

U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 50-456/85-22
50-457/85-23

Docket No. 50-456
50-457

License No. CPPR-132
CPPR-133 Priority -- Category A

Licensee: Commonwealth Edison

P.O. Box 767

Chicago, Illinois 60690

Facility Name: Braidwood Units 1 and 2

Inspection At: Joilet, Illinois

Inspection Conducted: April 29 - May 3, 1985

Inspectors: A. A. Varela
A. A. Varela, Lead Reactor Engineer

June 11, 1985
date

Approved by: J. Wiggins
J. Wiggins, Chief, Materials Processes
Section, DRS

6/12/85
date

Inspection Summary: Inspection on April 29 - May 3, 1985 (Report Nos. 50-456/85-22 and 50-457/85-23)

Areas Inspected: A routine, unannounced inspection by one region-based inspector of previously identified NRC open items relating to concrete construction, of apparent concrete deficiencies and concerns indicated by an unidentified individual and, review of CECO procedures for reportability of significant construction deficiency or significant damage as identified in 10 CFR 50.55(e).

Results: No violations were identified.

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DETAILS

1. Persons Contacted

Commonwealth Edison Company

P. L. Barnes, Licensing Engineer
D. A. Boone, PCD Engineer
D. L. Cecohett, Licensing Engineer
J. Gieseke, PCD Engineer
C. D. Gray, Project Structural Supervisor
L. M. Kline, Licensing and Compliance Supervisor
N. N. Kaushal, BCAP Director
J. F. Phelan, PFE Supervisor
C. W. Schroeder, Project Licensing & Compliance Superintendent
T. E. Quaka, Site QA Superintendent
D. L. Shamblin, Project Construction Superintendent
D. Skoza, PFE Supervisor
T. Ryan, BCAP
E. E. Fitzpatrick, Assistant Manager QA
D. H. Smith, Nuclear Licensing
W. Vahle, Project Field Engineering Manager
M. Wallace, Project Manager

Sargent and Lundy

D. A. Gallagher, Project Manager, Field
R. Johnson, Site QA Coordinator
J. D. Regan, Electrical Engineer

G. K. Newberg

R. Donica, QA Manager
D. Craven, Project Manager

NRC Region III

M. J. Farber, Project Inspector
R. Gardner, BCAP Inspector
W. J. Kropp, Resident Inspector
F. Hawkins, QA Programs Section
J. Harrison, Chief Engineering Branch, DRS
R. D. Schulz, Senior Resident Inspector

All of the above attended exit interview.

2. CECo Action on Previously Identified Items

(Closed) Open Item (50-456/85-02-05; 50-457/85-02-05) consisting of the following elements:

- BCAP reinspection checklist for concrete placements does not address attributes such as cracking and patch quality.
- BCAP reinspection should inspect both sides of concrete walls for all attributes whether attachments are Q or not-Q for the affect of these Attachments on the structural integrity of the wall.

BCAP procedure #06, revision 8, BCAP-24, revision 3, and revision 3 to Concrete Placements Checklist Instruction CSR-I-S-001 do address cracks and patch quality and support closing both parts of this open item.

Additional CECO response, contained in letter of March 26, 1985 from S&L, provided engineering justification for not including cracks as an inspection item in BCAP's CSR reinspection checklist in concrete placement. This was reviewed and discussed with BCAP engineers. The licensee revised CSR-I-S-001 checklist as follows:

Related to this Checklist Instruction, reinspection for concrete cracks will include this as an attribute:

"For beams and slabs, if in the inspector's judgement questionable cracks are evident, the Level II inspector will request an evaluation by the Level III inspector. Otherwise, the attribute on concrete cracks will be accepted. For any such questionable cracks the Level III inspector will, when requested, determine the acceptability of the cracks. If the Level III believes the crack requires further engineering evaluation, then the attribute will be rejected and (the inspector will) write an observation report. Otherwise Level III will accept the attribute."

