



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

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

May 15, 2008

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

**SUBJECT: BRAIDWOOD STATION, UNITS 1 AND 2 NRC INTEGRATED INSPECTION
REPORT 05000456/2008002; 05000457/2008002**

Dear Mr. Pardee:

On March 31, 2008 the U.S. Nuclear Regulatory Commission (NRC) completed an integrated inspection at your Braidwood Station, Units 1 and 2. The enclosed report documents the inspection results, which were discussed on April 10, 2008, with Mr. B. Hanson 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 NRC-identified finding of very low safety significance was identified. The finding involved a violation of NRC requirements. In addition, one licensee identified violation which was determined to be of very low safety significance is listed in this report. Because of the very low safety significance, and because these issues were entered into your corrective action program, the NRC is treating these 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.

C. Pardee

-2-

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/

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 05000456/2008002; and 05000457/2008002
w/Attachment: Supplemental Information

cc w/encl: Site Vice President - Braidwood Station
Plant Manager - Braidwood Station
Regulatory Assurance Manager - Braidwood Station
Chief Operating Officer and Senior Vice President
Senior Vice President - Midwest Operations
Senior Vice President - Operations Support
Vice President - Licensing and Regulatory Affairs
Director - Licensing and Regulatory Affairs
Manager Licensing - Braidwood, Byron and LaSalle
Associate General Counsel
Document Control Desk - Licensing
Assistant Attorney General
Illinois Emergency Management Agency
J. Klinger, State Liaison Officer
Chairman, Illinois Commerce Commission

C. Pardee

-2-

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,

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 05000456/2008002; and 05000457/2008002
w/Attachment: Supplemental Information

cc w/encl: Site Vice President - Braidwood Station
Plant Manager - Braidwood Station
Regulatory Assurance Manager - Braidwood Station
Chief Operating Officer and Senior Vice President
Senior Vice President - Midwest Operations
Senior Vice President - Operations Support
Vice President - Licensing and Regulatory Affairs
Director - Licensing and Regulatory Affairs
Manager Licensing - Braidwood, Byron and LaSalle
Associate General Counsel
Document Control Desk - Licensing
Assistant Attorney General
Illinois Emergency Management Agency
J. Klinger, State Liaison Officer
Chairman, Illinois Commerce Commission

DOCUMENT NAME: G:\Brai\BWD 2008 002.doc

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

| | | | | | | | |
|--------|----------------|--|--|--|--|--|--|
| OFFICE | RIII | | | | | | |
| NAME | RSkokowski.dtp | | | | | | |
| DATE | 05/15/08 | | | | | | |

OFFICIAL RECORD COPY

Letter to C. Pardee from R. Skokowski dated May 15, 2008

SUBJECT: BRAIDWOOD STATION, UNITS 1 AND 2 NRC INTEGRATED INSPECTION
REPORT 05000456/2008002; 05000457/2008002

DISTRIBUTION:

RAG1

TEB

MMT

RidsNrrDirslrib

MAS

KGO

JKH3

RML2

SRI Braidwood

DRPIII

DRSIII

CAA1

LSL (electronic IR's only)

C. Pederson, DRP (hard copy - IR's only)

PLB1

TXN

ROPreports@nrc.gov (inspection reports, final SDP letters, any letter with an IR number)

U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket Nos: 50-456; 50-457

License Nos: NPF-72; NPF-77

Report No: 05000456/2008002 and 05000457/2008002

Licensee: Exelon Generation Company, LLC

Facility: Braidwood Station, Units 1 and 2

Location: Braceville, IL

Dates: January 1 through March 31, 2008

Inspectors: S. Ray, Senior Resident Inspector
G. Roach, Resident Inspector
A. Garmoe, Reactor Engineer
D. Betancourt, Reactor Engineer
P. LaFlamme, Reactor Engineer
M. Mitchell, Health Physics
N. Shah, Reactor Engineer
M. Perry, Resident Inspector,
Illinois Department of Emergency Management

Observers: A. Shaikh

Approved by: R. Skokowski, Chief
Branch 3
Division of Reactor Projects

Enclosure

TABLE OF CONTENTS

| | |
|---|----|
| SUMMARY OF FINDINGS | 1 |
| Summary of Plant Status..... | 2 |
| 1. REACTOR SAFETY | 2 |
| 1R01 Adverse Weather Protection (71111.01) | 2 |
| 1R04 Equipment Alignment (71111.04)..... | 2 |
| 1R05 Fire Protection (71111.05) | 4 |
| 1R11 Licensed Operator Requalification Program (71111.11)..... | 5 |
| 1R12 Maintenance Effectiveness (71111.12)..... | 6 |
| 1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13).. | 7 |
| 1R15 Operability Evaluations (71111.15) | 7 |
| 1R18 Plant Modifications (71111.18)..... | 8 |
| 1R19 Post Maintenance Testing (71111.19) | 9 |
| 1R22 Surveillance Testing (71111.22) | 10 |
| 1EP6 Drill Evaluation (71114.06)..... | 14 |
| 2. RADIATION SAFETY | 14 |
| 2OS3 Radiation Monitoring Instrumentation and Protective Equipment (71121.03) | 14 |
| 2PS1 Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems (71122.01)..... | 17 |
| 4. OTHER ACTIVITIES | 18 |
| 4OA1 Performance Indicator Verification (71151)..... | 18 |
| 4OA2 Identification and Resolution of Problems (71152)..... | 20 |
| 4OA3 Follow-up of Events and Notices of Enforcement Discretion (71153)..... | 22 |
| 4OA5 Other Activities..... | 24 |
| 4OA6 Management Meetings | 25 |
| 4OA7 Licensee-Identified Violations | 25 |
| SUPPLEMENTAL INFORMATION | 1 |
| KEY POINTS OF CONTACT | 1 |
| LIST OF ITEMS OPENED, CLOSED AND DISCUSSED | 1 |
| LIST OF DOCUMENTS REVIEWED..... | 2 |
| LIST OF ACRONYMS USED | 10 |

SUMMARY OF FINDINGS

IR 05000456/2008002, 05000457/2008002; 01/01/2008 – 03/31/2008; Braidwood Station Units 1 & 2; Surveillance Testing.

This report covers a three-month period of inspection by resident inspectors and announced baseline inspections by regional inspectors. One Green finding was identified by the inspectors. The finding was considered a Non-Cited Violation of NRC regulations. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). 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-Revealing Findings

Cornerstone: Barrier Integrity

- Green. A finding of very low safety significance and associated Non-Cited Violation of 10 CFR 50, Appendix B, Criterion V, Instructions Procedures and Drawings was identified by the inspectors for the licensee's failure to establish adequate acceptance criteria when performing a surveillance required by the plant's Technical Specifications. Specifically, acceptance criteria ensuring airflow flow from areas of low potential contamination to areas of high potential contamination when performing Technical Specification Surveillance Requirement 3.7.12.4 associated with the nonaccessible area exhaust filter plenum ventilation system in the auxiliary building was not established. The licensee has entered the issue into its corrective action program and intend establish qualitative criteria verifying air flow into spaces containing potential contaminated fluids during post accident conditions.

This finding was more than minor because it affected the radiological barrier functionality of the control room and auxiliary building attribute under the barrier integrity cornerstone. The finding was of very low safety significance because all the answers were no to the SDP screening associated with the Barrier's Cornerstone. (Section 1R22)

B. Licensee-Identified Violations

A violation of very low safety significance that was identified by the licensee has been reviewed by the inspectors. Corrective actions planned or taken by the licensee have been entered into the licensee's corrective action program. This violation and corrective action tracking numbers are listed in Section 4OA7 of this report.

REPORT DETAILS

Summary of Plant Status

Unit 1 started the inspection period at full power. On January 8, 2008 power was reduced to 70 percent when control rod J-13 dropped into the core. Power was further reduced to 39 percent on January 9, 2008 to support control rod recovery. Unit 1 was restored to full power on January 12, 2008. On February 1, 2008, the licensee reduced power to 16 percent in order to access containment and vent and sample the 1C reactor coolant pump lower oil reservoir in order to clear a high oil level condition in the reservoir. Unit 1 was returned to full power on February 3, 2008 where it remained through the rest of the inspection period.

Unit 2 was operated at full power until February 14, 2008 when power was lowered to approximately 50 percent after the 2B main feed pump was tripped due to a hydraulic fluid leak in the pumps electro-hydraulic control system. Unit 2 was returned to full power on February 18, 2008, and remained at full power through the remainder of the inspection period.

