July 21, 2000

Mr. Oliver D. Kingsley
President, Nuclear Generation Group
Commonwealth Edison Company
ATTN: Regulatory Services
Executive Towers West III
1400 Opus Place, Suite 500
Downers Grove, IL 60515

SUBJECT: BRAIDWOOD INSPECTION REPORT 50-456/2000009(DRP); 50-457/2000009(DRP)

Dear Mr. Kingsley:

On June 30, 2000, the NRC completed an inspection at your Braidwood Units 1 and 2 reactor facilities. The enclosed report presents the results of that inspection which were discussed on June 26, 2000, with Mr. Dunn and other members of your staff.

The inspection was an examination of 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. Within these areas the inspection consisted of a selective examination of procedures and representative records, observations of activities, and interviews with personnel. Specifically, this inspection focused on resident inspection activities.

Based on the results of this inspection, no findings were identified.

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).

We will gladly discuss any questions you have concerning this inspection.

Sincerely,

Original signed by
Michael J. Jordan, Chief

Michael J. Jordan, Chief
Reactor Projects Branch 3

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

Enclosure: Inspection Report 50-456/2000009(DRP);
50-457/2000009(DRP)

cc w/encl: D. Helwig, Senior Vice President, Nuclear Services
C. Crane, Senior Vice President, Nuclear Operations
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REGION III

Docket Nos:	50-456; 50-457
License Nos:	NPF-72; NPF-77
Report No:	50-456/2000009(DRP); 50-457/2000009(DRP)
Licensee:	Commonwealth Edison Company (ComEd)
Facility:	Braidwood Nuclear Power Station, Units 1 and 2
Location:	35100 S. Route 53 Suite 84 Braceville, IL 60407-9617
Dates:	May 16 through June 30, 2000
Inspectors:	C. Phillips, Senior Resident Inspector J. Adams, Resident Inspector J. Roman, Illinois Department of Nuclear Safety
Approved by:	Michael J. Jordan, Chief Reactor Projects Branch 3 Division of Reactor Projects

NRC's REVISED REACTOR OVERSIGHT PROCESS

The federal Nuclear Regulatory Commission (NRC) recently revamped its inspection, assessment, and enforcement programs for commercial nuclear power plants. The new process takes into account improvements in the performance of the nuclear industry over the past 25 years and improved approaches of inspecting and assessing safety performance at NRC licensed plants.

The new process monitors licensee performance in three broad areas (called strategic performance areas): reactor safety (avoiding accidents and reducing the consequences of accidents if they occur), radiation safety (protecting plant employees and the public during routine operations), and safeguards (protecting the plant against sabotage or other security threats). The process focuses on licensee performance within each of seven cornerstones of safety in the three areas:

Reactor Safety	Radiation Safety	Safeguards
● Initiating Events	● Occupational	● Physical Protection
● Mitigating Systems	● Public	
● Barrier Integrity		
● Emergency Preparedness		

To monitor these seven cornerstones of safety, the NRC uses two processes that generate information about the safety significance of plant operations: inspections and performance indicators. Inspection findings will be evaluated according to their potential significance for safety, using the Significance Determination Process, and assigned colors of GREEN, WHITE, YELLOW or RED. GREEN findings are indicative of issues that, while they may not be desirable, represent very low safety significance. WHITE findings indicate issues that are of low to moderate safety significance. YELLOW findings are issues that are of substantial safety significance. RED findings represent issues that are of high safety significance with a significant reduction in safety margin.

Performance indicator data will be compared to established criteria for measuring licensee performance in terms of potential safety. Based on prescribed thresholds, the indicators will be classified by color representing varying levels of performance and incremental degradation in safety: GREEN, WHITE, YELLOW, and RED. GREEN indicators represent performance at a level requiring no additional NRC oversight beyond the baseline inspections. WHITE corresponds to performance that may result in increased NRC oversight. YELLOW represents performance that minimally reduces safety margin and requires even more NRC oversight. And RED indicates performance that represents a significant reduction in safety margin but still provides adequate protection to public health and safety.

The assessment process integrates performance indicators and inspection so the agency can reach objective conclusions regarding overall plant performance. The agency will use an Action Matrix to determine in a systematic, predictable manner which regulatory actions should be taken based on a licensee's performance. The NRC's actions in response to the significance (as represented by the color) of issues will be the same for performance indicators as for inspection findings. As a licensee's safety performance degrades, the NRC will take more and increasingly significant action, which can include shutting down a plant, as described in the Action Matrix.

