July 25, 2003

Mr. John L. Skolds, President
Exelon Nuclear
Exelon Generation Company, LLC
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: BRAIDWOOD STATION, UNITS 1 AND 2
NRC INTEGRATED INSPECTION REPORT 05000456/2003003;
05000457/2003003

Dear Mr. Skolds:

On June 30, 2003, 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 findings which were discussed on July 7, 2003, with Mr. T. Joyce and other members of your staff.

The inspection examined activities conducted under your license as they relate to safety and to 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.

On the basis of the results of this inspection, no findings of significance were identified. Licensee-identified violations are listed in Section 4OA7 of this report. If you contest the subject or severity of the Non-Cited Violations, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with a copy to the Regional Administrator, U.S. Nuclear Regulatory Commission - Region III, 801 Warrenville Road, Lisle, IL 60532-4351; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the Resident Inspector at the Braidwood facility.

Since the terrorist attacks on September 11, 2001, NRC has issued five Orders and several threat advisories to licensees of commercial power reactors to strengthen the licensee capabilities, improve security force readiness, and enhance controls over access authorization. In addition to applicable baseline inspections, the NRC issued Temporary Instruction (TI) 2515/148, "Inspection of Nuclear Reactor Safeguards Interim Compensatory Measures," and its subsequent revision, to audit and inspect the licensee's implementation of the interim compensatory measures required by the Orders. Phase 1 of TI 2515/148 was completed at all commercial power nuclear power plants during calender year 2002 and the remaining inspection activities were completed in March 2003 for the Braidwood Station. The NRC will continue to monitor overall safeguards and security controls at the Braidwood Station.

In accordance with 10 CFR 2.790 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 component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

Ann Marie Stone, Chief
Branch 3
Division of Reactor Projects

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

Enclosure: Inspection Report 05000456/2003003; 05000457/2003003
w/Attachment: Supplemental Information

cc w/encl: Site Vice President - Braidwood
Braidwood Station Plant Manager
Regulatory Assurance Manager - Braidwood
Chief Operating Officer
Senior Vice President - Nuclear Services
Senior Vice President - Mid-West Regional Operating Group
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REGION III

Docket Nos:	50-456; 50-457
License Nos:	NPF-72; NPF-77
Report Nos:	50-456/2003-003;50-457/2003-003
Licensee:	Exelon Generation Company, LLC
Facility:	Braidwood Station, Units 1 and 2
Location:	35100 S. Route 53 Suite 84 Braceville, IL 60407-9617
Dates:	April 1 through June 30, 2003
Inspectors:	S. Ray, Senior Resident Inspector N. Shah, Resident Inspector R. Alexander, Radiation Specialist B. Dickson, Senior Resident Inspector, Clinton D. Funk Jr., Physical Security Inspector R. Jickling, Emergency Preparedness Inspector D. Jones, Reactor Engineer D. Nelson, Radiation Specialist G. O'Dwyer, Reactor Engineer R. Skokowski, Senior Resident Inspector, Byron P. Smith, Illinois Emergency Management Agency T. Tongue, Reactor Engineer N. Valos, Operator Licensing Examiner
Observers:	C. Roque-Cruz, Reactor Inspector J. Bond, Reactor Inspector
Approved by:	Ann Marie Stone, Chief Branch 3 Division of Reactor Projects

Enclosure

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SUMMARY OF FINDINGS

IR 05000456/2003003, 05000457/2003003; 04/01/03 - 06/30/03, Braidwood Station, Units 1 & 2; Routine Baseline Inspection Report.

This report covers a 3-month period of baseline resident inspection and announced baseline inspections on emergency preparedness; heat sink performance; physical protection; inservice inspection activities; Temporary Instruction 2515/150, “Reactor Pressure Vessel Head and Vessel Head Penetration Nozzles,” Revision 1; and radiation protection. The inspections were conducted by Region III inspectors, and the resident inspectors. No findings of significance were identified.

A. Inspector-Identified and Self-Revealing Findings

No findings of significance were identified.

B. Licensee-Identified Violations

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

REPORT DETAILS

Summary of Plant Status

Unit 1 began the inspection period with power coasting down from about 94 percent toward a refueling outage. On April 15, 2003, power reached about 86 percent and the unit was shut down for refueling. The unit was made critical on May 1, the generator was placed online on May 2, and Unit 1 reached full power on May 3, 2003. Unit 1 operated at or near full power throughout the rest of the inspection period with the exception of the following power reductions: to 95 percent on May 10, in order to allow switching of feedwater pumps; to 90 percent on May 12-13, to allow repairs of a hydraulic leak on one of the main turbine governor valves; to 95 percent on May 24, to allow full flow testing of the 1B auxiliary feedwater pump; and to 86 percent on June 8, 2003, for main turbine steam valve testing.

Unit 2 operated at or near full power throughout the inspection period with the exception of the following power reductions: to 86 percent on May 11, for main turbine steam valve testing; to 92 percent on June 3, for load following; to 66 percent on June 22, for load following; and to 76 percent on June 27, 2003 for load following.

1. REACTOR SAFETY

Cornerstone: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01)

.1 Preparations for Severe Drought Conditions

a. Inspection Scope

Based on predictions of potential summer drought conditions, the inspectors reviewed the licensee's contingency plans for maintaining an adequate inventory of cooling water in the Braidwood Lake heat sink. The licensee normally made up to the lake from the Kankakee River. However, in accordance with the licensee's agreement with the Illinois Department of Conservation, makeup from the river was not allowed if river flow was less than 442 cubic feet per second. In that case, the licensee could set up a temporary pumping arrangement from local strip mine lakes, from which it has water rights, over land for which it maintains easements. On June 27, 2003, the inspectors completed a review of records from the last time such pumping was done, interviewed licensee personnel, and reviewed other documents listed in the Attachment, to verify that the licensee had adequate contingency pumping plans.

b. Findings

No findings of significance were identified.

.2 Severe Thunderstorm Warning

a. Inspection Scope

On April 4, 2003, thunderstorms with high winds were forecast in the vicinity of the facility. The inspectors reviewed the licensee's preparations for inclement weather conditions as required by the procedures listed in the Attachment. This included walking down portions of the licensee's switchyard and outside storage areas adjacent to the Units 1 and 2 main power, unit auxiliary and system auxiliary transformers, looking for loose debris that could become missiles during high winds; and walking down Units 1 and 2 emergency diesel generators. The switchyard and unit transformers were selected because their safety-related functions could be affected by adverse weather; and the diesel generators were selected as they were important mitigating systems should offsite power be lost during the thunderstorm. The inspectors also observed selected control room activities during the storm to determine whether the plant operators were appropriately controlling the overall plant risk.

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 trains of risk significant mitigating system equipment. These walkdowns were performed when the redundant trains or other related equipment were unavailable due to planned or emergent maintenance. The inspectors utilized the valve and electric breaker checklists listed in the Attachment to verify that the components were properly positioned and that support systems were lined up as needed. The inspectors also examined the material condition of the components and observed operating parameters of equipment to verify that there were no obvious deficiencies. The inspectors reviewed outstanding work orders (WOs) and condition reports (CRs) associated with the train to verify that those documents did not reveal issues that could affect train function. The inspectors used the information in the appropriate sections of the Technical Specifications (TS) and 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 the inspection were entered into the licensee's corrective action program.

The inspectors verified alignment of the following two trains:

- 1B diesel-driven auxiliary feedwater train, on May 7, 2003, after major maintenance and in anticipation of calibration activities on the 1A train; and

- 2B residual heat (RH) removal system, on May 13,2003, when the 2A RH pump cubicle cooler was out-of-service for planned maintenance.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05)

Area Walkdowns

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, their potential to impact equipment which could initiate a plant transient, or their impact on the plant's ability to respond to a security event. The inspectors used the documents listed in the Attachment to verify 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 verified that minor issues identified during the inspection were entered into the licensee's corrective action program.

The following six areas were inspected by walkdowns:

- 1A centrifugal charging pump room on April 21-29, 2003;
- 1B auxiliary feedwater pump room on April 22-29, 2003;
- B train essential service water pump room on April 23, 2003;
- lake screenhouse on May 20, 2003; and
- 1B diesel generator on June 16, 2003.

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance (71111.07A and 07B)

.1 Thermal Performance Test of the Unit 1 CC Heat Exchanger

a. Inspection Scope

On April 14, 2003, the inspectors observed the thermal performance testing of the Unit 1 CC heat exchanger. This test was conducted in accordance with Braidwood Engineering Surveillance procedure BwVS 900-29, "Heat Transfer Test for Component

Cooling Heat Exchangers 1CC01A," Revision 6. The inspectors observed the setup of the test equipment, the collection of test data and subsequently reviewed the test results. Specifically, the inspectors verified that the testing methodology was consistent with applicable industry guidance, that instrument inaccuracies were properly accounted for, and that the test met the licensee's acceptance criteria. The inspectors also compared the test results with the previous performance history of the heat exchanger (including the results of an "as found" inspection performed on April 8, 2003) to determine whether the testing and inspection frequency was appropriate.

b. Findings

No findings of significance were identified.

.2 Biennial Review of Heat Exchanger Performance

a. Inspection Scope

During the week of May 12, 2003, the inspectors reviewed documents associated with inspection, cleaning, and performance trending of heat exchangers primarily focusing on the Unit 2 component cooling (CC) heat exchanger and the 1A diesel generator jacket water coolers (upper and lower, 1DG01KA -X1 and X2). These heat exchangers were chosen based upon their importance in supporting required safety functions as well as relatively high risk achievement worth in the plant specific risk assessment. The Unit 2 CC heat exchanger was also selected to evaluate the licensee's thermal performance testing methods. During the inspection, the inspectors reviewed calculations, and performed independent calculations to verify that these activities adequately ensured proper heat transfer. The inspectors reviewed the documentation to confirm that the inspection methodology was consistent with accepted industry and scientific practices, based on review of heat transfer texts and Electrical Power Research Institute (EPRI) standards EPRI NP-7552, "Heat Exchanger Performance Monitoring Guidelines," December 1991, and EPRI TR-107397, "Service Water Heat Exchanger Testing Guidelines," March 1998, and Mark's Engineering Handbook.

The inspectors reviewed CRs concerning heat exchanger and ultimate heat sink performance issues to verify that the licensee had an appropriate threshold for identifying issues and entering them in the corrective action program. The inspectors also evaluated the effectiveness of the corrective actions for identified issues, including the engineering justification for operability, if applicable. The inspectors verified that minor issues identified during the inspection were entered into the licensee's corrective action system.

The documents that were reviewed as part of this inspection are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R08 Inservice Inspection Activities (71111.08)

a. Inspection Scope

The inspectors conducted a review of the licensee's inservice inspection (ISI) program for monitoring degradation of the reactor coolant system (RCS) boundary and the risk significant piping system boundaries. Specifically, the inspectors conducted in-process observations and review of records of nondestructive examinations performed during the Braidwood Unit 1 refueling outage.

The inspectors observed:

- ultrasonic examination of feedwater welds 1FW-03-07, 1FW-03-08, 1FW-03-09;
- magnetic particle examination of reactor vessel stud 1RV-03-5; and
- eddy current data acquisition and resolution analysis on the Unit 1 steam generators.

In addition, radiographs of the following welds were also reviewed:

- FW-15-FW6; and
- FW-15-3 weld 2.

These examinations were evaluated for compliance with the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code requirements. The inspectors also reviewed ISI procedures and personnel certifications to confirm that ASME Code requirements were met.

The inspectors also reviewed a sample of ISI 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. In addition, the inspectors determined that operating experience was correctly assessed for applicability by the ISI group.