1. REACTOR SAFETY

Cornerstone: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01)

.1 Readiness For Impending Adverse Weather Condition – Heavy Rainfall/External Flooding Conditions

a. Inspection Scope

The inspectors reviewed licensee preparations for impending heavy rainfall with the potential for external flooding conditions. Drainage ditches were verified clear of obstruction and flood barriers were confirmed in place. In addition, the inspectors walked down power block areas previously susceptible to ground water intrusion following heavy rainfall conditions to ensure no adverse impact on safety related equipment was sustained. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one readiness for impending adverse weather condition sample as defined in Inspection Procedure 71111.01

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment (71111.04)

.1 Quarterly Partial System Walkdowns

a. Inspection Scope

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

- 1A essential service water train;
- 2A residual heat removal train; and
- Unit 0 and Unit 1 component cooling water trains.

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

These activities constituted three partial system walkdown sample as defined by Inspection Procedure 71111.04.

b. Findings

No findings of significance were identified.

.2 Semi-Annual Complete System Walkdown

a. Inspection Scope

On January 20, 2008, the inspectors performed a complete system alignment inspection of the Unit 1 residual heat removal system to verify the functional capability of the system. This system was selected because it was considered both safety-significant and risk-significant in the licensee's probabilistic risk assessment. In addition, the licensee was preparing to perform maintenance that could require plant shutdown and cooldown to Mode 5, and required the residual heat removal system to perform its shutdown cooling function for reactor decay heat removal. The inspectors walked down the system to review mechanical and electrical equipment line-ups, electrical power availability, system pressure and temperature indications, as appropriate, component labeling, component lubrication, component and equipment cooling, hangers and supports, operability of support systems, and to ensure that ancillary equipment or debris did not interfere with equipment operation. A review of a sample of past and outstanding work orders was performed to determine whether any deficiencies significantly affected the system function. In addition, the inspectors reviewed the corrective action program (CAP) database to ensure that system equipment alignment problems were being identified and appropriately resolved. The documents used for the walkdown and issue review are listed in the Attachment.

These activities constituted one complete system walkdown sample as defined by Inspection Procedure 71111.04.

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:

- 1A centrifugal charging pump room (fire zone 11.3D-1);
- 1B centrifugal charging pump room (fire zone 11.3G-1);
- 2A centrifugal charging pump room (fire zone 11.3D-2);
- 2B centrifugal charging pump room (fire zone 11.3G-2); and
- review of fire barrier integrity in spaces protected by gaseous suppression systems.

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

These activities constituted five quarterly fire protection inspection samples as defined by Inspection Procedure 71111.05.

b. Findings

No findings of significance were identified.

.2 Annual Fire Protection Drill Observation (71111.05A)

a. Inspection Scope

On March 12, 2008, the inspectors observed fire brigade activation when the control room was informed of a simulated fire emanating from the B train control room ventilation chiller. The observation evaluated the readiness of the plant fire brigade to fight fires. The inspectors verified that the licensee staff identified deficiencies; openly discussed them in a self-critical manner at the drill debrief, and took appropriate corrective actions. Specific attributes evaluated were: (1) proper wearing of turnout gear and self-contained breathing apparatus; (2) proper use and layout of fire hoses; (3) employment of appropriate fire fighting techniques; (4) sufficient firefighting equipment brought to the scene; (5) effectiveness of fire brigade leader communications, command, and control; (6) search for victims and propagation of the fire into other plant areas; (7) smoke removal operations; (8) utilization of pre planned strategies; (9) adherence to the pre planned drill scenario; and (10) drill objectives. Documents reviewed are listed in the Attachment to this report.

These activities constituted one annual fire protection inspection sample as defined by Inspection Procedure 71111.05.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Regualification Program (71111.11)

.1 Resident Inspector Quarterly Review (71111.11Q)

a. Inspection Scope

On March 4, 2008, the inspectors observed two crews of licensed operators in the plant's simulator during licensed operator requalification examinations to verify that operator performance was adequate, evaluators were identifying and documenting crew performance problems and training was being conducted in accordance with licensee procedures. The inspectors evaluated the following areas:

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

The crew 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 Inspection Procedure 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:

- Units 1 and 2 auxiliary feedwater; and
- instrumentation and control systems.

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

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

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

This inspection constituted two quarterly maintenance effectiveness samples as defined in Inspection Procedure 71111.12.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

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

- response to drop of Unit 1 Control Rod J-13;
- 1C reactor coolant pump lower motor bearing oil reservoir high level;
- 2A residual heat removal train online work window; and
- 1B diesel generator fuel supply line leak due to fretting failure.

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

These activities constituted four samples as defined by Inspection Procedure 71111.13.

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:

- 1C steam generator narrow range Level Transducer 1LT-538 out of tolerance;
- centrifugal charging pump shaft failure vulnerability;
- 2B diesel generator electronic governor failure;
- control room ventilation Fire Damper 0VC089Y failed shut;
- 1B diesel generator fuel supply line fretting induced through wall flaw;
- containment spray caustic addition tank mixing time assessment;
- centrifugal charging pump miniflow isolation valves operability during wide range pressure instrument testing and calibration; and
- 2D main steam line pressure rate bistables failure to trip during testing impacting main steam line isolation subsequent to steam line rupture.

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

This inspection constituted eight samples as defined in Inspection Procedure 71111.15.

b. Findings

No findings of significance were identified.

1R18 Plant Modifications (71111.18)

.1 Temporary Plant Modifications

a. Inspection Scope

The inspectors reviewed the following temporary modification:

- 2B reactor vessel level indication system temporary configuration change due to failed plenum area level sensor number four.

The inspectors chose to review this temporary modification because it was the longest active modification on site, dating back to January 2005, in addition to its impact on the post accident monitoring system reactor vessel level indication system. The inspectors compared the temporary configuration change and associated 10 CFR 50.59 screening and evaluation information against the design basis, the UFSAR, and the TS, as applicable, to verify that the modification did not affect the operability or availability of the affected system. The inspectors, as applicable, performed field verifications to ensure that the modification was installed as directed; the modification operated as expected; modification testing adequately demonstrated continued system operability, availability, and reliability; and that operation of the modification did not impact the operability of any interfacing systems. Lastly, the inspectors discussed the temporary modification with operations, engineering, and training personnel to ensure that the individuals were aware of how extended operation with the temporary modification in place could impact overall plant performance. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one sample as defined in Inspection Procedure 71111.18.

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:

- 2B residual heat removal pump following an online maintenance window;
- 2A residual heat removal pump following an online maintenance window;
- 1B containment spray train pump and valves following an online maintenance window;
- 2A containment spray train pump and valves following an online maintenance window; and
- Unit 1 instrument inverter 112 following an online maintenance window.

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 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 corrective action program and that the problems were being corrected commensurate with their importance to safety. Documents reviewed are listed in the Attachment.

This inspection constituted five samples as defined in Inspection Procedure 71111.19.

b. Findings

No findings of significance were identified

1R22 Surveillance Testing (71111.22)

.1 Routine 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:

- 1B solid state protection system bi-monthly operability test;
- 1B diesel generator semi-annual engineered safeguards feature start and monthly run; and
- review of licensee's procedure for auxiliary building ventilation non-accessible area exhaust filter plenum performance in emergency mode regarding frequency and methodology for ensuring emergency core cooling system rooms are maintained at a greater vacuum than general plant areas.

The inspectors observed in-plant activities and reviewed procedures and associated records to determine whether: any preconditioning occurred; effects of the testing were adequately addressed by control room personnel or engineers prior to the commencement of the testing; acceptance criteria were clearly stated, demonstrated operational readiness, and were consistent with the system design basis; plant equipment calibration was correct, accurate, and properly documented; as left setpoints were within required ranges; the calibration frequency was in accordance with TS, 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, 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 the safety functions; and all problems identified during the testing were appropriately documented and dispositioned in the corrective action program. Documents reviewed are listed in the Attachment.

This inspection constituted three routine surveillance testing samples as defined in Inspection Procedure 71111.22.

b. Findings

Introduction: The inspectors identified a Green non-cited violation (NCV) for the failure to comply with 10 CFR 50, Appendix B, Criteria V, Instructions, Procedures, and Drawings when the licensee failed to establish adequate acceptance criteria for performing a surveillance required by the plant's TSs.

Description: During a review of the licensee's process for restoring a room containing emergency core cooling system (ECCS) components to service when a plant barrier impairment (PBI) has been used to support on-line maintenance, the inspectors noted an issue with the adequacy of the acceptance criteria for TS Surveillance Requirement 3.7.12.4 Auxiliary Building Non-Accessible System Filter Plenum Test. Specifically, the acceptance criteria did not include a verification of air flow from the general areas of the auxiliary building to the ECCS rooms.

