

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

Report of Inspection

CO Report No. 247/70-5

Licensee: Consolidated Edison Company
Indian Point No. 2 (IP-2)
License No. CPPR-21
Category B

Dates of Inspection: May 6, 7, and 8, 1970

Dates of Previous Inspection: April 10, 21, and 22, 1970

Inspected by: G. L. Madsen 6/1/70
G. L. Madsen, Reactor Inspector Date

Reviewed by: N. C. Moseley 6/2/70
N. C. Moseley, Senior Reactor Inspector Date

Proprietary Information: None

SCOPE

An announced inspection was made of the Indian Point No. 2 (IP-2) construction site on May 6, 7, and 8, 1970. Major items covered included preoperational testing, electrical installation, surface cleanup of piping systems, containment closure, and discussions related to previously identified problems.

SUMMARY

Ninety-five percent of the flushing and hydrostatic test procedures have been approved. Twenty of 82 Phase II preoperational procedures have been issued by Wedco for review by Con Ed. Wedco presented a schedule for preparation of Phase II and III procedures which is based on a core loading date of September 7, 1970 and a one month lapse of time between completion of procedure preparation and test performance. Hydrostatic testing of the main steam and feedwater systems is scheduled to begin May 25, 1970. The reactor coolant system is presently scheduled to be hydrostatic tested early in June 1970. (Section II.A)

Placement of electrical cable inside containment is 50% complete. Con Ed, Wedco construction, and Wedco QC are involved in surveillance programs relating to conformance of installation of cables to design cable pulling schedules. (Section II.B)

8111120615 700609
PDR ADOCK 05000247
Q PDR

Closure of the three containment building construction access openings is in progress. Survey information of reinforcement bar and cadweld placement for the north opening has been forwarded to CO Headquarters for evaluation. Potential problem areas include non-stagger of adjacent cadweld splices and possible lack of concrete coverage for exterior reinforcement. (Section II.C)

Pressure and strength bearing stainless steel parts of the reactor vessel and associated systems which may have been furnace sensitized during fabrication are listed. (Section II.E)

Wedco and Con Ed have initiated an active mechanical system cleanup program. (Section II.E)

The carpenters union went on strike and a picket line was established at the Indian Point entrance. (Section II.F)

Con Ed continues to await notification from Westinghouse with relation to compliance to code and/or Table A for the reactor pressure boundary components. (Section II.G)

The failure of a main steam pressure relief transition piece at another facility was reviewed and it was determined to be unrelated to conditions at IP-2. (Section II.H)

A listing of previously identified items requiring resolution is included. (Section II.I)

DETAILS

I. Persons Contacted

A. Con Ed

Mr. F. McElwee, Resident Construction Manager
Mr. A. Corcoran, Construction Project Superintendent
Mr. P. Leo, Assistant Construction Superintendent
Mr. E. Dadson, Quality Assurance Supervisor
Mr. B. Cosgrove, Mechanical Engineer
Mr. R. Schuster, Quality Control Inspector
Mr. T. Houlihan, Electrical Inspector

B. Wedco

Mr. M. Snow, Manager, Reliability
Mr. M. Griffin, Electrical Construction Manager
Mr. F. DiLorenzo, Electrical Quality Control
Mr. V. Montoya, Electrical Quality Control
Mr. T. Lawson, Manager, Site Quality Control
Mr. R. Matheny, Manager, Startup Operations

C. Westinghouse

Mr. R. Devine, Manager, Indian Point Engineering

II. Results of Inspection

A. Preoperational Testing

1. Status of Test Procedure Preparation

Sixty-six of 69 Phase I flushing and hydrostatic test procedures have been issued and approved. In addition, 20 of 82 Phase II preoperational test procedures have been issued by Wedco and are presently being reviewed by Con Ed.

Mr. Matheny presented the inspector with a schedule which presented Wedco's intent with respect to preparation of Phase II and III procedures. The completion schedule is based upon a proposed core loading date of September 7, 1970 and a one month lapse of time between completion of the procedure and performance of the test.

Mr. Matheny indicated that the proposed schedule would be difficult to meet but was attainable with the presently assigned Wedco start-up staff. The inspector considers the information presented to be comprehensive and an indication that the Wedco startup group has now assumed their rightful responsibilities relative to timely preparation of test procedures.

2. System Flushing and Hydrostatic Testing

Forty percent of the flushing and hydrostatic testing has been completed or is presently in progress. Hydrostatic testing of the main steam and feedwater system is scheduled to begin May 25, 1970 and the reactor coolant hydrostatic test is to be performed early in June 1970. The system hydrostatic tests are being performed in accordance with applicable codes* (150% of system design pressure) with the exception of the reactor coolant system which is to be hydrostatic tested at 3110 psig as required by the FSAR.**

*USAS B31.1

**Table 4.1-1

B. Electrical

Placement of electrical cable within containment is 50% complete. Con Ed and Wedco are involved in surveillance programs for determining installation conformance to the designed cable pulling schedules in the following manner:

1. Con Ed

Con Ed has physically traced about 50% of the safeguards power and control cables which have been installed within containment. To date, no significant deviations have been detected.

