

February 13, 2007

EA-06-225

Mr. Christopher M. Crane
President and Chief Nuclear Officer
Exelon Nuclear
Exelon Generation Company, LLC
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: BRAIDWOOD STATION, UNITS 1 AND 2 NRC INTEGRATED INSPECTION
REPORT AND EXERCISE OF ENFORCEMENT DISCRETION
05000456/2006005; 05000457/2006005 AND 05000456/2006013;
05000457/2006013

Dear Mr. Crane:

On December 31, 2006, 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 January 11, 2007, with Mr. T. Coutu 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 (Green) is documented in this report. The issue was determined to involve a violation of NRC requirements. The NRC is treating this violation as a non-cited violation consistent with Section VI.A.1 of the NRC Enforcement Policy because of the very low safety significance of the violation and because it was entered into your corrective action program.

In addition, contrary to Technical Specification (TS) 3.4.13, "Reactor Coolant System Operational Leakage," requirements, Unit 1 was operated during the previous operating cycle with through-wall leakage from a pressurizer heater sleeve outside of the allowed outage time of TS 3.4.13. Operation with pressure boundary leakage of this magnitude (below detection thresholds) would normally be considered a Severity level IV violation. However, the staff has reviewed your root cause analysis of the event and has concluded that the equipment failure could not have been avoided or detected by your quality assurance program or other related control measures because the Type 316 stainless steel heater sleeve material was not known to be susceptible to cracking in this application. Therefore, after consultation with the Regional Administrator, Region III, and the Director, Office of Enforcement, I have been

authorized in accordance with Section VII.B.6 of the Enforcement Policy, to exercise enforcement discretion and not issue a violation for this issue.

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 20555-001, 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 facility.

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/

Mark A. Satorius, Director
Division of Reactor Projects

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

Enclosure: Inspection Report 05000456/2006005; 05000457/2006005 and
05000456/2006013; 05000457/2006013
w/Attachment: Supplemental Information

cc w/encl: Site Vice President - Braidwood Station
Plant Manager - Braidwood Station
Regulatory Assurance Manager - Braidwood Station
Chief Operating Officer
Senior Vice President - Nuclear Services
Vice President - Operations Support
Director Licensing
Manager Licensing - Braidwood and Byron
Senior Counsel, Nuclear, Mid-West Regional
Operating Group
Document Control Desk - Licensing
Assistant Attorney General
Illinois Emergency Management Agency
State Liaison Officer
Chairman, Illinois Commerce Commission

Enforcement, I have been authorized in accordance with Section VII.B.6 of the Enforcement Policy, to exercise enforcement discretion and not issue a violation for this issue.

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/RA/

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cc w/encl: Site Vice President - Braidwood Station
Plant Manager - Braidwood Station
Regulatory Assurance Manager - Braidwood Station
Chief Operating Officer
Senior Vice President - Nuclear Services
Vice President - Operations Support
Director Licensing
Manager Licensing - Braidwood and Byron
Senior Counsel, Nuclear, Mid-West Regional
Operating Group
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REGION III

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

Report No: 05000456/2006005; 05000457/2006005
05000456/2006013; 05000457/2006013

Licensee: Exelon Generation Company, LLC

Facility: Braidwood Station, Units 1 and 2

Location: Braceville, IL

Dates: October 1 through December 31, 2006

Inspectors: S. Ray, Senior Resident Inspector
G. Roach, Resident Inspector
J. Bartleman, Reactor Engineer
C. Brown, Reactor Inspector
J. Cassidy, Health Physicist
M. Holmberg, Reactor Inspector
D. Jones, Reactor Engineer
D. Melendez-Colon, Reactor Engineer
T. Ploski, Senior Emergency Preparedness Specialist
F. Ramirez, Reactor Engineer
D. Schrum, Reactor Engineer
D. Smith, Project Engineer
M. Perry, Illinois Emergency Management Agency
B. Metro, Illinois Emergency Management Agency-Bureau
of Nuclear Facility Safety

Observers: N. Feliz-Adorno, Reactor Engineer
M. Jones, Reactor Engineer
R. Jones, Reactor Engineer
D. Lords, Reactor Engineer

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

Enclosure

SUMMARY OF FINDINGS

IR 05000456/2006005, 05000457/2006005 and IR 05000456/2006013, 05000457/2006013; 10/01/2006 - 12/31/2006; Braidwood Station, Units 1 & 2; Fire Protection.

This report covers a 3-month period of inspection by resident inspectors and announced baseline inspections by regional inspectors. One Green non-cited violation was identified by the inspectors. The emergency preparedness portion of this inspection is being tracked using Inspection Report 05000456/2006013, 05000457/2006013. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter 0609, "Significance Determination Process" (SDP). Findings for which the SDP does not apply may be Green or be assigned a severity level after Nuclear Regulatory Commission (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 3, dated July 2000.

A. NRC-Identified and Self-Revealing Findings

Cornerstone: Initiating Events

- Green. The inspectors identified a non-cited violation of the Braidwood Station Operating License, having very low safety significance, for the failure to implement the licensee's procedure for control of combustible materials for 27 charcoal filter trays. Specifically, licensee personnel staged unattended transient combustible materials underneath horizontal cable trays in the auxiliary building in a manner contrary to the licensee's procedure for control of combustible materials. This finding has a cross-cutting aspect in the area of Human Performance because licensee work groups failed to communicate, coordinate, and cooperate with each other during activities in which interdepartmental coordination was necessary to assure plant and human performance. Corrective actions taken by the licensee included entering this issue into the station's corrective action program; relocating the charcoal filters to an authorized temporary storage location; and implementing extent of condition inspections in other areas of the auxiliary building.

The finding was more than minor because the transient combustible materials presented a credible fire scenario involving equipment important to safety. The finding was of very low safety significance because the finding was assigned a low degradation rating due to the inability of the existing sources of heat or electrical energy to ignite the transient combustible materials. (Section 1R05)

B. Licensee-Identified Violations

None.

REPORT DETAILS

Summary of Plant Status

Unit 1 operated at or near full power until December 26, 2006, when power was reduced to approximately 90 percent during a degraded condenser vacuum event due to air intrusion into the condenser from a failed drain pipe. Power was restored to approximately 100 percent later that same day and it remained at 100 percent on the unit until the end of the inspection period.

Unit 2 started a gradual power coastdown for refueling on October 7, 2006. On October 15, 2006, upon reaching 82 percent, the unit was taken off line and shut down for refueling. The unit was made critical on November 1, 2006, and placed on the grid on the next day. During the subsequent power ascension, power was reduced from 75 percent to 57 percent on November 4, 2006, due to feedwater pump problems. The unit reached full power on November 9, 2006, and remained at or near full power for the remainder of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01)

Readiness for Seasonal Susceptibilities

a. Inspection Scope

The inspectors reviewed the licensee's procedures and preparations for winter cold weather conditions. The inspectors selected protection of outside tanks, specifically the condensate storage tanks and primary water storage tanks for the sample. The inspectors ensured that tank heating systems including power supplies and controllers were operable and operating as specified by the Updated Safety Analysis Report. The inspectors verified that minor issues identified during the inspection were entered into the licensee's corrective action program. Documents reviewed in this inspection are listed in the Attachment.

This review constituted one sample of the inspection requirement.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment (71111.04)

Partial Walkdowns

a. Inspection Scope

The inspectors performed partial walkdowns of the accessible portions of risk-significant system trains during periods when the train was of increased importance due to redundant trains or other equipment being unavailable. The inspectors utilized the valve and electric breaker listed to determine whether the components were properly positioned and that support systems were aligned as needed. The inspectors also examined the material condition of the components and observed operating parameters of equipment to determine whether there were any obvious deficiencies. The inspectors reviewed issue reports (IRs) associated with the train to determine whether those documents identified issues affecting train functionality. The inspectors used the information in the appropriate sections of the Technical Specifications (TSs) and the Updated Final Safety Analysis Report (UFSAR) to determine the functional requirements of the system. The inspectors also reviewed the licensee's identification of and the controls over the redundant risk-related equipment required to remain in service. The inspectors verified that minor issues identified during this inspection were entered into the licensee's corrective action program. Documents reviewed during this inspection are listed in the Attachment.

The inspectors completed three samples of this requirement by walkdowns of the following trains:

- Unit 1 and Unit 2 125 volt direct current safety-related electrical system;
- 2B diesel generator; and
- 2A containment spray train.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05)

Quarterly Inspection

a. Inspection Scope

The inspectors conducted fire protection walkdowns which were focused on availability, accessibility, and the condition of fire fighting equipment, the control of transient combustibles and ignition sources, and on the condition and operating status of installed fire barriers. The inspectors selected fire areas for inspection based on their overall contribution to internal fire risk, as documented in the Individual Plant Examination of External Events with later additional insights on their potential to impact equipment which could initiate a plant transient or be required for safe shut down. The inspectors used the Fire Protection Report, Revision 21, to determine: 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 that fire doors, dampers, and penetration seals appeared to be in satisfactory condition.

The inspectors completed nine samples of this inspection requirement during the following walkdowns:

- turbine building 451 elevation outage lay down areas (8.6-0);
- miscellaneous electrical equipment and 125VDC battery rooms (5.4/6-1/2);
- 0A and 0B control room ventilation rooms (18.4-1/2);
- auxiliary building 383 elevation general area (11.4-0);
- auxiliary building 364 elevation general area (11.3-0);
- Unit 1 426 elevation electrical penetration area (11.6-1);
- Unit 2 426 elevation electrical penetration area (11.6-2);
- Unit 1 346 elevation general area and residual heat removal/containment spray pump rooms (11.2A-D-1); and
- Unit 2 346 elevation general area and residual heat removal/containment spray pump rooms (11.2A-D-2).

The inspectors verified that minor issues identified during the inspection were entered into the licensee's corrective action program. Documents reviewed during this inspection are listed in the Attachment.

b. Findings

Introduction: The inspectors identified a non-cited violation (NCV) of the Braidwood Station Operating License, having very low safety significance (Green), for the failure to implement the licensee's procedure for control of combustible materials. Specifically, licensee personnel staged unattended transient combustible materials underneath horizontal cable trays in the auxiliary building contrary to the licensee's procedure for control of combustible materials.

Description: The inspectors identified unattended transient combustibles staged directly underneath horizontal cable trays in the Unit 2 electrical penetration room in the auxiliary building. The transient combustibles consisted of 27 charcoal trays which had been previously removed from the 2B containment charcoal filter unit. The inspectors noted that some of the horizontal cable trays contained safety-related cables.

During the Unit 2 refueling outage, the 27 charcoal filters were removed from the 2B containment charcoal filter unit when its fire protection deluge system failed to meet testing acceptance criterion for system operability. During the demobilization of the area of the fuel handling building immediately outside of the Unit 2 containment equipment hatch, mechanical maintenance moved the charcoal filters from their permitted temporary storage location to the unauthorized location in the electrical penetration room due to poor interdepartmental communication and lack of knowledge of plant procedures. This action resulted in the unattended staging of transient combustible materials.

Section 4.4.2, Paragraph 6, of Operations Administrative Procedure OP-AA-201-009, "Control of Transient Combustible Material," Revision 5 states, "Do not stage exposed Class A combustible material directly beneath horizontal cable trays. Procedure OP-AA-201-009 defined Class A materials as ordinary combustibles materials, such as wood, cloth, paper, rubber, charcoal, and plastics. The inspectors considered the placement of unattended combustible materials to be contrary to the requirements of procedure OP-AA-201-009.

Once identified, the licensee initiated IR 554320, relocated the combustible materials from underneath the horizontal cable trays, and inspected other areas for improperly stored combustible materials. As part of their review, the licensee identified that certain licensee staff members were not aware of the transient combustible permit program.

Analysis: The inspectors determined that the staging of transient combustible materials underneath horizontal cable trays was a performance deficiency, warranting a significance evaluation. The inspectors concluded that the finding was greater than minor in accordance with Inspector Manual Chapter (IMC) 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening," issued on November 2, 2006, because the failure to adequately control combustible materials was associated with an increase in the likelihood of an initiating event, i.e., fire. Consequently, the transient combustible materials presented a credible fire scenario involving equipment important to safety (such as the safety-related cables within the horizontal cable trays). In addition, the finding affected the cross-cutting area of Human Performance because licensee work groups failed to communicate, coordinate, and cooperate with each other during activities in which interdepartmental coordination was necessary to assure plant and human performance.

