

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

Report of Inspection

CO REPORT NO. 247/69-11

Licensee: CONSOLIDATED EDISON COMPANY
Indian Point No. 2 (IP-2)
License No. CPPR-21
Category B

Dates of Inspection: November 3, 5, 6 and 7, 1969

Dates of Previous Inspection: September 30 and October 1 and 2, 1969

Inspected by: G. L. Madsen 12/3/69
G. L. Madsen, Reactor Inspector Date

Reviewed by: R. T. Carlson 12/3/69
R. T. Carlson, Senior Reactor Inspector Date

Proprietary Information: None

SCOPE

Announced visits were made to the Consolidated Edison Company Engineering Offices in New York, New York on November 3, 1969; and to the Indian Point No. 2 (IP-2) construction site at Buchanan, New York on November 5, 6 and 7, 1969. The major items reviewed included electrical separations, reactor coolant pressure boundary requirements, status of the pipe allegations program, preoperational testing programs, field welding, and formation of Wedco, Inc.

SUMMARY

Con Ed has completed the vendor audit program for stainless steel pipe and fittings. A final report relating to their findings has been issued. Con Ed feels that sufficient data has been gathered to assure the adequacy of the IP-2 nuclear plant piping to meet applicable codes and industry standards. The Con Ed report is currently under review by CO.

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Con Ed and Westinghouse are performing independent audits of mechanical systems. On completion of the audits Con Ed plans to compare their system status information with the as-built isometrics provided by Westinghouse. These activities should display evidence of completeness of individual systems.

Pipe section SI-136 was rejected for the second time. The last cause for rejection was insufficient wall thickness. The pipe section is scheduled for replacement.

The eight valves, between the accumulators and the reactor coolant loops, were fabricated to A351 CF8 rather than CF8M as required by the Westinghouse specifications. The acceptability of these valves for usage was questioned by the inspector.

The 32 reactor coolant system field welds have been formed and accepted.

Application of the DRL reactor coolant pressure boundary criteria is receiving consideration. Con Ed has initiated a component review program of 21 valves. This action is a start but does not appear to completely satisfy the pressure boundary criteria. This subject will require additional compliance review.

Wedco, Inc., has assumed managerial control of the construction activities. The UE&C Quality Control group has remained. Con Ed indicated satisfaction relative to construction control.

Closure of two temporary construction openings, in the containment building, is in progress. Stagger of cadwelds is to be maintained or approved by the designers.

The preparation of preoperational test procedures is progressing at a slow rate.

The previously identified electrical cable separation questions were reviewed with Con Ed Engineering. This subject will receive additional followup by Compliance.

DETAILS

I. Persons Contacted

A. Site Inspection

1. Con Ed

Mr. G. Nicholson, Assistant to Vice President of Construction

Mr. F. McElwee, Site Project Manager

Mr. A. Corcoran, Construction Superintendent

Mr. D. McCormick, General Superintendent Indian Point site

Mr. E. Dadson, Site Quality Control Supervisor

Mr. W. Monti, Production Engineer

Mr. R. Cosgrove, Mechanical Engineer

Mr. O. Beusee, Electrical Inspections Foreman

Mr. J. Dragosits, Welding and Piping Inspector

2. Wedco, Inc.

Mr. R. Matheny, Operations Manager

Mr. T. Lawson, Quality Assurance Engineer

3. United Engineers & Constructors (UE&C)

Mr. J. Fant, Quality Control Supervisor

Mr. J. Jaillet, Welding Inspector

B. November 3, 1969 Meeting

1. Con Ed

a. Messrs. J. Grob, F. Fisher, G. Waselinko, and C. Flugger from the Mechanical Engineering Department.

b. Messrs. G. Nicholson, F. McElwee, and E. Dadson of the Construction Engineering Department.

