

U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-456/84-25(DRP); 50-457/84-24(DRP)

Docket Nos. 50-456; 50-457

Licenses No CPPR-132; CPPR-133

Licensee: Commonwealth Edison Company
Post Office Box 767
Chicago, IL 60690

Facility Name: Braidwood Nuclear Power Station, Units 1 and 2

Inspection At: Braidwood Site, Braidwood, Illinois

Inspection Conducted: August 20 through September 20, 1984

Inspector: R. N. Gardner

Approved By: *R F Warnick for*
W. Forney, Chief
Projects Section 1A

Oct. 3, 1984
Date

Inspection Summary

Inspection on August 20 through September 20, 1984 (Report No. 50-456/84-25(DRP); 50-457/84-24(DRP))

Areas Inspected: Special, announced safety inspection of the Braidwood Construction Assessment Program (BCAP) plans and procedures, task force personnel training, Review of Significant Corrective Action Programs (RSCAP) BCAP element, independent Expert Overview Group (IEOG), BCAP indoctrination training, BCAP Quality Assurance (QA) personnel training, and BCAP personnel qualifications. The inspection consisted of 181 inspector-hours onsite by one NRC inspector.

Results: Of the seven areas inspected, no items of noncompliance or deviations were identified in six areas; one item of noncompliance was identified in the remaining area (failure to follow procedures) - Paragraph 8.

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DETAILS

1. Persons Contacted

Commonwealth Edison Company (CECo)

- ¹L. DelGeorge, Assistant Vice President, Licensing and Engineering
- ¹T. Maiman, Manager of Projects
- ¹²M. Wallace, Project Manager
- ¹G. Marcus, Director of Quality Assurance
- ¹B. Shelton, Projects Engineering Manager
- ¹J. Deress, Projects Engineering Manager
- ¹²E. Fitzpatrick, Assistant Quality Assurance Manager
- ¹²N. Kaushal, BCAP Director
- ¹²N. Smith, Quality Assurance Supervisor
- ¹²C. Schroeder, Project Licensing and Compliance Superintendent
- ¹E. Swartz, Nuclear Licensing Administrator
- ¹J. Toscas, Administrative Assistant, Nuclear Information
- ¹R. Byers, BCAP Assistant Director
- ¹G. Orlov, BCAP Assistant Director
- ¹A. Scaccia, Offsite Emergency Planner
- R. Ramsgate, BCAP Quality Assurance Engineer
- ²J. Zych, BCAP Quality Assurance Engineer
- ²L. Kline, Licensing and Compliance

Daniel Construction Company

- M. Clinton, BCAP Inspection Supervisor
- D. McAfee, BCAP Representative
- L. Williams, Certification/Training Administrator
- D. Burlison, Electrical Lead Inspector

Stone and Webster Engineering Company (S&W)

- P. Amoruso, RPSR Supervisor

Sargent and Lundy Engineers (S&L)

- ¹D. Leone, Projects Director - Byron and Braidwood
- ¹²K. Kostal, Project Director - Braidwood
- E. Kurtz, RSCAP Assistant Supervisor

Evaluation Research Corporation (ERC)

- ¹²J. Hansel, Project Manager
- ¹R. Ham, Assistant Project Manager
- W. Chase, Mechanical and Piping
- E. Cocoros, RCSAP

The inspector also contacted and interviewed other licensee and contractor personnel during the course of this inspection.

¹Denotes those present at the September 6, 1984, public meeting on BCAP.

²Denotes those present at exit interview.

2. Background

The Braidwood Construction Assessment Program (BCAP) is a program of inspections and reviews undertaken by the licensee in response to concerns regarding the overall quality of construction of the Braidwood Station. The BCAP program is comprised of three elements. The first element, the Construction Sample Reinspection (CSR), consists of a review and reinspection of a sample of the completed construction work. The second element, the Reverification of Procedures to Specification Requirements (RPSR), consists of a review of current installation and inspection procedures which govern ongoing and future safety-related construction work. The third element of BCAP, the Review of Significant Corrective Action Programs (RSCAP), is composed of a review of the implementation, methodologies, and resulting documentation associated with the significant corrective action programs which resulted from previously identified deficiencies.

