

UNITED STATES
ATOMIC ENERGY COMMISSION
DIVISION OF COMPLIANCE
REGION I
970 BROAD STREET
NEWARK, NEW JERSEY 07102

201 645- 3942

March 3, 1972

J. B. Henderson, Chief, Reactor Construction
Branch, Division of Compliance, HQ

CONSOLIDATED EDISON COMPANY
INDIAN POINT 3
CO REPORT NO. 50-286/72-01

The subject inspection report is forwarded for information.

One item of nonconformance was identified and has been
identified to the licensee by letter.

We plan to make a comprehensive inspection of this facility
in early Summer, at which time the electrical cable installa-
tion should be in full swing.

E. M. Howard
Senior Reactor Inspector

Enclosure:
Subject Inspection Report

cc: E. G. Case, DRS (3)
R. S. Boyd, DRL (2)
R. C. DeYoung, DRL (2)
D. J. Skovholt, DRL (3)
H. R. Denton, DRL (2)
L. Kornblith, Jr., CO
R. H. Engelken, CO
DR Central Files
CO Files

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Q PDR

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SECTION I

Enforcement Action

Traceability of welding electrodes is not maintained for reactor coolant piping field welding. (Section II, Paragraph 3)

Licensee Action On Previously Identified Enforcement Matters

None

Unresolved Items

Record of welding purge gas flow rates are inconsistent. (Section II, Paragraph 7)

Status of Previously Identified Unresolved Items

- A. The previously identified unresolved item pertaining to the lack of a Quality record retention procedure has been resolved. (Section II, Paragraph 4)
- B. The Code data sheet (Form N1A) for the reactor vessel has been reviewed on site. This item is considered resolved. (Section II, Paragraph 5)
- C. Procedures pertaining to the repair of the steam generators cladding were inspected. This item remains outstanding pending inspection of repair records. (Section II, Paragraph 6)
- D. The items contained in the CO Regional office notification letters pertaining to scram breakers and main steam relief valve headers are under review by the engineering department. These items remain unresolved.

Design Changes

None

Unusual Occurrences

None

Persons Contacted

Con Ed

Mr. A. D. Kohler, Resident Construction Manager
Mr. F. M. Matra, IP-3 Project Superintendent
Mr. R. M. Schuster, QC Engineer (NDT)
Mr. A. Dunnigan, QC Records Specialist

WEDCO

Mr. M. Snow, Reliability Manager
Mr. S. M. Roberts, QA Manager
Mr. R. W. Diebler, Site QC Manager
Mr. E. C. Paulcheck, QC Engineer (Mechanical)
Mr. C. Hughes, QC Welding Engineer
Mr. J. Morehead, Installation Engineer

Management Interview

The following subjects were discussed with Messrs. Kohler, Matra, Dadson, Snow and others on January 27, 1972.

- A. The inspector stated that the following items were considered resolved:
1. QA records procedure #8. (Section II, Paragraph 4)
 2. Code data sheet (Form N1A) for reactor vessel. (Section II, Paragraph 5)

The licensee acknowledged the comment.

- B. The inspector stated that the results of the engineering evaluation of the scram breaker and main steam line header problems identified at other facilities would be reviewed during subsequent inspections.

Mr. Kohler stated the results would be made available to the inspector when the evaluation was completed.

- C. The inspector stated that records to indicate traceability of welding electrodes used in field welding of the reactor coolant piping were not available.

Mr. Snow stated there was no requirement for recording heat numbers of electrodes for each weld.

The inspector stated that Criterion VIII, Appendix B, 10 CFR 50 established the requirement. In addition, the inspector stated that the procedures governing the maintenance of weld data sheets which was previously inspected included the requirement for recording this data and a space was provided for the weld data sheet for this purpose.

The licensee stated that this item would be corrected. (Section II, Paragraph 3)

- D. The inspector stated that the welding gas purge flow recorded on the weld data sheet appeared inconsistent in that some sheets indicated before welding, some indicated during welding and some no indication.