More information can be found at: http://www.nrc.gov/NRR/OVERSIGHT/index.html.

SUMMARY OF FINDINGS

Braidwood Nuclear Power Station, Units 1 & 2
NRC Inspection Report 50-456/2000009(DRP); 50-457/2000009(DRP)

The report covers a 6-week period of resident inspection. The significance of issues is indicated by their color (green, white, yellow, red) and was determined by the Significance Determination Process in Inspection Manual Chapter 0609. There were no findings identified.

Report Details

Summary of Plant Status: Both units operated at full power throughout the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Event, Mitigating Systems, Barrier Integrity

1R01 Adverse Weather Preparations

a. Inspection Scope

The inspectors reviewed the licensee's preparation for hot weather conditions. During this inspection, the inspectors reviewed the surveillance procedure, walked down the Unit 1 and Unit 2 refueling water storage tank circulating system, verified system lineup, and reviewed the out-of-service to remove power from the refueling water storage tank electric heaters. The inspectors verified that all of the main, unit auxiliary, and station auxiliary transformer oil coolers were clean and oil circulating pumps (where applicable) were available. The inspectors verified that the safety-related room coolers for both Unit 1 and 2 essential service water, residual heat removal (RH), safety injection (SI) charging, and auxiliary feedwater pumps were clean and supplied with essential service water. The following documents were reviewed during this inspection:

- Braidwood Operating Surveillance Procedure, 0BwOS XHT-A1, "Unit Common High Temperature Equipment Protection Annual Surveillance," Revision 2E1;
- Braidwood Operating Procedures, BwOP SI-M1, "Safety Injection (SI) System Lineup [Unit1]," Revision 12; and
- BwOP SI-M2, "SI System Lineup [Unit2]," Revision 11.

The inspectors reviewed the licensee's preparation for high wind and tornados. The inspectors performed walkdowns of the switchyard, Unit 1 and 2 transformer yards, building roofs, and general exterior areas for loose materials that could affect the reliability of the offsite power sources to plant mitigating systems.

b. Findings

There were no findings identified and documented during this inspection.

1R04 Equipment Alignment

a. Inspection Scope

The inspectors verified the correct equipment alignment for the following system trains, which were redundant for temporarily out-of-service trains, 2A SI, 2A containment spray, and 1B essential service water. The inspectors also verified the equipment lineup of,

and inspected for unidentified degraded conditions or temporary modifications to the Unit 1 component cooling water system. In addition, for the Unit 1 component cooling water system, the inspectors reviewed a list of existing work requests, outstanding modifications, and existing temporary modifications to determine if there was any aggregate degraded conditions that would impact the ability of the system to perform it's safety function. The following documents were reviewed during this inspection:

- BwOP CC-M1, "Operating Mechanical Lineup Unit 1," Revision 12 for the Unit 1 component cooling water system, and Unit 2 Braidwood Operating Abnormal Procedure;
- 1BwOA PRI-6, "Component Cooling Malfunction Unit 1," Revision 56A;
- Problem Identification Form (PIF) A1999-03089 regarding the incorrect installation of relief valve 0CC9432; and
- PIF 1999-03058 regarding the operations department corrective actions for the number of configuration control events in 2000.

b. Findings

The were no findings identified and documented during this inspection.

1R05 Fire Protection

a. Inspection Scope

The inspectors verified that for the Unit 2 upper cable spreading room fire zone 3.3B-2, had no uncontrolled combustibles or ignition sources, and that the material condition of the fire protection equipment and barriers was acceptable. The inspectors had several minor observations that were documented in Condition Report A2000-02374. The following documents were reviewed during this inspection:

- Braidwood Electrical Maintenance Procedure, BwHS 4009-049, "Surveillance of Unit 2 Upper Cable Spreading Room Detection Zones 2D-41 Through 2D-48," Revision 2E1; and
- BwHS 4009-074, "Surveillance of Fire Detection Cabinet 2PA39J," Revision 1.

b. Findings

There were no findings identified and documented during this inspection.

