

U. S. Atomic Energy Commission
Region I
Division of Compliance

Report of Inspection

CO Report No. 247/71-4

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

Dates of Inspections: February 5, 10 and 11, 1971

Dates of Previous Inspections: January 20 and 21, 1971

Inspected By: B. H. Sanderson for 3/10/71
G. L. Madsen (Principal Reactor Inspector) Date

Reviewed By: M. C. Moseley 3/11/71
N. C. Moseley, Senior Reactor Inspector Date

Proprietary Information: None

SCOPE

The resolution status of previously identified deficiencies in the preoperational test program was discussed by Mr. J. P. O'Reilly, Chief, Reactor Testing and Operations Branch, CO:HQ with corporate management on February 5, 1971.

An announced inspection was made to the IP-2 construction site by Messrs. F. Nolan CO:HQ, M. Hildreth CO:HQ, and G. Madsen CO:I on February 10, 1971. Additionally, a meeting was held with representatives of Con Ed, Westinghouse and Wedco at the Con Ed Engineering Offices in New York, N. Y. on February 11, 1971. Messrs. F. Nolan CO:HQ, M. Hildreth CO:HQ, and G. Madsen CO:I represented Compliance at this meeting. Topics included in the site inspection were the preoperational testing, power ascension program, and operating procedures. Apparent deficiencies in these areas were discussed in the February 11, 1971 meeting.

8111110977 710318
PDR ADDCK 05000247
Q PDR

DETAILS

I. Persons Contacted

Consolidated Edison Company

W. Cahill, Vice President, Engineering
R. Freyberg, Assistant Vice President, Nuclear Power Generation
J. Grob, Chief, Mechanical Engineer
A. Flynn, Mechanical Plant Engineer
J. Prestele, Manager, Nuclear Power Generation
J. Makepeace, Startup Manager, IP-2
A. Kohler, Construction Staff Nuclear Engineer
G. Waselinko, Assistant Division Engineer
H. Kerns, Mechanical Engineer
M. Imai, Nuclear Engineer
H. Luck, Mechanical Engineer
S. Cantone, Superintendent, Performance

Westinghouse

O. Hauge, Manager, Project Engineering
H. Skow, Electrical Power Systems
R. Faas, Fluid System Engineer
G. Werber, Driveline and Instrumentation Engineer
R. Wiseman, Manager, Licensing

Wedco

E. Powell, Vice President, Engineering
R. Harper, Manager, Field Engineering
R. Matheny, Manager, Startup Operation

II. Results

A. Corporate Management Contact

Mr. O'Reilly telephoned Mr. Husband, Vice President of Construction to discuss the status of resolution of previously identified deficiencies in the proposed preoperational test program*. Mr. Husband stated that Con Ed is giving careful consideration to Compliance's concerns relating the need for additional rod drop testing, safety injection flow verification to the hot-pressurized reactor coolant system, performance of a loss of

*CO Report No. 247/71-2 Paragraph II B.1

AC power test at a reactor power level, and expansion of the hot functional program coverage. He additionally stated that negotiations with Westinghouse are still in progress and that Con Ed intends to be responsive to the questions presented. Mr. Husband indicated a desire for a meeting for the purpose of jointly discussing these issues between Compliance, Con Ed, Westinghouse and Wedco.

B. Meeting - February 11, 1971

A meeting was held on February 11, 1971 for the purpose of discussing the items included in paragraph II.A of this report with Con Ed, Westinghouse and Wedco. In addition, previously identified deficiencies* and results of the February 10, 1971 site inspection by Messrs. Nolan, Hildreth and Madsen concerning preoperational testing, power ascension program, and operating procedure coverage was included in the meeting. The items discussed are summarized below:

1. Control Rod Drop Testing

Con Ed and Westinghouse indicated that expansion of the proposed rod drop testing program to comply with Compliance's request would in their opinion provide little additional confidence relating to rod functions. The reasons were stated and remain the same as previously reported**. The inspectors indicated that the need for expanding the rod drop testing to comply with the (PI-5800/2) Compliance criteria has the backing of DRL. Wedco indicated that the additional testing would require 2 to 3 shifts to perform. Con Ed, Westinghouse and Wedco discussed this item and Con Ed subsequently agreed to expand the rod drop testing to comply with Compliance criteria even though Westinghouse and Wedco appeared reluctant to do so. Con Ed stated that the additional testing will be performed because no known damage to equipment is postulated to result from the testing; however, the additional testing is being performed even though their position remains that additional operation confidence is not thereby attained.

2. Loss of AC Power Test

Con Ed indicated that the Compliance proposed loss of AC power test with the reactor at power would impose undue risks to major equipment*** and that the test would provide little additional information beyond that obtained from the presently planned loss of AC power and safety injection tests. Con Ed pointed out that the major equipment of concern includes the main turbine and the reactor coolant pumps. The inspectors stated that the proposed loss of power test was based on past experiences with loss of off-site power and failures of diesels to function. The inspectors inquired

*CO Report No. 247/71-2 paragraphs II.B.2 and II.C.