The BCAP will be implemented under the control of a Commonwealth Edison Company (CECo) task force. A group within the CECo Quality Assurance Department has been established to conduct reviews, assessments, verifications, audits, and surveillances of the implementation of the BCAP. In addition, CECo has retained the Evaluation Research Corporation (ERC), an independent organization having no prior connection with Braidwood, to provide an independent overview of the BCAP program.

3. Review of BCAP Plans and Procedures

The following BCAP plans and procedures were reviewed:

a. BCAP Plans

BCAP Overview Plan	Revision 0
Plan for CSR	Revision 0
Plan for RPSR	Revision 0
Plan for RSCAP	Revision 0
QA Overview Group Plan	Revision 0

b. BCAP Task Force Procedures

BCAP-01	Revision 0	Program Indoctrination for Employees
BCAP-02	Revision 0	Organization and Responsibility
BCAP-03	Revision 0	Records Management
BCAP-04	Revision 0	BCAP Interface With Other Organizations And Contractors for Reinspection Field Support Services and Document Requests
BCAP-06	Revision 0	Observation and Discrepancy/Concern Processing
BCAP-07	Revision 0	BCAP Reports
BCAP-08	Revision 0	Qualification and Certification of Reinspection Personnel
BCAP-20	Revision 0	CSR - Establish Populations

BCAP-21	Revision 0	CSR - Sample Selection
BCAP-22	Revision 0	CSR - Preparation of Instructions and Checklists
BCAP-23	Revision 0	CSR - Preparation of Reinspection And Document Review Packages
BCAP-24	Revision 0	CSR - Performance of Reinspection And Document Review
BCAP-41	Revision 0	RPSR - Identification Of Specifications And Contractor Procedures
BCAP-42	Revision 0	RPSR - Preparation of Checklists
BCAP-43	Revision 0	RPSR - Review of Contractor Procedures
BCAP-60	Revision 0	RSCAP - Review Methods

c. BCAP QA Procedures

QASI-01	Revision 0	Control of BCAP Quality Assurance Special Instructions
QASI-02	Revision 0	Corrective Action Request Control
QASI-03	Revision 0	BCAP QA Scheduling and Planning
QASI-04	Revision 0	Training, Qualification and Certification of BCAP QA Personnel
QASI-05	Revision 0	BCAP QA Correspondence Control
QASI-06	Revision 0	Review of BCAP Procedures
QASI-07	Revision 0	BCAP QA Surveillance Control
QASI-08	Revision 0	BCAP QA Audit Control
QASI-09	Revision 0	BCAP QA Documentation/Records Control
QASI-10	Revision 0	BCAP QA Interface with the BCAP Task Force
QASI-11	Revision 0	BCAP QA Progress Report
QASI-12	Revision 0	Final BCAP QA Report by Element

Comments generated during the course of this review were generally minor and were provided to the licensee. One major concern was identified during the review of BCAP procedure BCAP-06, Revision 0, "Observation and Discrepancy/Concern Processing". BCAP-06 is the key to the success of the BCAP program. Both the NRC inspector and ERC commented that the procedure, as written, was confusing and could result in errors in the handling of observations and discrepancies identified during the BCAP program. The licensee initially stated a desire to commence CSR activities and, in parallel, begin to revise the procedure. Subsequently, however, the licensee initiated steps to revise the subject procedure and informed the inspector that CSR activities would not commence until the procedure was revised.

On September 10, 1984, the inspector reviewed Revision 2 to BCAP-06. This revised procedure was determined to be acceptable.

No items of noncompliance or deviations were identified.

4. Review of BCAP Taskforce Training

On August 29, 1984, the inspector reviewed the training program for BCAP personnel who are performing functions other than QC inspections. The BCAP scope document states that individuals performing BCAP activities other than

QC inspections will be trained in a manner appropriate for the activities they are performing. The BCAP procedure which implements this requirement is BCAP-01, Program Indoctrination for Employees. In reviewing the training records for BCAP personnel the inspector determined that there were no specified training requirements for the various BCAP functions being performed. This lack of established training requirements was unacceptable in view of the fact that the RSCAP program was already underway.

The inspector was informed that QA had performed a surveillance of BCAP-01 on August 24, 1984, and had made similar findings. As a result of these findings, a Corrective Action Request had been issued by QA on August 27, 1984. Pending review of the actions taken by the licensee to resolve this matter, this is an open item (456/84-25-01; 457/84-24-01).

