

March 18, 2002

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

SUBJECT: BRAIDWOOD STATION, UNITS 1 AND 2  
NRC INSPECTION REPORT 50-456/02-03(DRP); 50-457/02-03(DRP)

Dear Mr. Skolds:

On February 22, 2002, the NRC completed an inspection at your Braidwood Station Units 1 and 2. The enclosed report documents the inspection findings which were discussed on February 22, 2002, with Mr. J. von Suskil and other members of your staff.

The inspection examined activities conducted under your license as they relate to identification and resolution of problems, and compliance with the Commission's rules and regulations and with the conditions of your license. Within these areas, the inspection involved selected examination of procedures and representative records, observations of activities, and interviews with personnel.

On the basis of the sample selected for review, the inspectors concluded that your corrective action program adequately identified, evaluated, and resolved conditions adverse to quality. One finding of very low safety significance (Green) was identified (self-revealed). This finding was associated with the failure to follow procedure which caused the Unit 1 Train B of the containment spray system to be inoperable. The finding was determined to involve a violation of NRC requirements. However, because of its very low safety significance and because the finding was entered into your corrective action program, the NRC is treating the issue as Non-Cited Violations, consistent with Section VI.A.1, of the NRC's Enforcement Policy. If you deny this Non-Cited Violation, you should provide a response with the basis for your denial, within 30 days of the date of this inspection report, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region III; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspectors at the Braidwood Station.

In addition, the inspectors identified an apparent violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," for the failure to identify the cause and take action to prevent recurrence for recurring failures of the check valves between the instrument air system and the accumulators for the Unit 1 pressurizer power operated relief valves. However, the staff's significance determination of this issue was not complete at the time this report was issued; therefore, this issue is considered an unresolved item.

J. Skolds

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During this inspection, several examples of poor quality apparent cause evaluations were identified. A variety of deficiencies were noted; however, the most significant involved evaluations where potential common mode failure mechanisms were mentioned but not addressed in the documented corrective actions. In some cases, it was unclear whether the common mode failure aspect was evaluated as evident in the apparent violation described above. In addition, these deficiencies were not identified by your staff in the review and approval process.

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Sincerely,

**/RA/**Ann Marie Stone

Ann Marie Stone, Chief  
Branch 3  
Division of Reactor Projects

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

Enclosure: Inspection Report 50-456/02-03(DRP);  
50-457/02-03(DRP)

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U. S. NUCLEAR REGULATORY COMMISSION

REGION III

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

Report Nos: 50-456/02-03(DRP); 50-457/02-03(DRP)

Licensee: Exelon Generation Company, LLC

Facility: Braidwood Station, Units 1 and 2

Location: 35100 S. Route 53  
Suite 84  
Braceville, IL 60407-9617

Dates: February 4 through February 22, 2002

Inspectors: R. Skokowski, Senior Resident Inspector, Team Leader  
D. Schrum, Reactor Engineer  
N. Shah, Resident Inspector

Observer: N. Valos, Reactor Inspector (Trainee)

Approved by: Ann Marie Stone, Chief  
Branch 3  
Division of Reactor Projects

## SUMMARY OF FINDINGS

IR 05000456-02-03(DRP), 05000457-02-03(DRP); on 02/04-02/22/2002, Exelon Generation Company, LLC; Braidwood Station; Units 1 & 2. Identification and Resolution of Problems.

The inspection was conducted by one senior resident inspector, one region-based reactor engineer and one resident inspector. This inspection identified one Green finding which involved Non-Cited Violations. In addition, the inspectors identified an apparent violation of NRC requirements. The staff's significance determination of this issue was not complete at the time this report was issued; therefore, this issue was considered an unresolved item. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using NRC Inspection Manual Chapter 0609 "Significance Determination Process" (SDP). The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described at its Reactor Oversight Process website at <http://www.nrc.gov/NRR/OVERSIGHT/index.html>. Findings for which the SDP does not apply are indicated by "No Color" or by the severity level of the applicable violation.

### Identification and Resolution of Problems

The inspectors concluded that the licensee adequately identified, evaluated, and resolved problems within the requirements of the corrective action program (CAP). In general, the significance threshold for entering issues into the corrective action program appeared appropriate. However, the inspectors noted several examples where apparent cause evaluations (ACEs) were of poor quality. These deficiencies were not identified by line management during the licensee's review and approval process. The types of deficiencies varied but included the following:

- New information that could impact the original operability and reportability evaluations was not re-evaluated by shift management.
- Other apparent problems were mentioned but were not fully addressed in the evaluation. For example, potential common cause failure mechanisms were included as possible apparent causes; however, the impact on like-equipment was not resolved or evaluated.
- The extent of the evaluations and corrective actions were not always well documented.

In addition, the inspectors noted that equipment problems identified during outages were not always evaluated for operability or reportability. In addition, causes for significant equipment problems were not always addressed prior to plant startup.

The licensee was effective in correcting broke/fix type issues such as equipment problems, procedure deficiencies, and calculational errors. However, the licensee was less effective in correcting recurring human performance problems. This was evidenced by recurring problems associated with configuration control, contractor control, foreign material exclusion control, fire protection control, and rework issues.

Through interviews and observations, the inspectors concluded that Braidwood established a safety-conscious work environment where people were not reluctant to raise issues. However, the inspectors noted that recent changes to the CAP made it somewhat burdensome to enter

items into the corrective action program computerized process. Additionally, the inspectors ascertained that the recent changes to the CAP also made the trending condition report-related data burdensome by making the manipulation of the data difficult.

A. Inspector Identified Findings

**Cornerstone: Mitigating Systems**

- (TBD). The inspectors identified an apparent violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," for the licensee's failure to identify the cause and take action to prevent recurrence for failures of the check valves between the instrument air system and the accumulators for the Unit 1 pressurizer power operated relief valves (PORVs). Specifically, following the October 1998 failures of all the Unit 1 pressurizer PORV accumulator check valves, a significant condition adverse to quality, the licensee did not determine the cause of the back leakage and take actions to preclude repetition as evidenced by the similar failures of the same valves in September 2001.

The staff's significance determination of this finding was not complete at the time of issuance of this report; therefore, this issue is considered an unresolved item. The safety significance of this issue has been characterized as "To Be Determined (TBD)" pending the completion of additional risk analysis. (Section 40A2 a).

**Cornerstone: Barrier Integrity**

- Green. Following a trip of the circuit breaker during surveillance testing, the licensee determined that 14 months earlier, technicians failed to reset the instantaneous overcurrent trip setpoint for the 1CS009B circuit break as prescribed in the station procedure resulting in the instantaneous overcurrent being left at a nonconservatively low value. This event was considered self-revealing.

The inspectors determined that this issue had a credible impact on safety because under certain voltage conditions the 1B train of the containment spray would not have been capable of fulfilling the design safety function. The inspectors concluded that this issue could have affected the capability of controlling containment pressure; however, because no actual reduction of the containment pressure control function occurred, this issue was of very low safety significance. The failure to follow the maintenance procedure for the inspection and testing of the 1B containment spray suction valve from the containment sump circuit breaker was a violation of Technical Specification 5.4.1 a. However, since this finding is of very low safety significance and it was captured in the licensee's corrective action program, this finding is being treated as a Non-Cited Violation consistent with Section V1.A.1 of the NRC Enforcement Policy (Section 40A2 b).



## Report Details

### **4. OTHER ACTIVITIES (OA)**

#### 40A2 Identification and Resolution of Problems (71152)

##### a. Effectiveness of Problem Identification

##### (1) Inspection Scope

The inspectors conducted a review of the Braidwood process for identifying and correcting problems in the plant. The inspectors reviewed previous licensee and inspector-identified issues related to the seven safety cornerstones in the Reactor Safety, Radiation Safety, and Safeguards strategic performance areas to determine if problems were appropriately identified, characterized, and entered into the corrective action program. Specifically, the inspectors reviewed selected plant procedures and program description handbooks, interviewed selected plant personnel, and attended various station meetings to understand the station's process for implementing the corrective action program (CAP) and related activities.

The inspectors selected several condition reports generated since the last Problem Identification and Resolution (PI&R) inspection. Also, the inspectors selected areas that looked like potential trends and assessed whether the licensee's had appropriately identified and captured these trends within the corrective action program. In addition, from a list of work request generated since the last PI&R inspection, the inspectors selected 25 work requests to verify that CRs were generated when appropriate in accordance with the thresholds established by the CAP.

To assess trending, maintenance rule implementation and to identify items that were missed by the licensee, the inspectors reviewed the past performance of three systems. The systems selected were the centrifugal charge system (CV), essential service water system (SX) and instrument air system. These systems were selected because they appeared together in several accident scenarios in the Significance Determination Process (SDP). In addition, the inspectors selected the 4160/480 volt circuit breakers for a similar review to assess how the licensee evaluated component issues related to several systems. As part of this assessment, the inspectors interviewed the respective system engineers, and reviewed system health reports, and system monitoring programs and completed partial system walkdowns.

From a list of station and departmental self-assessments and audits, the inspectors conducted a review to determine whether the audit and self-assessment programs were effectively managed, and adequately covered the subject areas. In addition, the inspectors interviewed licensee staff regarding the audit and self-assessment programs.

The inspectors also evaluated the licensee's operator work around (OWA) process. The evaluation included a review of the governing procedure and the licensee's list of identified OWAs. In order to assess the licensee's performance with respect to identifying OWAs, the inspectors evaluated issues described in various licensee CAP

documents to determine whether issues that met the threshold to be considered an OWA were appropriately dispositioned. In addition, the inspectors compared a list of OWAs from another station to assess whether similar OWA existed at Braidwood.

The specific documents reviewed are listed in Attachment 1 of this report.

(2) Issues

The inspectors identified an apparent violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," for the licensee's failure to identify the cause and take action to prevent recurrence for failures of the check valves between the instrument air system and the accumulators for the Unit 1 pressurizer power operated relief valves (PORVs). The safety significance of this issue has been characterized as "To Be Determined (TBD)" pending the completion of additional risk analysis.

In general, station personnel effectively identified at a low threshold and entered problems as CRs into the corrective action program. Although thousands of CRs were initiated this past year, the inspectors identified two examples where the licensee failed to recognize and address issues at the identification phase of the corrective actions process. The first example was the apparent violation described above, and the second example dealt with the failure to provide operators additional guidance regarding alternative means of determining valve position after the normal local position indicator for an SX valve was found degraded.