1R07 Heat Sink Performance

a. Inspection Scope

The inspectors observed heat exchanger performance testing of the 2B RH pump room cooler, 2VA02S. The room cooler is essential for the operability of the 2B RH pump, a

pump that ranks high in the plant specific risk assessment. The inspectors observed the pre-job briefing, the discussion of precautions and limitations, the establishment of the required ambient conditions in the 2B RH pump room using electric heaters, and the performance of the surveillance. The inspectors reviewed acceptance criteria, resistance temperature detector corrections, and the calculations performed during the test. The inspectors verified that the heat removal capacity of the 2B RH pump room cooler exceeded the minimum acceptance criteria. The following document was reviewed during this inspection:

- Braidwood Engineering Surveillance Procedure, BwVS 900-19, "Heat Exchanger Test Procedure For Residual Heat Removal Pump Cubical Cooler 2VA02S," Revision 2.

b. Findings

There were no findings identified and documented during this inspection.

1R11 Licensed Operator Requalification Program

b. Inspection Scope

On June 22, 2000, the inspectors observed a simulator testing at training designed to evaluate the capabilities of a crew unit supervisor, and reviewed the licensee's evaluation material. The inspectors also reviewed the simulator fidelity as compared to Unit 1. The following documents were reviewed during this inspection:

- Braidwood Emergency Procedures, 1BwEP-0, "Reactor Trip Or SI Unit 1," Revision 1A;

- 1BwEP-3,"Steam Generator Tube Rupture Unit 1," Revision 1A; and

- 1BwCA-3.1,"Steam Generator Tube Rupture With Loss Of Reactor Coolant Subcooled Recovery Desired Unit 1," Revision 1A.

d. Findings

There were no findings identified and documented during this inspection.

1R12 Maintenance Rule Implementation

.1 Maintenance Rule Implementation on the Unit 1 B RH Train

a. Inspection Scope

The inspectors reviewed the licensee's implementation of the maintenance rule requirements for the B train of RH on Unit 1. The 1B RH train was selected based on its high risk ranking in the plant specific risk assessment. The inspectors reviewed "Braidwood Expert Panel Scoping Determination for the RH System;" maintenance rule performance criteria, RH1, RH2, and RH3 for the RH system; expert panel activities of

May 30 and June 5, 2000; and the current equipment performance status, for the 1B train of RH. The inspectors reviewed the licensee's actions (with respect to maintenance rule compliance) associated with the following PIFs:

- A1999-03091, "1RH611 Closed During Start of 1RH01PB for American Society of Mechanical Engineers Surveillance";
- A2000-02068, "Various OPS Logs and Limiting Condition for Operation Tracking Problems Affect Plant Indicators"; and
- A2000-02231, "A1R08 Start Up Causes Maintenance Rule Function RH3 to Exceed Unavailability Criteria."

b. Findings

There were no findings identified and documented during this inspection.

.2 Maintenance Rule Implementation on the Unit 2 125 Volt 211 Battery and Bus

a. Inspection Scope

The inspectors reviewed the licensee's implementation of the maintenance rule requirements for the 211, 125 volt direct current (DC), 1E battery and bus. The 211 battery and bus was selected based on its high risk ranking in the plant specific risk assessment. The inspectors reviewed "Braidwood Expert Panel Scoping Determination for the DC System;" maintenance rule performance criteria, DC1; System Engineer's Notebook for the DC system; and the current equipment performance status for the 125 volt DC 1E battery and bus 211. The inspectors reviewed the licensee's actions (with respect to maintenance rule compliance) associated with PIFs:

- A1998-01718, "Out-of-Tolerance Reading Not Noticed on Surveillance"; and
- A1999-03989, "Battery 211 Potentially Inop."

b. Findings

There were no findings identified and documented during this inspection.

