

April 27, 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 05000456/2005002;  
05000457/2005002

Dear Mr. Crane:

On March 31, 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 April 7, 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 was identified. This finding was determined not to involve a violation of NRC requirements.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be made available electronically for public inspection in the NRC

C. Crane

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Sincerely,

**/RA/**

Dave Passehl, Acting Chief  
Branch 3  
Division of Reactor Projects

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

Enclosure: Inspection Report 05000456/2005002; 05000457/2005002  
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: 05000456/2005002; 05000457/2005002

Licensee: Exelon Generation Company, LLC

Facility: Braidwood Station, Units 1 and 2

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

Dates: January 1 through March 31, 2005

Inspectors: S. Ray, Senior Resident Inspector  
N. Shah, Acting Senior Resident Inspector  
L. Haeg, Acting Resident Inspector  
C. Acosta Acevedo, Reactor Engineer  
D. Chyu, Reactor Inspector  
P. Loughheed, Senior Reactor Inspector  
T. Tongue, Project Engineer  
J. Roman, Illinois Emergency Management Agency

Approved by: D. Passehl, Acting Chief  
Branch 3  
Division of Reactor Projects

Enclosure

## SUMMARY OF FINDINGS

IR 05000456/2005002, 05000457/2005002; 01/01/2005 - 03/31/2005; Braidwood Station, Units 1 & 2; Fire Protection.

This report covers a 3-month period of baseline resident inspection and an announced baseline inspection on heat sink performance. The inspection was conducted by resident inspectors and a regional engineering specialist. One Green finding was identified. This finding was determined not to involve a violation of NRC requirements. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). 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: Initiating Events**

- Green. A finding of very low safety significance was identified after the inspectors observed numerous fire hazards (i.e., poor control of combustible material and temporary power sources) during a walkdown of several non-safety related, abandoned buildings located inside the Protected Area. These conditions increased the potential for a loss of offsite power from an external fire, due to the proximity of the buildings to overhead 345 kV transmission lines and the Unit 2 safety related system auxiliary transformers. The primary cause of this finding was related to the cross cutting area of Human Performance (organization), because of the failure of licensee staff to follow station procedures for proper storage of transient combustible materials and use of temporary power sources.

This finding was considered more than minor, because of the potential for a loss of offsite power due to an external fire. This issue also 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 in order to prevent core damage. The finding was of very low safety significance because there was a reasonable potential for the licensee to identify and respond to a fire; additionally, if offsite power were lost, both Unit 2 emergency diesel generators were available and licensee control room staff were routinely trained in existing station procedures for addressing this event. No violation of NRC requirements occurred. (Section 1R05)

### **B. Licensee-Identified Violations**

No findings of significance were identified.

## REPORT DETAILS

### Summary of Plant Status

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

Unit 2 operated at or near full power for the entire inspection period, except for a unit trip occurring on March 28, 2005. The trip was caused by a main generator trip-turbine trip due to the failure of a main generator output "C" phase bushing. An Unusual Event was declared at 1:59 p.m. on March 28, 2005 when a generator hydrogen leak was apparent. After isolation, the licensee terminated the Unusual Event at 4:23 p.m. on March 28, 2005. At the end of the inspection period, Unit 2 was in the process of ramping to full power following the March 28, 2005 trip.

### **1. REACTOR SAFETY**

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

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

##### a. Inspection Scope

The inspectors verified that the licensee had taken the appropriate actions for a predicted winter storm, including the potential for icing and severe cold temperatures. Specifically, the inspectors verified that the licensee had reviewed the impact of the weather against planned work activities, performed walkdowns of areas particularly susceptible to cold weather conditions and discussed weather related issues during the Operations Shift Turnover briefing and station Plan of the Day meetings.

The inspectors also reviewed the licensee's specific actions to address apparent, recurring issues with switchyard breaker and control panel heaters. Specifically, the inspectors determined the low temperature limitations for the switchyard breaker and control panel instrumentation and confirmed these heater issues were being appropriately addressed. The inspectors also reviewed the licensee's performance of weekly surveillance 0BwOS SY-W1, "Unit Common Switchyard Surveillance," Revision 18, to determine whether other issues pertaining to cold weather concerns were being identified and tracked via the corrective actions program. This review constituted one sample of this inspection requirement.

Documents reviewed as part of this inspection are listed in the Attachment.

##### 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 lined up as needed. The inspectors also examined the material condition of the components and observed operating parameters of equipment in an attempt to identify deficiencies. The inspectors reviewed outstanding Work Orders (WOs) and 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 Technical Specification (TS) and the Updated Final Safety Analysis Report (UFSAR) to determine the functional requirements of the system. The inspectors also reviewed the licensee's identification of and the controls over the redundant risk-related equipment required to remain in service. In addition, the inspectors reviewed the adequacy of identification and resolution of the conditions listed in the Attachment.

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

- 1B safety injection system with the 1A safety injection train out of service for planned work;
- 2A essential service water (SX) system with the 2A SX train out of service for planned work; and
- Unit 2 electrical systems and protected equipment with Bus 9 and Line 0103 out-of-service for planned maintenance.

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 main feedwater system. This system was selected because it is considered risk-significant from an initiating event standpoint. The system was also undergoing planned configuration changes to support planned maintenance and there was a potential for system mis-alignment.

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

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

The inspectors also reviewed the CRs to determine whether issues were being properly addressed in the licensee's corrective actions program. 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)

.1 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. The inspectors used the Fire Protection Report, Revision 20, 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 requirements during the following walkdowns:

- Unit 1 and 2 halon protected areas;
- Unit 1 and 2 abandoned outbuildings;
- miscellaneous electrical equipment rooms, division 11 and 12;
- miscellaneous electrical equipment rooms, division 21 and 22;
- auxiliary building general area 426' elevation;
- lake screen house;
- fuel handling building;
- 2A safety injection pump room; and
- 2B safety injection pump 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

Introduction: A finding of very low safety significance (Green) was identified after the inspectors observed numerous fire hazards during a walkdown of several non-safety related, abandoned buildings located inside the Protected Area. These conditions increased the potential for a loss of offsite power from an external fire, due to the proximity of the buildings to overhead 345 kV transmission lines and the Unit 2 safety related system air transformers (SATs). Because the buildings were non-safety related, this finding was not considered a violation of regulatory requirements.

Description: On February 14, 2005, the inspectors performed a walkdown of several non-safety related, abandoned buildings located inside the Protected Area. During the walkdown, the inspectors identified numerous examples where combustible/flammable materials were stored next to potential ignition sources. Some of these examples included combustible/flammable materials stored next to exposed, energized baseboard heaters, extension cords plugged in outlets - in both dry and wet conditions - without the use of a Ground Fault Circuit Interrupter, unattended and energized portable heaters and fans, and energized electrical cables having improperly secured, exposed ends adjacent to combustible/flammable material. These conditions were in violation of station expectations regarding the storage and control of combustible materials and the use of temporary power. These expectations were stated in the "Exelon Nuclear Industrial Safety Pocket Guide" (2005 edition) and in applicable station procedures for material housekeeping and electrical control.

These buildings were located below 345 kV power lines that supplied offsite power to Unit 2. In particular, the Vahledome building was located about 50 feet below these power lines and adjacent to the Unit 2 SATs. If a fire occurred in this building, the fire and smoke could cause a phase-to-phase fault in the overhead 345 kV lines and/or the SATs, causing a loss of offsite power to Unit 2. None of these buildings had automatic fire detection or suppression systems. Because the buildings were abandoned, they were also not periodically inspected by licensee staff.

Loss of offsite power events from external fires have occurred in the industry. On January 5, 1999, during a transformer fire at the Prairie Island Nuclear Plant, oil expelled from an explosion of the Unit 1 main transformer, ignited an adjacent area located underneath 161 kV lines supplying the Unit 1 reserve transformer. The smoke and flames from the oil fire caused a phase-to-phase fault between the B and C phases of the 161 kV lines, causing a lock-out of the reserve transformer and a loss of non-essential offsite power to Unit 1. This event was documented in Licensee Event Report 05000306/1999-01-00.

The licensee documented the inspectors' observations in CRs 301231, 301264, and 301361. As discussed in these CRs, the licensee immediately removed all improperly stored flammable and combustible materials and de-energized all unnecessary plant

equipment. Additional, long term actions included performing periodic walkdowns of these buildings and evaluating them for early demolition.

