16, 2010
- IR 1057848; Debris found in Battery 111 Cells; April 17, 2010
- IR 1059147; 2HD01PC Start-up Issues at Mechanical Seal Area; April 20, 2010
- IR 1060808; Admin Limits on 1DC02E Quarterly Surveillance Exceeded; April 23, 2010
- IR 1060809; Battery 112 Welded Lead During Quarterly Surveillance; April 23, 2010
- IR 1061031; 2A CV PP Outboard Seal Leakage has Increased; December 25, 2009
- IR 1061336; Question Regarding Application of Tech Spec Table 1.1-1; April 25, 2010
- IR 1061354; U1 FW PP Suction Dissolved Oxygen Meter Reads Erratic; April 26, 2010
- IR 1061527; 26 B Normal Level controller Erratic – 2LC-HD142; April 26, 2010
- IR 1061610; NOS ID: Equipment Oil Additions Were Logged Without Quantity; April 26, 2010
- IR 1061623; 1A DG Fuel Oil Tubing Inconsistencies; April 26, 2010
- IR 1061624; 1B DG Fuel Oil Tubing Inconsistencies; April 26, 2010
- IR 1061626; 2A DG Fuel Oil Tubing Inconsistency; April 26, 2010
- IR 1051628; 2B DG Fuel Oil Inconsistency; April 26, 2010
- IR 1061671; Closure Actions of IR 1001692 Do Meet Intent of IR; April 26, 2010
- IR 1061673; Security Radio in CAS Out of Service; April 26, 2010
- IR 1061713; 04JZ Explosive Detector Failed After Testing; April 26, 2010
- IR 1061716; EWS ST 112 in Solid Alarm; April 26, 2010
- IR 1061787; Dropped Relay Target on 4KV Bus 243; April 27, 2010
- IR 1064918; Unit 1 SX Discharge Header Pressure Low Alarm; May 3, 2010

- IR 1065476; Security Near Miss – Incorrect OSX Valve Pit Almost Accessed; May 4, 2010
- BwAR 1-2-A2; SX Pump Discharge Header Pressure Low; Revision 7
- 0BwOA PRI-9; Auxiliary Building flooding; Revision 4
- BwOP CV-27; CV Valve Bypass Operations; Revision 2
- BwOP SX-1; Essential Service Water Pump Startup; Revision 14
- 1BwOSR 3.5.5.1; Unit One RCS Seal Injection flow Surveillance; Revision 7a
- 1BwOSR 3.8.6.1-1; Unit 1 125V DC ESF Battery Bank and Charger 111 Operability Surveillance; Revision 8
- 1BwOSR 3.8.6.5-2; Unit 1 125V Dc ESF Battery Bank 112 Operability Surveillance; Revision 6
- ER-AA-2006; Lost Parts Evaluations; Revision 6
- MA-AA-716-008; Foreign Material Exclusion Program; Revision 4
- OP-AA-108-111; U2 RH System Elevated Pressure; Revision 6
- OP_BR-108-101-1002; Operations Department Standards and Expectations; Revision 13
- WO 1280101 01; 125 VDC ESF Battery 112 Quarterly Surveillance; January 21, 2010
- WO 1284690 01; U1 125 VDC ESF Battery Bank 111 Operability Quarterly Surveillance; February 8, 2010
- WO 1295904 01; U2 125V DC ESF Battery 212 Quarterly Surveillance; March 20, 2010
- WO 1299633 01; 125V DC EST Battery 211 Quarterly Surveillance; February 6, 2010
- WO 1307953 01; EM 3D Corrosion Noted on Cells 1, 23, 25, 40, 43, and 45 ESF Battery 211 Assembly; February 8, 2010
- WO 1308615 01; U1 125 Volt DC Battery Bank and Charger 111 Operability – Weekly; February 13, 2010
- WO 1308622 01; U2 125V DC Battery Bank and Charger 211 Operability Weekly Surveillance; February 13, 2010
- WO 1312217 01; U2 125V DC Battery Bank and Charger 211 Operability Weekly Surveillance; February 27, 2010
- WO 1312210 01; U1 125V DC Battery Bank and Charger 111 Operability – Weekly ; February 27, 2010
- WO 1315905 01; U1 125VDC Battery Bank and Charger 111 Operability Weekly Surveillance; March 13, 2010
- WO 1315914 01; U2 125V DC Battery Bank and Charger 211 Operability Weekly Surveillance; March 13, 2010
- WO 1322556 01; U1 125 Volt DC Battery Bank and Charger 111 Operability – Weekly; April 3, 2010
- WO 1322563 01; U2 124V Dc Battery Bank and Charger 211 Operability Weekly Surveillance; April 3, 2010
- WO 1324885 01; U1 125 Volt DC Battery Bank and Charger 111 Operability – Weekly; April 10, 2010
- WO 1324892 01; U2 125V DC Battery Bank and Charger 211 Operability Weekly Surveillance; April 10, 2010
- WR 327314; ESF Battery 211 Assembly; February 6, 2010
- EC 37042; SX Valves at LSH Fore-Bay are Open to Supply Water
- Technologies, Inc. letter to Byron Station; Subject: LCUN-33 Jar Cover Hairline Cracks; November 2, 2006
- Technologies, Inc. letter to Braidwood Station; Subject: Battery Cover Cracking; March 11, 2010
- RS-1476, Section 12-800; CD Technologies, Inc. Standby Battery Vented Cell Installation and Operating Instructions
- WC-MW-114; 1BwOSR 3.5.5.1; Unit One RCS Injection Flow Surveillance
- 1R15 Operability Evaluations