**CO Report No. 247/70-12 paragraph II.B.2 and 247/71-1 paragraph II.D.2.b.

***CO Report No. 247/70-12 paragraph II.B.9.

as to the acceptability of performing the loss of AC power test under the following conditions:

- a. The reactor operating at about 25% power.
- b. Initiation of a reactor scram.
- c. Allow the major items such as the reactor coolant pumps and the main turbine to coast down.
- d. Initiate a loss of power and safety injection signal.

Con Ed and Westinghouse stated that the potential damage to the reactor coolant pumps seals exists even though the pumps are idle. In addition they indicated that the information gained would provide little reason for performing such a test. Mr. Cahill then stated that unless a better reason for performing the test is presented, that will outweigh the potential damage of equipment, Con Ed does not intend to perform this test. In addition, he indicated that additional persuasion to perform this test should include consideration of potential benefits derived versus risks to equipment and loss of electrical availability. The Compliance inspectors indicated that this position would be relayed to CO:HQ for additional review and evaluation by CO and DRL.

3. Safety Injection Flow Verification

Con Ed indicated agreement with Westinghouse as to the undesireability of performing a high pressure safety injection and accumulator flow verification to the hot-pressurized reactor coolant system because of the useage of available thermal cycles cause by injection of cold water to the hot vessel. The following pertinent information was presented:

- a. With respect to the induced thermal cycles, no plan was included in the design to cover the test condition.
- b. Westinghouse does not have a specific stress analysis for the pipe in question; however, the major area of concern is the juncture of the SIS and reactor coolant piping.
- c. Based on previous experience, there is a belief that a violation of ASME Section III would be encountered.
- d. The test is considered to be an operational check of the check valves in a potential hot thermal condition and provides minimal information beyond the preoperational testing program. The problem with check valves is normally failure to close.

- e. The test is believed to have the potential of causing damage to piping and possibly the reactor vessel.

The inspectors inquired as to conditions of lower temperatures and pressures at which the thermal cycle question would not be of the same concern. Mr. Grob stated that this is a possibility; however, the answer would require additional analysis.

At this point Con Ed, Westinghouse and Wedco conferred and the following was presented:

- a. There is a desire to avoid subjecting the equipment to the proposed thermal shock.
- b. Con Ed agreed to evaluate the thermal cycle stress conditions for the high pressure safety injection system with the intent of determining reactor coolant temperature conditions under which a flow verification test could be performed without damage to the piping.
- c. Con Ed and Westinghouse continued to resist the performance of an accumulator flow verification test to the hot reactor coolant system. Their contention is that:
 1. The preoperational test program includes testing of the valves closest to the reactor coolant system with water temperature of about 350° F, and pressures of 400 psi.
 2. The accumulator check valves design received extensive study during the licensing of the Rochester Gas and Electric plant.
 3. Potential damage to the reactor vessel could occur if the motor operated accumulator valves failed to close during the accumulator blowdown.
 4. The check valves next to the accumulators would not be expected to perform in the hot condition.
 5. No real concern exists relative to operability of the check valves in the hot condition versus the cold condition.
 6. Injection of the accumulator volume into the hot vessel could initiate cracks that could penetrate half of the reactor vessel wall thickness.

In summary, Con Ed has agreed to a thermal analysis of the areas in question, and will give additional consideration to the performance of flow verification tests of the high pressure safety injection and accumulator systems. The inspector indicated that the information relating to these tests would receive additional evaluation by CO.

4. Hot Functional Testing

The inspectors indicated satisfactory findings relating to Con Ed's present program for involvement of operators during the hot Functional Test program; however, CO still has concerns relative to the absence of some acceptance values in the test procedures and the checkout of operating procedures. Con Ed and Wedco stated that some procedures have been modified to include additional acceptance values. There are cases where specifying a value in advance is difficult, and the required information is readily available. The inspectors pointed out that the test acceptance value or specific reference should be included in each procedure as specified in Section 13 of FSAR to assure that Westinghouse and Con Ed are in agreement relative to ranges of acceptable results prior to performance of the test. After considerable discussion, Con Ed agreed to pursue the preparation of a listing of additional acceptance value or references for the test procedures; however, they do not plan to rewrite the existing procedures for this purpose.

5. Power Ascension Program

The inspectors pointed out, that a review of the available power ascension program outlines and documents has revealed apparent deficiencies in the area of generator, and turbine trip testing. Mr. Matheny indicated that present planning includes turbine trip tests at 35 and 100 percent power. The inspector indicated that this is somewhat in line with Compliance's thinking for turbine trip coverage; however, the information presented for generator trip testing at 10 percent power only is considered inadequate. The inspectors stated that the items presented are based on a preliminary review and additional discrepancies are anticipated.