2. Wedco, Electrical Construction

Wedco construction is performing the planned sample check of electrical cables to determine that the design criteria in the matter of electrical separation is being attained.* The cabling to be checked was specified by Westinghouse.** The inspector witnessed the tracing of one cable using a pulsed signal source. The cable was found to be installed properly. A review of progress to date disclosed that one of the boric acid transfer pump cables is scheduled to be rerouted. The inspector inquired as to the method by which it was determined that rerouting of this cable was required. Wedco personnel were not sure but believed that it was detected during a design review. The inspector indicated that this item will receive additional attention during future inspections.

3. Wedco, Quality Control

Wedco quality control plans to perform cable installation audits; however, no actual checking has been performed. Wedco plans to confer with Con Ed relative to tracing performed by this organization and will then gear their cable selection to the cables that have not been traced by someone other than Fishback and Moore, the electrical contractor.

Mr. Snow indicated that this approach should provide maximum overall coverage and minimize duplication of effort. The inspector indicated that this approach seems to be an unusual quality control approach; however, it might be a satisfactory solution for the previously discussed lack of first line quality control involvement by Westinghouse and Wedco.***

*CO Report No. 247/70-1, paragraph II.E.3

**Letter to J. J. Dombrowski, Wedco, from H. N. Skow, dtd February 3, 1970

***CO Report No. 247/70-1, Appendix A, Item D.3.

Wedco quality control performed spot checks of cable tray separation barriers and groundings. The inspector was shown a listing of conditions requiring attention that had been forwarded to Wedco construction for action. The inspector determined that Wedco construction plans to correct the identified conditions and make a similar survey of the entire plant; following which Wedco QC will perform a reaudit of the subject area.

Wedco QC is monitoring the installation, checkout and calibration of pumps, valves and instruments. The information collected is plotted on electrical drawings and is to be used as a mechanism for QC acceptance of electrical systems.

Upon inquiry, the inspector was informed that a deficiency report system exists within Wedco QC, which permits assurance of followup and corrective actions.

C. Containment

As previously reported,* closure of the three construction access openings in the containment building is in progress and concrete placement for these openings is scheduled for mid-June 1970.

A survey of the reinforcement bar and cadweld placement for the north access opening has been completed and forwarded to UE&C Engineering for review. A cursory review of the survey information, by the inspector, revealed numerous conditions where stagger of adjacent cadweld splices does not exist. In addition, a possible problem may exist relative to concrete coverage of the exterior bars. A copy of the survey data has been forwarded to CO Headquarters for evaluation,** relative to design adequacy. Similar surveys are to be performed for the personnel and equipment access openings. The surveys are to receive a design evaluation by UE&C Engineering and will require acceptance by Westinghouse and Con Ed. Visual observation, by the inspector, revealed that numerous cadwelds have been installed without stagger with relation to adjacent splices at these access openings.

D. Reactor Coolant System

The FSAR*** lists pressure or strength bearing stainless steel parts of the reactor vessel and associated systems which have been furnace sensitized.

*CO Report No. 247/70-4, paragraph II.D

**Memorandum to J. P. O'Reilly from N. C. Moseley, dtd May 19, 1970

***Volume V, Question 4.8.6

during fabrication. The component parts include the following:

1. Reactor Vessel

The eight reactor vessel nozzle safe ends received a weld overlay* on the internal and external surfaces. The weld overlay was ground smooth and has received a PT which was audited by UST and the assigned inspector.** Mr. Dadson indicated that the surface condition is better than 100 rms and that UT is presently scheduled and baseline mapping is planned.

2. Pressurizer

The following pressurizer nozzles are forged 316 stainless and received furnace heat treatment:

- a. The 14 inch surge line nozzle.
- b. The 4 inch spray line nozzle.
- c. Three 3 inch safety valve line nozzles.
- d. One 4 inch relief valve line nozzle.
- e. Eight 3/4 inch instrument lines.

3. Steam Generator

The two primary nozzles for each steam generator received an inconel weld buttering prior to furnace heat treatment.

Upon inquiry, the inspector was informed that the decision to weld overlay the reactor vessel safe ends and not the similar conditions on the pressurizer was linked principally to the future problems associated with modifications to the reactor vessel nozzles versus the pressurizer nozzles.

E. Mechanical Systems Review

As a result of previous inspection results,*** Wedco and Con Ed have initiated a joint mechanical inspection program for all systems. Preliminary inspections of the reactor coolant, main steam, feedwater, chemical volume control, and auxiliary coolant systems have been completed. Deficiencies identified and requiring corrective action included the presence of arc strikes, weld splatter, cement splatter, fitup weldments, dye penetrant, untagged valves,

*CO Report No. 247/69-10, paragraph II.J

**CO Report No. 247/70-3, paragraph II.G

***CO Report No. 247/70-3, paragraph II.F.3.c

excess weld metal, and rust stains. Partial inspection has been conducted on six additional systems.