In addition, based on interviews with plant personnel, the inspectors ascertained that some employees found the CAP computer program complex and difficult to navigate and some individuals routinely relied on their supervisors for entering items into the CAP. Additionally, the inspectors identified that a new assigned chemistry supervisor was not provided the management training on the CAP process. The inspectors concluded that no significant issues were missed based on the lack of training. The corrective action program coordinator stated that the other supervisors received the applicable CAP training and that the chemistry supervisor would be trained in the very near future.

Pressurizer PORV Accumulator Check Valve Failures

During the Fall 2001 Unit 1 refueling outage, all four check valves that separate the non safety-related instrument air system from the safety-related pressurizer PORV control air accumulators were found to have excessive back leakage. In the event of a loss of instrument air pressure, these check valves ensure sufficient air pressure is available to operate the PORVs, and therefore, allowing a means to depressurize the reactor coolant system in response to certain transients.

On September 29, 2001, the licensee initiated CR 00076349, "During Performance of 1BwOSR 3.4.11.3.3 Check Valves Failed," to document this issue. The licensee generated work orders to repair and retest the valves. On October 15, 2001, the licensee generated CR 00078892, "Maintenance Rule Criteria RY2 Exceeds Reliability Criteria," and an apparent cause evaluation (ACE) was written to determine the cause of the failures. Within this ACE, the licensee stated that all four valves failed due to a dislodged O-ring on the valve disc, which prevented the disc from fully engaging with the

seat. The licensee also stated in the ACE that all four of these valves failed for the same reason back in 1998, and, at that time, the valves were rebuilt and successfully tested; however no CR was generated to evaluate the cause. After additional review and discussions with system engineering staff, the inspectors ascertained that in 1998, these valves had passed their as-found surveillance test; however, during the scheduled rebuild of the valves, the O-rings were found dislodged. Furthermore, the inspectors determined that since 1991, these valves on Unit 1 have had similar failures.

The inspectors concluded that the licensee did not identify and correct the cause for Unit 1 pressurizer PORV accumulator check valve failures following the October 1998, and September 2001 failures. This was based on ineffectiveness of the 1998 corrective actions to address the O-rings becoming dislodged as evidenced by the similar failure in September 2001. Furthermore, the corrective actions taken to address the September 2001 failures were the same as the ineffective actions taken in October 1998, specifically rebuilding the valves. Based on the apparent common mode failure mechanism that could impact both pressurizer PORVs on both units, the inspectors considered this to be a significant condition adverse to quality.

The inspectors discussed with the Braidwood Station Management, the impact of the issue with respect to the current operability of the pressurizer PORVs for both units and with respect to the past operability of the pressurizer PORVs in Unit 1. The licensee stated historical data showed that the valves operated satisfactorily for greater than one operating cycle after rebuild, and since the valves were just rebuilt in September 2001, the licensee concluded the Unit 1 valves were currently operable. In addition, the licensee's review of the Unit 2 operating history of the same valves revealed very few failures; therefore, the licensee concluded that the Unit 2 valves were also operable. The inspectors could not dispute the licensee's conclusion regarding current operability. With respect to past operability, the inspectors concluded that both Unit 1 pressurizer PORVs were inoperable for some period prior to the as-found test failure. This conclusion was reached because the cause of the failures was unknown and the accumulator check valves failed the as-found surveillance test.

10 CFR Part 50, Appendix B, Criteria XVI, "Corrective Action," requires, in part, that measures shall be established to assure that conditions adverse to quality, such as failures, are promptly identified and corrected. In the case of significant conditions adverse to quality, the measure shall assure that the cause of the condition is determined and corrective actions taken to preclude repetition. Following the October 1998 failures of all the Unit 1 pressurizer PORV accumulator check valves to maintain pressure, a significant condition adverse to quality, the licensee failed to determine the cause of the condition and take actions to preclude repetition as evidenced by the similar failures of the same valves in September 2001. This issue is considered an apparent violation of 10 CFR 50 Appendix B, Criterion XVI. This issue was entered into the licensee's corrective action program as Condition Report 00095245.

The inspectors determined that this issue had a credible impact on safety because the Unit 1 pressurizer PORVs could not be relied upon to mitigate a steam generator tube rupture event. The staff's significance determination of this finding was not complete at the time of issuance of this report; therefore, this issue is considered an Unresolved Item

(50-456/02-03-01(DRP)). The safety significance has been characterized as “TBD” pending the completion of additional risk analysis.

#### Alternate valve position indication

The inspectors reviewed CR A2000-03490, “Failed Surveillance – 0BwOSR 3.7.8.3-1 for 0SX147,” which was written after an operator was unable to determine the position of the Unit 0 component cooling water heat exchanger outlet valve (0SX147) during a surveillance test. The inspectors noted that since 1997, there has been an open work order to repair the 0SX147 local valve position indication. When the work order was initiated, the licensee did not provide formal guidance to the operators regarding how to alternatively determine the valve position. Subsequently, operators continued to complete this surveillance on a quarterly basis using alternative methods, based on institutional knowledge, to determine the valve position. After discussions with members of the Braidwood operations and engineering departments, the inspectors concluded that the operators were adequately determining the valve position. However, the licensee’s informal approach that relied on institutional knowledge was less than effective as evident by the operator’s need to generate CR A2000-03490. Additionally, the licensee closed this CR without taking action to repair the valve or to sanction the other methods being used by the operators. The licensee acknowledged these shortcomings and issued CR 00094403 to address the concerns.

#### Trending of Issues

The inspectors determined that the licensee’s trending of issues was adequate. Station personnel identified individual specific deficiencies and entered those deficiencies into the CAP database. Although the Station’s Coding and Trending Manual provided detailed guidance on trending CR-related information, the inspectors found that the trending of CR-related data was inconsistent with some departments informally trending CR-related information. Additionally, the inspectors ascertained that trending CR-related data became burdensome due to recent changes to the Exelon-wide CAP database that made manipulating the data difficult. The inspectors noted that the licensee was aware of this issue as evidenced by CR 00093520. However, the inspectors also noted that the quality of CR-related trending had been an ongoing issue at Braidwood even before the change to the CAP-database.

#### b. Prioritization and Evaluation of Issues

##### (1) Inspection Scope

The inspectors reviewed previous inspection reports and corrective action documents generated since September 2000. In particular the inspectors reviewed selected ACEs, root cause reviews, prompt investigations, operability determinations and common cause analysis to verify that identified issues were appropriately prioritized and evaluated when entered into the licensee’s corrective action program. During this review, the inspectors focused on the technical adequacy of the cause determinations, extent of condition reviews including evaluations of potential common cause or generic

concerns, and the appropriateness of the corrective actions. In addition, the inspectors also focused on the operability and reportability determinations.

The inspectors selected several items to ensure proper implementation of the Maintenance Rule. This included verifying that the functional failures and unavailability time were properly counted and tracked.

The inspectors attended management meetings to observe the assignment of CR categories for current issues including the initial operability and reportability evaluations. In addition, during some of these meetings, the inspectors observed station managements' review of root cause analyses and corrective actions for existing CRs.

The inspectors also evaluated the licensee's process for reviewing industry operating experience (OPEX). Documents reviewed included the licensee's procedure, and their assessment of selected industry operating event reports, NRC, and vendor generic notices recorded since September 2000. Additionally, the inspectors discussed the process with the Braidwood OPEX coordinator.

A listing of the specific documents reviewed is attached to the report.

## (2) Issues

The inspectors identified one finding of very low safety significance that was determined to be a Non-Cited Violation (NCV). This finding involved the failure to follow procedure resulting in the inoperability of one division of the Unit 1 the containment spray system. Specifically, during a maintenance activity on the circuit breaker for the suction valve from the containment sump (1CS009B) to the 1B containment spray pump, a technician left the instantaneous overcurrent setting nonconservatively low.

Furthermore, during the review, the inspectors noted several examples where ACEs were of poor quality. The inspectors noted that these poor quality ACEs were reviewed and approved by a first line manager or above. The types of deficiencies varied but included the following:

- New information that could impact the original operability and reportability evaluations was not re-evaluated by shift management.
- Other apparent problems were mentioned but were not fully addressed in the evaluation. For example, potential common cause failure mechanisms were included as possible apparent causes; however, the impact on like-equipment was not resolved or evaluated.
- Examples where the apparent cause, extent of the evaluations and corrective actions were not well documented.

These problems were more apparent for ACEs generated early in the assessment period, but a few examples of similar problems were noted with more recent ACEs. In most cases, after discussions with the responsible individuals, the inspectors concluded

that the causes were truly determined, that the corrective actions were appropriate, and other issues, including operability and potential common cause issues were addressed.

In addition, the inspectors noted that equipment problems identified during outages were not always evaluated for operability or reportability. In addition, causes for significant equipment problems were not always addressed prior to plant startup.

Specific examples include:

- **CR A2001-01170 “Potential Rework - 1CS009B trips breaker during votes testing after maintenance.”** This CR described a condition where the containment spray recirculation suction valved tripped on instantaneous over current during motor-operated valve testing. During the ACE for this CR, the licensee discovered that 14 months earlier, a technician dialed down the instantaneous over current setting to the minimum value during circuit breaker testing and did not return the setting to the normal value as required by Procedure MA-BR-EM-1-3.8.a.3-1, “Surveillance for Inspection and Testing of 480 Volt Motor Control Center (MCC) Draw-Out Units.” Furthermore, in the ACE, the licensee documented that if the valve was called upon to operate during the 14 months while the instantaneous overcurrent trip setpoint was set nonconservatively low, the breaker would have probably tripped and the valve would not have opened and could have possibly resulted in eventual pump damage. The inspectors determined that this information was not provided back to the shift manager for operability and reportability reviews. When the inspectors questioned the operability of the valve, the licensee re-evaluated the operability of the breaker and determined that under the normal voltage conditions experienced during the 14 months in question, the breaker would not have tripped prematurely. However, under worst case design conditions, the breaker would have tripped prematurely if it had been called upon to operate.

The inspectors determined that the failure to reset the instantaneous overcurrent trip setpoint for the 1CS009B circuit break as prescribed in the station procedure had a credible impact on safety because under certain voltage conditions the 1B train of containment spray would not have been capable of fulfilling the design safety function. The inspectors concluded that this issue could have affected the capability of controlling containment pressure. The inspectors evaluated this issue through the SDP and determined that since the other train of containment spray was not affected, there was no actual reduction of the atmospheric pressure control function of the reactor containment, and therefore this issue was of very low safety significance (Green).