The inspectors reviewed IMC 0609, "Significance Determination Process," Appendix A, "Determining the Significance of Reactor Inspection Findings for At-Power Situations," dated November 22, 2005, and determined that since the finding affected administrative controls for fire protection, a significance determination evaluation under IMC 0609, Appendix F, was required. The inspectors completed a significance determination of this issue using IMC 0609, Appendix F, Attachment 2, "Degradation Rating Guidance Specific to Various Fire Protection Program Elements," dated February 28, 2005. The inspectors determined that the staging of Class A combustibles was a low degradation issue against the combustible controls program because the identified materials would not cause a fire from existing sources of heat or electrical energy. Question 1 of IMC 0609, Appendix F, Task 1.3.1, "Qualitative Screening for All Finding Categories," showed that the finding was of very low safety significance (Green) due to the low degradation rating.

Enforcement: License Condition 2.E, of the Unit 2 Braidwood Station Operating License NPF-77 required, in part, that the licensee implement and maintain in effect all provisions of the approved fire protection program as described in the UFSAR, as supplemented and amended, and as approved in the Safety Evaluation Report dated November 1983 and its supplements. Section 9.5.1, "Fire Protection Systems," of the UFSAR, stated that the design bases, system descriptions, safety evaluation, inspection and testing requirements, personnel qualification, and training were described in the Byron/Braidwood Fire Protection Report. Section 3.2, Paragraph c, of the

Byron/Braidwood Fire Protection Report stated that the station complied with the NRC guideline that administrative controls should be used to maintain the performance of the fire protection system and personnel. The controls established procedures to govern the handling of and limit transient fire loads such as combustible and flammable liquids, wood and plastic products, or other combustible materials in buildings containing safety related systems or equipment during all phases of operating, and especially during maintenance, modification, or refueling operations. Procedure OP-AA-201-009 provided the administrative controls to satisfy the commitment outlined in Section 3.2, Paragraph c., of Byron/Braidwood Fire Protection Report. Section 4.4.2, Paragraph 6, of procedure OP-AA-201-009, "Control of Transient Combustible Material," specified that Class A combustible materials not be staged immediately underneath horizontal cable trays.

Contrary to the above, on November 6, 2006, the inspectors identified Class A unattended combustible materials, which consisted of 27 charcoal filter trays, staged directly underneath horizontal cable trays on the 426 foot elevation of the Unit 2 electrical penetration room of the auxiliary building. Because this violation was of very low safety significance and was entered into the licensee's corrective action program as IR 554320, this violation is being treated as an NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy. (NCV 05000457/2006005-01)

1R07 Heat Sink Performance (71111.07)

.1 Annual Review

a. Inspection Scope

The inspectors reviewed the test data for a performance test on the Unit 2 component cooling heat exchanger performed on October 16, 2006. The inspectors reviewed this documentation to confirm that the performance testing methodology was consistent with accepted industry and scientific practices such as the Electric Power Research Institute (EPRI) standard NP-7552, "Heat Exchanger Performance Monitoring Guidelines." The review consisted of ensuring that all steps in the procedure were properly completed and recorded, that all results were within the acceptance criteria, that the results were consistent with past results and trends, and that the results indicated that the heat exchanger had been operable during the previous operating cycle and could be expected to remain operable during the next cycle. Documents reviewed in this inspection are listed in the Attachment. This inspection constituted one sample of the annual requirement.

b. Findings

No findings of significance were identified.

.2 Biennial Review of Heat Sink Performance (71111.07B)

a. Inspection Scope

From November 6 through 9, 2006, a specialist inspector performed the biennial assessment of heat sink performance by reviewing documents associated with the 1A safety injection pump lube oil cooler, 1B essential service water cubicle cooler, and the 2A containment spray pump cubicle cooler. The heat exchangers were chosen based on their risk ranking in the licensee's probabilistic risk assessment. The review of these heat exchangers constituted three samples.

While onsite, the inspectors reviewed completed surveillance tests and associated procedures for the selected heat exchangers. The inspectors reviewed this documentation to confirm that the inspection or performance testing methodology was consistent with accepted industry and scientific practices such as EPRI standard NP-7552, "Heat Exchanger Performance Monitoring Guidelines." The inspectors reviewed heat exchanger performance testing documentation to verify that acceptance criteria were consistent with design basis values, as outlined in the UFSAR, the TS requirements, and as provided in the licensee's Generic Letter (GL) 89-13 program documentation and that instrument uncertainty was appropriately considered.

The inspectors reviewed documentation to verify performance of the ultimate heat sink. Specifically, the inspectors reviewed the availability of the ultimate heat sink with bio-fouling conditions. In addition, the inspectors verified the ultimate heat sink capacity. This verification was done through the review of licensee procedures and completed surveillance tests, or interviews with licensee engineers. These reviews were done to confirm that a program had been established and implemented consistent with licensee commitments to GL 89-13, "Service Water System Problems Affecting Safety-Related Equipment."

The inspectors reviewed condition reports associated with the selected heat exchangers or those related to the ultimate heat sink to verify that the licensee had an appropriate threshold for identifying issues. The inspectors also evaluated the effectiveness of the corrective actions for identified issues, including design changes and engineering justifications for operability. These reviews were done to ensure compliance with 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," requirements.

The documents that were reviewed are included in the Attachment.

b. Findings

No findings of significance were identified.

1R08 Inservice Inspection (ISI) Activities (IP 71111.08)

.1 Piping Systems ISI

a. Inspection Scope

From October 17 through October 31, 2006, the inspectors conducted a review of the implementation of the licensee's ISI program for monitoring degradation of the reactor coolant system boundary, and the risk-significant piping system boundaries for Unit 2. The inspectors selected the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code Section XI required examinations and Code components in order of risk priority, as identified in Section 71111.08-03 of the inspection procedure, and based upon the ISI activities available for review during the onsite inspection period.

The inspectors observed the nondestructive examination (NDE) of the following welds to evaluate compliance with the ASME Code Section XI requirements and to verify that indications and defects (if present) were dispositioned in accordance with the ASME Code Section XI:

- Ultrasonic Examination of 2FW-10-20 feedwater pipe-tee weld;
- Ultrasonic Examination of 2FW-10-21 feedwater tee-6" X 4" reducer weld;
- Ultrasonic Examination of 2FW-10-22 feedwater tee-pipe weld;
- Ultrasonic Examination of 2FW-10-23 feedwater pipe-pipe weld;
- Ultrasonic Examination of 2FW-12-21 feedwater pipe-tee weld;
- Ultrasonic Examination of 2FW-12-22 feedwater tee-6" X 4" reducer weld;
- Ultrasonic Examination of 2FW-12-23 feedwater tee-pipe weld;
- Ultrasonic Examination of 2FW-12-24 feedwater pipe-pipe weld;
- Magnetic Particle Examination of 2FW-12-25 feedwater pipe-penetration weld;
and
- Magnetic Particle Examination of 2FW-12-25A feedwater pipe-penetration weld.

The inspectors also reviewed the following examination from the previous Unit 2 outage with recordable indications that have been accepted by the licensee for continued service to verify that the licensee's acceptance for continued service was in accordance with the ASME Code:

- Ultrasonic examination of 2FW-09-24 feedwater pipe-elbow weld (intermittent root geometry observed 360 degrees with the 60 degree scan)

No pressure boundary welds for a Unit 2 ASME Code Class 1 or 2 systems since the beginning of the last Unit 2 refuel outage were performed, therefore, none were reviewed.

The documents that were reviewed are included in the Attachment. The reviews as discussed above counted as one inspection sample.

b. Findings

No findings of significance were identified.

.2 Pressurized Water Reactor Vessel Head Penetration (VHP) ISI

a. Inspection Scope

The inspectors did not perform a review of this procedure section (reduction in one inspection sample), because it is not required to be implemented until after completion of Temporary Instruction (TI) 2515/150 "Reactor Pressure Vessel Head and Vessel Head Penetration Nozzles," which was completed during this inspection and is addressed in section 4OA5.

b. Findings

No findings of significance were identified.

.3 Boric Acid Corrosion Control (BACC) ISI

a. Inspection Scope

From October 15, 2006, through October 30, 2006, the inspectors reviewed the Unit 2 Fall 2006 refueling outage (A2R12) BACC inspection activities conducted pursuant to licensee commitments made in response to NRC Generic Letter 88-05, Boric Acid Corrosion of Carbon Steel Reactor Pressure Boundary.

The inspectors observed the licensee conducting a walkdown of borated systems within the Unit 2 containment both inside and outside the missile barrier. The scope of this walkdown included a bare metal visual examination of the reactor vessel closure head and VHPs from access doors on the service structure. The inspectors observed the licensee during these examinations to evaluate compliance with licensee BACC program requirements and 10 CFR Part 50, Appendix B, Criterion XVI, Corrective Action requirements. In particular, the inspectors performed this observation to determine if the licensee focused BACC inspections on locations where boric acid leaks can cause degradation of safety significant components and to determine if degraded or non-conforming conditions were properly identified in the licensee's corrective action system.

The inspectors reviewed corrective actions and evaluations performed for boric acid found on reactor coolant system connected piping and components to confirm that corrective actions were consistent with requirements of Section XI of the ASME Code and 10 CFR Part 50, Appendix B, Criterion XVI, and that the minimum Code required section thickness had been maintained for the affected components. The documents that were reviewed are included in the Attachment.

The reviews as discussed above counted as one inspection sample.

b. Findings

No findings of significance were identified.

.4 Unit 2 Steam Generator (SG) Tube Inspection Activities

a. Inspection Scope

Braidwood Unit 2 has Westinghouse Model D5 SGs with thermally-treated Inconel Alloy 600 tubes with no history of tube material condition deterioration, degraded performance criteria (i.e., operational leakage, structural integrity, or accident leakage), history of primary-to-secondary leakage, or reported potential degraded condition due to SG design, water chemistry, material properties, or newly identified degradation mechanisms. The NRC inspectors observed acquisition of eddy current (ET) data, interviewed ET data analysts, and reviewed a sample of documents related to the SG ISI program to determine if:

- Procedure 71111.08, Step 02.04.a.1 and Step 02.04.a.2, the in-situ screening criteria were in accordance with the EPRI Guidelines and the appropriate tubes were to be in-situ pressure tested;
- Procedure 71111.08, Step 02.04.b, the estimated size and number of tube flaws detected during the current outage were compared against the previous outage operational assessment predictions to assess the licensee's prediction capability;
- Procedure 71111.08, Step 02.04.c, the SG tube ET examination scope and expansion criteria were sufficient to identify tube degradation based on-site and industry operating experience by confirming that the ET scope completed was consistent with the licensee's procedures, plant TS requirements and EPRI 1003138, "Pressurized Water Reactor Steam Generator Examination Guidelines; Revision 6;"
- Procedure 71111.08, Step 02.04.e, the examination scope included all areas of potential degradation especially known areas which represent ET challenges such as the tubesheet regions, expansion transitions, and support plates;
- Procedure 71111.08, Step 02.04.f, the licensee implemented repair methods which were consistent with the repair processes allowed in the plant TS requirements;
- Procedure 71111.08, Step 02.04.g.(1), the TS plugging limit is being adhered to;
- Procedure 71111.08, Step 02.04.g.(2), the depth sizing repair criterion is being applied for indications other than wear or axial primary water stress corrosion cracking (PWSCC) in dented tube support plate intersections;
- Procedure 71111.08, Step 02.04.i, the ET probes and equipment configurations used to acquire data from the SG tubes were qualified to detect the known/expected types of SG tube degradation in accordance with Appendix H, "Performance Demonstration for Eddy Current Examination," of EPRI 1003138, "Pressurized Water Reactor Steam Generator Examination Guidelines," Revision 6; and
- Procedure 71111.08, Step 02.04.j, the licensee took appropriate corrective actions for loose parts including performing evaluations for unretrievable loose parts.

Activities which were not applicable during this inspection are as follows:

- Procedure 71111.08, Steps 02.04.a.3 and 02.04.a.4, In-situ Pressure Testing, were not available for review, because none of the SG tubes examined during the current refueling outage met the screening requirements for pressure testing;
- Procedure 71111.08, Step 02.04.d, new tube degradation mechanisms were not available for review because none were present;
- Procedure 71111.08, Step 02.04.h, the reasonable cause of primary-to-secondary leakage, (e.g., SG tube leakage) was not available for review, because primary-to-secondary leakage did not exceed 3 gallons per day during operations or during post-shutdown visuals; and
- Procedure 71111.08, Step 02.04.k, serious questions regarding ET data analysis were not raised, and hence additional review of samples of ET data was not necessary.

The documents that were reviewed are included in the Attachment.

The reviews as discussed above counted as one inspection sample.

b. Findings

No findings of significance were identified.

