October 10, 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 - NRC INSPECTION REPORT 50-456/2000014(DRS); 50-457/2000014(DRS)

Dear Mr. Kingsley:

On September 15, 2000, the NRC completed a routine inspection at your Braidwood Nuclear Power Station. The results were discussed on September 15, 2000, with Mr. Tulon and members of your staff. The enclosed report presents the results of that inspection.

The inspection was an examination of activities conducted under your license as they relate to radiation 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 occupational radiation safety, the radiological controls implemented for access to radiologically significant areas, and the calibration, operability, and testing of radiation monitoring instrumentation. Also, one performance indicator for the mitigating systems cornerstone was verified.

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,

/RA/

Gary L. Shear, Chief
Plant Support Branch
Division of Reactor Safety

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

Enclosure: Inspection Report 50-456/2000014(DRS);
50-457/2000014(DRS)

cc w/encl: D. Helwig, Senior Vice President, Nuclear Services
C. Crane, Senior Vice President, Nuclear Operations
H. Stanley, Vice President, Nuclear Operations
R. Krich, Vice President, Regulatory Services
DCD - Licensing
T. Tulon, Site Vice President
K. Schwartz, Station Manager
T. Simpkin, Regulatory Assurance Supervisor
M. Aguilar, Assistant Attorney General
State Liaison Officer
Chairman, Illinois Commerce Commission

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket Nos:	50-456; 50-457
License Nos:	NPF-72; NPF-77
Report No:	50-456/2000014(DRS); 50-457/2000014(DRS)
Licensee:	Commonwealth Edison Company
Facility:	Braidwood Nuclear Plant, Units 1 and 2
Location:	35100 South Route 53 Suite 84 Braceville, IL 60407-9617
Inspection Dates:	September 11 to 15, 2000
Inspectors:	John House, Senior Radiation Specialist Ryan Alexander, Radiation Specialist
Approved by:	Gary L. Shear, Chief, Plant Support Branch Division of Reactor Safety

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

IR 50-456/2000014(DRS); IR 50-457/2000014(DRS), on 09/11 - 09/15/2000; Commonwealth Edison Company, Braidwood Nuclear Power Station, Units 1 and 2. The inspection covered the following baseline activities: The occupational radiation safety program and the performance indicator for reactor coolant activity for the mitigating systems cornerstone.

The inspection was conducted by a regional senior radiation specialist and a radiation specialist. This inspection identified no findings.

Report Details

Summary of Plant Status: The plant was at 100 percent power throughout the inspection period.

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety

2OS1 Access Controls for Radiologically Significant Areas

.1 Plant Walkdowns, Radiological Boundary Verifications and Radiation Work Permit Reviews

a. Inspection Scope

The inspectors conducted walkdowns of the radiologically controlled area (RCA) to verify the adequacy of radiological area boundaries and postings including high and locked high radiation areas in the Auxiliary and Radwaste Buildings. Confirmatory radiation measurements were taken to verify that these areas and selected radiation areas were properly posted and controlled in accordance with 10 CFR 20, licensee procedures and Technical Specifications. Radiation work permits (RWPs) for tours and a spent resin transfer were reviewed for protective clothing requirements and dosimetry requirements including alarm set-points.

b. Findings

There were no findings identified.

.2 Problem Identification and Resolution

a. Inspection Scope

The inspectors reviewed the licensee's self assessments and the condition report (CR) database that related to radiation worker performance, work practices and high radiation area access controls covering the four months preceding the inspection. The inspectors evaluated the effectiveness of the radiation protection self-assessment process to identify problems and trends, and to implement corrective actions.

b. Findings

There were no findings identified.

.3 Control of Non-Fuel Materials Stored in the Spent Fuel Pools

a. Inspection Scope

The inspectors reviewed the licensee's programmatic controls and current practices for the control of highly activated or contaminated materials (non-fuel) stored within the

spent fuel or other storage pools. The most recent inventory list was evaluated, the Fuel Handling Manager was interviewed, and a walkdown of the refuel floor was conducted in order to verify that controls for underwater storage of non-fuel materials were adequate.

b. Findings

There were no findings identified.

2OS2 As-Low-As-Is-Reasonably-Achievable (ALARA) Planning and Controls

.1 Declared Pregnant Workers

a. Inspection Scope

The inspectors reviewed the controls implemented by the licensee for the seven individuals who voluntarily declared their pregnancies in the last 18 months. Specifically, the inspectors reviewed the licensee's adherence with the requirements contained in 10 CFR 20.1208 by examining the licensee's assessment of the dose to the individuals' embryo/fetus.

b. Findings

There were no findings identified.