- 2A RH Pump Work Window – April 2010; 2SI8811A Electrical Work and Votes Testing, 2CC9412A Electrical Work
- Performance Criteria for Maintenance Rule Systems; - SX1; Filtered Cooling for Essential Equipment
- Scoping/Risk significance – Summary Report; May 5, 2010

1R15 Operability Evaluations

- IR 1008368; UT Examination Results Performed on 1SI06BA-24"; December 21, 2009
- IR 1037788; UT Examination Results Performed on 1SI06BA and 1SI06BB; March 2, 2010
- IR 1066847; High Levels in 1A & 1C SI Accumulator; May 7, 2010
- IR 1069892; Are Chem. Techs the Right Choice to Lower SI Accumulators; May 16, 2010
- IR 1072048, Potentially Non-Conservative Degraded Voltage Time Delay
- OP-AA-108-111; U1 SI Accumulator Levels; May 8, 2010; Revision 6
- OP-AA-108-111 Attachment 1; Elevated Pressure at the Discharge of the 1A/1B SI Pumps; May 6, 2009; Revision 5
- GL 2008-01; Managing Gas Accumulation In Emergency Core Cooling, Decay Heat Removal, And Containment Spray Systems; January 11, 2008

1R19 Post Maintenance Testing

- IR 1003301; 1A DG Alarm Unexpectedly Cleared/Reflashed – 1FS-SX144
- IR 1053133; Contingency EC Required for Control Rod J13 During A1R15; April 6, 2010
- IR 1053220; Elevated Temperature on Line 2003 A Phase Disconnect; April 6, 2010
- IR 1053223; Elevated Temperature Seen in A Line 0104 Expansion Joint; April 6, 2010
- IR 1053236; Functional Test of VB 5 Warranted; April 6, 2010
- IR 1053246; VD Supply Fan Motor Shaft Key Length Discrepancy; April 6, 2010
- IR 1053285; 2A DG Exhaust rocker Arms Did Not Operate Smoothly; April 6, 2010
- IR 1053304; 1SI887A Leaked By While Filling Other SI Accumulator; April 6, 2010
- IR 1053319; 1B DG Has a Small Oil Leak Where the Right Side Air Manifold; April 7, 2010
- IR 1053320; 1B DG Has a Small Oil Leak Where the Left Side Air Manifold; April 7, 2010
- IR 1053322; 1B DG Has a Small Oil Leak Where the Right Side Air Manifold; April 7, 2010
- IR 1053323; 1B DG Has a Small Oil Leak Where the Left Side Air Manifold; April 7, 2010
- IR 1053325; 1B DG Has a Small Oil Leak Where the Sift Side Air Manifold; April 7, 2010
- IR 1053355; 2A DG Temp Repairs Incomplete; June 6, 2008
- IR 1054433; 2A DG Unit Available for Emergency Light Not Lit – 2DG01KA; April 9, 2010
- IR 1054463; 2A DG Tripped During Testing – 2DG01KA; April 9, 2010
- IR 1054483; Lessons Learned, Governor Booster Modification; April 9, 2009
- IR 1054933; 2A DG Governor Response is not as Expected – 2DG01KA; April 10, 2010