.5 Identification and Resolution of Problems

a. Inspection Scope

The inspectors reviewed several ISI/SG related problems documented in the licensee's corrective action program to assess conformance with 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," requirements. The corrective action documents reviewed by the inspectors are listed in the Attachment. In addition, the inspectors verified that the licensee correctly assessed operating experience for applicability to the ISI group. This review does not constitute an inspection sample.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program (71111.11)

Quarterly Review of Testing/Training Activity

a. Inspection Scope

The inspectors observed operating crew performance during an evaluated simulator examination scenario involving a dropped control rod and auxiliary building flooding caused by an essential service water break.

The inspectors evaluated crew performance in the following areas:

- clarity and formality of communications;
- ability to take timely actions in the safe direction;
- prioritization, interpretation, and verification of alarms;
- procedure use;
- control board manipulations;
- oversight and direction from supervisors; and
- group dynamics.

Crew performance in these areas was compared to licensee management expectations and guidelines.

The inspectors verified that the crew completed the critical tasks listed in the simulator guide. The inspectors also compared simulator configurations with actual control board configurations. For any weaknesses identified, the inspectors observed the licensee evaluators to determine whether they also noted the issues and discussed them in the critique at the end of the session. Documents reviewed are listed in the Attachment. This review constituted one sample of this inspection requirement.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12)

Routine Inspection

a. Inspection Scope

The inspectors reviewed the licensee's overall maintenance effectiveness for selected plant systems. This evaluation consisted of the following specific activities:

- observing the conduct of planned and emergent maintenance activities where possible;
- reviewing selected IRs, open work orders, and control room log entries in order to identify system deficiencies;
- reviewing licensee system monitoring and trend reports;
- attending various meetings throughout the inspection period where the status of maintenance rule activities was discussed;
- a partial walkdown of the selected system; and
- interviews with the appropriate system engineer.

The inspectors also reviewed whether the licensee properly implemented Maintenance Rule, 10 CFR 50.65, for the chosen systems. Specifically, the inspectors determined whether:

- the system was scoped in accordance with 10 CFR 50.65;
- performance problems constituted maintenance rule functional failures;

- the system had been assigned the proper safety significance classification;
- the system was properly classified as (a)(1) or (a)(2); and
- the goals and corrective actions for the system were appropriate.

The above aspects were evaluated using the maintenance rule program and other documents listed in the Attachment. The inspectors also verified that the licensee was appropriately tracking reliability and/or unavailability for the systems. The inspectors verified that minor issues identified during this inspection were entered into the licensee's corrective action program.

The inspectors completed two samples in this inspection requirement by reviewing the following systems:

- control room ventilation system subsequent to a maintenance rule functional failure; and
- pressurizer system subsequent to Unit 2 pressurizer power operated relief valve seat leakage and instrument air leak.

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 management of plant risk during emergent maintenance activities or during activities where more than one significant system or train was unavailable. The activities were chosen based on their potential impact on increasing the probability of an initiating event or impacting the operation of safety-significant equipment. The inspections were conducted to determine whether evaluation, planning, control, and performance of the work were done in a manner to reduce the risk and minimize the duration where practical, and that contingency plans were in place, where appropriate, and consistent with the requirements of 10 CFR 50.65.

The licensee's daily configuration risk assessment records, observations of operator turnover and plan-of-the-day meetings, and observations of work in progress, were used by the inspectors to verify that the equipment configurations were properly listed; protected equipment were identified and were being controlled where appropriate; work was being conducted properly; and significant aspects of plant risk were being communicated to the necessary personnel.

The inspectors verified that minor issues identified during the inspection were entered into the licensee's corrective action program. In addition, the inspectors reviewed selected issues, listed in the Attachment, that the licensee encountered during the activities to determine whether those problems were being entered into the corrective action program with the appropriate characterization and significance.

The inspectors completed three samples by reviewing the following activities:

- overpower delta temperature rod block relay failure, troubleshooting, and replacement;
- Unit 2 outage B train protected equipment; and
- 2A residual heat removal train out of service with transient combustibles in vicinity of protected equipment.

b. Findings

No findings of significance were identified..

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors evaluated plant conditions and selected IRs for risk-significant components and systems in which the operability status of equipment was questioned. These conditions were evaluated to determine whether the operability of components was justified. The inspectors compared the operability and design criteria in the appropriate section of the UFSAR to the licensee's evaluations presented in the IRs and documents, listed in the Attachment, to verify that the components or systems were operable. The inspectors also conducted interviews with the appropriate licensee system engineers and conducted plant walkdowns, as necessary, to obtain further information regarding operability questions. The inspectors verified that minor issues identified during this inspection were entered into the licensee's corrective action program. Documents reviewed as part of this inspection are listed in the Attachment.

The inspectors completed five samples by reviewing the following operability evaluations and conditions:

- discovery that the source range audible count speaker in Unit 2 containment was missing;
- pressurizer power operated relief valve air accumulator leakage on 2RY455A;
- 2CC9486 containment isolation valve failed local leak rate test;
- 2B diesel generator starting air dryer bypassed; and
- 0SX63B control room ventilation chiller isolation valve stuck open.

b. Findings

No findings of significance were identified.

1R17 Permanent Plant Modifications (71111.17)

Annual Review

a. Inspection Scope

Prior to Unit 2 refueling outage (A2R12), the licensee replaced both safety-related instrument buses 211 and 212 7.5 kilovolt-amps inverters (2IP05E and 2IP06E) with AMETEK 10 kilovolt-amps inverters. The corresponding constant voltage transformers were also replaced with a design compatible with the new inverters. Final completion of the modification, which also included replacement of the main direct current power breakers to the inverters and wiring of an automatic swap feature to the constant voltage transformer, required the unit to be shut down to minimize plant risk. The inspectors reviewed selected ongoing and completed work activities to verify that installation was consistent with the design control documents. Documents reviewed as part of this inspection are listed in the Attachment.

This review was a continuation of the sample previously reported in IR 2006004 and represents one inspection sample.

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing (71111.19)

a. Inspection Scope

The inspectors reviewed post-maintenance testing activities associated with important mitigating systems, barrier integrity, and support systems to ensure that the testing adequately demonstrated system operability and functional capability. The inspectors used the appropriate sections of the TS and UFSAR, as well as the work orders for the work performed, to evaluate the scope of the maintenance and to determine whether the post-maintenance testing was performed adequately, demonstrated that the maintenance was successful, and that operability was restored. The inspectors determined whether the tests were conducted in accordance with the procedures, which included establishing the proper plant conditions and prerequisites; that the test acceptance criteria were met; and that the results of the tests were properly reviewed and recorded. The activities were selected based on their importance in demonstrating mitigating systems capability and barrier integrity. The inspectors verified that minor issues identified during the inspection were entered into the licensee's corrective action program. Documents reviewed as part of this inspection are listed in the Attachment.

Three samples were completed by observing post-maintenance testing of the following components:

- 2B diesel generator following governor replacement;
- 2A residual heat removal pump following a routine work window; and
- 2B containment spray pump following a routine work window.

b. Findings

No findings of significance were identified.

1R20 Refueling and Other Outage Activities (71111.20)

a. Inspection Scope

The inspectors reviewed the Outage Safety Plan and contingency plans for the Unit 2 refueling outage, conducted October 15 - November 2, 2006, to confirm that the licensee had appropriately considered risk, industry experience, and previous site-specific problems in developing and implementing a plan that assured maintenance of defense-in-depth. During the refueling outage, the inspectors observed portions of the shutdown and cooldown processes and monitored licensee controls over the outage activities listed below. The inspectors verified that minor issues identified during the inspection were entered into the licensee's corrective action program. Documents reviewed during the inspection are listed in the Attachment. This inspection constituted one sample.

This inspection included:

- initial walkdown of containment to look for evidence of reactor coolant system leakage and other discrepancies;
- review of licensee configuration management, including maintenance of defense-in-depth commensurate with the Outage Safety Plan for key safety functions and compliance with the applicable TS when taking equipment out of service;
- observation of clearance activities and confirmation that tags were properly hung and equipment appropriately configured to safely support the work or testing;
- review of the installation and configuration of reactor coolant pressure, level, and temperature instruments to provide accurate indication and an accounting for instrument error;
- review of the licensee's controls over the status and configuration of electrical systems to ensure that TS and outage safety plan requirements were met, and controls over switchyard activities;
- monitoring of decay heat removal processes;
- review of the licensee's controls to ensure that outage work was not impacting the ability of the operators to operate the spent fuel pool cooling system;
- monitoring reactor water inventory controls including flow paths, configurations, and alternative means for inventory addition, and controls to prevent inventory loss;
- monitoring the licensee's controls over activities that could affect reactivity;
- observations of maintenance on secondary containment as required by TS;
- observation and review of refueling activities, including fuel handling;
- observation and review of the licensee's response to leakage identified from the refueling cavity with respect to boric acid corrosion and inventory control;

- observation and review of startup and ascension to full power operation, tracking of startup prerequisites, walkdown of the primary containment to verify that debris had not been left which could block emergency core cooling system suction strainers, and reactor physics testing; and
- monitoring and review of licensee identification and resolution of problems related to refueling outage activities.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors reviewed surveillance testing activities associated with important mitigating systems, barrier integrity, and support systems to ensure that the testing adequately demonstrated system operability and functional capability. The inspectors used the appropriate sections of the TS and UFSAR to determine whether the surveillance testing was performed adequately and that operability was restored. The inspectors determined whether the testing met the frequency requirements; that the tests were conducted in accordance with the procedures, including establishing the proper plant conditions and prerequisites; that the test acceptance criteria were met; and that the results of the tests were properly reviewed and recorded. The activities were selected based on their importance in demonstrating mitigating systems capability, barrier integrity and the initiating events cornerstone. The inspectors verified that minor issues identified during the inspection were entered into the licensee's corrective action program. Documents reviewed as part of this inspection are listed in the Attachment.

Seven samples were completed by observing and evaluating the following surveillance tests:

- 1A diesel generator bypass of automatic trips (routine);
- Unit 2 main steam safety Trevi testing (inservice testing);
- Unit 2 control rod drop testing (routine);
- Unit 2 source range channel N32 calibration (routine);
- Unit 1 anticipated transient without scram mitigation system operability test (routine);
- Unit 1 emergency core cooling system vent and valve verification (routine); and
- Unit 1 containment purge 48 inch exhaust isolation valve local leak rate test (isolation valve).

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness

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

a. Inspection Scope

The inspectors completed a screening review of Revision 16 of the Braidwood Station Annex of the Exelon Standardized Emergency Plan to determine whether changes identified in this Annex revision may have reduced the effectiveness of the licensee's emergency planning. The screening review of Revision 16 does not constitute approval of the changes and, as such, the changes are subject to future NRC inspection to ensure that the emergency plan continues to meet NRC regulations. The documents that were reviewed are included in the Attachment.

These activities completed one inspection sample.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety

2OS1 Access Control to Radiologically Significant Areas (71121.01)

.1 Plant Walkdowns and Radiation Work Permit Reviews

a. Inspection Scope

The inspectors identified three radiologically significant work areas within radiation areas, high radiation areas (HRAs), and airborne areas in the containment and auxiliary buildings. Selected "As-Low-As-Is-Reasonably-Achievable" (ALARA) work packages and radiation work permits were reviewed to determine if radiological controls including surveys, postings, air sampling data, and barricades were acceptable. Radiation Work Permits (RWPs) and ALARA work packages included:

- RWP 10007010 and ALARA Plan, A2R12: Various Filter Changes; Revision 0;
- RWP 10007044 and ALARA Plan, A1R12: Manway and Diaphragm Removal, Installation and Bolt Cleaning; Revision 0; and
- RWP 10007038 and ALARA Plan, A2R12: Install and Remove SG Nozzle Covers; Revision 0.

This review represented one sample.

The identified radiologically significant work areas were walked down and surveyed to determine if the prescribed RWP, procedures, and engineering controls were in place, that licensee surveys and postings were complete and accurate, and that air samplers were properly located. This review represented one sample.

The inspectors reviewed selected RWPs and associated radiological controls used to access these and other radiologically significant areas. Work control instructions and specified control barriers were evaluated in order to determine if the controls provided adequate worker protection. Site TS requirements for HRAs and locked high radiation areas were used as standards for the necessary barriers. Electronic dosimeter alarm set points for both integrated dose and dose rate were evaluated for conformity with survey indications and plant policy. The inspectors attended pre-job briefings to determine if instructions to workers emphasized the actions required when their electronic dosimeters noticeably malfunctioned or alarmed. This review represented one sample.

The inspectors reviewed job planning records and interviewed licensee representatives to determine if there were airborne radioactivity areas in the plant with a potential for individual worker internal exposures to exceed 50 millirem committed effective dose equivalent. Barrier integrity and engineering controls performance, such as high efficiency particulate filtration ventilation system operation, and the use of respiratory protection, was evaluated for worker protection. Work areas having a history of, or the potential for, airborne transuranic isotopes were reviewed to determine if the licensee had considered the potential for transuranic isotopes, and provided appropriate worker protection. This review represented one sample.