Cleanup activities have been initiated for systems that will be involved in the forthcoming hydrostatic test of the reactor coolant, main steam, and feedwater systems. Cleanup of two loops of the reactor coolant system has been completed, reinspected, and accepted by Wedco and Con Ed. The inspector's review of inspection deficiency reports, for the accepted loops of the reactor coolant system, revealed acceptance signoffs by personnel from Wedco construction, Wedco QC, and Con Ed.

Upon inquiry, the inspector was informed that the above program does not include total coverage relative to clearances and systems supports; however, considerations with respect to adequate supports for hydrostatic testing is included. Mr. Corcoran informed the inspector that a support and hanger review will be performed at a later date.

The program presented is considered to be responsive and the inspector will perform system spot audits following the completion of the above outlined actions.

F. Labor Strike

The carpenters union went on strike due to expiration of their contract. On May 8, 1970, a picket line was established at the Indian Point entrances. The picket line was being honored by some of the other crafts; however, the electricians, operating engineers, fitters, and lathers reported for work. The potential affect of the strike, relative to project completion, has not been determined.

G. Reactor Pressure Boundary

Con Ed continues to await notification from Westinghouse with relation to code compliance and/or Table A for the reactor pressure boundary.* Discussions with Westinghouse and Wedco personnel at the site revealed to the inspector that activity on this subject is in progress; however, considerable followup of mill certificates and testing in the field will be required before final answers on this subject can be submitted.

H. Main Steam System

The failure of a transition piece, that connects one of the four steam generator pressure relief valves to the main steam line at another similar facility, was discussed. Messrs. Corcoran and Snow stated that they were aware of the situation that occurred at the Carolina Power and Light Company's H. B. Robinson No. 2 facility. In fact, a Wedco engineer was at the site to observe

*CO Report No. 247/70-3, paragraph II.D

the existing condition and then related the findings to existing conditions at IP-2. Mr. Snow indicated that similar conditions do not exist at IP-2 in that:

1. Different designers were employed.
2. Different fabricators supplied the material.
3. The CPL transition piece was counterbored to scheduled 40 dimension. The IP-2 pieces were not counterbored.

I. Previously Identified Items Requiring Resolution (CO Report Reference in Parenthesis)

1. Indepth quality control followup items. (247/70-1, Appendix A).
2. Completeness of safety injection system weld records. (247/69-11, Section II.B.2).
3. SIS valves of CF8 material versus CF8M. (247/69-11, Section II.B.3)
4. Reactor pressure boundary criteria - Table A. (247/70-2, Section II.C.2.).
5. Closure of containment - cadweld staggering. (247/69-11, Section II.C.2).
6. Fuel storage building - completion of preoperational testing and discrepancies with the FSAR. (247/69-9, Section II.G).
7. Pipe supports - installation of stainless shims. (247/69-9, Section II.J).
8. Code stamps - "N" on Section III, Class C vessels. (247/69-7, Section II.N).
9. Steam generators - hydrostatic test and code stamping. (247/69-10, Section II.I).
10. Preoperational testing - Lateness of procedure preparations. (247/70-2, Section II.B).
11. Insulation on piping - hydrostatic test not performed. (247/70-3, Section II.H).
12. Replacement of main steam flow nozzles. (247/70-4, Section II.I).

III. Management Interview

A management interview was held with Messrs. Corcoran and Dadson at the conclusion of the visit. Items discussed included:

A. Preoperational Testing

The status of preoperational testing and procedure preparation was reviewed. The inspector indicated that Wedco's scheduling program is comprehensive and responsive. Mr. Corcoran indicated that procedure preparation continues to be ahead of the construction completion schedule.

B. Electrical

The inspector's findings relating to the electrical involvement of Wedco and Con Ed were discussed. The inspector indicated that the total approach to quality control coverage for the electrical system is a bit unusual; however, satisfactory coverage might be the end result. Mr. Dadson agreed that the total approach to electrical quality control should have been handled differently. In his view, Wedco should have provided the first line quality control and Con Ed then should have audited Wedco. Mr. Corcoran stated that the present approach should provide an acceptable result; however, the coverage has been cumbersome and expensive.

C. Containment

The inspector indicated that the survey data for the north containment access opening would be evaluated within AEC regulatory; however, no position on the subject will be offered until Wedco, Westinghouse, and Con Ed have completed their evaluation of the existing conditions.

D. Mechanical Systems Reviewed

The inspector stated that the mechanical systems review and cleanup program is considered to be responsive and progress would be monitored during future inspections. Mr. Corcoran stated that Wedco has been very cooperative and interested in doing a first rate job on this subject.

E. Main Steam System

The inspector indicated favorable findings with respect to the Con Ed and Wedco review relating to the applicability of the Robinson No. 2 main steam relief valve transition piece failure.