The documents that were reviewed as part of this inspection are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program (71111.11)

a. Inspection Scope

On June 4, 2003, the inspectors observed an operating crew during an "out-of-the-box" requalification examination on the simulator using the scenario listed in the Attachment. The inspectors evaluated crew performance in the areas of:

- 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 as presented in the Exelon procedures listed in the Attachment.

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 verify that they also noted the issues and discussed them in the critique at the end of the session. The inspectors verified that minor issues identified during the inspection were entered into the licensee's corrective action program.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

The inspectors reviewed the licensee's overall maintenance effectiveness for risk-significant mitigating systems. This evaluation consisted of the following specific activities:

- observing the conduct of planned and emergent maintenance activities where possible;
- reviewing selected CRs, open WOs, and control room log entries in order to identify system deficiencies;
- reviewing licensee system monitoring and trend reports;
- a partial walkdown of the selected system; and
- interviews with the appropriate system engineer.

The inspectors also reviewed whether the licensee properly implemented the Maintenance Rule, 10 CFR 50.65, for the system. 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 reviewed the following two systems:

- Units 1 and 2 auxiliary feedwater from April 21-29, 2003; and
- Units 1 and 2 safety injection (SI) on May 21-June 12, 2003.

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 verify that 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.

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

In addition, the inspectors reviewed selected issues that the licensee entered into its corrective action program, including minor issues identified by the inspectors, to verify that identified problems were being entered into the program with the appropriate characterization and significance.

The inspectors reviewed the following six activities:

- replacing the stuffing box extension on the 1A RH pump, requiring the use of a large portion of the 7-day allowed outage time, on March 31 through April 5, 2003;
- replacing the incandescent light bulbs on the Unit 2, Train B, solid state protection system logic test and output relay test panels with light emitting diodes, requiring entry into a limiting condition for operation for the reactor trip breakers with a 1 hour completion time limitation, on April 3, 2003;

- replacing pressure relief valve 1SI121 requiring entry into the limiting condition for operation for the 1A RH and containment spray systems on April 10, 2003;
- planned and emergent maintenance (replace outboard radial bearing) on the 1B SI pump in conjunction with planned testing of the 1B diesel generator on May 20, 2003;
- emergent maintenance to replace load sequencing timers on the 1B diesel generator during a time when the 1B SI pump was unavailable due to planned work on May 23, 2003; and
- planned and emergent maintenance (replace jacket water pump discharge flange, potential overpressure of jacket water system, and troubleshoot failed start) on the 1B diesel generator on June 16, 2003.

b. Findings

No findings of significance were identified.

1R14 Personnel Performance Related to Non-Routine Plant Evolutions and Events (71111.14)

a. Inspection Scope

On April 26, 2003, the inspectors observed the control room operators respond to an unexpected loss of the 111 instrument bus. Unit 1 was shut down in a refueling outage at the time of the event. The loss of the bus caused the loss of various control functions, several instrument indications, and several annunciators. Operators were observed to be following the proper abnormal operating procedure as listed in the Attachment. Among the actions taken were: securing the 1A auxiliary feedwater pump, which had been filling the 1B steam generator due to failing closed of feedwater control valve 1AF005B; swapping RH removal pumps from the 1A to the 1B pump due to excessive cooldown caused by temperature control valve 1RH606 failing open; and responding to the loss of the N-31 source range detector. The inspectors reviewed the control room logs to verify that significant actions taken during the event were properly recorded. The inspectors also observed the licensee's initial troubleshooting efforts to determine the cause of the loss.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors evaluated plant conditions and selected CRs for risk-significant components and systems in which operability issues were 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 CRs 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 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 system.

The inspectors reviewed the following five operability evaluations and conditions:

- the unplanned unavailability of Unit 1 pressurizer power operated relief valve, 1RY456 on May 2, 2003;
- CR 154441, dated April 17, 2003, regarding a potential 1RY456 diaphragm leak;
- CR 154960, initiated March 14, 2003, regarding the licensee identification that installed Unit 2 pressurizer pressure transmitter 2PT-458 was the incorrect model;
- CR 152025, initiated March 17, 2003, regarding control room annunciator power supplies being installed with the wrong transistors;
- CR 154329, initiated April 17, 2003, regarding potential problems with diesel generator load sequence timers; and
- CR 160402, initiated on May 24, 2003, for failure of the 1B diesel-driven auxiliary feedwater pump to start.

b. Findings

Introduction: The inspectors identified a potential issue with the 1B diesel-driven auxiliary feedwater pump, which failed to start during a routine surveillance. This issue is unresolved pending the licensee's completion of a root cause evaluation to determine whether the cause of the failure was due to a performance deficiency.

Description: On May 24, 2003, the 1B auxiliary feedwater pump failed to start during a routine monthly surveillance. After reviewing pump parameters, the licensee determined that insufficient oil pressure was being developed in the governor subsystem during the starting sequence. This subsystem consists of the governor, governor oil reservoir, and fuel shutoff solenoid valve. The licensee replaced the governor and fuel shutoff solenoid valve and subsequently, successfully started the pump. The licensee retained the original components in order to determine the reason for the failed start. The failed start and immediate corrective actions were documented in CR 160402.

There have been several, past failures of the 1B auxiliary feedwater pump to start, most recently in November 2001. The licensee attributed these failures to an inappropriate fuel shutoff solenoid valve being installed in the pump. Subsequently, the licensee replaced the valve on both the 1B and 2B diesel driven auxiliary feedwater pumps and installed monitoring equipment to measure the performance of both pumps. A summary of the previous failures and the licensee's evaluation was documented in NRC Inspection Report 50-456/02-04(DRP).

Analysis: In order to determine the significance and enforcement aspects of this issue, the NRC will need to review the licensee's completed root cause to determine if the 1B pump failure to start was due to a performance deficiency. This review will also determine if there are any concerns with either the past operability of the 1B pump and/or the current operability of the 2B pump. The licensee root cause determination is

scheduled to be completed by July 21, 2003. This is an Unresolved Item (URI 05000456, 457/2003003-01).

1R16 Operator Workarounds (71111.16)

a. Inspection Scope

On April 14, 2003, the inspectors completed a semi-annual review of the cumulative effects of operator workarounds. The inspectors verified that the workarounds did not have a significant effect on the reliability, availability, or the ability to correctly operate mitigating systems and that they would not significantly increase operator response time to transients and accidents. The inspectors also verified that the licensee had plans and schedules established to correct the conditions in a reasonable time. In addition to operator workarounds, the inspectors reviewed operability evaluations, operator challenges, and temporary modifications for cumulative effects. The inspectors reviewed the documents listed in the Attachment as part of this inspection.

b. Findings

No findings of significance were identified.

1R19 Post Maintenance Testing (71111.19)

a. Inspection Scope

The inspectors reviewed the post maintenance testing activities associated with maintenance or modification of important mitigating, barrier integrity, and support systems to ensure that the testing adequately verified system operability and functional capability with consideration of the actual maintenance performed. The inspectors used the appropriate sections of the TS and UFSAR, as well as the documents listed in the Attachment, to evaluate the scope of the maintenance and to verify that the post maintenance testing demonstrated that the maintenance was successful and operability was restored. The inspectors verified that minor issues identified during the inspection were entered into the licensees corrective action system.

Testing subsequent to the following five activities was observed and evaluated:

- 1B essential service water pump on April 26, 2003, following replacement of the pump and motor as well as other work on the train;
- 1A centrifugal charging pump on April 29, 2003, following the replacement of the pump seals;
- 1B diesel-driven auxiliary feedwater pump 18-month and 12-year inspections conducted on April 29 and 30, 2003;
- 2B diesel generator load sequencer timer replacement on May 22, 2003; and
- 1B diesel generator 6-year inspection conducted on June 19 and 20, 2003.

b. Findings

No findings of significance were identified.

1R20 Refueling and Other Outage Activities (71111.20)

a. Inspection Scope

The inspectors observed the licensee's performance during the Unit 1 refueling outage conducted between April 15 and May 3, 2003.

This inspection consisted of a review of the licensee's outage schedule, safe shutdown plan and administrative procedures governing the outage, periodic observations of equipment alignment, and plant and control room outage activities. Specifically, the inspectors determined whether the licensee effectively managed elements of shutdown risk pertaining to reactivity control, decay heat removal, inventory control, electrical power control, and containment integrity.

The inspectors performed the following activities daily, during the outage:

- attended control room operator and outage management turnover meetings to verify that the current shutdown risk status was well understood and communicated;
- performed walkdowns of the main control room to observe the alignment of systems important to shutdown risk;
- observed the operability of RCS instrumentation and compared channels and trains against one another;
- performed walkdowns of the auxiliary and containment buildings to observe ongoing work activities; and
- reviewed selected issues that the licensee entered into its corrective action program to verify that identified problems were being entered into the program with the appropriate characterization and significance, and that operability issues were resolved prior to startup.

Additionally, the inspectors performed the following specific activities:

- walkdown in various areas of the Unit 1 auxiliary building common areas to observe control of transient combustibles and other fire protection actions;
- on April 7, 2003, the inspectors reviewed the detailed outage schedule and risk control plans;
- on April 14 and 15, 2003, the inspectors observed the control room staff perform the Unit 1 shutdown and initial cooldown;
- on April 15, 2003, the inspectors observed the licensee aligned the RH system for shutdown cooling;
- on April 16, 2003, the inspectors reviewed the licensee's installation of a temporary penetration cover in the Unit 1 containment. This was done to maintain containment integrity;
- on April 16 and 24, 2003, the inspectors observed the control room staff drain the reactor vessel to the flange;
- on April 17, 2003, the inspectors performed a walkdown of the Unit 1 and 2 spent fuel cooling system in preparation for fuel unloading;
- on April 18, 2003, the inspectors observed the Unit 1 fuel unloading;
- on April 21 and 22, 2003, the inspectors the Unit 1 fuel reloading;

- on April 21, 2003, the inspectors observed the material condition of the Unit 1 containment emergency core cooling system sumps;
- on April 24 and 25, 2003, the inspectors attended a Plant Operating Committee Review meeting regarding the Unit 1 readiness for restart;
- on April 29, 2003, the inspectors performed a closeout inspection of the Unit 1 containment (as part of this inspection, the inspectors verified that all discrepancies observed were properly recorded and corrected); and
- on May 1 and 2, 2003, the inspectors observed portions of the low power physics testing, the approach to criticality, and portions of the power ascension.

During the routine walkdowns, the inspectors selectively verified that equipment configuration was appropriately maintained and that redundant equipment was available when maintenance was occurring on plant systems. Documents reviewed during these inspection activities are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors witnessed selected surveillance testing and/or reviewed test data to verify that the equipment tested using the surveillance procedures met the TS, the UFSAR, and licensee procedural requirements, and demonstrated that the equipment was capable of performing its intended safety functions. The activities were selected based on their importance in verifying mitigating systems capability and barrier integrity. The inspectors used the documents listed in the Attachment to verify that 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 inspectors verified that minor issues identified during the inspection were entered into the licensee's corrective action system.

The following tests five were observed and evaluated:

- full flow testing of the Unit 1 motor- and diesel-driven auxiliary feedwater pumps on April 7, 2003;
- lift point testing of the Unit 1 main steam safety valves on April 8-9, 2003;
- leakage testing on the Unit 1 pressurizer power operated relief valve air accumulator check valves on April 16-17, 2003;
- 1A diesel generator; emergency core cooling system sequencer, full load reject and simulated SI with under voltage during load testing and loss of engineered safety feature bus voltage with no SI signal conducted on April 22-23, 2003; and
- 1B diesel generator bypass of automatic trips surveillance, monthly run and 24-hour endurance testing on May 20, 2003.

