

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

Report of Inspection

CO REPORT NO. 286/69-1

Licensee: CONSOLIDATED EDISON COMPANY
Indian Point No. 3
License - Not Issued

Dates of Inspection: January 20 and 24, 1969

Dates of Previous Inspection: November 20 and 21, 1968

Inspected by: G. L. Madsen 2/17/69
G. L. Madsen, Reactor Inspector Date

Reviewed by: N. C. Moseley 2/11/69
N. C. Moseley, Senior Reactor Inspector Date

Proprietary Information: None

SCOPE

The Consolidated Edison Company (Con Ed), Indian Point No. 3 (IP-3) construction site was inspected on January 20 and 24, 1969. The purpose of the inspection was to evaluate the quality control program relative to the placement of the containment building base mat and the containment liner floor. Mr. D. E. Whitesell, Reactor Inspector (Construction) assisted in the inspections.

SUMMARY

Construction is progressing within the provisions of 10 CFR 50.10 and the authorized exemption.

The on-site organizational responsibilities are similar to those employed for Indian Point No. 2.

Procedures and records indicate that the containment building base mat concrete and liner plate work is being performed in compliance with applicable codes and the PSAR.

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DETAILS

I. Persons Contacted

The following individuals were contacted during the visit:

Con Ed

Mr. A. Corcoran, Site Construction Engineer

Mr. J. Verbst, Site Construction Engineer Assistant

Mr. J. Dragosits, Welding Inspector

II. Results of Visit

A. General Construction Status

1. The base mat concrete for the containment building was complete with the exception of the reactor vessel cavity walls. The bottom liner plate installation was in progress.
2. Concrete forms were being erected for the turbine pedestals.
3. Records and observations indicated to the inspector that the provisions of 10 CFR 50.10 and the authorized exemption* had not been exceeded.

B. Construction Organization

The major responsibilities for site construction for IP-3 are essentially the same as was employed for IP-2,** and include the following:

*Letter to W. D. Crawford, Vice President, Con Ed from H. Price, DRL dated November 15, 1968.

**CO Report No. 247/67-3, Paragraph II.B.

1. Con Ed

Con Ed has a permanently assigned on-site staff whose function is to ensure that the site construction work is accomplished within contractual and quality control requirements. The staff has the authority to stop work in areas that could affect the technical adequacy or safety of the plant.

2. Westinghouse

Westinghouse has a turnkey contract with Con Ed for the construction of IP-3 and thus is responsible for all construction activities.

3. United Engineers and Constructors (UE&C)

In the capacity of Architect-Engineer, UE&C manages all construction activities. The on-site representatives of UE&C include a quality control staff which performs receipt, storage, and erection inspections.

4. Chicago Bridge and Iron Company (CB&I)

CB&I is the subcontractor for all steel work. The work on the containment liner is being performed by this organization.

5. Pittsburgh Testing Laboratory (PTL)

PTL is a subcontractor for UE&C and performs quality control on structural steel and concrete mixing and placement.

6. U. S. Testing Company (UST)

UST, under a contract with Con Ed, performs vendor and construction site quality control audits.

The above organizational structure complies with the requirements of the PSAR.*

*Supplement I, Section 5.

C. Concrete

United States Testing (UST) inspection reports and United Engineering and Construction (UE&C) records indicated that concrete work is being performed in compliance with the recommendations of ACI, ASTM, and the PSAR. Additional information on this subject is included in Section I of Addendum I to this report.

D. Reinforcement Bars

The reinforcement bar receiving inspection procedures, cadweld break strength records, and the mill certificates for the containment liner anchor bolts were reviewed. The details of the review are included in Section B, Addendum I of this report. No deficiencies were identified.

E. Containment Liner

Mill certificates for the liner plate, cover channels, and supporting angles indicated that the materials conform to the requirements of the PSAR.*

Nine welders were qualified in accordance with the requirements of Section IX of the ASME code.

Additional information relative to the containment liner construction is included in Section C of Addendum I of this report.

