U. S. ATOMIC ENERGY COMMISSION
DIVISION OF COMPLIANCE

REGION I

INSPECTION REPORT

CO Report No.: 71-010

Subject: Consolidated Edison Co.
Indian Point No. 2

Docket No.: 050-0247

License No.: CPPR-21

Location: Buchanan, New York

Priority:

Category: B

Dates of Inspection: June 8, 24 and 25, 1971
and July 12, 1971

Dates of Previous Inspection: May 4, 5, 14, 26
and 27, 1971

Type of Licensee: PWR - 873 Mwe (Westinghouse)

Type of Inspection: Routine, Announced

Principal Inspector: G. L. Madsen — 8/6/71
G. L. Madsen — Date

Accompanying Inspector: None

Other Accompanying Personnel: None

Reviewed By: G. L. Madsen/for — 8/6/71
N. C. Moseley — Date

Proprietary Information: None

SECTION I

Enforcement Action

None

Licensee Action on Previously Identified Enforcement Action

None

Unresolved Items

A. A review of Con Ed's comparison of the existing power ascension program to the AEC Guide for Planning Initial Startup Programs revealed apparent deficiencies. (Paragraph 9)

B. UT examination of the steam generators revealed separation of the tube sheet cladding. (Paragraph 13)

Status of Previously Reported Unresolved Items

A. Preparation of the initially proposed phase II preoperational test procedures has been completed; however, procedures for four additional tests are being prepared. (Paragraph 8a.)

B. The acceptability evaluation for the operating time variances with FSAR requirements for the boron injection tank valves was presented. (Paragraph 8d.)

C. Performance of preoperational test procedure 4.3.2 indicated unequal flows to the reactor coolant loops from the RHR system. Subsequent review indicates a need for rerunning this test. (Paragraph 8d.)

D. Con Ed stated that a plant security fence will be installed along the river front. (Paragraph 10)

E. The Contingency Plans (Earthquake, Fire, Tornado and Radiation) have not been implemented. Rosters are being updated and notification drills are planned. A revised Wedco radiation emergency plan is being prepared. (Paragraph 11)

F. Previous inspections of the radioactive waste systems revealed five apparent deficiencies. Resolution status on these items was provided. (Paragraph 12)

Unusual Occurrences

A. Visual inspection of the steam generator tube ends revealed the presence of a piece of metal lodged in the end of a tube. (Paragraph 13b.)

F. Radioactive Waste Systems - Mr. Makepeace restated Con Ed's intended resolutions to previously identified apparent deficiencies in the liquid waste and gaseous monitoring systems. (Paragraph 12)

G. Steam Generators - Mr. Corcoran stated that Westinghouse is scheduled to present Con Ed an evaluation of the steam generator cladding problem by mid-July, 1971.

Mr. Makepeace indicated that additional precautionary steps will be taken to provide assurance that additional objects are not present in the steam generator tubes. (Paragraph 13)

SECTION II

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

1. Organization - Con Ed

   a. The principal responsibility for Con Ed's participation in the IP-2 test and startup programs was transferred to Mr. Makepeace, the IP-2 Startup Manager, effective June 7, 1971.

   b. Mr. Corcoran, Construction Project Superintendent retains on site responsibilities relating to construction quality control and contract administrations.

   c. Effective July 6, 1971 A. Kohler replaced A. Corcoran as Construction Project Superintendent.

2. Electrical

   a. Installation of electrical fire stops and separation barriers.

   b. Protective barrier installation for safeguards control panels SB-1 and SB-2.

3. Turbine-Generator

   a. Second turbine overspeed protection device.

4. Indian Point No. 1 Stack

   a. Records relating to the IP-1 stack reinforcement activities.

5. Reactor Coolant Pumps

   a. Outer seal replacement on reactor coolant pump No. 21.

   b. Pump internals, shaft, and seal assembly replacement on pump No. 24.

6. Construction Items - To be Completed

   a. Strong motion seismograph

   b. Fuel failure detector

   c. Final inspection of the upper internals for the reactor vessel

   d. Pipe insulation

   e. Repair of containment spray pump No. 21

7. Fuel Storage Building

a. Discussions and observations of the physical layout of the fuel storage building.

(1) A permanent pipe in the spent fuel pit is scheduled to be cut and capped.

(2) The crane mechanical stops have not been installed.