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications (71111.23)

a. Inspection Scope

On May 19, 2003, the inspectors reviewed a temporary maintenance alteration to install a freeze seal isolation on the service water piping on the 1B SI pump cubicle cooler. This activity was chosen because a failure of the freeze seal could have resulted in a significant service water leak inside the auxiliary building and a potential loss of the 1B SI pump for longer than its allowed limiting condition of operation. The freeze seal was performed to support the replacement of the service water supply and inlet isolation valves to the cooler. Because the freeze seal was expected to remain in place for less than 90 days, a formal safety evaluation was not required.

The documents that were reviewed as part of this inspection are listed in the Attachment.

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness

1EP2 Alert and Notification System (ANS) Testing (71114.02)

a. Inspection Scope

The inspectors discussed with Emergency Preparedness (EP) staff the design, equipment, and periodic testing of the public ANS for the Braidwood reactor facility emergency planning zone to verify that the system was properly tested and maintained. The inspectors also reviewed procedures and records for a 15 month period ending March 2003 related to ANS testing, annual preventive maintenance, and non-scheduled maintenance. The inspectors reviewed the licensee's documentation for determining whether each model of siren installed in the emergency planning zone would perform as expected if fully activated. Records used to document and trend component failures for each model of installed siren were also reviewed to ensure that corrective actions were taken for test failures or system anomalies. Documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

1EP3 Emergency Response Organization (ERO) Augmentation Testing (71114.03)

a. Inspection Scope

The inspectors reviewed the licensees ERO augmentation testing to verify that the licensee maintained and tested its ability to staff the ERO during an emergency in a timely manner. Specifically, the inspectors reviewed semi-annual, off-hours staff augmentation test procedures, related June 13, 2002; June 26, 2002; September 5, 2002; October 29, 2002; November 5, 2002; December 5, 2002; January 29, 2003; February 24, 2003; and March 13, 2003, drill records, primary and backup provisions for off-hours notification of the Braidwood reactor facility emergency responders, and the current ERO rosters for Braidwood. The inspectors reviewed and discussed the facility EP staff's provisions for maintaining ERO call out lists. Documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

1EP5 Correction of Emergency Preparedness Weaknesses and Deficiencies (71114.05)

a. Inspection Scope

The inspectors reviewed the Nuclear Oversight staff's 2002 Continuous Assessment Report to ensure that this audit complied with the requirements of 10 CFR 50.54(t) and that the licensee adequately identified and corrected deficiencies. The inspectors also reviewed the EP staff's 2002 and 2003 self-assessments, and critiques to evaluate the EP staff's efforts to identify and correct weaknesses and deficiencies. Additionally, the inspectors reviewed a sample of EP items, condition reports, and action requests related to the facility's EP program to determine whether corrective actions were acceptably completed. Documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope

On June 4, 2003, the inspectors observed an operating crew during an "out-of-the-box" requalification examination on the simulator using the scenario listed in the Attachment. This drill contained opportunities which the licensee had determined would count toward the Drill and Exercise Performance Indicator statistics. The inspectors ensured that the classification and notification opportunities had been predetermined and that adequate timing and success criteria had been established. The inspectors reviewed the licensee's emergency plan implementation procedures to ensure that the proper classifications had been determined. The inspectors observed the scenario and the

post-scenario critique to ensure that operator performance in emergency response had been properly assessed by the licensee evaluators.

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, Radiological Boundary Verification, Radiation Work Permit Reviews and Observations of Radiation Worker Performance

a. Inspection Scope

The inspectors conducted walkdowns of selected radiologically controlled areas within the plant to verify the adequacy of radiological boundaries and postings. Specifically, the inspectors walked down several radiologically significant work area boundaries (high [HRAs] and locked high [LHRAs] radiation areas) in the Units 1 and 2 auxiliary building, the radwaste building, the Unit 1 containment building and the spent fuel pool and performed confirmatory radiation measurements to verify that these areas and selected radiation areas were properly posted and controlled in accordance with 10 CFR Part 20, licensee procedures, and the TS. The inspectors also reviewed the radiological conditions within those work areas walked down, to assess the radiological housekeeping and contamination controls. Documents reviewed are listed in the Attachment. The inspectors verified that minor issues identified during this inspection were entered into the licensee's corrective action system.

b. Findings

No findings of significance were identified.

.2 High Radiation Area and Very High Radiation Area Access Controls

a. Inspection Scope

The inspectors reviewed the licensee's procedures, practices and associated documentation for the control of access to radiologically significant areas (HRAs, LHRAs and very high [VHRAs] radiation areas) and assessed compliance with TS, procedures, and the requirements of 10 CFR 20.1601 and 20.1602. In particular, the inspectors reviewed the licensee's practices and records for the control of keys to LHRAs and VHRAs, the use of access control guards to control entry into such areas, and the licensee's methods for independently verifying proper closure and latching of LHRA and VHRA doors upon area egress. Additionally, radiological postings were reviewed, and access control boundaries were challenged by the inspectors throughout the plant to

verify that high, locked high, and very high radiation areas were properly controlled. Documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

.3 Review of Radiologically Significant Work

a. Inspection Scope

The inspectors reviewed selected 2003 Unit 1 refueling outage Radiation Work Permits associated with inspections and work activities on the Unit 1 reactor coolant pumps and motors, activities associated with the ISI program, steam generator inspection and work activities as well as activities associated with normal refueling outage reactor maintenance. These inspection activities were performed to verify the adequacy of surveys, access controls, and postings to assess the exchange of work area radiological information and to evaluate radiation worker and radiation protection technician performance. The inspectors also evaluated the licensee's procedure and practices for dosimetry placement and use of multiple dosimetry in high radiation areas having significant dose gradients for compliance with the requirements of 10 CFR 20.1201 and applicable Regulatory Guides. Documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

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

.1 Job Site Inspections and ALARA Controls

a. Inspection Scope

The inspectors reviewed the licensee's use of ALARA controls for selected 2003 Unit 1 refueling outage work activities performed in radiation areas, HRAs, and LHRAs. Specifically, the inspectors reviewed the adequacy of Radiation Work Permits, radiological surveys, attended pre-job radiological briefings, and assessed job site ALARA controls for the following work activities:

- inspection, maintenance and repair of the reactor coolant pumps;
- steam generator project work;
- installation and removal of insulation;
- work activities in support of in service inspections; and
- disassembly and removal of the reactor head.

For each activity the inspectors examined worker instruction requirements which included protective clothing, engineering controls to minimize dose exposures, the use of predetermined low dose waiting areas, as well as the on-the-job supervision by the work crew leaders to verify that the licensee had maintained the radiological exposure

for these work activities ALARA. The inspectors evaluated radiation protection technician performance for each of the aforementioned work evolutions, as well as observing and questioning workers at each job location to determine that they had adequate knowledge of radiological work conditions and exposure controls. Documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

.2 Radiological Work/ALARA Planning

a. Inspection Scope

The inspectors examined the station's procedures for radiological work/ALARA planning and scheduling, and evaluated the dose projection methodologies and practices implemented for the 2003 Unit 1 refueling outage, to verify that sound technical bases for outage dose estimates existed.

The inspectors reviewed the exposure results and ALARA post-job reviews for selected outage activities to evaluate the accuracy of exposure estimates in the ALARA plans. The inspectors compared the actual exposure results versus the initial exposure estimates, the estimated and actual dose rates as well as the estimated and actual man-hours expended. The inspectors reviewed the exposure history for each activity and reviewed management involvement in exposure tracking to assess outage dose performance and dose control practices. The inspectors reviewed selected work-in-progress ALARA reviews to determine if additional engineering/dose controls for those activities had been established and, if required, corrective documents had been generated. Those work activities included inspection, maintenance and repair of the reactor coolant pumps, steam generator project work, reactor head disassembly, installation and removal of insulation, and the assembly and disassembly of shielding and scaffolding. Documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

.3 Verification of Exposure Estimate Goals and Exposure Tracking System

a. Inspection Scope

The inspectors reviewed the methodology and assumptions used by the licensee for the Unit 1 outage exposure estimates and exposure goals. Actual job exposure data was compared with estimates to verify that the licensee could project and, thus, control radiological exposure. The inspectors also reviewed the licensee's exposure tracking system to verify that the level of exposure tracking detail, exposure report timeliness, and exposure report distribution were sufficient to support control of collective exposures. The inspectors evaluated how the licensee had identified problems with it's exposure estimates for some jobs, the processes being utilized to revise dose

estimates, and methods to improve it's dose forecasting procedures to verify that the licensee could adequately track dose. Documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

.4 Declared Pregnant Workers

a. Inspection Scope

The inspectors reviewed the station's dose minimization controls used for declared pregnant workers. Specifically, the inspectors reviewed the licensee's adherence to the requirements contained in 10 CFR 20.1208 by examining the licensee's fetal protection program procedure for tracking radiological exposure to the embryo/fetus, and the administrative and ALARA controls that could be used by the licensee to minimize the dose to the embryo/fetus of a declared pregnant worker. Documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

.5 Identification and Resolution of Problems

a. Inspection Scope

The inspectors reviewed a 2003 focus area self-assessment of radiation protection Unit 1 outage readiness and preparation to evaluate the effectiveness of the self-assessment process to identify, characterize, and prioritize problems. The inspectors selectively reviewed October 2002 to April 2003 CRs that addressed access control and ALARA program deficiencies to verify that the licensee had effectively implemented the corrective action program. The inspectors also reviewed corrective action documentation to verify that previous access control and ALARA related issues had been adequately addressed. Documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

3. SAFEGUARDS

Cornerstone: Physical Protection

3PP2 Access Control (Identification, Authorization and Search of Personnel, Packages, and Vehicles) (71130.02)

a. Inspection Scope

The inspectors reviewed the licensee's protected area access control testing and maintenance procedures. The inspectors observed licensee testing of all protected area access control equipment to determine if testing and maintenance practices were performance based. On two occasions, the inspectors observed in-processing search of personnel, packages, and vehicles to determine if search practices were conducted in accordance with regulatory requirements.

The inspectors reviewed security related event reports and safeguard log entries associated with the access control program for the period May 2002 through April 2003. The inspectors also reviewed the licensee's corrective action program to determine if security related issues associated with the access control program were appropriately identified, and resolved. Documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

3PP3 Response to Contingency Events (71130.03)

a. Inspection Scope

The inspectors walked down the licensee's protected area intrusion alarm system to identify potential vulnerabilities. The inspectors, accompanied by licensee security representatives, observed testing of selected protected area intrusion alarm zones. Alarm zone detection was evaluated by conducting various testing methods.

The inspectors also reviewed the effectiveness of alarm station personnel to recognize and identify activities in the protected area alarm detection zones on the assessment monitors. The inspectors also reviewed the field of view provided by the assessment aids to ensure compliance with the licensee's security plan.

The inspectors also reviewed a sample of licensee force-on-force drill records, and interviewed security management personnel to determine if the licensee had appropriately identified and resolved issues associated with the contingency response program. Documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151)

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity, Emergency Preparedness, and Physical Protection

.1 Reactor Safety Strategic Area

a. Inspection Scope

The inspectors reviewed documents listed in the Attachment to verify that the licensee had corrected reported performance indicators data, in accordance with the criteria in Nuclear Energy Institute 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 2. The following six performance indicators were reviewed for the periods indicated:

- unplanned scrams with loss of normal heat removal during April 2002, through March 2003;
- safety system unavailability of emergency alternating current power systems during April 2002, through April 2003;
- RCS leakage during April 2002, through March 2003;
- drill and exercise performance during July 2002, through March 2003;
- ERO drill participation during July 2002, through March 2003; and
- ANS reliability during July 2002, through March 2003.

b. Findings

No findings of significance were identified.

