U.S. ATOMIC ENERGY COMMISSION

DIRECTORATE OF REGULATORY OPERATIONS

REGION I

RO Inspection Report No: 50-289/74-28 Docket No: 50-289

Licensee: Metropolitan Edison Company License No: DPR-50

Three Mile Island Unit I Priority: =

Category: B-2

Location: Middletown, Pennsylvania

Type of Licensee: PWR 871 MWe (B&W)

Type of Inspection: Routine, Announced

Dates of Inspection: July 11, 12, 16 and 17, 1974

Dates of Previous Inspection: July 11-12, 1974

Reporting Inspector: R. L. Spessard 8/5/74
R. L. Spessard, Reactor Inspector Date

Accompanying Inspectors: ~~None~~ Date

Date

Date

Date

Other Accompanying Personnel: None Date

Reviewed By: A B Davis 8/5/74
A. B. Davis, Senior Reactor Inspector, Reactor Operations Branch Date

1449 249

7910180801

SUMMARY OF FINDINGS

Enforcement Action

A. Violations

None Identified

B. Safety Items

None Identified

Licensee Action on Previously Identified Enforcement Items

Not Inspected

Unusual Occurrences

None Identified

Other Significant Findings

A. Current

1. Initial startup testing through the 40% FP plateau has been completed, and the data has been evaluated and accepted by the licensee. RO:I review of this data and the licensee's evaluation disclosed no deficiencies. (Details, Paragraph 3)

2 Testing at the 76% FP plateau was in progress.

B. Status of Previously Reported Unresolved Items

Not Inspected

Management Interview

An exit interview was held on site on July 17, 1974 at the conclusion of the inspection with Mr. J. Herbein, Met Ed Station Superintendent and Mr. G. Miller, GPU Test Superintendent. The following summarizes the items discussed:

A. Preoperational Test Resul.s (Details, Paragraph 2)

B. Initial Startup Test Procedures and Results (Details, Paragraph 3)

C. Westinghouse DB-50 Reactor Trip Breakers (Details, Paragraph 4)

D. Makeup Pump Bypass Orifices

The inspector was informed that 2 of the 3 orfices of improved design* were beginning to show evidence of erosion, as determined during weekly radiography examinations. The erosion was characterized as slight, and the licensee stated this matter was being monitored closely. Additionally, the inspector was informed that RO:I would be kept informed on this matter.

E. Environmental Incident

The inspector was informed that the PORC was investigating a matter that may be reportable pursuant to the Environmental Technical Specifications. The matter related to operability of temperature monitoring equipment for river water and plant river discharge and the possibility of exceeding the 3°F negative temperature differential limit. The licensee stated RO:I would be kept informed on this matter. **

---

* Licensee letter dated June 10, 1974 (AO 74-5)

** Subsequently Reported as EI 74-8 (Telegram dated July 19, 1974 and Letter dated July 24, 1974)

DETAILS

1. Persons Contacted

Metropolitan Edison Company

Mr. J. Herbein, Station Superintendent
Mr. J. Colitz, Station Engineer
Mr. J. Floyd, Supervisor of Operations
Mr. J. O'Hanlon, Nuclear Engineer
Mr. W. Potts, Supervisor of Quality Control
Mr. M. Ross, Shift Supervisor

General Public Utilities Service Corporation

Mr. J. Barton, Startup and Test Manager
Mr. G. Miller, Test Superintendent
Mr. R. Toole, Assistant Test Superintendent
Mr. M. Nelson, Technical Engineer
Mr. W. Behrle, Shift Test Director
Mr. C. Gato, Shift Test Engineer
Mr. T. Hawkins, Shift Test Engineer

Babcock and Wilcox Nuclear Services

Mr. J. Flint, Shift Data Analyst
Mr. W. Raymond, Shift Data Analyst

Gilbert Associates Incorporated

Mr. P. Moyer, Startup and Test Engineer

2. Preoperational Test Results

The inspector verified by review of the Official Field Copy of the completed test procedure that the test results for the procedures listed below had been evaluated by the licensee and that he had determined them to be acceptable and/or had taken proper corrective action on all non-acceptable findings. These tests had been partially completed and the test results partially accepted by the licensee, as identified in previous RO inspections (Reports 50-289/74-25, Detail 2.a. & b.; 50/289/74-23, Detail 7.a; and 50-289/74-18, Detail 3.B.(2)), with the exception of Item c.