The licensee stated that this item would be corrected. (Section II, Paragraph 7)

SECTION II

Prepared by: R. F. Heishman, Reactor Inspector

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

1. General

The licensee reported that the status of construction was 62% complete as of January 6, 1972. The following is a breakdown of significant areas:

Structural

VC Building 60%; Liner 99%
PAB 80%
Intake structure 95%
Electrical Tunnel 100%
Pipe Tunnel 55%

Electrical

Cabletrays & Conduit installation 45%
Cable 480V 5%
Cable 69KV 15%

Piping

Reactor Coolant 30%
Safety Injection 12%
Main Steam 15%

The licensee reported that Mr. G. I. Coulbourn has been appointed Con Ed Nuclear Startup Manager for IP-2 and IP-3. The Wedco Reliability Manager reported that the Wedco QA Manager had been re-assigned to the W International Division and no replacement was yet available.

2. Reactor Coolant Piping

- a. Records in the following areas were inspected to verify whether the licensee-contractor is meeting the construction requirements and to test and verify the quality control system:
- (1) Visual inspection including, joint preparation; cleanliness; environmental control; root gap; axial and angular alignment; completed root pass; and completed weld.
 - (2) Nondestructive testing records including radiograph quality; evaluation of weld quality; dye penetrant examination; correlation of record to a specific weld.
 - (3) Defect repair records including defect removal technique; defect removal verification; identification of welder; qualification of welder; and acceptance of repairs.
 - (4) Records of welding material control including issue control and identification; post issue control of temperature and moisture; and disposition of issued but unused material; and pre-issue storage conditions.
 - (5) Weld records of qualification including weld procedures; welder; nondestructive test techniques; and NDT technicians.
 - (6) Weld records of identification including weld location; welder; weld procedure; NDT technician; NDT procedure and NDT results.
- b. The inspector observed the work performance of the licensee-contractor to verify that the construction requirements were being met and to verify the quality control system in the following areas:
- (1) Availability and use of prescribed procedures for weld performance, including identification of weld type and material.
 - (2) Joint preparation and alignment including verification by the appropriate QC inspector.
 - (3) Identification of weld, location, welder, and inspector.

- (4) Physical appearance of partially completed and completed weld including burn through; cracks; porosity; undercut; weld profile (contour and reinforcement) and presence of arc strikes and weld spatter on adjacent surfaces.
- (5) Identification, handling and control of weld materials.

Details of Subjects Discussed in Section I

3. Traceability of Welding Electrodes

The Wedco electrode control procedure which was previously reviewed established the requirement that the QC inspector recorded the heat number of the electrode on the weld joint history record. The field weld records do not contain any reference to the heat number and the inspector was informed that the requirement had been changed to delete the recording of the electrode heat number on the weld joint history record, Criterion VIII, Appendix B, 10 CFR 50 requires that materials be traceable during fabrication, erection, installation and use. Records of electrode traceability are maintained from site receipt through issue to area foreman; however, beyond this point traceability is lost. This item is being included as a nonconformance item in the documentation letter.

4. QA Records Procedure

The inspector reviewed Con Ed Quality Assurance Procedure No. 8 entitled, "Procedure for Quality Assurance and Quality Control Record Retention" dated December 28, 1971. This procedure was previously identified as an unresolved item in that the final procedure had not been approved. This item is considered resolved.

5. Reactor Vessel Code Data Sheet (Form N1A)

The ASME Code Data (Form N1A) was inspected for the reactor vessel and vessel head and found to be in accordance with Section III 1965 and addenda through winter 1965. This item was previously identified as not on site. This item is considered resolved.

6. Steam Generator Cladding Repair

The inspector reviewed the repair procedure entitled, "Nonradioactive Field Modification Procedure for Explosive Cladding on "44" Type Steam Generator Tube Plate", revision 4 dated December 7, 1971. This procedure was written and qualified by Westinghouse Tampa Division. Con Ed reviewed and provided comments on the procedure prior to implementation. The procedure includes the requirements for welding and testing in accordance with Sections III and IX of the ASME B&PV Code. The repairs are in progress and are scheduled to be completed by August 1972. This item remains unresolved pending completion of repair and testing.

