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

REGION III

Report No. 50-456/79-05; 50-457/79-05

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: April 19-20 and 26-27, 1979

Inspectors: C. E. Jones
(April 19, 20, 26 and 27, 1979) _____

P. A. Barrett
(April 19-20, 1979) _____

G. F. Maxwell
(April 19-20, 1979) _____

Approved by: R. C. Knop, Chief
Projects Section _____

Inspection Summary

Inspection on April 19-20 and 26-27, 1979 (Reports No. 50-456/79-05; 50-457/79-05)
Areas Inspected: Electrical contractors quality assurance program including organizational structure and personnel qualifications. Implementing procedures for the program are scheduled for completion in June 1979. L. K. Comstock and Company, Incorporated, has been granted interim approval by the licensee, his AE and the previous electrical contractor to use the existing electrical procedures to perform limited safety related activities. Resolved 23 previously identified items of noncompliance and unresolved items. Completed review of Reliance Truck Company QA Program and implementing procedures. The inspection involved a total of 55 inspector-hours onsite by three NRC inspectors.
Results: No items of noncompliance or deviations were identified.

DETAILS

Persons Contacted

Principal Licensee Personnel

The inspection was performed in two periods. Messrs. Barrett, Maxwell and Jones were onsite April 19-20, 1979, and Mr. Jones on April 26-27, 1979. A short management meeting was conducted at the conclusion of each inspection period. Those contacted on April 19-20, 1979, were as follows:

Principal Licensee Personnel, April 19-20, 1979

*R. J. Farr, QA Engineer
*H. T. Cobbs, QA Engineer
*S. L. Gaconis, QA Engineer
*C. Mennecke, Field Engineer, Station Construction
*P. Smith, Field Engineer, Station Construction

L. K. Comstock and Company, Incorporated

*A. Tansor, Assistant Division Manager
*R. Morrell, Acting QC Manager
*M. Hrnyak
*M. Williams, QC Manager in Training

*Denotes those present at the exit interview.

Those contacted on April 26-27, 1979, were as follows:

Principal Licensee Personnel, April 26-27, 1979

*R. Cosaro, Project Superintendent
*G. Mareus, Director of QA, Engineering/ Construction
*M. Callahan, QA Engineer
*G. Tanner, QA Engineer
*S. Namkung, QA Engineer
M. Trumbull, QA Engineer
J. Merwin, Lead Mechanical Field Engineer

*Denotes those present at the exit interivew on April 27, 1979.

Licensee Action on Previous Inspection Findings

(Closed) Item of Noncompliance (IE Inspection Report No. 50-456/76-01; 50-457/76-01, page 2, item A.2.a): Design drawings and aperature cards were not being updated or controlled to show that design documents were current. The inspector observed several design drawings and found the aperature cards to be controlled and the design documents current. In addition the licensee had initiated an audit of all aperature cards to assure that the identified microfilm was filed on the correct card and that descriptive information was correctly recorded.

(Closed) Item of Noncompliance (IE Inspection Report No. 50-456/76-01; 50-457/76-01, page 2, item 2.b): Station Nuclear Engineering Department (SNED) procedures were not being followed relative to marking of design aperature cards. A random check of the files indicated that the condition had been corrected. The aperature cards were being marked correctly and obsolete cards removed as required by procedure.

(Closed) Open Item (IE Inspection Report No. 50-456/76-04; 50-457/76-04, page 11, item 7.C.(1).(b)): No stopwork authority has been assigned to Pittsburgh Testing Laboratory (PTL) personnel. Quoting from the PTL Quality Assurance Manual, Procedure No. QA-M-1, Quality Assurance Directive No. 1, dated April 6, 1977, Rev. 3, under Organization Section 1.1, "PTL is identified as an independent agency for testing and inspection services. PTL is essentially a quality control organization since PTL personnel are not assigend responsibility for performing procurement, manufacture, fabrication, construction or design of structures or components." In addition, the procedure continues in Section 1.3, "The following tabulation describes the functional responsibilities and authority of the personnel participating in the PTL Quality Assurance Programs." Quoting from Section 1.3.2, "District, Department and Site Managers (PTL Managers) are responsible for the administration of their respective laboratory and implementing the applicable requirements of the PTL QA Program. Their authority and responsibilities shall also encompass:

a.

