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

Report of Inspection

CO Report No. 247/70-3

Licensee:	Consolidated Edison Company Indian Point No. 2 (IP-2) License No. CPPR-21 Category B
Dates of Inspection:	March 26 and 27, 1970
Dates of Previous Inspection:	January 22 and February 6 and 11, 1970

Inspected by: G. L. Madsen — 4/14/70
G. L. Madsen, Reactor Inspector — Date

Reviewed by: N. C. Moseley — 4/15/70
N. C. Moseley, Senior Reactor Inspector — Date

Proprietary Information: None

SCOPE

An announced inspection was made at the Indian Point No. 2 (IP-2) construction site on March 26 and 27, 1970. Major items reviewed included preoperation testing, electrical installation, and followup on progress relating to previously identified questions.

SUMMARY

Forty-one flushing and hydrostatic procedures have been prepared and approved. To date, no additional preoperational procedures have been finalized. Flushing of several systems is in progress and hydrostatic testing of the reactor coolant system is scheduled for April 27, 1970. (Section II.A)

Placement of electrical cables within containment is about 25 percent complete. Con Ed has audited the routing of 50 percent of these cables, and have detected no deviations. Wedco has not started their sample audit of the cable routing installation. (Section II.B)

Closure of the three construction access openings to the containment is in progress. Attainment of cadweld staggering has been a problem. The overall cadweld splicing conditions for these openings are to be reviewed by UE&C design engineering prior to placement of concrete. (Section II.C)

Con Ed is presently awaiting notification from Westinghouse with relation to plant compliance to the context of Table A for the reactor coolant boundary. (Section II.D)

Westinghouse agrees that eight CF8 valves in the safety injection system do not conform to the Westinghouse specification. An attempt is being made to justify the acceptability of these valves as presently installed. (Section II.E)

Wedco has made a survey of all Section III vessels and have determined that thirteen vessels have not been stamped with an N as required for Section III Class C vessels. The design drawings for these vessels are in conflict with the FSAR. (Section II.F.1)

The Branch Laboratories NDT procedures have been evaluated by Westinghouse, Wedco and Con Ed and the defined techniques were found to be acceptable. (Section II.F.3.a)

The maintenance record system for components in storage or installed has been revised to include maintenance requirements and service records attached to the component. This revision results from an identified record discrepancy in relation to the residual heat removal pumps. (Section II.F.3.b)

Wedco has engaged Consolidated Testing Laboratories to review all piping systems with respect to traceability of records and acceptability of external surface conditions. (Section II.F.3.c)

The PT of a weld overlay for a reactor coolant nozzle safe-end was witnessed by the inspector and the condition observed was considered acceptable. (Section II.G)

Insulation was being applied to the main steam and feedwater piping within containment. The licensee was asked if this would create problems during the hydrostatic test in that all joints are to be inspected. (Section II.H)

DETAILS

I. Persons Contacted

A. Con Ed

Mr. F. McElwee, Resident Construction Manager
Mr. A. Corcoran, Construction Project Superintendent
Mr. E. Dadson, Quality Assurance Supervisor

Mr. W. Monti, Production Engineer
Mr. B. Cosgrove, Mechanical Engineer
Mr. R. Schaster, Quality Control Inspector

B. Wedco

Mr. M. Snow, Reliability Manager
Mr. W. Roberts, Equipment Quality Inspector

C. UE&C

Mr. P. St. Pierro, Electrical Inspector
Mr. R. DiLorenzo, Electrical Inspector

II. Results of Inspection

A. Preoperational Testing

1. Status of Testing Procedure Preparation

Forty-one Phase I, flushing and hydrostatic testing procedures, have been made available for review. These test procedures have been approved for use by the Joint Test Group and represent about 60 percent of the Phase I testing. The preparation of Phase I procedures is scheduled to be completed by May 1, 1970.

To date, no Phase II or III procedures have been finalized. The site Wedco startup organization has recognized the need for additional assistance and has requested help from Westinghouse at Penn Center. A projected schedule for completion of procedure preparation was not made available to the inspector.

2. General Hydrostatic Testing Procedure

The general hydrostatic test procedure was previously reviewed and was found to be basically acceptable;* however, items were presented for consideration by the licensee. Resolution of these items follows:

a. The definition of pressure boundaries was not all inclusive. Mr. Monti stated that this was only intended to be a general definition of test boundaries and specifics would be included in the individual system procedures. The inspector's later review of system procedures verified this to be the case.

*CO Report No. 247/70-2, paragraph II.B.2.d

b. Three conditions were noted where the hydrostatic test pressure was less than 150 percent of design pressures. The licensee stated that these lines were extensions of vessels and the test pressure was limited by the component with the lowest allowable test pressure as permitted by USAS B 31.1. On this basis the inspector considers this item resolved.

c. City water was specified as test medium for several tanks. Mr. Monti agreed that the tanks had been tested using city water; however, the tanks were subsequently cleaned. This item is considered resolved.