7. Welding Gas Purge Flow Records

The weld records inspected appeared inconsistent relative to purge flow. Several field weld records indicated purge flow prior to welding, several indicated purge flow during welding and several did not indicate when the measurement was taken. The QC procedures do not specify the specific record requirement. The observation of the inspector of field welding in progress indicated that the correct flow was being maintained prior to and during the root pass welding operations. This item will be reviewed during subsequent inspections.

DEC 6 1971

D. R. Muller, Chief, FWR Branch #1, DRL

CONSOLIDATED EDISON COMPANY (INDIAN POINT 3) - DOCKET NO. 50-286

The enclosed report of a CO inspection conducted on October 26-28, 1971, is forwarded for information.

The licensee has not provided documentation to verify that:

- (1) the wall thicknesses of castings important to nuclear safety, meet the design requirement, or
- (2) information concerning the method to be used for testing of valve operators to assure that design performance characteristics have been met.

These two items were discussed in Regional correspondence with the licensee.

Original signed by
J. B. Henderson

J. B. Henderson, Chief
Reactor Construction Branch
Division of Compliance

Enclosure:
CO Report No. 50-286/71-05

cc:w/encl.

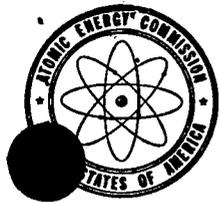
EGCase, DRS (3)
 RSEoyd, DRL (2)
 RCDeYoung, DRL (2)
 DJSkovholt, DRL (2)
 HRDenton, DRL (2)
 AGIambusso, CO
 RHEngelken, CO

LKornblith, Jr, CO
 JPO'Reilly, CO: I
 JGDavis, CO: II
 BHGrier, CO: III
 JWFlora, CO: IV
 RNSmith, CO: V
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UNITED STATES
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DIVISION OF COMPLIANCE
REGION I
970 BROAD STREET
NEWARK, NEW JERSEY 07102

201 645-3942

November 30, 1971

J. B. Henderson, Chief, Reactor Construction ✓
Branch, Division of Compliance, HQ

CONSOLIDATED EDISON COMPANY, INDIAN POINT 3
CO REPORT NO. 50-286/71-05

The subject inspection report is forwarded for action.

Both R. H. Engelken's letter of April 12, 1971 ^{not in file} and J. B. Henderson's memo route slip of May 24, 1971 ^{not in file} address dimensional and operability design requirements for primary coolant boundary valves. Westinghouse, through Consolidated Edison, has stated that only eight ten-inch Darling valves will be dimensionally checked and the remainder accepted based on their experience. Request further guidance as to the Compliance position on forcing this issue, since this has been the subject of two documentation letters.

E. M. Howard

E. M. Howard
Senior Reactor Inspector

Enclosure:
CO Report No. 50-286/71-05 (22 cys)

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SECTION I

Enforcement Action

None

Licensee Action on Previously Identified Enforcement Matters

None

Unresolved Items

None

Status of Previously Reported Unresolved Items

A. Acceptance Criteria for Cabling Installation and Testing

Revised procedures were reviewed by the inspector which include acceptance criteria. This item is considered resolved. (Paragraph 3, Section II)

B. Safety System Valve Wall Thickness

Westinghouse informed the inspector that a survey conducted by PWR QA Group revealed only the eight SIS valves were suspect of having casting thin walls. This item remains unresolved. (Paragraph 4, Section II)

C. Safety System Valve Operator Testing

The licensee reported the safety system valve operator testing was to be conducted in accordance with the requirements contained in the Westinghouse Equipment Specification No. G-676258, dated May 23, 1966, and the pre-operational testing program. This item remains unresolved. (Paragraph 5, Section II)