The design basis of the non-accessible area exhaust filter plenum ventilation system is to limit radioactive release to within the 10 CFR 50.67 accident source term limits in the event of a large break loss of coolant accident (LOCA) with an assumed passive failure in the ECCS outside containment such as a pump seal failure. The control room habitability analysis also credits the functionality of the non-accessible area exhaust filter plenum ventilation system. Technical Specification 3.7.12 ensures the operability of the non-accessible area ventilation system and was described in the bases section as ensuring air flow from areas of low potential contamination to areas of high potential contamination by maintaining spaces which have the potential to contain highly radioactive fluids during the recirculation phase of post LOCA ECCS operation at a negative pressure with respect to adjacent spaces.

Surveillance Requirement 3.7.12.4 required that the non-accessible area exhaust filter plenum ventilation system maintain a pressure differential of ≤ -0.25 inches water column between the spaces served by the system and atmospheric pressure. The licensee procedure accomplishing this requirement measured the differential pressures between the atmosphere and turbine building, the turbine building and the auxiliary building, and the auxiliary building and the potentially contaminated spaces served by the non-accessible plenum ventilation system. These differentials were summed to ensure ≤ -0.25 inches water column was achieved. The normal auxiliary building ventilation lineup maintains a < -0.5 inches water column differential pressure between the turbine building and the auxiliary building. This large negative differential itself could quantitatively ensure that the Technical Specification acceptance criteria is met without meeting the design basis intent of the system to ensure that airflow was from areas of low potential contamination (general areas of the auxiliary building) to areas of high potential contamination post LOCA (ECCS rooms).

Analysis: The inspectors determined that failing to establish an acceptance criteria ensuring the design basis function of the non-accessible area exhaust filter plenum ventilation system was met was a performance deficiency warranting a significance evaluation in accordance with Inspection Manual Chapter (IMC) 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening," dated September 20, 2007. This finding is greater than minor because it is associated with the attribute for maintaining the radiological barrier functionality of the control room and auxiliary building by the use of quality procedures, and affected the barrier integrity cornerstone objective of providing reasonable assurance that physical design barriers protect the public from radionuclide

releases caused by accidents or events. This finding was reviewed using IMC 0609, "Significance Determination Process, Attachment 0609.04, "Phase 1 – Initial Screening and Characterization of Finding," dated January 10, 2008. The finding was determined to be of very low safety significance because the inspector answered no to all the questions for the significance screening associated with the Barrier's Cornerstone. Furthermore, a review of past surveillance testing verified no actual system inoperability has existed, and the failure to establish a formal acceptance criteria for air flow only impacted non-accessible area exhaust filter plenum ventilation system.

Enforcement: 10 CFR 50, Appendix B, Criteria V, Instructions, Procedures, and Drawings states in part, instructions, procedures, or drawings shall include appropriate quantitative or qualitative acceptance criteria for determining that important activities have been satisfactorily accomplished. Contrary to the above, the licensee failed to establish acceptance criteria verifying the direction of air flow in the auxiliary building during operation in the emergency mode of the non-accessible exhaust filter plenum ventilation system. Because this failure to comply with 10 CFR 50, Appendix B, Criterion V, is of very low safety significance and has been entered into the licensee's corrective action program, as Issue Report 723736, this violation is being treated as an NCV, consistent with Section VI.A of the NRC Enforcement Policy: **(NCV 05000456/2008002-01, 05000457/2008002-01 Inadequate Acceptance Criteria Established in TS Surveillance Requirement.)**

.2 Inservice Testing Surveillance

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:

- 2A centrifugal charging pump quarterly American Society of Mechanical Engineers (ASME) test; and
- 1B safety injection pump quarterly ASME test.

The inspectors observed in-plant activities and reviewed procedures and associated records to determine whether: any preconditioning occurred; effects of the testing were adequately addressed by control room personnel or engineers prior to the commencement of the testing; acceptance criteria were clearly stated, demonstrated operational readiness, and were 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 corrective action program. Documents reviewed are listed in the Attachment.

This inspection constituted two inservice inspection samples as defined in Inspection Procedure 71111.22.

b. Findings

No findings of significance were identified.

.3 Reactor Coolant System Leak Detection Inspection Surveillance

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

- Unit 1 reactor coolant system water inventory balance surveillance.

The inspectors observed in plant activities and reviewed procedures and associated records to determine whether: preconditioning occurred; effects of the testing were adequately addressed by control room personnel or engineers prior to the commencement of the testing; acceptance criteria were clearly stated, demonstrated operational readiness, and were 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, 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 corrective action program. Documents reviewed are listed in the Attachment.

This inspection constituted one reactor coolant system leak detection inspection sample as defined in Inspection Procedure 71111.22.

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness [EP]

1EP6 Drill Evaluation (71114.06)

.1 Emergency Preparedness Drill Observation

a. Inspection Scope

The inspectors evaluated the conduct of a routine licensee emergency drill on February 13, 2008, to identify any weaknesses and deficiencies in classification, notification, and protective action recommendation development activities. The inspectors observed emergency response operations in the Technical Support Center and the Operational Support Center to determine whether the event classification, notifications, and protective action recommendations were performed in accordance with procedures. The inspectors also attended the licensee drill critique to compare any inspector-observed weakness with those identified by the licensee staff in order to evaluate the critique and to verify whether the licensee staff was properly identifying weaknesses and entering them into the corrective action program. As part of the inspection, the inspectors reviewed the drill package and other documents listed in the Attachment.

This inspection constituted one sample as defined in Inspection Procedure 71114.06.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety

2OS3 Radiation Monitoring Instrumentation and Protective Equipment (71121.03)

.1 Inspection Planning

a. Inspection Scope

The inspectors reviewed the plant UFSAR to identify applicable radiation monitors associated with transient high and very high radiation areas, including those used in remote emergency assessment.

This inspection constituted one sample as defined by Inspection Procedure 71121.03.

The inspectors identified the types of portable radiation detection instrumentation used for job coverage of high radiation area work, other temporary area radiation monitors currently used in the plant, continuous air monitors associated with jobs with the potential for workers to receive 50 mrem committed effective dose equivalent (CEDE), whole body counters, and the types of radiation detection instruments utilized for personnel release from the radiologically controlled area.

This inspection constitutes one sample as defined by Inspection Procedure 71121.03.

The inspectors verified calibration, operability, and alarm setpoint (if applicable) of the following instruments:

- FastScan Wholebody Counter;
- Eberline RO-20;
- Eberline PM-7; and
- IPM 7 Wholebody Frisking Machine.

The inspectors determined what actions were taken when, during calibration or source checks, an instrument was found significantly out of calibration (greater than 50 percent), determined possible consequences of instrument use since last successful calibration or source check, and determined if the out of calibration result was entered into the corrective action program. There were no instances where the instruments were found significantly out of calibration. The inspectors also reviewed the licensee's 10 CFR Part 61 source term reviews to determine if the calibration sources used were representative of the plant source term.

This inspection constituted one sample as defined by Inspection Procedure 71121.03.

Documents reviewed are listed in the Attachment to this report.

b. Findings

No findings of significance were identified.

.2 Problem Identification and Resolution

a. Inspection Scope

The inspectors reviewed the licensee's self-assessments, audits, Licensee Event Reports, and Special Reports that involved personnel contamination monitor alarms due to personnel internal exposures to verify that identified problems were entered into the corrective action program for resolution. All event reports involving internal exposures >50 mrem CEDE were reviewed to determine if the affected personnel were properly monitored utilizing calibrated equipment and if the data was analyzed and internal exposures properly assessed in accordance with licensee procedures.

This inspection constituted one sample as defined by Inspection Procedure 71121.03.

The inspectors reviewed corrective action program reports related to exposure significant radiological incidents that involved radiation monitoring instrument deficiencies since the last inspection in this area. Staff members were interviewed and corrective action documents were reviewed to verify that follow-up activities were being conducted in an effective and timely manner commensurate with their importance to safety and risk based on the following:

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

This inspection constituted one sample as defined by Inspection Procedure 71121.03.

The inspectors determined if the licensee's self-assessment activities were identifying and addressing repetitive deficiencies or significant individual deficiencies in problem identification and resolution.

This inspection constituted one sample as defined by Inspection Procedure 71121.03.

Documents reviewed are listed in the Attachment to this report.

b. Findings

No findings of significance were identified.

.3 Radiation Protection Technician Instrument Use

a. Inspection Scope

The inspectors verified the calibration expiration and source response check currency on radiation detection instruments staged for use and observed radiation protection technicians for appropriate instrument selection and self-verification of instrument operability prior to use. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one sample as defined by Inspection Procedure 71121.03.

b. Findings

No findings of significance were identified.