.2 Physical Protection Strategic Area

a. Inspection Scope

The inspectors verified the data for the three Physical Protection Performance Indicators pertaining to:

- Fitness-For-Duty Personnel Reliability;
- Personnel Screening Program; and
- Protection Area Security Equipment.

Specifically, a sample of plant reports related to security events, security shift activity logs, fitness-for-duty reports, and other applicable security records were reviewed for the period between May 2002 through April 2003.

b. Findings

No findings of significance were identified.

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 reviewed issues during baseline inspection activities and plant status reviews to verify that they were being entered into the licensee's corrective action system 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 system as a result of inspectors' observations are generally denoted in the Attachment.

b. Findings

No finding of significance were identified.

.2 Assessment of Operability Issues Discovered During Outages (Annual Sample)

Introduction

During pervious outages, the inspectors identified instances where operability issues discovered during the outage, when the equipment was not required to be operable by TS, were not adequately assessed to determine whether the conditions had existed during the previous operating cycle. Various reporting programs such as the NRC performance indicators, the maintenance rule, and the licensee event reporting rule require reporting of periods of equipment inoperability or unavailability, even if the conditions are discovered after the fact.

This inspection primarily dealt only with the aspects of prioritization and evaluation of operability issues discovered during the Unit 1, April 2003, outage period, and did not address the effectiveness of the identification or the corrective actions for those issues.

Prioritizations and Evaluation of Issues

a. Inspection Scope

The inspectors reviewed the CRs listed in the Attachment to determine if the issue raised operability questions that might indicate that the equipment had been inoperable during the previous operating cycle and, if so, whether the licensee had initiated actions to determine past operability. The inspectors also reviewed licensee procedures for initiating and processing condition reports to determine whether adequate directions existed to ensure that past operability would be evaluated if appropriate.

b. Issues

For all except one of the issues reviewed in which past operability could have been called into question, the inspectors determined that the CR indicated that such an

assessment should be done. However, the need for a past operability assessment seemed to be determined only through the knowledge of the people involved in writing and reviewing the CRs. Sometimes the department corrective action program coordinator determined the need, sometimes the supervisor determined it, and, most often, the shift manager determined the need for an evaluation of past operability.

The inspectors identified one exception, in that, a test of the Unit 1 pressurizer power operated relief valve air accumulator check valves indicated that air was leaking from the B train accumulator at greater than the specified rate. The licensee determined that the leakage was not through the inlet check valves, but rather through another path. Since the object of the test had been to test the check valves, the licensee determined that they were operable and did not evaluate the condition further except to initiate corrective actions to find and repair the leak. Until prompted by the inspectors, the licensee did not evaluate whether the overall leakage from the accumulator was such that it could have prevented the power operated relief valve to perform its function after a loss of instrument air. However, in the end, the licensee concluded that the leakage was small enough that it had not affected past operability.

Although the inspectors determined that assessments of past operability were generally being assigned, it appeared to be somewhat fortuitous. The inspectors determined that the licensee's corrective action program had no instructions to ensure that past operability would be evaluated for conditions discovered during outages. In fact, the licensee's procedure for operability determinations specifically stated that a degraded or non-conforming system, structure, or component that was not required to be operable in the current mode of operation did not require an operability evaluation. Although no actual cases were found during this inspection, the inspectors determined that the guidance in the operability determination procedure could lead to a failure to properly assess past operability and reportability for an issue discovered during an outage.

4OA3 Event Followup (71153)

.1 (Closed) Licensee Event Report (LER) 50-456/2003-001-00: Control Room Ventilation [VC] System Alignment Results in Inoperable Radiation Monitors Without Taking Required Actions per the TSs Due to Inadequate Evaluation of the Original Procedures and Some Subsequent Revisions and Inadequate Evaluation of a Design Change.

The inspectors reviewed the LER, related condition reports and evaluations and other documents as listed in the Attachment at the end of this report. The inspectors also discussed the details of the condition with the appropriate members of the licensee's engineering staff. In addition, the inspectors completed a walkdown of the applicable portions of the control room ventilation system.

As discussed in the subject LER, on January 27, 2003, the licensee determined the unit common VC filtration system actuation instrumentation radiation monitors were not operable when VC was manually aligned to the turbine building makeup air intake. This was because there was little or no air flow past the monitors when aligned in that mode. The licensee also reported that a design change made before the beginning of plant operation had been inadequately evaluated and had rendered the system less capable of performing its design function. Specially, this design change removed the

Engineered Safety Feature-Safety Injection (ESF-SI) actuation signal to secure the miscellaneous ventilation system, which allowed for possible unfiltered air in-leakage to the control room enveloped beyond the originally analyzed amount.

The licensee corrective actions, as described in the LER, included interim controls and instructions for operation of the system and were to include revisions to the surveillance and emergency procedures. In addition, the licensee conducted an evaluation confirming that this condition did not preclude the fulfillment of the VC safety function to prevent dose to the control room personnel from exceeding General Design Criteria 19 limits. The result of this evaluation was documented in the licensee's supplement to the LER issued on May 23, 2003.

The inspectors determined that the licensee-identified issues were more than minor because they were caused by performance deficiencies associated with the attributes of procedure quality and design control. Both deficiencies affected the barrier integrity cornerstone objective of providing reasonable assurance that physical design barriers would protect the operators from radio-nuclide releases caused by accidents or events. The findings would also become more safety significant if left uncorrected because the probability of an actual event which would result in a high radiation condition in the outside air would have increased with time. The inspectors determined that having the VC system filtration actuation system inoperable in excess of the TS allowed outage time during surveillance testing of the VC system also affected the cross-cutting area of human performance because operators failed to recognize the surveillance test alignment resulted in the inoperability of the system.

The findings were determined to have very low safety significance (Green) in the SDP Phase 1 Screening Worksheet of Manual Chapter 0609, Appendix A, Attachment 1, because the findings only represented a degradation of the radiological barrier function provided for the control room. The licensee entered these issues into its action tracking system as CR 141542. The enforcement aspects of these licensee-identified findings are described in Section 4OA7. This LER is closed.

.2 (Closed) LER 50-456/2003-001-01: Control Room Ventilation System Alignment Results in Inoperable Radiation Monitors Without Taking Required Actions per the TSs Due to Inadequate Evaluation of the Original Procedures and Some Subsequent Revisions and Inadequate Evaluation of a Design Change, Supplement 1.

The licensee submitted Supplement 1 to LER 50-456/2003-001 to provide confirmation that the condition would not have resulted in exceeding the General Design Criteria 19 limits. The inspectors reviewed the information provided in Supplement 1 to LER 50-456/2003-00, and the supporting documentation and acknowledged that the General Design Criteria limits would not have been exceeded. Supplement 1 of the LER did not raise any new issues or change the conclusions of the initial review which is documented in Section 4OA3.1 of this report.

.3 (Closed) LER 50-456/2003-002-00: Residual Heat Removal Pump TS Completion Time Exceeded Requiring Notice of Enforcement Discretion Due to Poor Planning and Execution of Planned Maintenance.

This issue was previously discussed in Inspection Report 50-456,457/2003-02, Sections 1R13 and 4OA5.2. No new issues were identified.

.4 Indications of Fuel Pin Leak on Unit 1

a. Inspection Scope

After startup from the refueling outage, the licensee noted an increasing trend in Unit 1 RCS activity. On May 5, 2003, RCS activity reached the point where the licensee entered its abnormal operating procedures for a potential fuel pin leak. The licensee established a Failed Fuel Monitoring Team, increased RCS sampling frequency, and took other actions in accordance with the procedures listed in the Attachment. The inspectors monitored RCS sample results and actions taken by the monitoring team, including the development of contingencies and power maneuvering plans. A review of RCS sample results showed that iodine and xenon activity had been increasing at an exponential rate since about May 3 and continued to increase until May 6, when they began to stabilize. The inspectors verified that the RCS activity levels never approached TS limits, although they were between one and two decades above the values from before the outage. Documents reviewed as part of this inspection are listed in the Attachment.

b. Findings

No findings of significance were identified.

4OA5 Other Activities

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

a. Inspection Scope

The objective of TI 2515/150, “Reactor Pressure Vessel Head and Vessel Head Penetration Nozzles,” Revision 1, was to implement an on-site NRC review of the licensees’ activities in response to NRC Bulletin 2002-02, “Reactor Pressure Vessel Head and Vessel Head Penetration Nozzle Inspection Programs,” to verify compliance with applicable regulatory requirements. In response to NRC Bulletin 2002-02, Braidwood Station calculated the effective degradation years based on time and head temperature which placed the plant in the "Low Susceptibility” ranking for leakage of the penetration nozzles. As a result, the licensee performed a 100 percent bare metal visual inspection of the RPV head and penetration nozzles. The inspectors interviewed inspection personnel, reviewed procedures and inspection reports, including photographic and video documentation, to assess the licensee’s efforts in conducting the visual examination of the reactor vessel head.

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:

(1) Was the examination:

(a) Performed by qualified and knowledgeable personnel?

Yes. The licensee conducted a remote visual examination of the head with staff members certified to Level II/III as visual testing (VT)-2 examiners in accordance with programs meeting the American Society for Nondestructive Testing Recommended Practice, SNT-TC-1A.

(b) 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 ER-AA-335-015, "VT-2 Examination," and supplemental specific instruction SSI-A1R10-RV HEAD, "Visual Inspection of Braidwood Unit 1 Reactor Vessel Head." Electrical Power Research Institute Procedure 1006296, "Visual Examination for Leakage of Pressurized Water Reactor Head Penetrations on Top of RPV Head," Revision 1, was used as guidance for the examination.

(c) Able to identify, disposition, and resolve deficiencies?

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

(d) 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 work order and examination reports 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.

(2) 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 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 (slight amounts of debris and boric acid "crumbs" around some penetrations). 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 videotape 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 vessel head penetrations (53 control rod drive mechanism nozzles, 18 spare control rod drive mechanism nozzles, 5 incore thermocouple nozzles, 2 reactor vessel level indication system nozzles all equally sized (approximately 4 inches diameter), plus the 1 inch head vent. The center to center distance between most penetrations is approximately 12 inches.

(3) 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 examination reports, that small boron deposits, as described in Bulletin 2001-01, could be identified and characterized.

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

There were no material deficiencies associated with the 79 pressure vessel head penetrations that were considered indicative of leakage.

(5) What, if any, significant items could impede effective examinations?

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

(6) 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. These burnup values are based on the surveillance procedure 1/2BwOS NR-1, “Power History Hourly Surveillance.” The head temperature for the Braidwood units has been fixed by thermal-hydraulic design to be the reactor cold leg temperature.

c. Findings

No findings of significance were identified.

4OA6 Meetings

.1 Exit Meeting

The inspectors presented the inspection results to Mr. T. Joyce and other members of licensee management at the conclusion of the inspection on July 7, 2003. 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 exits were conducted for:

- Radiation Protection inspection with Mr. J. von Suskil on April 23, 2003.
- Emergency Preparedness inspection with Mr. J. von Suskil on April 24, 2003.
- Inservice inspection and TI 2515/150 with Mr. T. Joyce on April 29, 2003.
- Safeguards inspection with Mr. J. von Suskil on May 7, 2003.
- Heat Sink inspection with Mr. M. Pacilio and Mr. T. Joyce on May 16, 2003

4OA7 Licensee-Identified Violations

The following violations of very low safety significance were identified by the licensee and are violations of NRC requirements which meet the criteria of Section VI of the NRC Enforcement Policy, NUREG 1600, for being dispositioned as a Non-Cited Violation.

