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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-456/85030(DRP); 50-457/85029(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: June 3 through June 28, 1985

Inspector: *P.R. Pelhe for*
R. N. Gardner

7/9/85
Date

Approved By: *[Signature]*
W. S. Little, Director
Braidwood Project

7/10/85
Date

Inspection Summary

Inspection on June 3 through June 28, 1985 (Report No. 50-456/85030(DRP); 50-457/85029(DRP))

Areas Inspected: Special, announced safety inspection of the Braidwood Construction Assessment Program (BCAP) in regards to licensee action on previously identified items, Construction Sample Reinspection (CSR) reinspection activities, review of BCAP observations/discrepancies, review of BCAP procedures, and review of Reverification of Procedures to Specification Requirements (RPSR) activities. The inspection consisted of 127 inspector-hours onsite by one NRC inspector.

Results: No items of noncompliance or deviations were identified.

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DETAILS

1. Persons Contacted

Commonwealth Edison Company (CECo)

1 L. DelGeorge, Assistant Vice President
1 T. Maiman, Manager of Projects
1,2 M. Wallace, Project Manager
1 W. Shewski, Quality Assurance Manager
1 G. Marcus, Special Assistant to Manager of Projects
1,2 E. Fitzpatrick, Assistant Quality Assurance Manager
1 D. Shamblin, Project Construction Superintendent
1,2 N. Kaushal, BCAP Director
1,2 N. Smith, General Supervisor of Quality Assurance
1 B. Shelton, Projects Engineering Manager
1 W. Vahle, Field Engineering Manager
1 G. Orlov, BCAP Assistant Director
1,2 R. Byers, BCAP Assistant Director
1 M. Dougherty, BCAP Engineer
1 M. Frankel, Statistician
1 R. Williams, BCAP Quality Assurance
1 R. Cannon, BCAP Quality Assurance
1 I. Johnson, Nuclear Communications Coordinator
1 L. Weiss, BCAP Taskforce
2 L. Kline, Licensing and Compliance
2 C. Schroeder, Licensing and Compliance
2 D. Patel, CSR Lead Electrical

Daniel Construction Company

E. Shevlin, BCAP Lead Inspector
L. Shea, BCAP Lead Inspector

Stone and Webster Engineering Company (S&W)

1 P. Dunlop, Manager

Sargent and Lundy Engineers (S&L)

1 K. Kostal, Project Director
1 D. Fischer, Project Manager
1 G. Jones, Project Manager
1 B. Pardunn, BCAP Evaluation Coordinator

Illinois Department of Nuclear Safety

1 R. Minue, Nuclear Engineer

Evaluation Research Corporation (ERC)

- ¹ J. Hansel, Project Manager
- ¹ B. Ham, Deputy Project Manager
- ¹ W. Chase, Consultant

Isham, Lincoln and Beale

- ¹ V. Copeland, Attorney

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

¹Denotes those present at the June 25, 1985 public meeting on BCAP.

²Denotes those present at the exit interview.

2. Licensee Action on Previously Identified Items

- a. (Closed) Open Item (50-456/84-32-01; 50-457/84-30-01): BCAP inspectors were determining the acceptability of the elevation and location of installed components by utilizing chalk-marks which were written on plant structures. As stated in NRC inspection report Nos. 50-456/85002 and 50-457/85002, the inspector attended a training session which was held to provide BCAP inspectors with direction in the use of approved survey marks for BCAP reinspections. During this report period, the inspector determined that all but one of the reinspection attributes previously documented as N/A due to the lack of adequate survey marks had been reinspected. Missing survey marks had been provided by the site contractors. The one remaining electrical reinspection which contained an attribute which was designated as N/A due to a missing survey mark was in the process of being reinspected. This item is closed.
- b. (Closed) Unresolved Item (50-456/85002-02; 50-457/85002-02): The invalidation of certain discrepancies by S&L did not support the invalidation. The inspector reviewed the final status of the three discrepancies which were the basis of this unresolved item. Each of the three discrepancies was reprocessed as valid items. In addition, S&L had concluded that all three discrepancies were not design-significant.