2OS3 Radiation Monitoring Instrumentation

.1 Calibration and Source Tests of Radiological Instrumentation

a. Inspection Scope

The inspectors verified the accuracy and operability of radiation monitoring instruments used for the protection of radiation workers including:

- Area radiation monitors
- Continuous air monitors
- Portable survey meters
- Portal monitors
- Electronic dosimeters

The Updated Final Safety Analysis Report (UFSAR) was reviewed to identify area radiation monitor (ARM) and continuous air monitor (CAM) locations. The inspectors walked down selected monitors to determine that their locations were as described in licensee documents, and reviewed the most recent calibration records for a number of the station's ARMs and CAMs. These included, but were not limited to, the following:

- Containment Vessel Monitors
- Auxiliary Building Vent Stack Effluent Radiation Monitor
- Auxiliary Building Radiation Monitors
- Main Steam Line Penetration Radiation Monitor

- Radwaste Building Low Waste Storage Radiation Monitor
- Control Room Monitor
- Fuel Handling Building Incident Radiation Monitor

The inspectors reviewed a selected sample of current calibration records for portable radiation survey instruments and electronic dosimeters. Also, the calibration process for portable survey instruments along with source tests for personnel contamination monitors and portable survey instrumentation was observed in order to verify compliance with procedures.

b. Findings

There were no findings identified.

.2 Respiratory Protection - Self Contained Breathing Apparatus (SCBA)

a. Inspection Scope

The inspectors reviewed the operability and material condition, status and surveillance records for SCBA located in various areas onsite, with particular attention to those SCBA reserved for fire brigade and control room personnel. In addition, the inspectors verified that applicable emergency response and control room personnel were properly trained, mask fit, and medically qualified in the use of SCBA.

b. Findings

There were no findings identified.

.3 Problem Identification and Resolution

a. Inspection Scope

The inspectors reviewed the licensee's audits, surveillances and the CR database for the previous six months covering radiological incidents involving personnel contamination events and radiological instrumentation, to evaluate the licensee's ability to identify and correct problems. There were no radiation protection department licensee event reports, or internal exposures in excess of 100 millirem committed effective dose equivalent.

b. Findings

There were no findings identified.

4. OTHER ACTIVITIES (OA)

4OA1 Performance Indicator Verification

.1 Reactor Coolant System Specific Activity

a. Inspection Scope

The inspectors observed a chemistry technician obtain, prepare for analysis and analyze a reactor coolant sample. Following the analysis, the gamma analysis data was also evaluated. The inspectors also reviewed the dose equivalent iodine (DEI) concentrations in reactor coolant for the previous 12 months to verify the reactor coolant system activity performance indicator.

b. Findings

There were no findings identified.

4OA5 Other

.1 (Closed) URI 50-456/99009-01; 50-457/99009-01: A former contract radiation protection technician (CRPT) alarmed the exit radiation monitors at the gatehouse 14 times on April 28, 1999 without contacting the radiation protection (RP) department as required by procedure. The CRPT left the site with contaminated clothing. The NRC determined that the actions of the CRPT were deliberate, and escalated enforcement action was taken against both the licensee and the CRPT. The licensee's corrective actions included barring the CRPT from the RCA, employment termination of the CRPT by the contractor, and discussions with all CRPTs emphasizing the proper procedure to follow when the gatehouse monitors alarm. Training for CRPTs related to the gatehouse exit monitors was reviewed and will include the CRPT's actions. During the most recent refueling outage (A1R08) no similar incidents occurred at the gatehouse exit radiation monitors. The licensee's corrective actions appeared adequate.

4OA6 Management Meetings

.1 Exit Meeting Summary

The inspectors presented the inspection results to Mr. Tulon and other members of licensee management at the conclusion of the inspection on September 15, 2000. The licensee acknowledged the findings presented. No proprietary information was identified.

PARTIAL LIST OF PERSONS CONTACTED

J. Bailey, Regulatory Assurance-NRC Coordinator
B. Benson, Radiation Protection Supervisor
M. Cassidy, Regulatory Assurance
D. Dumbacher, Fuel Handling Manager
M. Finney, Lead Operational Health Physicist
D. Goldsmith, Radiation Protection Manager
P. Griggs, Radiation Protection ALARA Analyst
D. Morrison, Radiation Protection Technician
T. O'Brien, Systems Engineer
B. Schramer, Chemistry Manager
T. Simpkin, Regulatory Assurance Manager
P. Studdard, Radiation Protection Programs Coordinator
R. Thacker, Radiation Protection Supervisor
T. Tulon, Site Vice-President
G. Vickers, Radiation Protection

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None

Closed

URI 50-456/99009-01; 50-457/99009-01: A former contract radiation protection technician (CRPT) alarmed the exit radiation monitors at the gatehouse 14 times without contacting the RP department as required by procedure.