Analysis: The inspectors determined that the failure to follow station procedures for the proper storage of transient combustible materials and use of temporary power sources was a performance deficiency warranting a significance evaluation in accordance with Inspection Manual Chapter (IMC) 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Disposition Screening," issued June 20, 2003. This finding was considered more than minor, because it could be reasonably viewed as a precursor to a significant event, specifically a loss of offsite power due to an external fire. This issue also 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 in order to prevent core damage. The inspectors determined that this event affected the cross-cutting area of Human Performance, because of the failure of licensee staff to follow station procedures.

The inspectors performed a significance determination of this issue, using IMC 0609, "Significance Determination Process," dated March 21, 2003, Appendix F, "Fire Determination Significance Determination Process," dated May 28, 2004.

As stated, the failure to follow station procedures for the proper storage of transient combustible materials and use of temporary power sources was a performance deficiency that was considered more than minor. This met the Phase I qualitative screening criteria as discussed in Appendix F. Per step 1.1 of this Appendix, the inspectors determined that this finding affected the category of Fire Prevention and Administrative Controls, in that, combustible material was not being properly controlled in these abandoned buildings.

Per step 1.2, of Appendix F, the inspectors determined that this finding had a Low degradation rating. Although these buildings were unoccupied and did not have automatic fire suppression or detection systems, the outside general area was well trafficked by licensee staff and a fire would likely be noticed and reported to the main control room. Given the 50 foot clearance between the 345 kV power lines and the buildings, there was time for both onsite and offsite fire response. In the event that offsite power were lost, both Unit 2 emergency diesel generators were available and licensee control room staff were routinely trained in existing station procedures for addressing this event. Therefore, per step 1.3 of Appendix F, the inspectors concluded that this finding was likely of very low safety significance (Green) (FIN 05000456/2005002-01; 05000457/2005002-01). The inspectors discussed this issue with a Region III fire protection specialist and a Senior Reactor Analyst; both individuals agreed with the inspectors' conclusions.

Enforcement: The inspectors concluded that no violation of regulatory requirements had occurred as the abandoned buildings were not considered safety-related. As stated, the licensee entered the inspectors' observations into its Corrective Action Program.

.2 Annual Fire Brigade Drill

a. Inspection Scope

The inspectors observed the licensee's response to a simulated fire inside the abandoned Vahledome Building. This building was located inside the Protected Area, but outside the auxiliary and turbine buildings. The inspectors chose this scenario because it was conducted outside of normal shift hours, the Vahledome Building was located adjacent to the Unit 2 transformer yard, a highly risk significant area, and the drill involved the simulated recovery of an injured individual. Prior to the drill, the inspectors performed a walkdown of the simulation with the Fire Marshall to identify the specific hazards and drill objectives to be addressed by the fire brigade. Because there were no fire equipment cages in the area, the inspectors also observed the licensee's controls for bringing in fire fighting equipment from the turbine building fire cages. During the drill, the inspectors observed the following specific aspects of the fire brigade response:

- the fire brigade responded in a timely manner;
- the protective equipment was in good working order and was properly donned by the fire brigade;
- fire hoses were properly laid out, charged, and tested prior to entering the fire area of concern;
- fire fighting equipment was properly staged and used;
- the fire brigade leader had appropriate command and control and had good radio communication with the responders and the control room; and
- the brigade members used appropriate search and rescue and recovery methods to remove the injured individual from the fire.

The inspectors also attended the post-drill critique to determine whether the pre-planned drill scenario was followed and whether the drill acceptance criteria was met. 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.

1R06 Flood Protection Measures (71111.06)

External Flooding Review

a. Inspection Scope

The inspectors performed an inspection of external flooding vulnerabilities and protective measures for the plant site, by performing a site walkdown and observing the condition of site flood mitigation features. The inspection consisted of a review of the external flooding design features described in the UFSAR and, in particular, whether changes to site structures were accounted for in the licensee's external flooding analysis. The inspectors also verified that the licensee was entering issues into its

corrective actions program. 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.

1R07 Heat Sink Performance (71111.07B)

Biennial Review of Heat Sink Performance

a. Inspection Scope

The inspectors reviewed the performance of the Unit 2 auxiliary feedwater (AF) system motor driven pump lube oil cooler and the diesel driven pump engine jacket water cooler and room cooler (a total of three heat exchangers). These heat exchangers were chosen for review based on their high risk assessment worth in the licensee's probabilistic safety analysis. This review resulted in the completion of three inspection samples. While on-site, the inspectors reviewed completed surveillance tests, and associated calculations. The inspectors reviewed the documentation to confirm that the test and/or inspection methodology was consistent with accepted industry and scientific practices, based on review of heat transfer texts and an Electrical Power Research Institute standard NP-7552, "Heat Exchanger Performance Monitoring Guidelines." The inspectors also reviewed documentation to verify that acceptance criteria were consistent with design basis values, as outlined in the updated final safety analysis report and TSs. The inspectors reviewed documentation to verify that the instruments were within calibration and discussed the use of the instruments with the system engineer to verify that the instruments were used correctly. The inspectors reviewed documentation to verify that the licensee took appropriate actions to verify physical integrity of the heat exchangers. The inspectors also reviewed documentation to verify that the licensee had appropriate controls in place to ensure availability of the ultimate heat sink under adverse conditions.

The inspectors reviewed corrective action documents concerning heat exchanger or heat sink performance issues to verify that the licensee had an appropriate threshold for identifying issues. The inspectors also evaluated the effectiveness of the corrective actions for identified issues, including the engineering justification for operability, if applicable.

The documents that were reviewed are included in the Attachment at the end of the report.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program (71111.11)

Quarterly Review of Testing/Training Activity

a. Inspection Scope

The inspectors observed the operating crew performance during evaluated simulator out-of-the-box scenario, "Braidwood Station Licensed Operator Requalification Simulator Scenario Guide 0511, Steam Line Break/Update Final Safety Analysis Report Timing Scenario," 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 as presented in the following Exelon procedures.

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. This review constituted one sample of this inspection requirement.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12)

Routine Inspection

a. Inspection Scope

The inspectors reviewed the licensee's overall maintenance effectiveness for risk-significant event initiating, mitigating, and barrier integrity 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 system. Specifically, the inspectors determined whether:

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

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

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

- Units 1 and 2 main feedwater;
- Units 1 and 2 circulating water; and
- Units 1 and 2 instrument air.

Each of these systems were considered risk significant in the licensee's probabilistic risk assessment model.

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 assessments 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 that the licensee encountered during the activities, listed in the Attachment, to determine whether problems were being entered into the corrective action program with the appropriate characterization and significance.

The inspectors completed six samples by reviewing the following activities:

- troubleshooting of Unit 1 rod control system;
- emergent repair of 1B and 1C heater drain flash tank level control instrumentation;
- emergent repair of 2B emergency diesel generator jacket water pump and heater;
- unplanned loss of offsite electrical power feed from Davis Creek station to the Unit 2 switchyard;
- emergent repair of Unit 1 mini-purge containment isolation valve 1VQ005B; and
- emergent failure of the 1B reactor trip breaker.

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 and subsequent troubleshooting of the 1B reactor trip breaker during routine surveillance testing;
- failure and unplanned troubleshooting of the 1B emergency diesel generator during planned maintenance on the Unit 1 and 2 electrical cross-tie breaker ACB 1424; and
- the restart of Unit 2 following the March 28, 2005, reactor trip.

For each event, as applicable, 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 determined whether 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 six samples by reviewing the following operability evaluations and conditions:

- CR 289030, "Service Water Flow to Emergency Core Cooling System Cubicle Cooler Decreased During 1BwOS CC-2," dated January 9, 2003;
- CR 291106, "2B Diesel Generator Jacket Water Pump trips," dated January 15, 2005;
- CR 291377, "Operability Concerns with a Unit Component Cooling Water Heat Exchanger Isolated," dated January 17, 2005;
- CR 304792, "Component Cooling Temperature Less than Its Required 60 degrees F," dated February 23, 2005;
- CR 289252, "Long-Standing Plant Barriers Impaired (PBIs > 1 Yr Old)," dated January 10, 2005; and
- CR 301744, "Design of Refueling Water Storage Tank Vacuum Relief System," dated February 10, 2005.

b. Findings

No findings of significance were identified.