On March 22, 1985, BCAP QA instituted Mandatory Hold Points during the processing of invalid observations to allow QA to substantiate specific justification for the invalidation of the observations. The Mandatory Hold Points apply to each of the three BCAP elements. This item is closed.

3. CSR Reinspection Activities

On June 13, 1985, the inspector witnessed the overinspection of a large bore rigid pipe support located in the Unit 1 auxiliary building. The overinspection was performed by ERC inspectors. The CSR reinspection package number was CSR-I-M-2-114. The pipe support had previously been reinspected by the BCAP taskforce. During the overinspection, the ERC inspector determined that one heat number had not been recorded on the reinspection package. The ERC inspector stated that this matter would be discussed with the BCAP taskforce. With the exception of the unrecorded heat number, the reinspection performed by the BCAP taskforce accurately documented the acceptability of the pipe support.

BCAP CSR reinspection activities and CSR documentation review activities are essentially complete. The only continuing CSR reinspection activities are those which pertain to the gathering of additional data to support the S&L review of previously identified BCAP deficiencies. As a result of the completion of CSR reinspection activities, the BCAP taskforce has begun to release BCAP inspectors from the Braidwood site.

During the course of the NRC overview of BCAP CSR activities, the inspector has reviewed CSR procedures, checklists, and checklist instructions. In addition, the inspector has reviewed the experience and qualifications of numerous BCAP taskforce personnel including BCAP taskforce engineering and inspection personnel. Finally, the inspector has observed the reinspection of a number of BCAP sample items and has witnessed the overview of numerous BCAP items previously reinspected by the BCAP taskforce. While the results of the BCAP QA evaluation of BCAP inspector performance have not been released to the NRC, the overall assessment of the BCAP CSR element is satisfactory.

No violations or deviations were identified.

4. Review of BCAP Observations/Discrepancies

During the course of the NRC overview of BCAP activities, the inspector reviewed the evaluations associated with approximately 500 BCAP observations/discrepancies. While the majority of the observation/discrepancy evaluations reviewed were well written with backup calculations, a number of the discrepancies were determined to require a more detailed technical review so as to ascertain the acceptability of the evaluations. Technical reviews by Regional personnel have been initiated.

During this inspection period the inspector performed a detailed review of 123 BCAP CSR electrical observations/discrepancies. The following is a list of the observation/discrepancies reviewed:

Electrical Cable

CSR-I-E-CBL-004-2
CSR-I-E-CBL-999-29

Cable Pan

CSR-I-E-CBP-008-1
CSR-I-E-CBP-013-1
CSR-I-E-CBP-019-1
CSR-I-E-CBP-030-1
CSR-I-E-CBP-035-2
CSR-I-E-CBP-044-1
CSR-I-E-CBP-050-1
CSR-I-E-CBP-059-1
CSR-I-E-CBP-102-1
CSR-I-E-CBP-118-2
CSR-I-E-CBP-129-1
CSR-I-E-CBP-129-3
CSR-I-E-CBP-130-2
CSR-I-E-CBP-999-77

Conduit

CSR-I-E-CND-001-1
CSR-I-E-CND-003-1
CSR-I-E-CND-004-1
CSR-I-E-CND-004-2
CSR-I-E-CND-004-3
CSR-I-E-CND-004-4
CSR-I-E-CND-004-5
CSR-I-E-CND-007-1
CSR-I-E-CND-009-1
CSR-I-E-CND-009-4
CSR-I-E-CND-010-1
CSR-I-E-CND-011-2
CSR-I-E-CND-014-1
CSR-I-E-CND-015-1
CSR-I-E-CND-015-4
CSR-I-E-CND-016-1
CSR-I-E-CND-016-2
CSR-I-E-CND-018-1
CSR-I-E-CND-018-2
CSR-I-E-CND-018-3
CSR-I-E-CND-020-1
CSR-I-E-CND-020-3
CSR-I-E-CND-021-3
CSR-I-E-CND-022-1
CSR-I-E-CND-023-1
CSR-I-E-CND-024-2
CSR-I-E-CND-025-1
CSR-I-E-CND-025-3