D. Containment Liner Out-of-Round, Elevation 64 Feet

Containment liner roundness tolerances were waived at elevation 64 feet. The as-built dimensions exceeded the allowable tolerance by 1/4 inch (2-1/4 inches vs 2 inches). This item is considered resolved. (Paragraph 6, Section II)

E. Reactor Vessel Lifting Incident

71-05
The final report of the reactor vessel lifting incident has been approved by Westinghouse and issued. The report concludes that the structural integrity of the reactor vessel was not effected by the handling incident. The licensee informed the inspector that the report will be submitted to DRL. This item is considered resolved. (Paragraph 1, Section II)

F. Steam Generator Cladding

The licensee informed the inspector that all four of the IP-3 steam generators will be repaired to preclude failure of cladding in the area of the divider plate in the water box. This item remains unresolved pending the repair and testing of the units. (Paragraph 8, Section II)

Design Changes

Cadweld splice stagger requirements have been changed. The UE&C engineering change waives the requirement for stagger of cadwelds between two horizontally adjacent bars and imposes a new requirement that a stagger must exist between three adjacent bars. The licensee intends to discuss this item with DRL. (Paragraph 4, Section III)

Unusual Occurrences

None

Persons Contacted

Con Ed

Mr. G. Beer, Director, QA
Mr. D. McCormack, Manager, Construction QA
Mr. A. D. Kohler, Resident Construction Manager
Mr. F. M. Matra, IP-3 Project Superintendent
Mr. R. M. Schuster, QC Engineer (NDT)
Mr. E. J. Dadson, QC Engineer
Mr. J. Dean, QC Engineer (NDT)

WEDCo

Mr. M. Snow, Reliability Manager
Mr. S. M. Roberts, QA Manager
Mr. R. W. Diebler, Site QC Manager
Mr. E. C. Paulcheck, QC Engineer (Mechanical)

Mr. E. Haselmire, Manager, Civil Construction
Mr. C. Hughes, Welding QC Engineer
Mr. J. Ford, Structural QC Engineer
Mr. D. McAfee, QA Engineer
Mr. J. Blaney, Welding Inspector

CB&I

Mr. R. Skalka, Superintendent-Foreman
Mr. L. Johns, Field QC Inspector

Management Interview

The following subjects were discussed with Messrs. Beer, Kohler, Matra, Snow and others on October 28, 1971.

- A. The inspector stated that the action taken in regard to valve wall thickness and the valve operator testing would be reviewed for adequacy.

Mr. Snow stated Westinghouse planned to correct the deficiencies which were discovered during the measurements taken onsite of the SIS valves and considered the remaining valves to be acceptable. (Paragraph 4 and 5, Section II)

- B. The inspector stated that the following previously reported unresolved items which were reviewed during this inspection were considered resolved:

1. Acceptance criteria for cabling, installation and testing. (Paragraph 3, Section II)
2. Containment liner out-of-round. (Paragraph 6, Section II)
3. Reactor vessel lifting incident. (Paragraph 1, Section II)

- C. The inspector stated that the list of quality related logbooks which was presented to the inspector would be reviewed during the continuing inspection program. In addition, the inspector requested that any changes in the requirements for maintenance of logs be brought to the attention of the inspector.

Mr. Matra stated that the inspector's request would be honored. (Paragraph 2, Section II)

- D. Westinghouse informed the inspector that the IP-3 reactor vessel did not contain grain boundary separations beneath the weld cladding. The inspector stated that this item would be considered resolved subject to additional direction from DRL. (Paragraph 9, Section II)
- E. The licensee stated that the cadweld stagger criteria change would be discussed with DRL. (Paragraph 4, Section III)

SECTION II

Prepared By: R. F. Heishman

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

1. General

The licensee reported that the status of construction was 58% complete as of October 1, 1971. The following is a breakdown of significant areas:

Structural

VC Building - 53%
Control Building - 80%
PAB - 80%
Turbine Building - 85%
Intake Structure - 95%

All major components are installed in the VC Building.