1R16 Operator Workarounds (71111.16)

a. Inspection Scope

The inspectors conducted reviews of plant conditions and documents to determine whether there were any issues that should have been evaluated and tracked as an operator work-around. The inspectors attempted to find conditions that could increase the potential for personnel errors or that would require compensatory actions to operate equipment during transients or events. The inspectors used the guidance in station procedure OP-AA-102-103, "Operator Work-Around Program," Revision 1, to identify potential operator work-arounds.

The inspectors completed two samples by conducting the following reviews:

- manual level control of 1C heater drain flash tank; and
- recurrent issues with Unit 2 power range deviation alarms

The inspectors determined whether these issues were entered into the licensee's Corrective Actions Program and whether corrective actions were being appropriately developed. Documents reviewed as part of this inspection are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R17 Permanent Plant Modifications (71111.17)

Annual Review

The inspectors reviewed and evaluated the licensee's 10 CFR Part 50.59 screening form number BWR-S-2005-31 to change the individual Local Leakage Rate Test acceptance criterion for the Unit 1 and 2 containment mini-purge penetrations VQ003, VQ004A/B, and VQ005A/B/C. This change maintained an administrative "warning" limit that was equal to the original acceptance criteria.

The inspectors reviewed the acceptance criteria against the licensee's overall containment leakage acceptance criteria to verify that the changes did not adversely impact TS and design basis requirements. The inspectors also verified that the change did not introduce any new system vulnerabilities. In addition, the inspectors reviewed the licensee's previous Local Leakage Rate Test summation results of Type B & C tests conducted as required by 10 CFR Part 50, Appendix J. Documents reviewed as part of this inspection are listed in the Attachment. This activity constituted one inspection sample of the annual requirement.

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 was 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:

- surveillance testing of the security diesel generator;
- Unit 2 channel operational test of nuclear instrumentation system power range detector N41;
- 1A containment spray pump American Society of Mechanical Engineers (ASME) surveillance;
- 2A residual heat removal pump ASME surveillance;
- 2B SX pump ASME surveillance; and
- local leak rate testing of Unit 1 containment mini-purge isolation valve 1VQ005B.

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 was 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.

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

- 1A emergency diesel generator bypass of automatic trips;
- 2A emergency diesel generator monthly start and load;
- 1A emergency diesel generator hot restart;

- 1B AF pump monthly and ASME; and
- calibration of the main control room ventilation radiation monitors.

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications (71111.23)

a. Inspection Scope

The inspectors reviewed the following temporary modifications:

- installation of temporary level control instrumentation on the 1B and 1C heater drain flash tanks; and
- installation of freeze seal to 1A containment spray refueling water storage tanks recirculation line for check valve inspection.

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. This review constituted two samples of this inspection requirement.

Documents reviewed as part of this inspection are listed in the Attachment.

b. Findings

No findings of significance were identified.

**Cornerstone: Emergency Preparedness**

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope

**The inspectors observed licensee performance during an evaluated emergency response drill. The drill involved a simulated main steam line break without isolation. Observations included operator response from the simulator, manning of the Technical Support Center, turnover of command and control to the Technical Support Center, and event classification and notification. Protective Action Recommendations were not part of the scenario scope and accordingly were not made. The inspectors confirmed 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** crew. Documents**

reviewed as part of this inspection are listed in the Attachment. This activity constituted one inspection sample.

b. Findings

No findings of significance were identified.

**4. OTHER ACTIVITIES**

**Cornerstones: Mitigating Systems and Barrier Integrity**

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 whether they were being entered into the licensee's corrective action program at an appropriate threshold, that adequate attention was being given to timely corrective actions, and that adverse trends were identified and addressed. Minor issues entered into the licensee's corrective action program as a result of the inspectors' observations are generally denoted in the Attachment. These activities were part of normal inspection activities and were not considered separate samples.

b. Findings

No finding of significance were identified.

.2 Review of Licensee Refueling Outage Cause Evaluations (One Annual Sample)

Introduction

During the previous two outages (A1R11 and A2R10) the inspectors identified a possible adverse trend associated with fuel handling and refueling activities. Identification of a possible trend was considered following two events during the October 2004 refueling outage for Unit 1 (A1R11). During fuel moves, the licensee took actions outside of procedures to free a bound fuel assembly that resulted in damage to an adjacent assembly (as discussed in NRC Inspection Report 05000456/2004008; 05000457/2004008). During reconstitution of the damaged assembly in the spent fuel pool, a stainless steel rod unexpectedly detached from a vendor tool resulting in the rod falling and becoming lodged in a stored assembly. It was determined that this tool was not fail-safe and that air was isolated to the tool allowing the rod to become unlatched. There were no fission product releases or other adverse radiological consequences involved with these events.

The inspectors used the inspection guidance contained in Inspection Procedure 95001 as an aid to assess the adequacy of the licensee's root cause analyses for these events. In addition, the inspectors reviewed CRs (as found in the Attachment) generated during the last two outages to determine if any other adverse trends or possible precursors to the A1R11 events existed. Finally, the inspectors reviewed a common cause evaluation associated with licensee identified trending in Foreign Material Exclusion issues during refueling outages.

This inspection activity constituted one sample of this annual requirement.

a. Effectiveness of Problem Identification and Cause Evaluation

(1) Inspection Scope

The root cause reports were reviewed to ensure that the root and contributing causes of issues were understood and that the extent of condition and extent of cause for the issues were identified. The inspectors conducted interviews with licensee staff involved with the analyses and evaluated the content of the reports against the requirements of the licensee's Corrective Action Program Procedure LS-AA-125, Root Cause Analysis Manual LS-AA-125-1001, and 10 CFR 50, Appendix B.

(2) Findings and Observations

There were no significant findings identified associated with the licensee's problem identification and cause evaluations. Overall, the licensee thoroughly evaluated identification, length of existence, and risk and compliance concerns associated with the issues. For each root cause report the licensee discussed circumstances surrounding the events through a detailed executive summary. Systematic evaluation methods were discussed and each identified causal factor, error precursor and contributing cause was described. In addition, extent of condition was reviewed and an assessment of risk was performed for each event to determine risk and consequence significance.

Several previous industry events were reviewed related to the fuel bumping event, most notably a Byron Station event which occurred in September 2003, where refueling machine interlocks were bypassed resulting in the machine mast contacting the rod control cluster assembly change fixture basket. The licensee considered the corrective action implementation from this event ineffective at Braidwood and a part of the inadequate training contributing cause to the A1R11 event. The licensee identified several previous industry events similar to the fuel bumping event, but no past operating experience was identified with respect to the stainless steel rod drop event.

Finally, the licensee addressed extent of condition for these events by verifying that no concurrent conditions existed and also instituted a fleet-wide review of fuel handling and fuel assembly reconstitution. In addition, the licensee's vendor for fuel services performed an extent of condition review of their spent fuel pool tools to determine what other tools were not fail-safe.

b. Effectiveness of Corrective Actions

(1) Inspection Scope

The root cause reports were reviewed to ensure that licensee corrective actions were sufficient to address the root and contributing causes, and to prevent recurrence by performance of effectiveness reviews.

(2) Findings and Observations

There were no significant findings identified associated with the licensee's corrective actions. The inspectors determined that the licensee had either implemented final or interim corrective actions for each identified condition adverse to quality. Each corrective action affecting refueling activities at Byron were implemented before their March 2005 outage and all corrective actions were to be implemented at Braidwood before the April 2005 outage (A1R11). In addition, the inspectors verified that the licensee had a sufficient means of determining the effectiveness of the corrective actions by reviewing the Effectiveness Review Manual LS-AA-125-1004.

The inspectors questioned the fact that some spent fuel pool tools were identified by the vendor as being non-fail safe. The inspectors were concerned that even though corrective actions were taken to enhance training and procedures, the tool could still mechanically fail and that the event could reoccur. The licensee explained that as another measure, the Reactor Services program staff would require that all tools being used over irradiated fuel by vendors be of a fail-safe design.

4OA3 Event Followup (71153)

The inspectors completed three inspection samples in this area.