Technical Specification 5.4.1, states, in part, that “written procedures shall be established, implemented, and maintained covering the following activities: The applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978.” Paragraph 9.a. of this Regulatory Guide states, in part, that procedures for performing maintenance that can affect the performance of safety-related equipment shall be prepared and activities shall be performed in accordance with these procedures. The licensee established Procedure MA-BR-EM-1-3.8.a.3-1, “Surveillance for Inspection and Testing of 480 Volt Motor

Control Center (MCC) Draw-Out Units,” as the implementing procedure for inspecting and testing 480 Volt circuit breakers. Contrary to the above, on February 29, 2000, the technicians failed to return the adjustable magnetic element (instantaneous overcurrent setpoint) to the setting position recorded earlier in Procedure MA-BR-EM-1-3.8.a.3-1. This is considered a violation of Technical Specification 5.4.1. However, because this violation was of very low risk significance, was non-repetitive, and was captured in the licensee’s corrective action program (CR 00094420), this violation is being treated as a Non-Cited Violation in accordance with Section V1.A.1 of the NRC Enforcement Policy (NCV 50-456-02-03-02 (DRP)).

- **CR A2000-04475, “Unplanned Limiting Condition for Operations entry for the 2B AF pump during surveillance run.”** This CR described an instance when Unit 2 diesel driven auxiliary feedwater (AFW) pump room cooler failed to automatically start as designed. Specifically, on December 1, 2000, during a test start of the diesel driven AFW pump, the SX outlet valve for the room cooler failed to open and resulted in the inoperability of the 2B AFW pump. The room cooler was designed such that on a AFW pump start the SX inlet valve opens and upon reaching a full open position, a limit switch on the valve stem makes-up a permissive contact in the control circuit to allow the room cooler outlet valve to open.

The ACE associated with this CR described the cause as three physical deficiencies with the limit switch on the inlet valve. However, no discussion was provided on how these deficiencies were caused. The corrective actions merely corrected the deficiencies, not the cause, and provided additional clarification to a maintenance procedure associated with the inlet valve limit switch. Based on the review of the ACE, the inspectors were unable to determine the cause of the event, and therefore, were unable to determine whether or not the corrective actions were appropriate to prevent recurrence. Furthermore, the inspectors noted that the licensee reviewer for this ACE did not identify the same problems. In fact, the completed apparent cause evaluation quality checklist was marked "yes" for the following questions:

- Does the Apparent Cause Section clearly describe why the problem occurred and is the Apparent Cause(s) clearly stated?
- Are the corrective actions linked to the apparent cause(s) stated?

After a discussion with the engineers responsible for reviewing this event, the inspectors ascertained that the cause of the limit switch deficiencies was a failure to adequately tighten the limit switch jam nut. Therefore, the inspectors concluded that the cause was appropriately determined and the corrective actions were acceptable; however, the documentation of the evaluation was poor. Furthermore, the inspectors concluded that tightening the jam nut, was a skill of the craft activity and the failure to adequately tighten the jam nut was not a violation of NRC requirements. The licensee acknowledged the shortcomings with the ACE documentation and issued CR 00094186 to address this concern.

- **ACE for A2001-02003, "Inadequate ACE performed per CR A2001-01168."**  
This ACE was written to re-evaluate the cause of the April 20, 2001 1B AFW pump room cooler outlet valve (1SX178) failure. The original ACE was re-evaluated because the NRC resident inspectors determined that the cause was not well supported. (The technical issues related to this event were described in NRC Inspection Report 50-456-01-07.) In the ACE for CR A2001-02003, the licensee concluded that dust, oil, and moisture in the air controlling this valve caused the failure. Although this cause would appear to be a potential common mode failure mechanism to other components that require instrument air to operate, no discussion was provided within the ACE indicating that this common mode failure mechanism was addressed. After discussing this concern with station engineering personnel, the inspectors ascertained that, based on reviews of the instrument air quality and other component performance histories, an actual common mode failure problem with the instrument air system did not exist. Again, the licensee reviewer of this ACE did not identify the potential common cause failure mechanism. Additional information regarding this failure is provided in NRC Inspection Report 50-456-02-04, the supplemental inspection for the WHITE performance indicator for Unit 1 AFW functional failures.
- **Evaluating Equipment Problems During Outages.** As discussed in Section 4OA2 a(2), during the Fall 2001 Unit 1 refueling outage, all four check valves that separate the non safety-related instrument air system from the safety-related pressurizer PORV control air accumulators were found to have excessive back leakage. On September 29, 2001, the licensee initiated CR 00076349 to document this issue and generated work orders to repair and retest the valves. The inspectors noted that shift management did not review the initial failure of these valves for potential operability or reportability issues. Likewise, shift management did not review CR 00078892 and associated ACE which described a potential common mode failure mechanism that could have impacted both units.

Based on discussions with the Shift Operations Supervisor, the inspectors ascertained that during outages, operability and reportability issues routinely do not go to the shift management review. This practice was based on the philosophy that the items are normally not required to be operable during outages, and that the equipment is repaired and tested prior to be returned to service. As a result of this practice, it was unclear to the inspectors how Braidwood ensured that past operability was reviewed and evaluated with respect the reportability requirements.

The inspectors selected three additional CRs generated during the September 2001 Unit 1 refueling outage to confirm that the causes of the equipment problems were appropriately evaluated prior to returning the equipment to service. The inspectors noted the following comment in CR 0076146, "1PS9357B Failed Local Leak Rate Test (LLRT) per 1BwOSR 3.6.1.1-8 Section 4," "When the valve was made available to work, there was pressure from Work Control to work the valve and solenoid and not to return the valve to service to perform troubleshooting." During the ACE associated with the CR, the licensee identified the potential problem with not



troubleshooting similar equipment problems and had established corrective actions to re-enforce station management's expectations to identify the cause of equipment failures.

The licensee acknowledged these two shortcomings and issued CR 0009537 to address the concerns.

c. Effectiveness of Corrective Action

(1) Inspection Scope

The inspectors reviewed selected CRs and associated corrective actions to evaluate the effectiveness of corrective actions. The inspectors reviewed CRs, operability determinations, ACEs, and root cause reports to verify that corrective actions, commensurate with the safety significance of the issues, were identified and implemented in a timely manner, including corrective actions to address common cause or generic concerns. The inspectors also verified the implementation of a sample of corrective actions. In addition, the inspectors reviewed a sample of corrective action effectiveness reviews completed by the licensee. The samples were selected based on their importance in reducing operational risks and recurring problems. The inspectors reviewed information recorded since September 2000.

Since the licensee's CAP allowed for the closing of corrective action tracking items once the work control process was initiated, the inspectors reviewed the status of all work request created as corrective actions for the period October 1, 2000, through December 31, 2000, to ensure items that these were not subsequently canceled or excessively postponed.

A listing of the specific documents reviewed is attached to the report.

(2) Issues

During the review, the inspectors noted that the licensee was effective in correcting broke/fix type issues such as equipment problems, procedure deficiencies, calculational errors. However, the licensee was less effective in correcting recurring human performance problems. This was evidenced by recurring problems associated with configuration control, contractor control, foreign material exclusion (FME) control, fire protection control, and rework issues.

Regarding configuration controls, the licensee's July 2001 human performance root cause review recognized that past corrective actions were less than effective and new corrective actions were established to address the problem from a different perspective.

In the areas of FME, fire protection, contractor controls and rework issues, the licensee repeatedly identified trends in these areas; however, the corrective actions have not effectively reduced the trends. Often the corrective actions had been used repeatedly even though these actions had not substantially reduced the trends in the past. For example, departmental meetings to discuss the problems were routinely used as a corrective action even though it was evident that these meetings were not effective in the

past. The licensee was aware that these trends have been continuing and they planned additional corrective actions to be taken during the next refueling outage. The inspectors reviewed the proposed actions, but it was too early to assess the effectiveness of the corrective actions.

During review of the corrective actions associated with the Root Cause Review, "2B residual heat removal (RH) pump Tripped on Phase C Overcurrent (AR 00081944)," the inspectors noted that a procedure change made to address this problem did not provide clear guidance to the operators. Specifically, in order to address concerns with potential binding of the RH pump, a change was made to Braidwood Operating Procedure BwOP RH-06 "Placing the RH System in Shutdown Cooling," to monitoring and limit the heatup rate of the pump prior to placing shutdown cooling in service. Although the 10 CFR 50.59 safety evaluation for this change adequately supported the change, it specified that there was only a limited time to establish shutdown cooling due to the available condensate storage volume, and assumed that heatup rate monitoring of the RH system would not start until 260°F. However, this was not clearly stated in the procedure and there was the potential that operators could have inappropriately monitored the heatup rate of the system from ambient temperatures, which could have delayed placing shutdown cooling in service. Based on discussions with the Operations Manager, the inspectors ascertained that the operators were trained on the new procedure and during the training, RH system heatup monitoring was started at the appropriate temperatures. Furthermore, the inspectors ascertained that the licensee had not yet had the need to perform this procedure in the plant. However, the Operation Manager acknowledged that the procedure could be enhanced to provide clearer direction and CR 00094181 was generated to address the issue.

The inspectors' review of licensee event reports identified no significant concerns. Additionally, the inspectors reviewed corrective actions created to address NCVs and concluded that the licensee's proposed actions were completed in a timely manner and that the actions appeared appropriate as evidenced by the lack of repeat problems.

d. Assessment of Safety-Conscious Work Environment

(1) Inspection Scope

The inspectors interviewed plant staff to assess the establishment of a safety conscious work environment.

During the conduct of interviews, document reviews and observations of activities, the inspectors looked for evidence that suggested plant employees may be reluctant to raise safety concerns. Most of the individuals interviewed were asked questions similar to those listed in Appendix 1 to NRC Inspection Procedure 71152, "Suggested Questions for Use in Discussions with Licensee Individuals Concerning PI&R Issues." The inspectors also reviewed the station's procedures related to the "Employee Concerns Program," and discussed the implementation of this program with the station's program coordinator.

(2). Issues

No significant findings were identified. The inspectors noted no indications of unwillingness to raise safety issues. However, during some of the interviews, the inspectors were informed that the August 2001 change to the CAP made it somewhat burdensome to enter items into the corrective action program computerized process.

4OA6 Meetings

Exit Meeting

The inspectors presented the inspection results to Mr. J. von Suskil and other members of licensee management on February 22, 2002. The licensee acknowledged the findings presented. The inspectors confirmed with the licensee that proprietary information was examined during the inspection; however, this was not specifically discussed in this report.

