

November 9, 2005

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

SUBJECT: BRAIDWOOD STATION, UNITS 1 AND 2 NRC INTEGRATED  
INSPECTION REPORT 05000456/2005008; 05000457/2005008

Dear Mr. Crane:

On September 30, 2005, 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 October 4, 2005, with Mr. G. Boerschig 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.

Based on the results of this inspection, one NRC-identified finding of very low safety significance (Green) is documented in this report. This finding was determined to involve a violation of NRC requirements. However, because this violation was of very low safety significance and because the issue was entered into your corrective action program, the NRC is treating this finding as a Non-Cited Violation in accordance with Section VI.A.1 of the NRC's Enforcement Policy. Additionally, three licensee identified violations are listed in Section 4OA7 of this report.

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

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Sincerely,

**/RA/**

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

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

Enclosure: Inspection Report 05000456/2005008; 05000457/2005008  
w/Attachment: Supplemental Information

cc w/encl: Site Vice President - Braidwood Station  
Plant Manager - Braidwood Station  
Regulatory Assurance Manager - Braidwood Station  
Chief Operating Officer  
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U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket Nos: 50-456; 50-457

License Nos: NPF-72; NPF-77

Report No: 05000456/2005008; 05000457/2005008

Licensee: Exelon Generation Company, LLC

Facility: Braidwood Station, Units 1 and 2

Location: 35100 S. Route 53  
Suite 79  
Braceville, IL 60407-9617

Dates: July 1 through September 30, 2005

Inspectors: N. Shah, Senior Resident Inspector  
G. Roach, Resident Inspector  
R. Ruiz, Acting Resident Inspector  
J. House, Senior Radiation Specialist  
R. Jickling, Emergency Preparedness Analyst  
B. Jorgensen, Consultant  
R. Langstaff, Reactor Engineer  
D. McNeil, Reactor Engineer  
T. Tongue, Project Engineer  
M. Wilk, Reactor Engineer  
R. Winter, Reactor Engineer  
C. Zoia, Reactor Engineer  
J. Roman, Illinois Emergency Management Agency

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

## SUMMARY OF FINDINGS

IR 05000456/2005008, 05000457/2005008; 07/01/2005 - 09/30/2005; Braidwood Station, Units 1 & 2; Other Activities.

This report covers a 3-month period of baseline resident inspection, routine baseline inspection activities, and announced baseline inspections on radiation protection and instrumentation, emergency preparedness, licensed operator requalification, and maintenance rule implementation. In addition, inspections were conducted using Temporary Instruction 2515/161. The inspection was conducted by the resident inspectors, a regional emergency preparedness inspector, a regional radiation specialist, regional engineering specialists, and contractors. One finding of very low safety significance (Green) and associated Non-Cited Violation was identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). Findings for which the SDP does not apply may be "Green" or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 3, dated July 2000.

### A. Inspector-Identified and Self-Revealed Findings

#### **Cornerstone: Mitigating Systems**

- Green. The inspectors identified a finding of very low safety significance and associated non-cited violation of Braidwood Station Unit 2 Operating License NPF-77, Condition 2.E. This finding was related to the unavailability of the foam-water fire suppression system for the 2A diesel oil storage tank room due to a system blockage. The licensee cleared the blockage and revised applicable procedures to prevent future blockages. The primary cause of this finding was associated with the Problem Identification and Resolution cross-cutting area, in that the licensee failed to take timely corrective action resulting in the foam suppression system for the above room being inoperable for a 5 year period.

This finding was considered more than minor because it affected the Mitigating Systems cornerstone objective to ensure that external factors (i.e., fire, flood, etc.) do not impact the availability, reliability and capability of systems that respond to initiating events. The finding was of very low safety significance (Green) in accordance with Phase 2 of the Fire Protection Significance Determination Process because there was no realistic scenario by which a postulated fire could have affected more than just the support equipment to the affected emergency diesel generator. In addition, the inspectors verified that the redundant train of emergency AC power and associated safety-related structures, systems and components would remain free of fire damage and that safe shutdown capability could be achieved even with the total loss of one diesel oil storage tank room. (Section 4OA5)

**B. Licensee-Identified Violations**

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

## **REPORT DETAILS**

### **Summary of Plant Status**

Unit 1 operated at full power until September 10, 2005, when a forced shutdown was commenced to address increased leakage from the #1 seal of the 1A reactor coolant pump. Unit 1 was restored to the grid on September 17, 2005, and subsequently continued to operate at full power for the remainder of the inspection period.

Unit 2 operated at full power for this inspection period.

### **1. REACTOR SAFETY**

#### **Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity**

#### **1R01 Adverse Weather Protection (71111.01)**

##### **a. Inspection Scope**

The inspectors performed a walkdown of selected plant areas during a period of extreme high temperatures. The areas selected were those considered “at risk” based on a review of the Updated Final Safety Analysis Report (UFSAR), Technical Specifications (TS) and other design basis documents. The specific areas observed were:

- Units 1 and 2 miscellaneous electrical equipment and engineered safety feature Division 11, 12, 21, and 22 switchgear rooms; and
- Unit 1 and 2 main steam isolation valve rooms.

The inspectors verified that minor issues identified during these inspections were entered into the licensee’s corrective action program. Documents reviewed as part of this inspection are listed in the Attachment. This review constituted one sample of this inspection requirement.

##### **b. Findings**

No findings of significance were identified.

#### **1R04 Equipment Alignment (71111.04)**

##### **.1 Partial Walkdowns**

##### **a. Inspection Scope**

The inspectors performed partial walkdowns of the accessible portions of risk-significant system trains during periods when the train was of increased importance due to redundant trains or other equipment being unavailable. The inspectors utilized the valve and electric breaker checklists listed to determine whether the components were properly positioned and that support systems were aligned as needed. The inspectors

also examined the material condition of the components and observed operating parameters of equipment to determine whether there were any obvious deficiencies. The inspectors reviewed Condition Reports (CRs) associated with the train to determine whether those documents identified issues affecting train function. The inspectors used the information in the appropriate sections of the TS and the 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. Documents reviewed during this inspection are listed in the Attachment.

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

- 2B essential service water pump with the 2A essential service water pump out-of-service;
- 1B emergency diesel generator with the 1A emergency diesel generator out-of-service;
- Unit 1 component cooling alignment with the 1A component cooling pump out-of-service; and
- Unit 1 electrical line-up with system auxiliary transformer 142-1 out-of-service.

b. Findings

No findings of significance were identified.

.2 Complete Walkdowns

a. Inspection Scope

The inspectors performed a complete system walkdown of the Unit 1 essential service water system. This system was selected because it is considered risk-significant from an initiating event and mitigating systems standpoint.

In addition to the walkdown, the inspectors reviewed the following:

- selected operating procedures regarding system configuration;
- the UFSAR, TS, and other selected design bases documentation regarding the system;
- CRs for the system initiated within the last year; and
- outstanding system work orders (WOs).

Documents reviewed as part of this inspection are listed in the Attachment. This walkdown represented one inspection sample.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05)



## Quarterly Inspection

### a. Inspection Scope

The inspectors conducted fire protection walkdowns which were focused on availability, accessibility, and the condition of fire fighting equipment, the control of transient combustibles and ignition sources, and on the condition and operating status of installed fire barriers. The inspectors selected fire areas for inspection based on their overall contribution to internal fire risk, as documented in the Individual Plant Examination of External Events with later additional insights or their potential to impact equipment which could initiate a plant transient or be required for safe shutdown. The inspectors used the Fire Protection Report, Revision 21, to determine: whether fire hoses and extinguishers were in their designated locations and available for immediate use; that fire detectors and sprinklers were unobstructed; that transient material loading was within the analyzed limits; and that fire doors, dampers, and penetration seals appeared to be in satisfactory condition.

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

- general areas of the Units 1 and 2 auxiliary building;
- accessibility of outside fire hydrants;
- welding inside the 1A emergency diesel generator room;
- transient combustibles in 1B and 2B diesel driven auxiliary feedwater pump rooms;
- Unit 2 upper and lower cable spreading rooms;
- Unit 1 miscellaneous electrical equipment room;
- 1A and 1B diesel oil storage tank (DOST) rooms;
- 2A and 2B DOST rooms; and
- 0A train control room ventilation room.

The inspectors verified that minor issues identified during the inspection were entered into the licensee's corrective action program by reviewing the documents listed in the Attachment.

### b. Findings

No findings of significance were identified.

## Internal Flooding Review

### a. Inspection Scope

The inspectors evaluated the internal flooding controls for the following areas:

- turbine building general area proximate to the Unit 0 and Unit 1 instrument air dryers and station air compressors; and
- 1A and 1B essential service water pump rooms.

These areas constituted two samples of this inspection requirement. The turbine building general area was selected, because it was considered a high risk area in the licensee's internal flooding analysis. The 1A and 1B essential service water pump rooms were selected, because of planned maintenance which required that the licensee remove flood mitigation barriers for an extended period.

The inspectors reviewed the licensee's design basis assumptions for flooding in these areas and performed walkdowns to assess the validity of these assumptions. The inspectors also observed the licensee's flooding compensatory actions during the essential service water pump work. Those documents reviewed during this inspection are listed in the Attachment.

### b. Findings

No findings of significance were identified.

## 1R07 Heat Sink Performance (71111.07)

### Annual Review

#### a. Inspection Scope

The inspectors completed one sample by observing the as found inspection and cleaning of the 2A essential service water pump lube oil cooler. The inspectors observed the as found condition of the cooler and portions of the licensee's cleaning and return-to-service inspection. The inspectors also reviewed past licensee inspection data for this cooler to determine if there was an adverse trend. Those documents reviewed during this inspection are listed in the Attachment.

The inspectors used the guidance in NRC Generic Letter 89-13, "Service Water System Problems Affecting Safety-Related Equipment," to perform this review.

#### b. Findings

No findings of significance were identified.

## 1R11 Licensed Operator Regualification Program (71111.11)

.1 Quarterly Review of Testing/Training Activity

a. Inspection Scope

The inspectors observed operating crew performance during evaluated simulator out-of-the-box scenario, Braidwood Station Licensed Operator Requalification Simulator Scenario Number 0546, "Evaluated Emergency Preparedness Duties/ Failed Fission Product Barriers/ General Emergency," Revision 0.

The inspectors evaluated crew performance in the following areas:

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

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

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

b. Findings

No findings of significance were identified.

.2 Facility Operating History

a. Inspection Scope

The inspectors reviewed the plant's operating history from August 2003 through July 2005 to assess whether the Licensed Operator Requalification Training (LORT) program had identified and addressed operator performance deficiencies at the plant.

b. Findings

No findings of significance were identified.

.3 Biennial Review of Licensed Operator Requalification Program

a. Inspection Scope

The inspectors performed a biennial inspection of the licensee's LORT test/examination program. The operating examination material reviewed consisted of five operating tests, each containing four dynamic simulator scenarios and ten job performance measures. The written examinations reviewed consisted of five written examinations and five static simulator examinations, each containing approximately 20 questions. The inspectors reviewed the annual requalification operating test and biennial written examination material to evaluate general quality, construction, and difficulty level. The inspectors assessed the level of examination material duplication from week-to-week during the current year operating test, and compared the operating test material from this year's operating tests (2005) with last year's operating tests (2004). The annual operating tests were conducted in August/September 2004 and August/September/October 2005. The examiners assessed the amount of written examination material duplication from week-to-week for the written examination administered in June/July 2005. The inspectors reviewed the methodology for developing the examinations, including the LORT program 2-year sample plan, probabilistic risk assessment insights, previously identified operator performance deficiencies, and plant modifications.

b. Findings

No findings of significance were identified.

.4 Licensee Administration of Requalification Examinations

a. Inspection Scope

The inspectors observed the administration of a requalification operating test to assess the licensee's effectiveness in conducting the test. The inspectors assessed the facility evaluators' ability to determine adequate crew performance and individual performance using objective, measurable standards. The inspectors evaluated the performance of one shift crew in parallel with the facility evaluators during four dynamic simulator scenarios and evaluated various licensed crew members concurrently with facility evaluators during the administration of several job performance measures. The inspectors observed the training staff personnel administer the operating test, including conducting pre-examination briefings, evaluations of operator performance, and individual and crew evaluations upon completion of the operating test. The inspectors reviewed the licensee's overall examination security program. The inspectors evaluated the ability of the simulator to support the examinations. A specific evaluation of simulator performance was conducted and documented under Section 1R11.7, "Conformance With Simulator Requirements Specified in 10 CFR 55.46," of this report.

b. Findings

No findings of significance were identified.