Licensee Event Report (LER) Review

.1 (Closed) LER 05000457/2004-002-00: Unit 2 Automatic Reactor Trip on 2C Steam Generator Lo-Lo Level Initiated by a Failure of the Controlling Channel Steam Flow Card

This event was discussed in Section 4OA3 of NRC Inspection Report 05000456/2004008; 05000457/2004008). The trip was caused by an erroneous, low steam flow signal generated by a failed circuit card. Operator actions were unable to recover the steam generator level before the reactor trip. The licensee determined that the circuit card failed from age related degradation. This event was captured in the licensee's Corrective Action Program as CR 285216.

During the investigation of this event, the licensee identified a significant difference in the response of the Unit 1 and Unit 2 feedwater control logic. Specifically, on low steam generator water level, Unit 2 had a much faster speed reduction of the feedwater pumps and the feedwater regulating valve had a much slower response to reopen. This meant that operators were less likely to recover from a low steam generator water event on Unit 2 than on Unit 1. The reason for the difference was due to changes the licensee made to the Unit 2 control settings between 1987 and 1993. Originally, the settings

were established consistent with guidance from the nuclear steam supply vendor, Westinghouse, during the Unit 2 initial startup. Subsequently, the licensee changed the controller settings based on operating experience from the initial startup of Byron Unit 2, and in 1993, in support of a Braidwood and Byron station standardization of the Instrument Test Packages. The affect of these changes on the Unit 2 operator response were not apparent until the December 2004 reactor trip.

The inspectors concluded that this event did not result from a performance deficiency and therefore was not considered a finding. The inspectors noted that the proposed corrective actions for this event were reasonable. These actions included, but were not limited to, reviewing the preventive maintenance program for the circuit cards, discussing the difference in Unit 1 and 2 feedwater control response with the operators, and evaluating the appropriateness of the Unit 2 feedwater controller settings. This LER is considered closed.

.2 (Closed) LER 05000457/2005-001-00: Incorrect Installation of Flow Element Resulted in Service Water Flow Below the TS Limit

On January 11, 2005, the licensee discovered that the 2A reactor containment fan cooler (RCFC) annubar flow instrument was installed backwards. This condition was determined to exist since original construction. This condition was identified when the instruments were being inspected and cleaned as part of a scheduled work order. With the annubar installed backwards, the licensee determined that the SX flow to the RCFC was potentially lower than the 2660 gallons per minute (gpm) required by TS 3.6.6.3. This was determined by looking at three years worth of surveillance data and adjusting the indicated (falsely high) values to correspond with bounding inaccuracies associated with the instrument installed backwards. The lowest actual SX flow was determined to be 2587 gpm (73 gpm lower than the TS limit).

The inspectors determined that the reduction in SX flow reduced the heat removal capacity of the 2A RCFC by only a small fraction. This reduction in thermal performance was well within the design basis heat removal requirements as stated in the UFSAR. As a corrective action, all other RCFCs at Braidwood Unit 1 and Unit 2 were inspected and no discrepancies were found.

The inspectors concluded that this issue was a performance deficiency, as the annubars have a stamped, exterior arrow indicating the proper direction of flow. Therefore, the licensee could have reasonably observed the improper alignment following initial installation and during subsequent, routine walkdowns and surveillance testing. Because the thermal performance of the 2A RCFC was not significantly affected, the inspectors answered "No" to all four minor questions addressed in IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Disposition Screening," issued June 20, 2003. However, because the TS required minimum flow rate was not met, this event is considered a violation of minor significance that is not subject to enforcement action in accordance with Section VI of the NRC's Enforcement Policy. The licensee documented the issues and corrective actions associated with this event in CR 290026. This LER is considered closed.

.3 Unit 2 Reactor Trip and Notice of Unusual Event

On March 28, 2005, Unit 2 tripped from 100% power due to a main turbine generator protective relay actuation. The actuation was due to a main generator neutral ground experienced when the generator "C" phase stator output bushing failed. The reactor trip was uncomplicated and all systems responded as designed. During the reactor trip response, the licensee observed an apparent hydrogen leak into the turbine building from the unit 2 generator. The licensee evacuated personnel from the turbine building due to the apparent uncontrollable leak of flammable gas that could affect plant operations. Per the emergency plan, the licensee subsequently declared a Notice of Unusual Event and made the appropriate local, state and NRC notifications. The Unusual Event was terminated after the licensee isolated hydrogen flow to the generator and subsequently detected no measurable quantity of hydrogen in the turbine building atmosphere. The Unit 2 generator was brought back online April 1, 2005.

The licensee captured the reactor trip in CR 318027 and initiated a prompt investigation to determine the cause of the bushing failure.

The investigation identified that the bushing failure was due to a sudden failure of a modified mechanical joint in the bushing's bottom flange. This bushing was rebuilt and modified by a vendor prior to installation during Braidwood's Unit 2 refueling outage in November, 2003. The licensee determined that all other main generator bushings are original equipment and have not been modified beyond the initial design. The licensee plans to perform a root cause investigation for this event and will issue a Licensee Event Report.

b. Findings

No findings of significance were identified.

4OA4 Cross-Cutting Aspects of Findings

- .1 A finding described in Section 1R05 of this report had, as its primary cause, a human performance deficiency (organization), in that, the failure to maintain proper control over combustible material and temporary power sources resulted in an increased potential for a fire that could have resulted in a loss of offsite power to Unit 2.

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 April 7, 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

An interim exit meeting was conducted for:

- the results of the heat sink biennial inspection were presented to Mr. G. Boerschig and other members of licensee management at the conclusion of the inspection on February 4, 2005.

ATTACHMENT: SUPPLEMENTAL INFORMATION

## SUPPLEMENTAL INFORMATION

### KEY POINTS OF CONTACT

#### Licensee

K. Polson, Site Vice President  
G. Boerschig Plant Manager  
D. Ambler, Regulatory Assurance Manager  
R. Belair, Sr. Mechanical Engineer  
S. Butler, Licensing Engineer  
B. Casey, ISI Coordinator  
R. Clemens, Heat Exchanger Program Owner  
G. Dudek, Operations Director  
J. Eggart, Chemistry  
D. Eisenhut, NSRB  
R. Gilbert, Nuclear Oversight Manager  
R. Himes, Engineering Programs Manager  
R. John, Nuclear Oversight  
T. Johnson, Reactor Vessel Project Manager  
J. Kuczynski, Chemistry Manager  
F. Lentine, Design Engineering Manager  
J. Moser, Radiation Protection Manager  
M. Prospero, Work Management Director  
R. Rabrig, Operations  
M. Sears, Steam Generator Program Owner  
M. Smith, Engineering Director  
B. Speck, Nuclear Oversight  
S. Stiles, Nuclear Oversight  
E. Wrigley, Maintenance Director

#### Nuclear Regulatory Commission

D. Passehl, Acting Chief, Reactor Projects Branch 3

### LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

#### Opened and Closed

05000456/2005002-01; 05000457/2005002-01	FIN	Poor Control of Combustible Material and Temporary Power Sources
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#### Closed

05000457/2004-002-00	LER	Unit 2 Automatic Reactor Trip on 2C Steam Generator Lo-Lo Level Initiated by a Failure of the Controlling Channel Steam Flow Card
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05000457/2005-001-00	LER	Incorrect Installation of Flow Element Resulted in Service Water Flow Below the TS Limit
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Discussed

None.

## LIST OF DOCUMENTS REVIEWED

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

### 1R01 Adverse Weather Protection

0BwOS SY-W1; Unit Common 345 kV Switchyard Surveillance; Revision 18  
CR 285470; BT 4-7 Lower Heater in Breaker Control Cabinet Not Energize;  
December 24, 2004  
Shift Manager Turnover; January 5, 2005 Oncoming Shift

