

September 17, 2001

Mr. Oliver D. Kingsley, President  
Exelon Nuclear  
Exelon Generation Company, LLC  
4300 Winfield Road  
Warrenville, IL 60555

SUBJECT: BRAIDWOOD STATION UNITS 1 AND 2  
NRC INSPECTION REPORT 50-456/01-09(DRP); 50-457/01-09(DRP)

Dear Mr. Kingsley:

On August 20, 2001, the NRC completed an inspection at your Braidwood Station Units 1 and 2. The enclosed report documents the inspection findings which were discussed on August 20, 2001, with Mr. J. von Suskil 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. Specifically, this inspection focused on resident inspection activities and a baseline inspection of radiation monitoring instrumentation.

Based on the results of this inspection, a finding of very low significance (Green) was identified (self-disclosing). The finding associated with the failure to follow procedure which led to the Unit 2 reactor trip on May 19, 2001, was considered a violation of NRC requirements. However, because of its very low safety significance and because it has been entered into your corrective action program, the NRC is treating this issue as a Non-Cited Violation in accordance 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 Inspector at the Braidwood facility.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/NRC/ADAMS/index.html> (the Public Electronic Reading Room).

Sincerely,

Original signed by  
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 50-456/01-09(DRP);  
50-457/01-09(DRP)

cc w/encl: J. Skolds, 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 Nos: 50-456/01-09(DRP); 50-457/01-09(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: July 1 through August 20, 2001

Inspectors: C. Phillips, Senior Resident Inspector  
N. Shah, Resident Inspector  
D. Nelson, Radiation Specialist  
R. Daly, Reactor Inspector  
J. Roman, Illinois Department of Nuclear Safety

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

## SUMMARY OF FINDINGS

IR 05000456-01-09(DRP), 05000457-01-09(DRP); on 07/01-08/20/01, Exelon Generation Company; Braidwood Station; Units 1 & 2. Event follow-up.

This report covers a 7-week routine resident inspection and a baseline radiation monitoring instrumentation inspection. The inspection was conducted by resident inspectors, a regional radiation specialist, and a regional engineering inspector. The inspection identified one Green finding which was also a Non-Cited Violation. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using IMC 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.

### A. Inspector Identified Findings

#### **Cornerstone: Initiating Events and Mitigating Systems**

Green. Operator error resulted in an inadvertent automatic reactor trip of Unit 2 on May 19, 2001.

This finding was considered more than minor, as it had an actual impact on safety, in that, non-licensed operators failed to follow procedural requirements which resulted in an initiating event; a Unit 2 reactor trip. The finding was of very low safety significance because all safety systems were capable of performing their safety functions after the unit trip. The inspectors identified this as a Non-Cited Violation for failing to follow procedural requirements (Technical Specification 5.4.1). (Section 40A3)

### B. Licensee Identified Violations

No findings of significance were identified.

## Report Details

### Summary of Plant Status

Both units operated at or near full power throughout the inspection period.

#### **1. REACTOR SAFETY**

##### **Cornerstone: Initiating Events and Mitigating Systems**

#### 1R04 Equipment Alignment (71111.04)

##### a. Inspection Scope

The inspectors verified the alignment of the following systems while the alternate trains were out-of-service for planned maintenance:

- Unit 1B diesel driven auxiliary feedwater (AF) pump;
- Unit 1A essential service (SX) pump; and
- Unit 1B centrifugal charging pump (CV).

The inspectors performed a partial walkdown of the accessible portions of these systems and observed the system (electrical and mechanical) lineup and selected, system operating parameters (i.e., pump and bearing lube oil levels, room temperature, electrical breaker position, etc). The inspectors reviewed the Updated Final Safety Analysis Report (UFSAR), Technical Specifications, system drawings, condition reports (CRs) and station procedures, as applicable. As necessary, the inspectors also interviewed licensee engineering, maintenance and operations staff.

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

##### b. Findings

No findings of significance were identified.

#### 1R05 Fire Protection (71111.05)

##### a. Inspection Scope

The inspectors evaluated the licensees fire protection controls for the following areas:

- Unit 1B diesel driven AF pump room;
- Unit 1A SX pump room; and
- Unit 1A CV room.