1R13 Maintenance Risk Assessments And Emergency Work Control

Emergent Work Associated With The Failure of the 2B Auxiliary Feedwater Pump (AF) Jacket Water Level Switch

a. Inspection Scope

The inspectors reviewed the licensee's evaluation of plant risk and equipment configuration associated with the performance of emergent maintenance activities on Unit 2 AF pump following a failure of the automatic make up function on the jacket water expansion tank. The inspectors reviewed safety evaluation screening validation

BRW-SESV-2000-597 and associated contingency actions for continued operation of the 2B AF pump without automatic jacket water makeup. The inspectors verified that the required contingency actions were implemented and understood by operators. The inspectors observed the prompt planning and execution of the inspection and drying of wetted components associated with the 2B AF pump. The inspectors verified that proper operation of the 2B AF pump was demonstrated following the completion of maintenance activities. The inspectors verified the failure of the jacket water expansion tank level switch was entered into the licensee's corrective action program. The following documents were reviewed during this inspection:

- BwOP AF-7, " Auxiliary Feedwater Pump 2B (Diesel) Startup on Recirc," Revision 15; and

- PIF A2000-02475, "2B Auxiliary Feed Pump Jacket Water Level Switch Failure."

b. Findings

There were no findings identified and documented during this inspection.

1R14 Personnel Performance During Nonroutine Plant Evolutions And Events

a. Inspection Scope

On June 25, 2000, the licensee reported to NRC that another government agency had been contacted (Illinois Emergency Management Agency) regarding an oil spill from a storm sewer oil separator pit during heavy rains which eventually left the owner controlled boundary. The inspectors reviewed the results of two activity samples drawn from a storm drainage ditch, and discussed with licensee management their plans to contain and clean up the spill. The licensee entered the problem into the corrective action program. The following documents were reviewed during this inspection:

- BwVP 800-9,"Oil Spill Prevention and Control Countermeasure Plans For Braidwood Station,"Revision 1; and

- Condition Report A2000-02683, "Oil in North Run Off."

b. Findings

There were no findings identified and documented during this inspection.

1R15 Operability Evaluations

a. Inspection Scope

The inspectors reviewed the following operability evaluations and any associated compensatory actions:

- Operability Evaluation 00-005, "Inverter 214 Not Fed from 'Normal' 480 vac Feed";

- Condition Report A2000-02339, Prompt Operability Determination, “1A Essential Service Water Pump Oil Leak at the Discharge of the Aux Oil Pump”;

- Condition Report A2000-0515, Prompt Operability Determination, “Ineffective Wire Identified On Unit 1 Containment Tendon H10AC”; and

- Condition Report A2000-02126, “Degraded Voltage on Instrument Bus 214.”

The inspectors verified that problems identified had been entered in the licensee’s corrective actions program. The inspectors discussed the operability of the 214 inverter with the instrument power system engineer and discussed the condition of the containment tendon and minimum acceptance criteria for containment tendons with site engineering personnel.

b. Findings

There were no findings identified and documented during this inspection.

1R16 Operator Workarounds

a. Inspection Scope

The inspectors reviewed the operator workaround for the Residual Heat (RH) removal recirculation minimum flow controls to identify any potential effect on the function of the Unit 1 and 2 RH systems. The inspectors selected this operator workaround for review because the RH system is a mitigating system that ranks high in the plant specific risk assessment. The inspectors verified that this operator workaround had been included in the operator workaround program and was handled in accordance with the licensee’s procedure. The following documentation was reviewed during this inspection:

- Operator Workaround 193, “RH Recirculation Minimum Flow Controls”; and

- OP-AA-101-303, “Operator Workaround Program,” Revision 0.

b. Findings

There were no findings identified and documented during this inspection.

1R19 Post Maintenance Testing

.1 Bus 231X Control Power Terminal Block Movement

a. Inspection Scope

The inspectors observed portions of the work and testing in progress and reviewed completed work request which involved the relocation of normal and reserve control power terminal blocks within the Bus 231X cabinet. The inspectors also interviewed

system engineering personnel to verify the testing performed adequately ensured the movement of the normal and reserved control power terminal blocks within Bus 231X was completed correctly. The following document was reviewed during this inspection:

- Work Request 990091515-02, 0VA03CC, "Replace AR3 Relay W/DC contacts, D20-0-96-282-001."

b. Findings

There were no findings identified and documented during this inspection.

.2 2B RH Pump Room Cubicle Cooler Freeze Seal Installation

a. Inspection Scope

The inspectors walked down the work associated with the meltdown of the freeze seal on the RH pump room cubicle cooler and reviewed completed Work Request 970107250-01. The inspectors interviewed quality control personnel and verified the correct non-destructive examination of the piping was performed and that the results were satisfactory after the freeze seal was melted. The inspectors also walked down the piping and verified that the essential service water alignment to the cubicle cooler was restored.

b. Findings

There were no findings identified and documented during this inspection.