Details of Subjects Discussed in Section I

8. Preoperational Testing

a. Procedure Preparation

Preparation of the initially proposed Phase II preoperational test procedures is complete. Additional procedures are being prepared for the following:

(1) Boron line heat tracing

(2) Filter testing

(3) Containment supply, exhaust, and purge valve closure time and fail safe testing

(4) Reactor coolant leak detection instrumentation testing

b. Review of Test Procedures

The following system functional test procedures were reviewed:

(1) Rod Drive Mechanism Testing

(2) Steam Generator and Feedwater Controls

(3) Hydrogen Recombiner

(4) Voice Communications

These procedures have been approved for use by Con Ed and Wedco and no deficiencies were identified. Compliance's review of the initially proposed procedures has been completed, however, follow-up on the four additional items presented in 8a. above will receive review when available.

c. Status of Test Performance

The status of the Phase II system functional testing, scheduled for completion prior to core loading, is as follows:

(1)	Tests to be performed	66
(2)	Tests completed	55 (83%)
(3)	Tests in progress	11 (17%)
(4)	Test results reviewed by Wedco	32 (49%)
(5)	Test results reviewed by Con Ed	9 (14%)

The inspector pointed out that the CO test results review, previously performed, was for the purpose of evaluating the general Wedco and Con Ed review system and that a more detailed CO evaluation would be performed when a larger portion of the Con Ed review has been completed. Mr. Monti agreed to notify the inspector when they have completed about 75 percent of their review. The inspector indicated that the evaluation of the test data, for these 66 tests, must be completed by Wedco, Con Ed and compliance and that significant deficiencies must be corrected prior to core loading.

d. Major Problems

As previously reported*, the operating times for some safety injection valves exceeded the FSAR limitation** of 10 seconds during the performance of preoperational test number 4.26.3. Westinghouse and Con Ed have made evaluations of these conditions and have concluded acceptance on the following basis:

(1) Boron injection tank valves 1822A and B are signaled to open during the safety injection sequence. The maximum observed operating time for these valves was 11.3 seconds. The parties contend that the valves would be at 95 percent open in 11 seconds and at this time would pass essentially full flow. Additionally, Chapter 14.2.5-3 of the FSAR shows the reactor coolant pressure transients for various accidents and a minimum of 27 seconds elapses before the reactor coolant pressure falls to 1500 psi. Therefore the valves in question are fully open well before the safety injection pumps would begin delivering flow to the reactor vessel.

*CO Report No. 247/71-8, Section II. A. 4.b.
**Page 6.2-27

(2) Boron injection tank (BIT) valves 1821 and 1831 are required to close upon receiving a "very low" level signal from the BIT level transmitters. These valves had a maximum measured closing time of 11.8 seconds. Westinghouse calculations assumed a 20 second closing time and three safety injection pumps operating. Under these conditions 600 gallons is required in the boron injection tank below the "very low" level setpoints and 600 to 650 gallons is actually available below the 10 ± 1% "very low" setpoint.

The inspector indicated that the inconsistency between the actual and stated operating time in the FSAR would need to be clarified.

During the performance of preoperational test number 4.3.2, unequal flows to the four reactor coolant loops from the RHR system was indicated. Reviews of the data revealed that the total flow instrumentation was incorrectly calibrated. The test is scheduled to be rerun.

9. Power Ascension Program

a. Twenty four of 29 proposed power ascension program test procedures have been approved for use by Wedco and Con Ed. The remaining five procedures are in the final review process by Con Ed.

b. Con Ed has completed an evaluation of the context of the proposed power ascension program versus the AEC Guide for Planning Initial Startup Programs, dated December 7, 1970. A review of Con Ed's findings and Compliance's evaluation of existing procedures revealed the following apparent deficiencies:

(1) The pressure reactivity coefficient is not measured. Con Ed stated that past experience has demonstrated that accurate measurement of the pressure coefficient is difficult because of the small contribution of this parameter.

(2) The AEC Guide specifies performance of a loss of flow test at 50 and 100% power. The proposed program calls for testing at zero power. Con Ed stated that additional loss of flow testing is not planned and that this position was based on potential jeopardy of important plant equipment. Mr. Makepeace indicated that the proposed tests fulfill the FSAR requirements.*

(3) The AEC Guide specifies generator trip testing at 50 and 100 percent power; whereas, the proposed program does not specify generator trip testing at power. Mr. Makepeace stated that a series of generator trip tests will be performed between zero and 100 percent power. He stated that procedure preparation for this item is nearing completion.