Cornerstone: Mitigating Systems

1. 10 CFR Part 50, Appendix B, Criteria III, "Design Control," requires, in part, that measures be established to assure that applicable regulatory requirements and the design basis are correctly translated into specifications, procedures, and instructions. Specifically, NUREG-0876, "Safety Evaluation Report related to the operation of Byron Station, Units 1 and 2," Sections 6.3.2 and 8.4.3, took credit for power lockout of the Spurious Valve Actuation Group (SVAG) valves in accordance with Branch Technical Position BTP ICSB 18 (PSB), "Application of the Single Failure Criterion to Manually-Controlled Electrically-Operated Valves." Per Branch Technical Position BTP ICSB 18 (PSB), manually-controlled "active" valves (i.e., valves that are required to open or close in various safety system operational sequences) were required to be operated from the main control

room. Contrary to the above, on or before October 23, 1985, the design basis for the Units 1 and 2 electrical systems related to lockout power to manually controlled electrically-operated valves was not correctly translated into specifications, procedures, and instructions. Specifically, this design basis was not correctly translated into the Emergency Operating Procedures, which required local operator actions, not control room actions, to energize the motor control center compartments for certain "active" SVAG valves of the Emergency Core Cooling System (ECCS). This violation was considered more than minor because it was related to the procedure quality that affected the reliability to operate mitigating system equipment, and was determined to be of very low safety significance because subsequent evaluation concluded it did not result in a loss of ECCS equipment function. The licensee entered this event into its action tracking system as 152460.

Cornerstone: Barrier Integrity

1. Technical Specification 3.3.7 required that two detectors in each train of the VC system filtration actuation system be operable for gaseous activity during operations in Modes 1 through 5 and in Mode 6 during movement of irradiated fuel assemblies. Contrary to this, as described in LER 50-456/2003-001-00, none of the gaseous detectors and neither train of the VC system filtration system actuation system was considered operable, under certain conditions, from the beginning of plant operations because there would be inadequate flow past the detectors and the system would not have automatically aligned as intended in the case of high radiation in the outside air if the system was already manually aligned to the turbine building makeup air source. The licensee entered this event into its action tracking system as CR 141389. This violation is of very low safety significance because it only represented a degradation of the radiological barrier function provided for the control room.

2. 10 CFR 50, Appendix B, Criteria III, "Design Control," required, in part, that design control measures shall provide for verifying and checking the adequacy of design. Contrary to the above on or about August 21, 1986, the licensee's Engineering Design Change P-639, "Delete Safety Injection Signal from Miscellaneous Ventilation System, Control Room Office HVAC [heating ventilation and air conditioning]," failed to verify the adequacy of the design with respect to the impact on control room habitability. The licensee entered this event into its action tracking system as CR 141389. This violation is of very low safety significance because it only represented a degradation of the radiological barrier function provided for the control room.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee
M. Pacilio, Site Vice President
J. von Suskil, Site Vice President
T. Joyce, Plant Manager
K. Aleshire, Emergency Preparedness Manager
E. Stefan, Regulatory Assurance - NRC Coordinator
G. Baker, Site Security Manager
R. Blaine, Radiation Protection Manager
G. Dudek, Operations Manager
C. Dunn, Site Engineering Director
R. Gilbert, Nuclear Oversight Manager
F. Lentine, Design Engineering Manager
K. Root, Regulatory Assurance Manager
B. Stoffels, Maintenance Manager

Nuclear Regulatory Commission
M. Chawla, Project Manager, Office of Nuclear Reactor Regulation
A. Stone, Chief, Reactor Projects Branch 3

LIST OF ITEMS OPENED AND CLOSED

Opened

05000456, 457/2003003-01	URI	Failure of the 1B auxiliary feedwater pump to start during routine surveillance (Section 1R15)

Closed

50-456/2003-001-00	LER	Control Room Ventilation System Alignment Results in Inoperable Radiation Monitors Without Taking Required Actions per the TSs Due to Inadequate Evaluation of the Original Procedures and Some Subsequent Revisions and Inadequate Evaluation of a Design Change (Section 4OA3.1)
50-456/2003-001-01	LER	Control Room Ventilation System Alignment Results in Inoperable Radiation Monitors Without Taking Required Actions per the TSs Due to Inadequate Evaluation of the Original Procedures and Some Subsequent Revisions and Inadequate Evaluation of a Design Change (Section 4OA3.2)

50-456/2003-002-00	LER	Residual Heat Removal Pump TS Completion Time Exceeded Requiring Notice of Enforcement Discretion Due to Poor Planning and Execution of Planned Maintenance (Section 4OA3.3)

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 Preparation

Project Plan; Monster Lake Pumping; June 20, 2003

NRC Inspection Report 50-456/457/98-22; Section 4; Drought and Heat Wave Effect

UFSAR Section 2.4.11; Low Water Considerations; Revision 9

UFSAR Section 9.2.5; Ultimate Heat Sink; Revision 9

0BWOA ENV-1; Adverse Weather Conditions Unit 0; Revision 100

2BwOA ENV-1; Adverse Weather Conditions Unit 2; Revision 5

0BwOA ENV-3; Braidwood Cooling Lake Low Level Unit 0; Revision 7

1BwOA ENV-3; Braidwood Cooling Lake Low Level Unit 1; Revision 7

2BwOA ENV-3; Braidwood Cooling Lake Low Level Unit 2; Revision 7

0BwOA ENV-5; Low Flow in the Kankakee River Unit 0; Revision 101

BwOP CW-9; Circulating Water Make-up System Start-up; Revision 10

BwAR 1-17-D13; Intake Bay Level High Low; Revision 8

1R04 Equipment Alignment

BwOP AF-E1; Electrical Lineup - Unit 1 Operating; Revision 9

BwOP AF-M1; Operating Mechanical Lineup Unit 1; Revision 9

BwOP CC-M2; Operating Mechanical Lineup Unit 2; Revision 13

BwOP CV-M2; Operating Mechanical Lineup Unit 2; Revision 17

BwOP RH-E2; Electrical Lineup - Unit 2 RH System Operating Electrical; Revision 2

BwOP RH-M4; Operating Mechanical Lineup Unit 2 2B Train; Revision 4

1BwOSR 3.7.5.1-2; Unit One Train B Auxiliary Feedwater Monthly Flowpath Verification; Revision 0

CR 158507; Identification of Protected Equipment (Problems in ORAM); May 13, 2003 [NRC-Identified]

1R05 Fire Protection

CR 155460; Blocked Fire Protection Equipment Fire Hose Reel on 426 Fuel Handling Building; April 23, 2003

CR 155932; Insufficient Radiation Protection Resources Cause Increased Plant Fire Loading; April 26, 2003

CR 155933; Nuclear Oversight Identified Hourly Fire Watch Posting Not Signed (Venture); April 26, 2003

CR 160273; Inadequate Fall Protection “Where Danger of Drowning Exists”; May 19, 2003 [NRC-Identified]

CR 163444; No Transient Combustible Permit Found in 1B Diesel Generator Room; JUne16, 2003

Byron/Braidwood Fire Protection Report; Revision 20

OP-AA-201-109; Control of Transient Combustible Material, Level 3 - Information Use; Revision 2

Braidwood Station Pre-Fire Plans

OP-AA-201-009; Exelon Nuclear Control of Transient Combustible Material; Revision 2

1R07 Heat Sink Performance

AH-CC-654; CC HX Specification Sheet; dated December 19, 1974

CR 113490; 1VA025B-1B RH PP Cubicle Cooler Thermal Performance Test; dated June 18, 2002

2-23102; Cooper Bessmer Specification Data Sheet CKP series; dated August 19, 1976

BRW-00-0017-M; Byron/Braidwood Uprate Project - Post LOCA CC Water System Temperature Analysis; Revision 1

BRW-97-1072-M; CC Heat Exchange Tube Plugging Evaluation; Revision 2

BRW-99-0306-M; DG Jacket Water Cooler Tube Plugging Evaluation; Revision 1

BRW-1871; Failure Evaluation of Braidwood Unit 2 CC Heat Exchanger Tube Pitting Row 34, Tube 32; dated May 13, 2002

BRW-20559; Evaluation of Unit 2 CC Heat Exchanger (EPN -2CCOIA)) Tube Pitting Sample removed from Rev 34, Tube 32; dated May 24, 2002

BwVP 850-15; Attachment C, "Heat Exchanger As-Found Inspection Report," Unit 2 CC Heat Exchanger performed April 22, 2002; Revision 3

BwVP 850-15; Attachment C, "Heat Exchanger As-Found Inspection Report," 1DGO1KA-X1 performed December 12, 2001; Revision 3

BwVP 850-15; Attachment C, "Heat Exchanger As-Found Inspection Report," 1DG01KA-X1 performed December 12, 2001; Revision 3

BwVS 900-29; Heat Transfer Test for CC Heat Exchanger 2CC01A performed May 8, 2002; dated March 4, 1994

EC 335570; Accept Eddy Current Tube Thinning in range of 65 to 94 percent; dated February 21, 2002

BwVS 900-29; Thermal Performance Test of the Unit 2 CC Heat Exchanger performed on November 7, 2001; Revision 4

CAE-01-049; Letter on Power Uprate Project, Westinghouse Input to CC Issue; dated April 18, 2001

CR 136000; Scheduled Work dropped from Work Week at E-1; dated December 1, 2002

CR 160068; NRC Identified Typographical Error in Calculation; May 22, 2003 [NRC-Identified]

CR 161910; RCFC Test Delayed Due to Procedure Inadequacies; May 29, 2003 [NRC-Identified]

DCR 990799; Pending Change Calculation for Diesel Generator Jacket Water Cooler Tube Plugging Evaluation - Calc. # BRW-99-0306-M; Revision 0

PIF A1997-4939; Excessive CC System Leakage; November 1, 1997

1R08 Inservice Inspection

EXE-PDI-UT-1; Ultrasonic Examination of Ferritic Pipe Welds in accordance with PDI-UT-1; March 12, 2002

EXE-ISI-70; Magnetic Particle Examination; April 19, 2003

CR#153405; Proper NDE examination volume requirements were not addressed for 4 welds

CR#153682; Nine unnecessary ISI surface examinations were performed on piping welds

1R11 Licensed Operator Requalification Program

CR 160117; NOS Identified (OPS) Simulator Briefing Inconsistencies; May 22, 2003

CR 162412; NRC Identified Simulator Concerns (Likeness to Unit 1); June 4, 2003 [NRC-Identified]

Scenario BR-20; Respond to Anticipated Transient Without a Scram and Miscellaneous Malfunctions; June 3, 2003

OP-AA-101-111; Roles and Responsibilities of On-Shift Personnel; Revision 0

OP-AA-103-102; Watchstanding Practices; Revision 1

OP-AA-103-103; Operation of Plant Equipment; Revision 0

OP-AA-103-104; Reactivity Management Controls; Revision 0

OP-AA-104-101; Communications; Revision 0

1R12 Maintenance Effectiveness

CR 103001; Auxiliary Feedwater System Goes to Maintenance Rule A1 for AF1; April 8, 2003

CR 105700; Replacement Secondary Fuel Oil Filter Not “Like for Like”; April 27, 2003

CR 106374; 1B Auxiliary Feedwater Diesel Governor Oil Reservoir Found Empty on Ultrasonic Testing Exam; May 1, 2002

CR115439; No Acoustic Indication of 1SX101A Opening During 1A Auxiliary Feedwater American Society of Mechanical Engineers [ASME]; July 12, 2002

CR 116903; Nuclear Oversight Identified Weakness in Maintenance Fundamentals Practice; July 23, 2002

CR 117340; Elevated Particulate in Both Auxiliary Feedwater Diesel Crankcase Lube; July 24, 2002

CR 155362; Improper CVCS Lineup Results in Excessive WE/WF Input; April 22, 2003

CR 156024; 1SI01PB Oil System Contaminated with Boric Acid Water; April 22, 2003

CR 156947; Repeat Maintenance - Water Still in Oil Sample for 1B SI Pump; May 2, 2003

