

U. S. ATOMIC ENERGY COMMISSION
DIVISION OF COMPLIANCE
REGION I

CO Inspection Report No. 50-247/72-04

Subject: Consolidated Edison Company

Indian Point 2

CPPR-21

License No. DPR-26

Location: Buchanan, New York

Priority

Category C

Type of Licensee: PWR (873 MWe) Westinghouse

Type of Inspection: Special

Dates of Inspection: March 3, 1972

Dates of Previous Inspection: February 4, 1972

Principal Inspector: G. L. Madsen, Reactor Inspector

3/23/72
Date

Inspection Performed By: J. H. Tillou, Reactor Inspector

3-22-72
Date

Date

Other Accompanying Personnel: None

Date

Reviewed By: E. M. Howard
E. M. Howard, Senior Reactor Inspector

3-22-72
Date

Proprietary Information: None

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This was a special inspection by J. H. Tillou and E. M. Howard covering the problem with the IP-2 condensate tank failure and the repair program and status of the repairs to the fire damaged cable in the PAB building.

SECTION I

Enforcement Action

None

Licensee Action on Previously Identified Enforcement Matters

None

Unresolved Items

- A. No official report covering explanation of the condensate tank failure was available for review.
- B. Engineering evaluation relative to the adequacy of ASTM A-36 material as tie-down bolt material for the condensate storage tank and the safety related refueling water storage tank, was not available for review.
- C. There is no evidence that the QA/QC group from either UE&C, Con Ed or CB&I were cognizant of, or approved the use of ASTM A-36 material.
- D. A report was prepared for the cable temperature calculations; however, the report did not appear to be conservative, but used an averaging technique. (Section III, Paragraph 2)
- E. Tests pertaining to the fire resistant characteristics of splice insulating material was not available for review. (Section III, Paragraph 3)
- F. A report supporting the disposition of and/or performance of tests of equipment listed in the Consolidated Edison letter of December 6, 1971 has not been completed. (Section III, Paragraph 4)

Status of Previously Reported Unresolved Items

Not applicable.

Design Changes

None

Unusual Occurrences

None, since this is a followup on Inquiry Report previously forwarded to CO:HQ.

Persons Contacted

Mr. Art Kohler, Con Ed Site Engineer
Mr. George Coulburn, Con Ed Chief Startup Engineer (Construction)
Mr. Ed Dadson, Con Ed Site Superintendent QA/QC for Indian Point 1, 2, and 3
Mr. Mel Snow, Wedco QA Manager
Mr. Wes Diebler, Wedco QC Manager
Mr. "Doc" Hughes, Wedco QC Engineer

Management Interview

- A. Mr. Kohler stated that their engineering department was conducting a study and that when sufficient data had been accumulated an informal report would be prepared which would be made available to CO:I.
- B. Mr. Kohler stated that an engineering evaluation would be made to support the use of the A-36 material including a consideration of the CB&I design requirements for the anchor bolts and the simultaneous seismic I requirements for these tanks as established in the FSAR.
- C. Mr. Kohler stated that the Con Ed interpretation of the UE&C specification No. 9321-01-246-4, "Field Erected Water Storage Tanks", Section 2 - Materials, "Bolts" . . . ASTM A-193, Grade B5 does not apply since the UE&C drawing No. 9321-H-1261, "Standard Miscellaneous Steel Details" in note 1 states "All carbon steel shall meet ASTM A-36". To support this interpretation, Mr. Kohler produced a letter dated February 18, 1972 to Mr. D. E. Anderson (Wedco) from Mr. B. B. Scott, UE&C Indian Point Project Engineer, which reads as follows:

"The UE&C Drawing No. 9321-H-1261, 'Standard Miscellaneous Steel Details' in note 1 states that all carbon steel shall meet A-36. This drawing is applicable to Indian Point 2 con-

densate, primary, and refueling water storage tanks hold-down bolts.'