*Table 13.3-1

(4) Testing of the shutdown capabilities from outside the control room is not included in the existing procedures. Mr. Makepeace stated that this item will be covered during the checkout of individual emergency operating procedures. Con Ed visualizes this test being performed at a power level of about 10 percent rather than at 100 percent power as presented in the AEC guide.

(5) A loss of off site power tests at a reactor level is not planned. This item was previously evaluated by CO.

(6) The AEC Guide specifies vibrational measurements for reactor internals at 25, 50, 75 and 100 percent power. Mr. Makepeace stated that reactor internals vibration measurements were performed during hot functional testing and additional measurements will be taken during control rod testing at zero power, and that additional power ascension testing is not planned. Mr. Makepeace also indicated that the proposed testing fulfills the requirements as specified in the FSAR.*

c. Mr. Makepeace stated that the administrative procedure has been written and will be available for review at an early date.

The inspector pointed out that resolution of the above apparent deficiencies in the proposed procedure context, and preparation of all power ascension procedures, including the administrative procedure, are normally required to exist prior to issuance of an operating license. Mr. Makepeace stated that Con Ed's position is that the initially proposed test program, plus the increased coverage included in item 10b. above, provides adequate power ascension test coverage. The inspector indicated that this item would receive additional evaluation by Compliance.

10. Plant Security

a. The status of identified plant security items requiring completion are as follows:

(1) The restricted area fence has not been completed. The initial plan did not include fencing along the river front; however, Mr. Leo stated that this subject was given additional consideration and a fence will be erected.

(2) The passageways to the controlled access areas (containment, fuel storage, primary auxiliary and emergency diesel buildings) have not been completed. Estimated date of completion is September 1, 1971.

*Q. 13.2

(3) Door and associated alarm systems have not been completed.

The inspector stated that completion of these items will be required prior to licensing as a requirement for plant completion as specified in the FSAR.

11. Contingency Plans (Earthquake, Fire, Tornado, and Radiation)

a. The status of identified contingency plan items requiring additional consideration is as follows:

(1) The plans have not been placed in effect. Present plans call for final implementation at time of licensing IP-2.

(2) The notification rosters are being updated.

(3) Performance of a notification drill for persons and organizations included on the radiation contingency roster is planned.

(4) A revised Wedco radiation emergency plan is being prepared and will be made available for review.

The inspector indicated that followup inspections, relating to the implementation of the contingency plans, will be conducted.

12. Radioactive Waste Systems

a. Previous inspections of the radioactive waste systems revealed certain apparent deficiencies in the systems when compared to published standards and identified deficiencies in similar equipment installed in operating plants.* The following summarizes the status of resolution for these items as presented by Mr. Makepeace:

(1) An additional vent stack monitor is to be installed to provide continuous monitoring for halogens and particulates.

(2) Steps will be taken to assure that vent stack monitoring probe locations provide coverage equivalent to the ANSI N13.1-1969 criteria.

(3) Charcoal filters are to be installed in the purge exhaust ducts for the removal of Iodine-131.

(4) Steps have been initiated to provide assurance that the installed liquid waste disposal system will meet design requirements. The installation of a liquid polishing unit is being considered as a backup for the installed waste disposal evaporator package.

*CO Report No. 247/71-5

(5) A review of all liquid sampling probe locations is in progress to determine degree of adherence to the criteria included in ASTM D510-68, Section 11g.

13. Steam Generators

a. Westinghouse Steam Generator Division personnel performed UT inspections of the tube sheet cladding in the four IP-2 steam generators. This UT inspection revealed that the Inconel cladding for the tube sheet had separated from the base material in the area adjacent to the divider plate in each of the four steam generators. Preliminary UT data indicates that the cladding separation extends to the first row of tubes on either side of the divider plate. Westinghouse is scheduled to provide Con Ed, by mid-July, 1971, an evaluation of this cladding problem and proposed corrective actions.

b. Visual inspection of the steam generator tube ends revealed a piece of metal lodged in one tube. The object appeared to be a machine turning and was reported to be stainless steel. Mr. Dadson informed the inspector that an evaluation of this subject has been initiated; however, additional actions for ascertaining that additional material are not present in the tubes has not been formulated.