.4 Self-Contained Breathing Apparatus (SCBA) Maintenance and User Training

a. Inspection Scope

The inspectors reviewed the status and surveillance records of SCBAs staged and ready for use in the plant and inspected the licensee's capability for refilling and transporting SCBA air bottles to and from the control room and operations support center during

emergency conditions. The inspectors observed an unannounced fire drill that included donning staged SCBAs, and the inspectors assessed the licensee's response to SCBA bottle failures identified during that drill. The inspectors determined if control room operators and other emergency response and radiation protection personnel were trained and qualified in the use of SCBAs (including personal bottle change-out). The inspectors verified the training and qualification status of individuals on each control room shift crew and three individuals from each designated department were currently assigned emergency duties (e.g., onsite search and rescue duties).

This inspection constituted one sample as defined by Inspection Procedure 71121.03.

The inspectors reviewed the qualification documentation for personnel designated to perform maintenance on the vendor-designated vital components, and the vital component maintenance records over the past five years for three SCBA units currently designated as "ready for service." No on-site personnel were assigned to repair vital components. All vital component repair was conducted by manufacturer representatives. The inspectors also ensured that the required, periodic air cylinder hydrostatic testing was documented and up to date, and that the Department of Transportation required retest air cylinder markings were in place for these three units. The inspectors reviewed the onsite maintenance procedures governing vital component work, including those for the low-pressure alarm and pressure-demand air regulator; licensee procedures; and the SCBA manufacturer's recommended practices to determine if there were inconsistencies between them.

This inspection constituted one sample as defined by Inspection Procedure 71121.03.

Documents reviewed are listed in the Attachment to this report.

b. Findings

No findings of significance were identified.

Cornerstone: Public Radiation Safety

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

Review of Blowdown Line Operations and Tritium Remediation Efforts

The inspectors continued to monitor the licensee's activities resulting from previous inadvertent leaks of tritiated liquid from the blowdown line to the Kankakee River. The inspection activities included the following:

- periodic inspections of all vacuum breaker vaults;
- periodic inspections of remediation system pump operations at the Exelon Pond, vacuum breaker 1, vacuum breaker 2, and lagoon area;
- efforts to reduce tritium concentrations in secondary plant systems; and
- participation in Community Information Meetings.

The inspectors verified that minor issues identified during these inspection activities were entered into the licensee's corrective action program. This inspection did not

represent a completed inspection sample. Documents reviewed are listed in the Attachment to this report.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151)

.1 Data Submission Issue

a. Inspection Scope

The inspectors performed a review of the data submitted by the licensee for the First Quarter 2008 performance indicators for any obvious inconsistencies prior to its public release in accordance with IMC 0608, "Performance Indicator Program."

This review was performed as part of the inspectors' normal plant status activities and, as such, did not constitute a separate inspection sample.

b. Findings

No findings of significance were identified.

.2 Unplanned Scrams per 7000 Critical Hours

a. Inspection Scope

The inspectors sampled licensee submittals for the Unplanned Scrams per 7000 Critical Hours performance indicator for Unit 1 and Unit 2 for the period from First Quarter 2007 through Fourth Quarter 2007. To determine the accuracy of the Performance Indicator (PI) data reported during those periods, PI definitions and guidance contained in Revision 5 of the Nuclear Energy Institute (NEI) Document 99-02, "Regulatory Assessment Performance Indicator Guideline," were used. The inspectors reviewed the licensee's operator narrative logs, issue reports, event reports and NRC Inspection reports for the period of January 2007 through December 2007 to validate the accuracy of the submittals. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator and none were identified. Specific documents reviewed are described in the Attachment.

This inspection constituted two unplanned scrams per 7000 critical hours samples as defined by Inspection Procedure 71151.

b. Findings

No findings of significance were identified.

.3 Unplanned Scrams with Complications

a. Inspection Scope

The inspectors sampled licensee submittals for the Unplanned Scrams with Complications performance indicator for Unit 1 and Unit 2 for the period from the First Quarter 2007 through Fourth Quarter 2007. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in Revision 5 of NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," were used. The inspectors reviewed the licensee's operator narrative logs, issue reports, event reports and NRC Integrated Inspection reports for the period of January 2007 through December 2007, to validate the accuracy of the submittals. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator and none were identified. Specific documents reviewed are described in the Attachment.

This inspection constituted two unplanned scrams with complications samples as defined by Inspection Procedure 71151.

b. Findings

No findings of significance were identified.

.4 Unplanned Transients per 7000 Critical Hours

a. Inspection Scope

The inspectors sampled licensee submittals for the Unplanned Transients per 7000 Critical Hours performance indicator for Unit 1 and Unit 2 for the period from the First Quarter 2007 through Fourth Quarter 2007. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in Revision 5 of the NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," were used. The inspectors reviewed the licensee's operator narrative logs, issue reports, maintenance rule records, event reports and NRC Integrated Inspection reports for the period of January 2007 through December 2007, to validate the accuracy of the submittals. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator and none were identified. Specific documents reviewed are described in the Attachment.

This inspection constituted two unplanned transients per 7000 critical hours samples as defined by Inspection Procedure 71151.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems (71152)

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

a. Scope

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

Routine reviews for the identification and resolution of problems were not considered 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. 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: Underground piping corrosion control program review

a. Scope

The inspectors reviewed the licensee's program for mitigating corrosion in buried piping and raw water systems. The licensee has experienced through wall leakage in two lengths of moderate energy ASME Class III essential service water piping, a failure of an underground feed pipe to the Unit 2 auxiliary boiler resulting in tritiated water spilling into the groundwater on site, and underground piping leaks in the potable water system over the past year. In response to these and other fleet wide issues, the licensee was in the process of establishing a database identifying the location, construction, and susceptibility of the site's underground and raw water system piping. This database was intended to incorporate a matrixing system to include a number of variables that impact both internal and externally induced corrosion and ensure that the most susceptible piping was inspected at intervals that precludes piping leaks and failures. Previous licensee corrosion control methodology was based on internal corrosion criteria such as the type of fluid in the pipe, regularity and intensity of flow in the pipe, and the chemistry of the fluid in the pipe. The new program adds inputs for the piping material, presence of groundwater, and other external corrosion concerns. The inspectors reviewed the Dresden database that was near completion. Braidwood expected to have a working database by the end of calendar year 2008. In addition the inspectors reviewed the material condition of the site's cathodic protection system.

The licensee was working to overcome specific challenges that piping used during original construction was not well documented in plant drawings. Most significantly, the water table was very close to the surface over much of the site. This made excavation extremely difficult and expensive (creating a need for cofferdams), made searching for underground piping using existing non-destructive technologies more difficult and significantly added to the likelihood of underground piping corrosion. The licensee's creation of a scientific database for classifying piping based on corrosion susceptibility and risk (radiological, nuclear safety) was determined to aid plant engineering's created inspection frequency criteria with the potential to minimize leaks and failures. The main challenge remained reaching and inspecting susceptible piping on a regular basis.

The above constituted completion of one in-depth problem identification and resolution sample.

b. Findings

No findings of significance were identified.

.4 Selected Issue Follow-up Inspection: Reactor Coolant System Perturbation While Venting the 2B Reactor Coolant Pump Seal Injection Filter

Annual Sample: Human Performance Induced Plant Transients

a. Inspection Scope

The inspectors reviewed equipment and plant transients over the previous year to determine if human performance may have been a contributing factor. Specifically, the

inspectors reviewed the licensee's response to a minor plant transient induced by excessive venting of the 2B reactor coolant pump (RCP) seal injection filter following replacement. The inspectors reviewed the corrective action program to determine if any trends existed in the area of RCP seal injection filter venting, or other human performance issues, and plant transients.

The inspectors interviewed plant operations personnel, reviewed corrective action documents, and reviewed the licensee's actions to address a minor transient caused by excessive RCP seal injection filter venting on the night shift of February 10, 2008. The excessive venting resulted in a 2 percent drop in pressurizer level, an increase in the RCS charging rate, and a drop in seal injection flow to all four RCPs. The licensee's initial response was not adequate in that the initial corrective action document and control room log entry were not sufficient in describing the plant response to the excessive filter venting, the oncoming day shift manager was unaware of the issue following turnover, and a site-wide human performance safety stand down on February 12 did not include this issue among the human performance examples.