Conduit

CSR-I-E-CND-029-1
CSR-I-E-CND-029-2
CSR-I-E-CND-032-3
CSR-I-E-CND-033-1
CSR-I-E-CND-038-1
CSR-I-E-CND-041-4
CSR-I-E-CND-042-2
CSR-I-E-CND-044-2
CSR-I-E-CND-045-1
CSR-I-E-CND-046-1
CSR-I-E-CND-047-1
CSR-I-E-CND-052-1
CSR-I-E-CND-052-2
CSR-I-E-CND-053-1
CSR-I-E-CND-054-1
CSR-I-E-CND-057-2
CSR-I-E-CND-057-3
CSR-I-E-CND-057-5
CSR-I-E-CND-058-1
CSR-I-E-CND-058-2
CSR-I-E-CND-060-2
CSR-I-E-CND-063-1
CSR-I-E-CND-063-2
CSR-I-E-CND-066-1
CSR-I-E-CND-067-1
CSR-I-E-CND-069-1
CSR-I-E-CND-069-2
CSR-I-E-CND-070-2
CSR-I-E-CND-072-1
CSR-I-E-CND-072-2
CSR-I-E-CND-077-2
CSR-I-E-CND-078-1
CSR-I-E-CND-081-1
CSR-I-E-CND-082-2
CSR-I-E-CND-085-1
CSR-I-E-CND-086-1
CSR-I-E-CND-087-2
CSR-I-E-CND-087-3
CSR-I-E-CND-088-1
CSR-I-E-CND-089-1
CSR-I-E-CND-093-4
CSR-I-E-CND-094-2
CSR-I-E-CND-095-2
CSR-I-E-CND-096-1
CSR-I-E-CND-102-2
CSR-I-E-CND-109-1
CSR-I-E-CND-109-2
CSR-I-E-CND-111-1
CSR-I-E-CND-112-1
CSR-I-E-CND-114-1

Conduit

CSR-I-E-CND-116-1
CSR-I-E-CND-119-3
CSR-I-E-CND-119-4
CSR-I-E-CND-120-2
CSR-I-E-CND-123-1
CSR-I-E-CND-123-2
CSR-I-E-CND-999-20
CSR-I-E-CND-999-26
CSR-I-E-CND-999-36
CSR-I-E-CND-999-60

Conduit Hangers

CSR-I-E-COH-001-2
CSR-I-E-COH-018-1
CSR-I-E-COH-020-1
CSR-I-E-COH-021-1
CSR-I-E-COH-046-1
CSR-I-E-COH-047-3
CSR-I-E-COH-049-2
CSR-I-E-COH-050-2
CSR-I-E-COH-059-1
CSR-I-E-COH-060-1
CSR-I-E-COH-106-3
CSR-I-E-COH-109-1
CSR-I-E-COH-111-2
CSR-I-E-COH-114-1
CSR-I-E-COH-115-3
CSR-I-E-COH-119-3
CSR-I-E-COH-120-3
CSR-I-E-COH-120-4
CSR-I-E-COH-121-1