1R22 Surveillance Testing

a. Inspection Scope

The inspectors observed the performance of the following surveillance testing, reviewed the results, and discussed the testing with the system engineer to verify the surveillance test met the testing requirements and that the results were satisfactory:

- 1 BwOSR 3.3.2.7-620, "Unit One Quarterly Slave Relay Surveillance (Train A - K620 and K633)," Revision 1; and

- 2BwOSR 3.6.2.1-4, "Unit Two Primary Containment Type B Local Leakage Rate Test of the Emergency Hatch Airlock Door Gasket Interspaces," Revision 0E2.

The inspectors observed the pre-job brief for the leak test of the containment emergency hatch, the discussion of precautions and limitations, the establishment of the required initial conditions, and the test's execution in accordance with BwOSR 3.6.2.1-4. The inspectors verified that the minimum acceptance criteria were met.

b. Findings

There were no findings identified and documented during this inspection.

1R23 Temporary Plant Modifications

a. Inspection Scope

The inspectors reviewed temporary plant modification (T-Mod) package 00-1-004, "Installation of a Temporary Pressure Switch for 1PS-FW162 on valve 1FW009A (feedwater containment isolation valve);" Safety Evaluation Screening Validation BRW-SESV-2000-0581; and Safety Evaluation BRW-SE-94-0092. The inspectors reviewed the T-Mod installation instruction and wiring diagrams 20E-1-4030FW18 and 20E-1-4410A noting that instruction for the switch replacement were consistent with the drawings. The inspectors observed the physical installation of the replacement pressure switch and verified the proper mounting, the proper enclosure of conductors in conduit, and the proper application of jumper and lifted lead tags.

b. Findings

There were no findings identified and documented during this inspection.

4. OTHER ACTIVITIES

4OA6 Meetings

Exit Meeting Summary

The inspectors presented the inspection results to Mr. Dunn and other members of licensee management on June 26, 2000. The licensee acknowledged the findings presented. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

PARTIAL LIST OF PERSONS CONTACTED

Licensee

T. Tulon	Site Vice President
K. Schwartz	Station Manager
C. Dunn	Operations Manager
L. Guthrie	Maintenance Manager
D. Goldsmith	Radiation Protection Manager
R. Graham	Work Control Manager
T. Simpkin	Regulatory Assurance Manager
T. Luke	Engineering Manager
M. Cassidy	Regulatory Assurance - NRC Coordinator

NRC

M. Jordan	Branch Chief, Division of Reactor Projects
C. Phillips	Senior Resident Inspector
J. Adams	Resident Inspector

Illinois Department of Nuclear Safety

J. Roman	Resident Engineer

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None

Closed

None

Discussed

None

LIST OF BASELINE INSPECTIONS PERFORMED

The following inspectable-area procedures were used to perform inspections during the report period. Documented findings are contained in the body of the report.

Inspection Procedure		Report Section
Number	Title	
71111-01	Adverse Weather Preparations	1R01
71111-04	Equipment Alignment	1R04
71111-05	Fire Protection	1R05
71111-07	Heat Sink Performance	1R07
71111-11	Licensed Operator Requalification Program	1R11
71111-12	Maintenance Rule Implementation	1R12
71111-13	Maintenance Risk Assessments And Emergency Work Control	1R13
71111-14	Personnel Performance During Nonroutine Plant Evolutions And Events	1R14
71111-15	Operability Evaluations	1R15
71111-16	Operator Workarounds	1R16
71111-19	Post Maintenance Testing	1R19
71111-22	Surveillance Testing	1R22

LIST OF ACRONYMS AND INITIALISMS USED

AF	Auxiliary Feedwater
BwEP	Braidwood Emergency Procedure
BwHS	Braidwood Electrical Maintenance Procedure
BwOA	Braidwood Operating Abnormal Procedure
BwOP	Braidwood Operating Procedure
BwOS	Braidwood Operating Surveillance Procedure
BwVS	Braidwood Engineering Surveillance Procedure
CC	Component Cooling Water
CFR	Code of Federal Regulations
DC	Direct Current
NRC	Nuclear Regulatory Commission
NRR	Nuclear Reactor Regulations
PIF	Problem Identification Form
RH	Residual Heat Removal
SI	Safety Injection
VA	Auxiliary Building Ventilation System