Subsequently, based on questioning by the inspectors and members of the licensee's organization, an additional corrective action document of adequate detail was generated and a quick human performance investigation was initiated. The inspectors determined the licensee's actions were ultimately appropriate; however these actions were unnecessarily delayed. The inspectors' review of other plant transients in the past year did not identify a trend in human performance induced transients.

b. Findings

No findings of significance were identified

40A3 Follow-up of Events and Notices of Enforcement Discretion (71153)

.1 Unit 1 Shutdown Bank "B" Control Rod J13 Dropped Into Core From Steady State Conditions

a. Inspection Scope

The inspectors reviewed the plant's response to a dropped Control Rod (J13) during steady state plant operations on Unit 1. On January 8, 2008, Shutdown Bank Control Rod J13 dropped into the core. No control rod demand signals were present and no other significant plant evolutions were in progress at the time of the event. Plant operators immediately entered the site's off-normal procedure for misaligned control rods and began to ramp the unit down to 1200 MWe to maintain plant parameters in band. After further investigation did not reveal an immediately identifiable cause for the dropped control rod, reactor power was further reduced to 70 percent (880 MWe) in accordance with the off-normal procedure. The licensee established a troubleshooting team which included off-site vendor and corporate support. Further advanced troubleshooting did not identify an existing faulted condition in the rod control system. Troubleshooting did identify a stationary control rod drive mechanism (CRDM) gripper current of 3.9 amps for Rod J13, which was slightly lower than the expected value of just over 4 amps. Vendor testing indicated that control rods can be held with gripper currents as low as 3.0 amps. In response to the low gripper current, the licensee installed a temporary modification including a regulation card which boosts stationary

gripper current approximately 10 percent for all shutdown bank B control rods. The inspectors observed licensee troubleshooting and management decision making meetings. In addition, the inspectors observed the installation of the temporary modification and monitoring equipment to capture data in the event a subsequent perturbation in the rod control system were to occur.

With the temporary modification and electronic monitoring equipment installed and no remaining faulted condition in the Unit 1 rod control system present, the licensee reduced power to 39 percent and recovered the control rod. The inspectors attended the pre-evolution brief and observed the operators perform the recovery. The licensee's root cause report identified an intermittent open most likely tied to a loose pin connection in the stationary gripper control circuit as the most probable cause of the dropped rod. Continued investigation for a possible defective pin and meggar testing of the CRDM for Rod J13 was scheduled for the next refueling outage A1R14. Documents reviewed in this inspection are listed in the Attachment.

This inspection constituted one sample as defined in Inspection Procedure 71153.

b. Findings

No findings of significance were identified.

.2 Loss of the 2B Main Feedwater Pump and Operator Induced Turbine Runback

a. Inspection Scope

On the morning of February 14, 2008, with the 2C feedwater pump out-of-service for a maintenance work window, operators in the control room received indications of lowering electro-hydraulic (EH) fluid sump level. Field operators were dispatched and reported a leak on the EH piping to the 2B feedwater pump. As a result, control room operators began ramping down Unit 2 at 50 MWe/min. Operators noticed the 2B feedwater pump speed decreasing during the ramp down. Due to the decreasing pump speed, operators initiated a turbine runback and manually tripped the 2B feedwater pump. The licensee isolated the EH fluid leak and stabilized the plant at approximately 55 percent power. The motor driven feedwater pump continued to operate normally providing feedwater to the steam generators. The inspectors reviewed the operators' response to this event as well as the repairs to the electro-hydraulic control system and eventual plant recovery. The inspectors determined that the licensee's actions during and after this event were reasonable and did not constitute a performance deficiency. Documents reviewed as a part of this inspection are listed in the Attachment.

This inspection constituted one sample as defined in Inspection Procedure 71153.

b. Findings

No findings of significance were identified.

.3 (Closed) Licensee Event Report (LER) 05000456/2007-003-00: Improper Installation of Insulation on the Unit 1 Main Steam Safety Valves

This event, which occurred on October 24, 2007, was previously reported in Inspection Report 05000456/2007006; 05000457/2007006, Section 1R15. On October 24, 2007, with the unit in Mode 3 (shutdown with reactor coolant temperature > 350°F) and exiting a refueling outage, a licensee maintenance supervisor noted that a total of 10 main steam safety valves associated with the A and D steam generators were fully insulated. These valves had never been insulated since initial construction. Licensee system engineering had insulation installed on the safety valves due to the high temperatures experienced in the safety valve room shared by the A and D steam generators in order to protect other equipment in the space from over temperature conditions. The supervisor wrote an issue report asking for an assessment to be made on how the insulation could possibly affect the lift characteristics of the valves. The inspectors noted this issue report during their daily issue report review and immediately spoke with licensee design engineering. Licensee engineering engaged the vendor and determined that the presence of insulation on the valve body caused the valve to experience higher temperatures and impact the valve's lift spring causing the lift setpoint to be reduced outside of the TS acceptance band. On October 26, 2008, the insulation was removed from all ten valves with the plant in Mode 1 (reactor power > 5 percent). Operating with four or more safety valves inoperable for more than 12 hours in Modes 1, 2 or 3 is not permitted by TS 3.7.1. The licensee performed Trevi testing on three of the safety valves impacted by the insulation on December 9, 2007, to ensure that there were no lasting effects on the lift setpoints of the valves that had been insulated. All three valves lifted within the +/-3 percent tolerance permitted by the TS. In addition, the licensee tested a spare safety valve offsite mimicking the conditions experienced by the installed safety valves when insulated to validate the impact insulating the valve body had on the valve internals. Four lifts of the spare valve were performed with all falling below the acceptable range, therefore validating the assumption by the licensee and the vendor that the valves were inoperable during the time period they were insulated. This licensee-identified finding involved a violation of TS 3.7.1. The enforcement aspects of this violation are discussed in Section 4OA7. Documents reviewed as a part of this inspection are listed in the Attachment. This LER is closed.

This inspection constituted one sample as defined in Inspection Procedure 71153.

4OA5 Other Activities

.1 Quarterly Resident Inspector Observations of Security Personnel and Activities

a. Inspection Scope

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

- Multiple tours of operations within the security alarm stations;
- Tours of selected security officer response posts;

- Direct observation of personnel entry screening operations within the plant's Main Access Facility; and
- Security force shift turnover activities.

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

b. Findings

No findings of significance were identified.

4OA6 Management Meetings

.2 Exit Meeting Summary

On April 10, 2008, the inspectors presented the inspection results to Mr. B. Hanson, and other members of the licensee staff. The licensee acknowledged the issues presented. The inspector asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

.3 Interim Exit Meetings

Radiation monitoring instrumentation and protective equipment with Mr. L. Coyle, Plant Manager and his staff on March 14, 2008. The licensee acknowledged the issues presented. The inspector asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

4OA7 Licensee-Identified Violations

The following violation of very low significance (Green) was identified by the licensee and is a violation of NRC requirements which meets the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600, for being dispositioned as an NCV.

- Technical Specification 3.7.1 required that the plant be in Mode 4 within 12 hours when any one steam generator had four or more main steam safety inoperable. Contrary to this, between October 24, 2007 and October 26, 2007, both the A and D steam generators operated in Modes 1, 2, and 3 with 5 inoperable main steam safety valves each. This was identified in the licensee's corrective action program as Issue Report 689141. This finding was of very low safety significance because it did not represent a loss of secondary plant heat removal capability or secondary plant depressurization capability.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

B. Hanson, Site Vice President
L. Coyle, Plant Manager
S. Butler, Emergency Preparedness Manager
D. Burton, Licensed Operator Requalification Training Group Lead
G. Dudek, Site Training Director
R. Gadbois, Maintenance Director
D. Gullott, Regulatory Assurance Manager
H. Hanoun, Acting Chemistry, Environmental, and Radioactive Waste Manager
J. Knight, Nuclear Oversight Manager
T. McCool, Operations Director
J. Moser, Radiation Protection Manager
J. Petty, Licensing Engineer
M. Smith, Engineering Director

Nuclear Regulatory Commission

R. Skokowski, Chief, Reactor Projects Branch 3

LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

Opened and Closed

| | | |
|---|-----|---|
| 05000456/2008002-01; 05000457/2008002-01 | NCV | Inadequate Acceptance Criteria Established in Technical Specification Surveillance Requirement (Section 1R22) |
|---|-----|---|

Closed

| | | |
|----------------------|-----|---|
| 05000456/2007-003-00 | LER | Improper Installation of Insulation on the Unit 1 Main Steam Safety Valves (Section 4OA3.3) |
|----------------------|-----|---|

LIST OF DOCUMENTS REVIEWED

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

1R01 Adverse Weather Protection

- IR 719352; 1 to 2 Inches of Water at RCA Entrance U2 CAF; January 8, 2008
- IR 719566; NRC Identified Issues Housekeeping and Material Condition; January 8, 2008
- OP-AA-108-111-1001; Severe Weather and Natural Disaster Guidelines; Revision 2