### 1R04 Equipment Alignment

BwOP AP-E6; Electrical Lineup - Unit 2, Operating Lineup for the 6900 V Busses;  
Revision 2  
BwOP AP-E7; Electrical Lineup - Unit 2, Operating Lineup for the Safety Related 4160V  
Busses, 480V Switchgear Busses, and 480V Motor Control Centers; Revision 3E3  
BwOP AP-E8; Electrical Lineup - Unit 2, Operating Lineup for the Non-Safety Related  
4160V Busses, Switchgear Busses, and 480V Motor Control Center's; Revision 5  
BwOP FW-E1; Electrical Lineup - Unit 1 Operating; Revision 7  
BwOP FW-M1; Operating Mechanical Lineup Unit 1; Revision 14  
BwOP FW-23; Swapping from a Turbine Driven Main Feedwater Pump to the Motor  
Driven Main Feedwater Pump; Revision 13  
BwOP FW-2; Shutdown of a Turbine Driven Main Feedwater Pump; Revision 13  
BwOP FW-1; Startup of a Turbine Driven Main Feedwater Pump; Revision 19  
BwOP SI-E1; Electrical Lineup - Unit 1 Operating; Revision 8  
BwOP SI-M1; Operating Mechanical Lineup Unit 1; Revision 16  
BwOP SX-M2; Operating Lineup Unit 2; Revision 24  
BwOP SX-E2; Electrical Lineup - Unit 2; Essential Service Water [SX] System;  
Revision 8  
CR 257774; 1FW012B Appears to be 3/4" Open with Full Close Demand;  
September 27, 2004  
CR 263801; 1FW530 Valve Position Indicating Lights Not Lit; October 15, 2004  
CR 267409; 1FW01PB - As Left Alignment Potentially Unsatisfactory; October 27, 2004  
CR 281604; 1B and 1C Feedwater Regulator Valve Limit Switches Need Adjustment;  
December 11, 2004  
CR 282283; 1C Feedwater Regulator Valve Limit Switch Needs Adjustment;  
December 14, 2004  
345kV Bus 9 - Protected Equipment list for March 5, 2005

### 1R05 Fire Protection

CR 291816; Braidwood Review of OES 19826 and 19834 Halon System Issues;  
January 18, 2005

CR 300928; Performance Deficiency Identified During 1<sup>st</sup> Quarter Fire Drill;  
February 13, 2005  
Fire Drill Scenario 20.02.08.05; Vahledrome Fire - 2<sup>nd</sup> Floor Area; February 8, 2005  
OP-AA-201-009; Control of Transient Combustible Materials; Revision 4

1R06 Flood Protection Measures

EC/ECR 348753; Effect of Local Probable Maximum Precipitation at Plant Site;  
Calculation No. WR-BR-PF-10

1R07 Heat Sink Performance

CR 100401; 2B [Auxiliary Feedwater] AF Pump Post Maintenance Testing  
Requirements Unclear; March 21, 2002  
CR 100618; Preconditioning of 1B AF Diesel Engine; March 22, 2002  
CR 140956; Low Room Temperature Observed Following 1B AF Pump Run;  
January 24, 2003  
CR 156405; Leak on 1B AF Pump Jacket Water Thermostat Discharge Hose;  
April 29, 2003  
CR 156444; Repeat Maintenance - Leaking Filter on 1AF01PB Right Angle Gear;  
April 30, 2003  
CR 192139; 1AF01PB Jacket Water Expansion Tank Overflow; December 20, 2003  
CR 206023; Exposed Electrical Wiring in SX Valve Pit at Lake 0SX115A;  
March 04, 2004  
CR 237431; 1B AF Pump Gearbox Oil Cooler Head Leakage; July 20, 2004  
CR 265236; Right Angle Gear Oil Leak & Other Issues With 1B AF Diesel;  
October 20, 2004  
CR 287317; 1A CS Pump Cubicle Cooler Flow Found Low During NLO Rounds;  
January 03, 2005  
CR 289030; SX to Emergency Core Cooling System Cubicle Cooler Flows Decrease  
During 1BWOS CC-2; January 09, 2005  
CR 290204; Analyze Unusual Looking Sample of Lake Mud From U1 Component  
Cooling Heat Exchanger; January 12, 2005  
CR 290854; Tube Plugs Installed Incorrectly During November 2002 Window;  
January 14, 2005  
CR 292419; Additional Isolation of 1A Circulating Water Box Required;  
January 20, 2005  
CR 292697; 1CC01A - Need New Acceptance Criteria Due to New Tube Plugs;  
January 20, 2005  
CR 292704; 2CC01A - Need New Acceptance Criteria Due to New Tube Plugging;  
January 20, 2005  
Audit NOSPA-04-1Q; Service Water (Generic Letter [GL] 89-13) Program - EL4;  
January 27, 2004 through March 19, 2004  
Calculation BRW-00-0030-M; Cubicle Cooler Tube Plugging Evaluation; April 14, 2000  
Calculation BRW-01-0186-M; Diesel Driven AF Pump Closed Cycle Heat Exchanger,  
1/2SX01K, Tube Plugging Evaluation; April 14, 2000  
Calculation NED-H-MSD-9; Heat Exchanger Effectiveness Curve for the Byron and  
Braidwood Auxiliary Building Cubicle Coolers; Revision 5

Calculation VA-100; Engineered Safety Feature Pump Cubicle Energy Calculation; Revision 4  
Check-In LS-AA-126-1005; GL 89-13 SX System Performance Monitoring Program; August 2, 2004 through August 31, 2004  
Drawing 5-049-15-078-001; Diesel Driven Auxiliary Feed Pump Closed Cycle; Revision 9  
Drawing 5-162-05-024-008; Motor Driven Auxiliary Feed Pump Lube Oil Cooler; Revision 4  
Drawing E 6000-3010; Diesel Driven Auxiliary Feed Pump Cubicle Cooler; Revision 0  
Letter Chron 207827; AF Diesel Pump Room Cooler Test Evaluation; March 11, 1994  
Letter Chron 0124686; AF Diesel Pump Room Cooler Test Evaluation; March 14, 1994  
Letter Contract 45628 Rel. 146; 1A Lake Screen House Forebay Inspection Report; March 10, 2004  
Letter Contract 45628 Rel. 210; Lake Screen House Inspection Report 2A Forebay; January 17, 2005  
BwAR 1-3-A6; AF Pump Trip Alarm No. 1-3-A6; Revision 7E2  
BwAR 1-3-C6; AF Pump Diesel Trouble Alarm No. 1-3-C6; Revision 7  
BwAR 1AF01J-1-A2; High Water Temperature 205 Alarm No. 1AF01J-1-A2; Revision 51E1  
BwAR 1AF01J-1-B2; High Water Temperature 195 Alarm No. 1AF01J-1-B2; Revision 51E1  
BwMP 3200-014; AF Pump Diesel Drive Unit Inspection and Maintenance; Revision 7  
BwMP 3300-091; Lake Screen House Diver Related Inspections; Revision 10  
0BwOA ENV-7; Adverse Cooling Lake Conditions U0; Revision 0  
1BwOSR 3.7.5.4-2; U1 Diesel Driven AF Pump Surveillance; Revision 7  
1BwOSR 3.7.8.1; U1 SX System Surveillance; Revision 12  
1BwOSR 0.1-1,2,3; U1 Modes 1, 2, and 3 Shiftly and Daily Operating Surveillance; Revision 26  
2BwOSR 0.1-1,2,3; U2 Modes 1, 2, and 3 Shiftly and Daily Operating Surveillance; Revision 28  
BwVP 850-15; SX System Performance Monitoring Program; Revision 4  
BwVS 900-21; Heat Exchanger Test Procedure for Diesel Driven AF Pump Room Cubicle Coolers VA08S; Revision 4  
CY-AA-120-400; Closed Cooling Water Chemistry; Revision 7  
CY-AA-120-410; Circulating/Service Water Chemistry; Revision 0  
CY-BR-120-4110; Braidwood Station Lake Chemistry Control; Revision 2  
CY-BR-120-4120; Braidwood Station Lake Chemistry Strategic Plan; Revision 0  
ER-AA-335-1006; Heat Exchanger Electromagnetic Testing Methodology; Revision 1  
ER-AA-340; GL 89-13 Program Implementing Procedure; Revision 2  
ER-AA-340-1001; GL 89-13 Implementation Instructional Guide; Revision 3  
ER-AA-340-1002; Service Water Heat Exchanger and Component Inspection Guide; Revision 2  
ER-AA-5300 DRAFT; Raw Water Corrosion Program Guide; Revision 0  
NES-MS-11.03; Eddy Current Testing Methodology; Revision 0  
OWA 239; Operator Work Around Status Update Lake Chemistry Adverse Condition Monitoring; June 30, 2005  
Specification Sheet 77A20007; Engine Closed Cycle Heat Exchanger; December 18, 1989