The adequacy of the licensee's internal dose assessment process for analyzing internal exposures that exceed 50 millirem committed effective dose equivalent was assessed to determine if affected personnel would be properly monitored utilizing calibrated equipment, that the data would be analyzed, and internal exposures would be properly assessed in accordance with licensee procedures. This review represented one sample.

The inspectors reviewed the licensee's physical and programmatic controls for highly activated and/or contaminated materials (non-fuel) stored within the spent fuel pool. The documents that were reviewed are included in the Attachment. This review represented one sample.

b. Findings

No findings of significance were identified.

.2 Job-In-Progress Reviews

a. Inspection Scope

The inspectors evaluated selected jobs being performed in radiation areas, potential airborne radioactivity areas, and HRAs for observation of work activities that presented the greatest radiological risk to workers and included areas where radiological gradients were present (Section 2OS1.1). This evaluation involved jobs that were estimated to result in higher collective doses and included the removal of SG manways and SG diaphragms, the installation of SG nozzle covers, and other selected work areas in the containment building.

The inspectors reviewed radiological job requirements contained in RWP and work procedures and attended ALARA pre-job briefings. Job performance was observed with respect to these requirements to determine if radiological conditions in the work areas were adequately communicated to workers through pre-job briefings and radiological condition postings. This review represented one sample.

The inspectors also evaluated the adequacy of radiological controls including required radiation, contamination and airborne surveys for system breaches, and entry into HRAs. Radiation protection (RP) job coverage, including direct visual surveillance by radiation protection technicians, along with the remote monitoring and teledosimetry systems and contamination control processes, were evaluated to determine if workers were adequately protected from radiological exposure. This review represented one sample.

Job preparation and execution in HRAs having significant dose rate gradients was observed to evaluate the application of dosimetry to effectively monitor exposure to personnel and to determine if licensee controls were adequate. The inspectors observed radiation protection coverage of the removal of SG manways and SG diaphragms and the installation of SG nozzle covers which involved controlling worker locations based on radiation survey data and real time monitoring using teledosimetry in order to maintain personnel radiological exposure ALARA. The documents that were reviewed are included in the Attachment. This review represented one sample.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

The inspectors reviewed the licensee's procedures and practices for high risk, high dose rate HRAs, and for very high radiation area access, to determine if workers were adequately protected from radiological overexposure. Discussions were held with radiation protection management concerning high dose rate HRA and very high radiation area controls and procedures, including procedural changes that had occurred since the last inspection. This review was done to determine if procedure modifications had substantially reduced the effectiveness and level of worker protection. This review represented one sample.

The inspectors evaluated the controls including procedures RP-AA-460, "Controls For High and Very High Radiation Areas," Revision 10 and RP-AA-460-1001, "Additional High Radiation Exposure Control," Revision 1, that were in place for special areas that had the potential to become very high radiation areas during certain plant operations. Discussions were held with radiation protection supervisors to determine how the required communications between the radiation protection group and other involved groups would occur beforehand in order to allow corresponding timely actions to properly post and control the radiation hazards. This review represented one sample.

During plant walkdowns, the posting and locking of entrances to high dose rate HRAs and very high radiation areas were reviewed for adequacy. The documents that were reviewed are included in the Attachment.

This review represented one sample.

b. Findings

No findings of significance were identified.

.4 Radiation Worker Performance

a. Inspection Scope

During job performance observations, the inspectors evaluated radiation worker performance with respect to stated radiation protection work requirements. The inspectors also evaluated whether workers were aware of the significant radiological conditions in their workplace, the RWP controls and limits in place, and that their performance had accounted for the level of radiological hazards present. This review represented one sample.

Radiological problem reports, which found that the cause of an event resulted from radiation worker errors, were reviewed to determine if there was an observable pattern traceable to a similar cause and to determine if this perspective matched the corrective action approach taken by the licensee to resolve the reported problems. This review represented one sample. The documents that were reviewed are included in the Attachment.

b. Findings

No findings of significance were identified.

.5 Radiation Protection Technician Proficiency

a. Inspection Scope

The inspectors observed and evaluated radiation protection technician performance with respect to RP work requirements. This observation was done to evaluate whether the technicians were aware of the radiological conditions in their workplace, the RWP controls and limits in place, and if their performance was consistent with their training and qualifications with respect to the radiological hazards and work activities. This review represented one sample.

Radiological problem reports, which found that the cause of an event was radiation protection technician error, were reviewed to determine if there was an observable pattern traceable to a similar cause, and to determine if this perspective matched the corrective action approach taken by the licensee to resolve the reported problems. This review represented one sample. The documents that were reviewed are included in the Attachment.

b. Findings

No findings of significance were identified.

2OS2 As Low-As-Is-Reasonably-Achievable Planning And Controls (71121.02)

.1 Inspection Planning

a. Inspection Scope

The inspectors reviewed plant collective exposure history and current exposure trends along with ongoing and planned activities in order to assess current performance and exposure challenges. This included determining the plant's current 3-year rolling average collective exposure and comparing the site's radiological exposure on a yearly basis for the previous 3 years. This review represented one sample.

The inspectors reviewed the outage work scheduled during the inspection period along with associated work activity exposure estimates, including the five work activities which were likely to result in the highest personnel collective exposures. This review represented one sample.

Procedures associated with maintaining occupational exposures ALARA and processes used to estimate and track work activity specific exposures were reviewed. This review represented one sample. The documents that were reviewed are included in the Attachment.

b. Findings

No findings of significance were identified.

.2 Radiological Work Planning.

a. Inspection Scope

The inspectors evaluated the licensee's list of work activities, ranked by estimated exposure, that were in progress and selected the five work activities of highest exposure potential. This review represented one sample.

The inspectors reviewed the ALARA work activity evaluations, exposure estimates, and exposure mitigation requirements, in order to determine if the licensee had established procedures, along with engineering and work controls, that were based on sound radiation protection principles, in order to achieve occupational exposures that were ALARA. This also involved determining if the licensee had reasonably grouped the radiological work into work activities, based on historical precedence, industry norms, or special circumstances. This review represented one sample.

The interfaces between operations, radiation protection, maintenance, maintenance planning, scheduling, and engineering groups were evaluated to identify interface problems or missing program elements. This review represented one sample.

The integration of ALARA requirements into work procedures and RWP documents was evaluated to determine if the licensee's radiological job planning would reduce dose. This review represented one sample.

Shielding requests from the radiation protection group were evaluated with respect to dose rate reduction and reduced worker exposure, along with engineering shielding responses follow up. This review represented one sample.

The inspectors reviewed work activity planning to determine if there was consideration of the benefits of dose rate reduction activities such as shielding, provided by water filled components and piping, job scheduling, along with shielding and scaffolding installation and removal activities. This review represented one sample. The documents that were reviewed are included in the Attachment.

b. Findings

No findings of significance were identified.

.3 Job Site Inspections and ALARA Controls

a. Inspection Scope

The inspectors observed the following four jobs that were being performed in radiation areas, airborne radioactivity areas, or high radiation areas for observation of work activities that presented the greatest radiological risk to workers:

- changing the reactor coolant filter;
- SG manway removal;
- SG diaphragm removal; and
- SG nozzle cover installation.

The licensee's use of ALARA controls for these work activities was evaluated using the following:

- The licensee's use of engineering controls to achieve dose reductions was evaluated to verify that procedures and controls were consistent with the licensee's ALARA reviews, that sufficient shielding of radiation sources was provided for, and that the dose expended to install/remove the shielding did not exceed the dose reduction benefits afforded by the shielding.

This review represented one inspection sample. The documents that were reviewed are included in the Attachment.

b. Findings

No findings of significance were identified.

.4 Radiation Worker Performance

a. Inspection Scope

Radiation worker and radiation protection technician performance was observed during work activities being performed in radiation areas, airborne radioactivity areas, and HRAs that presented the greatest radiological risk to workers. The inspectors evaluated whether workers demonstrated the ALARA philosophy in practice by being familiar with the work activity scope and tools to be used, by utilizing ALARA low dose waiting areas, and by complying with work activity controls. Also, radiation worker training and skill levels were reviewed to determine if they were sufficient relative to the radiological hazards and the work involved. This review represented one sample. The documents that were reviewed are included in the Attachment.

b. Findings

No findings of significance were identified.

Cornerstone: Public Radiation Safety

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

a. Inspection Scope

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:

- resumption of routine liquid effluent discharges to the river;
- operation of the pond remediation system;
- installation, testing, and initiation of a remediation system for areas near vacuum breaker one;
- response to increased tritium levels in the secondary plant and cooling lake;
- response to increased tritium levels in the oil separator; and
- weekly inspections of all of the vacuum breaker pits and remediation pumps.

The inspectors verified that minor issues identified during the inspection were entered into the licensee's corrective action program. Documents reviewed are listed in the Attachment. This inspection did not constitute a complete sample.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA2 Identification and Resolution of Problems (71152)

.1 Routine Review of Identification and Resolution of Problems

a. Inspection Scope

As discussed in previous sections of this report, the inspectors routinely assessed issues during baseline inspection activities and plant status reviews to determine whether the issues were being entered into the licensee's corrective action program at an appropriate threshold, that adequate attention was being given to timely corrective actions, and that adverse trends were identified and addressed. Minor issues entered into the licensee's corrective action program as a result of the inspectors' observations are generally denoted in the Attachment. These assessments were part of normal inspection activities and were not considered separate samples.

b. Findings

No findings of significance were identified.

.2 Semi-Annual Review to Identify Trends

a. Inspection Scope

As required by Inspection Procedure 71152, Identification and Resolution of Problems, the inspectors performed a review of the licensee's corrective action program and associated documents to identify trends that could indicate the existence of a more significant safety issue. The inspectors' review was focused on human performance issues. The inspectors reviewed IRs, quick human performance investigations, prompt investigations and common cause analyses issued in the 6-month period of April 1, 2006, through October 26, 2006 that resulted from human performance errors. The inspectors compared and contrasted their results with the results contained in the licensee's various trending reports. Corrective actions associated with a sample of the issues identified in the licensee's reports were reviewed for adequacy. The documents that were reviewed are included in the Attachment.

This review represents one inspection sample.

b. Observations

The inspectors' review verified that the licensee was adequately using the prompt investigation and quick human performance investigation tools when required by licensee procedures. The inspectors did not identify any trends in human performance not presently captured in the licensee's corrective actions program.

.3 Annual Sample: Review of Plant Page and Public Address System Audibility Problems

a. Inspection Scope

The inspectors reviewed licensee actions to resolve repeated problems with the audibility of the plant page/public address system in various work areas including the auxiliary, turbine, service and support buildings external to the power block. The inspectors reviewed issue reports covering the past 3 years in which site staff reported difficulty hearing or understanding plant announcements for both actual events and exercises. The inspectors also conducted interviews, with a focus on the adequacy of the corrective actions in place, with site personnel from the operations' and emergency preparedness' departments. The documents that were reviewed are included in the Attachment. This review represents one inspection sample.

b. Observations and Assessments

The licensee has worked to correct this issue via physical repairs, creating standing orders, frequent communications to plant staff, and through new technology. Specifically, the licensee identified plant locations where site announcements were unable to be heard and has corrected this through equipment replacement or refurbishment. Prior to the installation of adequate paging equipment, the licensee established an operations' department standing order that required dispatching a worker, to the deficient audio-locations, to inform workers of an existing emergency condition. At the time of the inspection, the standing order remained in place for just one warehouse facility outside of the main power block. In addition, the licensee periodically reminded the workers in the station newsletter that adjusting the volume of the plant address system in a particular space was not allowed by procedure and to use the corrective action program to address any plant address system volume issues. Lastly, the licensee was researching a new audio technology system. The new system measured ambient noise in a space and preset the volume of the address system to account for the background noise level.

