U.S. NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT

REGION III

Report No. 50-456/78-13; 50-457/78-13

Docket No. 50-456; 50-457 License No. CPPR-132; CPPR-133

Licensee: Commonwealth Edison Company
P. O. Box 767
Chicago, IL 60690

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

Inspection At: Braidwood Site, Braceville, Illinois

Inspection Conducted: November 28-30, and December 19, 1978

Inspectors: C. E. Jones 1-25-79

T. C. Hawkins 1-25-79

Approved by: D. W. Hayes, Chief 1/25/79
Projects Section

Inspection Summary

Inspection on November 28-30, and December 19, 1978 (Reports 50-456/78-13; 50-457/78-13)
Areas Inspected: Review of Quality assurance manual and procedures for the off load, transport and placement of large components in the Nuclear Steam Supply System; review of previously identified items of noncompliance; and unresolved matters. Observed one Class I concrete pour and reviewed associated quality records; observed grouting activities and reviewed associated records for regular and non-shrink grouts. The inspection involved 46 inspector hours on site by two NRC inspectors.
Results: Of the six areas inspected, no apparent items of noncompliance were identified in five areas, one apparent item of noncompliance was identified in one area. (Infraction - failure to provide QC coverage, procedures or documentation for grouting activities.) Section II, Paragraphs a.3. and b.1 and 2.

DETAILS

Persons Contacted

Principal Licensee Employees

*R. Cosaro, Project Superintindent
*J. Schlunz, Lead Structural Field Engineer
*J. Merwin, Lead Mechanical Field Engineer
*J. Homoly, Braidwood QA Supervisor replacing T. Quaka
*T. Quaka, QA Supervisor Transferring to La Salle County Station
**G. Tanner, QA Engineer
*R. Parr, QA Engineer

Pittsburg Testing Laboratory (PTL)

*M. Tallent, Jr., Site Manager

G. K. Newberg (GKN)

*L. Antosh, QA Supervisor

*Denotes those present at the exit interview on November 30, 1978.

**The exit interview on December 19, 1978 was held with Mr. Tanner.

Licensee Action on Previous Inspection Findings

(Closed) Noncompliance (456/78-10-04; 457/78-10-04): Failure to promptly identify and correct central mixer uniformity test failure. The inspector reviewed NCR #168 for disposition of the failing uniformity test and found it acceptable. G. K. Newberg QC Procedure No. 14, Rev. 5, Section 14-3.7.2, was revised to state that, "approval of concrete production will be based on satisfactory results of . . . . uniformity tests." Further, the inspector reviewed NCR Nos 82, 104 and 124 concerning compressive strength cylinders which failed to meet the required 91 day strength. These compressive strength cylinders were representative of concrete placed during the central mixer uniformity failure. Disposition of these three NCR's and the in-place investigation of concrete represented by these compressive strength cylinders by Sargent and Lundy was reviewed and found to be acceptable by the inspector.

(Closed) Unresolved Item (456/78-10-02; 457/78-10-02): Lack of adequate monitoring and documentation of compressive strength cylinder initial curing temperatures. The inspector observed three field curing boxes in use. Heating strips for cold weather protection and high-low thermometers to monitor curing temperatures were installed in each box. Pittsburgh Testing Lab has instituted a program to record all initial curing temperature deviations on the compressive strength break record for the affected sets of cylinders.

(Closed) Noncompliance (456/78-10-03; 457/78-10-03): Truck mixer uniformity was not performed at the frequency specified by ANSI N45.2.5-1974. The inspector reviewed truck mixer uniformity test reports UF-18 and UF-19 dated September 18, 1978 and November 15, 1978. respectively. Both test report results were acceptable.

Functional or Program Areas Inspected

Details of the functional and program areas inspected are documented in Sections I and II of this report.

Section I

Prepared by C. E. Jones

Reviewed by D. W. Hayes, Chief
Projects Section

1. Nuclear Steam Supply System Components

The inspector was informed by the licensee that a contract had been negotiated with Reliance Truck Company (RT), of Phoenix, Arizona, to move the components of the nuclear steam supply system as required. This work includes off loading the reactor pressure vessel, steam generators and pressurizer from their transporting vehicles, moving them to temporary or final storage and then making the final set.

a. Review of the Quality Assurance Manual

The Quality Assurance Manual for RT had been reviewed and approved by the licensee. The inspector observed a letter from J. T. Westermeier, Commonwealth Edison's Project Engineer, to A. Bonnet, Quality Assurance Director, RT, dated March 23, 1978, stating approval of the revised QA Program relating to the subject work. The letter also states the accepted QA Program consists of:

(1) Reliance Truck Company, Quality Assurance Manual, Rev. 1, dated March 1975.

(2) Reliance Truck Company, Quality Assurance Manual, Rev. 1, dated March 1975, Addendum 1 and Addendum 2, dated February 24, 1976 and March 12, 1976, respectively.