(Closed) Open Item (50-456/85-02-06; 50-457/85-02-06) CECO response to this item identifies existing G. K. Newberg's QC procedures that should provide adequate controls on initial preparation of existing concrete for patching of repairs, material to be used for the patch and on the method of placing and curing of the patch. The inspector reviewed with CECO and GKN's responsible engineers their response to this open item. GKN's quality control procedures number 11, 12, 29, 36, 52, NCR procedure and referenced ACI and ASTM standards appear an acceptable response to this item.

3. Inspection of Apparent Concrete Deficiencies in Unit 1
Refueling Water Tunnel (RWT) and Its Attachment to Refuel Tank Slab

An inspection was performed of Unit 1 RWT walls and ceiling to observe two apparent concrete defects and evaluate their significance. These were of concern to an unidentified individual.

1. Beneath the refuel water tank slab, the concrete construction joint, slab to walls, at Elev. 395'-0", contains a thin layer of sand and appears to lack consolidation. Evidence of thin sand in this construction joint and a minor indication of honeycomb were confirmed

to exist. The inspector evaluated the significance of these conditions and concluded the minor imperfections did not warrant further investigation. His review of relevant concrete drawings identified the construction joint at Elev. 395'-0" contains a keyway and water stop. Based on the above observations and consideration that the tank's concrete slab was constructed bearing mostly on adequately compacted soil he further concludes these imperfections are not indicative of deficient QC inspection prior to concrete placement nor of inadequate concrete consolidation.

2. The concrete in the ceiling of RWT contains a $\frac{1}{2}$ "x6" embed plate across the 7' wide tunnel. Spalled concrete adjacent to a weld for attachment of one 24" pipe sway strut is an apparent concrete deficiency. This condition was inspected to evaluate its significance. Spalled concrete triangular in area approximately 5"x10" and $\frac{1}{2}$ " maximum wedge thickness was observed in the tapered concrete void adjacent to $\frac{1}{2}$ " embed plate. The concrete that had spalled was observed to have been a shear failure of well bonded concrete as determined by visual observation. Concrete at other sway struts in the RWT at welded attachments did not contain concrete spalls. The spalled concrete was concluded not to have been evidence of concrete deficiency, nor to have been caused by the welding. The missing concrete adjacent to the embed is not of structural significance.

No violations were identified.

4. Review of Licensee Procedure for 10 CFR 50.55(e) Determination and Reporting

CECo procedure for 10 CFR 50.55(e) Determination and Reporting, PM-04 dated 5/29/84 was reviewed. It appears to track well with 10 CFR in all requirements for reportability to the NRC. However, Exhibit B - Construction Deficiency Evaluation (CDE) contains in Part 2B, "Significance" of the deficiency, a value of \$100,000 for use in assessment of a QA breakdown or of expenditures necessary to rework an item to bring it into compliance with the approved design.

Exhibit B, Part 3, "Reportability of 50.55(e) Notification" indicates that if the deficiency, whether or not safety related, affects safe operation of the facility and requires less than \$100,000 for either of the above reasons, it does not have to be reported to NRC Region III Headquarters.

The inspector identified the above at the Exit Interview as an open item (Unresolved items 50-456/85-22-01 and 50-457/85-23-01) and requested CECO make available for subsequent NRC review the CDE of all potential significant deficiencies. Those that were not formally reported in writing to the NRC, as required by 10 CFR 50.55 because of cost, should be extracted for NRC review.

5. Unresolved Items

Unresolved items are matters about which more information is necessary to determine whether it is a violation, a deviation or acceptable. An unresolved item is discussed in paragraph 4.

6. Exit Interview

An exit interview was held on May 3, 1985 at the Braidwood plant with members of licensee's staff identified in paragraph 1. The inspector summarized the scope and findings of this inspection. The licensee acknowledged the inspector's comments. At no time during this inspection was written material provided to the licensee by the inspector.