II. Results of Visit

A. Pipe Allegations

Con Ed has completed the vendor audit program for stainless steel pipe and fittings for the IP-2 nuclear plant. The audit program was performed to establish confidence that the pipe and fitting materials meet applicable specifications and industry

requirements and to respond to previously reported allegations.* A final report on this subject has been issued and contains the following comments:

1. The manufacturers and suppliers of pipe and fittings used by Dravo and visited by UST maintain adequate manufacturing, inspection and test programs to produce pipe in accordance with applicable specifications.
2. Updated material certifications and supplementary component descriptions are readily available from component manufacturers; therefore, establishing satisfactory record keeping.
3. The fabricators inspection program and field testing of components with limited supporting documentation has provided sufficient information to classify the components acceptable for use in nuclear systems.

On the basis of the above and the plant designer's waiver of identified deviations, Con Ed feels that sufficient data has been gathered to assure the adequacy of the IP-2 nuclear plant piping to meet all applicable codes and industry standards.

The Con Ed report is currently under review by CO.

B. Safety Injection System

1. Field Welding

As previously reported, Con Ed determined that the safety injection system field weld isometric drawings were incomplete.** Con Ed has continued their mechanical audit program and has completed their surveillance up to the present erection status. In addition, Westinghouse embarked on a similar audit program. Upon completion of their review, a set of as-built isometrics are to be provided to Con Ed. At a later date, Con Ed will compare their system status information to the

*CO Report No. 247/69-10, Paragraph II.B.

**CO Report No. 247/69-10, Paragraph II.C.1.

Westinghouse as-built isometrics. Upon completion of the above activities, verification of the completeness of the system should be evident.

2. SI-136

Pipe section SI-136 was previously rejected during receipt inspections at the site.* The pipe section was returned to the vendor for repair. The pipe section was later returned to the site and Con Ed felt that the pipe was unacceptable for use because of the existence of two surface depressions.* Subsequent ultrasonic measurements revealed that insufficient wall thickness existed and the pipe section was rejected and is to be replaced.

3. Valves

The inspector previously determined that the eight check valves between the safety injection accumulators and the reactor coolant system were constructed of material other than that specified in the Westinghouse specifications.** The inspector also questioned the acceptability of these valves for the intended use and compliance with ASA B.16.5. As a result, Con Ed initiated a field review of all valves within the system to determine conformance with the FSAR and Westinghouse specifications. Con Ed stated that no additional discrepancies have been identified. With respect to the accumulator check valve deficiencies, Mr. Dadson stated that this item is presently being reviewed by Westinghouse and Con Ed Engineering.

C. Reactor Coolant System

1. Field Welding

The 32 reactor coolant system field welds have been formed and have received final acceptance. Branch Radiographics replaced Grinnel, the former radiographic

*CO Report No. 247/69-9, Paragraph II.B.1.

**CO Report No. 247/69-10, Paragraph II.C.3.

firm. The inspector reviewed radiographic films for welds 22-4, 22-5, and 23-6. These films were produced by Branch and were found to be of acceptable quality. These welds had been reviewed by and received approval of Branch, UE&C, and Wedco.

The welding data records for welds 22-4, 22-5, and 23-6 were audited. No deficiencies were identified.

2. Pressure Boundary

The context of Attachment I,* for the IP-2 facility, relating to nondestructive testing requirements for reactor pressure boundary piping was discussed during the November 3, 1969, meeting with Con Ed Engineering. Mr. Grob stated that the interpretation of the reactor coolant pressure boundary was difficult. The inspector provided Con Ed with a typical PWR plant diagram which delineates system boundaries. Con Ed personnel did not fully agree with the inspector's interpretation; but, agreed to give the subject consideration. At this point, Mr. Grob stated that the main difficulty in meeting the presented criteria was associated with the need to radiograph cast metal stainless steel valve discs. He indicated that the Westinghouse valve specification required radiographing of pressure containing parts; however, in the past this has not been construed to include the valve discs. The inspector pointed out that the FSAR** states that for safety injection systems motor operate valves, the pressure containing parts (body, bonnet, and discs) are designed to certain criteria. Mr. Grob's answer was "that's interesting". After additional discussion, Mr. Grob stated that he plans to review the content of Attachment I with DRL with the hopes of gaining further clarification relating to the intended requirements of the presented criteria.