**Supplement II, Table 5.1-1.

ADDENDUM I

CO REPORT NO. 286/69-1

Licensee: CONSOLIDATED EDISION COMPANY
(Indian Point No. 3)
License - Not Issued

Dates of Inspection: January 20 and 24, 1969

Dates of Previous Inspection: November 20 and 21, 1968

Inspected by: D. E. Whitesell 2/7/69
D. E. Whitesell, Reactor Inspector Date
(Construction)

Reviewed by: N. C. Moseley 2/11/69
N. C. Moseley, Senior Reactor Inspector Date

A. Concrete Work

1. Concrete work had been suspended during the time of visit due to rain and falling temperatures. During a walk through the work area the inspector observed the following:
 - a. Form work for the turbine pedestals were being erected.
 - b. Plastic wind breakers were being installed around the various placement location and heaters were being installed within the protected areas.
2. The inspector read a copy of a trip report made by U. S. Testing Company, Inc., dated December 27, 1968, in regard to their visit to the site to observe concreting operations and to check the quality control performance of Pittsburgh Testing Laboratories (PTL) at the location of the concrete placement and at the batch plant. The report indicated that no deviation from the quality control procedures were found, and that all work performance was observed to be in accordance with good practice as recommended by ACI and ASTM.
3. Reports of cylinder break tests were audited and found to be running 115% to 150% of the design strengths.

B. Rebars

1. The inspector investigated UE&C's procedures pertaining to the receiving inspection given to rebars. Mr. Fant, Quality Assurance Engineer for UE&C informed the inspector that each heat of rebar received is inspected for cracks, tears or separation due to low temperatures and a receiving report is completed for each inspection. The physical properties of each heat are verified by PTL. A sample of the receiving reports was reviewed and found to comply with the procedures.
2. The records for the cadweld splices that had been tested since the previous visit were audited and no deficiencies found.
3. The mill certificates furnished by the Jersey Bolt and Spike Company for the 1-1/4", 60" + 24" hook anchor bolts were audited. The material was certified as conforming to AISI and SAE 1040 hardened at 1575° F for 40 minutes, oil quenched and tempered at 700° F for 90 minutes to a Rockwell C scale 19/25.

The PSAR specifies that the bolt materials shall conform to ASTM-A325. A comparison of the chemical analysis, and physical properties with a 19/25 Rockwell C hardness of the ASTM-A325, are found to be approximately the same as the properties of AISI and SAE 1040 steels as listed in the 8th edition of the ASM metals handbook. It therefore appears that the bolts used comply with the intent of the PSAR.

C. Containment Liner Plate

1. The mill certificates for the liner plate, cover channels and supporting tees and angles were audited and found to conform to the PSAR. The steel was furnished by Bethlehem, Lukins and United States and all applicable certifications showed the plate material to conform to ASTM-442A, Grade 60 Firebox, normalized per ASTM-A300 to fine grain. All the certifications gave the heat numbers, chemical analysis, physical properties, and three impact tests at -10° F. Rolled shapes conformed to ASTM 131 Grade C or ASTM-36.

2. United Engineers specification number 9321-05-225-1 for the erection, fabrication and testing of the containment liner was read. The specification provides for the following:
 - a. Establishes codes and standards for materials.
 - b. Erection, fabrication, welding and repair work.
 - c. Inspection and testing.
 - (1) Spot radiography
 - (2) Vacuum box tests where radiography is not possible.
 - (3) Strength test 54 psig pneumatic for 15 minutes.
 - (4) Leak test with halogen detectors and freon at 47 psig for 2 hours.
 - d. Post construction tests by others.
 - e. In locations where radiography of the finished weld could not be made, the specifications states that a 2" long overrun coupon shall be made and chipped off, marked for location and tested.
3. There were not test reports available for audit at the time of inspection but will be reviewed on a future visit. ✓
4. UE&C's welding specification number 1 , - Rev dated January 16, 1968, providing for joining carbon steel base metals, using F3 and F4 electrodes with weld metal comparable to the base metal, was reviewed. The specification provided for the joint preparation, electrical current characteristics, welding technique, cleaning, repair of defects, preheating and temperature control, stress relieving, when required, as to the rate of heating and cooling and the soaking temperature and time. Inspection techniques were established as being in accordance with Appendix VIII of Section VIII - ASME code, the acceptance standards as defined by case N-10 of the ASA code. The specification had been qualified in accordance with Section IX of the ASME code.

5. CB&I had nine welders qualified in all positions on the procedures. Their qualification tests were audited, and found to conform to Section IX, ASME code. The tenth welder was preparing test coupons for qualification at the time of inspection.