## KEY POINTS OF CONTACT

### Licensee

J. von Suskil, Site Vice President  
K. Schwartz, Plant Manager  
J. Bailey, Regulatory Assurance - NRC Coordinator  
G. Baker, Security Manager  
G. Dudek, Operations Manager  
C. Dunn, Engineering Director  
A. Ferko, Regulatory Assurance Manager  
R. Graham, Work Management Director  
L. Guthrie, Maintenance Director  
F. Lentine, Design Engineering Manager  
K. Schwartz, Plant Manager

### Nuclear Regulatory Commission

G. Grant, Director, Division of Reactor Projects  
A. Stone, Chief, Reactor Projects Branch 3

## LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

### Opened

50-456/02-03-01	URI	Apparent violation of 10 CFR Appendix B, Criterion XVI, for the licensee's failure to identify the cause and take action to prevent recurrence for failures Unit 1 pressurizer PORV accumulator check valves
50-456/02-03-02	NCV	Failure to follow procedure resulted in the inoperability of the 1B containment spray suction valve from the containment sump

### Closed

50-456/02-03-02	NCV	Failure to follow procedure resulted in the inoperability of the 1B containment spray suction valve from the containment sump
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## LIST OF ACRONYMS AND INITIALISMS USED

ACE	Apparent Cause Evaluation
AFW	Auxiliary Feedwater System
AR	Action Request
CAP	Corrective Action Program
CCA	Common Cause Analysis
CFR	Code of Federal Regulations
CR	Condition Report
CV	Centrifugal Charge System
DRP	Division of Reactor Projects
ESF	Engineered Safety Feature
FME	Foreign Material Exclusion
IA	Instrument Air System
LCO	Limiting Condition for Operations
LCOAR	Limiting Condition for Operations Action Requirement
LER	Licensee Event Report
LLRT	Local Leak Rate Test
MCC	Motor Control Center
NCV	Non-Cited Violation
NO	Nuclear Oversight
NRC	Nuclear Regulatory Commission
OOS	Out-Of-Service
OPEX	Operating Experience
OWA	Operator Work Around
PI&R	Problem Identification and Resolution
PORV	Power Operated Relief Valve
RCR	Root Cause Report
RH	Residual Heat Removal
SDP	Significance Determination Process
SSPS	Solid State Protection System
SX	Essential Service Water System
TBD	To Be Determined
TRM	Technical Requirements Manual
TS	Technical Specification
U1	Unit 1
U2	Unit 2
UFSAR	Updated Final Safety Analysis Report
WR	Work Request

## LIST OF INFORMATION REQUESTED

1. Copy of the Administrative procedure(s) governing the identification and resolution of problems.
2. Copies of any Quality Assurance audit (self-assessment) of the corrective action program completed since September 1, 2000.
3. List of Maintenance Rule (a)(1) systems and components, and the associated system health reports since September 1, 2000.
4. List of all significant conditions adverse to quality Condition Reports since September 1, 2000.
5. List of all Condition Reports involving human performance or corrective action problems since September 1, 2000.
6. List of Operator Work Arounds and Temporary Modifications since September 1, 2000.
7. Copies of Root Cause evaluations since September 1, 2000.
8. List of Condition Reports since September 1, 2000.
9. Copies of Prompt Investigations since September 1, 2000.
10. List of Work Orders and Action Requests since September 1, 2000.
11. List of Apparent Root Causes completed since September 1, 2000.
12. Copies of Operability Evaluations performed since September 1, 2000.
13. List of Quality Assurance audits and self assessments performed since September 1, 2000.
14. List of top 10 risk significant systems and components.
15. (NRC identified issues) Copies of NCV's since September 1, 2000, and copies of the licensee's actions for issues related to NCV's by cornerstones.
16. List of issues identified through employee concerns program.
17. Copies of latest outage critiques for each unit.
18. Copies of Common Cause Evaluations completed since September 1, 2000.
19. Copies of Effectiveness Reviews completed since September 1, 2000.
20. Copy of administrative procedure for the employee concerns program.

21. Copy of administrative procedure for incorporating industry operating experience (OPEX).
22. Copies of trend analysis reports for condition reports (Station and Department level).
23. List of the corrective action backlog; work order backlog risk significance assessment.
24. Copies of the corrective action system program reports submitted to management since September 1, 2000.
25. Copies of procedures governing Operator Work Arounds, Temporary Modifications, Operability Evaluations, Root Cause Evaluations, and Prompt Investigations.
26. List of times and locations of site meetings, particularly those associated with the corrective action process.
27. Copy of Site Organization Charts.
28. List or rework items and repeat failures since September 1, 2000.

Documents requested to be available during the inspection:

- a. Updated Final Safety Analysis Report,
- b. Technical Specifications,
- c. Procedures,
- d. Copies of any self-assessments and associated condition reports generated in preparation for the inspection.

## LIST OF DOCUMENTS REVIEWED

### **Action Requests (AR) and Condition Reports (CR)**

AR 00034620	A2000-03509: Nuclear Oversight (NO) Identifies Operator Work Around Program Deficiencies/Weakness	September 8, 2000
AR 00036951	Assignment Detail for A2000-03928; Report of the Site Self Assessment Indicates	January 12, 2001
AR 00038869	AR Assignment/Sub Assignment Summary Report (CAP010) for A2000-04348; Potential trend - Foreign Material Exclusion - FH	November 17, 2000
AR 00073928	Minute Oil Leak and Water Leaks on 1A and 2A Centrifugal Charge System (CV) Pumps	
AR 00075347	2CV8519 Found Open	September 15, 2001
AR 00076754	Siemens - Westinghouse Individual Was Injured	September 27, 2001
AR 00077005	No Timer Signal for OB WO Signal During 1BwVSR 3.8.1.11-2	September 29, 2001
AR 00077716	Radiological Series of Events Requires Common Cause Analysis	January 11, 2002
AR 00078651	Operator Workaround Procedure Has Confusing Examples	October 11, 2001
AR 00079272	Potential Trend - Increasing Amount of Foreign Material Exclusion (FME) Issues & Events	October 17, 2001; October 19, 2001; October 24, 2001
AR 00079519	Potential Trend - Contractor Control Issues in A1R09	October 23, 2001; October 24, 2001
AR 00079525	NRC Identified Need to Revise Procedure	October 18, 2001
AR 00079728	Potential Trend - Increasing Amount of Rework Issues	December 14, 2001
AR 00081972	Reactor Coolant System Cooldown Surveillance Acceptance Criteria Conflict	November 7, 2001



AR 00082135	Inappropriate Shutdown Safety Classification on 2B Residual Heat Removal (RH) Pump Failure	November 7, 2001
AR 00082711	Disposition of 1B RH Pump Running Clearances	November 12, 2001
AR 00082907	Ambiguous Terms Used in Procedures	November 8, 2001
AR 00085786	Braidwood SME Review - Non BY-01-097	January 8, 2002
AR 00087834	Recommendation for RH Demonstration During AR09	November 15, 2001
AR 00091960	Secondary Plant Transient During Instrument Maintenance Department Calibration of 2F-CB001	January 23, 2002
AR 00092217	Evaluate Unit 2 (U2) Cond Overflow for Potential Operator Work Around	January 24, 2002
AR 00093733	Trend - Preventive Maintenance Exceed Late Date Prior to Deferral Approval	February 4, 2002
AR 00093792	No Service Air or Caustic Isolation on OA Radwaste Demin Clearance Order	February 4, 2002
CR A2000-00268	Potential Trend - Increased Frequency of Human Performance Errors in Fuel Handling	January 18, 2000
CR A2000-00968	2A CV Pump Seal Leakage	March 5, 2000
CR A2000-01988	2CV206 Leakage Has Increased	April 23, 2000
CR A2000-03478	Rework - Air Deflector on Unit 0 Station Air Compressor Was Not Installed Correctly	September 1, 2000
CR A2000-03484	Potential Functional Failures for Maintenance Rule Criteria PS3	September 1, 2000
CR A2000-03490	Failed Surveillance –0BwOSR 3.7.8.3-1 for 0SX147	September 3, 2000
CR A2000-03491	Unplanned GW004 Technical Requirements Manual (TRM) Entry	September 3, 2000
CR A2000-03495	Poor Sequencing of 2B RH Train Work Due to Procedure Inadequacies	September 5, 2000
CR A2000-03498	NO Identified Action Item Not Created for Root Cause Corrective Action	September 5, 2000

CR A2000-03504	NO Identified: Design Deficiency Rework Items Not Driven to Closure	September 5, 2000
CR A2000-03505	NO Identified Poor Quality of Apparent Cause Evaluations (ACEs)	September 5, 2000
CR A2000-03512	NO Identifies Enhancement Recommendation for System Engineering	September 5, 2000
CR A2000-03539	6.9 KiloVolt Breaker Sent to Wrong Location	September 6, 2000
CR A2000-03545	Form Looks Like an Approved Procedure	September 5, 2000
CR A2000-03567	Unplanned Entry Into TRM 3.3.1 Due to 1FI-AF014A Main Control Room Flow Indicator Pegged Low	September 8, 2000
CR A2000-03584	Conflicting Acceptance Criteria in Local Leak Rate Test Procedures	September 13, 2000
CR A2000-03596	Unplanned Entry Into Fire Protection GOCAR For Zone 2D-49	September 13, 2000
CR A2000-03606	A2R08 Procedure(s) Identified After Freeze Date	September 13, 2000
CR A2000-03623	Special Plant Procedure 98-014 is Not Available in Procedure Files or Entered Into Controlled Documents	September 14, 2000
CR A2000-03632	2A CV Pump Inboard Leakage	September 18, 2000
CR A2000-03659	1A CV Pump Outboard Seal Leak Has Increased	September 18, 2000
CR A2000-03668	4KV Breaker Motor Cutout Switch Failed Surveillance	September 16, 2000
CR A2000-03672	Superceded Procedure Form Found in D20-1-99-370-003	September 19, 2000
CR A2000-03686	50.59 Missing Tracking No. and Site Procedure Not Detected for Safety Nuclear Station Procedure	September 19, 2000
CR A2000-03712	Focus Area Self-Assessment Identified Mechanical Maintenance Field Observations Are Not Sufficiently Objective/Critical	September 26, 2000
CR A2000-03719	2CV206 Leakage Discrepancies	September 25, 2000