1R04 Equipment Alignment

- BwOP RH-M3; Operating Mechanical Lineup U2 2A RH Train; Revision 8
- BwOP RH-M2; Operating Mechanical Lineup Unit 1 1B Train; Revision 8
- BwOP RH-M1; Operating Mechanical Lineup Unit 1 1A Train; Revision 12
- BwOP RH-E1; Electrical Lineup – Unit 1; Revision 6
- BwOP SX-E1; Electrical Lineup – U1 Essential Service Water System Operating; Revision 6
- BwOP SX-M1; Operating Mechanical Lineup U1; Revision 24
- BwOP CC-M1; Operating Mechanical Lineup Unit 1; Revision 16
- BwOP CC-E1; Electrical Lineup – Unit 1; Revision 6
- Braidwood Station Look Ahead Schedule; December 31, 2007
- IR 742405; NRC Issue with component cooling valve packing leakage/corrosion; February 28, 2008

1R05 Fire Protection

- OP-AA-201-003; Fire Drill Record; Revision 9
- LS-MW-107-1001; Change 23-001 Fire Protection Report; March 28, 2007
- Braidwood Station Pre-Fire Plans; Control Room Refrigeration Equipment Room Elevation 383'-0" Boundary: L-P/8-10
- Braidwood Station Pre-Fire Plans; Safety Injection Pump 1B Room and Centrifugal Charging Pump 1B Room – Elevation 364'
- Braidwood Station Pre-Fire Plans; Positive Displacement Charging Pump Room and Centrifugal Charging Pump 1A Room – Elevation 364'
- Braidwood Station Pre-Fire Plans; Safety Injection and Charging Pump 2B Rooms – Elevation 364'
- Braidwood Station Pre-Fire Plans; Charging Pump 2A – Positive Displacement Pump Room – Elevation 364'
- Fire Protection Report Dwg 2.3-14, Sheet 1 of 4; Basement Floor Plan Elevation 364'
- Fire Protection Report Dwg 2.3-14, Sheet 3 of 4; Basement Floor Plan Elevation 364'
- IR 724891; Diesel Generator 2B Temperature High Low Alarm Received; January 21, 2008

1R11 Licensed Operator Requalification Program

- Scenario 0821; Steam Generator Tube Leak

1R12 Maintenance Effectiveness

- IR 592140; 1FI-AF011 Has Bad Signal Converter Card; February 16, 2007
- IR 572312; AC Independence of Diesel Driven Auxiliary Feedwater Pumps; December 21, 2006
- IR 609734; B1 Trend Code: 1L-547A/B Did Not Trip During Calibration; March 28, 2007
- IR 649373; 1B T_{HOT} Instrument Failure; July 12, 2007
- IR 683709; Extent of Condition Review Results; October 12, 2007
- IR 708418; B4 Trend Code: 1AF005C Found OOT; December 6, 2007
- IR 755479; Unplanned Entry Into LCO 3.3.1 and 3.3.2 and 2BwOA-Inst-2; March 27, 2008
- IR 751390; Evaluation of Adverse Trend in 2PA02J Performance; March 18, 2008
- IR 751857; B3 Trend Code: 2TB-0412 Found Failed; March 19, 2008
- IR 751982; U1 & U2 EF2 at Risk of Exceeding Maintenance Rule Criteria; March 19, 2008
- IR 749431; Received 3 Percent Spike in 2D SG Level Channel 2L-0549; March 14, 2008
- IR 744304; B1 Trend Code: 2PB-0546C/D Found Neither Circuit Would Trip; March 4, 2008
- Braidwood Quarterly System Health Reports for CY2007
- Control Room Operators' Logs; March 27, 2008

1R13 Maintenance Risk Assessments and Emergent Work Control

- IR 509645; 2A DG Fuel Oil Leak, 1 DROP/2SEC at Strainer Hose Fitting; July 15, 2006
- IR 739077; 2B DG JW Trip Line Rubbing; February 21, 2008
- IR 738996; 1DG01KB (1B DG) Fuel Oil Leak; February 21, 2008
- IR 750494; 2B Lube Oil Line Rubbing on Frame; March 17, 2008
- IR 750495; 2A DG Lube Oil Line Rubbing on Frame; March 17, 2008
- IR 755854; 1A DG Improvement For Tubing Vulnerability; March 28, 2008
- IR 755855; 1B DG Improvement For Tubing Vulnerability; March 28, 2008
- IR 755852; 2B DG Improvement For Tubing Vulnerability; March 28, 2008
- IR 755853; 2A DG Improvement For Tubing Vulnerability; March 28, 2008
- 1BwGP 100-4; Power Descension; Revision 28
- 1BwOSR 3.8.1.14-2; 1B DG 24 Hour Endurance Run; Revision 1
- BwMP 3100-022; DG 2 Year Inspection; Revision 20
- BwMP 3100-082; DG 6 Year Inspection; Revision 12
- IN 89-07; Failures of Small-Diameter Tubing in Control Air, Fuel Oil, and Lube Oil Systems Which Render Emergency DGs Inoperable; January 25, 2989
- ER-AA-2; ((R 738966) Zero Tolerance for Unexpected Critical Equipment Failure; Revision 1; Effective Date January 1, 2007
- OP-AA-101-113-1004; 1DG901KB (1B DG) Fuel Oil Leak During 24-Hour Endurance Run; Revision 12
- OP-AA-105-101-1006; IR 722352 Issue Resolution Documentation Form; January 22, 2008; Revision 5
- MA-AA-716-004; Complex Troubleshooting Reactor Coolant System Component 1RC01PC; Revision 6
- Risk-Informed Notebook for Braidwood U1 and U2; Revision 2.1a
- Work Package 00942950-05; Instruction Sheet For Incorporating Temporary Modification 368959 Into 1RD05J; Document 2a
- Work Package 00942950-05; Instruction Sheet For Incorporating Temporary Modification 368959 Into 1RD05J; Document 2
- BwOP RD-7; Rod Drive Placement on DC Hold; Revision 0
- Control Rod J13 Current Traces; January 9, 2008
- 1BwOA ROD-3; Dropped or Misaligned Rod Unit 1; Revision 103

1R15 Operability Evaluations

- IR 131171; RCR to Perform Root Cause Investigation; December 18, 2002
- IR 510293; Perform Walkdown of MS System in MSIV/FWIV Rooms; January 12, 2007
- IR 579644; 1MS013D Install Insulation Missing From the Valve and Piping; January 16, 2007
- IR 643267; MSIV Rooms – Clarification of Insulation Requirements; June 22, 2007
- IR 689141; New Insulation Installed on U2 Main Steam Safety Valves; October 25, 2007
- IR 717641; CV Pump Shaft Performance Monitoring Revisited; January 3, 2008
- IR 719433; Margin Issue – Low Service Life of U1 CV Pump Shafts; January 8, 2008
- IR 722835; 1P-0405/0409 Work Delay Concerns Identified at HLA [Briefing]; January 16, 2008
- IR 725229; NRC Identified Potential Low Margin on CV Pump Shafts; January 18, 2008
- IR 728967; 2B DG Failed to Operate During Surveillance Run; January 20, 2008
- IR 738633; 0VC089Y Fire Damper Found Closed; February 20, 2008
- IR 740388; Discrepancies Between Byron and Braidwood Procedures; February 24, 2008
- IR 742500; Calibration of 1P-0405/0409 Delayed Due to Technical Specification Concern; February 29, 2008
- IR 744433; 1A Diesel Generator Walkdown For Tubing Problems; March 4, 2008
- IR 744436; 1B Diesel Generator Walkdown For Tubing Problems; March 4, 2008
- IR 744437; 2A Diesel Generator Walkdown For Tubing Problems; March 4, 2008
- IR 744440; 2B Diesel Generator Walkdown For Tubing Problems; March 4, 2008
- IN 94-76; Recent Failures of Charging/Safety Injection Pump Shafts; October 26, 1994
- BOP CS-6; Filling the Containment Spray Additive Tank; Revision 13
- BwOP CS-6; Filling the Containment Spray Additive Tank Using a Tank Truck; Revision 0E1
- BwOP CS-8; Filling the Containment Spray Additive Tank; Revision 9
- CY-AA-130-911; Specific Gravity; Revision 5
- BwISR 3.3.2.10-M214; Operational Test and Channel Verification/Calibration for Loop 2P-0546; Revision 6
- BwISR 3.3.3.2-216; Channel Verification/Calibration For Loops _P-0405 & _P-0409; Revision 3
- BwISR 3.3.3.2-216; Channel Verification/Calibration For Loops _P-0405 & _P-0409; Revision 4
- BwOSR 3.5.2.5; ECCS Subsystem Automatic Valve Actuation Surveillance; Revision 12
- BwVSR 3.7.10.4; Control Room Ventilation Pressurization Test; Revision 1E1
- Drawing M-96; Diagram of Control Room HVAC System; Sheets 1, 2, & 3
- Drawing 20E-2-4030EF31; Reactor Protection High Steam Pressure Rate-Train A; Revision D
- Drawing 20E-2-4031MS10; Steam Pressure Protection Loop 2A & 2D; Revision H
- Drawing 20E-2-4030EF75; Reactor Protection High Steam Pressure Rate-Train B; Revision E
- MA-AA-716-210; Component Classification; Revision 6
- PORC 07-034; ACE for Improper Insulation for U1 Main Steam Safety Valves; December 18, 2007
- WCAP 14192; Centrifugal Charging Pump Shaft Failure Investigation Phase I; January 31, 1995
- WCAP 14409; Centrifugal Charging Pump Shaft Failure Investigation Phase 2; June 2, 1996
- WCAP 14801; Centrifugal Charging Pump Shaft Failure Investigation Phase 3; May 1997
- EC 368887; Evaluation of 2LT-0538 Drift with Respect to Steam Generator LO-2 Level Trip Setpoint
- EC 369644; Evaluation of 1B Diesel Fuel Line Fretting Failure
- Apparent Cause Evaluation; 1B Diesel Generator Fuel Supply Line Leak; March 25, 2008
- CC-AA-309-101; Engineering Technical Evaluations; Revision 9
- Test Report Package B Sensor Verification/ Calibration Loop 2L-0538; January 5, 2008