.5 Licensee Training Feedback System

a. Inspection Scope

The inspectors assessed the methods and effectiveness of the licensee's processes for revising and maintaining its LORT program up to date, including the use of feedback from plant events and industry experience information. The inspectors reviewed the licensee's quality assurance oversight activities, including licensee training department self-assessment reports. The inspectors evaluated the licensee's ability to assess the effectiveness of its LORT program and their ability to implement appropriate corrective actions.

b. Findings

No findings of significance were identified.

.6 Licensee Remedial Training Program

a. Inspection Scope

The inspectors assessed the adequacy and effectiveness of the remedial training conducted since the previous biennial requalification examinations and the training planned for the current examination cycle to ensure that they addressed weaknesses in licensed operator or crew performance identified during training and plant operations. The inspectors reviewed remedial training procedures and individual remedial training plans.

b. Findings

No findings of significance were identified.

.7 Conformance With Operator License Conditions

a. Inspection Scope

The inspectors reviewed the facility and individual operator licensees' conformance with the requirements of 10 CFR Part 55. The inspectors reviewed the facility licensee's program for maintaining active operator licenses and to assess compliance with 10 CFR 55.53 (e) and (f). The inspectors reviewed the procedural guidance and the process for tracking on-shift hours for licensed operators and which control room positions were granted credit for maintaining active operator licenses. The inspectors reviewed the facility licensee's LORT program to assess compliance with the requalification program requirements as described by 10 CFR 55.59 (c). Additionally, medical records for 15 licensed operators were reviewed for compliance with 10 CFR 55.53 (i).

b. Findings

No findings of significance were identified.

.8 Conformance With Simulator Requirements Specified in 10 CFR 55.46

a. Inspection Scope

The inspectors assessed the adequacy of the licensee's simulation facility (simulator) for use in operator licensing examinations and for satisfying experience requirements as prescribed in 10 CFR 55.46, "Simulation Facilities." The inspectors also reviewed a sample of simulator performance test records (i.e., transient tests, scenario test and discrepancy resolution validation test), simulator discrepancy and modification records, and the process for ensuring continued assurance of simulator fidelity in accordance with 10 CFR 55.46. The inspectors reviewed and evaluated the discrepancy process to ensure that simulator fidelity was maintained. Open simulator discrepancies were reviewed for importance relative to the impact on 10 CFR 55.45 and 55.59 operator actions as well as on nuclear and thermal hydraulic operating characteristics. The inspectors conducted interviews with members of the licensee's simulator staff about the configuration control process and completed the Inspection Procedure 71111.11, Appendix C, checklist to evaluate whether or not the licensee's plant-referenced simulator was operating adequately as required by 10 CFR 55.46 (c) and (d).

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12)

1. Routine Inspection

a. Inspection Scope

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

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

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

- the system was scoped in accordance with 10 CFR 50.65;
- performance problems constituted maintenance rule functional failures;
- the system had been assigned the proper safety significance classification;
- the system was properly classified as (a)(1) or (a)(2); and
- the goals and corrective actions for the system were appropriate.

The above aspects were evaluated using the maintenance rule program and other documents listed in the Attachment. The inspectors also verified that the licensee was appropriately tracking reliability and/or unavailability for the systems.

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

- Units 1 and 2 essential service water pumps;
- Units 1 and 2 emergency diesel generators; and
- Units 1 and 2 component cooling system.

b. Findings

No findings of significance were identified.

2. Periodic Evaluation

a. Inspection Scope

The inspectors examined the periodic evaluation report completed for the period of November 2002 through April 2004. To evaluate the effectiveness of (a)(1) and (a)(2) activities, the inspector examined a sample of (a)(1) Action Plans, Performance Criteria, Functional Failures, and CRs. These same documents were reviewed to verify that the threshold for identification of problems was at an appropriate level and the associated corrective actions were appropriate. Also, the inspectors reviewed the maintenance rule procedures and processes. Those documents reviewed during this inspection are listed in the Attachment. The inspectors focused the inspection on the following four systems (samples):

- auxiliary power system;
- component cooling system;
- reactor system; and
- auxiliary feedwater system.

The inspectors verified that the periodic evaluation was completed within the time restraints defined in 10 CFR 50.65 (once per refueling cycle, not to exceed 24 months). The inspectors also ensured that the licensee reviewed its goals, monitored Structures, Systems, and Components (SSCs) performance, reviewed industry operating experience, and made appropriate adjustments to the maintenance rule program as a result of the above activities.

The inspectors verified that:

- the licensee balanced reliability and unavailability during the previous refueling cycle, including a review of high safety significant SSCs;
- (a)(1) goals were met, that corrective action was appropriate to correct the defective condition, including the use of industry operating experience, and that (a)(1) activities and related goals were adjusted as needed; and

- the licensee has established (a)(2) performance criteria, examined any SSCs that failed to meet their performance criteria, and reviewed any SSCs that have suffered repeated maintenance preventable functional failures including a verification that failed SSCs were considered for (a)(1).

In addition, the inspectors reviewed maintenance rule self-assessments that addressed the maintenance rule program implementation.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

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

The licensee's daily configuration risk assessment records, observations of operator turnover and plan-of-the-day meetings, and observations of work in progress, were used by the inspectors to verify that the equipment configurations were properly listed, 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.

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

The inspectors completed nine samples by reviewing the following activities:

- increased seal leakoff flow from the #1 seal for the 1A reactor coolant pump;
- availability of the Units 1 and 2 ultimate heat sink during an extended drought and extreme hot weather;
- crane operations proximate to the Unit 1 unit auxiliary, main power, and system auxiliary transformers;
- unexpected response during Unit 1 main turbine thrust bearing trip testing and troubleshooting;
- planned maintenance on the 1A emergency diesel generator during a period of extreme hot weather and increased electrical grid demand;



- planned maintenance on the 1A component cooling water and service water pumps;
- seal leakoff flow from the #1 seal of the 1A reactor coolant pump in excess of the vendor recommended maximum value, resulting in Unit 1 shutdown/cooldown and replacement of reactor coolant pump 1A #1 seal;
- Unit 1 system auxiliary transformer maintenance outage coinciding with severe thunderstorm activity; and
- draining and cleaning of the 1B residual heat removal discharge and suction piping for dose mitigation.

b. Findings

No findings of significance were identified.

1R14 Operator Performance During Non-Routine Evolutions and Events (71111.14)

a. Inspection Scope

The inspectors completed three samples by observing the following events:

- failure of Unit 2 main generator exciter temperature control valve, 2WS143;
- failure of Unit 1 main turbine thrust bearing wear trip test line to depressurize during routine surveillance testing; and
- failure of a test switch during surveillance testing of the unit 1 main steam isolation valves logic.

The inspectors observed the control room response, interviewed plant operators and reviewed plant records including control room logs, operator turnovers, and CRs. The inspectors verified that the control room response was consistent with station procedures and that identified discrepancies were captured in the corrective action program. Corrective action documents reviewed as part of this inspection are listed in the Attachment.

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 and

conducted plant walkdowns, as necessary, to obtain further information regarding operability questions.

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

- failure to quarterly test grout prior to use in emergency diesel generator 1B space wall penetration;
- hardening of grease on safety injection and component cooling water valve actuators;
- 2B DOST low level alarm during 2B emergency diesel generator monthly run with low out of sight levels in on-site supply tanks;
- multiple diesel engine jacket water expansion tank overflow events during engine run for both the 1B and 2B diesel driven auxiliary feedwater pumps;
- an aggregate review of CRs 365953, "System Frequency Alarm Relay Failed Calibration," 367965, "Question About LCO During Diesel Generator Testing," and 364936, "Check Valve Orientation Not Per Vendor Recommendation." This review constituted one inspection sample;
- review of plant scaffolding and its impact on adjacent systems;
- oil leakage from a hydraulic snubber associated with the 1B steam generator; and
- potential inoperability of the residual heat removal system based on industry operating experience from the Wolf Creek nuclear station.

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing (71111.19)

a. Inspection Scope

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

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

- 2A emergency service water pump American Society of Mechanical Engineers (ASME) test run following system valve and pump lube oil cooler maintenance;
- 1A emergency diesel generator starting system lockout test, fast start test, and governor overspeed test following significant maintenance outage;
- 1B emergency service water pump ASME test run following system electrical and pump lube oil cooler maintenance;
- test run of 2VD02CD 2B DOST room exhaust fan, following calibration of differential pressure switch 2PDS-VD073;
- ASME test run of 1A component cooling water pump following motor replacement; and
- VOTES testing and return to service of the essential service water crossover supply from Unit 2 to the common component cooling water heat exchanger isolation valve 2SX005.

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 a forced outage on Unit 1, following increased leakage from the #1 seal of the 1A reactor coolant pump. The outage began on September 10 and concluded on September 17, 2005. This inspection constituted one sample of the inspection requirement.

Inspection activities included a review of the outage schedule, safe shutdown plan and administrative procedures governing the outage and periodic observations of equipment alignment, risk control, maintenance, and control room activities. In particular, the inspectors observed whether the licensee effectively managed elements of shutdown risk pertaining to reactivity control, decay heat removal, inventory control, electrical power control, containment integrity, and vital support systems, as applicable.

On a daily basis, the inspectors attended control room operator and outage management turnover meetings to determine whether shutdown risk and plant status were well understood and communicated, and performed walkdowns of the main control room to observe the alignment of systems important to shutdown risk. The inspectors also performed the following specific activities:

- reviewed the detailed outage schedule and risk control plans;
- observed the control room staff during portions of the plant shutdown and cooldown;
- reviewed the results of the licensee's initial containment Mode 3 walkdowns for evidence of reactor coolant leakage;
- performed a walkdown to observe containment cleanliness prior to Mode 4 entry; and
- observed the control room staff during reactor startup.

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

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

- Unit 1 K608B slave relay surveillance;
- Unit 2 emergency core cooling system vent and valve and containment integrity valve surveillance;
- Unit 1 solid state protection system train B surveillance;
- Unit 1 feedwater isolation valve (1FW039 A-D) stroke testing following missed surveillance; and
- Unit 2 24A feedwater heater level control switch repair and calibration.

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications (71111.23)

a. Inspection Scope

The inspectors reviewed the following temporary modifications:

- furmanite repair of steam leak from flange in Unit 2 feedwater heater 27B emergency level control piping; and
- freeze seal of emergency service water system piping in support of 2SX1820A valve repair.

For each modification, the inspectors reviewed the associated design change paperwork, attended applicable prejob briefings and observed installation and/or removal. The inspectors also reviewed contingency plans, as applicable, for modifications supporting continued component operability or reliability. The inspectors also verified that minor issues identified during the inspection were entered into the licensee's corrective action program. Those documents reviewed during this inspection are listed in the Attachment. This review constituted two samples of this inspection requirement.

b. Findings

No findings of significance were identified.

**Cornerstone: Emergency Preparedness**

1EP2 Alert and Notification System Testing (71114.02)

a. Inspection Scope

The inspectors discussed with Emergency Preparedness staff the operation, maintenance, and periodic testing of the Alert and Notification System in the Braidwood Station's plume pathway Emergency Planning Zone to determine whether the Alert and Notification System equipment was adequately maintained and tested in accordance with Emergency Plan commitments and procedures. The inspectors reviewed records of 2004 and 2005 siren reports, as well as January 2004 through July 2005 operability test results. Those documents reviewed during this inspection are listed in the Attachment.

These activities completed one inspection sample.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

The inspectors reviewed and discussed with plant Emergency Preparedness staff the procedures that included the primary and alternate methods of initiating an ERO activation to augment the on shift ERO and the provisions for maintaining the plant's ERO call-out roster. The inspectors also reviewed reports and a sample of corrective action program records of unannounced off-hour augmentation tests, which were conducted approximately monthly between May 2003 and June 2005, to determine the adequacy of the drills' critiques and associated corrective actions. The inspectors also reviewed the Emergency Preparedness training records of a sample of 17 Braidwood Station ERO personnel, who were assigned to key and support positions, to determine whether they were currently trained for their assigned ERO positions. Those documents reviewed during this inspection are listed in the Attachment.