.4 Annual Sample: Review of Constant Level Oiler Configuration for Pump Bearings

a. Inspection Scope

Based on industry operating experience and subsequent to constant level oiler placement issues identified at Byron Nuclear Station the inspectors walked down various safety and non safety-related pumps utilizing a constant level oiler for pump bearing lubrication. The inspectors referred to the licensee's Maintenance Administrative Procedure MA-AA-734-400 and vendor recommendations to determine the adequacy of oiler placement in reference to the pump bearing housing. The inspectors focused on the adequacy of the licensee's corrective actions that were in place. This review represents one inspection sample.

b. Observations and Assessments

The inspectors identified one safety-related pump (1A component cooling water) and eight additional non safety-related pumps, associated with the condensate makeup,

radwaste, chemical feed, and turbine building floor drains systems, which had constant level oilers mounted on the wrong side of their bearing housing. According to the vendor's recommendation and licensee's procedure, the constant level oiler should be mounted "on the side of the equipment facing the direction of shaft rotation at the bottom." Contrary to this recommendation, the constant level oilers were mounted on the side of the equipment facing the direction of shaft rotation at the top of the bearing. The concern with this configuration was that the rotation of the shaft created a low point in the oil level on this side of the pump's bearing housing. This low oil level caused the constant level oiler to "see" an oil level that was lower than the actual oil level. As a result, the constant level oiler would add additional oil to the pump's bearing housing. Since a higher actual oil level would exist, more of the bearing would enter the oil creating more friction and subsequent higher oil and bearing temperatures; these adverse conditions would eventually lead to bearing damage. The licensee conducted an extent of condition walkdown and identified 2 additional safety-related pumps and 14 non safety-related pumps which had installed the incorrect constant level oiler configuration. Prior to the inspectors conducting this walkdown, the licensee had identified that the primary water pump had an inadequate constant level oiler configuration in September 2006. At that time, an issue report was generated, but no extent of condition review was performed to identify other pumps with this incorrect configuration.

The safety-related pumps identified by both the inspectors and the licensee remained capable of performing their safety function as bearing temperature trends and oil analysis have shown that no abnormal bearing wear or damage resulted from the incorrect constant level oiler configuration. The licensee entered each condition in its corrective action program and generated work requests to properly mount the constant level oilers.

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

.1 (Closed) Licencee Event Report (LER) 05000456/2006001-00 and 05000456/2006001-01: Unit 1 Reactor Coolant System Pressure Boundary Leakage Due to Inter-Granular Stress Corrosion Cracking of a Pressurizer Heater Sleeve.

On April 25, 2006, leakage was identified as originating from the number 52 pressurizer heater sleeve. The leaking portion of the sleeve was cut out and the remaining portion of the sleeve was plugged and welded. The remaining heater sleeves were visually inspected and found free of leakage. The licensee performed a metallurgical analysis and determined that the root cause of this flaw was circumferentially oriented intergranular stress corrosion cracking of the number 52 pressurizer heater sleeve. The licensee attributed the cracking, in part, to a coupling fillet weld which sensitized a section of the Type 316 stainless steel base material. The leakage from this through-wall flaw was very minor (below detection thresholds) and occurred over several years. The licensee determined that this event did not result in a safety system functional failure and there were no safety consequences impacting the plant or public. The inspectors reviewed the licensee's corrective actions for this issue as documented in IRs 480489 and 493933, and found the corrective actions adequate.

Technical Specification (TS) 3.4.13 required that primary coolant operational leakage shall be limited to "No pressure boundary LEAKAGE" when in Modes 1 through 4. The Action Statement of TS 3.4.13 required that the plant be placed in Hot Standby (Mode 3) within 6 hours and in Cold Shutdown (Mode 5) within the following 36 hours. Although the beginning time of the pressure boundary leakage from the number 52 pressurizer heater sleeve could not be precisely determined, leakage existed for greater than the 6 hour Action Statement time limit to place the plant in Mode 3. Therefore, contrary to the above, during the previous operating cycle which ended on April 16, 2006, the plant was not placed in Mode 3 with pressure boundary leakage from the number 52 pressurizer heater sleeve existing for more than 6 hours. Operation with pressure boundary leakage of this magnitude (below detection thresholds) would normally be considered a Severity level IV violation. The inspectors reviewed the root cause analysis of the event and concluded that the equipment failure could not have been avoided or detected by the licensee's quality assurance program or other related control measures because the Type 316 stainless steel heater sleeve material was not known to be susceptible to cracking in this application. Therefore, in accordance with Section VII.B.6 of the Enforcement Policy, the NRC has chosen to exercise enforcement discretion and not issue a violation for this issue. This inspection completed one inspection sample. This LER is closed.

- .2 (Closed) LER 05000456/2006002-00; 05000457/2006002-00: Units 1 and 2 Entry into Limiting condition for Operation 3.0.3 due to Main Control Room Ventilation Envelope Low Pressure.

On October 4, 2006, an electrician working in the Division 21 miscellaneous electric equipment room propped the door between that room and the Train B control room ventilation room open, with a roll of tape, to keep the work area cooler. This action caused a main control room low pressure alarm. Approximately 70 minutes later, operators investigating the cause of the alarm discovered the propped open door and closed it.

Later that day, operators concluded that the situation had resulted in the inoperability of both trains of control room ventilation because the operators may not have been able to maintain the design control room envelope at a positive pressure during accident conditions. The licensee was in TS 3.0.3 Shutdown Action Statement while the door was propped open. A voluntary LER was submitted.

The door had a sign indicating that it could not be propped open without following the appropriate barrier impairment procedure, BwAP 1110-3, "Plant Barrier Impairment Program," Revision 15. The electrician violated BwAP 1110-3, during this event, which implemented, in part, the Technical Specification fire protection program and other requirements. However, the violation was considered minor because the system was in an inoperable condition for less than the 7 hour shutdown action statement, and the electrician was continuously in attendance at the door. Moreover, the location of the open door would not have resulted in the introduction of significant unfiltered contaminants into the control room envelope during an accident, and the continuously occupied portion of the main control room envelope would have been maintained at a positive pressure even with the door open.

The licensee entered this issue into its corrective action program as IR 539659. Corrective action included coaching and counseling of the electrician, consideration whether to add plant barrier impairment requirements to the 2007 training program for all maintenance departments, and holding a plant-wide stand down to communicate this and other recent human performance errors. Therefore, this event constitutes a violation of minor significance that is not subject to enforcement action in accordance with Section IV of the NRC's Enforcement Policy. This inspection constituted one inspection sample. This LER is closed.

.3 Lowering Unit 1 Condenser Vacuum Due to Condenser Air Leakage

The inspectors were notified by the licensee that they had entered abnormal procedure 1BwOA SEC-3, "Loss of Condenser Vacuum Unit 1," Revision 103, due to a lowering condenser vacuum and loss of approximately 160 megawatts on December 26, 2006. In preparation for placing a tagout on a feedwater recirculation valve, the licensee realigned the SG blowdown return from the main condenser to the condensate storage tank. The licensee immediately started a mechanical vacuum pump and placed the reserve set of air ejectors in service to attempt to restore vacuum conditions. As a result, vacuum conditions stabilized, but were slightly degraded. At that time, the licensee performed leak detection troubleshooting to determine the source of the air in-leakage. The inspectors verified that the licensee's actions in response to the plant conditions was in accordance with plant procedures. In addition, the inspectors observed several licensee troubleshooting team and management meetings regarding plant response to this event.

The licensee identified that a turbine bearing oil drain pipe, that passed through the main condenser, as the leakage source. The pipe was routed to direct lubricating oil that had leaked from a turbine bearing housing to the turbine building fire and oil sump. Inert gas leak detection determined that there was significant in-leakage from the drain pipe which indicated that the drain pipe was damaged inside the main condenser and was providing in-leakage from the turbine building. The licensee plugged the drain piping on both ends in order to prevent further air in-leakage. The licensee continued to investigate how the pipe was initially damaged following transfer of SG blowdown to the condensate storage tank. This inspection constituted one sample.

4OA5 Other Activities

.1 Reactor Pressure Vessel Head and VHP Nozzles (Temporary Instruction (TI) 2515/150)

a. Inspection Scope

On February 20, 2004, NRC issued the First Revised Order EA-03-009. This order required examination of the reactor pressure vessel head and associated VHP nozzles to detect primary water stress corrosion cracking of VHP nozzles and corrosion of the vessel head. The purpose of TI 2515/150, "Reactor Pressure Vessel Head and Vessel Head Penetration Nozzles," was to implement an NRC review of the licensee's head and VHP nozzle inspection activities required by NRC Order EA-03-009.

Non-visual NDEs of the reactor vessel head were performed during the last Unit 2 outage, in which the licensee identified several VHPs with minor limitations in the volumetric examination scope required by Order EA-03-009. The licensee was granted relaxation (NRC Letter dated September 11, 2006) from the Order to accept the limitations in the volumetric examination scope.

To meet the inspection requirements of Order EA-03-009, the licensee completed 100 percent visual examinations (VT-2) during the current refuel outage for each of the 78 VHP nozzles and head vent line penetration nozzles. The inspectors conducted a review of the visual examinations, through review of the post examination videodisc and examination procedures. In particular, the inspectors reviewed licensee criteria for confirming visual examination quality and instructions resolving interference or masking issues.

No degradation was detected, therefore no recordable indications were accepted by the licensee for continued service, and no welding repairs were necessary.

Summary

The licensee did not identify any leaking VHP nozzles.

b. Evaluation of Inspection Requirements

In accordance with requirements of TI 2515/150, the inspectors evaluated and answered the following questions:

a. Was the examination:

1. Performed by qualified and knowledgeable personnel?

Yes. The licensee conducted a remote visual examination of the head with staff members certified to Level II or Level III VT-2 examiners in accordance with licensee procedure TQ-AA-122, "Qualification and Certification of Nondestructive Personnel."

2. Performed in accordance with demonstrated procedures?

No volumetric examinations were conducted during this outage. The inspectors verified that the bare metal visual examinations were conducted in accordance with licensee procedures ER-AA-335-015, "VT-2 Visual Examination," ER-AP-335-1012, "Bare Metal Visual Examination of PWR [Pressurized Water Reactor] Vessel Penetrations and Nozzle Safe-Ends." Electric Power Research Institute Procedure 1006296, "Visual Examination for Leakage of PWR Reactor Head Penetrations" was used as guidance for the examination.

3. Able to identify, disposition, and resolve deficiencies?

Yes. The inspectors concluded that the head access and procedural resolution requirements for the direct visual examination of the vessel head were adequate to detect boric acid deposits.

4. Capable of identifying the primary water stress corrosion cracking phenomenon described in the bulletin?

Yes. The inspectors determined through interviews with inspection personnel, and reviews of the videodisc that the licensee's efforts were capable of detecting and characterizing leakage from cracking in VHP nozzles. The inspectors determined that the inspection personnel had 360 degree access to each of the head penetrations.

5. What was the condition of the reactor head (debris, insulation, dirt, boron from other sources, physical layout, viewing obstructions)?

The Braidwood Station reactor head has 3-inch reflective mirror insulation installed with overlapping joints in an interwoven pattern on a steel support structure. The insulation is installed in a flat field across the top of the reactor pressure vessel (RPV) head and is stepped down as it approaches the outer perimeter of the RPV head. The minimum vertical clearance between the VHPs and the insulation is approximately 1.5 inches at the apex of the head, with clearance increasing towards the periphery of the head and service structure.

The remote camera visual inspection was conducted under the insulation support structure and the as-found head condition was generally clean. The licensee achieved a complete visual inspection of each head penetration including the head vent.

The inspectors also determined through discussions with the inspection personnel and viewing of the videodisc that the as-found pressure vessel head condition was relatively clean, with no viewing obstructions to the exam. The inspection personnel fully examined (360 degrees) the 79 pressure VHPs (53 control rod drive mechanism nozzles, 18 spare control rod drive mechanism nozzles, 5 in-core thermocouple nozzles, 2 reactor vessel level indication system nozzles all equally sized (approximately 4" diameter), plus the 1" head vent.) The center to center distance between most penetrations is approximately 12".

6. Could small boron deposits, as described in Bulletin 2001-01, be identified and characterized?

Yes. The inspectors determined through interviews with inspection personnel, reviews of the inspection procedure and videodisc, that small boron deposits, as described in the Bulletin 2001-01, could be identified and characterized.

7. What material deficiencies (associated with the concerns identified in the bulletin) were identified that required repair?

There were no material deficiencies associated with the pressure VHPs that were considered indicative of leakage or needed repair.

8. What, if any, significant items that could impede effective examinations?

None. The inspection personnel had 360 degree access to each of the head penetrations.

- 9.. What was the basis for the temperatures used in the susceptibility ranking calculation?

In Bulletin 2002-02, the Effective Degradation Years is used as a basis to establish appropriate inspection programs for VHP nozzles based on increasing susceptibility to nozzle cracking with increasing Effective Degradation Years. Braidwood uses the time at temperature model developed by EPRI. Braidwood updates the calculation each month with the end of the month fuel burnup results provided by the nuclear group. The head temperature for the Braidwood units has been fixed by thermal-hydraulic design to be T-cold.

This inspection is not a baseline inspection program sample.

c. Findings

No findings of significance were identified.

.2 Pressurized Water Reactor Containment Sump Blockage (TI 2515/166)

a. Inspection Scope

The purpose of this TI was to support NRC review of licensee's activities in response to NRC Generic Letter 2004-02, "Potential Impact of Debris Blockage on Emergency Sump Recirculation at PWRs." This TI required NRC inspectors to verify actions implemented in response to the NRC GL were complete and where applicable were programmatically controlled.