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g. preventing a nonconforming condition in a PTL activity from continuing and envoking work stoppage of PTL activities where significant conditions adverse to quality are observed."

(Closed) Open Item (IE Inspection Report No. 50-456/76-07; 50-457/76-07): Protective end caps had fallen off certain spools of stored safety related pipe (essential service water pipe). The inspector visited the pipe storage area during subsequent inspections and observed that the licensee had replaced the end caps and continued to maintain them in place. During the present inspection the inspector was informed that the majority of this piping system had been installed.

(Closed) Unresolved Item (IE Inspection Report No. 50-456/77-01; 50-457/77-01): Discrepancy in Survey of Substructure Benchmark Elevations. A Non-conformance Report No. 40 for Braidwood Units 1 and 2 was issued in December 1976 concerning a discrepancy in surveyed bench mark elevations at various locations on the Category I foundations.

A detailed program was established by the AE to monitor the settlement of Category I and II structures to determine the cause for the discrepancy in the surveyed bench mark elevations. This consisted of installing additional bench marks and taking readings every two weeks from January 18 to May 23, 1977, and at reduced frequency of every two months thereafter.

These elevation discrepancies, first observed in December 1976, ranged between 0.022' to 0.088' from the time of the original setting of the bench marks between April and November of 1976. The maximum settlement af any bench mark observed under the detailed monitoring program between January and August, 1977, was 0.02'.

The AE stated it was their opinion that based on the relatively small settlements observed in the monitoring program, that the discrepancies in the survey information taken in December, 1976, were not due to the settlement of the foundation subgrade but due to either a disturbance of the bench marks or surveying error.

(Closed) Item of Noncompliance (IE Inspection Report No. 50-456/77-03; 50-457/77-03): Lack of control of weldrod. Weldrod that was left in the portable ovens was removed by the contractor QC inspector, destroyed and placed in disposal containers. The contractor reinstructed the appropriate personnel in the proper weldrod control procedures.

(Closed) Item of Noncompliance (IE Inspection Report No. 50-456/77-04; 50-457/77-04, Appendix A and page 4.c, Unit 1 only): Improper consolidation of concrete, Unit 1. The inspector observed a member of the concrete placement crew using a vibrator incorrectly. The

contractor stated that the crew member was a new hire. He was reassigned to other work in a different section of the plant. The contractor also reinstructed his personnel in the proper handling of concrete and use of vibrators.

(Closed) Unresolved Item (IE Inspection Report No. 50-456/77-04; 50-457/77-04): Several tanks and heat exchangers were observed in the storage area without being purged. These heat exchangers and tanks that require the protection of a dry inert gas atmosphere on the interior surfaces have been equipped with purge equipment and the interior pressures are checked during routing surveillance.

(Closed) Unresolved Item (IE Inspection Report No. 50-456/77-04; 50-457/77-04): Stainless steel elbows were observed, outside the warehouse, that were splashed with mud and lacked identification. These elbows have since been cleaned, identified and placed in the storage yard.

(Closed) Unresolved Item (IE Inspection Report No. 50-456/77-05; 50-457/77-04): (Unit 1 only) Magnetic particle examination on nuclear steam generator supports. Repairs to the welds on these supports were reviewed during subsequent inspections. The authorized inspector observed the weld repairs, reviewed the magnetic particle inspection records and signed off for these weld repairs.

(Closed) Item of Noncompliance (IE Inspection Report No. 50-456/78-01; 50-457/78-01): Failure to perform amp/volt tests to verify that welding machine current is within ±15 percent of mean current l[illegible]ed. The inspector discussed the problem with the licensee and was informed these tests were performed on all welding machines by all contractors after the item of noncompliance was issued. Surveillance reports No. 1038, No. 1023 and No. 1020 were reviewed and provided amp/volt readings, meter readings, machine identity, welder identity and rod size

(Closed) Item of Noncompliance (IE Inspection Report No. 50-456/78-06-01; 50-457/78-06-01): Use of sieves for acceptance of materials affecting quality, such as aggregate and soils gradation tests, that did not meet the requirements of ASTM E-11. The inspector subsequently inspected the PTL and observed a new set of sieves certified by the manufacturer to conform to ASTM E-11.