These activities completed one inspection sample.

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 2003, 2004, and 2005 audit reports to ensure that these audits complied with the requirements of 10 CFR 50.54(t) and that the licensee adequately identified and corrected deficiencies. The inspectors also reviewed critique reports and samples of corrective action program records associated with the actual Unusual Event declared on March 28, 2005, and the 2004 biennial exercise, in order to verify that the licensee fulfilled its commitments and to evaluate the licensee's efforts to identify, track, and resolve weaknesses and deficiencies identified during these activities. Additionally, the inspectors reviewed a sample of Emergency Preparedness items, condition reports, and action requests related to the facility's Emergency Preparedness program to determine whether corrective actions were acceptably completed. Documents reviewed are listed in the Attachment.

These activities completed one inspection sample.

b. Findings

No findings of significance were identified.

1EP6 Drill Evaluation

a. Inspection Scope

The inspectors observed licensee performance during an evaluated emergency response drill. Observations included manning of the Technical Support Center, turnover of command and control to and from the Technical Support Center, event classification and notification, and development of protective action recommendations. The inspectors also observed Operations Support Center activities and accompanied one in-plant team. The inspectors checked to see that deficiencies noted during the drill, by either the inspectors or licensee evaluators, were entered into the licensee's corrective action program. The inspectors also attended portions of the post drill critique for the Technical Support Center and Operations Support Center crews. This activity constituted one inspection sample.

b. Findings

No findings of significance were identified.

**2. RADIATION SAFETY**

**Cornerstone: Occupational Radiation Safety**

2OS1 Access Control to Radiologically Significant Areas (71121.01)

.1 Problem Identification and Resolution

a. Inspection Scope

The inspectors reviewed the licensee's self-assessments, audits, and condition reports (CR) related to the access control program to determine if identified problems were entered into the corrective action program for resolution. This sample was credited in Inspection Report 05000456/2005003; 05000457/2005003.

Corrective action reports related to access controls and high radiation area (HRA) radiological incidents (non-performance indicator occurrences identified by the licensee in HRAs less than 1 Rem/hr) were reviewed and are listed in the Attachment. Staff members were interviewed and corrective action documents were reviewed to determine if follow-up activities were being conducted in an effective and timely manner commensurate with their importance to safety and risk based on the following:

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

This sample was credited in Inspection Report 05000456/2005003; 05000457/2005003.

b. Findings

No findings of significance were identified.

2OS3 Radiation Monitoring Instrumentation and Protective Equipment (71121.03)

.1 Calibration and Operability of Radiation Instrumentation

a. Inspection Scope

The inspectors reviewed records of calibration, operability, and alarm set points (where applicable) of selected instruments including containment radiation monitors, portable hand-held survey instruments and personal monitoring devices including the whole body counter. In addition, an independent audit of the licensee's vendor calibration facility was evaluated for adequacy. Those documents reviewed during this inspection are listed in the Attachment. This sample was credited in Inspection Report 05000456/2004004; 05000457/2004004.

b. Findings

No findings of significance were identified.

4. **OTHER ACTIVITIES**

4OA1 Performance Indicator Verification (71151)

**Cornerstones: Emergency Preparedness**

Emergency Preparedness Strategic Areas

a. Inspection Scope

The inspectors reviewed the licensee's records associated with the three Emergency Preparedness performance indicators listed below. The inspectors verified that the licensee accurately reported these indicators in accordance with relevant procedures and Nuclear Energy Institute guidance endorsed by NRC. Specifically, the inspectors reviewed licensee records associated with performance indicators data reported to the NRC for the period October 2004 through June 2005. Reviewed records included: procedural guidance on assessing opportunities for the three performance indicators; assessments of performance indicator opportunities during pre-designated Control Room Simulator training sessions, the 2004 biennial exercise, and other drills; revisions of the roster of personnel assigned to key ERO positions; and results of periodic Alert and Notification System operability tests. Those documents reviewed during this inspection are listed in the Attachment. The following performance indicators which constitute three samples were reviewed:

Common

- Alert and Notification System (1 sample);



- ERO Drill Participation; and
- Drill and Exercise Performance.

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 determine 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 list of documents reviewed at the back of the report.

b. Findings

No findings of significance were identified.

.2 Annual Sample - Plant Transients Induced by Secondary System Events

Introduction

The inspectors reviewed the adequacy of the licensee's corrective actions regarding several instances of secondary side transients resulting in automatic or operator initiated plant power reductions that have occurred since November 2004. The inspectors reviewed the cause of each event to determine if the licensee's corrective actions were effective at preventing repeat failures. Those documents reviewed during this inspection are listed in the Attachment. This activity completed one sample.

a. Prioritization and Evaluation of Issues

(1) Inspection Scope

The inspectors assessed the licensee's evaluation and disposition of performance issues, and application of risk insights for prioritization of issues.

(2) Observations

The inspectors noted that each event was captured in a CR and was assigned a priority consistent with its significance. Collectively, the licensee had identified a trend with the number of events and had initiated a common-cause evaluation. This evaluation also

addressed whether similar issues had occurred in the industry. The results of this evaluation were presented to the station Plant Health Committee for review.

The licensee identified that the dominant event initiator was a feedwater heater string extraction steam isolation caused by a failure of the automatic level control system to maintain shell-side level in the normal control band or a spurious, vibration induced high level indication from adjacent maintenance. The inspectors noted that the licensee had sufficiently analyzed each event to obtain a good understanding of the specific event causal factors. The inspectors also noted that the Plant Health Committee had adequately challenged the conclusions of the common-cause evaluation and the recommended corrective actions.

b. Effectiveness of Corrective Actions

(1) Inspection Scope

The inspectors reviewed the individual corrective actions for each of the specific events and the recommended corrective actions following the common-cause evaluation.

(2) Observations

The licensee has discontinued the use of certain vendor made components in the level control system in favor of a different vendor whose components have been successfully used at another facility. They established a testing program to check for level control valve binding, created procedural controls that established physical boundaries around the level controllers when performing maintenance on adjacent systems, and created an action to review the use of a 3-second time delay circuit in the high-level isolation logic to prevent spurious signals from causing a heater string isolation. The inspectors noted that these actions appeared reasonable to address the specific events reviewed. In particular, the inspector observed the effective use of barriers around the level controllers during periods of maintenance, during plant walkdowns.

The licensee could not identify a generic cause for the failure of the automatic level control system to maintain shell-side level in the normal control band. However, the licensee's evaluation determined that these failures were due to design issues associated with the automatic level control system, in large part, due to the age of the installed system. Additionally, the feedwater heater level could not be directly monitored from the control room, but only locally observed in the plant. This resulted in the control room staff being unaware of potential level problems until they resulted in heater isolations.

The licensee has identified numerous actions to improve the overall reliability of the automatic level control system and to improve remote monitoring from the control room. Currently, the licensee was evaluating the necessary actions (including cost) to upgrade the system. The inspectors noted that the Plant Health Committee was tracking these issues as an open item and was reviewing the numerous long term enhancements recommended by the licensee's engineering staff.

The inspectors also noted that operator immediate actions were in accordance with plant procedures, and successfully mitigated the effects of the transients and their effect on the reactor plant.

#### 4OA3 Event Followup (71153)

The inspectors completed one inspection sample in this area.

##### Licensee Event Report (LER) Review

(Closed) LER 05000456/2005-001-00: Potential TS 3.9.4 Violation Due to Imprecise Original TS and TS Bases Wording.

During the March 2005 Byron Station Unit 1 refueling outage, the NRC identified that the licensee was performing local leak rate testing of containment isolation valves while core fuel alterations were in progress. This was contrary to TS 3.9.4.c., which required that containment penetrations to the outside atmosphere be able to be closed by a manual or automatic isolation valve or by an operable containment isolation system during core alterations. In response to the Byron violation, the licensee immediately removed all local leak rate testing activities planned during core alterations for the upcoming April 2005, Braidwood Unit 1 refueling outage, and initiated CR 340542, to determine whether a similar violation had occurred at Braidwood station in the past. Due to similarities in plant design and plant outage operation, the licensee concluded that it was possible a violation may have occurred and issued the aforementioned LER. The inspectors did not identify any specific instances where the licensee had performed a containment penetration local leak rate testing coincident with core alterations in the past 3 years, including refueling outages 10 and 11 on Unit 1 and outage 10 on Unit 2. However, had such an incident occurred, the consequences would have been of very low safety significance based on the significance assessment performed for the Byron issue. The licensee subsequently established administrative controls to prevent the simultaneous performance of containment penetration local leak rate testing and core alterations. Because the inspectors did not identify any specific instances where the licensee failed to maintain containment integrity during core alterations, no violations of NRC requirements were identified and this LER was considered closed. Those documents reviewed during this inspection are listed in the Attachment.

#### 4OA4 Cross-Cutting Aspects of Findings

- .1 A finding described in Section 4OA5.1 of this report had as a primary cause a Problem Identification and Resolution deficiency, in that the licensee failed to identify the cause of blockage in the foam suppression system piping for the Unit 1 and 2 DOST rooms. This failure lead to a recurrence of this blockage in the 2A DOST foam suppression system piping, which rendered it inoperable for a 5-year period.

#### 4OA5 Other Activities

.1 (Closed) Unresolved Item 05000456/2005003-01: Blockage in Foam Suppression System of Unit 1 Indoor DOST Rooms.

Introduction: The inspectors identified a finding of very low safety significance (Green) and associated non-cited violation of Braidwood Station Unit 2 Operating License NPF-77, Condition 2.E. This finding was related to the unavailability of the foam-water fire suppression system for the 2A diesel oil storage tank room due to a system blockage.

Description: On June 20, 2005, while evaluating a failed surveillance test for the Unit 1 DOST rooms, the licensee identified that the foam system piping for the 1A and 1B DOST rooms was plugged with dried foam concentrate. At the time of discovery, the inspectors did not have sufficient information regarding the failure to adequately assess the safety significance and regulatory aspects of the issue and therefore documented the issue as an unresolved item in NRC Inspection Report 05000456/2005003. In order to properly review this issue, the inspectors requested the following information from the licensee:

- Did the blockage prevent the water portion of the foam suppression system from operating and was the water portion alone sufficient to mitigate a fire;
- Did the surveillance program for the DOST fire suppression systems meet the National Fire Protection Association code requirements;
- Had the blockage recurred in the Unit 2 DOST suppression piping; and
- What was the suspected cause of the foam piping blockage.

The licensee provided sufficient information to demonstrate that the water portion of the foam suppression system was available, but was insufficient for fire mitigation. Specifically this condition prevented the foam concentrate from mixing with the water portion of the system, and therefore eliminated the capability to inject foam into the rooms.

The licensee demonstrated that the existing surveillance program was acceptable.

The inspectors further noted that the licensee had identified similar clogging of the Unit 2 DOST piping on July 11, 2000. However, while the piping was cleared, no corrective actions were performed to either identify the cause of the blockage, or determine whether the Unit 1 piping was similarly affected until it became self-evident as stated above. Additionally, in December 2004, the inspectors had identified a potential adverse trend regarding the foam protection system for the DOST rooms. The licensee initiated CR 282949 in response to this issue, but again failed to evaluate the cause of the Unit 2 foam system blockage or to determine if the Unit 1 piping was affected.

On July 28, 2005, the licensee performed an inspection of the Unit 2 DOST foam systems and identified that the 2A DOST foam suppression piping was clogged. The clog consisted of dried residue in the piping, likely from overfilling of the foam concentrate storage tanks during system restoration following the July 2000 discovery. The licensee determined that the overfilling was caused by inadequate procedural guidance. Subsequently, the licensee revised the procedures governing the filling of the

foam concentrate tanks, and was evaluating the effectiveness of the preventative maintenance program for the DOST fire protection piping.

The inspectors considered the clogging of the 2A DOST foam suppression piping to be potentially significant, because the DOSTs contained the necessary fuel oil allowing the emergency diesel generators to operate for the minimum 7-day mission time required by the TS. Therefore, a fire in one of the DOST rooms, could potentially affect the availability of its associated emergency diesel generator.