3. System Flushing

Seventy percent of the system flush procedures have been approved for use and have been reviewed,to varying depths, by the inspector. The review included coverage of the primary water, chemical volume control, waste disposal, nuclear equipment vents and drains, instrumentation, service water, safety injection, and the reactor coolant systems. These procedures were found to be detailed, consistent, and provided the necessities for an acceptable flushing program.

Flushing of the primary water, chemical volume control and safety injection systems is nearly complete. Cleaning of the reactor coolant system is scheduled to begin during the week starting April 6, 1970. Flushing of the main steam,boiler feedwater, and turbine building piping is about 50 percent complete.

4. System Hydrostatic Testing

The component cooling, chemical volume control, safety injection, containment spray, and refueling water storage hydrostatic test procedures have been finalized and reviewed by the inspector. These procedures were found to contain sufficient detail, give total system coverage and are consistent with the general hydrostatic test and water chemistry requirements. The procedures are considered acceptable except for the following questions:

a. Drawings indicate that one section of the safety injection pipe is designed to a nominal 600 psig;whereas,this pipe is scheduled for a 2250 psig hydrostatic test.

b. The containment spray pump discharge line is scheduled to be hydrostatic tested at 325 psig; whereas, 150 percent of design pressure appears to be 450 psig.

The previously reported* questions were resolved in the following manner:

*CO Report No. 246/70-2, paragraph II.B.2.f

a. The component surge tank will be subjected to 150 psig pressure rather that 225 psig.

b. The attainment of hydrostatic pressure for a portion of the chemical volume control system is dependent on leakage through check valves. Further investigation revealed that the discs of these check valves have holes drilled in them. In addition, the test procedure calls for verification of increased pressure during the initial steps of pressurization.

A draft copy of the reactor coolant system hydrostatic test procedure was made available to the inspector. Preliminary evaluation of this procedure revealed a minimum of discrepancies and indicates a sound approach to testing of the system. The final procedure is to be available in about one week and will be reviewed by the inspector. Hydrostatic testing of the reactor coolant system is scheduled for April 27, 1970.

B. Electrical

Placement of electrical cables within containment is 25 percent complete. Con Ed has physically traced 50 percent of these cables to determine conformance to the cable installation schedule. Con Ed stated that no deviations were detected. The inspector was informed that Wedco has not performed a sample audit of the electrical cable placement as previously described.*

The inspector inquired as to the status of the Con Ed and Westinghouse electrical design reviews of the UE&C cable installation schedules. The Con Ed site construction personnel indicated that this item was being handled through the Con Ed engineering department. The inspector plans to pursue this matter in the near future.

A review of the UE&C quality control group involvement in the electrical field revealed that the status of installation, checkout, and calibration of pumps, valves and instruments is being monitored. The information collected by the UE&C inspectors is plotted on electrical drawings and should provide an understandable display relative to the status of completion of a system.

C. Containment

Closure of the three construction access openings and installation of the personnel access hatch is in progress. The containment liner and reinforcement steel has been installed for two of the openings and the liner installation is in progress for the third opening. A number of cadwelds have been installed without staggering with relation to adjacent splices. The inspector was informed

*CO Report No. 247/70-1 paragraph II.G

that an actual as built diagram of the rebar and cadweld splicing is being prepared for each opening and is to be evaluated by the UE&C design engineers prior to placement of concrete.

D. Reactor Pressure Boundary

Con Ed is presently awaiting notification from Westinghouse with relation to certification of compliance to codes and/or Table A for the reactor pressure boundary. The receipt of this information is anticipated for early in April 1970. At this point, Westinghouse has indicated that NDT will be performed for conformance to Table A in all cases where mill test reports are not presently available. Con Ed indicated that in cases where testing information was not included in documentation that these conditions will receive an engineering evaluation relative to acceptability and need for additional NDT. Upon completion of this activity, Con Ed will address themselves to the context of Table A as described previously.*

E. Valves

Con Ed presented the inspector with a letter from Westinghouse which relates to the existence of eight check valves which have questionable acceptability for the intended use.** The letter confirms that the valves were manufactured to A 351 Type CF8 material which does not conform to the Westinghouse purchase specification. The letter also includes calculation in an attempt to justify the acceptability for usage of the valves as presently installed and proposes final acceptability dependent on wall thickness measurements on at least one of the eight valves. The inspector indicated that he would await Con Ed's final evaluation on this subject before taking a position; however, it appeared that the letter contains some questionable calculations and basic assumptions.

F. In Depth Quality Control Followup***(Reference paragraph in parenthesis)

1. ASME Section III Class C Tanks (A.4 and A.5)

Con Ed presented the inspector with a letter from Wedco which indicated that a survey of all Section III vessels was performed. Thirteen vessels were noted which have not been stamped with the letter N as required for ASME Section III Class C vessels. The letter indicated that the design drawing requirements for these vessels are in conflict with the FSAR. Con Ed agrees that each of these will require resolution by means of an engineering evaluation and/or revision to the FSAR.