No items of noncompliance or deviations were identified.

5. Review of RSCAP Activities

The RSCAP program is composed of a review of the implementation, methodologies, and resulting documentation associated with each of the eleven separate corrective action programs identified below:

- a. Reinspection of Safety-Related Mechanical Equipment.
- b. Quality Control Inspector Reinspection.
- c. Piping Heat Number Traceability
- d. Quality Control Structural Steel Review (QCSSR).
- e. Electrical Installation Document Review.
- f. Safety-Related Pipe Supports.
- g. HVAC Welding.
- h. HVAC Configuration.
- i. HVAC Duct Stiffener and Fitting Detail.
- j. Instrumentation Installation Verification.
- k. NSSS Component Support Verification.

Work has been initiated on programs b, d, e, f, and k.

The inspector reviewed the RSCAP work package for the safety-related pipe support program. The package contained pertinent documents such as 10 CFR 50.55(e) reports, nonconformance reports (NCRs), a documentation checklist, and a procedure review checklist. The inspector observed that the licensee had identified the fact that certain revisions to Phillips Getschow QC procedure B-23 omitted specific references to inspection requirements.

Since QC procedure B-23 is the QC procedure used during the safety related pipe support corrective action program, the effect of these omitted inspection requirements must be considered by RSCAP.

CECo initiated RSCAP work activities on or about August 20, 1984. During the NRC entrance meeting of August 20, 1984, the inspector cautioned the licensee to ensure that all BCAP programmatic requirements were satisfied prior to starting BCAP activities. On August 28, 1984, the ERC review of BCAP procedure BCAP-60 resulted in an ERC comment requiring resolution prior to the start of the RSCAP program. As a result of the ERC comment, the BCAP director stopped the ongoing RSCAP work activities. On August 31, 1984, ERC allowed CECO to resume the suspended RSCAP activities.

The BCAP program contains no written requirement for the independent expert overview group, ERC, to perform reviews and approvals of BCAP activities prior to their initiation. However, the fact that CECO had to stop RSCAP work activities, due to an ERC concern with one of the RSCAP procedures together with the NRC and QA findings regarding BCAP personnel training deficiencies identified after the RSCAP program had commenced (section 4 and 8 of this report), indicated the need for the licensee to increase the level of review of BCAP activities for compliance to programmatic requirements before those activities were authorized to begin. The licensee's decision on September 6, 1984, to institute QA hold points for the initiation of CSR and RPSR BCAP elements should provide a satisfactory resolution to this matter.

No items of noncompliance or deviations were identified.

6. Review of BCAP Independent Expert Overview Group

CECo has retained the services of Evaluation Research Corporation (ERC), of Arlington, Virginia, as an outside organization to provide an independent overview of the BCAP program. The overview group will conduct a comprehensive third-party overview of BCAP, thereby providing an added measure of confidence in the results of the BCAP program.

During this inspection period, the inspector reviewed the ERC QA Plan, ERC personnel resumes, and copies of documents attesting to ERC personnel independence from CECO, the Braidwood Project, and CECO and Braidwood contractors. The inspector also observed the exit meeting of an ERC audit of the RSCAP BCAP element. The audit concluded that RSCAP activities were being accomplished in accordance with BCAP procedure, BCAP-60.

ERC plans to have up to nine personnel onsite to review BCAP work activities. ERC has committed to the NRC that additional ERC personnel will be available to perform BCAP overview inspections if the need arises.

No items of noncompliance or deviations were identified.

7. Audit of BCAP Indoctrination Training

On August 29, 1984, the inspector audited a general BCAP indoctrination training session. The session was taught by a member of the BCAP QA organization. Subjects covered during the training session included the BCAP program and the organization and function of the BCAP QA organization. After the speaker concluded his presentation, the personnel receiving the training were given the opportunity to ask questions regarding the BCAP program.

No items of noncompliance or deviations were identified.

8. Review of BCAP QA Personnel Training

The inspector reviewed the BCAP QA personnel training program for compliance to CECo Quality Assurance Special Instruction QASI-04, Revision 0, "Training, Qualification and Certification of BCAP QA Personnel". This instruction defines specific training, qualification, and certification requirements for the CECo BCAP QA department. The licensee is presently revising the QA training program by developing a series of documented training requirements, by position, for the QA department.