Mr. Grob indicated that Con Ed had initiated a component review of 21 valves that are included in the pressure boundary criteria. Upon inquiry the inspector was

*Dated October 14, 1969. - Transmitted to Con Ed by DRL.

**Page 6.2-25b.

informed that the 21 valves includes the following:

- a. Two pressurizer relief valves
- b. Three pressurizer safety valves
- c. The first two valves, greater than 2" in diameter, in lines from the reactor coolant loops.

The inspector was informed that the review of these valves is to include traceability of physical, chemical, hydrostatic, penetrant, and radiographic testing of the valve bodies, bonnets, and discs.

During the site visit the inspector was told that Westinghouse had agreed to perform radiography of cast discs included in these 21 valves. The inspector indicated that this action was a step in the right direction; however, it did not appear to satisfy the pressure boundary criteria in Attachment I. Con Ed agreed to pursue this matter to a satisfactory conclusion. The inspector indicated that this subject will be reviewed during future visits.

D. Organization

The establishment of Wedco, Inc., as a subsidiary of Westinghouse was previously reported.* Wedco has assumed managerial control of the construction activities and the majority of the UE&C management has departed. The UE&C Quality Control group has remained intact and is serving the same functions as that performed prior to the establishment of Wedco.

Discussion with Messrs. McElwee and Corcoran indicated that construction activities have been slowed down during the organization transition phase to Wedco. They voiced satisfaction relative to construction control by the Wedco organization.

*CO Report No. 247/69-10, Paragraph II.D.

E. Containment

As previously reported, closure of two temporary construction openings to the containment is in progress. The inspector's observations of rebar placement and cadwelding revealed several instances where the desired stagger (1 foot 2 inches) of cadwelds did not exist. A review of Quality Control records indicated that the positions of cadweld placement is being closely plotted and is to receive UE&C Engineering review and approval prior to concrete placement. The inspector plans to audit this subject area during a future visit.

F. Control Rod Drive Systems

Discussions with Con Ed and Wedco revealed that 55 control rod vessel seal welds have been formed and hydrostatically tested at 3110 psig. No unusual problems have been encountered. The inspector visually observed four of these welds and found them to be of high quality.

G. In-Core Instrumentation

About 50% of the in-core instrumentation tubes have been welded to the reactor vessel penetrations. The inspector viewed radiographic film for two of these welds. No significant deficiencies were identified.

H. Preoperational Testing

1. Procedure Preparation Status

The preoperational testing procedures are in the process of being prepared. The tests are classified in the following general classifications.

- a. Phase I - Flushing and Hydrostatic Testing of systems.
- b. Phase II - Systems Mechanical, Electrical, and Instrumentation Functional checkout.
- c. Phase III - Fuel loading, initial criticality, and testing during the approach to full power operation.

Mr. Monti stated that numerous Phase I procedures have been forwarded to Con Ed for review. To date Con Ed's comments for 20 procedures have been returned to Westinghouse for incorporation into final test procedures. The fuel storage system cleanup and testing procedures are the only finalized test procedures that have been published.

The inspector indicated a concern relative to the absence of completed procedures and the projected test schedules. Mr. McCormick shared the inspector's concern and stated that efforts are being expended to accelerate progress in this area. He stated that the Con Ed operational people have been given the responsibility for coordinating this effort; whereas previously this had been assigned to the Engineering Department. In that most of the required contacts are at the IP-2 site, Mr. McCormick feels that some of the previous delay times will thereby be eliminated.

