

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

Report of Inspection

CO Report No. 247/70-12

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

Date of Inspection: December 2, 1970

Dates of Previous Inspections: November 4, 5, 24, 25, 1970

Inspected By: G. L. Madsen 12/21/70
G. L. Madsen, Reactor Inspector Date

Reviewed By: N. C. Moseley 12/21/70
N. C. Moseley, Senior Reactor Inspector Date

Proprietary Information: None

DETAILS

I. SCOPE

A meeting was held with representatives of Con Ed, Wedco and Westinghouse at the IP-2 construction site on December 2, 1970. The purpose of the meeting was to provide Compliance an opportunity to present views relating to a sample review of the IP-2 preoperational procedures and proposed guidance for preoperational testing programs. Messrs. J. P. O'Reilly, Chief, Reactor Inspection and Enforcement Branch and F. J. Nolan, Senior Reactor Inspection Specialist represented CO:HQ and Messrs. N. C. Moseley, Senior Reactor Inspector, and G. L. Madsen, Reactor Inspector, represented CO:I at the meeting. Persons representing the other organization are as follows:

A. Consolidated Edison Company

- J. A. Prestele, Manager, Nuclear Power Generation Dept.
- A. W. Flynn, Mechanical Plant Engineer
- J. A. Corcoran, Construction Project Superintendent
- A. D. Kohler, Staff Nuclear Engineer
- J. M. Makepeace, Reactor Engineer
- W. A. Mont, Asst. Production Superintendent
- A. J. Nesterok, Associate Engineer

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B. Westinghouse

O. M. Hauge, Manager, Project Engineering
R. J. Nath, Lead Engineer, Nuclear Operations
R. H. Faas, Fluid Systems Engineer
G. Werber, Driveline and Instrumentation Engineer
W. J. Kearns, Operation Engineer, Startup Services

C. Wedco

R. A. Matheny, Manager, Startup Operations

II. Results of Meeting

Mr. Moseley opened the meeting with a statement that the purpose of the meeting was to provide Compliance an opportunity to present views relating to a sample review of IP-2 preoperational procedures and proposed guidelines for preoperational testing programs with the intent that all parties would gain a better understanding relative to the context of acceptable preoperational test programs today and for the future.

Mr. O'Reilly presided over the meeting. The items discussed are summarized below:

A. Proposed Guide for Planning of Preoperational Testing Programs

The context of the proposed guide for preoperational testing was presented by Mr. O'Reilly. Items discussed included contents of the FSAR, review by DRL, and involvement of Compliance.

B. Indian Point No. 2 Preoperational Program

1. General

Mr. O'Reilly pointed out that a sample of IP-2 preoperational procedures were reviewed by Compliance and resulting comments included the following:

- a. Many of the procedures were in draft form only and had not received approvals by Con Ed.
- b. Some procedures have not been prepared even though actual testing is near at hand.
- c. Acceptance values are frequently not specified.
- d. Initial conditions and prerequisites are not specific.
- e. Data sheets to be employed are not included.

2. Control Rod Drop Test (SU 4.10.2)

Mr. O'Reilly indicated that the proposed rod drop testing program is considered inadequate when compared to CO acceptance criteria. The minimum acceptable testing for IP-2 was presented as testing all rods in the cold-no-flow, cold-flow, hot-no-flow, and hot-flow conditions; plus, 10 additional drop tests of the slowest and fastest rod. Mr. O'Reilly stated that this amount of testing is less than the present CO guidance. This test coverage is based on past experiences and the need for obtaining an acceptable degree of confidence. Westinghouse representatives indicated that their proposed test program was based on the following considerations:

- a. All rods are drop tested in the cold-no-flow condition in that it is the first withdrawal and scrambling of each rod.
- b. Ten rods are drop tested in the cold-flow and hot-no-flow conditions for determination of variations due to a parameter change.
- c. All rods are drop tested at hot-flow as a demonstration of the actual and important dropping.

Westinghouse further pointed out that their past experience is that rods have stuck during withdrawal and not during dropping and that they are of the opinion that little additional confidence would be gained by the proposed CO drop testing coverage.

Mr. O'Reilly indicated that there apparently is a difference of opinion relating to level of confidence and perhaps Westinghouse could provide other acceptable alternates and justifications; however, at this time it is a CO position that the rod drop testing for IP-2 must be expanded to the minimum levels as indicated above.