The inspector reviewed the QAM and observed it to consist of the above documents. The QAM also was in compliance with 10 CFR 50, Appendix B and with the licensees's QA Program for the activities to be performed.

b. QA Implementing Procedures

These procedures had been reviewed by the licensee and submitted with comments to Sargent and Lundy for additional review and approval. The inspector reviewed the revised procedures and discussed minor changes that would more clearly define the procedures. Since these procedures have not been approved by the licensee, this item remains unresolved. (456/78-13-03; 457/78-13-03)

The licensee stated that none of the procedures had been used nor would they by use until approved by QA. The quality related procedures reviewed by the inspector are as follows:

Procedure No.	Rev.	Subject
101	0	Offloading Steam Generators from a Grounded Barge and Transporting to Temporary Storage
104	1	Offloading Pressurizer from a Rail Car and Placing in Storage
109	0	Transporting Steam Generators from the Dresden Barge Slip to Braidwood Station by Trailer
110	0	Transporting Reactor Head from the Dresden Barge Slip to Braidwood Station by Trailer
111	0	Rolling Steam Generators
112	0	Transporting Reactor Pressure Vessel from the Dresden Barge Slip to Braidwood Station by Trailer
118	2	Load Testing the Construction Hoist Equipment in the Containment Building Commonwealth Edison Company
119	2	Load Testing the Polar Cranes in the Containment Building Commonwealth Edison Company
120	2	Containment Building Gantry Crane Commonwealth Edison Company
122	0	Upending the Upper Internals, Removing them from Shipping Stand and Setting them in Storage
301	1	Transporting Steam Generators from Byron Station to the Savanna Barge Slip by Rail
302	1	Transporting Steam Generators from the Barge Slip Storage and Loading on a Barge

Procedure for the Use of Calibrated Torque Wrenches - Rev. 0

Torque Wrench Calibration Procedure - Rev. 0

Control of Measuring and Test Equipment - Rev. 0

Administrative Procedure No.	Rev. No.	Subject
1	0	Control of Instruction, Procedures and Drawings
2	0	Training of Personnel; Performing Activities Affecting Quality
3	0	Document Control
4	0	Inspection and Test Status
5	0	Control of Non-Conforming Materials, Parts or Components
6	0	Corrective Action
7	0	Quality Assurance Records
8	0	Audits

c. Component Movement

The present schedule is planned to start equipment movement after January 1, 1979, however, no firm schedule has been announced.

No items of noncompliance ore deviations were identified.

Section II

Prepared by F. C. Hawkins

Reviewed by R. C. Spessard, Chief
Engineering Support Section 1

1. Observation of Auxiliary Building Concrete Preplacement Work Activities and Related Quality Records

On November 29, 1978, the inspector observed preparation activities for concrete placement A-25. The placement was located along the "Q" and "24" lines at elevation 485:

a. Placement Preparation

(1) Forms were observed by the inspector to be properly secure and clean.

(2) Reinforcing steel was observed to be free of excessive rust, mill scale, and concrete. Reinforcement was properly placed in accordance with the appropriate design drawings and job specifications.

(3) Cold weather protection for the placement area was observed by the inspector. The placement was covered with tarps and insulated blankets to retain the heat generated by external heaters. G. K. Newburg QC did not release the placement during this insepction because the internal placement area temperature was not sufficiently warm to assure that concrete, as placed, would not be susceptible to freezing.

b. Concrete Material Storage

(1) Size segregation, deleterious material con amination control, handling techniques, and pile heights for fine (Torpedo sand) and coarse (#67) aggregate were inspected and found acceptable.

(2) Cement silos which excluded moisture and contaminants were inspected and found adequate.

(3) Liquid Admixtures were adequately stored to avoid contamination or evaportion.

c. Batch Plant Calibration

Volumetric batching devices and scales for the main batch plant were observed to be adequately tagged to indicate calibration status as follows:

Device	Calibrated	Due	ID No.
Ice Scale	7/29/78	10/29/78	750942
Agg. Scale	10/20/78	1/30/78	750943
Cement Scale	10/30/78	1/30/78	750941
AEA Dispenser	9/25/78	12/25/78	NA
WRDA Dispenser	9/25/78	12/25/78	NA

*Ice scale is not used during the winter months and the calibration is allowed to expire.

d. In-Process Tests for Concrete Material

(1) The inspector reviewed fine aggregate (Torpedo sand) in-process test reports #UTA-1148, 1150, 1153 and 1188 and found each to include test results for Unit Weight, Organic Impurities, Material Finer Than #200 Sieve, and Gradation Analysis as required by the construction spectification.

(2) The inspector reviewed coarse aggregate (#67 gradation) in-process test reports #UTA-1149, 1151, 1152 and 1188, and found each to include acceptable test results for Unit Weight, Material Finer Than #200 Sieve and Gradation Analysis performed in accordance with the construction specification.

(3) The inspector reviewed Type II cement in-process test reports #BRD-3609 and 3881 and found them to include acceptable ASTM-C150-74 standard and physical tests as required by the construction specification.