The inspectors performed a review in accordance with TI 2515/166 of the licensee's response to GL 2004-02 for Unit 2. The inspectors also reviewed changes to the licensee's facility and verified the changes were evaluated in accordance with 10 CFR Part 50.59. The licensee had received permission to deviate from the schedule in GL 2004-02 for Unit 2 regarding the downstream effects portion of the modifications. This portion of the licensee's response to the GL was not modified in the Unit 2 refueling outage. As such, TI 2515/166 for Unit 2 remained open.

The inspectors reviewed the licensee's modification packages and reviewed regulatory submittals as part of their preparation activities before the Unit 2 refueling outage. During the refueling outage the inspectors periodically observed work activities focusing

on the critical attributes selected by the inspectors. For example, the inspectors compared trash racks, sump screens, and supports to installation drawings. In addition, the inspectors closely observed foreign material exclusion programs and practices to ensure material was not left inside of the new sump screens. The inspectors ensured that licensee lessons learned from the recent installation of the same modification at Byron Unit 1 were incorporated into the Braidwood installation process.

b. Evaluation of Inspection Requirements

The TI requested the inspectors to include answers to the following questions in this inspection report.

1. Did the licensee implement the plant modifications and procedure changes committed to in their GL 2004-02 responses?

With the exception of the downstream effects portion of their response, the licensee did implement the plant modifications and procedure changes committed to in their GL 2004-02 responses for Unit 2.

2. Has the licensee updated its licensing bases to reflect the corrective actions taken in response to GL 2004-02?

The inspectors reviewed the completed 10 CFR Part 50.59 assessments performed by the licensee and verified that the documents contained updates to the UFSAR to be submitted to the NRC at the next regular update. These updates do not include the downstream effects portion of the GL 2004-02 response.

The TI for Unit 2 is not complete. Further inspection is required, specifically, the downstream effects aspects of the emergency core cooling system sumps. The sump and downstream piping modifications for Unit 1 were to be installed in the 2007 refueling outage and will be inspected at that time. This inspection is not a baseline inspection program sample.

c. Findings

No findings of significance were identified.

40A6 Meetings

.1 Exit Meeting

The inspectors presented the inspection results to Mr. T. Coutu and other members of licensee management at the conclusion of the inspection on January 11, 2007. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

.2 Interim Exit Meetings

Interim exit meetings were conducted for:

- Access control to radiologically significant areas and the ALARA planning and controls program with Mr. T. Coutu on October 20, 2006.
- Temporary Instruction 2515/150, "Reactor Pressure Vessel Head and VHP Nozzles," and "Inservice Inspection (ISI) Activities," with Mr. D. Ambler and other members of licensee management at the conclusion of the inspection on October 31, 2006. The inspectors returned proprietary information reviewed during the inspection and the licensee confirmed that none of the potential report input discussed was considered proprietary.
- The results of the heat sink performance biennial inspection were presented to licensee management at the conclusion of the inspection on November 9, 2006.
- Emergency Preparedness inspection with Ms. K. Aleshire on December 14, 2006.

4OA7 Licensee-Identified Violations

No findings of significance were identified.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

T. Coutu, Site Vice President
G. Boerschig, Plant Manager
K. Aleshire, Emergency Preparedness Manager
D. Ambler, Regulatory Assurance Manager
B. Casey, Engineering Programs, ISI
M. Cichon, Licensing Engineer
R. Clemoes, System Engineer
L. Coyle, Maintenance Director
G. Dudek, Operations Director
T. Green, NDE Level III
J. Moser, Radiation Protection Manager
J. Odeen, Projects
F. Paslaski, Radiation Protection Supervisor
A. Ronstadt, Maintenance Rule Coordinator
R. Schelman, Regulatory Affairs
M. Sears, Steam Generator Program Manager
M. Smith, Engineering Director
P. Summers, Nuclear Oversight Manager
T. Tierney, Chemistry, Environmental, and Radioactive Waste Manager

Nuclear Regulatory Commission

R. Skokowski, Chief, Reactor Projects Branch 3

LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

Opened

05000457/2006005-01	NCV	Transient Combustibles Staged Directly Beneath Safety Related Horizontal Cable Trays (Section 1R05)
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Closed

05000457/2006005-01	NCV	Transient Combustibles Staged Directly Beneath Safety Related Horizontal Cable Trays (Section 1R05)
05000456/2006001-00; 05000456/2006001-01	LER	U1 RCS Pressure Boundary Leakage Due to Inter-Granular Stress Corrosion Cracking of a Pressurizer Heater Sleeve (Section 4OA3.1)
05000456/2006002-00; 05000457/2006002-00	LER	Units 1 and 2 Entry into Limiting Condition for Operation 3.0.3 Due to Main Control Room Ventilation Envelope Low Pressure (Section 4OA3.2)

Discussed

None

LIST OF DOCUMENTS REVIEWED

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

1R01 Adverse Weather Protection

IR 572318; NRC Questioned the Winter Alignment of Unit 2 Rod Drive Cooler; December 21, 2006 (IEMA-Identified)
0BwOS XFT-A4; Unit Common Freezing Temperature Equipment Protection Inside Surveillance; Revision 1
IR 543935; Unit 0 Outside Building Freezing Temperature Surveillance Deficiencies; October 14, 2006

1R04 Equipment Alignment

IR 559067; IEMA Identifies Two Issues on 2B Diesel Generator; November 16, 2006 (IEMA-Identified)
BwOP CS-E2; Electrical Lineup - Unit 2 Containment spray system electrical Lineup; Revision 0E2
BwOP CS-M2; Operating Mechanical Lineup Unit 2; Revision 6

1R05 Fire Protection

IR 539839; Appendix R Light Green LIGHT Not Lit; October 4, 2006 (NRC-Identified)
IR 541095; Emergency Light 1LL1-61 Green Ready Light is not Lit (Dim); October 6, 2006 (NRC-Identified)
IR 541096; Emergency Light 1LL1-64 Green Ready Light is not Lit; October 6, 2006 (NRC-Identified)
IR 541105; NRC Comments on 111/112/211/212 Batteries; October 6, 2006 (NRC-Identified)
IR 554151; Poor Work Execution Results In Unavailable Equipment/Long TE; November 6, 2006
IR 554320; NRC Potential NCV - Class A Combustibles Under Cable Tray; November 6, 2006 (NRC-Identified)
IR 554537; NRC Identified Discrepancies on Pre-Fire Plan and Fire Protection Program Drawings; November 7, 2006 (NRC-Identified)
IR 544836; Improper Transient Combustible Storage; October 16, 2006
IR 557745; NRC found Door D-437 Not Secured Closed; November 14, 2006 (NRC-Identified)
IR 560121; IEMA Identified Door D-318 Not Latching Properly; November 20, 2006 (IEMA-Identified)
IR 561329; IEMA Resident Found D-337 Partially Open; November 22, 2006 (IEMA-Identified)
IR 563162; NRC Identified Seismic Housekeeping Issue - Remote shutdown Panel Room, November 29, 2006 (NRC-Identified)
IR 571821; Fire extinguisher Tag Did Not Indicate the Quarterly Inspection; December 21, 2006 (NRC-Identified)

Figure 2.3-13 Byron/Braidwood Station Fire Protection Report Floor Plan at 383'-0";
Sheets 1 and 2 of 2
Figure 2.3-14 Byron/Braidwood Station Fire Protection Report Floor Plan at 364'-0";
Sheet 1 of 4
Figure 2.3-15 Byron/Braidwood Station Fire Protection Report Floor Plan at 346'-0";
Sheet 1 of 1
1D-20 Braidwood Station Pre-Fire Plans; 1B Containment Spray and RH Pump 1B
Room at 346'-0"
2D-17 Braidwood Station Pre-Fire Plans; Auxiliary Building General Area, Elevation
346'-0"
2D-20 Braidwood Station Pre-Fire Plans; 2B RH and Containment Spray Pump Rooms -
Elevation 343'
1D-21 Braidwood Station Pre-Fire Plans; 1A RH and Containment Spray Pump Rooms -
Elevation 346'-0"
Byron/Braidwood Fire Protection Report; Amendment 13; December 1990
OP-AA-201-009; Control Of Transient Combustible Material; Revision 5
DWG 20E-2-3503; Electrical Penetration Schedule; Revision M

1R07 Heat Sink Performance

Annual Review

Completed WO 806732; Thermal Performance Test of the Unit 2 Component Cooling
Heat Exchanger; October 16, 2006

Graph: Design and Corrected Overall heat Transfer Capacity for all Three Component
Cooling Heat Exchangers; January 1991 through October 2006

Biennial Review

Chart of Braidwood Heat Exchangers and Testing Results; November 6, 2006

Graphs of Braidwood Heat Exchangers and Test Results; November 6, 2006

Trending Data for Braidwood Pump Conditions; November 6, 2006

Analysis No. NED-H-MSD-9; Heat Exchanger Effectiveness Curves for Auxiliary Building
Cubicle Coolers; March 14, 2003

GL 89-13 Heat Exchanger Performance Data; November 6, 2006

BYR95-074; SI Pump Bearing Oil Cooler Evaluation; October 19, 1995

Braidwood GL 89-13 Heat Exchanger Program Health Report; October 11, 2006

BWVS 900-17; Heat Exchanger Test Procedure for Essential Service Water Pump
Room Cubicle Coolers; June 27, 1995

BWVS 900-17; Heat Exchanger Test Procedure for Essential Service Water Pump
Room Cubicle Coolers; February 7, 1994

BvVS 900-18; Heat Exchanger Test Procedure for Containment Spray Pump Room
Cubicle Coolers-VA03S; Revision 5

1BwOSR 3.7.8.1; Essential Service Water System Surveillance; October 27, 2006

BwOP CF-36; Operation of the Essential Service Water Chemical Injection System,
Revision 10

BwVP 850-15; Essential Service Water System Performance Monitoring Program;
Revision 5

ER-AA-340-1002; Service Water Heat Exchanger and Component Inspection Guide;
Revision 3

CY-BR-120-4120; Braidwood Station Lake Chemistry Strategic Plan; Revision 3

CY-AA-120-400; Closed Cooling Water Chemistry; Revision 9

CY-AA-120-410; Circulating/Service Water Chemistry; Revision 1

CY-BR-120-412; Braidwood Station Lake Chemistry Control; Revision 4
OBw0A; Adverse Cooling Lake Conditions; Revision 1
BwVSR 3.7.9.3; Braidwood Cooling Lake Hydrographic Survey; March 29, 2006
1VA01SB Inspect and Clean; November 15, 2004
IR 00204227; 1B Chemical and Volume Control Pump Gear Lube Oil Cooler (1CV03SB)
As-Found Data; February 25, 2004
IR 002204229; 1B Chemical and Volume Control Pump Gear Lube Oil Cooler
(1CV02SB) As-Found Data; February 25, 2004
IR 00285386; Unit 2 Startup Feedwater Pump 2FW02P Outboard Mechanical Seal
Failure; March 8, 2005
List of Issues With Summary of Corrective Actions Associated With Heat Exchangers
for Three Years; November 6, 2006
M42; Diagram of Essential Service Water Units 1 and 2; Revision AU
M126; Diagram of Essential Service Water Unit 2; Revision AJ
Nalco Weekly Service Report; November 3, 2006
Calculation VA-100; ESF Pump Cubicle Energy Calculation; November 5, 1998
Calculation BRW-95-218; Evaluation of Essential Service Water Pump Operation with
Degraded Lube Oil Coolers; November 9, 1995
Calculation BRW-00-0030-M; Cubicle Cooler Tube Plugging Evaluation;
February 11, 2000
Chemical and Volume Control 343817; Heat Exchanger Visual Inspection Acceptance
Criteria for as found Heat Exchanger Tube Blockage; August 28, 2003
EC 339308; Acceptance Criteria for As-Found Heat Exchanger Tube Blockage;
February 6, 2003
List of Acceptance Criteria and Test Results for 1B Essential Service Water PP Cubicle
Cooler; November 6, 2006
List of Acceptance Criteria and Test Results for 2A Essential Service Water PP Cubicle
Cooler; November 6, 2006
Generic Letter 89-13 Program Focus Area Self-Assessment Report; September 2006

1R08 Inservice Inspection Activities (IP 71111.08)

IR 00544850; ASME Support 2CV41016V (Recordable Indication, No Load); dated
October 17, 2006
IR 00548119; ISI Weld Prep Inadequate for Ultrasonic Inspections; dated
October 24, 2006
IR 00549140; NDE Indications Found During Weld Exam For Valve 2SI8952B; dated
October 26, 2006
EXE-PDI-UT-1; Ultrasonic Examination of Ferritic Piping Welds in Accordance with
PDI-UT-1; Revision 4
EXE-ISI-70; Magnetic Particle Examination; Revision 2
ER-AP-420-002; Byron/Braidwood Unit 2; SG ET Activities; Revision 6
ER-AA-335-025; Oversight of Vendor NDE Activities; Revision 2