6. Plant Completion Status

The completion status of plant construction and testing versus Compliance's requirements for satisfactory findings for licensing purposes was discussed. The discussion included the following:

- a. Construction of all systems described in the FSAR must be complete. It was emphasized that a rigorous definition of completion would be employed.
- b. The preoperational testing, review of results, and resolution of associated problems must be complete.
- c. Core loading, power ascension program, and operating procedures must be available.

Con Ed and Westinghouse indicated an understanding of the position presented.

7. Pipe Supports

The inspectors voiced a continuing concern relative to the initiation of hot functional testing prior to the installation of 100 percent of the pipe supports. Con Ed indicated an understanding of CO's concern; however, they are of the opinion that the present site involvement and additionally planned followup will provide acceptable results.

8. Operating Procedures

Messrs. Nolan, Hildreth, and Madsen met with Messrs. Freyberg, Prestele and Makepeace of Con Ed to review findings relating to operating procedure coverage. Mr. Madsen explained that he receives assistance in routine inspection coverage and that Mr. Hildreth has been assigned to assist in the review of the Plant Operating Procedures. Mr. Hildreth reviewed CO's involvement to date, which included the following:

- a. An initial review of the proposed operating procedures was performed by CO. The results of this review indicated that the procedures are inadequate both in scope and detail.
- b. Compliance's concerns had been previously discussed at a meeting in Bethesda on January 15, 1971 and at the construction site.*
- c. An additional review of operating procedure coverage was conducted by Messrs. Hildreth and Madsen on February 10, 1971 at the construction site.

Mr. Hildreth stated that based on his involvement in the procedure review, he was confused as to Con Ed's management philosophy concerning types of detail procedures which would be provided for this facility. He used the lack of an Administrative Procedure as an example and asked if Con Ed had considered inclusion of written

procedures which would spell out the requirements for operator and supervisor adherence to procedures; management controls governing procedure writing, revising, updating, and review; methods of logging operating information and content of entries; and management's maintenance philosophies. Mr. Freyburg stated that no administrative procedures of the type discussed had been written and none were planned. Mr. Makepeace then stated that Con Ed does not perform preventive maintenance; therefore, they would have no procedures for this type of activity. Mr. Freyburg then explained Con Ed's maintenance philosophy, which consists of collecting critical data on major components. This data is plotted and predetermined action points are established. The data and action points are maintained at the Con Ed central maintenance office. Mr. Hildreth stated that he would like to review this program for IP-2 during the next audit of procedures.

Mr. Hildreth then asked if Con Ed wished to remark on Compliance's comments for Procedure O - 1 in specific and operating procedures, in general. Mr. Prestele stated that two operating procedures were being revised on the basis of comments presented. He stated that these two procedures would be written in ten days. He asked if these procedures could be reviewed by CO before other procedures are rewritten. Mr. Hildreth agreed to review and comment on these procedures in a timely manner.

Mr. Hildreth stated that he had reviewed a list of surveillance procedures and three typical procedures. He indicated that the list appeared to contain the surveillance required by Section 4 of the Technical Specifications (TS) and that the procedures contain the necessary information.

Mr. Hildreth then asked about the requirements of TS 6.7.C which specifies that detail written procedures be available for actions taken to correct specific and foreseen potential malfunctions of systems and components, including responses to alarms, suspected primary system leaks and abnormal reactivity changes. Specifically, Mr. Hildreth asked if he could see a list of procedures which would satisfy these requirements. Mr. Prestele stated that IP-2 does not presently have alarm procedures; but, since they are a TS requirement, they would be developed. Mr. Hildreth added that some potential malfunctions have been foreseen in the Technical Specifications. For example, TS Section 3.E.2.b. and c. states:

- "b. One auxiliary component cooling pump may be out of service provided the pump is restored to operable status within seven days and the other pump is demonstrated daily to be operable.

- c. One component cooling heat exchanger or other passive component may be out of service for a period not to exceed 7 days provided the system may still operate at design accident capability."

Mr. Hildreth asked if procedures would be developed to require increased surveillance as required and to provide detail instructions how the operator would determine that the system could still operate at design accident capability. Mr. Prestele stated that none had been planned, but he agreed that they should be provided.

Mr. Hildreth stated that TS Section 6.7.1.b requires detail written procedures for refueling operations. He added that his review of procedure M-1, "Refueling" indicated that the procedure is inadequate. Specifically, each step is too general to classify as a detailed procedure. For example two steps in the procedure are:

- a. Instruments and control functions are available as required.
- b. Loosen and remove the reactor vessel stud nuts using the stud tensioner in the prescribed sequence.

Mr. Prestele agreed that the procedure did not contain the necessary detail and would be rewritten.

Mr. Prestele stated that he had an appreciation for Compliance's concerns and that Con Ed had a great deal of work to do. He stated that additional manpower and a higher priority would be placed on procedure writing.