CR 157730; High Water Content 1SI01PB Oil Sample Repeat Maintenance 2nd Time; May 5, 2003

CR158142; High ISO Particulate Count in 1SI01PB Pump Oil Sample; May 8, 2003

CR 162043; ISO Particulate Count Still Elevated in 1SI01PB Lube Oil; May 24, 2003

CR 122829; Repeat Maintenance - Sagging Insulation Caused Arc on 2B Auxiliary Feedwater Diesel; September 13, 2002

CR 140956; Low Room Temperature Observed Following 1B Auxiliary Feedwater Pump Run; January 24, 2003

CR 149593; 1A Safety Injection Accumulator Pressure Indicator 1PI-0960 Failed High; March 18, 2003

CR 155239; 1AF01J Time Delay Relay K11 Found Out of Tolerance; April 22, 2003

CR 155447; Fuel Oil Pump Procurement and Qualification Not “Like for Like;” April 21, 2003

CR 155667; Returning 1A Auxiliary Feedwater Pump to Service After Drain and Fill of Essential Service Water; April 22, 2003

CR 159784; 1B SI Pump Outboard Bearing Found Degraded During Inspection; May 20, 2003

CR 159895; Potential Repeat Maintenance - IA Leak to 1HD046B (Crack in Line); November 28, 2003

CR 160026; Problems with Replacement Thrust Radial Bearing for 1SI01PB; May 22, 2003

CR 160335; 1B Safety Injection Pump Motor Vibration in Alert Level at Point 2A and 1V; May 23, 2003

A1R10 1B Auxiliary Feedwater Work List; April 24, 2003

Condition Report Auxiliary Feedwater (Corrective Action Process [CAP] 001) For the Previous 12 Months; April 29, 2003

Auxiliary Feedwater Pump 12 Year Maintenance Summary; April 30, 2003

Auxiliary Feedwater Order Backlog

Clearance Order List for Auxiliary Feedwater for 12 Months

Exhibit D: (a)(1) Disposition Checklist and Action Plant Documentation; AF1 Emergency Water Supply to the Steam Generators; May 28, 2002

ER-AA-2002; Exelon Nuclear System Health Indicator Program; Revision 2

Expert Panel Meeting; Auxiliary Feedwater; April 8, 2002; May 28, 2002; and October 28, 2002

High Safety Significant Status of In-Scope Function (User Parameters); April 28, 2003

List of Modifications Installed on the Auxiliary Feedwater System; April 29, 2003

Maintenance Rule - Evaluation History (User Parameters) for the Auxiliary Feedwater System; April 28, 2002 to April 28, 2003

Maintenance Rule Expert Panel Scoping Determination for the Auxiliary Feedwater System; April 28, 2003

Maintenance Rule - Performance Criteria (User Parameters) for the Auxiliary Feedwater System; April 28, 2003

Maintenance Rule - Performance Monitoring (Availability Graph) User Parameters for Unit 1 AF1 Train A and Train B; April 1, 2001 to March 30, 2003

Maintenance Rule - Performance Monitoring (Availability Graph) User Parameters for Unit 2 AF1 Train A and Train B; April 1, 2001 to March 30, 2003

Temporary Modifications on Auxiliary Feedwater Since April 2002

Memo From Kelm to Station Management; Component Health Indicator Program Report for March 2003; April 22, 2003

Heat Exchanger As-Found Inspection and Work Report; 1B Safety Injection Pump Cubicle; May 20, 2003

1R13 Maintenance Risk Assessments and Emergent Work Control

1BwOL 3.8.1; LCOAR AC Sources - Operating TS LCO 3.8.1; Revision 7

BwOP AP-11; Racking a 480v Air Circuit Breaker Into the Test Position From the Disconnect Position; Revision 6E3

2BwOSR 3.3.1.4-2; Unit Two Solid State Protection System, Reactor Trip Breaker, and Reactor Trip Bypass Breaker Bi-Monthly Surveillance (B Train); Revision 13

CR 152220; Problems Encountered During Unit 2 B Train Solid State Protection System Bi-Monthly; April 3, 2003

CR 152442; 1SI8811A Bonnet Thermal Relief Leakage; April 4, 2003

CR 153154; Removal of Seismic Restraint from 1SI8811A Limiting Condition for Operation Action Requirement; March 28, 2003

CR 153611; Lessons Learned During the Post Maintenance Testing (ASME) of the 1RH01PA; April 4, 2003

CR 153612; Reported Grinding in the 1B Residual Heat Removal Heat Exchanger Room (Protected Equipment); April 10, 2003 [NRC-Identified]

CR 153682; Unnecessary Inservice Inspection Exams Performed During Preoutage A1R10; April 9, 2003

CR 154411; Inadequate Process of Posting Protected Equipment; April 17, 2003 [NRC-Identified]

CR 158507; Identification of Protected Equipment (Problems in ORAM); May 12, 2003 [NRC-Identified]

CR 162608; Late Reservations for the Diesel Work Window; June 9, 2003

CR 163223; Supervisory Reviews Missing from BwOP DG-11T2; June 11, 2003

CR 163320; Improper Staging of Mobile Tool Cart; June 15, 2003

CR 163371; Potential Overpressure of 1B Diesel Generator Jacket Water System (MMD); June 16, 2003

CR 163445; Delay in 1B Diesel Generator Work Progress Due to Communications; June 16, 2003

CR 163600; Potential Rework - 1VD02CD Tripped on Start Attempt; June 17, 2003

CR 163656; Discrepancies Noted in 4KV Breaker Inspection 1B Emergency Diesel Generator Feed to Bus 142; June 17, 2003

CR 163766; FME Issue in Lower SX Heat Exchanger of 1B Diesel Generator; June 18, 2003

CR 163877; Repeat Maintenance - Cracked Pump Discharge Flange Due to Overtroque; June 18, 2003

CR 163973; Work Window Extended for 1B Diesel Generator Work; June 19, 2003

CR 164016; Protected Equipment Missing from the Unit 1 Risk Review; June 16, 2003

CR 164463; Engine Driven Jacket Water Pump Mechanical Seal Leakage; June 18, 2003

CR 164463; Repeat Maintenance - Mechanical Seal Leak on 1DG01KB-AE; June 19, 2003

CR 164560; 1B Emergency Diesel Generator 1PL08J-90MOC Voltage Regulator Near Failure Trend Code B3; June 17, 2003

WO 00497304-01; 2PA10J 2B Solid State Protection System Install Light Emitting Diodes in Place of Incandescent Lamps; April 3, 2003

Unit 0,1 Risk Assessment; Work Week March 31, 2003

Unit 2 Risk Assessment; Work Week March 31, 2003

Project Summary; Replace Incandescent Lamps in Solid State Protection System with Light Emitting Diodes

Project Summary; 1RH 01OA Stuffing Box Extension Replacement

Project Summary; 19 May 2003 1B Safety Injection Pump Work Window

Braidwood's Archival Operations Narrative Logs; April 4, 2003 12:00:00AM and Before April 7, 2003 11:59:59 PM

Shift Manager Turnover; Thursday, April 10, 2003, Oncoming Shift D

Prompt Investigation Report; Jacket Water System of 1B Diesel Generator Inadvertently Over Pressurized During Performance of Fill, Vent and Pressurization of BwMP 3100-082, "Diesel Generator 6 Year Inspection," Revision 4; June 16, 2003

Project Summary; 1B Diesel Generator 6-Year Inspection; June 4, 2003

1R14 Personnel Performance During Non-Routine Evolutions and Events

1BwOA ELEC-2; Loss of Instrument Bus Unit 1; Revision 100

CR 155919; Loss of Instrument Bus 111 (Reason Unknown); April 26, 2003

Archival Operations Narrative Logs; Unit 1; April 26, 2003

1R15 Operability Evaluations

2BwOSR 0.1-1,2,3; Unit 2 Modes 1, 2, and 3 Shiftly and Daily Operating Surveillance; Revision 21

CR 122097; Repeat Maintenance - Drift Specification Wider Than Expected for 2PT-045B; September 2, 2002

CR 152026; Power Supplies Were Installed with Wrong Transistors; March 17, 2003

CR 154960; Transmitter 2PT-0458 - Cannot Replace Until A2R10; April 19, 2003

CR 156661; 1RY-456 Indication of Downstream Elevated Temperatures; April 30, 2003

CR 156874; Pressurizer Operator Relief Valve Effect on Anticipated Transient Without a Scram Analysis; May 1, 2003

CR 156913; Confirmed Seat Leakage and Unplanned Limited Condition for Operation Entry for 1RY456; May 2, 2003

CR 160333; Q Level 4 Conduit Strap Bolts Installed, Requires Q Level 2; May 23, 2003

CR 160402; 1B Auxiliary Feedwater Pump Failed to Start During Monthly Surveillance; May 24, 2003

Evaluation 98-112; Pressure Transmitters ITT Barron Model 763A; Revision 1

NED-I-EIC-0004; Pressurizer Pressure Protection Channel Error Analysis; September 17, 1998

Operability Evaluation 03-003; 2PT-0458; Revision 0

PIF A1999-00158; Loss of a Significant Number of Unit 1 MCR Annunciators; January 19, 1999

Barton Product Bulletin 863-3; Nuclear Safety Gage Pressure Electronic Transmitter

WCAP-11992; Joint Westinghouse Owners Group/Westinghouse Program: Anticipated Transient Without a Scram Rule Administration Process; December 1988

WO 00372274 01; Moderator Temperature Coefficient - Low Power; April 30, 2003

WO 00481335 01; 2P-0458; Pressurizer Pressure/Replace Transmitter; September 5, 2002

Braidwood's Archival Operations Narrative Logs; April 14 to May 2, 2003

Letter (TS/89-044) From Lemke to Acas; Technical Evaluation No. 98-9048; June 30, 1989

Technical Evaluation 89-9048, Revision 1, for ITT Barton Model 763A Pressure Transmitter

Work Order 00539719-01, "Replace Pressure Transmitter 2PT-458 and Perform 18-Month Calibration," dated May 20, 2003

Letter NF-MW:03-0168 From Manges to Kepley; Braidwood Unit 1 Cycle 11 Anticipated Transient Without a Scram UET Calculation (1 Pressurizer Operator Relief Valve Operable); Reference: Braidwood Unit 1 Cycle UET Calculation One Pressurizer

Operator Relief Valve Operable, Westinghouse Letter NF-CB-03-146 (CAC-03-146), dated May 2, 2003; May 2, 2003

CR 154329; Relay timer in 1PA14J As Found Out of Tolerance; April 17, 2003

CR 154329-11 Engineering Apparent Cause Evaluation; Multiple Eagle Timer Relay Failures During Maintenance and Surveillance Testing; June 23, 2003

CR 165039; Deficiencies With EACE 154329-11; June 26, 2003 [NRC-Identified]

Exelon PowerLabs Project Number BRW-61517; Failure Analysis of Four Eagle Signal Control Relay Timers - Braidwood Station; May 23, 2003

1R16 Operator Workarounds

OP-AA-102-103; Operator Work-Around Program; Revision 0

LS-AA-106; Plant Operating Review Committee, Revision 0

Unit 1 and Unit 2 Aggregate Review-2003; presented at Plant Operating Review Committee Meeting 03-014; April 11, 2003

CR 161716; Nuclear Oversight Identified Plant Operating Review Committee Aggregate Review Timeliness Enhancement; June 2, 2003

1R19 Post Maintenance Testing

BwOP AF-3; Filling and Venting the Auxiliary Feedwater System; Revision 15

BwOP AF-7; Auxiliary Feedwater Pump _B (Diesel) Startup on Recirculation; Revision 21