The inspectors performed a walkdown of these areas to observe conditions related to the control of transient combustibles and ignition sources; the material condition, operational lineup and operational effectiveness of fire protection systems, equipment and features; and the material condition and operational status of fire barriers. The inspectors observed that the area (including associated fire protection and mitigation equipment) was as described in the Braidwood Fire Protection Plan, dated December 1988.

The inspectors also reviewed selected CRs to determine whether identified problems were being entered into the corrective action program with the appropriate characterization and significance.

b. Findings

No findings of significance were identified.

1R12 Maintenance Rule Implementation (71111.12)

a. Inspection Scope

The inspectors reviewed the licensee's implementation of the maintenance rule, 10 CFR 50.65, as it pertained to identified performance problems with the following systems:

- DC systems;
- Instrument air; and
- Auxiliary feedwater.

The inspectors evaluated the licensee's monitoring and trending of performance data and the appropriateness of a(1) goals and corrective actions. Specifically, the inspectors determined whether performance criteria were established commensurate with safety and whether equipment problems were appropriately evaluated in accordance with the maintenance rule. The inspectors interviewed the stations maintenance rule coordinator and reviewed selective CRs to determine whether identified problems were being entered into the corrective action program with the appropriate characterization and significance.

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 assessment and management of plant risk for planned maintenance and/or surveillance activities on the following systems or components:



- Unit 1B diesel driven AF pump;
- Unit 1A SX pump;
- Unit 1A CV pump; and
- Unit 1C condensate pump fuse FU-11 replacement.

The inspectors attended shift briefings and daily status meetings to verify that the licensee took actions to maintain a heightened level of awareness of the plant risk status among plant personnel, and evaluated the availability of redundant train equipment. In particular, the inspectors observed whether licensee operating and engineering staff were aware of the licensee's revised probabilistic risk assessment model which was issued on June 28, 2000. The inspectors also reviewed Nuclear Station Procedure WC-AA-103, "On-Line Maintenance," Revision 3, and evaluated licensee compliance with that procedure.

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

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors reviewed and evaluated the following operability evaluations:

- Discrepancies identified during the Unit 1 and Unit 2 ten year containment tendon inspection.

The inspectors also reviewed the technical adequacy of the evaluation against the Technical Specification, UFSAR, and other design information; determined whether compensatory measures, if needed, were taken; and determined whether the evaluation was consistent with the requirements of RS-AA-105, "Operability Determination Process," Revision 0.

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

b. Findings

No findings of significance were identified.

1R19 Post Maintenance Testing (71111.19)

a. Inspection Scope

The inspectors reviewed the post-maintenance testing associated with the following components:

- Unit 1B diesel driven AF pump;
- Unit 1A SX pump; and
- Unit 1A CV.

For each activity, the inspectors reviewed the applicable sections of the Technical Specification and UFSAR, and observed portions of the maintenance work. The inspectors also evaluated the adequacy of work controls (including foreign material exclusion controls), reviewed post-maintenance test data, and conducted walkdowns to verify system restoration after the testing was completed.

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

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors reviewed the following surveillance activities:

- Unit 1 emergency core cooling system vent and valve testing;
- Unit 2A emergency diesel generator slave relay start; and
- Unit 1 and 2 SX pump discharge temperature indication calibration.

For each activity, the inspectors witnessed portions of the testing or reviewed the test data and determined if the associated structures, systems, and components met the American Society of Mechanical Engineers (ASME) operating criteria, Technical Specification and UFSAR technical and design requirements. For selected activities, the inspectors also reviewed past test results to evaluate any adverse trends and to determine whether past testing was performed using consistent protocols.

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

b. Findings

The inspectors observed that the licensee did not consider instrument inaccuracies when establishing the acceptance criteria for the 1A, 1B, 2A, and 2B SX pump discharge temperature indicators. For example, the “as-left” calibration acceptance criteria for 1TI-SX015A (main control board analog temperature gauge) was +/- 2.6 degrees Fahrenheit. As allowed by procedure, an instrument maintenance technician could leave the instrumentation in a condition such that the indicated gauge temperature could be at the Technical Specification limit of 100 degrees Fahrenheit while the actual temperature could be as high as 102.6 degrees. Licensee management personnel stated that this was an acceptable practice. The required calibration accuracy for the ultimate heat sink temperature indicators and other non-reactor protection Technical Specification set points is an unresolved item (URI 50-456/457-01-09-01(DRP)).