(Closed) Unresolved Item (IE Inspection Report No. 50-456/78-06-04; 50-457/78-06-04): A film density strip, traceable to the NBS, is purchased approximately yearly but no documentation was available stating this requirement. The present PTL Site Manager differs in

his opinion from the former PTL Site Manager and prefers not to include this requirement in Laboratory procedures since it is not a code requirement. In addition, this subject is covered by the general statement in QA Directive No. 1, of the PTL, QA Manual, Procedure No. QA-M-1, Rev. 3, dated April 6, 1977, which states in part in Section 1.3.4 . . . responsibilities shall also encompass:

b. calibration, maintenance and use of proper equipment.

(Closed) Unresolved Item (IE Inspection Report No. 50-456/78-06-05; 50-457/78-06-05): NDE procedures specified codes and acceptance standards without the applicable year or addenda. The inspector discussed the problem and the fact that the former PTL Site Manager had agreed to review the procedures and initiate revisions where appropriate. The present PTL Site Manager stated the procedures were prepared to specify technique only. Specifying the year and addenda of the code could be too restrictive since PTL may perform testing for several contractors working to varying code requirements but working on the same construction site. The test results should document the code year and addenda regarding the test requirements and this information should be in agreement with job specifications. This condition was acceptable on the equipment selected for review.

(Closed) Unresolved Item (IE Inspection Report No. 50-456/78-06-07; 50-457/78-06-07): One radiograph of three reviewed had a density of 3.98 in the area of 0-1. The maximum density should not exceed 3.8 in accordance with the PTL RT procedure and ASME Section V, 1974 with Summer 1975 Addenda. The inspector reviewed the repair radiograph of August 25, 1977, and observed the densities on various areas of the film to range from 2.550 to 2.890. The film reader sheet provided the following information: System, Containment Spray; Weld, No. 2CS-12-W3; Standard, ASME III-1974, Summer 1975 Addenda.

(Closed) Unit 2 only, Item of Noncompliance (IE Inspection Report No. 50-457/78-08-01): Valve No. 2CC9508 had not been inspected after it was received onsite and the dessicant was not checked. This valve was being aligned in the Component Cooling Water System when the item of noncompliance was issued. Installation has since been completed. In addition, the licensee has initiated a quarterly surveillance of all valves to identify storage conditions, damage to containers or equipment, etc.

(Closed) Unit 1 only, Unresolved Item (IE Inspection Report No. 50-456/78-10-01): Unit 1 polar crane had NCRs No. 110, No. 125 and No. 134 issued against it for underwelding, slag, undercut and poor paint. Weld repairs have been completed and the repairs accepted on

Unit 1 crane. The painting, NCR No. 134, is complete except for repaired areas and areas where the paint has been skinned caused by load movement. At present, the licensee intends to let the touch up painting remain until the equipment is set and the majority of the crane work complete.

(Closed) Item of Noncompliance (IE Inspection Report No. 50-456/78-13-01; 50-457/78-13-01): Grouting, with 5500 psi grout and non-shrink grout, of Category I equipment foundations was performed without documented instructions, procedures or drawings. Equipment grouting operations which were recently initiated were performed in accordance with the manufacturer's instructions for preparation, placement and curing. On the date of the NRC inspection, grouting work was stopped until a procedure was prepared and approved. The licensee stated the equipment foundations previously poured were checked for defects. In addition, the inspector spot checked these foundations and failed to observe any that were damaged. Grouting resumed after the procedures were prepared and approved.

In addition, the licensee stated that non-shrink grout receipt and storage/issuance would be controlled to assure compliance with the procedures.

(Closed) Example of Item of Noncompliance (IE Inspection Report No. 50-456/78-13-02; 50-457/78-13-02): An example of an item of noncompliance resulting from the use of 5500 psi and/or non-shrink grout without instructions as the noncompliance noted in the previous paragraphs. This item was resolved in conjunction with the previous noncompliance.

(Closed) Item of Noncompliance (IE Inspection Report No. 50-456/76-07; 50-457/76-07, page 7, paragraph 3): Incomplete qualification and training records were maintained by Phillips Getchow Company (PG) for their training personnel. PG prepared a procedure to establish their responsibilities and system for training and certifying QC inspection personnel in order to meet the intent of ASNI 45.2.6 (Qualification of Inspection, Examination, and Testing Personnel). The procedure was approved and placed in service January 13, 1977. The procedure was reviewed by the inspector and considered acceptable.