Regarding the Unit 1 DOST foam system blockage, the licensee believed that this condition had likely existed since July 2000 and that the system was considered inoperable since then. Because the inoperability of the Unit 1 DOST foam suppression system was identified through a scheduled surveillance test this issue was considered a licensee identified non-cited violation and the regulatory aspect is discussed in Section 40A7 of this report.

As stated above, the 2A DOST foam system blockage also likely existed since July 2000, and the system was considered inoperable since then. Because the inoperability of the 2A foam suppression system was identified based on the NRC inspector's questions, this issue was considered NRC-identified and the regulatory aspect is discussed below.

Analysis: The failure to identify the cause of the DOST foam suppression piping blockage and to prevent the recurrence of the blockage in the 2A DOST piping, was considered a performance deficiency that warranted a significance evaluation. This issue was considered greater than minor in accordance with Inspection Manual Chapter 0612, Appendix B, dated May 19, 2005, as it affected the protection against external factors (fire) attribute of the Mitigating Systems Reactor Safety Cornerstone. This issue also affected the cross-cutting area of Problem Identification and Resolution, because of the failure to take timely corrective actions.

IMC 0609, Appendix F, "Fire Protection Significance Determination Process," dated February 28, 2005, was used to assess the safety significance of this finding. Per the Phase 1 evaluation, the finding was assigned to the category of "Fixed Fire Protection Systems." Because the foam system was inoperable, this finding was assigned a high degradation rating. Since the condition existed for at least 5 years, the Phase 1 screening indicated that the change in core damage frequency was greater than the screening criteria listed in Table A1.1 of Appendix F, therefore requiring that a Phase 2 evaluation be performed. Since a fire in the DOST rooms would only affect the fire ignition source and the initiating fuels, the item was classified as FDS0 per Step 2.2 of the Phase 2 evaluation. Findings classified as FDS0 are not analyzed in the fire protection SDP as risk contributors and therefore screen to Green. The evaluation results were discussed with a regional fire protection specialist, who agreed with the inspectors' assessment.

Enforcement: Braidwood Station Unit 2 Operating License NPF-77, license Condition 2.E required the licensee to implement and maintain all provisions of the approved fire protection program as described in the FSAR for Braidwood. Section 9.5.1 of the UFSAR for Braidwood stated that the design bases, system descriptions, safety

evaluation, inspection and testing requirements, personnel qualification, and training were contained in the Fire Protection Report and incorporated by reference into the UFSAR. Section 2.1.3.2.2(c) of the Fire Protection Manual, dated December 2002, stated that the indoor DOST rooms were protected by a foam suppression system. Contrary to the above, the foam suppression system for the 2A DOST room, remained inoperable for a 5-year period, due to a failure to take timely corrective actions to address system blockage. Because this failure to provide the required fire suppression system was of very low safety significance and has been entered into the licensee's Corrective Actions Program (CR 350973), this violation is being treated as a Non-Cited Violation (NCV), consistent with Section VI.A of the NRC Enforcement Policy (NCV 05000457/2005008-01).

.2 Temporary Instruction 2515/161 - Transportation of Reactor Control Rod Drives in Type A Packages

a. Inspection Scope

The inspectors conducted interviews and record reviews to verify that: (1) the licensee had undergone refueling activities since calendar year 2002; and (2) did not ship irradiated control rod drive mechanisms in Department of Transportation Specification 7A, Type A packages during the time frame 2002 to the present.

b. Findings

No findings of significance were identified.

4OA6 Meetings

.1 Exit Meeting

The inspectors presented the inspection results to Mr. G. Boerschig and other members of licensee management at the conclusion of the inspection on October 4, 2005. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

.2 Interim Exit Meetings

Interim exit meetings were conducted for:

- Maintenance Effectiveness Periodic Evaluation with Mr. M. Smith, Engineering Director on August 12, 2005.
- Access Control Program and the Radiation Monitoring Instrumentation and Protective Equipment Program Inspection with Mr. K. Polson on August 25, 2005.

- Emergency Preparedness inspection with Mr. D. Ambler on August 12, 2005.
- Biennial Operator Requalification Program Inspection with Mr. R. Gayheart on September 16, 2005.

#### 4OA7 Licensee Identified Violations

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

##### **Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity**

- Braidwood Station Unit 1 Operating License NPF-72, license Condition 2.E required the licensee to implement and maintain all provisions of the approved fire protection program as described in the UFSAR for Braidwood. Section 9.5.1 of the UFSAR for Braidwood stated that the design bases, system descriptions, safety evaluation, inspection and testing requirements, personnel qualification, and training were contained in the Fire Protection Report and incorporated by reference into the UFSAR. Section 2.1.3.2.2(c) of the Fire Protection Manual, dated December 2002, stated that the indoor DOST rooms were protected by a foam suppression system. Contrary to the above, the foam suppression systems for the 1A and 1B DOST rooms, remained inoperable for a 5-year period, due to system blockage. Because this failure to provide the required fire suppression system is of very low safety significance and has been entered into the licensee's Corrective Actions Program (CR 350973), this violation is being treated as an NCV. This item is discussed in Section 4OA5 of this report.

##### **Cornerstones: Emergency Preparedness**

- Part 50.47 of 10 CFR, Paragraph (b)(15), requires, in part, that radiological emergency response training be provided to those who may be called on to assist in an emergency. Table B-1 of the licensee's standardized emergency plan required that the minimum on-shift staffing included two RP personnel for in-plant protective actions. In September 2004, Emergency Preparedness staff based at another of the licensee's Illinois nuclear stations identified that this emergency plan commitment was met during weekends and holidays by one on-shift Radiation Protection technician and one on-shift chemistry technician. However, the licensee also determined that chemistry technicians' training had evolved such that the training no longer met all requirements to provide in-plant protection actions.

In early December 2004, the licensee completed an adequate root cause investigation of this concern's impact at each of its Illinois nuclear stations. Timely corrective actions included assigning two Radiation Protection technicians on all back shifts, initiating revision of the standardized ERO training procedure, and initiating an assessment of ERO position qualifications in cases where some ERO training was being performed by other departments. Because no actual emergency events had occurred that required in-plant protective actions and the

licensee's timely corrective actions included staffing a minimum of two Radiation Protection technicians on-shift, this violation was not more than of very low significance, and was being dispositioned as an NCV.

**Cornerstone: Occupational Radiation Safety**

- Technical Specification 5.7.1 required, in part, that the entrance to a HRA be controlled by issuance of a radiation work permit (RWP) or equivalent document that includes specification of radiation dose rates. RWP 10006103, Revision 0, "Exelon MMD Common Work, Non-Outage, Low Dose Work" contained the requirement that individuals entering an HRA receive a briefing prior to entry. Contrary to this requirement, on July 12, 2005, a mechanical maintenance supervisor entered a posted HRA on the correct RWP but failed to obtain the required briefing for entry into the HRA. This issue was entered in the licensee's corrective action program as IR 00352005. The licensee performed a Prompt Investigation and an Apparent Cause Evaluation for this incident. The issue was determined to be of very low safety significance as the dose consequence (0.2 millirem) was minimal, the individual was on the correct RWP, and did not approach the areas within the HRA where dose rates exceeded 100 mrem per hour.

ATTACHMENT: SUPPLEMENTAL INFORMATION



## **SUPPLEMENTAL INFORMATION**

### **KEY POINTS OF CONTACT**

#### Licensee

K. Polson, Site Vice President  
G. Boerschig Plant Manager  
K. Aleshire, Emergency Preparedness Manager  
D. Ambler, Regulatory Assurance Manager  
J. Bauer, Licensing Manager  
D. Burton, Licensed Operator Requalification Training Group Lead  
S. Butler, Licensing Engineer  
G. Dudek, Operations Director  
J. Feeney, Nuclear Oversight Manager  
R. Gayheart, Operations Training Manager  
G. Heisterman, Mechanical Maintenance Manager  
J. Kuczynski, Chemistry Manager  
R. Leasure, Radiation Protection Manager  
J. Moser, Radiation Protection Manager  
M. Olson, Simulator Coordinator  
A. Ronstadt, Site Maintenance Rule Coordinator  
J. Ruth, Examination Developer  
M. Sears, Steam Generator Program Manager  
M. Smith, Site Engineering Director  
M. Trusheim, Work Control Manager

#### Nuclear Regulatory Commission

R. Skokowski, Chief, Reactor Projects Branch 3

### **LIST OF ITEMS OPENED, CLOSED AND DISCUSSED**

#### Opened and Closed

05000457/2005008-01	NCV	Failure to Provide Required Function to Fire Suppression System in 2A DOST Room
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#### Closed

05000456/2005-001-00	LER	Potential TS 3.9.4 Violation Due to Imprecise Original TS and TS Bases Wording
05000456/2005003-01	URI	Blockage in Foam Suppression System of Unit 1 Indoor Diesel-Generator Oil Storage Tank Rooms

#### Discussed

None.

## LIST OF DOCUMENTS REVIEWED

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

### 1R01 Adverse Weather Protection

CR 325132; NOS Identified MSIV Room High Temp Impact on Component Service Life; March 25, 2005  
CR 355918; Unit 1 MS Tunnel Security Barrier Screen is Loaded with Dirt; July 22, 2005  
CR 356139; Division 11 [Engineered Safety Feature] ESF Switchgear Room Temperature Hi Alarm in Early; July 24, 2005  
CR 356186; High Temperature Concerns - MPTS and Division 12 Switchgear Room; July 24, 2005

### 1R04 Equipment Alignment

BwOP AP E1; Electrical Lineup - Unit 1 Operating Lineup for the 6900V Busses; Revision 2E1  
BwOP AP E2; Electrical Lineup - Unit 1 Operating Lineup for the Safety Related 4160V Busses, 480V Switchgear Busses, and 480V MCC's; Revision 3E2  
BwOP CC-E1; Electrical Lineup - Unit 1; Revision 6  
BwOP CC-M1; Operating Mechanical Lineup Unit 1; Revision 15  
BwOP DG-1; DG Alignment to Standby Condition; Revision 25  
BwOP DG-E2; Electrical Lineup - Unit 1; Revision 3  
BwOP DG-M2; Operating Mechanical Lineup 1B DG; Revision 13  
BwOP SX-E1; Electrical Lineup - Unit 1 Essential Service Water system Operating; Revision 6  
BwOP SX-E2; Electrical Lineup - Unit 2 Essential Service Water System; Revision 8  
BwOP SX-M1; Operating Mechanical Lineup Unit 1; Revision 24  
BwOP SX-M2; Operating Mechanical Lineup Unit 2; Revision 24  
Protected Equipment Signs for System Auxiliary Transformer 142-1/2 OOS; 1F01PA, 1F01PB, 2AF01PA, 2AF01PB

### 1R05 Fire Protection

Braidwood-1 Table 3-1; Amendment 13; December 1990  
B/B; Amendment 17; December 1996  
Braidwood-FPR; Amendment 21; December 2004  
BwHS 4009-005; Surveillance of Unit One Fire Detection Zones 1D-24, 39, 67-69 and 75-78; Revision 3E1  
CR 291816; Braidwood Review of OES 19826 and 19834 Halon System Issues; January 18, 2005  
CR 358997; Cable in Stores System Does Not Meet Fire Protection Requirements; August 2, 2005  
CR 361018; Continuing Problems with Installation of Scaffolds Around Safety-Related and Fire Protection Equipment; August 8, 2005  
CR 365710; Surface Mounted Emergency Lights/Exit Signs Not Working; August 23, 2005