1R23 Temporary Plant Modifications (71111.23)

a. Inspection Scope

The inspectors evaluated the licensee’s installation of the following risk-significant temporary modifications:

- Freeze seal on the Unit 1B CV pump room cooler.

Specifically, the inspectors reviewed the temporary modification documentation to determine whether the licensee adequately addressed system operability and design, configuration control, risk significance, and post-installation testing. Additionally, the inspectors observed whether the modification was installed consistent with its associated documentation.

b. Findings

No findings of significance were identified.

**2. RADIATION SAFETY**

**Cornerstone: Occupational Radiation Safety**

2OS3 Radiation Monitoring Instrumentation (71121.03)

.1 Identification of Radiological Monitors Associated With High/Very High Radiation Areas

a. Inspection Scope

The Regional radiation protection inspector completed walkdowns and reviewed calibration records to verify the accuracy and operability of radiation monitoring instruments used for the protection of occupational workers. Instrumentation included area radiation monitors (ARMs), continuous air monitors (CAMs), portable survey meters, the whole body counter, portal monitors, and electronic dosimeters.

The inspector reviewed the UFSAR to identify those ARMs that were associated with transient high and very high radiation areas. These monitors included, but were not limited to, the following:

- Primary Sample Room
- Fuel Handling Building Elevation 401
- Containment Elevation 426
- Containment Elevation 401
- Incore Seal Table Elevation 401
- Containment Fuel Handling Incident Elevation 426
- High Range Containment Elevation 514

CAMs were identified from the UFSAR in the following location:

- Containment

The inspector performed a walkdown of selected ARMs and CAMs in order to verify that locations were as described in the UFSAR.

b. Findings

No findings of significance were identified.

.2 Calibration and Operability of Radiological Instrumentation

a. Inspection Scope

The Regional radiation protection inspector reviewed the most recent calibrations and alarm set points for selected ARMs and CAMs. A representative sample of current calibration records were reviewed for the whole body counter, personnel contamination monitors, portable radiation survey instruments, electronic dosimeters, and whole body frisking monitors. The inspector observed the calibration process for portable survey instruments, reviewed source check data, and observed source checks in order to verify compliance with procedures.

b. Findings

No findings of significance were identified.

.3 Problem Identification and Resolution

a. Inspection Scope

The Regional radiation protection inspector reviewed the licensee's self-assessments, audits, and condition reports covering radiological incidents involving personnel internal contamination events and radiological instrumentation, to verify that the licensee could identify, track, and correct radiological problems in these areas.

b. Findings

No findings of significance were identified.

4. Respiratory Protection - Self-Contained Breathing Apparatus

a. Inspection Scope

The Regional radiation protection inspector reviewed the status and surveillance records for self-contained breathing apparatus that was located in various areas onsite, including those units reserved for fire brigade and control room personnel. In addition, the inspector verified that applicable emergency response and control room personnel were properly trained, mask fit, and medically qualified in the use of self-contained breathing apparatus.

b. Findings

No findings of significance were identified.

4. **OTHER ACTIVITIES**

40A1 Drill Evaluation (71114-06)

a. Inspection Scope

The inspectors observed the licensee's annual emergency preparedness exercise held on June 27, 2001. Specifically, the inspectors evaluated the overall drill conduct, including the adequacy of the exercise scenario, the response of the licensee operating staff to the simulated conditions, the emergency classification and offsite notification, and the protective action recommendations. Additionally, the inspectors determined whether identified weaknesses and deficiencies were addressed in the licensee's exercise critique.

b. Findings

No findings of significance were identified.

40A2 Performance Indicator Verification (71151)

a. Inspection Scope

The inspectors reviewed whether the licensee was accurately reporting data for the following performance indicators:

- AF safety system unavailability.

The inspectors reviewed system operating logs and licensee monthly operating reports submitted to the NRC, and interviewed licensee engineering and operations staff to

determine whether the performance indicator data was being collected and reported consistent with the guidance contained in NEI 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 1.

b. Findings

No findings of significance were identified.