- IR 1055562; 2A DG Turbo Inlet Temp Above Admin Limit During Monthly Run; April 12, 2010
- IR 1075787; Oil Found in the Motor Windings of 1HD01PB; June 1, 2010
- IR 1078125; Muster Missed Due to Member Leaving Site Health Related; June 8, 2010
- IR 1078132; 1CW01PA Pump Bowl Needs Temp PP for Norm Ops; June 8, 2010
- IR 1078135; Excessive Water in 2CW01PB Bowl; June 8, 2010
- WO 01173470 01; 1HD01PB-M Perform Static Baker Testing of AC Motors; June 6, 2010
- WO 01282923 01; 1HD01PB C/S Very Hard to Place in PTL or NAT from PTL; June 4, 2010
- WO 01300150 01; MM Inspect Sleeve on 1HD01PB Prior to Summer; June 8, 2010
- WO 01300150 05; MM Inspect Sleeve on 1HD01PB Prior to Summer; May 29, 2010
- WO 01300150 06; MM Inspect Sleeve on 1HD01PB Prior to Summer; June 8, 2010
- WO 01300150 16; MM Inspect Sleeve on 1HD01PB Prior to Summer; June 11, 2010

- WO 01300150 17; MM Inspect Sleeve on 1HD01PB Prior to Summer; June 1, 2010
- WO 01315865 01; IST – For 1SX002A – ASME Surveillance Requirements for 1A Essential Service Water Pump; June 10, 2010
- BwOP HD-1; Heater Drain system Startup; Revision 25
- 1BwOSR 5.5.8.SX-3A; Group A IST Requirements for 1A Essential Service Water Pump (1SX01PA); Revision 0
- MA-AA-716-004; Complex Troubleshooting Data Sheet – April 11, 2010 at 0530 Hours (IR 1054933); Revision 10
- OP-AA-101-113-1004; Equipment Issue Braidwood; 2A DG Governor Response is not as Expected (IR 1054933); Revision 17

1R22 Surveillance Testing

- IR 0986671; 2 CV01PA Outboard Seal Has A Small Leak; October 30, 2009
- IR 0989995; 2CV01PA Outboard Seal Fitting Leakage; November 6, 2009
- IR 0993254; 2A CV Pump leakage POD followup; Novembeer 13, 2009
- IR 1009283; December 25, 2009
- IR 1010692; 2A CV Pump Seal Leak Sample Results' December 30, 2009
- IR 1061031; 2A CV PP Outboard Seal Leakage Has Increased; December 25, 2009
- IR 1049419; Procedure Enhancements Needed for 0BwOS FP.3.3.E-12; March 29, 2010
- IR 1076284, NRC Question in Regard to Battery Charger 212
- OP-AA-108-11; 2A CV Pump Seal Leakage; Revision 5
- BwOP RH-2; Securing the RH System from Recirculation-ion; Revision 11
- BwOP RH-5; RH System Startup for Recirculation; Revision 22
- 0BwOS FP.3.3.E-12; 0B Fire Pump NFPA Test; Revision 6
- 1BwOSR 5.5.8.RH-5B; Group A IST Requirements for Residual Heat Removal Pump 1RH01PB; Revision 3
- HU-AA-101; Human Performance Tools and Verification Practices; Revision 4