CR 366700; Wooden Spacers on Battery Racks; August 25, 2005  
 CR 366708; Wood is Not Fire Resistant on Battery Racks; August 25, 2005  
 CR 368744; Questions with New Style Betalux Exit Signs and Safety; August 31, 2005  
 CC-AA-501; Exelon Nuclear Welding Program; Revision 0  
 Field Change Request L-23678; Provide Sealing Details for Penetrations 2AV-601, 602, 1086 and 1087; October 15, 1986  
 Drawing 2AB-1086; Proposed Seal for 2AB-1086; Sheets Number 1 and 2; September 29, 1997  
 Drawing TM-1; High Density Silicone Elastomer Radiation Seal for Stationary Mechanical Penetrating Members; June 29, 1984  
 Drawing TM9; Flood/Air Boot and Ceramic Blanket Fire Barrier for Single Stationary or Moving Penetrating embers; June 18, 1984  
 Drawing 20E-0-3907; Fire Detection, Main Floor at Elevation 451'-0" Braidwood Station Unit 1&2 Commonwealth Edison Co. Chicago, Illinois; Revision R  
 Figure 2.3-8; Byron/Braidwood Station Fire Protection Report, Main Floor at Elevation 451'-0"; Sheet 2 of 4  
 Fire Protection Report; Division 12 Miscellaneous Electrical Equipment and Battery Room (Fire Area 5.4-1); Amendment 18  
 SA-AA-129-2118; Management and Control of Temporary Power; Revision 2  
 TR-127; Hydrostatic Test of a TCO-015 Fabric Boot Seal Installed on a 40" Diameter Steel Sleeve Penetrated by a 30" Diameter Pipe; Revision 1; January 23, 1984  
 TR-148; Fire and Hose Stream Test of TCO-003 High Density Silicone Elastomer for Mechanical Penetrations; March 14, 1985  
 TR-185; Fire and Hose Stream Test of 8" Thick Specimen of TCO-010 Ceramic Blanked Used as a Penetration Seal Material in a 12" Diameter Sleeve Penetrated by Bare Pipe, Insulated Pipe, and Copper, Monel, and Stainless Steel Instrument Tubing; Revision 0; March 13, 1985  
 TR-198; Fire and Host Stream Test of TCO-010 Ceramic Blank Single Wrap, TCO-010 Ceramic Blanket Spiral Wrap, and TCO-029 Pre-Fab Aluminized Boot Seals for Mechanical Penetrations; March 19, 1985

#### 1R06 Flood Protection Measures

BwAP 1110-3; Plant Barrier Impairment Program; Revision 13  
 0BwOA; Auxiliary Building Flooding Unit 0; Revision 2  
 Calc. No. 3CB-0685-002; January 15, 1993; Revision 13  
 CC-AA-201; Plant Barrier Control Program; Revision 6  
 CR 359405; Flood Watch Performed Too Early; August 3, 2005

#### 1R07 Heat Sink Performance

BwVP 850-15; Generic Letter 89-13 Heat Exchanger As-Found Inspection and Work Report; 2A Essential Service Water Pump Lube Oil Cooler; Revision 4  
 EC 343817 000; Acceptance Criteria for As-Found Heat Exchanger Tube Blockage of the Clean-Only GL 89-13 Coolers at Braidwood; August 28, 2003  
 ER-AA-340-1002; Service Water Heat Exchanger and Component Inspection Guide; Revision 2  
 NEP-12-02 Exhibit D; Calculation Number BRW-95-218; Revision 0; November 10, 1995  
 2SX01AA - 2A Essential Service Water Pump Lube Oil Cooler; Thin Film of Rust, All Cleaned; August 2, 2005  
 WO 606795 01; Cleaning of Essential Service Water Lube Oil Cooler; July 29, 2005

1R11 Licensed Operator Regualification Program

[Emergency Preparedness] EP Drill 0546; Braidwood Station Licensed Operator Regualification Simulator Scenario Guide; Evaluated EP Duties/Failed Fission Product Barriers/General Emergency; Revision 0; June 20, 2005  
LS-AA-126-1001; LORT NRC Pre 71111.11 Inspection Focused Area Self-Assessment Report; Revision 3  
Curriculum Review Committee Meeting Minutes - Various; 2003 - 2005  
Braidwood Station Action Requests - Various; 2003 - 2005  
Braidwood Station LORT End of Cycle Reports - Various; 2003 - 2005  
Training Advisory Committee Meeting Agenda - Various; 2003 - 2005  
Nuclear Oversight Audit Reports of Operations Functional Area - Various; 2003 - 2005  
TQ-AA-106; Licensed Operator Regualification Training Program; Revision 7  
LORT Classroom Attendance Sheets - Various; 2003 - 2005  
TQ-AA-210-5101; Training Observation Form - Various; 2003 - 2005  
Regualification Examinations (Operating) - Various; 2004 - 2005  
Regualification Examinations (Written) - Various; 2003 - 2005  
Braidwood LORT 2-Year Plan, 2004/2005 Training Program; Revision 0  
Braidwood Simulator Test Procedure and Results - Various; 2003 - 2005

1R12 Maintenance Effectiveness (71111.12Q)

BwMP 3100-082I; Boroscope Inspection of 1A DG Cylinder Liners; Revision 7  
CC-1; [Component Cooling] CC System; March 8, 2004; Revision 7  
CC-2; Containment CC Supply/Return; April 8, 2002, Revision 5  
CR 101450; 2B DG Trip During Endurance Test Unplanned LCO; March 28, 2002  
CR 154329; Relay Timer in 1PA14J As Found Out of Tolerance; April 17, 2003  
CR 155262; Repeat Maintenance - Improper Sequencing of CS During 1A DG Test; April 23, 2003  
CR 160081; Eagle Timer 2PA14J-T7B Excessive Actuation Time (2B CS Pump); May 22, 2003  
CR 160362; ESF Sequence Timer for the CS Pump Failed to Operate; May 23, 2003  
CR 162992; Repeat Maintenance - Thermocouple Pipe Nipples Installed/Replaced [Wrong Parts Installed]; June 12, 2003  
CR 176745; Repeat Maintenance - Unplanned 1BwOL 3.8.1 Entry (1A DG Inoperable); September 21, 2003  
CR 182097; Unplanned LCO - 1PA14J TSRB Relay Failure; October 21, 2003  
CR 194054; Eagle Timer "TSRA" Fails During Surveillance (Unplanned LCO); January 8, 2004  
CR 198159; STP Engine Failure Applicability to Braidwood's DG's; January 29, 2004  
CR 199035; Three Cracked Lock Washers found on the 1A DG; February 2, 2004  
CR 199336; Broken Lockwasher Cannot be Replaced on the 1A DG; February 4, 2004  
CR 201663; Repeat Maintenance - 1DG01KA-A Cubicle Has Chattering Relay; February 13, 2004  
CR 213871; Unexpected Water During Blowdown of 2B DG #1 Air Receiver; April 8, 2004  
CR 216865; 2B DG Starting System Malfunction; Unplanned LCO; April 25, 2004  
CR 222569; Excessive Leakage from DG Crankcase Inspection covers; May 20, 2004  
CR 224653; 2A DG Lube Oil Heater Not Energized with Low Temp; May 29, 2004  
CR 243171; B4 Trend Code 2PDS-DG083A Out of Tolerance Low; August 10, 2004

CR 243179; 2PDS-DG086A Instrument Out of Tolerance/Trend Code B4;  
 August 10, 2004  
 CR 243193; 2TSH-DG093A Instrument Out of Tolerance/Trend Code B4;  
 August 10, 2004  
 CR 243979; 2PDS-DG083A Found Out of Tolerance - Trend Code B4; August 12, 2004  
 CR 249880; 2TSH-DG093A Instrument Out of Tolerance/Trend Code B4;  
 September 3, 2004  
 CR 249885; 1PS-DG077B Instrument Out of Tolerance/Trend Code B3;  
 September 3, 2004  
 CR 250612; QRT Grade 3, - Incorrect 50.59 Applicability Review; September 7, 2004  
 CR 251370; Nine DG Fuel Injectors Failed Pop Test and Require Rebuild;  
 September 9, 2004  
 CR 252829; Issues with DG System Incorrectly Placed in (A)(1) at MREP Meeting;  
 September 14, 2004  
 CR 259227; NLO Identifies Welding Activity Deficiencies in 2A DG Room;  
 October 1, 2004  
 CR 261895; 200 Degree Differential Exhaust Temp on 1A DG Run for 1BwVSR;  
 October 9, 2004  
 CR 262569; 1B DG Starting system Malfunction; October 12, 2004  
 CR 263787; CS Breaker Did Not Close at Proper Time (Duplicate of 263764);  
 October 15, 2004  
 CR 263808; MCR Alarm Out of Tolerance During 1BwVSR 3.8.1.19-2; October 15, 2004  
 CR 272809; Enhancement to DG Slave Start Surveillance; November 12, 2004  
 CR 276031; 1B CC Pump - Elevated Wear Particle Count in 1B and OB BRG Oil;  
 November 19, 2004  
 CR 278281; 1A DG Tripped on Loss of Field During Surveillance Testing;  
 December 2, 2004  
 CR 278435; DG Exciter Released on QC Hold; December 2, 2004  
 CR 278745; 1A DG Slow Start (>10 Seconds); December 3, 2004  
 CR 280168; 2B DG Series Booster Unit is Wired Different Than Three Other DG;  
 December 7, 2004  
 CR 280885; NOS Identified Potential FME Concern DG Overspeed Trip Reset;  
 December 9, 2004  
 CR 285709; Received 2B DG Trouble Alarm Due to Essential Service Water;  
 December 27, 2004  
 CR 288863; 2CC9473A Stopped Going Closed - Suspect Torque SW Problem;  
 January 8, 2005  
 CR 289529; Review of Bearing Installation Techniques Needed; January 11, 2005  
 CR 289629; Unexpected U1 CC Surge Tank Level High Alarm; January 11, 2005  
 CR 291106; Unplanned LCOAR Entry-2B DG Jacket Water Circ Pump Trips;  
 January 15, 2005  
 CR 291277; TS SR Bases Does Not Agree with Design; January 16, 2005  
 CR 291492; 2B DG Turbo Lube Oil Pressure @32 psig; January 17, 2005  
 CR 292184; 2A DG Jacket Water Circulation Pump and Heater Control Temperature  
 Switch Out of Tolerance; January 19, 2005  
 CR 292211; Need WR to Grease Motor Bearings on 1DG01KB-C; January 19, 2005  
 CR 297089; 1A Dg Rupture Disc Room Door Seal Not Intact; February 2, 2005  
 CR 298349; 1B DG Jacket Water Pump Not Cycling on Within Limits; February 7, 2005  
 CR 302913; Followup to DG Air Start Questions; February 18, 2005

CR 308043; B4 Trend Code: 1PSL-DG082A As Found Values Out of Tolerance High; March 3, 2005  
 CR 308644; B3 Trend Code: 1PSL-DG079A Found Out of Tolerance; March 4, 2005  
 CR 308647; B4-Trend Code: 1PSH-DG100A Found Out of Tolerance; March 4, 2005  
 CR 308737; Br Trend Code: 1TSH-DG090A Found Out of Tolerance; March 5, 2005  
 CR 319283; 2A CC Surge Tank Low Level Switch (Pump Trip) Reads High; March 31, 2005  
 CR 319432; 1CC017 Stopped Closing at About 50 percent Open - Blowing Air; March 31, 2005  
 CR 322932; 1CC9437B Exceeded Alert Stroke Time; April 9, 2005  
 CR 327139; 2CC9415 Failed to Completely close; April 21, 2005  
 CR 329241; Reactive Load Transients on 2B DG During Post Maintenance; April 27, 2005  
 CR 330665; A2R11 LL DG Frequency Change When Speed/Voltage Control Restored; May 1, 2005  
 CR 331933; Possible Inadequate Third Engagement of Intercooler CVR Bolts; May 4, 2005  
 CR 336866; Unexpected Unit 1CC Surge Tank Level changes; May 19, 2005  
 CR 344488; Improper Thread Engagement on 1DG01KB Intercooler Bolting; June 16, 2005  
 CR 344855; Breaker Humming and Needs Repair; June 16, 2005  
 CR 351534; Discrepancies Between CC Surge Tank Levels; July 9, 2005  
 CR 353439; As Found Bolting Tightness Lower than Required; July 14, 2005  
 CR 353630; WR for 2CC9415 Overhaul Actuator and Inspect Stem Nut; July 15, 2005  
 CR 354049; Work Request for Fuel Pump Metering Rod Locating Screw Inspection; July 18, 2005  
 CR 357632; Check Valve Spare Part Weights 00332691 Assignment 4; July 28, 2005  
 CR 358745; Oil Heater Running with Oil >135 Degrees; August 1, 2005  
 CR 360998; Rag Discovered in 1A DG Oil Sump; August 8, 2005  
 CR 361183; 1DG01KA-X2: Need Work Order for Divider Plate Weld Repair Next Time; August 9, 2005  
 CR 361140; B4 Trend Code: 1TSH-DG093A Found Out of Tolerance Low; August 9, 2005  
 CR 361361; 1PSH-DG-103A As Found Defective: Trend Code Be Safety Related; August 9, 2005  
 CR 361404; 1PS-DG102A As Found Out of Tolerance: Trend Code B4 Safety Related; August 9, 2005  
 CR 361509; 1A DG VAR Meter was Found Out of Tolerance and Could Not be Calibrated; August 9, 2005  
 CR 361548; 1A DG Cylinder Head Replacement Required; August 9, 2005  
 CR 361597; CAM Covers Were Found to Have Cracks at Bolt Holes; August 10, 2005  
 CR 361957; Rework - 1A DG Jacket Water Pump Leak; August 11, 2005  
 CR 362123; Piece of Intake Manifold Gasket Not Recovered; August 11, 2005  
 CR 362444; Issues Identified During RTS of 1A DG Following Maintenance; August 12, 2005  
 CR 362699; Oil Leak on 1A DG 9R Cylinder Head at Alignment Pin Hole; August 13, 2005  
 CR 369356; Surface Cracking Inside Motor Base on 1CC01PA; September 1, 2005  
 ER-AA-310; Implementation of the Maintenance Rule; Revision 4