BwOP AF-8; Auxiliary Feedwater Pump _B (Diesel) Shutdown; Revision 19

BwOP CV-3; Filling and Venting the Chemical and Volume Control System; Revision 18

BwOP DG-11; Diesel Generator Startup; Revision 25

1BwOSR 3.7.5.3-2; Unit One Diesel Driven Auxiliary Feedwater Pump Monthly Maintenance; Revision 2

1BwVSR 5.5.8.CV.1; ASME Surveillance Requirements for 1A Centrifugal Charging Pump and Check Valve 1CV8480A Stroke Test; Revision 4

1BwVSR 5.5.8.SX.2; ASME Surveillance Requirements for 1B Essential Service Water Pump; Revision 4

CR 154319; Check Valve Seating Surfaces Found in Degraded Condition; April 17, 2003

CR 154848; No PBI for 1 Auxiliary Feedwater Pump Exhaust Duct; April 20, 2003

CR 155239; 1AF01J Time Delay Relay K11 Found Out of Tolerance; April 22, 2003

CR 156404; Loss of Fill and Vent on 1B Auxiliary Feedwater Pump; April 29, 2003

CR 156405; Leak on 1B Auxiliary Feedwater Pump Jacket Water Thermostat Discharge Hose; April 29, 2003

CR 156406; 1B Auxiliary Feedwater ASME Procedure Completed Following Fill and Vent; April 29, 2003

CR 156444; Leaking Cuno Filter on Right Angle Gear of 1AF01PB; April 29, 2003

CR 163600; Repeat Maintenance - 1VD02CD Tripped on Start Attempt; June 17, 2003

CR 163766; FME Issue on Lower SX Heat Exchanger of 1B Diesel Generator; June 18, 2003

CR 163877; Cracked 1B Diesel Generator Jacket Water Pump Discharge Flange Due to Overtorque; June 18, 2003

CR 163968; Testing Problem with Emergency Diesel Lube Oil; June 17, 2003

CR 164132; 1B Diesel Generator Failed to Start on First Attempt After Maintenance; June 20, 2003

CR 164201; Failed Post Maintenance Testing; WM Makeup to the 1B Diesel Generator Jacket Water Standpipe; June 20, 2003

WO 99160330 04; ASME Surveillance Requirements for 1CV01PA; April 29, 2003

WO 414268 01; Diesel Generator 18 Month Overspeed Trip Test; June 20, 2003

WO 579514; 1B Diesel Generator Operability Monthly; June 20, 2003

Braidwood Evaluation 00016683; Chemical and Volume Control Pump Seal Modification Evaluation; January 31, 2003

1B Essential Service Water Pump/Motor Project Team Huddle; March 28, 2003

1R20 Refueling and Other Outage Activities

1BwGP 100-1T2; Mode 5 to 4 Checklist; Revision 14

1BwGP 100-1T3; Mode 4 to 3 Checklist; Revision 12

1BwGP 100-2; Plant Startup; Revision 20

1BwGP 100-5; Plant Shutdown and Cooldown; Revision 27

1BwGP 100-6T2; Mode 6 to 5 Checklist; Revision 9

1BwGP 100-6T3; Mode 5 to 6 Checklist; Revision 11

1BwGP 100-7T4; Calculation of Estimated Critical Condition From Nuclear Fuel Management, Westinghouse or Beacon Supplied Values; Revision 4

BwOP FC-E1; Electrical Lineup - Unit 1 Lineup Operating; Revision 1

BwOP FC-E2; Electrical Lineup - Unit 2 Lineup Operating; Revision 1E1

BwOP FC-M1; Operating Mechanical Lineup Unit 1; Revision 6

BwOP FC-M2; Operating Mechanical Lineup Unit 2; Revision 6E3

1BwOS TRM 2.5.b.1; Unit One Containment Loose Debris Inspection; Revision 0

BwVS 500-6; Low Power Physics Test Program; Revision 11

BwVSP 3.5.2.8; Visual surveillance of Containment Recirculation Sumps; Revision 2

CR 151545; Followup Action to Notice of Violation (Residual Heat Removal Flowrate); March 31, 2003

CR 153855; 1BwOA PRI-4 Entry Due to 1PR06J High Radiation Alarm; April 14, 2003

CR 153877; Multiple 1PR11J High Radiation Alarms During Unit 1 Shutdown; April 14, 2003

CR 153878; High Heater Drain Tank Level During Unit Shutdown; April 15, 2003

CR 154159; NOS Identified Operations Communication Deficiencies; April 16, 2003

CR 154281; Cooldown Delays Due to Inadequate Manning of Task; April 15, 2003

CR 154518; Action Request Tag Left in Field After Work Completed - NRC Concern; April 17, 2003 [NRC-Identified]

CR 154530; No IPA/Heightened Level of Awareness Held for Reactor Head Lift for Night Shift; April 17, 2003

CR 155044; Fuel Moves Stopped Due to Radiation Conditions; April 18, 2003

CR 155047; Dose Rates in Spent Fuel Pool Higher Than Expected; April 20, 2003

CR 155362; Improper Chemical and Volume Control System Lineup Results in Excessive WE/WF Input; April 22, 2003

CR 154542; Locked High Radiation Area Identified on “A” Steam Generator Bowl; April 17, 2003

CR 155571; Lack of IM Support for Radiation Protection Instrumentation During A1R10; April 24, 2003

CR 155963; N32 [source range nuclear instrument channel] Spiking a Few Times a Shift - Cause is Unknown; April 25, 2003

CR 156037; Inadequate Blowdown of Reactor Coolant System (RCS) Loop Results in Fill Complication; April 27, 2003

CR 157323; NRC Debrief Work Management Action Items - Protected Equipment; April 18, 2003 [NRC-Identified]

Braidwood Move Sheet 2003-29 through 2003-54; Unit 1 Cycle 10 Core Offload; April 9, 2003

Braidwood Move Sheet 2003-60 through 2003-85; Unit 1 Cycle 11 Core Onload; April 14, 2003

Reactivity Maneuver (ReMa) Form; Braidwood Unit 1 Cycle 10; Shutdown Unit 1 for A1 R10 on April 14, 2003; April 14, 2003

ReMa Form; Braidwood Unit 1 Cycle 10; Unit 1 Cooldown Following Shutdown for A1R10, Revision 0; April 11, 2003

Shift Manager Turnover; Oncoming Shift N; April 15, 2003

List of Material Remaining in Containment; April 28, 2003

Plant Operation Review Committee Package; Unit 1 Cycle 11 Restart Review; April 24, 2003, and April 25, 2003, revision

WO 97058148 01; Install/Remove Temperature Penetration Cover in Support of Outage; April 15, 2003

1R22 Surveillance Testing

BwVSR 3.7.1.1; Main Steam Safety Valves Operability Test; Revision 4

1BwVSR; 1B Diesel Generator Bypass of Automatic Trips Surveillance; Revision 5

BwMP 3305-107; Main Steam Safety Valves Lift Point Verification Using the Furmanite Trevi Test System; Revision 9

CR 152878; Nuclear Oversight Identified Infrequent Plant Activity Briefing Enhancements; April 7, 2003

CR 153225; 1MS015D Exceeds Acceptance Criteria During Insitu Testing; April 9, 2003

CR 162888; Rags Left Attached to Vent Piping in Safety Injection System; June 10, 2003 [NRC-Identified]

CR 162987; Procedure BwRP 5721-4 References Use of Magenta Rags; June 12, 2003 [NRC-Identified]

CR 163279; SPDS Iconics Containment Sump Spoke Fully Deflected; June 14, 2003 [NRC-Identified]

CR 163601; Boron Accumulation on Components/Surfaces (Unit 2 CWA); August 16, 2002 [NRC-Identified]

WO 0036289 01; Full Flow Test and Equipment Response Time of Auxiliary Feedwater Full Flow Test and Equipment Response Time of Auxiliary Feedwater Pumps

WO 00366122; 1BwVSR 3.8.1.10-1 1A Diesel Generator Safety Injection Signal Override of Test Mode; April 22, 2003

WO 00366123; 1BwVSR 3.8.1.11-1 1A Diesel Generator Loss of Engineered Safety Feature Bus Voltage; April 23, 2003

WO 00366124; 1BwVSR 3.8.1.19-1 1A Diesel Generator Emergency Core Cooling System Sequencer Test; April 22, 2003

WO 00367676; 1BwVSR 3.8.1.11-2 1B Diesel Generator Loss of Engineered Safety Feature Bus Voltage; April 19, 2003

WO 00367677; 1BwVSR 3.8.1.19-2 1B Diesel Generator Emergency Core Cooling System Sequencer Test; April 19, 2003

WO 00367678; 1BwVSR 3.8.1.10-2 1B Diesel Generator Safety Injection Signal Override of Test Mode; April 18, 2003

WO 00414990 01; Acquire Acoustic Test Data Per Check Valve Program Auxiliary Feedwater Motor Driven Pump 1A Suction Check Valve

WO 00567232; 1BwVSR 3.8.1.19-Z 1B Diesel Generator Emergency Core Cooling System Sequencer Surveillance; April 19, 2003

Infrequent Plant Activity Briefing Worksheet; Insitu Testing - Trevi Testing; April 7, 2003

1R23 Temporary Plant Modifications

CC-AA-112; Temporary Configuration Changes; Revision 6

ECR 0000074261; Request Location for Possible Freeze to Isolate 1SX2164B; Closed February 3, 1997

MA-MW-736-610; Application of Freeze Seal to All Piping; Revision 0

Drawing M2544A; Essential Service Water; Sheet 11

Drawing M2544A; Essential Service Water; Sheet 15

1EP2 Alert and Notification System (ANS) Testing

Braidwood Siren Monthly Operability Reports 2002

Fulton Contracting Company; Annual Warning System Maintenance and Operational Report; December 11, 2002

Semi-Annual Braidwood/Dresden Siren Report; January 1 - June 30, 2002

Semi-Annual Braidwood Siren Report; January 1 - June 30, 2002

Semi-Annual Braidwood/Dresden Siren Report; July 1 - December 31, 2002

Semi-Annual Braidwood Siren Report; July 1 - December 31, 2002

1EP3 Emergency Response Organization (ERO) Augmentation Testing

Braidwood Station ERO Roster; April 9, 2003

EP-AA-112-100, Attachments 1 and 2; Shift Emergency Director Checklist and ERO Augmentation; Revision 5

EP-AA-1000, Section E.2; Exelon Nuclear Standardized Radiological Emergency Plan; Revision 14

EP-AA-122-1001, Attachment 2; Conduct of Call-In Augmentation Drills; Revision 2

Root Cause Report; Corporate Marginal Pass of a Drive-In Drill With Braidwood Station; November 5, 2002

1EP5 Correction of Emergency Preparedness Weaknesses and Deficiencies

LS-AA-125; Corrective Action Program Procedure; Revision 4

EP-AA-122; Drills and Exercises; Revision 3

Memorandum; Mini-Drill Findings and Observation Report; August 7, 2002

Memorandum; Braidwood 2002 Pre-Exercise Findings and Observation Report; September 30, 2002

Memorandum; Braidwood 2002 Biennial Evaluated Exercise Findings and Observation Report; October 30, 2002

Memorandums; Emergency Preparedness Offsite Agency Annual Meeting; September 26, 2002, September 30, 2002, and November 19, 2002

Memorandum; February 20, 2003 Mini-Drill Findings and Observation Report; March 14, 2003

NOA-BW-02-3Q; Nuclear Oversight Continuous Assessment Report Braidwood Generating Station July - September 2002; October 30, 2002

Self-Assessment; 2002 Second Quarter FASA on Recurring Activities; March - June 2002