CR A2000-03746	Adverse Trend Identified: Foreign Material Exclusion Work Practices in Maintenance	September 27, 2000
CR A2000-03749	Procedure Revisions Needed as a Result of Diesel Generator Modifications	September 27, 2000
CR A2000-03767	Unnecessary Diesel Unavailability Due to Fire Protection CO2 Testing	September 28, 2000
CR A2000-03783	Radwaste Rounds Could Not Be Performed on the Husky	October 1, 2000
CR A2000-03792	1MS018A Trouble Alarm/Unplanned Limiting Condition for Operation Action Requirement (LCOAR) Entry	October 3, 2000
CR A2000-03799	Incorrect Application of Procedural Guidance, RS-AA-122-117	October 3, 2000
CR A2000-03819	Latch Check Switch on 6.9KiloVolt Breaker Out of Adjustment	September 29, 2000
CR A2000-03825	Review Byron CR (B2000-02760) Regarding Debris in the Safety Injection system for Applicability to Braidwood	October 10, 2000
CR A2000-03843	Minimum Wall Thickness on Line 2SXB1AB-3"	October 9, 2000
CR A2000-03845	Maintenance Rule Functional Failure Monthly Review for July and August 2000	October 9, 2000
CR A2000-03885	Work Performed Without Shift Authorization	October 12, 2000
CR A2000-03893	2SX046B Was Not Leakage By	October 13, 2000
CR A2000-03909	Contingency Actions for Spent Fuel Pool Level Loss Not Communicated to All Shift Personnel	October 16, 2000
CR A2000-03909	Contingency Actions for Spent Fuel Pool Level Loss Not Communicated to All Shift Personnel	October 16, 2000
CR A2000-03921	1WX036B Found Open	October 17, 2000
CR A2000-03925	Supply Management Focus Area Self-Assessment Deficiencies (MS-AA-402 Procedure)	October 18, 2000

CR A2000-03926	Report of the site Self Assessment Indicates an Area for Improvement in Industrial Safety	October 18, 2000
CR A2000-03927	Report of the Site Self Assessment Indicates the Area for Improvement MA.2-1 Requires Further Action	October 20, 2000
CR A2000-03928	Report of the site Self Assessment Indicates Area for Improvement MA.2-2 Requires Further Action	October 18, 2000
CR A2000-03929	Report of the Site Self Assessment Indicates an Area for Improvement in Operations	October 18, 2000
CR A2000-03948	Safety System Unavailability & YELLOW Online Risk Extended by Unscheduled Activity	October 19, 2000
CR A2000-04397	1B Essential Service Water System (SX) Strainer Corrosion - NRC Concern	November 17, 2000
CR A2000-04475	Unplanned Limiting Condition for Operations (LCO) Entry for the 2B Auxiliary Feedwater System Pump During Surveillance Run	December 1, 2000
CR A2000-04675	Potential Rework - Damage to Pump Casing Caused by Incorrect Maintenance Practices	December 21, 2000
CR A2001-00131	Adverse Trend Identified in Fire Protection	January 16, 2001
CR A2001-00371	Emergency Diesel Fuel Calculation Discrepancies	February 5, 2001
CR A2001-00495	Instrument Inverter 213 Temperature Qualification	February 15, 2001
CR A2001-00569	Inadequate Contingency Preparations When Spent Fuel Pool Cooling Pump Not Available	February 22, 2001
CR A2001-00795	Supply Management Identified - Ineffective Corrective Actions	March 16, 2001
CR A2001-00844	1BwGP 100-1 Errors Identified by NRC	March 21, 2001
CR A2001-01192	Ultrasonic Inspection Results on 1B SX Pump Strainer Drain Line	April 23, 2001

CR A2001-01291	Pipe Penetrations Not Protected - Safety Issue	May 1, 2001
CR A2001-01331	NRC Question Regarding Floor Openings - Safety Issue	May 4, 2001
CR A2001-01451	Essential Service Water Pump Weight Increase	May 15, 2001
CR A2001-01802	2A CV Pump Has Excessive Inboard Seal Leakage	June 17, 2001
CR A2001-02013	Ineffective Corrective Action - Pre-define is Still Not Properly Scheduled	July 9, 2001
CR A2001-02030	Validation of Trend in Human Performance Warrants Root Cause Analysis	July 11, 2001
CR A2001-02102	NO Identified Corrective Actions Not Initiated in Action Tracking per Corrective Action Program	July 18, 2001
CR A2001-02152	1VA06SB - Isolation Valves	July 20, 2001
CR 00076349	During Performance of 1BwOSR 3.4.11.3.3 Check Valves Failed	September 24, 2001
CR 00077005	No Timer Signal for 0B WO signal during BwVSR 3.8.1.11-2	September 29, 2001
CR 00078892	Maintenance Rule Criteria RY2 Exceeds Reliability Criteria	October 15, 2001
CR 00091925	Unit 2 Train of Instrument Air Exceeded Maintenance Rule Unavailability Goal	
CR 00093520	Weaknesses in Trending Noted in CAP Self-Assessment	February 1, 2002
CR 00094181 <sup>1</sup>	Potential Misinterpretation in BwOP RH-6 Heatup Limits	February 6, 2002
CR 00094403 <sup>1</sup>	0SX147 Valve Stroke Issue/Potential Operator Workaround	February 8, 2002
CR 00094420 <sup>1</sup>	Operability Concern with Valve 1CS009B for 14 Month Period	February 8, 2002
CR 00094527 <sup>1</sup>	New Corrective Action Not Created From ACE	February 9, 2002
CR 00095373 <sup>1</sup>	Process Issue with Investigation and Potential Inoperability	February 14, 2002

LS-AA-105-1001	CR 82711 - Supporting Operability Documentation	July 9, 2001
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**Effectiveness Reviews**

AR 00003185	Effectiveness Review of A1998-02989; Four 480V Motor Control Center (MCC) Feed Breakers Would Not Close on Effectiveness Review	March 12, 2001
AR 00003191	Effectiveness Review of A1998-04252; Train A Reactor Vessel Level Indication System Unplanned LCOAR Entry	January 1, 2001
AR 00003625	Effectiveness Review of SOER 91-01, conduct of Infrequently Tests or Evolutions	September 28, 2001
AR 00003630	Effectiveness Review of SOER 95-01: Reducing Events	November 15, 2001
AR 00003633	INPO SOER 97-1 - Potential Loss of High Pressure Injection	December 13, 2000
AR 00003665	Effectiveness Review of A1997-04982; 2SI8851 Relief Valve Lift - Corrective Actions	March 20, 2001
AR 00007716	Effectiveness Review of A1999-01229 Accident in Containment	March 8, 2001
AR 00011381	Effectiveness Review of A1999-01692; Unit 2 Reactor Trip on 1R High Flux	December 8, 2000
AR 00016833	Effectiveness Review of A1999-02929; Solid State Protection System (SSPS) Slave Relay's Response Time Untested	November 17, 2000
AR 00019885	Effectiveness Review of A1999-03710; Trend Problem Identification Form-Out-of-Service (OOS) Issue Within Maintenance	June 29, 2001
AR 00023629	A2000-00691: Potential Trend-Wrong Lubricants Being Used	December 15, 2000
AR 00023792	A2000-00729: Excessive Unit 2 Reactor Coolant System Leakage	March 27, 2001
AR 00024390	Effectiveness Review of A2000-00883; Trend-Incorrect/Uncontrolled Procedures in Radiation Protection	March 30, 2001

AR 00024710	A2000-00661: Lack of Rigor in Handling Increased Radiation Indication on Control Room Heating, Ventilation and Air Conditioning System	August 31, 2001
AR 00027323	Effectiveness Review of A2000-01910; 2FW079A/B Graphoil Seal Found Extruded	November 16, 2001
AR 00024246	Effectiveness Review of A2000-00855; Potential Trend - Missed Fire Watches	February 28, 2001
AR 00025270	A2000-01121: Loss of Unit 1 (U1) and U2 SG Blowdown	May 4, 2001
AR 00030935	Effectiveness Review of A2000-02626; Bad Wire Replacement in Security Multiplexer 2	February 28, 2001
AR 00031642	Effectiveness Review of A2000-03032; Rework - 1CB01PD Outboard Bearing Failure Due to Lubrication	June 27, 2002
AR 00033390	Effectiveness Review of A2000-03203; Adverse Trend-Plant Personnel Don't Understand	October 18, 2001
AR 00042593	Effectiveness Review of A2001-00131; Adverse Trend Identified in Fire Protection	February 25, 2002
CR A2001-00582	Corrective Actions for CR A1999-03530, OOS Error Not Effective	November 15, 1999
CR A2001-00712	Corrective Action to Prevent Recurrence for Effectiveness Review Determined to Be Collectively Ineffective	March 7, 2001
<b>Root Cause Reports</b>		
AR 00038237	A2000-04281 Failed Circulation Water Blowdown Vacuum Breaker Flooding	May 30, 2002
AR 00041352	A2000-04707 Number of Out-of-Service Errors is Increasing	February 1, 2001
AR 00042593	A2001-00131 Adverse Trend Identified in Fire Protection	February 25, 2002
AR 00042593-02-00	AR Assignment/Sub Assignment Summary Report (CAP010) -Completed and Open Actions from A2001-00131	February 6, 2001

AR 00056777	A2001-02014 Steam Dump Valves 1MS004 C and G Made Inoperable	June 3, 2002
AR 00075897	Root Cause Analysis for 1MS016B, 1MS017B, and 1MS014D Exceeds 3% Technical Specification Criteria	November 7, 2001
AR 00076608	Root Cause Analysis for Main Steam Line Isolation Valves Not Stroke Timed in Mode 3 as Required	November 9, 2001
AR 00081944	Root Cause Analysis for 2B RH Pump Tripped on Phase C Overcurrent	December 13, 2001
AR 00085836	Adverse Trend Observed During Rework Common Cause Analysis (CCA) (AR 79728)	February 8, 2002
CR A2000-03746	Adverse Trend of Foreign Material Exclusion Events and Issues Caused by a Lack of Procedural Understanding and Inadequate Training	October 20, 2000
CR A2000-04494	Adverse Trend - Contractors Fail to Adequately Follow the Hot Work Procedure (OP-AA-201-004) Due to Lack of Reinforcement of Procedural Requirements During Pre-Job Briefings	December 3, 2000
CR A2000-04587	Root Cause Evaluation for Erroneous Feedwater Temperature Input into the Calorimetric Program due to a Modification Installation Error	January 23, 2000
CR A2000-04707	Number of Out-of-Service Errors is Increasing	December 19, 2000
CR A2001-00131	Root Cause Evaluation Report for Lack of Sensitivity and Awareness by Supervision and Work Force to Engage Fire Protection Standards Pertaining to Combustible Storage (Transient Fire Loading) and Blockage of Fire Protection Equipment	January 16, 2001
CR A2001-00815	Unintentional Rotation of Unit 1 C/D Traveling Screens During Maintenance	March 19, 2001
ATI 00056776-02	Root Cause Investigation Report for Procedural Noncompliance at Braidwood Station Due to a Lack of Management Oversight and Failure to Enforce Management Standards and Expectations	July 23, 2001