Electrical

Conduit and Cable Tray Installation - 20%
480 VAC Switchgear - 10%
6.9 KV Switchgear - Complete

Piping

Reactor Coolant - 20%
Safety Injection - 10%
RHR and Auxiliary Cooling - 1%

2. Logbooks

The licensee presented the inspector with a listing of logbooks currently being maintained onsite. The list is being retained in the regional files. The logs will be reviewed during the continuing inspection program of this facility.

Details of Subjects Discussed in Section I

3. Acceptance Criteria for Cabling Installation and Testing

Revision 5, dated October 21, 1971, of WEDCo procedure No. E.C.1000 entitled, "Manual of Tray, Conduit, and Cable Installation Documentation", references Con Ed specification No. EI-1002-2 for acceptance criteria to be used for installation and testing of safety related cabling. This item is considered resolved.

4. Safety System Valve Wall Thickness

Westinghouse letter, QCM-783, from R. B. Bremmer, Manager, QA, Mechanical; to L. D. Daley, WEDCo, dated October 6, 1971, was reviewed regarding the safety system valve wall thickness. The letter states that only the eight ten-inch safety injection system valves, manufactured by Darling Valve and Manufacturing Company, were suspect for a thin wall situation at this site. This position is based on a "survey conducted by Quality Assurance of all our (Westinghouse) valve manufacturers and similar investigations at other PWR sites". The letter further states that the purchase documents and referenced codes and standards for pumps and valves do not require the manufacturer to record the wall thickness and therefore documented as-built dimensional records are not available.

The contents of the above referenced survey were not available at the site.

DRL Question No. 4.26, dated August 13, 1971, requested Con Ed to provide information regarding the QA methods utilized to establish that safety system valves met the minimum wall thickness requirements. This question had not been answered at the time of the inspection.

5. Safety System Valve Operator Testing

Westinghouse Equipment Specification No. G-676258, dated May 23, 1966, was stated by WEDCo to contain the requirements for testing of safety system valves. In addition, the testing under the preoperational testing program is stated by the licensee to be in accordance with the applicable requirements. Specification No. G-676258 requires hydrostatic shell testing in accordance with MSS-SP-61 except that the test pressure shall be maintained for at least 30 minutes and the chloride content of the testing water shall not exceed 10 ppm. In addition, the specification requires the manufacturer to submit a complete description of the test program for each type of equipment. Reports of hydrostatic leakage, time to open and close valve (ambient conditions) and current drawn by the motor during equipment testing is required to be submitted at the time of shipment of the valves. The contents of the preoperational test program is not yet available.

6. Containment Liner Out-of-Round, Elevation 64 Feet

The designer, UE&C, has approved a waiver of 1/4 inch deviation from tolerances on the containment liner at elevation 64 feet. The specified allowable tolerance is two inches and the as-built dimensions indicate a 2-1/4 inch out-of-roundness. The inspector reviewed a letter from B. B. Scott, UE&C, dated July 1, 1971, granting the waiver request initiated by WEDCo and documented on the Con Ed Nonconformance Report No. 43. The acceptance of the waiver was granted by Con Ed on July 8, 1971. This item is considered resolved.

7. Reactor Vessel Lifting Incident

The final report entitled, "Handling Incident Investigation for the Indian Point Unit No. 3 Reactor Vessel", dated July 13, 1971, has been completed. The report describes the IP-3 reactor vessel handling incident, contains reports and data related to the NDT examinations performed on the vessel and its handling equipment, and the conclusions drawn from these examinations. The conclusion of the report is "that the structural integrity of the Indian Point Unit No. 3 reactor vessel was not effected by the handling incident". This report is to be submitted to DRL for their information. This item is considered resolved.

8. Steam Generator Cladding

Con Ed informed the inspector that all four steam generators will be repaired to preclude failure of the cladding in the area of the divider plate. The method of repair is currently being qualified at the Tampa Division of Westinghouse. Current plans include automatic deposition of cladding and removal of additional portions of the divider plate. Hydrostatic testing of the repaired units is planned prior to plant startup. The repairs are predicated upon the failures of other units. No estimate of timing of the repairs was reported by the licensee. This item remains unresolved pending repair and testing of the steam generators.