ER-AA-310-1003; Maintenance Rule - Performance Criteria Selection; Revision 2  
 WO 338705-01; CC Surge Tanks Levels 1B:55 percent Spare Motor  
 WO 589459 01; 1PSH-DG103A DG 1A Start Sol Valve Malfunction-Left Bank Press;  
 August 8, 2005  
 WO 589460 01; 1PS-DG102A DG 1A Generator Breaker Trip Pressure Switch;  
 August 8, 2005  
 Braidwood's Archival Operations Narrative Logs; October 1, 2004 12:00:00 AM and  
 Before July 7, 2005 11:59:59 PM  
 Maintenance Rule Expert Panel Scoping Determination; DG; July 19, 2005  
 Maintenance Rule - Evaluation History; DG; July 29, 2004 to July 29, 2005  
 Maintenance Rule - Performance Criteria; DG; July 29, 2005  
 High Safety Significant Status of In-Scope Functions; DG; July 29, 2005  
 Work Package 00832615-01; Inspection of Fuel Injection Pump Metering Screws;  
 Remove the Locating Screw From Each of the 20 Injection Pumps (One-At-A-Time)  
 OE19377; Slow Diesel Start Due to Injector Pump Component Wear; October 26, 2004

Maintenance Rule Implementation (71111.12B)

Maintenance Rule - Evaluation History (User Parameters); CC System; January 1, 2004  
 thru February 9, 2005  
 Maintenance Rule Expert Panel Scoping Determination; CC System  
 Maintenance Rule - Performance Criteria; CC System  
 Maintenance Rule Periodic Assessment #4; May 2001 - October 2002; June 2003  
 Maintenance Rule Periodic Assessment #5; November 2002 - April 2004;  
 June 2005  
 List of Functional Failures for Assessment Period; July 2005  
 Maintenance Rule In-Scope Systems (a)(1)/(a)(2); July 2005  
 Performance Criteria Changes During the Assessment Period; July 2005  
 (a)(1) Disposition Checklist and Action Plan Documentation AP5; 480 Vac ESF Motor  
 Control Center Loads; June 2004  
 (a)(1) Disposition Checklist and Action Plan Documentation CC1; Component Water to  
 Components; May 2003  
 (a)(1) Disposition Checklist and Action Plan Documentation RX1; Fuel Cladding  
 Integrity, Core Flux Distribution, and Shutdown Margin; December 2004  
 (a)(1) Disposition Checklist and Action Plan Documentation AF1; Emergency Water  
 Supply to the Steam Generators; September 2003  
 Expert Panel Meeting Minutes; February 11, 2003  
 Expert Panel Meeting Minutes; June 9, 2003  
 Auxiliary Power System Health Overview Report; July 2005  
 CR 096695; 1AF01PB Failed to Start During 1BwOSR 3.7.5.3-2; February 25, 2002  
 CR 145803; 1VA06CC 1B CV Pp Cubicle Cooler Fan Blew Fuse; February 22, 2003  
 CR 166634; Elevated Unit 2 Xe-131 due to a Fuel Leak; July 8, 2003  
 ER-AA-310; Implementation of the Maintenance Rule; Revision 4  
 ER-AA-310-1001; Maintenance Rule - Scoping; Revision 2  
 ER-AA-310-1003; Maintenance Rule - Performance Criteria Selection; Revision 2  
 ER-AA-310-1005; Maintenance Rule - Dispositioning Between (a)(1) and (a)(2);  
 Revision 2  
 ER-AA-310-1007; Maintenance Rule - Periodic (a)(3) Assessment; Revision 3  
 BB PRA-017.03A; Maintenance Rule Performance Criteria - Probabilistic Risk  
 Assessment (PRA) Application Notebook; Revision 3

Braidwood's Archival Operations Narrative Logs Where Entry Contained LCOAR 3.7.7 or LCO 3.7.7 after September 1, 2003 and Before September 2, 2005; 106 Matches Found, U1-52, U2-48, U0-6

1R13 Maintenance Risk Assessments and Emergent Work Control

BwAR 1-7-B3; RCP Seal Leakoff Flow High; Revision 52  
BwAR 1-17-D13; Intake Bay Level High Low; Revision 8  
0BwOA ENV-3; Braidwood Cooling Lake Low Level Unit 0; Revision 100  
0BwOA ENV-5; Low Flow in the Kankakee River Unit 0; Revision 102  
0BwOA ENV-7; Adverse Cooling Lake Conditions Unit 0; Revision 0  
1BwOA RCP-1; Reactor Coolant Pump Seal Failure Unit 1; Revision 100  
1BwOL 3.8.1; LCOAR AC Sources - Operating TS LCO 3.8.1; Revision 9  
BwOP RH-4; Draining the RH System; Revision 18  
BwOP RH-12; Fill and Vent of the RHR Pump and Heat Exchanger After Pump Maintenance; Revision 13  
EN-BR-402-0005; Extreme Heat Implementation Plan; Revision 0  
CR 286997; Unit 1 RCP Vibration Readings Trending Up; January 2, 2005  
CR 351928; Inconsistent Interpretation of IR Level 3 Criteria; July 8, 2005  
CR 355781; Safety Concern - CAF Construction; July 21, 2005  
EC 356279 000; Revise Setpoints for High Leakoff Flow Alarms on 1A RCP Number 1 and Number 2 Seal Packages; July 13, 2005  
CR 372165; 1A RCP Number 1 Seal Leak Off Increased Greater Than 6 GPM; September 10, 2005  
CR 378880; 1B RH Pipe Flush Planned Work Duration Longer Than Planned; September 27, 2005  
CR 379998; Unplanned Electronic Dosimeter dose Rate alarm; September 28, 2005  
OP-AA-106-101-1006; Plant Issue Resolution Documentation Form RCS, Reactor Coolant Pump Seal; August 24, 2005  
Electric Power Research Institute 1007551; RCP Seal high Leakoff Mitigation; November 2002  
OP-AA-108-111; Adverse Condition Monitoring and Contingency Plan; July 19, 2005  
OP-AA-108-111; Adverse Condition Monitoring and Contingency Plan Elevated Seal Leakoff on Braidwood 1A RCP (Revision 3); Revision 2  
SA-AA-129; Electrical Safety; Revision 2  
Braidwood Operating Department Memorandum 3-04; Physical Posting of Protected Equipment; Revision 1; June 9, 2004  
Unit 0, 1 Risk Assessment; For 1SX01PA and 1CC01PA Unavailable; August 30, 2005  
Monster Lake Pumping Project Plan; July 1, 2005  
Westinghouse Technical Bulletin ESBUTB-93-01-R1; Revised Procedures for RCP Shutdown with No. 1 Seal Leakage Outside Operating Limits; October 10, 1995

1R14 Operator Performance During Non-Routine Evolutions and Events

2BwOA TG-2; TGTMS Trouble Unit 2; Revision 103  
BwOP WS-8; Operation of the Non-Essential Service Water System TCV's and Bypasses; Revision 0



BwOSR 3.3.2.8-640B; U2 ESFAS Instrumentation Slave Relay Surveillance (B Train Turbine Trip - K640); Revision 2  
 1BwOS TS-M1; Unit One Turbine Oil Trips Surveillance; Revision 20  
 CR 355148; Failure of TCV Required Entry into 2BwOA TG-2; July 20, 2005  
 CR 355192; No Change in U1 Exciter Temp When fully Opening Bypass Valve; July 20, 2005  
 Drawing 152, Sheet 2A; Manufacturers Supplemental Diagram Turbine Generator Lube System Revision December 16, 1991  
 IR 360436; Prompt Investigation Turbine Thrust Bearing Wear Alarm Won't Reset - 1BwOS TS-M1; August 5, 2005  
 Troubleshooting Plan to Depressurize Thrust Bearing Overpressure Trip Condition on Unit 1; August 5, 2005  
 OP-AA-108-111; Adverse Condition Monitoring and Contingency Plan; Revision 1; August 5, 2005

1R15 Operability Evaluations

BwAR 2-20-E9; DG Fuel Oil STO Tank Level HI Low; Revision 6E1  
 1BwEP-0; Reactor Trip or Safety Injection Unit 1; Revision 103 WOG 1C  
 1BwEP-1; Loss of Reactor or Secondary Coolant Unit 1; Revision 107  
 1BwEP ES-1.3; Transfer to Cold Leg Recirculation Unit 1; Revision 103  
 BwOP AF-7; Auxiliary Feedwater Diesel Driven Pump Jacket Water; Revision 26  
 BwOP DO-9; Filling A Unit 2 DG Storage Tank from the 50,000 or 125,000 Gallon Fuel Oil Storage Tank; Revision 13  
 CR 154802; Ambient Temperature, Fluid Leakage Exists at Piston Seal on SG Snubber 1RC01BB-B, has Existed on This Snubber Since A1R07; April 19, 2003  
 CR 191087; Auxiliary Power System  
 CR 214706; Byron CR 213628 for AF Jacket Water Venting; April. 13, 2004m  
 Experience Repetitive MRFFs; MR (a)(1) Evaluation; December 16, 2003  
 CR 261013; SG Snubber 1RC01BB-B (Functional Test Results); October 6 2004  
 CR 261984; MCCB for 1SI8801A Did Not Pass Instantaneous Trip Test; October 9, 2004  
 CR 294656; Scaffolds Installed > 90 Days; January 26, 2005  
 CR 332895; 2B AF Pump Has Jacket Water Leak; May 7, 2005  
 CR 334227; 2B AF Pump Has a Jacket Water Leak; May 11, 2005  
 CR 344346; NOS Identified: Quarterly Testing of Grout Not Performed; June 15, 2005  
 CR 345122; Twenty Scaffolds In Place for More Than 90 Days, No Schedule Date for Removal; June 17, 2005  
 CR 353629; Need Work Request to Overhaul Actuator for 2SI8923B; July 15, 2005  
 CR 353630; Work Request for 2CC9415 Overhaul Actuator and Inspect Stem Nut; July 15, 2005  
 CR 353633; Need Work Request to Swap Actuator with Rebuilt Spare for 2CW001A; July 15, 2005  
 CR 353635; Need Work Request to Swap-Out Actuator with Re-Built Spare in A2R12; July 15, 2005  
 CR 354519; NOS Identified a Missed Opportunity; July 19, 2005  
 CR 357162; 125K/50K DO Tanks Empty with DG Run in Progress; July 27, 2005  
 CR 364936; Check Valve Orientation Not Per Vendor Recommendation; August 19, 2005  
 CR 365953; System Frequency "Alarm" Relay Failed Calibration; August 23, 2005

CR 367965; Question About LCO During DG Testing; August 29, 2005  
 CR 370049; Scaffolding Resting Against Instrument Air Line; September 4, 2005  
 CR 373223; Snubber 1RC01BB-B Leakage A1F34 at Ambient Temperature;  
 September 13, 2005  
 CR 374071; Step Chg 1RC01BB-B Piston Seal Leakage During Plant Heat Up;  
 September 16, 2006  
 CR 378101; OPEX Review -Wolf Creek Commenced S/D Due to RH Inoperability;  
 September 21, 2005  
 LS-AA-125-1003; Apparent Cause, 125K/50K DO Tanks Empty With DG Run in  
 Progress; Revision 6  
 PIF A1998-03642; Seals on SG Snubber 1RC01BB-B are Suspect; October 8, 1998  
 PIF A1998-03820; Snubber 1RC01BB-B, (S.N. 14) Seal Leakage After Installation;  
 October 19, 1998  
 MA-AA-716-025; Scaffold Installation, Modification, and Removal Request Process;  
 Revision 2a  
 NES-MS-04.1; Seismic Prequalified Scaffolds; Revision 5  
 NSWP-S-02; Non-Shrink Grout Installation and Inspection; Revision 4  
 Wolf Creek Event Number 42004; TS Required Shutdown Commenced Due to  
 Inoperability of RH Removal Containment Sump Isolation Valves; September 20, 2005