4OA3 Event Follow-up (71153)

a. Inspection Scope

The inspectors reviewed Licensee Event Report (LER) 05000457/2001-01-00, "Braidwood Unit 2 Trip and Subsequent Loss of Non-Safety Related Offsite Power Due to Failure to Perform Concurrent Verification and Improper Command and Control." The inspectors also reviewed applicable operating normal and abnormal operating procedures and interviewed both licensed and non-licensed operators involved in the event.

b. Findings

A finding of very low safety significance (Green) was identified (self-disclosing). Personnel error resulted in a Unit 2 reactor coolant pump low flow reactor trip due to a loss of a non-vital 6.9kV bus, on May 19, 2001. This finding was dispositioned as a Non-Cited Violation.

The cause of the reactor trip was human error (failure to follow procedure) which occurred while manipulating electrical plant equipment for planned work and resulted in a loss of all non-engineered safety feature (ESF) power to Unit 2. At the time of the event, the system auxiliary transformer (SAT) was out-of-service for planned work. The SAT is the normal offsite power supply to the Unit 2 ESF (vital) buses. The Unit 2 vital buses were cross-tied to the Unit 1 offsite power supply while the Unit 2 SAT was out of service. While preparing to restore the SAT to service, non-licensed operators were tasked to pull the SAT potential transformer fuses. Instead, the non-licensed operators pulled the unit auxiliary transformer (UAT) bus potential transformer fuses which resulted in a loss of the bus which in turn tripped the reactor coolant pump powered from that bus. The licensee entered this event into the corrective action program (CR A2001-01488).

This finding was considered more than minor, as it had an actual impact on safety, in that, the non-licensed operators failed to follow procedural requirements which resulted in the Unit 2 reactor trip. In addition, the event resulted in a loss of heat sink due to a loss of vacuum when power was lost to the circulating water pumps. Since two cornerstones (i.e., initiating events and mitigating systems) were impacted by the failure of the non-safety related buses, the inspectors performed a Phase II analysis using the NRC Significance Determination Process (SDP) for Braidwood. The initiating events cornerstone was impacted by the unit trip and the mitigating systems cornerstone was impacted because power was lost to the motor driven feedwater pumps and condensate

pumps. Because the error occurred moments before the event, the inspectors entered Table 1 of the SDP at row I, "under 3 days," to give an estimated likelihood rating of C. The inspectors entered Table 3.2, "Transients with Loss of PCS (power conversion system, i.e., loss of vacuum). In this scenario, full mitigating credit could be given for the auxiliary feedwater pumps, the steam generator power operated relief valves, the charging pumps (or safety injection and residual heat removal pumps), and the primary power operated relief valves. Using the information from Table 2, the overall analysis results were entered into Table 4 of the SDP and obtained the following results. For a reactor trip with loss of PCS, Table 4, Row C, Column 5 indicated a GREEN finding. Specifically, the inspectors determined that the issue was of very low safety significance, in that, the power supplies to the emergency core cooling and auxiliary feedwater systems were still supplied from Unit 1 and the systems were still capable of performing their safety functions.

Technical Specification 5.4.1, states, "Written procedures shall be established, implemented, and maintained covering the following activities: a. The applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Paragraph 4.a.1 of Regulatory Guide 1.33, Revision 2, Appendix A, February 1978, states in part that procedures for energizing the offsite electrical power system shall be prepared. The licensee established BwOP AP-26, "Restoring System Auxiliary Transformer (SAT) 242-2 With Unit 2 UAT Energized," Revision 9, as the implementing procedure for energizing the offsite electrical power system. Contrary to the above, on May 19, 2001, non-licensed operators failed to implement Step F.19 of BwOP as written. This is considered a Severity Level IV 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, it is considered a Non-Cited Violation consistent with Section VI.A.1 of the NRC Enforcement Policy (NCV 50-457-01-09-02(DRP)).