9. Reactor Vessel Cladding Grain Boundary Separation

The inspector requested the licensee to confirm the presence or absence of grain boundary separations based on results of investigative studies. Westinghouse informed the inspector that the IP-3 reactor vessel did not contain grain boundary separations. The basis of this reply was stated to be the fact that this vessel was fabricated from rolled plate which has a fine grain structure versus a casting with a relatively large grain structure. In addition, the vessel was fabricated and clad by CE, who claims no grain boundary separations have been encountered in their production work on any of a substantial number of components fabricated by them. This item is considered resolved pending further guidance from DRL.

SECTION III

Prepared By: A. A. Varela

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

1. Records audit of cadweld splices in containment concrete rebar was made for conformance to job specifications and commitments in the FSAR. Frequency and results of strength tests on production splices, qualification of operators, and changes in the quality assurance program were inspected.
2. Containment liner plate weld record audit of WEDCo's documentation, including the following items, was conducted:
 - a. Visual inspection.
 - b. Heat treatment.
 - c. Nondestructive test records.
 - d. Defect repair records.
 - e. Records of welding.
 - f. Qualification of weld procedures and welders.
 - g. Record system of identification.
 - h. Weld material control.
3. Liner plate material receipt inspection, installation, and erection survey records were audited for conformance to job specifications and the FSAR.

Details of Subjects Discussed in Section I

4. Cadweld Stagger Requirements

This audit disclosed that requirements for cadweld splice stagger between the four hoop bars at a common elevation in the containment wall have been changed by UE&C in their letter dated August 31, 1971. This change appears to involve only an interpretation of the design drawing requirement and the intent of the PSAR, Supplement No. 2. Engineering evaluation by UE&C, of about 200 pairs of horizontally adjacent bar splices, accepted a stagger of less than two feet between them. This engineering change imposes a new requirement that a stagger must exist between three adjacent bars. This is explained as follows:

Within the intent of the PSAR, Supplement No., 2, lack of stagger between

two adjacent inside (or adjacent outside) hoops need not be corrected provided there is at least 2'-0" of stagger between these splices and splices on the adjacent outside (or adjacent inside) hoops at the same elevation in the structure. The engineering change is essentially equivalent to that required by contract drawings and FSAR except that the two hoop bars spliced closest to each other will be the adjacent hoops on the inside radii (or outside radii) instead of the alternate arrangement shown on the contract drawings.



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SEP 02 1971

J. B. Henderson, Chief, Reactor Construction ✓
Branch, Division of Compliance, HQ

CONSOLIDATED EDISON COMPANY OF NEW YORK
INDIAN POINT 3
DOCKET NO. 50-286

The enclosed report of the inspection of Consolidated Edison's Indian Point 3 construction site, conducted on July 20 through 22, 1971, by Messrs. Heishman, Burzi and Folsom is forwarded for information.

No items of nonconformance were identified.

The inspectors verified resolution of nonconformance items discussed in letters from Con Ed to Region I, dated February 11 and March 22, 1971.

Documentation relative to verification that valves located in the primary pressure boundary meet the dimensional and operability design requirements was not available; however, the licensee stated this information would be made available during subsequent inspections. Resolution of this item will be verified during the continuing inspection program.

Several previously reported unresolved items were resolved during this inspection including an arc strike repair procedure and use of 308 filler metal for welding 316 SS RC piping.

The initial review of the QA/QC system for control of electrical and instrumentation cabling indicated a generally acceptable system except for acceptance criteria for cable testing. The licensee has agreed to include these criteria in the instructions and procedures prior to the start of installation of safety related cabling. Verification of these corrective actions will be accomplished during subsequent inspections.

E. M. Howard
Senior Reactor Inspector

encl:

CO Report No. 50-286/71-04, by R. Heishman, V. Burzi & S. Folsom

cc: E. G. Case, DRS (3)
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