Discussion with Mr. Matheny revealed that he also realizes the need for prompt issuance of the Phase I and Phase II procedures. He stated that the procedure preparation group was recently expanded from 5 to 16 and 5 additional personnel will be added in the near future. With the increased work force he is confident that an increased output of procedures will be evident.

2. Compliance Review Program

The inspector informed Con Ed of Compliance's intent to review procedures and testing results and indicated a need for establishment of a method by which the procedures would be made available. Mr. McCormick stated that the inspector would be kept informed of progress on a weekly basis relative to availability of finalized test procedures.

The inspector inquired as to the possibility of making copies of selected procedures available to Compliance for review under the following terms.

- a. The procedures so borrowed do not consequently become part of the docket.

- b. Future changes in the procedures by the licensee must not be restricted because of the loan.
- c. Compliance review is for the purpose of understanding the scope and depth of the procedure and does not constitute or imply a step-by-step review or approval of the procedure in any way.
- d. The procedures will be returned at the approximate time specified by the licensee.

Mr. McCormick stated that under these terms, copies of the selected procedures would be made available for usage by the Compliance staff.

I. Electrical

During the meeting of November 3, 1969, the previously identified questionable conditions relating to electrical separations* were discussed. Mr. Fisher stated that the inspector's observations that redundant safety control cables are exposed and are not separated with metal barriers from the point where they depart from the common cable trays to their entry into the control room panels, were correct. The inspector indicated that this appears to be contrary to the FSAR,**which specifies separations from the beginning of the cables to the final terminations. Mr. Grob indicated that the subject of separation would be reviewed with DRL in an effort to determine whether the existing conditions fulfill the intended separations criteria. In conclusion, the inspector indicated that the identified questionable conditions would require resolution.

III. Management Interview

A management interview was held with Messrs. Nicholson, McElwee and Corcoran at the conclusion of the visit.

A. Pipe Allegation

The inspector indicated that Con Ed had been responsive to the pipe allegations and stated the final report would be reviewed by Compliance and a position of approval or additional questioning would be forthcoming.

*CO Report No. 247/69-9, Paragraph II.F.3.

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B. Safety Injection System

The status of the mechanical audit programs was reviewed. The inspector indicated satisfactory progress findings relating to this subject.

The inspector pointed out that the existence of safety injection system valves, which contain materials that are not in Compliance with purchase specifications, are presently considered unacceptable for use. Mr. Corcoran indicated that this item is receiving continued evaluation by Con Ed Engineering and Westinghouse.

C. Reactor Coolant System

The inspector indicated satisfactory findings with respect to the 32 reactor coolant system field welds. This included satisfactory findings with respect to the Branch Radiographic work.

D. Reactor Pressure Boundary

The inspector indicated that the work in progress on 21 valves is a step in the right direction; however, expansion of this effort would probably be needed. Mr. Corcoran indicated that Con Ed Engineering will be following this subject to resolution.

E. Organization

The involvement of Wedco and the UE&C Quality Control group was discussed. The inspector reported favorable observation relative to attitudes of personnel and continuance of quality control record keeping.

F. Containment

The existence of non-staggered cadwelds in the closures for the containment was discussed. Mr. Corcoran indicated that the as-built cadweld placement will receive a review by the UE&C design group prior to concrete placement.

G. Preoperational Testing

The inspector related a concern relative to the absence of finalized preoperational procedures. Mr. Nicholson indicated a similar concern, however, he was of the opinion that noticeable

progress would be forthcoming. The inspector indicated that Compliance has a definite desire to complete reviews of individual testing procedures well in advance of testing performance. Mr. Nicholson agreed with this philosophy and indicated that this approach was for the best interest of all concerned.

H. Electrical

The inspector indicated that the general subject of cable separations continues to be a problem. Mr. Corcoran indicated a desire on Con Ed's part to seek agreeable resolution steps to these questions at an early date and that Con Ed plans to have additional discussions on this subject in the near future.