In addition, the results of the licensee's root cause evaluation were clearly documented in the LER. However, the inspectors identified an issue which was not discussed in the licensee's report. Two of the three non-licensed operators involved in the event were on the second half of a 16-hour shift. Prior to the event, the non-licensed operators completed racking in several breakers which required significant manual labor and had requested a break from shift supervision before performing the next step of the procedure. The request for a break was denied because shift supervision wanted to minimize the time that the unit was in the position of having the SATs de-energized. The inspectors considered that fatigue may have been an important factor in the non-licensed operators incorrectly performing a very clearly written procedure step. The absence of this information in the LER is not a violation of 10 CFR 50.73 because the licensee identified and addressed the primary root cause.

#### 4OA6 Meetings

##### .1 Exit Meeting

The radiation specialist inspector presented the results of the radiation monitoring instrumentation inspection to Mr. L. Guthrie and other members of licensee management and staff on August 9, 2001. The resident inspectors presented their

inspection results to Mr. J. von-Suskil and other members of licensee management at the conclusion of the inspection on August 20, 2001. The licensee acknowledged the findings presented. No proprietary information was identified.

.2 Annual Assessment Meeting

On July 12, 2001, the NRC presented the results of its annual assessment of Braidwood Station's performance to Mr. J. von Suskil and other members of licensee management during a public meeting held in the Braidwood Station Training Building. The handouts used for the presentation are enclosed. The results of the annual assessment were previously documented in a letter to the licensee dated May 31, 2001.

Enclosure: NRC Slide Presentation, "End of Cycle Assessment Results  
- Braidwood Nuclear Power Plant," July 10, 2001



## KEY POINTS OF CONTACT

### Licensee

J. Bailey, Regulatory Assurance - NRC Coordinator  
G. Baker, Security Manager  
S. Butler, Corrective Action Program Coordinator  
J. Chojnicki, Operations  
C. Dunn, Engineering Director  
A. Ferko, Regulatory Assurance Manager  
M. Finney, Radiation Protection Supervisor  
D. Goldsmith, Radiation Protection Manager  
R. Graham, Work Management Director  
L. Guthrie, Maintenance Director  
J. Harvey, Nuclear Oversight Manager  
F. Lentine, Design Engineering Manager  
K. Schwartz, Plant Manager  
R. Thacker, Radiation Protection Technical Support Superintendent  
J. von Suskil, Site Vice President

### Nuclear Regulatory Commission

A. Stone, Chief, Reactor Projects Branch 3  
P. Snyder, Reactor Engineer

## LIST OF ITEMS OPENED

### Opened

50-456/457-01-09-01	URI	Accuracy of Technical Specification Instrumentation Calibration
50-457-01-09-02	NCV	Failure To Follow Procedures Lead to Unit 2 Reactor Trip

### Closed

50-457-01-01-00,	LER	Braidwood Unit 2 Trip and Subsequent Loss of Non-Safety Related Offsite Power Due to Failure to Perform Concurrent Verification and Improper Command and Control
50-457-01-09-02	NCV	Failure To Follow Procedures Lead to Unit 2 Reactor Trip

## LIST OF ACRONYMS AND INITIALISMS USED

ADAMS	Agencywide Documents Access and Management System
AF	Auxiliary Feedwater
ARM	Area Radiation Monitor
ASME	American Society of Mechanical Engineers
BwAP	Braidwood Administrative Procedure
BwGP	Braidwood General Procedure
BwHS	Braidwood Hydrogen Surveillance Procedure
BwMP	Braidwood Maintenance Procedure
BwOL	Braidwood Operator Licensing Procedure
BwOP	Braidwood Operating Procedure
BwOSR	Braidwood Operability Surveillance Requirement
BwVSR	Braidwood Engineering Surveillance Requirement
CAM	Continuous Air Monitor
CC	Component Cooling Water
CFR	Code of Federal Regulations
CR	Condition Report
CV	Centrifugal Charging Pump
ESF	Engineered Safety Features
FME	Foreign Material Exclusion
LCOAR	Limiting Condition for Operation
NRC	Nuclear Regulatory Commission
NRR	Nuclear Reactor Regulations
OOS	Out-of-Service
PARS	Publicly Available Records
PCS	Power Conversion System
PIF	Problem Identification Form
PI&R	Problem Identification and Resolution
SAT	System Auxiliary Transformers
SDP	Significant Determination Process
SX	Essential Service Water
UAT	Unit Auxiliary Transformer
UFSAR	Updated Final Safety Analysis Report
WO	Work Order
WR	Work Request