Specification Sheet L-2900; Diesel Driven AF Pump Room Cubicle Cooler; December 14, 1989  
 Specification Sheet Ref No.–1661; Oil Cooler - Pump; September 08, 1977  
 Surveillance Lake Chemistry; Braidwood Generating Station Weekly Report; January 30, 2005  
 Test BwVP 850-15 Attachment C; Heat Exchanger As-Found Inspection Report U1 Diesel Driven Pump Cubicle Cooler; October 31, 1995  
 Test BwVP 850-15 Attachment C; Heat Exchanger As-Found Inspection Report U2 Diesel Driven Pump Cubicle Cooler; April 12, 1996  
 Test BwVP 850-15 Attachment C; Heat Exchanger As-Found Inspection Report U2 Diesel Driven Pump Jacket Water Cooler; March 04, 1999  
 Test BwVP 850-15 Attachment C; Heat Exchanger As-Found Inspection Report U2 Diesel Driven AF Pump Cubicle Cooler; May 05, 1999  
 Test BwVP 850-15 Attachment B; Heat Exchanger As-Found Inspection and Work Report U2 Motor Driven Lube Oil Cooler; August 23, 2000  
 Test BwVP 850-15 Attachment B; Heat Exchanger As-Found Inspection and Work Report U2 Diesel Driven AF Pump Cubicle Cooler; April 25, 2002  
 Test BwVP 850-15 Attachment B; Heat Exchanger As-Found Inspection and Work Report U2 Diesel Driven Pump Jacket Water Cooler; April 27, 2002  
 Test BwVP 850-15 Attachment B; GL 89-13 Heat Exchanger As-Found Inspection and Work Report U2 Motor Driven Lube Oil Cooler; November 06, 2003  
 Test BwVS 900-21; Heat Exchanger Test Procedure for Diesel Driven AF Pump Room Cubicle Cooler U1; September 04, 1992  
 Test BwVS 900-21; Heat Exchanger Test Procedure for Diesel Driven AF Pump Room Cubicle Cooler U2; April 16, 1993  
 Test BwVS 900-21; Heat Exchanger Test Procedure for Diesel Driven AF Pump Room Cubicle Cooler U1; March 07, 1994  
 Test BwVS 900-21; Heat Exchanger Test Procedure for Diesel Driven AF Pump Room Cubicle Cooler U2; September 16, 1994  
 Test Results; Diesel Driven AF Cubical Cooler U2 Cubicle Cooler Eddy Current Results; April 26, 2002  
 Test Results; Diesel Driven AF Pump Cooler U2 Eddy Current Results; April 27, 2002  
 TR F-2891 L-2891; Diesel Engine/Gear Dives for Safety Related Pumps Byron Station U1 and U2 Braidwood Station U1 and U2; April 15, 1977, Amended June 27, 1983  
 TR F-2900 L-2900; Cubicle Coolers Byron Station U1 and U2 Braidwood Station U1 and U2; July 20, 1976, Amended August 17, 1982  
 WO 419370; Clean or Replace the Air Muffle on Actuator; February 01, 2005  
 WO 419371; Clean or Replace the Air Muffle on Actuator; February 01, 2005  
 WO 455585; 1AF01PB-K 12 Year PM for AF Diesels; October 03, 2002  
 WO 529584; 1A Forebay Diver Inspection and Screen ADJ; January 16, 2004  
 WO 583313; MM-1B AF Pump Gear Drive Oil Cooler Leaks When Shutdown; September 08, 2004  
 WO 607473; MM-AF Pump Oil Cooler Leak; June 26, 2004  
 WO 658319; 2A Forebay Diver Inspection & Screen ADJ; December 10, 2004  
 High Safety Significant Status of In-Scope Functions; January 19, 2005  
 Maintenance Rule Evaluation History; January 19, 2005  
 Maintenance Rule Expert Panel Scoping Determination; January 19, 2005  
 Maintenance Rule Performance Criteria; January 19, 2005  
 System Performance Monitoring Plan - AF 1

## 1R12 Maintenance Effectiveness

Condition Report (CAP001); List Report; March 21, 2005  
CR 158669; 1B Feedwater Pump Oil Reservoir Hi Level Alarm Failed Post Maintenance Testing; May 14, 2004  
CR 211444; Unplanned Limiting Condition for Operations Entry - 1FW009A Hydraulic Pump Cycling; March 29, 2004  
CR 273286; 2A Circulating Water Pump Tripped; November 14, 2004  
CR 289389; 1C FW Pump Low Pressure Governor Valve Linkage Broken; January 10, 2005  
CR 293549; Upper Most Regulator is Leaking Air; January 14, 2005  
CR 295643; 1B Feedwater Pump WO#399247 Failed Post Maintenance Testing; January 29, 2005  
CR 296029; Instrument Air Supply Line Not Supported; January 31, 2005  
Equipment Matrix Report; March 22, 2006  
Quarterly System Health Indicator Program Report Summary; Main Feedwater; Fourth Quarter, 2004  
Expert Panel Meeting Notes; February 11, 2002  
Expert Panel Meeting Notes; April 8, 2002  
Expert Panel Meeting Notes; April 12, 2002  
Expert Panel Meeting Notes; December 9, 2002  
Expert Panel Meeting Notes; January 27, 2003  
Expert Panel Meeting Notes; June 9, 2003  
Expert Panel Meeting Notes; July 31, 2003  
Expert Panel Meeting Notes; January 18, 2005  
High Safety Significant Status of In-Scope Functions; Main Feedwater  
Instrument Air Work Request Backlog; March 23, 2005  
Instrument Air System Plant Health Committee Presentation  
SOER 88-01; Effectiveness Review From March 2003 (A/R 124801-02)  
SOER 88-01; Effectiveness Review From March 2003 (A/R 124801-03)  
Maintenance Rule - Expert Panel Scoping Determination; Main Feedwater  
Maintenance Rule - Performance Criteria; Main Feedwater  
Maintenance Rule - Evaluation History; Direct Current Power System; January 1, 2003 through July 30, 2004  
Maintenance Rule - Evaluation History; Main Feedwater; January 1, 2004 through November 1, 2004  
Maintenance Rule - Performance Monitoring (Availability Graph); Unit 00 IA1; March 1, 2003 through February 28, 2005  
Maintenance Rule - Performance Monitoring (Availability Graph); Unit 02 IA1; March 1, 2003 through February 28, 2005  
Maintenance Rule; Instrument Air System; Scoping Data  
Maintenance Rule; Instrument Air System; Risk-Significance Data  
Maintenance Rule; Instrument Air System; Performance Criteria  
System Health Report BRW-00; 1A Instrument Air Supply System; 4<sup>th</sup> Quarter 2004

## 1R13 Maintenance Risk Assessments and Emergent Work Control

2BwOA ELEC-4; Loss of Offsite Power Unit 2; Revision 100  
BwOP DG-1; Diesel Generator Alignment to Standby Condition; Revision 23

CR 2880687; Shutdown Banks C, D, & E Would Not Move on Manual Demand; January 6, 2005  
CR 291106; Unplanned Limiting Conditions for Operations Action Requirement Entry-2B Diesel Generator Jacket Water Circulation Pump Trips; November 15, 2005  
CR 296128; Improvements Needed in TS 3.6.3 and/or Bases 3.6.3; January 31, 2005  
CR 297041; High Potential for Local Leak Rate Test Failure (2VQ005B); November 23, 2004  
CR 297401; U1 N43 Upper Detector Drifted Low; February 3, 2005  
CR 297425; Line 2003 Tripped and Reclosed in ACB 14-15 Did Not Reclose; February 3, 2005  
CR 297537; Lessons Learned - 1VQ005B Emergent Repair; February 1, 2005  
CR 297719; BT 14-15 Failure to Reclose Extent of Condition; February 3, 2005  
MA-AA-716-004; Troubleshooting 1RD07J Logic Cabinet; January 6, 2005  
Archival Operations Narrative Logs; January 15, 2005 12:00:00 AM and Before January 18, 2005 11:59:9 PM

#### 1R14 Operator Performance During Non-Routine Evolutions and Events

1BwOSR 3.3.1.4-2; Unit One Solid State Protection System, Reactor Trip Breaker, and Reactor Trip Bypass Breaker Bi-Monthly Surveillance (Train B); Revision 17  
EC 354071; Provide Switch Jumper for 1HS-RD012 in Cabinet 1RD05E; Revision 000  
CR 305151; Unit 1 Solid State Protection System Train B Reactor Trip Breaker Shunt Trip Failure During Testing; February 24, 2005  
IR 306938; Unexpected Entry Into Limiting Condition for Operation During ACB 1424 Trip Checks; March 1, 2005  
MA-BR-773-501; Braidwood Unit 1 - 4 kV Unit Auxiliary Transformer, Station Auxiliary Transformer, and Bus Tie Breakers Relay Routing; Revision 0  
WO 523346; OA 142/242 Unit Tie Bus 142 Cub 15 142/242; March 1, 2005  
2BwGP 100-2; Plant Startup; Revision 19  
IR 319105; Requirement in BwOP AB-25 May Limit Unit 2 Power Ascension; March 30, 2005