RSO5 Radiation Monitoring Instrumentation

- LS-AA-126-1005; Check-In-Self-Assessment; Radiation Monitoring Instrumentation; April 15, 2010
- BwVP-RM80-3-0PR02; Data Base File Sheet for Gas Decay Tank Effluent; Monitor Type P.G.; Assembly Number; EPN: 0RT-PR002; January 13, 1998
- BwVP-RM80-3-1PR15; Data Base File Sheet; RHR-HX-1A Cubicle; Monitor Type: P.G.; Assembly Number 058-1801; EPN: 1RT-PR015; June 11, 1997
- BwVP-RM80-3-2PR28; Data Base File Sheet; Auxiliary Building Vent Stack Effluent; Monitor Type: PIGG; Assembly: 0358-2102; EPN: 2RT-PR028; Revision 7
- BwVP-RM80-3-1AR22; Data Base File Sheet; Main Steam Line Monitor; Monitor Type: Area; Assembly No.: 0358-3921; EPN: 1RT-AR022; January 17, 2000
- BwVP-RM80-3-1PR28; Data Base File Sheet; Auxiliary Building Vent Stack Effluent; Monitor Type: PIGG; Assembly No.: 0358-2101; EPN: 1RT-PR028; June 11, 1997
- Gamma Mixed Source for Small Article Monitor Smear Check Source; February 04, 2010
- RP-BR-802: Operation and Use of the Shepherd Model 89 Shielded Calibrator; Revision 15
- RP-BR-712; Operation and Calibration of Ionization Chamber Survey Instruments; Revision 08
- RP-BR-730; Operation and Verification of Counting Efficiencies for GM Type Contamination Survey Instruments; Revision 6
- RP-BR-728; Operation and Calibration of the Model Small Article Monitor-9/11 Small Articles Monitor; Revision 15

- RP-AP-900; 1/2RE-PR027 Steam Jet Air Ejector/Gland Steam Exhaust Set-Point Change; Revision 02
- RP-BR-224; Routine Operation of the Permanent Fastscan Whole Body Counter; Revision 01
- RP-BR-920; AR/PR Setpoint Changes; Revision 0
- BwVP-RM80-3-0PR31; Data Base File Sheet; Control Room Outside Air Intake A; Monitor Type: PIG; Assembly No. 0358-1401
- IR 01082508; Follow-ups on Alarm Set-points Justification for Area Radiation Monitors and Process Radiation Monitors at Braidwood; June 18, 2010
- IR 00990471; 14 days Time Clock has Expired; all Liquid Releases Must be Terminated and a Special Report must be Submitted per Offsite Dose Calculation Manual Actions; November 11, 2009
- IR No. 01044819; Unit-1 WRGM Computer Points have Bad Input; March 14, 2010
- !R No. 01014578; Unexpected Alarm OPR32J went into Alert and Then Tripped on High Pressure; January 10, 2010
- IR 01015683; OPR-32J Pump was Plugged; Rad Skid Tripped on Low Flow; January 12, 2010
- IR 01056040; Notification Issues by Ops for Compensatory Actions Taken by Chemistry Associated with Liquid Release Tank Rad Monitor; April 13, 2010
- IR 01070862; 1PR28J Particulate Channel Indicated RED Following a Restart after Filter Change; May 19, 2010
- IR 01056827; Trouble shoot 2PR01J Skid Particulate Channel Containment Effluent Monitor due to Spurious Alarms; April 15, 2010
- IR 00948696 CW Blow-down Effluent Communication Alarm Failure; August 02, 2009
- IR 00914486; Auxiliary Building Vent Stack Effluent Radiation Monitor Pressure Switch was Found of Tolerance; April 30, 2009
- IR 01077449; 0PR60J TSC Radiation Monitor Spiking due to Power Supply Problems; June 05, 2010
- IR 10069088; Lost RM-11 Communication Radiation Monitor; May 13, 2010

