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

CO Inspection Report No. 50-286/71-05

Subject: Consolidated Edison Company of New York

Indian Point 3

License No. CPPR-62

Location: Buchanan, New York

Priority           

Category A

Type of Licensee: PWR 1050 MWe (Westinghouse)

Type of Inspection: Routine, Announced

Dates of Inspection: October 26-28, 1971

Dates of Previous Inspection: July 20-22, 1971

Principal Inspector: *R. F. Heishman*  
R. F. Heishman, Reactor Inspector

10/27/71  
Date

Accompanying Inspectors: *A. A. Varela*  
A. A. Varela, Reactor Inspector

11/22/71  
Date

            
Date

Other Accompanying Personnel: NONE

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

            
Date

11-23-71  
Date

Proprietary Information: NONE

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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

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~~ <sup>forging</sup> 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.