## LIST OF DOCUMENTS REVIEWED

### 1R04 Equipment Alignment

CR A2001-00985	Status Control Event on 1AF004B (PI&R)	April 3, 2001
Package 00001255	OOS for the Unit 1A SX Pump	July 24, 2001
CR A2001-02039	Uncapped Pipe in Aux Building (NRC Identified)	July 11, 2001
1BwOL 3.7.5	LCOAR Action Chart AF System	Revision 2
BwOP AF-E1	Electrical Lineup - Unit 1 Operating	Revision 6E1
BwOP AF-M1	Operating Mechanical Lineup Unit 1	Revision 8
OOS Package 00001382	OOS for the 1A CV pump	July 29, 2001
BwOP CV-E1	Electrical Lineup - Unit 1 Operating	Revision 4

### 1R05 Fire Protection

CR A2001-01935	Potential Adverse Trend Associated With Combustible Storage Practices (PI&R)	June 29, 2001
TR-217	Transco Fire Test Report	November 14, 1986
BR-E-25	Fire seal drawing: CT Gypsum for Fire/Air Seal at Conduit/Sleeve in floor/wall	February 20, 1986

### 1R12 Maintenance Rule Implementation

CR A2000-03086	ESF Battery 211 Temperature is 90 Degrees in Excess of <90 Degrees	July 29, 2000
CR A2000-00680	Problems During Troubleshooting of 125 VDC Battery Charger (Bus 112)	February 12, 2000
CR A2000-00709	Potential Overtightening of Fasteners During Reterm of 1DC04E	February 15, 2000
CR A2000-00850	GE Part 21 for AK/AKR Breakers - Documentation of Braidwood Evaluation	February 15, 2000
CR A2000-01070	Batteries for the Diesel Driven Fire Pump	March 11, 2000
CR A2000-01120	1B AF Surveillance 1BwOS DC-W4 Acceptance Criteria Failed	March 15, 2000

CR A2000-02426	Small Object Found Floating in Battery 112 Cell #32	June 3, 2000
CR A2000-03016	U0 Diesel Driven Fire Pump Battery Surveillance as Found Not Withing Acceptance Criteria	July 24, 2000
CR A2000-03017	2B AF Pump Battery Electrolyte Fill Caps Discovered Open	July 24, 2000
CR A2001-00144	DC Battery 211 Individual Cell Specific Gravity Deviation > admin limit	January 17, 2001
CR A2001-01154	Battery Full Load Voltage Less Than the Acceptance Criteria	March 7, 2001
CR A2001-01387	Auxiliary Power [AP] System Maintenance Rule Performance Criteria Not in Compliance With the PRA (PI&R)	May 9, 2001
BwOP DC E2	Electrical Lineup - Unit 1 Operating - 125V DC Division 11	Revision 3E2
BwOP DC E6	Electrical Lineup - Unit 2 Operating - 125V DC Division 22	Revision 3E1
	Units 1 & 2 Instrument Air Sample Analysis Results from 4 <sup>th</sup> Quarter 1998 to 2 <sup>nd</sup> Quarter 2001	
CR A2001-02073	Thread Engagement Concern on U1/U1 IA Dryers Botton Flanges (NRC Identified)	July 16, 2001
CR A2000-03065	0IA006A (UO IA Dryer Purge Valve) in Mid Position With Dryer shut Down	July 28, 2000

1R13 Maintenance Risk Assessments And Emergency Work Control

CR A2001-00501	PRA Model Needs to be Updated to Reflect Installed Modifications (PI&R)	February 16, 2001
AD-AA-101	Processing of Procedures	Revision 11
BwOP SX-11	SX Pump Drain Down	Revision 1
BwAP 100-20	Procedure Deviation Form Use	Revision 12
M-42, Sheet 1B	Diagram of SX System	March 12, 2001
WO 99175795-01	Repair Packing Leakage on 1SX001A Valve	June 21, 2001
WO 98081123-01	Weld Leaking Reducer	July 20, 2001