- D. The inspectors stated that the cable splices had not been staggered as indicated on the drawings and in accordance with oral commitments. Kohler stated that he felt that the installation was consistent with the "where practicable" statement on the drawing.
- E. The inspectors stated that with the exception of the report pertaining to insulation quality at the splice no other of the reports were completed. Kohler agreed and stated that an early completion and submittal would be accomplished.

SECTION II

Prepared by: J. H. Tillou, Reactor Inspector

Additional Subjects Inspected, Not Identified in Section I, Where No Deficiencies or Unresolved Items Were Found

1. General

The inspector observed the condensate storage tank in the process of repair by CB&I. It was noted that one complete plate in the upper course which had been badly stretched and buckled had been completely replaced. Observed that all failed or "necked down" bolts had been repaired by welding on threaded extensions in accordance with a special welding procedure prepared by J. J. McLaughlin on February 11, 1972 for this specific operation. Observed that records were available to verify that nuts for the anchor bolts were installed utilizing a special torque procedure prepared by Mr. G. P. Kesel, Wedco Manager, Construction Project Engineering, on February 14, 1972. Reviewed the inspection program and final tank test to be accomplished after all repairs to the tank have been completed. Reviewed test results from Consolidated Testing Laboratories for chemical and tensile values on segments of the failed bolts for the condensate storage tank. These tests verify the material to be ASTM A-36. Review mill certs covering replacement bolt material which was used during the repair of the failed anchor bolts on the condensate storage tank.

Details of Subjects Discussed in Section I

All available details are included in the management interview of Section I.

SECTION III

Prepared by: E. M. Howard, Senior Reactor Inspector

Additional Subjects Inspected, Not Identified in Section I, Where No Deficiencies or Unresolved Items Were Found

1. Tests on Class B annealed coated copper stranded cables removed from various trays in the area immediately adjacent to the fire damaged area was reviewed and appeared to be adequate and to meet the commitments contained in the Con Ed letter of December 6, 1971.

The following tests were made:

a. Cable Assembly

- (1) D-c Insulation Resistance
- (2) D-c electric Proof Voltage
- (3) D-c electric Breakdown Voltage

b. Conductor d-c resistance at 25° C ohms/1000 feet

c. Strands from Conductor

- (1) Average Diameter inch
- (2) Average elongation in 10 inches

d. Jacket

- (1) Heat distortion (121° C)
- (2) Heat Shock (121° C)
- (3) Cold Bend (-35° C)

e. Insulation

(1) As received

- (a) Tensile Strength PSI
- (b) Elongation %

(2) After 121° C oven for 108 hours

- (a) Tensile Strength
- (b) Elongation %

f. Jacket

- (1) As received
 - (a) Tensile Strength
 - (b) Elongation %
- (2) After 100° C oven for 120 hours
 - (a) Tensile Strength
 - (b) Elongation %
- (3) After 70° C oil for 4 hours
 - (a) Tensile strength
 - (b) Elongation %

Tests were made in accordance with the requirement of ASTM Specification B8 and IPCEA Publication No. S-61-402.

Details of Subjects Discussed in Section I

2. A review of the report prepared by UE&C showing the temperature calculations for conductors in the worst physical arrangement did not contain adequate detail relative to the assumptions used in the calculations. Conservatism appeared to be missing in that credit was taken for load factor and current averaging across the tray cross section was used.
3. Data pertaining to the fire resistant characteristic of the splice insulating material was not available for review; however, Con Ed stated that the tests were complete and a report was being prepared.
4. Con Ed has not prepared a report of the "as-found", "as-left", condition of the comprehensive list of equipments contained in the December 6, 1972 letter. Data was stated to exist, but had not been accumulated in a form suitable for easy verification.
5. Cable splices were not staggered in accordance with "Detail C", Con Ed drawing A205556; however, thermocouples are being installed. Con Ed has taken the position that Detail C is an example and that the accompanying note permits splices on the same level.