#### 1R19 Post-Maintenance Testing

BwHS 4002-134; Quarter Turn Motor Operated Valve Diagnostic Test (Butterfly Valves);  
 Revision 3E1  
 BwLP 2400-232; Calibration of Solon Model 7PS/P1A, 7PS/7P2A Differential Pressure  
 Switches; Revision 2  
 BwOP DG-11; DG Startup; Revision 30  
 BwOP VD-5; DG Room Ventilation System Operation; Revision 9  
 1BwOS DG-1A; Starting System Lockout Test for 1A DG; Revision 0  
 1BwOS DG-2A; 1A DG Overspeed Trip Test; Revision 0  
 2BwOSR 3.5.2.2-1; Unit Two ECCS Venting and Valve Alignment Status Surveillance;  
 Revision 3  
 2BwOSR 3.5.2.2-2; Unit Two ECCS Venting and Valve Alignment Surveillance;  
 Revision 10  
 0BwOSR 3.7.8.3-1; Essential Service Water Valve Stroke and Indication Quarterly  
 Surveillance; Revision 1  
 1BwOSR 3.8.1.2-1; Revision 15  
 1BwVSR 5.5.8.CC.1; ASME Surveillance Requirements for Component Cooling Pump  
 1CC01PA and Discharge Check Valves; Revision 2  
 1BwVSR 5.5.8.SX.2; ASME Surveillance Requirements for 1B Essential Service Water  
 Pump; Revision 4  
 CR 362705; 1A DG Tripped During Overspeed Test; August 13, 2005  
 DG 1A Fase Start Post Maintenance Testing; August 12, 2005  
 Drawing —98; Diagram of DG Room 2A and 2B Ventilation System Unit 2  
 MA-AA-723-300; Diagnostic Test Data Wheel Valve Number 2SX005, WO 67F014-01;  
 Revision 2  
 MA-AA-IM-2-00201; Calibration of Pressure/Differential Pressure Switch or Indicating  
 Switch; Revision 3  
 WO 338705 05; 1CC01PA Refurbishment PMT Vibration Check; September 2, 2005  
 WO 583589 01; 2PDS-VD073 GSIN; DG Vent Fan 2VD02CD D/P SW

WO 668344 01; 1A DG Overspeed Trip Test; August 13, 2005  
WO 726298 01; Starting System Lockout Test for 1A DG; August 12, 2005  
WO 810744 01; ASME Surveillance Requirements for 2A Essential Service Water;  
August 3, 2005  
WO 819387 01; ASME Surveillance for 1B Essential Service Water Pump;  
August 23, 2005

1R20 Refueling and Other Outage Activities

BwCB-1; RCS Cooldown Limitations; Figure 28  
1BwGP 100-4; Power Descension; Revision 23  
1BwGP 100-5; Plant shutdown and cooldown; Revision 30  
CR 372378; 1A Seal Injection Filter Would Not Isolate; September 12, 2005  
CR 372704; Minor Seal Leak from 1RH01PB; September 12, 2004  
CR 372741; Boric Acid Leakage Valve 1RC8037D; September 8, 2005  
CR 372750; Boric Acid Leakage Valve 1PS9365B, September 12, 2005  
CR 372759; Boric Acid Leakage, Valve 1RC8037A; September 12, 2005  
CR 372805; Boric Acid Leakage Must Be Repaired; September 12, 2005  
CR 373033; Chemical Degas Took Longer Than Scheduled with 3 Chemical Adds;  
September 13, 2005  
CR 373042; U1 N31 Detector Characteristic Test Results; September 13, 2005  
CR 373194; A1F34 LL - Reactor Head Vent Hose Installation Not Scheduled;  
September 13, 2005  
CR 373242; Rational for Decision to Not Drain 1B, 1C and 1D RC Loops;  
September 13, 2005  
CR 373264; 345KV Line 0103 Tripped and Re-Closed; September 14, 2005  
CR 373288; Erratic Flow During U1 VCT Auto M/U; September 14, 2005  
CR 373590; Failed Body to Bonnet Seal Weld on Check Valve 1CV8393B;  
September 12, 2005  
CR 373596; 1CV8355A Unexpected Position Upon RTS; September 14, 2005  
CR 373652; TS LCO Entry for RCS Leak Rate; September 12, 2005  
CR 373659; Evaluation of Target Components Affected by 1CV8393B Leakage;  
September 14, 2005  
OP-AA-106-101-1006; Issue Resolution Documentation Form; BwOP RC-19 Vacuum  
Filling an Isolated Reactor Coolant Loop; September 14, 2005  
Restart PORC for A1F34; September 15, 2005  
Memo From Tim Johnson; Disposition of Deferral of Repair of Components Exhibiting  
Boric Acid Leakage (Leakage Indications Identified During A1F34 Exams);  
September 15, 2005

1R22 Surveillance Testing

1BwOSR 3.3.1.4-2; Unit One SSPS, Reactor Trip Breaker and Bi-Monthly Surveillance  
(Train B); Revision 19  
1BwOSR 3.6.3.5.FW-3; Low Flow Feedwater Isolation Valve 1FW039 Valve Stroke  
Surveillance; Revision 3  
CR 359689; Missed TS Surveillance; August 3, 2005  
CR 367161; SSPS Test Switch Logic C Not Made Up First Time; August 26, 2005  
CR 367196; TD-1 Reset Time was Above 65 Seconds; August 26, 2005  
CR 369209; Request contingency Work Package for 1FW039A Valve Stroke;  
September 1, 2005

CR 369219; Request Contingency Work Package for 1FW039B Valve Stroke; September 1, 2005  
CR 369223; Request Contingency Work Package for 1FW039C Valve Stroke; September 1, 2005  
CR 369233; Request Contingency Work Package for 1FW039D Valve Stroke; September 1, 2005  
CR 370649; 1FW039A Failed 1BwOSR 3.6.3.5.FW-3; September 6, 2005  
Nuclear Event Report BW-04-119-S1-Y Supplement 1 Yellow; HI-2 Isolation of FW Heaters Due to Magnetrol Level Switch; November 18 2004  
WO 811195 01; U1 Train B Relay Surveillance 3.3.2.7-608B; July 19, 2005  
Work Package 744367-01; 2LSL-HD174 LPH 24A Level GSIN; Functional & Wiring Inspection/Repair; September 22, 2005

1R23 Temporary Plant Modifications

CC-AA-403; Maintenance Specification: Selection and Control of Freeze Seal Location; Revision 3  
CC-AA-404; Maintenance Specification: Application Selection, Evaluation and Control of Temporary Leak Repairs; Revision 7  
CC-AA-404 Attachment 1; Temporary Leak Repair Permit; Revision 7  
CR 354446; 27B ELCV Needs to be Isolated from Service and Repaired; July 19, 2005  
MA-MW-736-610; Application of Freeze Seal to All Piping; Revision 1  
Drawing M42; Sheet 1B; Revision BB  
Drawing M42; Sheet 2B; Revision AV  
EC 355791 000; Need to Replace Valve 2SX2180A, Need to Install Freeze Seal to Allow Replacing this Valve. Please Evaluate for Any Seismic/Engineering Concerns. Per OPS to Freeze Line 2SXA8AA-3/4 inch; July 15, 2005

1EP2 Alert and Notification System Testing

Braidwood Daily Siren Reports; January 2, 2004 through July 29, 2005  
Braidwood Monthly Siren Availability Reports; October 2004 through June 2005

1EP3 Emergency Response Organization (ERO) Augmentation Testing

EP-AA-1000, Part II, Sections B and H; Planning Standards and Criteria; Revision 16  
EP-AA-1001; Drill and Exercise Scheduling, Development and Conduct; Revision 5  
EP-AA-1102; ERO Fundamentals; Revision 1  
EP-AA-112-100-F-06; Mid West ERO Notification or Augmentation; Revision D  
TQ-AA-113, Attachment 3; Station ERO Position Qualification Requirements; Revision 4  
Braidwood Station ERO Roster; August 5, 2005  
ERO Augmentation Drill Reports; May 29, 2003 through June 13, 2005  
AR00313977; EP Augmentation Drill Issues; March 17, 2005  
AR00275849; EP Augmentation Drill Issues; November 22, 2004

1EP5 Correction of Emergency Preparedness Weaknesses and Deficiencies

EP-AA-111; Emergency Classification and Protective Action Recommendations;  
 December 22, 2004  
 EP-AA-111-F-02; Braidwood Plant Based Protective Action Recommendation Flowchart;  
 Revision B  
 EP-AA-120, Attachment 5; Event Review Checklist; April 4, 2005  
 EP-MW-114-100-F-01; Nuclear Accident Reporting System Form; March 28, 2005  
 NOSA-BRW-05-04; Nuclear Oversight Audit of Emergency Preparedness; April 19, 2005  
 NOSA-BRW-04-03; Nuclear Oversight Audit of Emergency Preparedness; April 29, 2004  
 NOSA-BRW-03-04; Nuclear Oversight Audit of Emergency Preparedness; June 6, 2003  
 Root Cause Investigation Report; Emergency Plan Radiation Protection On-Shift  
 Requirement Not Met Due To Lapsed Radiation Protection Qualifications Of Chemistry  
 Technicians; December 3, 2004  
 Focus Area Self-Assessment Report 287265; EP 10CFR50.54(t) NOS Audit  
 Preparations Fleet Focus Area Self-Assessment; conducted February 17 through  
 March 17, 2005  
 Focus Area Self-Assessment Report 196670; Focus Area Self-Assessment of the  
 Emergency Planning Training Program; conducted February 6 through March 26, 2004  
 Memorandum from S. McCain; Braidwood Station March 28, 2005 Unusual Event  
 Report; April 26, 2005  
 Memorandum from S. McCain; Braidwood 2004 NRC Exercise Findings and  
 Observations Report; December 8, 2004  
 Braidwood Operation Narrative Log; March 28, 2005  
 Assessment AT#287273; Braidwood Station Assessment For the 2005 NRC Routine  
 Baseline Program Inspection; conducted June 28 through July 7, 2005  
 AR 355199; Loss of Greater Than 25 Percent of Emergency Sirens For Greater Than  
 1 Hour; July 20, 2005  
 AR 324543; NOS Identified ERO Qualifications Not Consistently Entered in PQD;  
 April 14, 2005  
 AR 313088; P2I-1 Off-Site Agency Interface Objective Evidence For NOSA-NCS-05-04  
 Emergency Preparedness Audit; May 6, 2005  
 AR 272921; Blackout Table Top Review Items; November 12, 2004  
 AR 259190; ERO Performance Deficiencies From September 15, 2004 Pre-Exercise;  
 October 1, 2004  
 AR 258767; Chemistry Technician B RPT Qualifications Lapsed - ERO On-Shift RPT  
 Requirement; September 30, 2004  
 AR 256735; EP On-Shift Staffing - Chemistry Technician Qualifications;  
 September 24, 2004  
 AR 241558; Reportable Event - Loss of Off-Site Siren Capability; August 4, 2004  
 AR 216416; NOS Identified EP Drill Elements Were Not Documented as Complete;  
 April 22, 2004  
 AR 157785; P2I-1 Off-Site Agency Interface Document Objective Evidence;  
 July 31, 2003  
 AR 152389; ERO Performance Issues Related to a Lack of Proficiency; April 4, 2003  
 CR 318027; Prompt Investigation For Unit 2 Reactor Trip; March 28, 2005

#### 2OS1 Access Control to Radiologically Significant Areas

RP-BR-460-1002; HRA Posting and Boundary Check and Key Inventory; Revision 0  
 AR00352005; MMD Supervisor Entered U1 CWA Without High Rad Brief; dated  
 July 12, 2005