4OA1 Performance Indicator Verification)

- PI Summary Paperwork for Reactor Coolant System Activity for Braidwood Unit-1 and Unit -2 from First Quarter 2009 through the First Quarter 2010

4OA2 Identification and Resolution of Problems

- Braidwood Substantive Crosscutting Issue in Decision-Making Improvement Plan

4OA3 Event Follow-up

- IR 1014772; Perform ACE for 2SX17B Testing/Closeout Discrepancies. Re-opened for MRC Feedback and Update for Licensing; February 11, 2010
- IR 1085764, LER 2009-002-01 for U1 Contained Typo - Supplement
- BwAP 1100-16; Fire/Hazardous Materials Spill and/or Injury Response
- BwOP AP-56; With SAT 242-1 Isolated, Isolate SAT 242-2 and Restore SAT 242-1 With Unit 2 UAT Energized; Revision 7
- 2BwOSR 3.8.1.2-2; 2B Diesel Generator Operability Surveillance; Revision 25
- Requalification Simulator Scenario Guide #1-31; Normal Operations/CV Pump Trip/SG Tube Leak/Fast Ramp/Multiple Dropped Rods; April 19, 2010
- Tag 2RH01OB-M 77732 001; First Hang - Motor 2B RHR Pump, OPS Drain & Fill Per BwOP RH-4

- Tag 2RH01OB-M 77732 001; Final Clear - Motor 2B RHR Pump, OPS Drain & Fill Per BwOP RH-4
- Drawing M-61; Diagram of Safety Injection Unit 1; July 19, 1976
- Drawing M-62; Diagram of Residual Heat Removal; May 5, 1976

4OA5 Other Activities

- IR 1022979; 2A SX PP Cooling Water Leak on HP Braided Hose – 2SX01PA
- NEI 0707: Ground water Protection Initiative: NEI Peer Assessment Report; February 10, 1910
- NEI 0707 Corrective Actions Matrix
- Exelon – Braidwood Station – Rain Study; October 2007

LIST OF ACRONYMS USED

AC	Alternating Current
ACE	Apparent Cause Evaluation
ADAMS	Agencywide Document Access Management System
ASME	American Society of Mechanical Engineers
CAP	Corrective Action Program
CFR	Code of Federal Regulations
DG	Diesel Generator
IMC	Inspection Manual Chapter
IP	Inspection Procedure
IR	Issue Report/Inspection Report
LCO	Limiting Condition for Operations
LER	Licensee Event Report
LOCA	Loss of Coolant Accident
NCV	Non-Cited Violation
PI	Performance Indicator
PARS	Publicly Available Records
RCP	Reactor Coolant Pump
SAT	Station Auxiliary Transformer
SDP	Significance Determination Process
SI	Safety Injection
SPR	Sudden Pressure Relay
SX	Essential Service Water
TS	Technical Specification
TSO	Transmission System Operator
UAT	Unit Auxiliary Transformers
UFSAR	Updated Final Safety Analysis Report
URI	Unresolved Item
WO	Work Order

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Sincerely,

/RA by Bruce L. Bartlett for/

Richard A. Skokowski, Chief
Branch 3
Division of Reactor Projects

Docket Nos. 50-456; 50-457
License Nos. NPF-72; NPF-77

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Letter to M. Pacilio from R. Skokowski dated July 29, 2010.

SUBJECT: BRAIDWOOD STATION, UNITS 1 AND 2 NRC INTEGRATED INSPECTION REPORT 05000456/2010003; 05000457/2010003

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