1R11 Licensed Operator Requalification Program

Requalification Simulator Scenario Guide Number 661; Dropped rod/auxiliary Building
flooding; Revision 0

1R12 Maintenance Effectiveness

IR 261096; A2R12 Request - Replace Snubber 1RY06091S Due to Anomalies; October 7, 2004
IR 484812; Snubber 1RY06091S Failed Fctl. Test (No Expansion); April 29, 2006
IR 539812; VC Operability Determination Change; October 4, 2006
IR 558465; NRC Question on Snubber Test Sample Expansion; November 15, 2006 (NRC-Identified)
IR 558495; NRC Concern, Past Operability, Snubber 1RY06091S; November 15, 2006 (NRC-Identified)
BwVS TRM 3.7.b.1-2; Functional Testing of Safety Related mechanical and Hydraulic Snubbers; Revision 2
ER-AA-330-010; Snubber Functional Testing; Revision 2
ER-AA-330-011; Snubber Service Life Monitoring; Revision 2
NSP-CC-3005 10 CFR 50.59 Safety Evaluation Form; BRW SE-1999-421; Revision 0
ASME OMa Code-1996 Subsection ISTD; Preservice and Inservice Examination and Testing of Dynamic Restraints (Snubbers) In Light-Water Reactor Power Plants
CECO Mech. Snubber Fctl. Test; 1RY06091S (Class 1); Test Dates October 7, 2004 - April 17, 2006 -April 24, 2006
VC-1 Control Room Vent Drawing; June 7, 2006; Revision 9
Maintenance Rule - Evaluation History; MR System VC
Maintenance Rule - Performance Criteria; System VC
Maintenance Rule - High Safety Significant Status Of In-Scope Functions; MR System VC
Maintenance Rule - Expert Panel Scoping Determination; System VC

1R13 Maintenance Risk Assessments and Emergent Work Control

IR 547913; IMD Working On Protected Equipment; October 23, 2006 (NRC-Identified)
IR 551821; During 2BwOSR 3.1.7.1 Rods Would Not Move; November 1, 2006
IR 551880; 2PA26J Relay TY421Heat Exchanger Not Functioning Correctly; November 1, 2006
Quick Human Performance Investigation; IMD Working In Protected Equipment Cabinet 2PA08J; November 20, 2006
A2R12 Protected Equipment List; October 23, 2006
Braidwood Work Control Policy Memo 06-03; Equipment Posting to Meet Shutdown Safety Program Requirements for Outages when Effected Unit is in Mode 4,5,6 or Defueled; October 11, 2006
M137; Diagram of Residual Heat Removal System; Revision BE
20E-2-4031RH02; Loop Schematic Diagram Residual Heat Removal Heat Exchanger 2B Bypass Flow Control (2FT-0619) Control Cabinet 8 (2PA08J); Revision D
20E-2-4031RH10; Loop Schematic Diagram Residual Heat Removal Heat Exchanger 2B Bypass Flow Control (2FT-0619) Control Cabinet 8 (2PA08J) PT-2; Revision H
20E-2-4031CC04; Loop Schematic Diagram Residual Heat Removal Heat Exchangers Component Cooling Water Outlet Flow Control (2FT-0688) Control Cabinet 8 (2PA08J); Revision E
2B RH Work window Protected Equipment:
2RH01PA & Cubicle Cooler Room;
2CC9412A Breaker Door (231X1 K3)
2RH8701A Breaker Door (231X2 B1)
2RH8701B Breaker Door (232X2 B3)

2SI8811A Breaker Door (MCC 231X1 —3)
2SI18812A Breaker Door (MCC 231XA Q-1)
MCC 231X1 Upper Left Corner of MCC 231X1

1R15 Operability Evaluations

Completed WO 806332; Unit 2 Pressurizer PORV Instrument Air Accumulator Check Valve Test; October 18, 2006
Portable Pressure Equipment Calibration Data Sheet for MTT-009; October 11, 2006
Portable Pressure Equipment Calibration Data Sheet for MTT-009; October 18, 2006
2BwOSR 3.4.11.3; Pressurizer PORV Instrument Air Accumulator Check Valve Test and Accumulator System Pressure Integrity Test; Revision 7
IR 184743; Audio Count Rate Speaker in Unit 2 Containment is Missing; November 4, 2003
IR 184989; 2CC9486 (CC Supply to RCP Inside CIV) Failed LLRT; November 6, 2003
IR 184989; Apparent Cause Evaluation - Local Leak Rate Test (LLRT) Failure for Check Valve 2CC9486; February 9, 2004
IR 326376; Audio Count Rate Speaker is Missing From Unit 2 Containment; April 19, 2005
IR 186275; Repeat Maintenance - 2CC9486 Failed 2nd LLRT (1st Rework); November 13, 2003
IR 186453; Repeat Maintenance - 2CC9486, 3rd LLRT Passed at Warning Level; November 13, 2003
IR 273805; Velan Check Valve Drawings Not Updated to Reflect Changes; November 16, 2004
IR 544707; 2NR06E Nuclear Instrument System Speaker is Broken Off the Wall Again; October 16, 2006
IR 545440; Air Leak on 2RY455A; October 18, 2006
IR 546312; 2CC9486 Fails Its A2R12 As Found Local Leak Rate Test; October 20, 2006
IR 547003; Valve Disc For 2CC9486 (A2R12 Outage); October 20, 2006
IR 549081; 2CC9486 Failed Check Valve Inspection; October 26, 2006
IR 549539; NRC Expressed Concern with EDG Air Dryer Testing After A2R12; October 26, 2006 (NRC-Identified)
IR 553782; 0SX063B Won't Go Close; November 5, 2006
IR 559595; 0B VC Chiller Failed to Start During Train Swap
IR 568853; NRC Identified Concern With Past Operability of 2CC9486; December 13, 2006 (NRC-Identified)
IR 572307; Reportability of Technical Specification Surveillance Testing Requirements; December 21, 2006 (NRC-Identified)
EC 345811; Evaluate Not Repairing 2CC9486 Valve That Exceeds 10 SCFH Admin Warning Limit (13.0 SCFH) Until The Next Refuel Outage A2R11
WO 861661; IST-LT-U2 LLRT CC 9486/9413A Penetration 25 Reactor Coolant Pump Motor/Thermal Barrier Supply; October 12, 2006
Maintenance Rule Performance Criterion - PC4 Containment Integrity
Maintenance Rule Expert Panel Meeting Minutes; February 9, 2004
Operability Evaluation 06-008; IR 557782; Revision 1

1R17 Permanent Plant Modifications

WO 00888617; 2IP02E & 2IP06E - Connect Chemical and Volume Control to Instrument Inverter 212; October 21, 2006

WO 00888601; 2IP01E & 2IP05E - Connect CVT to Instrument Inverter 211;
October 24, 2006
IR 566129; Inverter 211 Trouble Alarm - HI AC Input Voltage; December 6, 2006
BwAR 2-4-A5; Bus 211 Inverter Trouble; Revision 53
BwOP IP-1; Instrument Bus Inverter Startup; Revision 17

1R19 Post-Maintenance Testing

IR 546072; 2B Diesel Generator Voltage and Frequency; October 19, 2006
IR 550500; 2AF01PB-K Diesel Tripped During Post Operational Testing;
October 29, 2006
IR 569287; NRC Identified Old Boric Acid Leakage on Containment Spray Room Angle
Iron; December 14, 2006 (NRC-Identified)
BwVS 900-35; Diesel Generator Set-Up Following Governor Replacement; Revision 4
2BwVSR 5.5.8.Containment Spray.2; ASME (American Society of Mechanical
Engineers) Surveillance Requirements for 2B Containment spray Pump and Check
Valves 2CS003B, 2CS011B; Revision 6
2BwVSR 5.5.8.RH.1; ASME Surveillance Requirements for Residual Heat Removal
Pump 2RH01PA; Revision 6

1R20 Refueling and Other Outage Activities

IR 545440; air Leak on 2RY455A; October 18, 2006
IR 547064; 2RC01R O-Rings Damaged; October 21, 2006
IR 547270; Suspect leaking Fuel Identified During A2R12; October 21, 2006
IR 548980; Moisture Identified in 0WE22MA Spent Fuel Pool Leak Detection Drain
Sightglass; October 25, 2006 (NRC-Identified)
IR 550352; Installed Valve 2SI003C Is The Wrong Design Pressure Class;
October 28, 2006
IR 550468; Unit 2 Reactor Sandbox Inspection Results; October 29, 2006
IR 552373; Main Turbine Manually Tripped During Testing Due To High Oil
Temperature; November 2, 2006
50.59 Screening No. BRW-S-2005-201; Braidwood Unit 2 Cycle 13 Core Reload and
Operation Report; October 6, 2006
A2R12 Shutdown Safety Management Plan; September 28, 2006
2BwGP 100-5; Plant Shutdown and Cooldown; Revision 29
BwOP RH-6; Placing the RH System in Shutdown Cooling; Revision 35

1R22 Surveillance Testing

IR 543849; Need WR for Rebuild of MSSV 2MS014B During A2R12; October 13, 2006
IR 543852; Need WR for Rebuild of MSSV 2MS014C During A2R12; October 13, 2006
IR 543854; Results of MSSV Trevi Testing Pre A2R12; October 13, 2006
IR 561698; NRC Concerns Identified During U-1 ECCS Vent and Valve Surveillance;
November 24, 2006 (NRC-Identified)
IR 571377; 1VQ002B Bolt appears to be a Few Threads Loose; December 12, 2006
(NRC-Identified)
1BwOSR 3.8.1.13-1; 1A Diesel Generator Bypass of Automatic Trips Surveillance;
Revision 5
1BwOSR 3.5.2.2-2; Unit One ECCS Venting and Valve Alignment Surveillance;
Revision 13

BwMP 3305-107; Main Steam Safety Valves Lift Ping Verification Using the Furmanite Trevitest System; Revision 138
1BwOS Anticipated Transient without SCRAM-SA1; U1 Anticipated Transient without SCRAM Mitigation system Surveillance; Revision 7
1BwOSR 3.6.3.7-2; Primary Containment Type C Local Leakage Rate Tests Of Containment Purge Exhaust Isolation Valves (VQ); Revision 4
M105; Diagram of Containment Purge/Pressure & Vacuum Relief Systems (VQ) (VP) Unit 1; Revision AM
1BwPSR 3/8.1.13-1; 1A DG Bypass of Automatic Trips Surveillance; Revision 5
WO 773869 01 and 02; 1A DG Bypass of Automatic Trips Surveillance; October 4, 2006
WO 804765 02; Testing of Main Steam Safety Valves; October 13, 2006

1EP4 Emergency Action Level and Emergency Plan Changes

Braidwood Station Annex of the Exelon Standardized Emergency Plan; Revision 16

2OS1 Access Control to Radiologically Significant Areas: and

2OS2 ALARA Planning And Controls

IR 546236; Maximum Stay Time Equivalency Log Not Meeting Expectations; October 19, 2006 (NRC Identified)
IR 546952; TEDE ALARA Evaluation Did Not Match the ALARA Plan Criteria; October 20, 2006(NRC Identified)
NF-AA-390; Spent Fuel Pool Material Control; Revision 2
RP-BR-376-3002; Radiological Controls for Handling Items and Hanging Active Parts in the Spent Fuel Pool; Revision 0
RP-AA-301; Radiological Air Sampling Program; Revision 1
RWP 10007010; A2R12: Various Filter Changes; Revision 0
ALARA Briefing Checklist; RWP No.10007010; Ops - Change Out of Filter 2CV03F; 10:00AM; October 16, 2006
RP-BR-460-1002; HRA and VHRA Boundary and Postings Checklist; Revision 0; Completed October 2, 2006, through October 4, 2006
IR 317183; Poor Radworker Practice in Contaminated Area; March 25, 2005
IR 364755; Deficiencies and Weaknesses Identified During HRA FASA; August 19, 2005
IR 300412; NOS Identified RP Work Practice Opportunities for Improvement; February 11, 2005
RWP 10007044; A1R12: Manway and Diaphragm Removal, Installation and Bolt Cleaning; Revision 0
ALARA Briefing Checklist; RWP No. 10007044; Diaphragms Removal; 12:30PM; October 18, 2006
RP-AA-441; TEDE ALARA Evaluation Screening Worksheet; RWP No. 10007044; A2R12 SG Manways/Diaphragms; October 9, 2006
RP-AA-401; ALARA Plan; RWP No. 10007044; Remove and Install Manways/Diaphragm; approved October 10, 2006
RP-AA-460; Controls for High and Very High Radiation Areas; Revision 10
RP-AA-460-1001; Additional High Radiation Exposure Control; Revision 1
RWP 10007038; A2R12: Install and Remove SG Nozzle Covers; Revision 0
ALARA Briefing Checklist; RWP No. 10007038; Install and Remove Nozzle Covers; 1:10PM; October 19, 2006