(Closed) Unresolved Item (IE Inspection Report No. 50-456/78-06-08; 50-457/78-06-08): No requirements in Personnel Qualification Certification Procedure for Level I or Level II and no requirement to recertify every three years as required by SNT-TC-1A. This item was reviewed by the contractor and it was his opinion the procedure did

not require revision since it referenced the requirements of SNT-TC-1A and committed them to these requirements. The inspector reviewed the procedure and accepted the contractor's interpretation.

(Closed) Unresolved Item (IE Inspection Report No. 50-456/78-06-09; 50-457/78-06-09): Documentation of certified NDE was not organized. The inspector discussed file organization and observed the documentation to be organized.

(Closed) Unresolved Item (IE Inspection Report No. 50-456/77-03; 50-457/77-03, page 14.2.b and page 15): Weld travelers did not have visual inspection of root pass checked in every instance. The inspector discussed the procedure and traveler with the piping contractor's supervision as well as others. The traveler provided a spot to document a visual check of a root pass and was a recommended practice but was not a hold point. General conclusion failed to indicate it was a code or specification requirement.

Section I

Prepared by C. E. Jones

Reviewed by R. C. Knop, Chief
Projects Section

Functional or Program Areas Inspected

1. Structural Concrete, Containment (Units 1 and 2)

The inspector discussed the status of overall concrete placement with the licensee. The licensee stated that concrete placement for containment was complete except for closing the construction entrance. For all practical purposes, the placement of containment concrete is considered 100% complete.

2. Reactor Pressure Vessel Installation - Review of QA Implementing Procedures

The inspector completed his review of QA implementing procedures by observing check lists for procedure picked at random. These check lists were concise yet complete in covering steps in the procedure. The procedures were considered to be complete and acceptable for the requirements of handling components of the NSSS from loading on the barge, unloading and securing on transfer trailers, transferring from barge slip to reactor building and setting in position. The alignment and assembly of these components will be performed by a different contractor.

Based on the contracted arrangement, the alignment, protection and post installation activities are not applicable to this contractor, Reliance Truck Company.

3. Reactor Vessel Installation, Observation of Work, Unit 1

a. Transfer and Vessel Protection

The inspector observed the reactor pressure vessel (RPV) at the Dresden barge slip loaded on the trailer ready for transfer to the Braidwood site. He also observed the RPV loaded on the trailer at the Braidwood site ready for transfer into Unit 1 containment. In every instance, the

vessel protection was the same as when it had been shipped. The preparation for handling and installation activities were controlled and performed in accordance with procedure.

The RPV interior was maintained under a positive nitrogen atmosphere during its transfer. Because of the severe weather conditions, gauges were of questionable accuracy although recently calibrated. The gauges indicated a positive purge pressure.

b. Temperature Limits and NDE of Lifting Equipment

Temperature limits were included in the procedures restricting transfer when ambient temperatures fell below the limit.

The shackles (clevice and shaft), 24 total, were MT inspected prior to the move. The MT was performed by Pittsburgh Testing Laboratory to Procedure No. QC-MT-1 on April 11, 1979, and results documented on Report No. NDE-58.

Other information concerning the test is as follows:

(1) Equipment used was a Mag. Unit Parker Probe S/N 3658.

(2) Mag current AC

(3) Probe spacing: 3 to 6 inches

(4) Amps: N/A

(5) Specification: ANSI N45.2.15

All shackles were considered acceptable.

c. Certification of Equipment and Documentation Control

The inspector reviewed certifications for wire rope, slings and cable. These included Certificate of Proof Load, Certification of Conformance, and Certification of Test and Registry, J&L Wire Rope Slings. The problem became apparent when an effort was made to match the documentation with the equipment. The inspector was informed that, to date, no practicable method has been

found to identify wire rope or slings after they have been in service a short period. The number on the sling is small and becomes scratched. The metal tag on the wire rope wears off. Also, marking pencils are not effective. This item was left as an unresolved item, 50-456/79-05-02; 50-457/79-05-02, pending additional information.