#### 1R15 Operability Evaluations

CR 133739; BwOP CC-1 Minimum Temperature Limit - Leakage Past SX007s; December 2, 2002  
CR 140514; Identified Penetrations Not Shown on Related Documents; January 21, 2003  
CR 148777; Extent of Condition Review Identified Further Actions Needed; March 12, 2003  
CR 218040; Missing Caulk Sealant in 2B Containment Chiller Room; April 30, 2004  
CR 253698; Conduit Penetrations Not Sealed and Hole Above Door; September 16, 2004  
CR 254897; Conduit Penetrations Not Sealed on Unit 2; September 20, 2004  
CR 289030; SX to Emergency Core Cooling System Cubicle Cooler Flows Decrease During 1BwOS CC-2; January 9, 2005  
CR 291277; TS SR Bases Does Not Agree With Design; January 16, 2005  
CR 289252; Long-Standing Plant Barriers Impaired (PBLs > 1 Yr Old); January 10, 2005

CR 291377; Operability Concerns with a Unit Component Cooling Water Heat Exchanger Isolated; January 17, 2005  
CR 301744; Design of Refueling Water Storage Tanks Vacuum Relief System June 1, 1988  
CR 304792; Component Cooling Temperature Less Than It's Required 60F; February 23, 2005  
BwOP CC-12; Alignment of the "0" Heat Exchanger to a Unit; Revision 9  
2BwEP ES-1.3; Transfer to Cold Leg Recirculation, Unit 2; Revision 103  
BwOP CC-14; Post Solid State Protection System Alignment of the Component Cooling System; Revision 8  
EC 353321 00; Install Blind Flanges on the 2B Diesel Generator Jacket Water Recirculation Piping Temporarily Until Pump 2DG01KB-C Can be Repaired; January 16, 2005  
PORC 05-003; Review of 50.50 for Temporary Configuration Change Package for the 2B Diesel Generator Jacket Water Pump/System; January 16, 2005  
CC-AA-201; Plant Barrier Control Program; Revision 6  
BwAP 1110-3; Plant Barrier Impairment Program; Revision 13  
Plant Barrier Impairment Permits 7594, 6756, 6103, 7095, 7096, 7858, 8029, 8030 and 7152  
Sargent & Lundy Project 7500-92; Demonstrating Functionality of Non-Safety-Related Vacuum Relief Device on RWST; June 16, 1988  
Sargent & Lundy Project 7500-92; Demonstrating Functionality of Non-Safety-Related Vacuum Relief Device on RWST; June 17, 1988

#### 1R16 Operator Workarounds

BwAR 1-17-B8; Flash Tank Level High Low; Revision 8  
BwOP HD-17; Heater Drain level Controller Operation; Revision 13  
CR 288935; Heater Drain Flash Tank - 1C Indicated Level Oscillations; January 8, 2005  
CR 288930; Heater Drain Flash Tank - Unexpected Voltage Vs. Level Relationship; January 8, 2005  
CR 297191; Power Range Deviation Alarms; November 11, 2004  
CR 302190; Followup Actions to U2 Power Range Deviation Alarm Setpoint; February 11, 2005  
OP-AA-102-103; Operator Work-Around Program; Revision 1

#### 1R17 Permanent Plant Modifications

BWR-S-2005-31; Procedure Revision for 1/2BwOSR 3.6.3.6; Revision 0  
BwVP 200-25 Braidwood Containment Leakage Rate Testing Program; Revision 8  
WO 743306 01; Primary Containment Type B & C Local Leakage Rate Tests; October 10, 2004  
1BwOSR 3.6.3.6; Primary Containment Type C Local Leakage Rate Tests of Containment Miniflow Purge Isolation Valves (Primary Containment Purge); Revision 4  
1BwVSR 3.6.1.1.25; Summation of Type "B" & "C" Tests for Acceptance Criteria; Revision 3

## 1R19 Post-Maintenance Testing

BwAR 2-10-C4; Pressurized Water Reactor RNG CHANNEL DEV; Revision 5E1  
BwISR 3.3.1.8-005; Channel Operational Test of Nuclear Instrumentation System Power Range N41; Revision 11  
BwISR 3.3.1.8-005A1; Power Range N41 Calibration Data; Revision 1  
BwOP CS-5; Containment Spray System Recirculation to the Refueling Water Storage Tanks; Revision 12  
BwOP RH-5; RH System Startup for Recirculation; Revision 17  
0BwOS IS-Q1; Unit Common Security Diesel Generator Loaded Run Surveillance; Revision 10  
1BwOSR 3.6.3.6; Primary Containment Type C Local Leakage Rate Tests of Containment Miniflow Purge Isolation Valves (Primary Containment Purge); Revision 3  
1BwVSR 5.5.8.CS.1; ASME Surveillance Requirements for 1A Containment Spray Pump and Check Valves 1CS003A, 1CS011A; Revision 3  
BwVSR 5.5.8.SX.2; ASME Surveillance Requirements for 2B SX Pump; Revision 4  
CR 212360; Question Regarding Limiting Conditions for Operations Action Requirement Entry When Performing IST Surveillance; April 4, 2004  
CR 244064; Minor Seal Leak on 2RH01PA - Please Repair; August 12, 2004  
CR 272119; The 2RH01PA Miniflow Reading at Lower Band of Acceptance Criteria; November 10, 2004  
CR 286132; Annunciator 2-10-C4 "Power Range Channel Deviation" Alarming; December 28, 2004  
CR 289991; Security Diesel Volt Meter Failed Calibration - Replace; January 12, 2005  
CR 291412; Security Diesel Generator Start/Trip/Failure to Load; January 17, 2005  
CR 291425; Loaded Security Diesel Run; January 17, 2005  
CR 297146; Limit Switch and Limit Plate Dis-engaged on 1CS040A; February 2, 2005  
CR 297153; Repeat Occurrence of CS Limit Switch Issues Not Resolved; February 2, 2005  
WO 706453 01; Security Diesel Generator Periodic Surveillance (Loaded Run); January 18, 2004  
WO 753563 01; Analog Channel Operational Test of Nuclear Instrumentation System Power Range N41; January 25, 2005  
WO 755548 01; IST for 1CS003A/11A - U1 ASME Surveillance Requirements for 1CS01PA and Check Valves; February 2, 2005  
WO 755541 01; ASME Surveillance Requirements for 2RH01PA; February 9, 2005  
WO 759959 01; ASME Surveillance Requirements for 2B SX Pump; February 22, 2005  
2BwVSR 5.5.8.RH.1; ASME Surveillance Requirements for Residual Heat Removal Pump 2RH01PA; Revision 6

## 1R22 Surveillance Testing

CR 300142; 2CS01PB, Repair of Active Borated Water Leakage Deferred; February 10, 2005  
CR 313518; As-Left Room Temperature Originally at 64 Degrees Fahrenheit; March 16, 2005  
WO 590427 01; 1A Diesel Generator Bypass of Automatic Trips Surveillance; January 6, 2005  
WO 618689 01; 1A Diesel Generator Hot Restart Test; March 1, 2005

WO 774710 01; 2A Diesel Generator Operability Monthly Surveillance; February 7, 2005  
WO 775253 01; IST for SX174/8, AF001B/3B; 1AF01PB ASME Quarterly Surveillance;  
March 11, 2005 (performed March 16, 2005)  
WO 784443 01; Diesel Driven AF Pump Monthly Surveillance; March 10, 2005  
(performed March 16, 2005)  
WO 769951 01; OPR31J Thru 34 Digital Channel Operational Test; March 30, 2005