*CO Report No. 247/70-2 paragraph II.C.2
**CO Report No. 247/70-2, paragraph II.F.4
***CO Report No. 247/70-1, Appendix A

2. Reactor Coolant System (B.1)

Some confusion exists relative to qualification of welding procedures for the reactor coolant system. Con Ed has requested Wedco to prepare and present a listing of all field welds in the reactor coolant system which will display the needed information relative to procedure used for each weld, qualfication of procedures, qualification of welders, materials employed, and NDT acceptance. This information will be reviewed by the inspector at a later date.

3. Safety Injection System

a. Branch Laboratory Procedures (C.5)

Westinghouse, Wedco, and Con Ed have evaluated the Branch NDT procedures and agree that the procedures define techniques which would provide results which would be acceptable to the code. The inspector reviewed selected sections of the procedures. No deficiencies were identified; hence, this item is considered to be resolved.

b. Residual Heat Removal Pumps (C.6)

During the in depth inspection it was noted that the residual pump internals were missing; however, the Wedco maintenance records indicated that lubrication and rotation of the pumps was performed. Wedco admits to this error and have revised their maintenance record system. Presently each item in storage or installed, which required periodic maintenance, will have the maintenance requirements and service record attached to the component. This revision will permit easy spot audits. The actions taken by Wedco are considered acceptable and this item is considered resloved.

c. External Surface Conditions (C.7)

Inspection of the external surfaces of the safety injection system revealed conditions that indicated a weakness in the first line quality control. As a result, Wedco has engaged Consolidated Testing Laboratories to review all systems. The review is to include the following:

(1) Comparison of isometric drawing to as built conditions.

(2) Performance of a traceability review of documentation for all field welds.

(3) A surface inspection of all systems to identify conditions requiring repair. (Weld spatter, arc strikes, overgrind, etc)

Upon completion of this review the prescribed corrective actions are to be performed. A final inspection will then be performed and is to include members of the Con Ed construction staff.

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

4. Electrical

a. Quality Assurance (D.1, 2, and 3)

Covered in Item II.B in this report.

b. Cable Splice (D.7)

The previously identified unspecified cable splice has been corrected by the replacement of the cable in question.

G. Reactor Vessel

The inspector witnessed the PT of the external weld overlay of one reactor coolant nozzle safe-end. The flat surface was found to be in the all-white category; whereas, some random indications were noted on the weld contour surfaces. The conditions observed are considered to be acceptable to the requirement for a Section III vessel; however, additional surface preparation and testing of the contour surfaces is scheduled.

H. Insulation

During a tour of the vapor containment building, it was noted that insulation was being applied to the main steam and feedwater piping. The inspector asked Con Ed if this would create a problem during hydrostatic testing of the systems in that all joints are to be inspected. The inspector was informed that this item would be given consideration.

III. Management Interview

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

A. Preoperational Testing

The status of the inspector's review of procedures was discussed. The inspector stated that the procedures have been generally acceptable and indicated a desire to be present for the reactor coolant system hydrostatic test. The inspector related a continued concern relative to the lateness of procedure preparation versus the August 1970 core loading schedule. Mr. Corcoran indicated a

similar concern and was very vocal in assuring the inspector that a first class testing would be completed. The inspector indicated confidence in their intent but indicated that Compliance was considering contacting Con Ed Corporate Management on this subject. Mr. Corcoran indicated that he had no problems with this.

B. Electrical

The inspector indicated satisfaction with Con Ed's surveillance of cable placement within containment and indicated that the subject of electrical design review would be covered with Con Ed engineering. The Wedco sample audit of cable placement was discussed. The inspector indicated that the proposed program seemed minimal and the initiation of the program was lagging. The inspector was informed that Wedco was scheduled to start their audit during the coming week.

C. Containment

The existence of non-staggered cadweld splices at the containment construction accesses was reviewed. Mr. Corcoran stated that a design review of the as-built status of cadweld splices would be conducted prior to concrete placements.

D. Pressure Boundary

Mr. Corcoran indicated a desire to close out the Table A question at an early date in that system hydrostatic testing was approaching.

E. Valves

The need for resolution of the presence of eight CF8 valves in the safety injection system was discussed. The inspector indicated some satisfaction in that action on this item seems to be underway; however, the Westinghouse justification letters appear to contain some questionable assumptions. Mr. Dadson stated that this item will receive a final evaluation by Con Ed engineering.

F. Section III Class C Vessels

The inspector indicated that the Wedco survey of all Section III vessels was a good first step towards resolution of an old question. The licensee indicated a similar feeling but are satisfied with the progress of Wedco on this subject. The inspector agreed that this progress on this item casts a good reflection on Wedco.

G. Maintenance Records

Wedco's admission to an error in their maintenance recordkeeping and subsequent corrective actions were reviewed. The inspector indicated that the actions taken seem appropriate and responsive and therefore the subject is considered resolved.

H. Piping

Wedco's proposed program for auditing all piping systems for traceability of records and external conditions was discussed. The inspector indicated that the program was responsive to previously identified conditions. Con Ed indicated that they would be involved in the final inspection of the system. The inspector indicated a desire to know when cleanup of systems was completed and thereby have an opportunity to observe the condition of the systems prior to installing of the insulation.

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