Section II

Prepared by G. F. Maxwell and
P. A. Barrett

Reviewed by D. W. Hayes, Chief
Engineering Support
Section 1

1. Quality Assurance Program Review - Electrical, Units 1 and 2

The RIII inspectors reviewed selected sections of the L. K. Comstock and Company (site electrical contractor) Quality Assurance and Quality Control Program. The following sections of the program were compared with 10 CFR 50, Appendix B; ANSI N45.2 and the CECo Topical Report CE-1-A, Rev. 5:

a. Organizational Structure and QA Personnel--reference LKC Manual Section 1.0.0 dated January 8, 1979, Section 1.0.1, Paragraphs 3.1, 3.2, 4.1, and 4.8 dated January 8, 1979; Section 3.2.1 dated December 14, 1978; and Section 4.1 dated April 19, 1979.

b. Work and Quality Inspection Procedures--reference Section 1.0.1, Paragraphs 3.0 and 4.2 dated January 8, 1979; Section 2.0 dated October 28, 1977; and Section 3.1.2 dated December 12, 1977.

c. Control of Material--reference Section 1.0.1, Paragraphs 4.6, 4.10, and 4.11 dated January 8, 1979.

d. Document Control--reference Section 1.0.1, Paragraphs 4.2 and 4.3 dated January 8, 1979, and Section 3.1 dated December 12, 1977.

e. Control of Special Processes--reference Section 1.0.1, Paragraph 4.7 dated January 8, 1979.

f. Test Control--reference Section 1.0.1, Paragraphs 4.8 and 4.12 dated January 8, 1979.

g. Control of Measuring and Test Equipment--reference Section 1.0.1, Paragraph 4.9 dated January 8, 1979.

h. Quality Assurance Records--reference Section 1.0.1, Paragraphs 4.1, 4.4, 4.6 and 4.13 dated January 8, 1979.

i. Corrective Action--reference Section 1.0.1, Paragraph 4.11 dated January 8, 1979.

j. Audits--reference Section 1.0.1, Paragraph 4.14.

The QA program delineated the authorities, duties, and organizational freedom of the applicable personnel and generically identified the structures, systems, and components to be covered by the program. The requirements for indoctrination and training were reiterated.

L. K. Comstock and Company has not been delegated any direct design or procurement control or authorities. Therefore, the relevant portions of the LKC QA program, except for field initiated design change requests and receipt inspections of procured items, were not required.

Requirements to assure that procedures included appropriate quantative and qualitative acceptance had been established.

Requirements to establish measures to control applicable documentation had been delineated.

The implementing procedures for the above areas are not scheduled to be written until mid-June, 1979. Therefore, the inspectors could not determine whether or not the LKC QA program was in full compliance with ANSI N45.2.2-1972, ANSI N45.2.3-1973, ANSI N45.2.6-1973, ANSI N45.2.9 (Draft 15, Rev. 0-April 3, 1974) or ANSI N45.2.12 (Draft 3, Rev. 4-February 22, 1974). This matter is unresolved. (456/79-05-01; 457/79-05-01)

Note: L. K. Comstock and Company was using procedures retained from the previous electrical contractor to perform limited safety related activities. Interim approval to use these procedures was received from the licensee and the architectural engineer.

No items of noncompliance were identified.

2. Other Areas Inspected - Units 1 and 2

During a tour of the Auxiliary Buildings, the inspectors observed a LKC welder performing manual (SMAW) arc welding. A review of the pertinent records established that the welder (badge No. 134, hammer No. 31) was currently qualified to AWS D1.1-77 for the process that he was applying. The welder was using the latest revision to the pertinent drawing (S&L No. 3061H, Rev. E). Ten design changes were listed on the drawing which had not been incorporated into the drawing. The design changes were adequately controlled.

No items of noncompliance were identified.

Unresolved Item

Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable items, items of noncompliance or deviations. Two unresolved items disclosed during the inspection are discussed in Section I, Paragraph 3.c and Section II, Paragraph 1.

Exit Interview

The inspector met with the staff representatives (denoted in the Persons Contacted paragraph) at the conclusion of the inspection on April 27, 1979. The inspector summarized the scope and findings of the inspection. The licensee acknowledged the findings.