#### 1R23 Temporary Plant Modifications

BwMP 3300-054; Filling Approved Liquid Nitrogen Containers from Bulk Liquid Nitrogen  
Storage Tank; Revision 4  
CR 288418; 12C LP Heater Emergency Level Controller Failed Output; January 6, 2005  
CR 296226; Low Pressure Nitrogen Bottles Supplied by Vendor for Freeze;  
February 1, 2005  
CC-AA-403; Maintenance Specification: Selection and Control of Freeze Seal Location;  
Revision 3  
CC-AA-403 Attachment 1; Temporary Freeze Seal Permit; Revision 3; Completed  
February 1, 2005  
EC 352789; Please Provide Freeze Location(s) as Required to Isolate Valve 1SI012A;  
January 4, 2005  
EC 353038; Temporary Level Control for Heater Drain Flash Tanks; December 30, 2004  
EC 353076; Replace Transformers in Flash Tank Level Control Signal Converters  
1LY\_HD263, 1LY-HD273, 1LY-HD283; December 20, 2004  
MA-MW-736-610; Application of Freeze Seal to All Piping; Revision 1  
SPP 05-001; Repair of 1LY-HD273/283; Revision 0  
WO 588055 02; Mechanical Maintenance - Perform Drain and Inspect on 1SI012A Per  
MA-AA-733-1001; January 5, 2005

#### 1EP6 Drill Evaluation

Emergency Plan 2005 Performance Indicator Mini-Drill; March 3, 2005  
CR 309618; Emergency Preparedness Equipment Issues from March 3, 2005 Mini-Drill;  
March 3, 2005  
CR 309626; Emergency Preparedness End of Licensed Operator Requalification  
Training Cycle Review; March 7, 2005  
CR 311521; EP Enhancements in Emergency Response Organization Performance  
from March 3, 2005 Mini-Drill; March 11, 2005

#### 4OA2 Identification and Resolution of Problems

LS-AA-120; Issue Identification and Screening Process; Revision 3  
LS-AA-125; Corrective Action Program (CAP) Procedure; Revision 8  
LS-AA-125-1001; Root Cause Analysis Manual; Revision 4  
LS-AA-125-1004; Effectiveness Review Manual; Revision 2  
CR 176411; Reactor Services Not Represented at Scheduling/Planning Meetings;  
September 16, 2003  
CR 180807; Inadequate Turnover - Refuel Canal Project; October 13, 2003  
CR 183651; Reactor Services Organization Disagrees with UFSAR; October 27, 2003

CR 185539; Nuclear Oversight Identified Station Fuel Handling Procedures Specify Triple Verification; November 8, 2003  
CR 186197; A2R10 Lessons Learned - Pre Outage Training Fuel Handling Supervisors; November 12, 2003  
CR 257951; Fuel Handler Just-In-Time Training for Outage; September 29, 2004  
CR 264361; Recommended Enhancements to Fuel Handling Processes and Procedures; October 17, 2004

#### 4OA3 Event Followup

LER 05000457/2005-001-00; Incorrect Installation of Flow Element Resulted in Service Water Flow Below the TS Limit; March 11, 2005  
CR 201116; Questions Concerning Adequacy of Reactor Containment Fan Cooler TS Surveillance; February 11, 2005  
CR 285216; Unit 2 Reactor Trip On Lo-2 Steam Generator Level; December 22, 2004  
CR 289007; FW-MS D/P in Simulator and U-2 Response-Root Cause Concern; December 22, 2004  
CR 289012; Review Crew Simulator Performance Versus Reactor Trip; January 7, 2005  
CR 289369; Calibration Differences Between U-1 and U-2 Steam Flow Feed Flow Mismatch; January 10, 2005  
CR 290026; Annubar Appears to be Found Backwards During Removal; January 11, 2005  
CR 292103; Steam Flow Feed Flow Mismatch Alarm Set Point - Reconsider; January 19, 2005  
CR 292828; Engineering Evaluation of 2A Reactor Containment Fan Cooler SX Flow Low; January 21, 2005  
CR 291838; Low Pressure Sensing Hole Found Plugged on 1D Reactor Containment Fan Cooler; January 18, 2005  
1BwOSR 3.6.6.2; Reactor Containment Fan Cooler Surveillance; Revision 14  
EC 353332; 2FE-SX112 Annubar Flow Error as a Result of Backward Installation; February 22, 2005  
Root Cause Analysis; Automatic Reactor Trip on 2C Steam Generator Low-Low Level; December 22, 2004  
CR 318027; Unit 2 Main Generator Tripped Causing Unit 2 Reactor Trip (Includes Prompt Investigation); March 28, 2005  
CR 318065; Unusual Event Declared Due To Hydrogen Leak on Unit 2 Generator; March 28, 2005  
CR 318030; Relief for 27B Heater Lifted Due to Unit Trip; March 28, 2005  
CR 318039; 2PR06J Went Into Alarm After the Unit 2 Reactor Trip; March 28, 2005  
CR 318048; 2AF005H Failed Full Open in Main Control Room After Unit 2 Trip; March 28, 2005

#### NRC Identified

CR 290225; Discrepancies Identified by NRC During Field Walkdown; January 12, 2005 [Maintenance Effectiveness]  
CR 290707; 2CS081B, Heavy Accumulation of NAOH, Needs to be Addressed; January 6, 2005 [Maintenance Effectiveness]

CR 291763; NRC Identified Water Dripping Through Flood Seal FSO 1-3; January 18, 2004 [Flood Protection]  
CR 292695; SX Cubicle Cooler Flow Anomalies Noted in Unit 1; January 20, 2005 [Operability Evaluation]  
CR 293371; Corrections/Clarification Log Entries from NRC Debrief; January 19, 2005 [Operability Evaluation]  
CR 294983; Electrical Cords routed Thru the U1 Transformer Yard; January 27, 2005 [Adverse Weather]  
CR 296122; Lessons Learned/Enhancement for 1VQ005B; January 31, 2005 [Maintenance Risk and Emergent Work Control]  
CR 298576; NRC Raised Two Concerns About Scaffolding; February 7, 2005 [Maintenance Effectiveness]  
CR 303361; Poor Housekeeping and General Trash Accumulation; February 19, 2005 [Fire Protection]  
CR 304773; Flood Seal for 2SXFS02-1 Watch Missed; February 23, 2005 [Flood Protection]  
CR 307896; NRC Questions Regarding Minimum Temperature on Component Cooling System; March 3, 2005 [Operability Evaluations]  
CR 308546; USNRC Resident Inspector Plant Walkthrough Comments; March 4, 2005 [Operability Evaluation]  
CR 308779; Plant Barrier Impairments Discovered Inappropriately Closed; March 5, 2005 [Operability Evaluation]  
CR 312556; Door D-413 Identified to be Missing Bottom Door Seal; March 14, 2005 [Fire Protection]  
CR 315491; Items Found in Cable Tray; March 21, 2005 [Fire Protection]  
CR 316326; Employee Noted as Inattentive to Duty at Lake Screen House; March 23, 2005 [Fire Protection]  
CR 320806; Life Raft at Lake Screen House is Deflated [Maintenance Effectiveness]  
Statement of Confirmation 301231; Unsafe Use of Temporary Power Outside Powerblock Complex; February 14, 2005 [Fire Protection]  
Statement of Confirmation 301264; Concerns Identified with Outbuildings and Fire Hazards; February 14, 2005 [Fire Protection]  
Issue 286582; Recurring Oil Additions Required for 1HD01PB and 2HD01PC [Maintenance Effectiveness]  
CR 307896; NRC Questions Regarding Minimum Temperature on Component Cooling System; March 3, 2005 [Operability Evaluations]  
Issue 307934; Untimely Communication to NRC on Short Term Limiting Condition for Operation Entry; March 1, 2005 [Operator Performance During Non-Routine Plant Evolutions and Events]

## 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
BwISR	Braidwood Instrument Surveillance Requirement 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
BwVP	Braidwood Engineering Procedure
BwVSR	Braidwood Engineering Surveillance Requirement Procedure
CFR	Code of Federal Regulations
CR	Condition Report
GL	Generic Letter
IMC	Inspection Manual Chapter
LER	Licensee Event Report
LLRT	Local Leak Rate Test
NCV	Non-Cited Violation
NRC	Nuclear Regulatory Commission
NRR	Nuclear Reactor Regulation
PARS	Publicly Available Records
RCFC	Reactor Containment Fan Cooler
SAT	System Air Transformer
SDP	Significance Determination Process
SX	Essential Service Water
TI	Temporary Instruction
TR	Technical Requirement
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report
WO	Work Order
WR	Work Request