1R18 Plant Modifications

- BwISR 3.3.3.2-205; Surveillance Calibration of Reactor Vessel Level Indication System and Core Exit Thermocouple System; Revision 10
- BwOP RC-12; Placing RVLIS/HJTC/CETC In Service; Revision 10
- Test Report Package 2L-RC020; Calibration of Reactor Vessel level Indication System Channel B; Revision 000
- Technical Manual for the RVLIS/Heat Junction Thermocouple System

1R19 Post Maintenance Testing

- IR 726426; 2B RH Recirc flow Below Acceptance Criteria; January 24, 2008
- IR 754882; 2B SI Pump Outboard and Inboard Motor Bearing Oil Level Drop
- 2BwVSR 5.5.8.RH-2A; Train A Residual Heat Removal Valves Indication Test Surveillances; Revision 2
- 2BwOSR 5.5.8.SI-2A; Train A Safety Injection System Isolation Valve Indication Surveillance; Revision 4
- 2BwVSR 5.5.8.RH.1; ASME Surveillance Requirements for Residual Heat Removal Pump 2RH01PA; Revision 7
- 2BwVSR 5.5.8.RH.2; ASME Surveillance Requirements for Residual Heat Removal Pump 2RH01PB; Revision 7
- 2BwVSR 5.5.8.SI.2; ASME Surveillance Requirements for the 2B Safety Injection Pump; Revision 5
- 2BwOSR 5.5.8.RH-3A; Residual Heat Removal System Train A Valve Stroke Surveillance; Revision 5
- 1BwOSR 5.5.8.CS-1B; Train B Containment Spray System Valve Stroke Surveillance; Revision 9
- 1BwOSR 3.3.2.8-K644B; Unit One ESFAS Instrumentation Slave Relay Surveillance; Revision 3
- 1BwOSR 3.6.3.5.CS-1B; Train B Containment Spray Containment Isolation Valve Stroke Surveillance; Revision 2
- 1BwVSR 5.5.8.CS.2; ASME Surveillance Requirements For 1B Containment Spray Pump and Check Valves 1CS003B, 1CS011B; Revision 7
- Unit 2 Control Room Operators' Logs; March 25, 2008
- WO 1086506 01; IST for 2SI8959B – ASME Surveillance Requirements for 2RH01PB; January 25, 2008
- BwOP IP-1; Instrument Bus Inverter Startup; Revision 25
- 1BwOSR 3.8.7-2; Unit One Division 12 ESF Onsite Power Distribution Surveillance; Revision 3

1R22 Surveillance Testing

- IR 722124; Static Charge on 2LK-459; January 14, 2008
- IR 723740; U1&2 CV Pumps Aux Oil Pump NRC Concern Review; January 17, 2008
- IR 741833; NRC Identified 1B Safety Injection Pump Lube Oil Housing Nut Not Flush; February 27, 2008
- BwOP CV-19; Switching Charging Pumps; Revision 10
- 1BwOP DG-11; DG Startup; Revision 34
- 1BwOP DG-11T1; DG Start/Stop Log; Revision 7
- 1BwOSR 3.3.1.4-2; U1 SSPS, Reactor Trip Breaker, and Reactor Trip Bypass Breaker Bi-Monthly Surveillance (Train B); Revision 26

- 1BwOSR 3.3.2.8-611B; U1 ESFAS Instrumentation Slave Relay Surveillance (B Train Automatic Safety Injection – K611); Revision 5
- 1BwOSR 3.4.13.1; U1 RCS Water Inventory Balance Surveillance; Revision 187
- 1BwOSR 3.8.1.2-2; 1B DG Operability Surveillance; Revision 20
- 1BwVSR 5.5.8.CV.1; ASME Surveillance Requirements for 1A Centrifugal Charging Pump and Check Valve 1CV8480A Stroke Test; Revision 4
- 1BwVSR 5.5.8.SI.2; ASME Surveillance Requirements For the 1B Safety Injection Pump; Revision 5
- 2BwVSR 5.5.8.CV.1; ASME Surveillance Requirements for 2A Centrifugal Charging Pump and Check Valve 2CV8480A Stroke Test; Revision 4
- WO 1046564 01; IST for 2CV841B/8480A/8480B – ASME Surveillance Requirements for 2CV01PA; September 26, 2007
- WO 1067269 01; IST for 2CV841B/8480A/8480B – ASME Surveillance Requirements for 2CV01PA; January 14, 2008
- WO 1083032 01; U1 SSPS, Reactor Trip Breaker, Reactor Trip Breaker Bypass; January 3, 2008
- Drawing 20E-1-4030CV37; Schematic Diagram Centrifugal Charging Pump Miniflow Isolation Valve 1CV8114; October 4, 2005
- Drawing 20E-1-4040EF09; Schematic Diagram Reactor Protection System Master & Slave Relays Testing Circuit Train A; December 27, 2005
- Seabrook Station Inspection Report 50-443/03-005; April 11, 2003
- IR 182148; PRA Modeling Error – VA Exhaust/ Supply Fans; October 21, 2003
- IR 184957; Fluctuating VA (Auxiliary and Fuel Handling Buildings) Differential Pressures; November 5, 2003
- IR 211499; Discrepancy Found With VA Fan Differential Pressure Setpoints and Calculations; March 29, 2004
- IR 266911; A1R11 Lessons Learned – BwMP 3100-093 Procedure Needs to be Changed; October 25, 2004
- IR 326076; Auxiliary Building Differential Pressure Below PBI Requirements; April 19, 2005
- IR 345520; 0VA03CD Low Differential Pressure During Surveillance Testing; June 20, 2005
- IR 346769; 0VA184Y Damper Oscillating; June 23, 2005
- IR Unacceptable Excessive Use of VA Booster Only Mode; April 3, 2006
- IR 723736; NRC Identified Concern With Upcoming Removal of Auxiliary Building Floor Plug; January 17, 2008
- IR 758415; Damper Appears to be Stuck or Slow; April 2, 2008
- IR 758423; Damper Appears to be Slow; April 2, 2008
- BwAP 1110-3; Plant Barrier Impairment Program; Revision 15
- CC-AA-201; Plant Barrier Control Program; Revision 6
- BwVSR 3.7.12.4; Auxiliary Building Non-Accessible System Filter Plenum Test; Revision 0
- 0BVSR 7.12.4-1; Unit 0 ECCS Equipment Rooms Differential Pressure Test; Revision 1

1EP6 Drill Evaluation

- Braidwood Station 1st Quarter EP PI Drill; February 13, 2008

2OS3 Radiation Monitoring Instrumentation and Protective Equipment

- IR 571106; Nuclear Oversight Radiation Protection Audit report; August 16, 2007
- IR 647427; Nuclear Oversight Identified Ineffective Corrective Action on Radiation Protection Instrumentation Records Finding; July 5, 2007
- IR 657173; Wholebody Counter quality Checks Not Performed Routinely; August 3, 2007