WO 99253283	Repair Oil Leaks on Gear Box Oil 1A CV PP Gear Reducer	July 2, 2001
WO 990283049	CV Pmp Miniflow Isol Vlv (C/S at 1PM05J) Packing Leak, Dry Boron, Repak	May 18, 2001
BwMP 3305-025	Repacking of Rising Stem Valves with Garlock Style #9000 EVSP Simplified Graphite Packing	Revision 6
BwOP IA-M3	Operating Mechanical Lineup UO, Instrument Air Aux Building Operating	Revision 9
M-55, Sheet 28	Diagram of Instrument Air Braidwood Station Unit 1 & 2	May 11, 1988
M-55, Sheet 1	Diagram of Instrument Air Units 1 & 2	February 27, 1999
CR A2001-02038	EPN: 1SX178; Valve Coupling Pin Configuration (PI&R)	July 11, 2001
WR 980123341 01	Rebuild Actuator and Replace Regulatory for 1AF022B	March 18, 2000
Vendor Manual L-0446	Operation and Maintenance Manual #2270 for 2 inch, 900 lb., Carbon Steel Globe Valves, Air Operated, Fail Open	March 22, 1982
WO 99160415	Cleaning & Inspection of Unit 1B Diesel Driven AF Pump Battery Charger	June 17, 2001
BwHS 4002-089	AF Diesel Battery charger AC Input Breaker Inspection and shunt Trip Test	Revision 1E1
WO 99152912	Cooling Water Pump 1SX04P	July 6, 2001

1R15 Operability Evaluations

CR A2000-02126	Degraded Voltage on Instrument Bus 214 (PI&R)	May 4, 2000
CR A 2001-02133	Further Evaluation & Repair Of Concrete Indications	July 21, 2001

1R19 Post Maintenance Testing

BwOP SX-1	SX Pump Startup	Revision 7
BwOP SX-3	SX System Fill and Vent	Revision 10
1BwVSR 5.5.8.AF.2	Unit 1 Diesel Driven AF Pump ASME Quarterly Surveillance	Revision 4

1BwOSR 3.7.5.3-2	Unit 1 Diesel Driven AF Pump Monthly Surveillance	Revision 0E2
	Control Room Operator Logs	July 10, 2001
BwVS 4.5.2.f.1.a	Surveillance Requirement for 1A CV Discharge Pressure	Revision 3
1BwVSR 5.5.8.CV.1	ASME Surveillance Requirements for 1A CV and Check Valve 1CV8480A Stroke Test	Revision 3

### 1R22 Surveillance Testing

1BwOSR 3.5.2.2-2	Unit 1 ECCS Venting and Valve Alignment Surveillance	Revision 5
CR A2001-02123	NRC Comments Associated With the Performance of 1BwOSR 3.5.2.2-2 (NRC Identified)	July 20, 2001
PIF A1999-03091	1RH611 Closed During Start of 1RH01PB for ASME Surveillance (PI&R)	October 14, 1999
WR 990154317	1T-SX015 GSIN; SX Pump 1A Discharge Heater Temp Loop	May 4, 2000
WR 990161486	1T-SX016 SX Pump 1B Discharge Header Temp Loop	July 11, 2000
WR 990156891 01	2T-SX015 SX Pump 2A Discharge Header Temp Loop	May 31, 2000
WR 990140404 01	2T-SX016 GSIN; SX Pump 2B Discharge Header Temp Loop	April 24, 2000

### 1R23 Temporary Plant Modifications

Plant Barrier Impairment Permit CC-AA-201	Install Freeze in CV Pump Room	Revision 3
WO 99277750 01	1B CV Pump Cubicle Clr Inlet Valve	June 15, 2001
WR 99060235-01	Disassemble, Inspect, Repair and Reassemble Valve No. 1SX2161C	June 14, 2001