3. Part Length Rod Mechanism Brake Test (SU 4.10.4)

General deficiencies identified were lack of acceptance values and drive speed not measured. Mr. Matheny stated that the objective of the procedure was to check out the brake mechanism only, which is verification of the fail safe condition. This item is to receive additional consideration by CO.

4. Dynamic Rod Testing (SU 9.6)

This procedure is generally considered to be adequate.

5. Hot Functional Testing

Mr. O'Reilly indicated that the Hot Functional Test Procedure review raised the following concerns:

- a. The procedure appears to be a program outline only.
- b. The document contains many general statements where specifics should be identified.
- c. Con Ed's involvement in the program is not apparent. The procedure does not include provisions or definition for involvement of operators, checkout of operating procedures, or checkout of Technical Specification requirements.
- d. Functional testing of the safety injection system with the reactor coolant system in the hot-pressurized condition is not included. Mr. Matheny indicated that the system test procedure for the safety injection accumulators has been modified to include blowdown to the hot-pressurized vessel and a comparable test for the safety injection pumps is being considered.

6. Safety Injection System - Hydraulics (SU 4.5.1)

Mr. O'Reilly indicated that this procedure was found to be generally detailed; however, some acceptance values are missing and the concerns relating to checkout of the safety injection system, as discussed under Hot Functional Testing, applies.

7. Safety Injection Check Valve Leakage (SU 4.5.2)

Mr. O'Reilly stated that testing is not conducted at a ΔP of 100 psi as required by the FSAR. Mr. Matheny stated that they were aware of this point and the procedure will be altered.

8. Containment Leak Rate Test

Mr. O'Reilly stated that this procedure was not reviewed, however, past experience warrants mentioning the following performance deficiencies which have been encountered:

- a. Data collected was marginal for calculation of leak rates.
- b. Instrumentation in service and accuracy of measurements was questioned.
- c. Pressures were not held long enough to establish equilibrium conditions.
- d. Modes of testing were changed without justification for a change.

Mr. O'Reilly indicated that CO:HQ wishes to review this procedure in its final form.

9. Loss of AC Power

Mr. O'Reilly stated that because of past occurrences of loss of off-site power and failure of diesels to start that CO is taking the position that a loss of AC power test with the reactor a power (about 25 percent) should be performed. Westinghouse personnel indicated that this item would be given further consideration.

10. Initial Fuel Loading

Mr. O'Reilly stated that the fuel loading procedures reviewed did not include core loading details such as loading patterns, sequences, etc. Mr. Matheny indicated that an additional procedure covering these items is presently available.

II. Startup Physics Testing

Mr. O'Reilly indicated that the startup procedures reviewed were generally satisfactory; however, improvement in the following areas should be considered for implementation:

- a. More details should be included relative to status of plant, position of rods, position of bypasses, control of jumpers, and control specification on dilution rates.
- b. Predicted results and acceptance values should be readily available.
- c. Standard data sheets should be used and made available for review in conjunction with the written procedures.

Westinghouse personnel displayed a tabulation of predicted and acceptance values and indicated that they are giving consideration to methods of incorporation of this information.

C. Observations Relating to Other Plant Startups

Mr. O'Reilly presented the following previous observation questions for consideration:

1. Are the lifting devices such as the polar and fuel storage cranes dead weight tested?
2. Why not have boron present in the reactor coolant system during hot functional testing?
3. Is an emergency boron system delta boron test performed prior to loading?
4. Is a checkout of the communication and evacuation system completed prior to fuel loading?
5. Is the hydrogen removal system for the containment tested?
6. Are the charcoal filters tested?
7. Is the safety injection pumping checked out using emergency power?
8. Is the radwaste systems functional checked and are operating procedures fully implemented?
9. Has the adequacy of the stack monitor calibration been evaluated?

D. Summary

Upon inquiry, Mr. O'Reilly made the following summary of primary consideration items as it relates to IP-2:

1. Needed revisions to the rod drop test (SU 4.10.2).
2. Consideration relating to checking out the safety injection system with the reactor coolant system in the hot-pressurized condition. (SU 4.5.1)
3. Consideration of performing a total loss of AC power test at some reactor operating level.
4. Revisions of the hot functional program to incorporate involvement of Con Ed operator training, operating procedure checkout, technical specification surveillance checking, operation of equipment, including valves which have not been previously operated at temperature.
5. Upgrading existing procedures in the areas of initial conditions, prerequisites, and data sheets.

Mr. Prestele indicated that the items presented in the meeting would be given consideration by all parties and responses would be provided by Con Ed.