Discussed

None

LIST OF ACRONYMS USED
Radiation Protection and Chemistry

ARM	Area Radiation Monitor
CAM	Continuous Air Monitor
CFR	Code of Federal Regulations
CR	Condition Report
CRPT	Contract Radiation Protection Technician
NRC	Nuclear Regulatory Commission
OA	Other Activities
RCA	Radiologically Controlled Area
RP	Radiation Protection
RPM	Radiation Protection Manager
RWP	Radiation Work Permit
UFSAR	Updated Final Safety Analysis Report

PARTIAL LIST OF DOCUMENTS REVIEWED

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

Assessments and Audits

NO Directive NOD-RP.10, Revision 6, Radiation Protection Aspects of ComEd's Fetal Protection and Postnatal Programs
Radiation Protection Department Monthly Self Assessment Reports, January - July, 2000
Braidwood Station Radiological Protected Areas, First and Second Quarters, 2000

Calibration Records

Test Report Package, Calibration of Auxiliary Building Vent Stack Effluent Radiation Monitor 2R-PR028, May 9, 2000
Test Report Package, Calibration of Auxiliary Building Elevation 346 Radiation Monitor 0R-AR057, June 20, 1996
Test Report Package, Calibration of Auxiliary Building Elevation 364 Radiation Monitor 0R-AR058, February 22, 1996
Test Report Package, Calibration of Auxiliary Building Elevation 451 Radiation Monitor 0R-AR062, February 8, 1997
Test Report Package, Calibration of Containment High Range Area Accident Radiation Monitor 2R-AR020, April 19, 1999
Test Report Package, Calibration of Main Steam Line Penetrations Radiation Monitor 1R-AR024, June 22, 1999
Test Report Package, Calibration of High Range Containment Radiation Monitor 2R-AR020, May 1, 1999
Test Report Package, Calibration of High Range Containment Radiation Monitor 2R-AR021, April 21, 1999
Test Report Package, Calibration of High Range Containment Radiation Monitor 1R-AR020, February 10, 2000
Test Report Package, Calibration of High Range Containment Radiation Monitor 1R-AR021, February 9, 2000
Test Report Package, Calibration of High Range Containment and Auxiliary Building Radiation Monitor 1R-AR014, October 16, 1996
Test Report Package, Calibration of Auxiliary Building Elevation 401 Radiation Monitor 0R-AR060, July 9, 1997
Test Report Package, Calibration of Auxiliary Building Elevation 383 Radiation Monitor 0R-AR059, May 28, 1998
Test Report Package, Calibration of Radwaste Building Low Waste Storage Radiation Monitor 0R-AR068, November 24, 1998
Test Report Package, Calibration of Fuel Handling Building Incident Radiation Monitor 0R-AR055, August 10, 1999

Condition Reports

A2000-03141, A2000-03067, A2000-02990, A2000-02829, A2000-02774, A2000-02711, A2000-02652, A2000-02613, A2000-02602, A2000-02529, A2000-02469, A2000-02465, A2000-02454, A2000-02407, A2000-02279, A2000-02235, A2000-02230, A2000-02092

Miscellaneous

Braidwood Updated Final Safety Analysis Report, Sections 11 and 12

Procedures

BwRP 5822-20, Revision 1, Operation and Calibration of the IPM-8 D/M and IPM-9D Whole Body Frisking Monitor, August 22, 2000
BwRP 5822-22, Revision 3, Operation and Calibration of the Eberline Model PRM-6
OBwISR 3.3.8.2-001, Revision 1E2, Channel Operational Test of ORT-ARO55 and ARO56, May 9, 1999
OBwISR 3.3.7.2-001, Revision 1E2, Channel Operational Test of 0RE-PR031B and ORE-PR032B ORE-PR033B ORE-PR034B, February 2,1999
BwIP 2505-011, Revision 3, Calibration of GA Technologies High Range Area Monitors, January 31, 1988
BwIS TRM 3.3.i.2-201, Revision 3, Surveillance Calibration of Auxiliary Building Vent Stack Wide Range Gas Radiation Monitor, May 15, 2000
BwIS RETS 2.2.B-201, Revision 3, Surveillance Calibration of GA Effluent Gaseous Radiation Monitor, March 11, 2000
OBwISR 3.3.8.3-201, Revision 2E1, Surveillance Calibration of Fuel Building Handling Incident Area Radiation Monitors OAR55J and OAR56J, February 2, 1999
BwISR 3.3.7.2-213, Revision 3, Surveillance Calibration of High Range Containment Radiation Monitors, January 25, 2000
OBwISR 3.3.7.3-201, Revision 1E4, Surveillance Calibration of Control Room Outside Air Intake Radiation Monitors, June 16, 1999
BwFP FH-32, Revision 1, Removal of Underwater Filters From the Spent Fuel Pool
BwFP FH-33, Revision 0, Operation of the Tri-Nuclear Underwater Filtration Systems
BwFP FH-33T1, Revision 0, Spent Filter Tracking Log
RP-AA-202, Revision 1, Quantitative Respirator Fit Testing
RP-AA-440, Revision 0, Radiological Respiratory Protection Program
BwRP 5300-3, Revision 2E1, Administration o the Radiation Protection Aspects of ComEd's Fetal Protection and Postnatal Programs
BwRP 5300-5, Revision 1E1, Special Instructions Concerning Female Radiation Workers
BwRP 5510-13, Revision 5, Operation, Use, and Inspections of Self Contained Breathing Apparatus (SCBA)
BwRP 5510-15, Revision 3, Charging of Air Cylinders for Self-Contained Breathing Apparatus

Radiation Work Permits

003003, Revision 0, Resin Transfer
000003, Revision 1, Routine Work
000001, Tours and Walk-downs