(4) The inspector reviewed the manufacturers certified material test report for Darex AEA Batch Nos. CG09-A148-23 and CH07-A148-21, and found them to be conforming to job specification requirements.

(5) The inspector reviewed the manufacturers certified material test report for WRDA Batch Nos CH03-A136-7, CH03-A136-10 and CH07-A136-5 and found them to be in accordance with job specification requirements.

(6) The inspector reviewed the six month test results dated June 30, 1978 for fine and coarse aggregate and found them to be in accordance with job specification requirements.

No items of noncompliance were identified.

2. Observation of In-Place Concrete Cold Weather Protection For Curing

The inspector observed placements IRL52-C and A518B to determine the adequacy of cold weather protection during curing. Adequate protection and curing was observed for placement IRL52-C. Placement A518B was observed to have ice present at the finished surface with no external heat being applied to the 12" wall section. The G. K. Newberg QC inspector confirmed that placement A518B should be maintained above freezing for an additional two days to meet curing requirements. He stated further that it appeared that craft personnel working in the area had removed the protective tarps used for curing and maintaining the temperature above freezing. The placement was immediately covered and heat applied at the direction of the G. K. Newberg QC inspector. A nonconformance report was generated by G. K. Newberg QC to identify the nonconforming condition for engineering disposition and to accress corrective action to prevent recurrence. The inspector considered this and isolated occurance, and no further action is warranted.

3. Observation of Grouting Activities and Related Quality Records

a. The inspector observed QC testing, foundation preparation and placing of centrally mixed 5500 grout for several equipment foundations at various locations in the Auxiliary Building. The following specific items were observed:

(1) Pittsburgh Testing Laboratory field testing of 5500 grout using calibrated equipment was observed by the inspector and found acceptable. Test results for Delivery Ticket #6172 were as follows:

Test Results		Spec. Requirement
Slump	5"	5" - 7"
Percent Entrained Air	5.7	2 - 8
Temp.	74	50 - 90
Cylinder No.	6172	

Tests were performed in accordance with Specification L-2722, Rev. 10, Section 3-506.1.

(2) The inspector reviewed the training and qualification records of two PTL quality control technicians and determined that each met the requirements of ANSI N45.2.6.

(3) The inspector observed 5500 grout being placed in the Recycle Chiller Pump Foundation, Recycle

Evaporator Feed Pump Foundation (346 Elev. - Auxiliary Building) and the preparation for grouting of the Safety Injection Pump Foundation (364 Elev. - 'Q' and '17' lines - Auxiliary Building). The inspector requested the grouting procedure and pour card to release and control the placement of grout in these equipment foundations. Both the licensee and G. K. Newberg personnel informed the inspector that no procedure was established and that no QC preplacement, placement, or post placement surveillance/inspection was required for grouting operations.

Licensee personnel concurred with the inspector that certain activities are safety related, and therefore, do require approved procedures to accomplish the work.

G. K. Newberg's QA Supervisor issued an inter office memo to the Site Project Superintendent dated November 30, 1978 stating that, "GKNA QA/QC has . . . initiated an effort to write a Grouting Procedure in accordance with S&L Specification L-2722" and that, "No further grouting work will be done until procedure approval is obtained.

This failure to accomplish activities affecting quality in accordance with instructions, procedures, or drawings is considered an item of noncompliance with 10 CFR 50, Appendix B, Criterion V. (456/78-13-01; 457/78-13-01). An additional example of noncompliance is discussed in paragraph (b) below.

b. The inspector observed non shrink grout (Master flow 713) placement. The following specific items were observed:

(1) The inspector observed the completion of Placement No. 1RL45-C, Reactor Core Shield Wall and the casting on November 28, 1978 of six 2" mortar cubes (MC-11) by Pittsburgh Testing Laboratory Field Personnel. The 2" cubes were cast at the request of Station Construction Engineering Department.

(2) Licensee personnel stated that no procedural requirements exist for the testing or surveillance/ inspection of non shrink grout during its receipt or placement.

This is an additional example of noncompliance, as discussed in paragraph a.(3) above. (456/78-13-02; 457/78-13-02)

Licensee personnel stated at the exit meeting that non shrink grout receipt and storage/issuance will be controlled to assure compliance with procedures to be developed to control its use in safety related structures.

Unresolved Item

Unresolved items are matters about which more information is required in order to ascertain whether there are acceptable items, items of noncompliance or deviations. An unresolved item disclosed during the inspection is discussed in Section I, paragraph b.

Exit Interview

The inspectors met with the staff representatives (denoted in the Persons Contacted paragraph) at the conclusion of the inspection on November 30, and December 19, 1978. The inspectors summarized the scope and findings of the inspection including the item of noncompliance and the example of noncompliance identified in Section II, paragraphs 3.a.(3) and 3.b.

The unresolved item in Section I, paragraph b was discussed with a licensee representative. The licensee acknowledged the findings.