On September 4, 1984, the inspector reviewed the licensee's compliance to the training requirements delineated in QASI-04 regarding QA personnel who perform formal reviews of BCAP procedures or instructions. The inspector selected two QA individuals who had previously been involved in the formal review of BCAP procedures 08 and 20. The documented training records for these individuals were compared with the training requirements delineated in section 5.2 of QASI-04. This section states, in part, that "BCAP QA personnel shall, as a minimum have...completed the site orientation and been indoctrinated in the approved BCAP QA plan and procedures before participating in the formal reviews of procedures or instructions submitted to BCAP QA for review and acceptance." The inspector, in reviewing the pertinent training records for the selected individuals, determined that the selected individuals had not completed the site orientation as required. The licensee acknowledged this deficiency and initiated a corrective action request on September 5, 1984. This failure of the licensee to provide site orientation to QA personnel involved in BCAP procedure reviews and approvals, as required by QA instruction QASI-04, is an item of noncompliance to 10 CFR 50, Appendix B, Criterion V (456/84-25-02; 457/84-24-02).

9. Review of BCAP Personnel Qualifications

The inspector reviewed the resumes of 35 BCAP task force engineers and 23 BCAP inspectors. The engineers reviewed were retained by CECo from Stone and Webster Engineering Company and Sargent and Lundy, the Braidwood Architect Engineer. The BCAP inspectors were retained by CECo from Daniel Construction Company.

The review of the resumes of the task force engineers focused on education and experience. The inspector concluded, in all cases, that the education and experience of each of the task force engineers reviewed met or exceeded that required to perform their assigned function.

The review of the resumes of the BCAP inspectors focused on education and experience along with previous certifications. During the course of this review, the inspector identified that a number of the inspectors were previously certified by Daniel Construction Company under a certification process which was not, on the surface, compatible with Braidwood site requirements. The affected inspectors have been performing inspections, at facilities under construction by Daniel Construction Company, for at least six months. The inspector requested the licensee to review the affected inspectors' experience, education, and prior certifications to ensure that their certification at Braidwood would satisfy the requirements of ANSI N45.2.6. This matter is unresolved pending the review of BCAP inspector qualifications subsequent to their certification as BCAP inspector (456/84-25-03; 457/84-24-03).

No items of noncompliance or deviations were identified.

10. Public Meeting to Discuss BCAP

The first periodic BCAP status meeting was held on September 6, 1984, at the Mazon Emergency Offsite Facility (EOF). Participants in the meeting included Messrs. J. Keppler, R. Warnick, W. Forney, and R. Gardner of the NRC staff, T. Maiman, N. Kaushal, and E. Fitzpatrick of CECo, and R. Hansel and R. Ham of ERC.

Subjects addressed in the meeting included a presentation on the BCAP program, the status of BCAP activities, problems encountered during the initial stages of BCAP, and a presentation on the role of ERC, the BCAP independent overviewer.

Three problems regarding the BCAP program were discussed. The first problem dealt with the licensee's initiation of the RSCAP program without first ensuring that all programmatic requirements were met. The second problem dealt with the training program for BCAP personnel who are performing functions other than QC inspections. The third problem regarded the lack of required training for QA personnel performing BCAP procedure reviews and approvals. (These problems are discussed in more detail in sections 4, and 5, and 8 of this report.)

11. Open Items

Open items are matters which have been discussed with the licensee, which will be reviewed further by the inspector, and which involve some action on the part of the NRC or licensee or both. An open item disclosed during the inspection is discussed in Paragraph 4.

12. Unresolved Items

Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable items, items of noncompliance, or deviations. An unresolved item disclosed during the inspection is discussed in Paragraph 9.

13. Exit Interview

The inspector met with licensee representatives (denoted under Persons Contacted) during and at the conclusion of the inspection on September 21, 1984. The inspector summarized the scope and findings of the inspection. The licensee acknowledged the information.

Attachment 1. Memo from C.E. Norelius to J. G. Keppler dtd 9/17/84 and 9/10/84

Attachment 2. Ltr. from CECO to J. G. Keppler dtd 9/13/84