Abstract from Root Cause Report Titled  
 “Adverse Trend - contractors Fail to  
 Adequately Follow the Hot work Procedure  
 (OP-AA-201-004) Due to Lack of  
 Reinforcement of Procedural  
 Requirements During Pre-Job Briefs” (ATI  
 42593-02)

#### **Non-Cited Violations (NCVs)**

50-456/2000011-01	Equipment Alignment of 1A Safety Injection Pump	September 13, 2000
50-456/457/2001002-01	Violation of Criterion III Due to Failure to Correctly Translate Tank Weight Into a Seismic Calculation	March 12, 2001
50-456/2001005-01	Inadequate Post Maintenance Testing Associated with Preventive Maintenance on the OA Hydrogen Recombiner	April 27, 2001
50-456/457/2002007-01	Inadequate Procedure for Performing Maintenance on the 1AOV-SX178 Valve	July 26, 2001
50-457/2002009-02	Failure to Follow Procedures Lead to Unit 2 Reactor Trip	September 17, 2001
50-456/2001010-01	Failure to Follow Procedure Resulting in a Water Spill	October 26, 2001
50-456/457/2001010-02	Failure to Have Procedure Appropriate to Circumstances	October 26, 2001
50-456/457/2001011-01	Failure to Follow Procedure during Startup	December 12, 2001
50-456/457/2001011-03	Failure to Follow Technical Specification 5.7.2(d)	December 12, 2001
50-456/457/2001013-02	Failure to Perform RH Pump Maintenance in Accordance with Procedure	November 7, 2001

#### **Apparent Cause Evaluation (ACE)**

PIF A1998-02003	Inappropriate Temp Lift	June 2, 1998
PIF A2000-02112	Potential Trend - Contractor Control Issues During Refuel Outage	May 3, 2000
AR 00034943	ACE for CR A2000-3576; Potential Weakness Exists for Identifying Maintenance Rule Functional Failure	November 30, 2001

AR 00071357	Procedure Adherence Determined to be Common Cause During CCA	August 8, 2001
AR 00072949	Missed Firewatch on U1 Cable Tunnel	August 22, 2001
AR 00072983	Reliability Criteria for Function SX1 Has Been Exceeded	August 23, 2001
AR 00074717	1SI8804B Trips Breaker When Trying to Stroke - Unplanned LCO	September 10, 2001
AR 00075330	Testing of 1CV03P, Letdown Booster PP, Configuration Control	September 14, 2001
AR 00076106	Unit 1 6.9KV Bus 156 and 157 Problems With Breaker Rosettes	September 22, 2001
AR 00076146	1PS9357B Failed Local Leak Rate Test (LLRT) per 1BwOSR 3.6.1.1-8 Section 4	September 24, 2001
AR 00076349	During Performance of 1BwOSR 3.4.11.3.3 Check Valves Failed	September 24, 2001
AR 00076372	1CV8396A Found Open During LLRT Subsequent Leak in Containment CWA	September 25, 2001
AR 00076399	LLRT Failure of 1RY8047	September 25, 2001
AR 00076572	Hydrolazing SX Cooling in 1B AF Water Room, Water Spray	September 26, 2001
AR 00079302	Potential Trend - Fire Protection/Hot Work Issues in A1R09	October 18, 2001
AR 00083778	Carbon Dioxide Restored to Unit 2 Cable Tunnel Improperly	November 13, 2001
AR 00085601	2CV460 Did Not Close While Establishing Excess Letdown	December 7, 2001
AR 00094186 <sup>1</sup>	ACE on 2SX178 Failure to Open (39827-02) Requires Updating	February 6, 2002
CR A2000-03499	NO Identified Examples of Inadequate Dispositioning of Operating Experience (OPEX)	September 5, 2000
CR A2000-03532	Loss of Refueling Water Storage Tank Level	September 6, 2000
CR A2000-03576	The Potential Exists That Maintenance Rule Functional Failures Are Not Being Identified	September 12, 2000

CR A2000-03615	Corrective Actions from CAP ACE Not Performed or Tracked	September 14, 2000
CR A2000-03621	Preventive Maintenance Scheduled Past Due Dates	September 14, 2000
CR A2000-03681	Incorrect Parts Issued for 2CV01PB Work	September 14, 2000
CR A2000-03706	0GW073 (Analyzer Outlet Isolation Valve) Found Closed During Set Up for Monthly Calibration	September 21, 2000
CR A2000-03727	Potential Rework - 1PR06J configuration Incorrect	September 25, 2000
CR A2000-03739	LSH Sump Pump Breaker Trips	September 26, 2000
CR A2000-03897	FME Issue - Lock Tube Lost in Fuel Pool During Top Nozzle Reconstitution	October 15, 2000
CR A2000-03958	Entry Into LCOAR 3.4.5	October 21, 2000
CR A2000-03960	2PS5552A Fount Out of Position	October 21, 2000
CR A2000-03976	2B CW Pump Found Running	October 22, 2000
CR A2000-04111	Potential Rework - Reactor Trip Bypass Breaker Replacement Contact Blocks Installed in Incorrect Position	October 26, 2000
CR A2000-04153	A Train Engineered Safety Feature (ESF) Sequence Timer Wired Wrong	October 30, 2000
CR A2000-04156	Loss of Seal Injection Flow to 2D Reactor Coolant Pump	October 21, 2000
CR A2000-04170	OOS Not Properly Hung for 2CV8153A	October 30, 2000
CR A2000-04197	Rework - 2CV121 Valve Sticking	October 29, 2000
CR A2000-04246	Rework - Pressurizer Spray Valve Temporary Modification Not Removed	November 8, 2000
CR A2000-04284	Incorrect Delta-I Target Leads to Unit 2 Ramp Down	November 8, 2000
CR A2000-04317	Potential Trend - Contractor Control Issues During Refuel Outage	November 9, 2000
CR A2000-04554	480V ESF Switchgear 231X Breakers Found in REMOVED Position	December 10, 2000
CR A2000-04679	Failure to Follow Written Procedure/Program	December 22, 2000

CR A2001-00006	Engineering Self Assessment Identifies NRC Commitment Not Met	January 2, 2001
CR A2001-00028	Poor Quality ACEs Being Completed by Maintenance	January 4, 2001
CR A2001-00059	Performance Indicator OM.1, Unplanned Entries Into LCOs, is in Variance	January 8, 2001
CR A2001-00208	Potential FME - 2SX052B Seat Ring and Plate Missing	January 22, 2001
CR A2001-00379	Admin Procedure Not Adhered to Resulting in NEP Inadvertent Deletion	February 6, 2001
CR A2001-00515	1CF5000B Found Out of Position	February 18, 2001
CR A2001-00608	Required Work for Temporary Modification Removal Not Completed as Scheduled	February 28, 2001
CR A2001-00633	Unit 1 Station Air Compressor Found with Low Oil Level	March 2, 2001
CR A2001-00714	Entry Into LCO 3.6.5 for U2 High Containment Temperature	March 6, 2001
CR A2001-00916	Ambiguous Work Task Instructions Can Result in OOS Error and Personal Injury	March 26, 2001
CR A2001-00930	NO Identified an Inadequate Corrective Action	March 28, 2001
CR A2001-01168	Potential Rework - 1SX178 Failed to Open on 1B Auxiliary Feedwater Pump Diesel Start	April 20, 2001
CR A2001-01170	Potential Rework - 1CS009B Trips Breaker During Votes Testing after Maintenance	April 20, 2001
CR A2001-01187	Unplanned Entry Into LCO 3.7.8 Due to 1B SX Train Declared Inoperable	April 23, 2001
CR A2001-01337	Isolation of Secondary Pot Fuses for 4.16 and 6.9 KiloVolt Busses	May 6, 2001
CR A2001-01421	Unplanned Entry into TRM Technical LCO Due to OOS	May 13, 2001
CR A2001-01535	Received Over Temperature Delta Temperature High Reactor Trip Alert Annunciator & Bistable Due to Misperformed Procedure	May 21, 2001

CR A2001-01588	2SI080A Valve Found Out of Position During Operator Rounds	May 28, 2001
CR A2001-01645	2RE1003 Failure to Open - Unplanned LCOAR Entry	June 2, 2001
CR A2001-01735	2PR030J Failing Checksource, Unplanned TRM Technical LCO Entry	June 10, 2001
CR A2001-01768	Work Delayed by Confined Space Procedure Revision	June 11, 2001
CR A2001-01808	OPR10J Purge Inlet Valve Found Out of Position	June 18, 2001
CR A2001-01893	Procedure Deficiency Associated with Breath Alcohol Testing	June 25, 2001
CR A2001-02123	NRC Comments Associated with Performance of 1BwOSR 3.5.2.2-2	July 20, 2001
CR A2001-02174	Unit 0 Service Air Compressor Unloader Valve Malfunction	July 26, 2001
CR A2001-02271	Bus 159 Blew Secondary Pot Fuse	August 5, 2001
CR A2001-02304	Repair in Switchyard Without Proper Procedure	August 8, 2001
CR A2000-03499	No Identified Examples of Inadequate Dispositioning of OPEX	September 5, 2000

#### **Work Requests (WRs)**

WR 00009258	Wall Thinning Replace Pipe	July 11, 2001
WR 00012700	Cut Fire Retardant Door Wedges for 6.9/4 KiloVolt Breaker Doors	August 5, 2001
WR 00017854	Aftercooler Cu Discharge Line is Cracked. Please Replace	September 20, 2001
WR 00018809	Pipe Break Upstream of Valve	September 28, 2001
WR 00018989	Open End Limit Switch is Broken and Requires Replacement	September 29, 2001
WR 00019023	Instrument Air System (IA) Isolation Valve to 1PS9354B is Broken Off	September 29, 2001
WR 00019095	Air Line Upstream of IA Isolation Valve to 1WS106 Broke	September 30, 2001