Self-Assessment; Braidwood Station NRC Exercise Inspection Assessment Report; September 9-20, 2002

Self-Assessment; Braidwood Emergency Preparedness Program Assessment Report; March10 - 14, 2003

Self-Assessment; Exelon Emergency Preparedness Performance Indicators; February 2 - March 26, 2003

CR 102522; Resubmittal of ANS (Siren) Reliability Performance Indicator Data; April 5, 2002

CR 106704; Emergency Preparedness Performance Indicator For Drill Participation Declining Trend; May 3, 2002

CR 117323; Wind Direction at 34' Erratic/Unplanned TLCO Entry; July 29, 2002

CR 123560; Nuclear Oversight Identified ERO Performance Deficiencies During Pre-Exercise; September 19, 2002

CR 127621; Weaknesses in EOF Facilities and Equipment From Braidwood Exercise; October 16, 2002

CR 127629; Weaknesses in Exercise Management and Scenario Issues From Braidwood Exercise; October 16, 2002

CR 130646; Emergency Preparedness Drive-In Drill Failure - Dialogics Issue; November 11, 2002

CR 130830; Drive-In Augmentation Drill With Braidwood Station; November 8, 2002

CR 135420; EP-AA-122 Conflicts With Generating Station Emergency Plan and Regulatory Requirements; December 12, 2002

CR 139292; Emergency Preparedness Health Report Issues - ERO Performance (Drill and Exercise Performance); January 13, 2003

CR 149189; Incomplete Trending of Emergency Preparedness Condition Reports; March 15, 2003

CR 149448; Emergency Preparedness Augmentation Drill Response Items; March 17, 2003

1EP6 Drill Evaluation

Scenario BR-20; Respond to Anticipated Transient Without a Scram and Miscellaneous Malfunctions; June 3, 2003

20S1 Access Control to Radiologically Significant Areas

RWP 10000871; NRC Surveillance and Tours; Revision 2

RP-AA-376; Radiological Posting, Labeling, and Markings; Revision 0

RP-AA-460; Controls for High Radiation Area and Very High Radiation Areas; Revision 2

RPJS-ADM-48; Electron Capture Isotope Control; Revision 0

HP Technical Memorandum; HP-210 Detection Efficiency for RCS Isotopic Mix; April 20, 2003

CR 154542; Locked High Radiation Area Identified on “A” Steam Generator Bowl; April 14, 2003

CR 154607; NOS Rapid Trending Identified Radworker Practices Deficiencies; April 18, 2003

CR 154966; Fundamental Breakdown of Radworker Practices; April 21, 2003

CR 155044; Fuel Moves Stopped due to Radiological Conditions; April 18, 2003

CR 155294; Radiological Posting Did Not Reflect Current Radiological Conditions; April 22, 2003 [NRC-Identified]

2OS2 ALARA Planning and Control

ALARA Committee Meeting Minutes; April 17, 2003

RP-AA-400; ALARA Program; Revision 2

RP-AA-401; Operational ALARA Planning and Controls; Revision 2

RP-AA-403; Administration of the Radiation Work Permit Program; Revision 1

RP-AA-4002; Radiation Protection Refuel Outage Readiness; Revision 0

RWP 10001844; Lead Shielding, Work-in-Progress Review; April 16, 2003

RWP 10001874; RCP Pump Seal Work, RWP and ALARA Plan; Revision 0,

RWP 10001853; Manway & Diaphragm Removal/Installation and Stud Hole Cleaning; Work-in-Progress Review; April 18, 2003

RWP 10001855; Eddy Current Inspections, Work-in-Progress Review; April 18, 2003

RWP 10001871; A1R10 Rx. Head Disassembly/Reassembly, RWP and Work-in-Progress Review; April 19, 2003

RWP 10001895; A1R10 Fuel Moves and Tri Nuclear Work, Work-Progress Review; April 21, 2003

RWP 10001901; A1R10 Scaffold: Install/Remove, RWP and Work-in-Progress Review; April 20, 2003

RWP 10002122; A1R10 Unit One Outage, RX Head Inspection and Guide Cone Inspection, RWP and ALARA Plan; Revision 0

A1R10 Daily Exposure Totals; April 17, 18, 19, 22 and 23, 2003

Focus Area Self-Assessment of Radiation Protection A1R10 Outage Readiness and Preparation; March 10 - 12, 2003

3PP2 Access Control (Identification, Authorization and Search of Personnel, Packages, and Vehicles)

SY-AA-101-122; Testing Security Equipment; Revision 6

Security Logged Events; May 2002 through April 2003

3PP3 Response to Contingency Events

Force-on-Force Exercises; May 2002 through February 2003

SY-AA-101-122; Testing Security Equipment; Revision 6

Condition Reports (Security Related); May 2002 through May 2003

4OA1 Performance Indicator Verification

Braidwood Archival Operations Narrative Logs; July 2002, through March 2003; Search Criteria 3.4.13

1BwOSR 3.4.13.1; Unit One RCS System Water Inventory Balance 72 Hour Surveillance; Revision 3

LS-AA-2001; Collecting and Reporting of NRC Performance Indicator Data; Revision 2

LS-AA-2110; Monthly Performance Indicator Data Elements For ERO (ERO) Drill Participation; July 2002 - March 2003

LS-AA-2120; Monthly Performance Indicator Data Elements For Drill/Exercise Performance; July 2002 - March 2003

LS-AA-2130; Monthly Performance Indicator Data Elements For ANS Reliability; July 2002 - March 2003

LS-AA-2160; Performance Indicator - Protection Area Security Equipment

LS-AA-2170; Performance Indicator - Personnel Screening Program

LS-AA-2180; Performance Indicator - Fitness-for-Duty/Personnel Reliability Program

EP-AA-125-1002, Attachment 1; R.EP.01 and EPPI.01a-c Performance Indicator Summary; July1, 2002 - March 28, 2003

EP-MW-114-100, Attachment 1; Nuclear Accident Reporting System; July 1, 2002 - March 28, 2003

Braidwood Siren Monthly Operability Reports 2002 and 2003

Braidwood Station 2003 Emergency Preparedness Drill/Exercise Schedule; January 2003

Security Event Reports; May 2002 through April 2003

4OA2 Identification and Resolution of Problems

CR 154307; B4 Trend Code - 1IP08E Time Delay Relay Out of Tolerance; April 17, 2003

CR 154329; Relay Timer in 1PA14J As Found Out of Tolerance; April 17, 2003

CR 154441; Potential 1RY456 Diaphragm Leak; April 17, 2003

CR 155239; 1AF01J Time Delay Relay K11 Found Out of Tolerance; April 22, 2003

CR 155262; Repeat Maintenance - Improper Sequencing of Containment Spray During 1A Diesel Generator Test; April 23, 2003

CR 155898; Main Steam Safety Valve Non-Safety Related Nitrogen Pressure Gauges Valved In; April 26, 2003

CR 156015; Improper Thread Engagement and Loose Nuts on Inlet Flange; April 27, 2003

CR 157091; 1PA13J Timer T2A Would Not Repeat; May 3, 2003

CR 159848; Damper Positioner Fail Position is Misleading - Parts Issue; May 20, 2003

CR 165340; Corrective Action Process Reviews for Systems, Structures, and Component Unavailability; June 26, 2003 (NRC-Identified)

Exelon Nuclear Procedure ER-AA-520; Instrument Performance Trending; Revision 3

Exelon Nuclear Procedure LS-AA-105; Operability Determinations; Revision 1

Exelon Nuclear Procedure LS-AA-125; CAP Procedure; Revision 4

Exelon Nuclear Procedure LS-AA-125-1006; CAP Process Expectation Manual; Revision 3

4OA3 Event Followup

1BwOA PRI-4; High Reactor Coolant Activity Unit 1; Revision 54A

CR 141389; Manual Lineup of Ventilation System in Emergency Mode; January 27, 2003

CR 147571; Additional Requirement to Enter Limiting Condition for Operation During Ventilation System Monthly Surveillances; March 5, 2003

CR 157367; Entry Into 1BwOA PRI-4 Due To High RCS Activity on 1PR06J; May 5, 2003

CR 161793; Braidwood Unit 1 Exceeded Performance Criterion Due to Fuel Leaker; June 4, 2003

LER 50-456/457/03-01-00; Control Room Ventilation System Alignment Results in Inoperable Radiation Monitors Without Taking Required Actions per the TSs due to Inadequate Evaluation of the Original Procedures and Some Subsequent Revisions and Inadequate Evaluation of a Design Change; March 28, 2003

NF-AA-430; Failed Fuel Action Plan; Revision 1

Technical Specification 3.3.7; Control Room Ventilation Filtration System Actuation Instrumentation; Amendment 98

Technical Specification 3.7.10; Control Room Ventilation Filtration System; Amendment 98

Technical Specification Basis B 3.3.7; Control Room Ventilation Filtration System Actuation Instrumentation; Revision 0

Technical Specification Basis B 3.7.10; Control Room Ventilation Filtration System; Revision 0

Braidwood Operations Narrative Logs-Unit 1; May 5 through May 8, 2003

Trend Graphs for Unit 1 RCS Iodines and Xenons; May 5 through May 12, 2003

Adverse Condition Monitoring and Contingency Plan, May 9, 2003

Reactivity Maneuver Form, May 9, 2003

EC 342530; Determine if Control Room Ventilation System Safety Function was Lost Due to Inoperable Intake Radiation Detectors at Byron and Braidwood Stations, Revision 0,

Calculation Number VC-403; Control Room Infiltration from Ductwork, July 2, 1985,

Calculation Number CN-CRA-00-17; Byron/Braidwood Large Break LOCA Doses, Revision 1,

NF-MW:03–156; Control Room Dose Estimate for the Locked Rotor with Failed PORV Event, April 25, 2003,

Design Analysis Number CN-CRA-00-44; Byron/Braidwood Locked RCP Rotor with PORV Failure Accident Doses, Revision 1,

Engineering Change Notice P-639; Delete Safety Injection Signal from Miscellaneous Ventilation System Control Room Office HVAC, August 21, 1986,

4OA5 Other Activities

ER-AA-335-015; “VT-2 Examination,” VT-2 Visual Examination; November 22, 2002

SSI-A1R10-RV HEAD; “Visual Inspection of Braidwood Unit 1 Reactor Vessel Head;” March 24, 2003

LIST OF ACRONYMS USED

ADAMS	Agencywide Documents Access and Management System
ALARA	As-Low-As-Is-Reasonably-Achievable
ANS	Alert and Notification System
ASME	American Society of Mechanical Engineers
BwAR	Braidwood Annunciator Response Procedure
BwMP	Braidwood Maintenance Procedure
BwOA	Braidwood Abnormal Operating Procedure
BwOP	Braidwood Operating Procedure
BwOSR	Braidwood Operating Surveillance Requirement

BwVSR	Braidwood Engineering Surveillance Requirement
CAP	Corrective Action Process
CC	Component Cooling Water
CFR	Code of Federal Regulations
CR	Condition Report
EP	Emergency Preparedness
EPRI	Electrical Power Research Institute
ERO	Emergency Response Organization
HRA	High Radiation Area
HVAC	Heating Ventilation and Air Conditioning
ISI	Inservice Inspection
LER	Licensee Event Report
LHRA	Locked High Radiation Area
NRC	Nuclear Regulatory Commission
RCS	Reactor Coolant System
RH	Residual Heat
RPV	Reactor Pressure Vessel
SDP	Significance Determination Process
SI	Safety Injection
TI	Temporary Instruction
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report
URI	Unresolved Item
VC	Control Room Ventilation System
VHP	Vessel Head Penetration
VHRA	Very High Radiation Areas
VT	Visual Testing
WO	Work Order