With the exception of one observation and one discrepancy, the evaluations adequately supported the classification of the observation/discrepancy (i.e., valid, invalid, or out of BCAP scope). BCAP observation CSR-I-E-CND-007-1 was invalidated by the BCAP taskforce as a result of a Technical Information Request (TIR) response from S&L. The observation identified a flexible conduit which exceeded the six foot length requirement specified on the BCAP checklist and in specification EB-146. The TIR response stated that this instance was a special design. While the inspector disagrees with the invalidation of the observation, there is no safety concern with the as-built installation of the flexible conduit. BCAP discrepancy CSR-I-E-CND-015-4 was classified as being outside of the BCAP scope due to the S&L evaluation which concluded that the deficiency was the result of construction damage. The discrepancy dealt with a cross-threaded fitting and a loose coupling. In discussions

with the Level III BCAP electrical inspector, the inspector was informed that BCAP inspection personnel did not consider this discrepancy to be the result of construction damage, but rather the result of uncontrolled removal/rework by person or persons unknown. Since the proper classification of this discrepancy was dependent on the cause of the identified deficiencies in the conduit installation, this matter was discussed with BCAP engineering and S&L. The BCAP Director stated that this discrepancy would be reviewed so as to resolve the apparent conflict between BCAP inspectors and S&L.

No violations or deviations were identified.

5. Review of BCAP Procedures

During this review period the inspector reviewed the following BCAP procedures:

BCAP-01	Revision 3	BCAP Program Indoctrination for Employees
BCAP-02	Revision 3	Organization and Responsibility
BCAP-03	Revision 3	Records Management
BCAP-06	Revision 9	Observation and Discrepancy/Concern Processing
BCAP-08	Revision 2	Qualification and Certification of Reinspection Personnel
BCAP-20	Revision 2	CSR - Establish Populations
BCAP-21	Revision 6	CSR - Sample Selection
BCAP-22	Revision 2	CSR - Preparation of Instructions and Checklists
BCAP-23	Revision 2	CSR - Preparation of Reinspection and Document Review Packages
BCAP-24	Revision 3	CSR - Performance of Reinspection and Document Review
BCAP-25	Revision 1	CSR - Evaluation of Results
BCAP-41	Revision 2	RPSR - Identification of Specifications and Contractor Procedures
BCAP-42	Revision 4	RPSR - Preparation of Checklists
BCAP-43	Revision 2	RPSR - Review of Contractor Procedures
BCAP-60	Revision 2	RSCAP - Review Methods

No violations or deviations were identified.

6. Review of RPSR Activities

The inspectors reviewed the results of the RPSR review of procedures utilized by Pittsburgh Testing Laboratory (PTL). Included in the RPSR documents reviewed were the PTL procedure checklist and the observations written during the procedure reviews.

The checklist consisted of an itemized listing of specification requirements, a determination as to whether the requirements were considered to be essential, and a corresponding determination as to whether the PTL procedures were in compliance with the procedures. The inspector observed that the checklist provided an acceptable verification of the PTL procedures. Also, the inspector observed that observations were written by BCAP to document the instances in which the PTL procedures were not in compliance with specification requirements.

During the review of the PTL procedures, the inspector observed that there was no apparent vehicle in place by which RPSR reviewers could document any identified concerns regarding site specifications. This matter was discussed with the licensee. During this discussion, the licensee stated that each RPSR engineer would be afforded the opportunity to document any concerns with site specifications on a memo which would be forwarded to both engineering and QA.

No violations or deviations were identified.

7. Public Meeting to Discuss BCAP

The June public BCAP status meeting was held on June 25, 1985, at the Region III office. Participants in the meeting included Messrs. J. Keppler, W. Little, and R. Gardner of the NRC staff; T. Maiman, M. Wallace, N. Kaushal, and N. Smith of CECO; and J. Hansel of ERC.

Subjects addressed during the meeting included a presentation on the status of BCAP activities, a summary of the S&L review of discrepancies identified to date, the BCAP QA overinspection program, and the status of ERC reviews and observations identified to date.

8. Exit Interview

The inspector met with licensee and contractor representatives denoted in Paragraph 1 during and at the conclusion of the inspection on June 28, 1985. The inspector summarized the scope and results of the inspection and discussed the likely content of this inspection report. The licensee acknowledged the information and did not indicate that any of the information disclosed during the inspection could be considered proprietary in nature.

Attachment: Memo from C. E. Norelius
to James G. Keppler dtd 6/27/85