RP-AA-441; TEDE ALARA Evaluation Screening Worksheet; RWP No. 10007038; A2R12 SG Nozzle Covers; October 19, 2006
RP-AA-401; ALARA Plan; RWP No. 10007038; Install and Remove Nozzle Covers; approved October 10, 2006

2PS1 Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems

IR 543333; Organizational Issues Associated with Remediation Well #6; October 12, 2006 (NRC-Identified)
IR 553148; Composite Sampler for Well Pump Line at Vacuum Breaker 1 Overflowed; November 3, 2006 (NRC-Identified)
IR 555915; Confusion Over Placement of Jersey Barriers at Vacuum Breakers 10 and 11; November 9, 2006 (NRC-Identified)
IR 567639; Minor Error in Tritium Report - Offsite Doses; December 11, 2006 (NRC-Identified)
IR 569563; NRC Identified Small Amount of Water in Vacuum Breakers 7 and 9 Leak Detectors; December 14, 2006 (NRC-Identified)

4OA2 Identification and Resolution of Problems

IR180162; GSEP Siren Not Able to be Heard In Wisco Building; October 9, 2003
IR 351840; Plant Page Is Difficult to Hear In Area (3rd Floor Service Bldg); July 11, 2005
IR 384893; Turbine BLDG PA Speakers Not Working Properly on 426 ELEV; October 12, 2006
IR 384894; Turbine BLDG PA Speakers Not Working Properly on 418 ELEV; October 12, 2006
IR 384895; Turbine BLDG PA Speakers Not Working Properly on 401 ELEV; October 12, 2006
IR 384898; Turbine BLDG PA Speakers Not Working Properly in U2 DG Rooms; October 12, 2006
IR 384899; Turbine BLDG PA Speakers Need Re-Aiming in U1 DG Rooms; October 12, 2006
IR 396194; Page Doesn't Work in U1 Curved Wall Area; November 8, 2005
IR 396975; Inadequate Closure & Follow-up of PA Speaker Repairs; November 9, 2005
IR 474799; Security Reports Not Hearing Emergency Page Announcement; April 4, 2006
IR 497172; Can't Hear Monthly Test of the Assembly Alarm in Engineering; June 6, 2006
IR 504557; Plant Page For Assembly During EP Drill Could Not Be Heard; June 28, 2006
IR 508296; NRC Identified Overhead Page Speaker Fouled; July 11, 2006 (NRC Identified)
IR 537899; Safety Concern PA Speakers Still Not Installed in WISCO BLDG; September 29, 2006
IR 530606; OPW01PB; Oiler is on the Wrong Side of the Pump; September 13, 2006
IR 552790; Plant Page System is Not Audible In Operations Ready Room; November 3, 2006
IR 561428; 1A CC Pump Oil Bubbler Orientation Concern; November 22, 2006 (NRC-Identified)
IR 561592; 0CF11PA Constant level Oiler Orientation Concern; November 23, 2006
IR 561593; 0CF11PB Constant Level Oiler Orientation Concern; November 23, 2006

IR 561594; 0TE20PA Constant Level Oiler Orientation Concern; November 23, 2006
IR 561595; 0TE20PB Constant Level Oiler Orientation Concern; November 23, 2006
IR 561596; 1AS02PA Constant Level Oiler Orientation Concern; November 23, 2006
IR 561597; 1AS02PB Constant Level Oiler Orientation Concern; November 23, 2006
IR 561598; 2AS02PA Constant Level Oiler Orientation Concern; November 23, 2006
IR 561600; 0WX01P Constant Level Oiler Orientation Concern; November 23, 2006
IR 561601; 0WX53P Constant Level Oiler Orientation Concern; November 23, 2006
IR 561602; 1GC01PA Constant Level Oiler Orientation Concern; November 23, 2006
IR 561603; 1GC01PB Constant Level Oiler Orientation Concern; November 23, 2006
IR 561604; 2GC01PA Constant Level Oiler Orientation Concern; November 23, 2006
IR 561605; 2GC01PB Constant Level Oiler Orientation Concern; November 23, 2006
IR 561665; Oiler Potentially on Wrong Side of Pump 0WO01PA; November 24, 2006
IR 561666; Oiler Potentially on Wrong Side of Pump 0WO01PB; November 24, 2006
IR 562593; Oiler Potentially on Wrong Side of Pump 0WO01PA; November 28, 2006
IR 562596; Oiler Potentially on Wrong Side of Pump 0WO01PB; November 28, 2006
IR 562787; 0WO01PA Oiler is Installed on Wrong Side of Pump; November 28, 2006
IR 562792; 0WO01PB Oiler is Installed on Wrong Side of Pump; November 28, 2006
IR 562816; 0CD01P Pump Oil Bubbler Orientation Concern; November 28, 2006
(NRC-Identified)
IR 562817; 1CD01P Pump Oil Bubbler Orientation Concern; November 28, 2006
(NRC-Identified)
IR 562818; 2CD01P Pump Oil Bubbler Orientation Concern; November 28, 2006
(NRC-Identified)
IR 562819; 0WX03PA Pump Oil Bubbler Orientation Concern; November 28, 2006
(NRC-Identified)
IR 562820; 0WX03PB Pump Oil Bubbler Orientation Concern; November 28, 2006
(NRC-Identified)
IR 562821; 0WX03PC Pump Oil Bubbler Orientation Concern; November 28, 2006
(NRC-Identified)
IR 562822; 0TF20PA Pump Oil Bubbler Orientation Concern; November 28, 2006
(NRC-Identified)
IR 562823; 2CF08P Pump Oil Bubbler Orientation Concern; November 28, 2006
(NRC-Identified)
IR 563539; Trico Oiler Installation Issue Resolution/Change Management;
November 30, 2006 (NRC-Identified)
IR 572225; 2HD031D Packing Leak; December 21, 2006 (NRC-Identified)
IR 572235; 2HD034D Packing Leak; December 21, 2006 (NRC-Identified)
EP-AA-121; Emergency Response Facilities and Equipment Readiness; Revision 4
MA-AA-734-400; Constant Level Oiler and sight-Glass Maintenance; Revision 0
MA-BR-723-140; Test of the Station Public Address System; Revision 3
NUREG 0654; Means For Providing Prompt Alerting and Notification of Response
Organizations and the Population; Appendix 3
Maintenance Rule Performance Criteria - CQ Communications During Normal and
Abnormal Conditions

4OA3 Followup of Events and Notices of Enforcement Discretion

LER 05000456/2006001-00

Westinghouse LTR-RCPL-06-75; Operability Assessment for Braidwood Unit 1 and 2, and Byron Units 1 and 2 Pressurizer Heater Sleeves With Potential Circumferential Cracking; May 26, 2006

IR 00480489; Boric Acid Accumulation Bottom of Pressurizer; April 19, 2006

IR 00493933; Metallurgical Results Pressurizer Heater Sleeve; May 26, 2006

Operability Evaluation 06-002; Unit 1 and Unit 2 Pressurizer Heater Sleeves; June 1, 2006

LER 05000456/2006002-00; 05000457/2006002-00

IR 539659; Fire Door D-446 Propped Open With Roll of Tape; Oct 4, 2006

IR 539812; Control Room Ventilation Operability Determination Change; Oct 4, 2006

BwAP 1110-3, Plant Barrier Impairment Program, Revision 15

BwAR 0-33-C7; Main Control Room Pressure Low; Revision 9

BwOP VC-14; Main Control Room Pressure Low; Revision 7

Unit 1 Lowering Condenser Vacuum

IR 573027; U1 Main Condenser Vacuum Lowering; December 26, 2006

Operator's Logs December 26, 2006

1BwOA SEC-3; Loss of Condenser Vacuum Unit 1; Revision 103

BwAR 1-18-D4; Condenser Vacuum Low; Revision 9

MA-AA-716-050-1000; Condenser Air In-leakage Testing Guide and Limits; Revision 0

M 47, sheet 1A; Diagram of Off-Gas System Unit 1; Revision AH

M 47, sheet 1B; Diagram of Off-Gas System Unit 1; Revision AH

M 47, sheet 1C; Diagram of Off-Gas System Unit 1; Revision AT

4OA5 Other Activities

IR 561253; Unit 2 ECCS Sump A Screen Support - Potential Nonconformance; November 22, 2006

IR 513858; NRC Approved Extension for ECCS Sump Downstream Modifications; July 27, 2006

IR 523059; ECCS Sump Screen Modification - Potential Design Issue; August 23, 2006

Letter from Exelon to NRC dated July 27, 2005, "Response to Request for Additional Information Regarding NRC Generic Letter 2004-02 "Potential Impact of Debris Blockage on Emergency Recirculation During Design Basis Accidents at Pressurized Water Reactors""

Letter from NRC to Exelon dated August 19, 2005, "Braidwood Station, Units 1 and 2 and Byron Station, Units 1 and 2 - response to Bulletin 2003-01," "Potential Impact of Debris Blockage on Emergency Recirculation During Design Basis Accidents at Pressurized Water Reactors"

Letter from Exelon to NRC dated September 1, 2005, "Exelon/AmerGen Response to NRC Generic Letter 2004-02," "Potential Impact of Debris Blockage on Emergency Recirculation During Design Basis Accidents at Pressurized Water Reactors"

Letter from NRC to Exelon dated February 9, 2006, "Braidwood Station, Unit Nos. 1 and 2 - Request for Additional Information Re: Response to Generic Letter 2004-02," "Potential Impact of Debris Blockage on Emergency Recirculation During Design Basis Accidents at Pressurized Water Reactors" (Tac Nos. MC4667 and MC4668)

Letter from Exelon to NRC dated May 31, 2006, "Supplement to Exelon Response NRC Generic Letter 2004-02," "Potential Impact of Debris Blockage on Emergency Recirculation During Design Basis Accidents at Pressurized Water Reactors"

Letter from NRC to Exelon dated July 21, 2006, "Byron Station, Unit No. 1, and Braidwood Station Unit No. 2 - Requested Extension of Completion Schedule for NRC Generic Letter 2004-02," "Potential Impact of Debris Blockage on Emergency Recirculation During Design Basis Accidents at Pressurized Water Reactors" (TAC Nos. MC4669 and MC4668)

IR 00349308; Discrepancies In A2R11 Westinghouse CRDM Final Report;
June 30, 2005.

NRC Letter; Byron Station, Unit No. 1, And Braidwood Station, Unit No. 2 - Relaxation of the First Revised Order EA-03-009 (TAC Nos. MD1159 and MD1160);
September 11, 2006.

ER-AA-335-015; VT-2 Visual Examination; Revision 5.

ER-AP-335-1012; Bare Metal Visual Examination of PWR Vessel Penetrations and Nozzle Safe-Ends; Revision 3.

LIST OF ACRONYMS USED

ADAMS	Agencywide Documents Access and Management System
ALARA	As-Low-As-Is-Reasonably-Achievable
ASME	American Society of Mechanical Engineers
BACC	Boric Acid Corrosion Control
BwAP	Braidwood Administrative Procedure
BwAR	Braidwood Annunciator Response Procedure
BwOA	Braidwood Abnormal Operating Procedure
BwOP	Braidwood Operating Procedure
BwOSR	Braidwood Operating Surveillance Requirement Procedure
BwVS	Braidwood Engineering Surveillance Procedure
BwVSR	Braidwood Engineering Surveillance Requirement Procedure
CFR	Code of Federal Regulations
EC	Engineering Change
EPRI	Electric Power Research Institute
ET	Eddy Current
GL	Generic Letter
HRA	High Radiation Area
IEMA	Illinois Emergency Management Agency
IMC	Inspection Manual Chapter
IR	Issue Reports
ISI	Inservice Inspection
LER	Licensee Event Report
NCV	Non-Cited Violation
NDE	Nondestructive Examination
NRC	Nuclear Regulatory Commission
PARS	Publicly Available Records
PWR	Pressurized Water Reactor
PWSCC	Primary Water Stress Corrosion Cracking
RP	Radiation Protection
RPV	Reactor Pressure Vessel
RH	Residual Heat Removal
RWP	Radiation Work Permit
SDP	Significance Determination Process
SI	Safety Injection
SG	Steam Generator
TI	Temporary Instruction
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report
UT	Ultrasonic Examination
VHP	Vessel Head Penetration