- IR 661055; Nuclear Oversight Identified Approved Source not used for Response Checks of Small Articles Monitor; August 15, 2007
- IR 677190; Malfunctioning Radiation Equipment; September 28, 2007
- IR 0072977; Check-in Identified Deficiency in Sensitivity Check Source; January 28, 2008
- IR 748007; Enhancement Found on SCBA Walkdown; March 11, 2008
- IR 748023; Enhancement for Emergency SCBA Bottle Cage; March 11, 2008
- LS-AA-126-1005; Check-in Self-assessment Report: NRC Procedure 71121.03 Radiation Monitoring Instrumentation and SCBA; Revision 4
- RP-BR-605-1001; Scaling Factor Results; Revision 4
- RP-AA-700; Controls For Radiation Protection Instrumentation; Revision 2
- RP-BR-727; Operation and Calibration of the Eberline PM-7 Portal Monitors; Revision 4
- RP-BR-732; Operation and Calibration of the IPM-7/8/8D Wholebody Frisking Monitor; Revision 2
- RP-BR-733; Operation and Calibration of the Eberline PCM-2 Wholebody Contamination Monitor; Revision 4
- RP-BR-753; Calibration and Operation of the Gilian Personal Sampling System; Revision 0
- RP-BR-802; Operation and use of the Shepherd Model 89 Shielded Calibrator; Revision 10
- RP-BR-827; Calibration, Use, and Inspection of Self Contained Breathing Apparatus (SCBA); Revision 1
- RP-BR-828; Charging of Air Cylinders for Self-Contained Breathing Apparatus, Revision 0
- WO 960077-01; 2AR20J Electron Calibration High Range Containment Monitor; March 10, 2008
- WO 959373-01; 2AR21J Electron Calibration High Range Containment Monitor; March 7, 2008

2PS1 Radioactive Gaseous And Liquid Effluent Treatment And Monitoring Systems

- IR 732577; Underground Leak Identified West of Turbine Building; February 6, 2008
- IR 733843; Underground Leak on Condensate (CD) Line; February 9, 2008

4OA1 Performance Indicator Verification

- Reactor Oversight Process U1 and U2 4Q/2007 Performance Indicators; January 28, 2008

4OA2 Problem Identification and Resolution

- Braidwood Supervisory Brief on Human Performance Lapses; February 12, 2008
- Braidwood Control Room Operators' Logs; February 10, 2008
- IR 734251; Zero Tolerance lack of Proper Field Communications With MCR
- IR 734763; Excessive Venting of 2B Seal Injection Filter
- BwOP-CV-10; CV Filters - Isolation and Return To Service; Revision 18
- 0BwOS GD-M1; U0 Cathodic Protection Systems Surveillance; Revision 7
- ER-AA-5400-1002; Buried Piping Examination Guide; Revision 0
- BwFP FH-20T6; Fuel Handling Building Crane Main Hook Secondary Restraint Installation/Removal; Revision 1
- GL 89-13; Service Water System Problems Affecting Safety-Related Equipment; July 18, 1989

4OA3 Followup of Events and Notices of Enforcement Discretion

- Apparent Cause Report IR 689141; Improper Installation on U1 Main Steam Safety Valves; October 5, 2007

- IR 689141 Assign #05; Perform an ACE Investigation on U1 MS Safety Valve Insulation Event (December 7, 2007 JTP) BR-40 Extension Received. Due Date extended to December 12, 2007, Reopened for Incorporation of PORC Comments, Reopened to Correct Typo, ref. ATI 714722-02; December 12, 2007
- IR 689141 Assign #21; Perform Testing of Spare MSSV Mimicking Actual Plant Conditions to Determine MSSV Operability Impact of the Installation of Insulation. Document Results and Provide Operability Recommendations to Operations and Regulatory Assurance (ACIT 04 from ACE); December 26, 2007
- IR 719211; Entry Into 1BwOA ROD-3 Due to Dropped J-13 Rod; January 8, 2008
- IR 725662; Inspect Shutdown Bank Rod J13 During Force Outage on U1; January 23, 2008
- IR 736077; Through Wall or O Ring leak; February 14, 2008
- 1BwOA ROD-3; U1 Dropped or Misaligned Rod; Revision 103
- OP-AA-106-101-1006; U1 Rod Drive System/Rod J-13; Revision 4
- OP-AA-108-111; 1RD05J – Rod J-13 – Monitoring; Revision 4
- Action Item Tracking 719211; Shutdown Bank “B” Control Rod J13 Dropped Into Core From Steady State Condition; January 8, 2008
- Information Security Reminder; Carbon Dioxide (CO-2) Fire Extinguishers Inspections – Potential Generic Issue; January 11, 2008
- LER 456/2007-003-00; Improper Installation of Insulation on U1 Main Steam Safety Valves; October 24, 2007

4OA5 NRC and IEMA Identified Minor Issues

- IR 719566; NRC Identified Issues Housekeeping and Material Condition; January 8, 2008
- IR 719567; NRC Question Concerning Seismic Alarm; January 8, 2008
- IR 720590; Log Entry Missing Following Dropped Rod (IEMA); January 10, 2008
- IR 720599; IEMA Identified – Unit 1 Discrepancies; January 10, 2008
- IR 720203; RWP Not Active for Workers to Sign Onto (IEMA); January 10, 2008
- IR 723127; IEMA Identified Rust Area On Tail Pipe of 1A Steam Generator PORV; January 17, 2008
- IR 723740; Unit 1 and 2 CV Pumps Auxiliary Oil Pump NRC/IEMA Concern Review; January 17, 2008
- IR 724372; NRC Observation and Feedback on Seismic Alarm Response; January 23, 2008
- IR 724704; NRC Identified 2RH474 Boric Acid Leaking From Packing and Cap; January 18, 2008
- IR 725229; NRC/IEMA Identified: Potential Low Margin on CV Pump Shafts; January 22, 2008
- IR 725719; NRC Concern Over Liquid Releases During River Flooding; January 23, 2008
- IR 727638; OPR026J Pump Noisy; January 28, 2008
- IR 729692; Groundwater Intrusion Into Unit 1 Curved Wall Area Elevation 364'; January 31, 2008
- IR 732035; IEMA Identified Spiking on Pipe Tunnel Radiation Skid; February 5, 2008
- IR 733176; NRC/IEMA Walkdown Identified Items; February 7, 2008
- IR 735413; 2MS091A Minor Packing Leak; February 13, 2008
- IR 738350; Slack on Fuel Handling Building Crane Main Hook Restraint (IEMA); February 19, 2008
- IR 738863; IEMA Questioned 2E Main Power Transformer Closure; February 20, 2008
- IR 738955; Historical REMP Discrepancies (IEMA); February 20, 2008
- IR 740784; NRC/IEMA Identified Door at Lake Screen House Propped Open; February 25, 2008
- IR 741833; NRC Identified 1B Safety Injection Pump Lube Oil Housing Nut Not Flush; February 27, 2008

- IR 742405; NRC Issue With Component Cooling Valve Packing Leakage Corrosion; February 28, 2008
- IR 744752; IEMA Identified Turbine Building Remediation Sampler Overflowing; March 4, 2008
- IR 745290; NRC Identified Concerns During 2A Containment Spray Pump ASME Surveillance; March 5, 2008
- IR 745642; 1MS010D Has Small Packing Leak; March 6, 2008
- IR 746519; Unit 1 Lower Cable Spreading Room Lighting (IEMA); March 10, 2008
- IR 747797; 2A Diesel Generator Tubing Vibration; March 11, 2008
- IR 748780; Emergency PA Announcement Not Audible at Service Building 451 Area; March 12, 2008
- IR 755023; IEMA Identified Removed Deficiency Tag Still Hanging on Door; March 26, 2008

4OA7 Licensee-Identified Violations

- LER 456/2007-003-00; Improper Installation of Insulation on U1 Main Steam Safety Valves; October 24, 2007

LIST OF ACRONYMS USED

| | |
|-------|---|
| ADAMS | Agencywide Documents Access and Management System |
| ASME | American Society of Mechanical Engineers |
| CAP | Corrective Action Program |
| CEDE | Committed Effective Dose Equivalent |
| CFR | Code of Federal Regulations |
| CRDM | Control Rod Drive Mechanism |
| ECCS | Emergency Core Cooling System |
| EH | Electro Hydraulic |
| IMC | Inspection Manual Chapter |
| IR | Issue Report |
| LER | Licensee Event Report |
| LOCA | Loss of Coolant Accident |
| NCV | Non-Cited Violation |
| NEI | Nuclear Energy Institute |
| NRC | U.S. Nuclear Regulatory Commission |
| PARS | Publicly Available Records |
| PBI | Plant Barrier Impairment |
| PI | Performance Indicator |
| RCP | Reactor Coolant Pump |
| RCS | Reactor Coolant System |
| SCBA | Self-Contained Breathing Apparatus |
| SDP | Significance Determination Process |
| TS | Technical Specification |
| UFSAR | Updated Final Safety Analysis Report |