WR 00019385	Change Hand Switch Design to Dual Action	October 4, 2001
WR 00019389	Change Hand Switch Design to Dual Action	October 4, 2001
WR 00019503	Valve Won't Open, May be Bound, Need Assist to Open	October 2, 2001
WR 00019668	Internal of OWX248 Installed Backward. Install it Correctly.	October 18, 2001
WR 00019711	Valve May be Mechanically Binding, Adjust Limits	October 4, 2001
WR 00019881	Found IA Line Disconnected	October 4, 2001
WR 00021134	Several Concerns With Steam Dumps Discovered	October 12, 2001
WR 00021827	Stem Separated From Diaphragm	October 18, 2001
WR 00022576	Grease Fitting on Pipe Support Painted: Prevents Lubrication	October 25, 2001
WR 00022583	Grease Fitting on Pipe Support Painted: Prevents Lubrication	October 25, 2001
WR 00022584	Grease Fitting on Pipe Support Painted: Prevents Lubrication	October 25, 2001
WR 00022598	Grease Fitting on Pipe Support Painted: Prevents Lubrication	October 25, 2001
WR 00023689	Replace Cylinder #9R Kiene Valve (Binding, Won't Open Fully)	October 31, 2001
WR 00026488	Valve Will Not cycle During Performance of 2BwOS SX-Q1	November 24, 2001
WR 00357926-01	1 SI8840B Breaker Trips When Trying To Open the Valve	September 10, 2001
WR 97081669	Reverse Threaded Valve Installed	October 30, 1997
WR 99052492	Disassemble, Inspect, and Preventive Maintenance Recondition per NSP-ER-3017	October 12, 1999
WR 9980095908	1CS009B MCC Thermal Overload Protection Surveillance (132X1-G1) 1AP23E-G!	February 29, 2000

WR 99078723	Outboard Seal is Leaking Approximately 2 Drops/Minute. Repair/Replace Pump, 2A Centrifugal Charging Assembly	March 5, 2000
WR 99088228	Remove Pipe Cap, Clean and chase Threads, Install New Pipe	April 24, 2000
WR 99095065	Valve Stem Twisted-Replace. Discovered While Trying to Achieve	June 9, 2000
WR 99107345	Replace Relay K0913, Contact Discrepancy Noted During SSPS	September 8, 2000
WR 99109392	Pipe Wall has Significant Thinning. Correct Per Engineering Request 9801093	September 22, 2000
WR 99114474	IA Line Separated from I/A Isolation Valve	October 19, 2000
WR 99115148	Valve Does Not Completely Isolate on Close Signal	October 24, 2000
WR 99116225	2CV121, Stuck 10% Open Will Not Move Either Direction	October 30, 2000
WR 99116652	2RY8028 Valve Will Not Stay Open When Stroked. Troubleshoot	October 31, 2000
WR 99125319	Water Seeping Into Room Thru East Wall and to Floor	December 31, 2000
WR 99135361	Erosion/Replace 8" 90el AND 16" OF Pipe Downstream W/P22	February 28, 2001
WR 99136759	High Speed Breaker Fails to Close When Attempted	March 8, 2001
WR 99137981-01	MM Leaks By	December 27, 2001
WR 99140898	High Pressure Turbine #1 Governor Valve Failed Closed	April 3, 2001
WR 9914659	Pinhole Leak in Elbow Located at 418°F 10 + 11 FT.	April 9, 2001
WR 990172455	1CS009B; Molded Case Circuit Breaker Trip Test Surveillance	April 18, 2001
WR 990130116 01	SX Crosstie Valve Stroke & Indication Quarterly Surveillance Test	March 16, 2000
WR 990155110 01	SX Crosstie Valve Stroke & Indication Quarterly Surveillance Test	June 10, 2000

WR 990184343 01	SX Crosstie Valve Stroke & Indication Quarterly Surveillance Test	September 2, 2000
WR 99106670	Valve Will Not Fully Close, Troubleshoot Repair as Necessary	September 3, 2000
WR 99277806 01	Essential Service Water Indication 18 Month Surveillance Test	November 21, 2001
WR A56570	Power Operated Relief Valve (PORV) Accumulator Check Valve	October 6, 1992
WR A56571	PORV Accumulator Check Valve	October 6, 1992
WR A56572	PORV Accumulator Check Valve	October 6, 1992
WR A56573	PORV Accumulator Check Valve	October 6, 1992
WR 970072753	1RY085A Inspection	October 9, 1998
WR 970072754	1RY085B Inspection	October 9, 1998
WR 970072755	1RY086A Inspection	October 9, 1998
WR 970072757	1RY086B Inspection	October 9, 1998
WR 970051161 01	Unit 1 Pressurizer PORV Instrument Air Accumulator Check Valve Test	October 17, 1998
WR 970114258 01	Unit 2 Pressurizer PORV Instrument Air Accumulator Check Valve Test	May 3, 1999
WR 9800112231 01	Unit 1 Pressurizer PORV Instrument Air Accumulator Check Valve Test	March 22, 2000
WR 990050256 01	Unit 2 Pressurizer PORV Instrument Air Accumulator Check Valve Test	October 24, 2000
WR 990224847 01	Unit 2 Pressurizer PORV Instrument Air Accumulator Check Valve Test	October 28, 2000
WR 99159828 01	Unit 1 Pressurizer PORV Instrument Air Accumulator Check Valve Test	September 24, 2001

#### **Common Cause Analysis**

AR 00031900	A2000-02557: A Review of CAPSYS Indicates 23 PIFs Initiated This Year Identifying Incorrect or Non-Conforming Parts Received at Braidwood A2000-02557)	August 4, 2000
AR 00034295	A2000-03442: Potential Trend-Foreign Material Events and Issues	September 29, 2000



AR 00034609	A2000-03505: Nuclear Oversight Identified Poor Quality of ACEs	October 4, 2000
AR 00035394	A2000-03675: 7 of 7 Trend Reports Reviewed Found Unsatisfactory by Downer's Grove Office	November 17, 2000
AR 00038455	A2000-04317: Potential Trend-Contractor Control Issue-Outage	June 29, 2001
AR 00038589	A2000-04329: A2R08 Outage Reactivity Management	December 15, 2000
AR 00038869	A2000-04348: Potential Trend: Foreign Material Exclusion	April 2, 2001
AR 00039981	A2000-04494: Procedural Non-Compliance of OP-AA-201-004	January 19, 2001
AR 00040371	A2000-04560: Administrative Directors Not Contacted During August Drill	February 21, 2001
AR 00040707	A2000-04610: Common Cause Related to A2R08-Overconfidence	December 3, 2001
AR 00043451	A2001-00271: Potential Adverse Trend Related Electrical Maintenance Department	December 31, 2001
AR 00044640	A2001-00381: Potential Increase Trend of Errors - Design Change Document	March 20, 2001
AR 00044926	A2001-00440: Safety System Design Inspection Items-Drawings	April 6, 2001
AR 00055823	A2001-01917: Potential Adverse Trend-Rework Issues Relating	August 21, 2001
AR 00074457	NO Identified Problems with Administrative Procedure Adherence	October 16, 2001
AR 00079302	Potential Trend - Fire Protection/Hot Work Issues in A2R09	December 14, 2001
AR 00079519	Potential Trend - Contractor Control Issues in A1R09	January 18, 2001
AR 00079728	Potential Trend - Increasing Amount of Rework Issues	December 14, 2001
AR 0032989-02	Ineffective Corrective Actions to Prevent Recurrence Associated with Work Package Quality	October 31, 2000

CR A2000-03675	7 of 7 Trend Reports Reviewed Found Unsatisfactory by Downer's Grove	September 19, 2000
CR A2000-04610	Common Cause Related to A2R08 - Overconfidence	December 15, 2000
AIT 57124-02	An Investigation Into the High Number of Chiller Related CRs Generated in 2001	August 16, 2001
AIT 79302-03	Perform a Review of the 23 Condition Reports Identified Under CR# 79302 to Determine if an Adverse Trend Exists in the Area of Fire Protection/Hot Work Issues in A1R09	December 16, 2001
AIT 79519-03	Perform a Review of Approximately 88 Condition Reports Identified Under CR# 79519 to Determine if an Adverse Trend Exists in the Area of Contractor Control	January 10, 2001
NF-AA-200-1530	Reactivity Management Controls During Plant Operations	Revision 0
NF-AP-230	Pressure Water Reactor Reactivity Management Controls During Operations	Revision 0
<b>Self-Assessments</b>		
AR 00035774	Braidwood Plant Support 4Q 2000 Observations	October 22, 2000
AR 00036195	Maintenance FOs for NOA-BW-00-4Q Assessment AR 36187	October 30, 2000
AR 00036196	Plant Support FOs for NOA BW-00-4Q Assessment AR 36187	January 3, 2001
AR 00041556	Plant Support FOs for NOA BW-01-1Q Assessment AR 41552	February 6, 2001
AR 00048679	Operations FOs for NOA BW-01-2Q Assessment AR 48227	July 28, 2001
AR 00048679	Operations FOs for NOA BW-01-2Q Assessment AR 48227	August 28, 2001
AR 00048682	Maintenance FOs for NOA BW-01-2Q Assessment AR 48227	June 22, 2001
AR 00048684	Plant Support FOs for NOA BW-01-2Q Assessment AR 48227	May 10, 2001

AR 00048684	Plant Support FOs for NOA BW-01-2Q Assessment AR 48227	June 30, 2001
AR 00054548	Operations FOs for NOA BW-01-3Q Assessment AR 48228	August 28, 2001
AR 00054548	Operations FOs for NOA BW-01-3Q Assessment AR 48228	August 29, 2001
AR 00054548	Operations FOs for NOA BW-01-3Q Assessment AR 48228	September 20, 2001
AR 00054550	Maintenance FOs for NOA BW-01-3Q Assessment AR 48228	August 21, 2001
AR 00054550	Maintenance FOs for NOA BW-01-3Q Assessment AR 48228	August 28, 2001
AR 00054550	Maintenance FOs for NOA BW-01-3Q Assessment AR 48228	September 7, 2001
AR 00054550	Maintenance FOs for NOA BW-01-3Q Assessment AR 48228	September 12, 2001
AR 00054550	Maintenance FOs for NOA BW-01-3Q Assessment AR 48228	September 20, 2001
AR 00054550	Maintenance FOs for NOA BW-01-3Q Assessment AR 48228	September 21, 2001
AR 00054550	Maintenance FOs for NOA BW-01-3Q Assessment AR 48228	September 30, 2001
AR 00075249	Braidwood A1R09 Outage Field Observations	September 18, 2001
AR 00075249	Braidwood A1R09 Outage Field Observations	September 24, 2001
AR 00076567	Braidwood A1R09 Outage Field Observations	September 29, 2001
AR 00076871	Operations FOs for NOA-BW-01-4Q Assessment AR 76870	December 1, 2001
AR 00076871	Operations FOs for NOA-BW-01-4Q Assessment AR 76870	December 17, 2001
AR 00076871	Operations FOs for NOA-BW-01-4Q Assessment AR 76870	December 30, 2001
AR 00076874	Maintenance FOs for NOA-BW-01-4Q Assessment AR 76870	November 21, 2001