Prompt Investigation Report 00352005  
Apparent Cause Evaluation; Failure To Follow Radiological Postings; dated  
August 16, 2005  
Braidwood TSs, Section 5.7; High Radiation Area

2OS3 Radiation Monitoring Instrumentation and Protective Equipment

ABACOS-Plus Whole Body Counter Calibration; dated October 4, 2004  
AR00364864; FASA Instrumentation Deficiencies; dated August 19, 2005  
AR00332427; Monitor Giving Spurious Trips and High Pressure Alarms; dated  
May 5, 2005  
AR00336292; Area Radiation Monitor Reading Low; dated September 11, 2004  
NUPIC Audit; Exelon Powerlabs; dated September 3, 2004

4OA1 Performance Indicator Verification

EP-AA-125-1002, Attachment 1; Drill and Exercise Performance Summary;  
August 8, 2005  
EP-MW-114-100-F-01; Nuclear Accident Reporting System Form; August 8, 2005  
LS-AA-2110; Monthly Data Elements for NRC ERO Drill Participation; Revision 6  
LS-AA-2130; Monthly Data Elements for NRC Alert and Notification System Reliability;  
October 2004 through June 2005  
Braidwood Monthly Siren Availability Reports; October 2004 through June 2005  
Monthly Records for NRC ERO Drill Participation; October 2004 through June 2005

4OA2 Identification and Resolution of Problems

CR 272746; 2HD005D NLCV Not Controlling 2<sup>nd</sup> Stage RDT Level; November 12, 2004  
CR 274721; HI-2 Isolation of 15-17 Heaters Causing OPDT Runback;  
November 18, 2004  
CR 275463; 1C Flash Tank HI and HI-2 Alarms; November 20, 2004  
CR 275466; 1C Flash Tank HI-2 Level Signal Failed to Seal In; November 20, 2004  
CR 282163; #3 FW HTR Emergency Drain Valves (1/2HD051A-C) Undersized;  
December 13, 2004  
CR 306987; Possible Trend in HD System Issues; March 1, 2005  
CR 307610; Potential Trend for Number of Leak IRS on the HD System; March 2, 2005  
CR 307611; Potential Trend for Number of Controller IRS in HD System; March 2, 2005  
CR 308084; Bumping of HI-2 Level Switch Causes Heater Isolation; March 3, 2005  
CR 321000; Apparent Cause Evaluation, HI and HI-2 Level in the 27A Heater;  
April 4, 2005  
CR 321026; Received HI-2 Alarms for 2A/C 2<sup>nd</sup> ST RHDT's; April 5, 2005  
CR 323272; HI-2 Alarm for 2A 2<sup>nd</sup> Stage RHDT During 27A HTR Isolation;  
April, 11, 2005  
CR 331404; Apparent Cause Evaluation U2 Motor Driven FW Pump Regulating Valve  
Stuck at 30 percent Open; May 3, 2005  
CR 332869; Anomalies with 2C FW Pump Lube Oil System During Startup; May 7, 2005  
CR 333931; During DC/CB Swap FWRV Oscillations Occurred; May 11, 2005  
CR 335280; 2A FW Pump Oil Filter HI DP Causing Low Oil Pressure Alarm;  
May 15, 2005  
CR 336215; 2HD035B Open When Demanded Closed; May 18, 2005  
CR 336654; Followup Investigation of U2 FWRV Transient; May 19, 2005  
CR 337459; Packing Leak; May 22, 2005

CR 337985; BwAR Setpoint Discrepancy for FW Pump Low Oil Pressure Alarm; May 24, 2005  
 CR 342082 Apparent Cause Evaluation; 2FW510 Leaking Fitting on the Outlet of the "A" Solenoid Valve; June 8, 2005  
 CR 343667; 1FW009B Pneumatic Pressure HI (2900 Psig); June 13, 2005  
 CR 344489; 12A Heater Emergency Valve Partially Opened with Normal Heater Level; June 16, 2005  
 CR 345112; Received Unexpected Annunciator 1-17-B8 Flash Tank Level HI; June 17, 2005  
 CR 345718; 2A FW Pump Exceeding Maintenance Rule Reliability Criteria; June 20, 2005  
 CR 346604; ES Low Point Drain Level HI Alarm Toggling Numerous Times; June 22, 2005  
 CR 346779; 16B Heater HI Level Alarm Received; June 23, 2005  
 CR 347672; U2 HDT Level Transmitter Diaphragm Connection Small Steam Leak; June 26, 2005  
 CR 349148; 26B Heater HI Level Alarm Came in Twice in One shift; June 30, 2005  
 CR 352189; HD System Valves Creating MW Losses Affect Performance Indicator; July 12, 2005  
 CR 354014; Cannot Place 1FW034B Controller in Manual; July 18, 2005  
 CR 354446; 27B ELECV Needs to be Isolated from Service and Repaired; July 19, 2005  
 CR 354960; CC-AA-404 Repair Not Approved for 2LT-HD009; July 20, 2005  
 CR 355085; 1C CD Pump Lube Oil System Pump Seal Leaking; July 20, 2005  
 CR 355106; Oil Leak at 1C CB Pump Lube Oil Reservoir; July 20, 2005  
 CR 355091; 1C DC Pump Oil Line Leaking at Pipe Fitting; July 20, 2005  
 CR 355110; Oil Leak at 1C CB Pump Lube Oil Pipe Connection; July 20, 2005  
 CR 355588; Vibrations on the 1B FW Oil Pump in Alert; July 21, 2005  
 CR 356642; 1HD150A Has Steam Leak; July 26, 2005  
 CR 357042; Temperature Driven HD system Valve Oscillations; July 27, 2005  
 CR 357375; 2HD011 (26B FW Heater NLCV) Air cylinder Has Internal Leakby; July 27, 2005  
 CR 355966; Extent of condition - Issue 355583 applies to U2 As Well; July 22, 2005  
 CR 358310; Nitrogen Leak at Fitting Where Male End Threads Into Switch; July 30, 2005  
 CR 358616; Leak at Flange Below Seal on 2HD01PC; August 1, 2005  
 CR 359271; 1D CD Pump Lube Oil Pressure Indicator Leaking; August 2, 2005  
 CR 359275; 1D CB Pump Lube Oil Pressure Indicator Leaking; August 2, 2005  
 CR 359277; 1D CD Pump Gear Set Oil Leak at Horizontal Joint; August 2, 2005  
 CR 360050; 2FW016 Functional Failure in November 2003; August 4, 2005  
 CR 361886; 1B FW Pump Oil Reservoir HI Level Alarm; August 10, 2005  
 CR 362712; Pipe Leak at Threads Upstream of 2CB063B; August 13, 2005  
 CR 364062; 2LC-HD142 - 26B Normal Level Controller Not Responding; August 17, 2005  
 CR 364440; 2A MSR Thermal Performance Problem; August 18, 2005  
 CR 364687; 1B FW Pump Seal Water controller Output Fluctuating; August 19, 2005  
 CR 364877; Fisher Wizard Vibration Problem; August 19, 2005  
 CR 365551; 2B FW Pump Lube Oil Level Dropped 1.5" When Drained, Refilled; August 22, 2005  
 CR 368357; Particles Bypassed 12A Heater Elec'ER IA Reg Filter; August 30, 2005

CR 368832; 26B NCLV Did Not function Due to Bent Displacer Arm; August 30, 2005  
 CR 370917; 2FW510 - Thru Wall Leak on ½" IA Supply Line; September 9, 2005  
 CR 370953; 2FW520 - Fretting on IA Fitting From Valve Tag; September 7, 2005  
 CR 371130; 2FI-532, 2C S/G Steam Flow Spike; September 8, 2005  
 Analysis of Heater Drain System Impact on MWe Production and Reactivity Events;  
 2003 to Present (ATI 308084-05)  
 Common Cause Analysis AIT 307610-02; Leaks on the HD System; July 15, 2005  
 FW-6, FW Heater Lineup; August 12, 2005; Revision 0  
 OP-AA-106-101-1006; 2LT-HD009 HD Tank Level Transmitter Heater Upper Tap  
 Capillary Tube Flanged connection; July 6, 2005; Revision 1  
 OP-AA-106-101-1006 Attachment A; Issue Resolution Documentation HD System 26B  
 Normal Level Control Loop 2HD11B/2LC0HD142; Revision 1  
 Plant Health Committee Meeting; HD Issues; August 1, 2005  
 Plant Health Committee Meeting; FW Heater Low Level Alarm Project Tolerance  
 Change and Instrumentation of HD005 Valve Loops; August 22, 2005  
 Plant Health Committee Material Condition Improvement Plan; Outside air Temperature  
 Effects on the HD Level Controllers

#### 4OA3 Event Followup

CR 288667; Repeat Failures for U1 and U2 Deluge Isolation Valves; January 7, 2005  
 CR 298432; Work Request for U2 Foam System Visual Inspection of Piping; February 7, 2005  
 CR 347011; U1 DOST Foam System Piping Plugged with Foam Concentrate;  
 June 23, 2000  
 CR 352731; Extent of Condition Based on U1 Clogged Trip Piping; July 13, 2000  
 Statement of Confirmation 340542; Potential Violation of TS3.9.4 During Past Refuel  
 Outages; June 2, 2005  
 Exelon Letter BW050058 to NRC; Submittal of LER 2005-001-00, "Potential TS 3.9.4  
 Violation Due to Imprecise Original TS and TS Bases Wording," July 5, 2005

#### NRC Identified

CR 282949; NRC Question on Potential Trends at the Station; December 15, 2004  
 [Event Followup]  
 CR 350973; Potential NRC Violation - Inoperability of DOST Foam System;  
 July 11, 2000 [Event Followup]  
 CR 352165; NRC Identifies Need to Improve Use of GFCI's; July 12, 2005 [Fire  
 Protection]  
 CR 352191; NRC Concern-Poor Control of Temporary Power and Cords; July 12, 2005  
 [Fire Protection]  
 CR 358775; NRC Identified Reduced Clearances at Scaffold for 2B CS Pump;  
 August 1, 2005 [Operability Evaluations]  
 CR 367237; NRC Issue with Radiation Monitor Differences Between Braidwood and  
 Byron; August 25, 2005 [Occupational Radiation Safety]  
 CR 367908; NRC Question About Unauthorized OP Aid; August 29, 2005 [Surveillance  
 Testing]  
 CR 376034; Insulation Damaged by Pipe Vibration; September 21, 2005 [Identification  
 and Resolution of Problems]  
 CR 358775; NRC Identified Reduced clearances at Scaffold for 2B CS Pump;  
 August 1, 2005 [Identification and Resolution of Problems]



CR 369340; Potential FME Issues 1B RHR Pump (Coating on Room Ceiling);  
September 1, 2005  
CR 371248; NRC Questions on Previous Actions with CW Blowdown Vacuum Breakers;  
September 8, 2005 [Maintenance Risk Assessments and Emergent Work control]  
CR 379165; NRC Questions on OPEX Item from Wolf Creek; September 28, 2005  
[Operability Evaluations]

## LIST OF ACRONYMS USED

ADAMS	Agencywide Documents Access and Management System
AF	Auxiliary Feedwater
ASME	American Society of Mechanical Engineers
BwAR	Braidwood Annunciator Response Procedure
BwMP	Braidwood Maintenance Procedure
BwOA	Braidwood Abnormal Operations Procedure
BwOP	Braidwood Operating Procedure
BwOS	Braidwood Operations Surveillance Procedure
BwOSR	Braidwood Operating Surveillance Requirement Procedure
BwVSR	Braidwood Engineering Surveillance Requirement Procedure
CC	Component Cooling
CFR	Code of Federal Regulations
CR	Condition Report
DOST	Diesel-Generator Oil Storage Tank
EP	Emergency Preparedness
ERO	Emergency Response Organization
ESF	Engineered Safety Feature
HRA	High Radiation Area
LER	Licensee Event Report
LORT	Licensed Operator Requalification Training
NCV	Non-Cited Violation
NRC	Nuclear Regulatory Commission
PARS	Publicly Available Records
PRA	Probable Risk Assessment
RWP	Radiation Work Permit
SDP	Significance Determination Process
SG	Steam Generator
SSC	Structures, Systems, and Components
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report
URI	Unresolved Item
WO	Work Order