## 20S3 Radiation Monitoring Instrumentation

BWIP 2505-008	Calibration of GA Technologies Area Radiation Monitors	Revision 3E1
BWISR 3.3.3.2-213	Surveillance Calibration of High Range Containment Radiation Monitors	Revision 3
BWISR 3.3.8.3-201	Surveillance Calibration of Fuel Building Handling Incident Area Radiation Monitors 0AR55J and 0AR56J	Revision 2E1
BwRP 5510-13	Operation, Use, and Inspection of Self-Contained Breathing Apparatus	Revision 8
BwRP 5822-8	Operation and Calibration of the IPM-7/8/8D Whole Body Frisking Monitor	Revision 5
BwRP 5822-22	Operation and Calibration of the Eberline Model PRM-6	Revision 4
BwRP 5823-2	Operation and Calibration of the Merlin Gerin RAM Ion Dose Rate Meter	Revision 2
BwRP 5823-6	Operation and Calibration of the Eberline Model 6112 Teletector	Revision 2
BwRP 5824-4	Operation and Calibration of the Merlin Gerin CDM-21 Calibrator	Revision 4
RP-AA-103	Controls for Radiation Instrumentation	Revision 0
IR-PR011	Containment Atmosphere Continuous Air Monitor Calibration	March 31, 2000
0RE-AR016	Primary Sample Room ARM Calibration	July 8, 1997
0RE-AR038	Fuel Handling Building Elevation 401 ARM Calibration	May 15, 1998
1RE-AR001	Containment ARM Elevation 426 Calibration	October 15, 1996
2RE-AR001	Containment ARM Elevation 426 Calibration	May 8, 1999
1RE-AR003	Incore Seal Table Elevation 401 ARM Calibration	October 15, 1996
2RE-AR003	Incore Seal Table Elevation 401 ARM Calibration	May 8, 1999
1RE-AR011	Containment Fuel Handling Incident ARM Calibration	March 23, 2000

2RE-AR011	Containment Fuel Handling Incident ARM Calibration	October 24, 2000
0RE-AR055	Fuel Building Fuel Handling Incident ARM Calibration	July 11, 2001
0RE-AR056	Fuel Building Fuel Handling Incident ARM Calibration	August 22, 2000
1RE-AR020	High Range Containment Elevation 514 ARM Calibration	March 24, 2000
2RE-AR020	High Range Containment Elevation 514 ARM Calibration	October 26, 2000
1RE-AR021	High Range Containment Elevation 514 ARM Calibration	March 24, 2000
1RE-AR021	High Range Containment Elevation 514 ARM Calibration	October 26, 2000
FASTSCAN	Whole Body Counter #2 Calibration	November 17, 2000
1587	Eberline Model PRM-6 Calibration	August 8, 2001
2094-063	Merlin Gerin Ram Ion Dose Rate Meter Calibration	August 8, 2001
37453	Eberline Model 6112 Teletector Calibration	August 8, 2001
140865, 140906, 140620, 137723	Merlin Gerin CDM-21 Calibrations	August 8, 2001
CR A2001-00548	Inconsistent Use of AMS-4	February 5, 2001
CR A2001-01822	Source Separated from Source Jig	June 18, 2001
	Braidwood Station Emergency Plan	January 2000
BwRP 5510-13T1	ISI Magnum Self-Contained Breathing Apparatus Checklist	June 7, 2001
	SCBA Mask Fits & Qualifications	August 8, 2001
	Radiation Protection Self-Assessment Report 4 <sup>th</sup> Quarter 2000	
	Radiation Protection Self-Assessment Report 1 <sup>st</sup> Quarter 2001	
	Radiation Protection Self-Assessment Report 2 <sup>nd</sup> Quarter 2001	



NOA-20-99-005	Braidwood Station Nuclear Oversight Assessment of the Radiation Protection Program	January 8, 2001
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4OA1 Drill Evaluation

	Braidwood Station Integrated Generating Station Emergency Plan Drill	June 27, 2001
Memo from McCain to Schwartz	2001 Off-Year Exercise findings and Observation Report	August 9, 2001

4OA2 Performance Indicator Verification

CR A2001-01444	AF System Exceeded One-half of the NEI/NRC Green Band Goal (PI&R)	April 7, 2001
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4OA3 Event Follow-up

2BwGP 100-A13	Reactor Trip Root Cause Determination	Revision 4
NRC Form 361	Reactor Plant Event Notification Worksheet	May 19, 2001
CR A2001-01488	Unit 2 Reactor Trip Due to Failure to Follow Procedure and Lack of Supervision	May 19, 2001
BwOP AP-26	Restoring SAT 242-2 With Unit 2 UAT Energized	Revision 9