AR 00076874	Maintenance FOs for NOA-BW-01-4Q Assessment AR 76870	November 30, 2001
AR 00076875	Plant Support FOs for NOA-BW-01-4Q Assessment AR 76870	December 20, 2001
AR 00077971	Braidwood A1R09 Outage Field Observations	October 9, 2001
AR 00077971	Braidwood A1R09 Outage Field Observations	October 21, 2001
AR 00081706	Braidwood A2F35 Outage Field Observations	November 10, 2001
	Braidwood Station Chemistry, Radwaste & Environmental Areas - 4 <sup>th</sup> Quarter 2000	
	Braidwood Station Chemistry, Radwaste & Environmental Areas - 1 <sup>st</sup> Quarter 2001	
	Braidwood Station Chemistry, Radwaste & Environmental Areas - 2 <sup>nd</sup> Quarter 2001	
	Braidwood Station Chemistry, Radwaste & Environmental Areas - 3 <sup>rd</sup> Quarter 2001	
NOL 20-01-034	Braidwood Station Nuclear Oversight Post-Outage Performance Assessment for A1R09	November 16, 2001
NOL 20-01-035	Braidwood Station Nuclear Oversight Post-Outage Performance Assessment for A2F35	November 30, 2001
NOA-BW-00-4Q	Nuclear Oversight Continuous Assessment Report Braidwood Generating Station October - December 2000	January 31, 2001
NOA-BW-01-1Q	Nuclear Oversight Continuous Assessment Report Braidwood Generating Station January - March 2001	April 30, 2001
NOA-BW-01-2Q	Nuclear Oversight Continuous Assessment Report Braidwood Generating Station April - June 2001	July 30, 2001
NOA-BW-01-3Q	Nuclear Oversight Continuous Assessment Report Braidwood Generating Station July - September 2001	October 31, 2001

NOA-BW-01-4Q	Nuclear Oversight Continuous Assessment Report Braidwood Generating Station October - December 2001	January 29, 2002
	Nuclear Oversight Self-Assessment Report 4 <sup>th</sup> Quarter 2000	
	Nuclear Oversight Self-Assessment Report 1 <sup>st</sup> Quarter 2001	
	Nuclear Oversight Self-Assessment Report 2 <sup>nd</sup> Quarter 2001	
	Nuclear Oversight Self-Assessment Report 3 <sup>rd</sup> Quarter 2001	
	Radiation Protection Self-Assessment Report - 3 <sup>rd</sup> Quarter 2001	
	Self Assessment Report - 3 <sup>rd</sup> Quarter 2001	
	Site-wide CAP Focused Area Self-Assessment Report ( Follow-up Report)	February 1, 2001
	Regulatory Assurance Self-Assessment 1 <sup>st</sup> Quarter 2001	
	Regulatory Assurance Self-Assessment 1 <sup>st</sup> Quarter 2001	
	Regulatory Assurance Self-Assessment 2 <sup>nd</sup> Quarter 2001	
	Regulatory Assurance Self-Assessment 3 <sup>rd</sup> Quarter 2001	
	Maintenance Quarterly Assessment Report 3 <sup>rd</sup> Quarter 2001	
	System Health Indicator Program Braidwood Station SHIP Report for September 2000	

## Procedures

BwOP RH-6	Placing the RH System in Shutdown Cooling	Revision 2
0Bw0A PRI - 8	Auxiliary Building Flooding	Revision 1
1Bw0A PRI - 8	Essential Service Water Malfunction	Revision 100

1BwOSR 0.1-1,2,3	U1 Modes 1,2, and 2 3 Shiftly and Daily Operating Surveillance	Revision 14
1BwOSR 3.3.1.2-1	U1 Power Range High Flux Setpoint Daily Channel Calibration (Computer Calorimetric)	Revision 7
1BwOSR 3.4.11.3	Pressurizer PORV Instrument Air Accumulator Check Valve Test	Revision 1
1BwOSR 3.4.11.3	Pressurizer PORV Instrument Air Accumulator Check Valve Test	Revision 2
1BwOSR 3.4.11.3	Pressurizer PORV Instrument Air Accumulator Check Valve Test	Revision 3
1BwOSR 3.7.8.1	U2 Essential Service Water Monthly Surveillance Data Sheet	Revision 4
2BwOSR 5.5.8.SX-1B	Essential Service Water Train B Valve Stroke Quarterly Surveillance	Revision 3
1BwOS SX-Q1	U2 Essential Service Water System Manual Ball Valve Cycle Quarterly Surveillance	Revision 2
BwVS 800-2	Instrument Air Sampling Requirements	Revision 4E2
MA-BR-EM-1-3.8.a.3-1	Surveillance for Inspection and Testing of 480 Volt Motor Control Center (MCC) Draw-Out Units	Revision 1
MA-BR-EM-1-3.8.a.3-1	Surveillance for Inspection and Testing of 480 Volt Motor Control Center (MCC) Draw-Out Units	Revision 2
WC-AA-101	Work Screening and Classification	Revision 5
OP-AA-102-103	Operator Work-Around Program	Revision 0
LS-AA-125	Corrective Action Program (CAP) Procedure	Revision 1
LS-AA-125-1002	Common Cause Analysis Manual	Revision 1
LS-AA-125-1003	Apparent Cause Evaluation Manual	Revision 0
LS-AA-125-1004	Effectiveness Review Manual	Revision 0
LS-AA-125-1005	Coding and Trending Manual	Revision 1
LS-AA-125-1006	CAP Process Expectations Manual	Revision 0
ER-AA-10	Equipment Reliability Process Description	Revision 0

ER-AA-310	Implementation of the Maintenance Rule	Revision 1
EI-AA-10	Exelon Nuclear Employee Concerns Program Process Description	Revision 0
EI-AA-1	Nuclear Policy Employee Issues	June 25, 2001
OU-AA-103	Shutdown Safety Management Program	Revision 1
RS-AA-115	Operating Experience (OPEX) Q1 2001 "Procedure Use and Compliance"	Revision 2

### **Prompt Investigations**

AR 00056777	A2001-02014: Steam Dump Valves 1MS004 C and G Made Inoperable	June 3, 2002
	Prompt Investigation Into the Motor Rotation Issues With the 1D Condensate/Condensate Booster Pump Motor	June 8, 2001
	Prompt Investigation of 1WG01FB Circuit Found Energized with Clearance Order Placed (CR 82702)	November 13, 2001

### **Miscellaneous**

	Operator Work Around Status Update	February 11, 2001
	Operator Workaround Minutes	October 5, 2000
ER 99-029	1B Charging Pump (1CV01PB) Seal Leakage	December 22, 1999
UFSAR 9-058	Increase the Maximum Allowed ESF Recirculation Loop Leakage External to Containment	
	Braidwood Chronic Problem List	
PIF A1997-04845	Incorrect Valve Installed as 2SX124B	October 30, 1997
	Braidwood Maintenance Rule (a)(1) Systems Since 09/01/2000	
	System Health Overview Instrument Air 4 <sup>th</sup> Quarter 2001	

Drawing. M55	Diagram of Instrument Air Lake/River Screen House and Make-up Demin. Bldg. Units 1 & 2	Revision AA
System Monitoring Plan	Instrument Air System	April 30, 2001
AIT 79728	Potential Adverse Trend - Increasing Rework Issues	December 12, 2001
00042593-05-00	Completed and Open Actions from A2001-00131: AR Assignment/Sub Assignment Summary Report (CAP010)	February 26, 2001
	Instrument Air Sample Data 1/2000-12/2001	
NUREG-1275 Vol. 2	Operating Experience Feedback Report - Air Systems Problems	December 1987
ANSI/ISA-S7.3-1975	Quality Standard for Instrument Air	November 16, 1981
	Instrument Air System Maintenance Rule - Evaluation History	
AR 00054375	Perform OPEX Review of NRC Information Notice 2001-09	June 12, 2001
IN 2001-09	Main Feedwater system Degradation in Safety-Related ASME Code class 2 Piping Inside the Containment of a Pressurized Water Reactor	June 2, 2001
IN 2002-05	Foreign Material in Standby Liquid Control Storage Tanks	January 17, 2002
NON BY-01-097	Planning and Human Performance Errors Delay 2B Diesel Generator Return to Service	December 3, 2001
NSAL-01-004	Westinghouse	May 2, 2001
ESBU-TB-96-03-RO	RH Pump Operating Recommendations	June 20, 1996
TS 3.76	Condensate Storage Tank	
Licensee Event Report (LER) 456/01-001-00	Three Main Steam Safety Valves Exceeded the Technical specification Limit by Greater Than 3%”	November 19, 2001



LER 457/01-001-00	Braidwood U2 Reactor Trip and Subsequent Loss of Non-Safety Related Offsite Power Due to Failure to Perform Concurrent Verification and Improper Command and Control	July 17, 2001
LER 457/01-002-00	Main Steam Isolation Valves Not Stroke Timed in Mode 3 as Required	November 26, 2001
CQD-003676	Review of the Sulzer Qualification Report (E12.5.785, Rev. 0) for the Essential Service Water Pumps (1,2SX01PA & PB) for the Braidwood and Byron Stations	Revision 1
	AP System Notebook, Section 4, Performance Monitoring Failures (DHP Breaker Significant events)	September 12, 2001
	AP System Notebook, Section 6, Performance Monitoring Failures (MCC Significant Events)	February 6, 2002
	AP System Notebook, Section 6, Performance Monitoring Failures (DS Breaker significant Events)	
	Braidwood Inservice Inspection Program Plan	September 1, 2001
01823-TR-001	Evaluation of Dresser 3700 Series Safety Valve Inconel X-750 Disc	Revision 0
EC 0000332797 000	Change Breaker Setting for 1SI8804B	September 11, 2001
	ComEd Corrective Action Program - NRC Presentation	June 15, 2000
	Nuclear Safety Review Board - Braidwood Station	February 1, 2002
	Braidwood Pressurizer PORV Accumulator Instrument Air Isolation Check Valve Performance	February 20, 2002