No deficiencies were identified during the inspector's review, and the inspector's observations are included where appropriate.

a. TP 271/4 Main and Auxiliary Steam System Functional Test

Test results were completed and accepted prior to power escalation testing. This included checking and resetting all Main Steam Safety Valves. (Report 50-289/74-08, Detail 2.d.(1)) However, during the Reactor Trip Test at 40% FP (TP 800/14), one of these valves lifted prematurely (about 4% below setpoint) and then reseated. As a result, these valves were checked and reset in the presence of the Code Inspector during this RO inspection and prior to escalation to the 76% FP plateau. Test results were reported by the licensee to be acceptable; however, the results had not been reviewed by the TWG prior to completion of this RO inspection. The cause of the premature lift is under review by the licensee, and it has been tentatively attributed to a procedural problem. This item remains open pending final resolution by the licensee and acceptance of the test results by the licensee.

b. TP 600/11 Emergency Feed System and OTSG Level Control Test

The outstanding test requirements (Sections 9.4 and 9.6) were completed and the test results accepted prior to power escalation testing (Report 50-239/74-08, Detail 2.d(1))

c. TP 273/3 Emergency Feedwater Turbine and Motor-Driven Pumps Functional Test

As a result of maintenance, the requirements of this test were repeated for each pump and the results of the retest were evaluated and accepted by the licensee prior to power escalation testing.

. TP 600/13 Pressurizer Operation and Spray Flow Test

e TP 600/30 Hot Functional Test Checkpoints

f TP 360/1A Process Radiation Monitor Calibration and Functional Test-Portable Atmospheric

3. Initial Startup Test Program

a. Procedures

The inspector reviewed the following procedures and verified that previous RO:I comments had been included in accordance with the licensee's commitments. (Report 50-289/74-18, Detail 7.b Items (6) and (7))

(1) TP 800/11 Core Power Distribution

(2) TP 800/14 Turbine/Reactor Trip Test

Additionally, the inspector reviewed approved TCN's to procedures previously reviewed by the inspector. No deficiencies were identified, and the inspector's review included the following:

(1) TP 800/21 Unit Startup and Power Escalation - TCN's 1-5
(2) TP 800/18 Power Imbalance Detector Correlation Test-TCN's 1 and 2
(3) TP 800/11 Core Power Distribution-TCN's 2-5

b. Test Results

(1) Detailed Review of RO:I

The inspector conducted a detailed review of the completed/partially completed procedures (Official Field Copy) listed below. Additionally, the Partial Test Summary for these tests, as accepted by the licensee, was also reviewed and is listed below, where appropriate. No deficiencies were identified, and the inspector's review included the following: Data sheets available and completed (at least 10% sampling basis); raw data converted to test data; test exceptions and deficiencies identified; corrective action performed; acceptance criteria verified by licensee; test analysis reviewed by the appropriate persons; and inspector's verification that test results demonstrate the desired performance criteria and/or predicted results.

(a) TP 710/1 Zero Power Test

Test is complete and the results were accepted by the licensee prior to power escalation testing.

(b) TP 800/2 Nuclear Instrumentation Calibration at Power

Test is partially complete and included testing at the 0-15%, 15% and 40% FP test plateaus. Additionally, a Partial Test Summary for the 15% and 40% FP test plateaus was approved by the licensee prior to power escalation to the next higher test plateau.

(c) TP 800/5 Reactivity Coefficients at Power

Test is partially complete and included testing at the 40% FP test plateau. Additionally, a Partial Test Summary for the 40% FP test

plateau was approved by the licensee prior to power escalation to the next higher test plateau. The Power Doppler coefficient was determined to be less negative than design, i.e., -8.9 PCM/% power vice -13.7 PCM/% power. The licensee's analysis indicated that extrapolation of this value to 100% FP will meet the coefficient used in the Safety Analysis and that this value was consistent with results obtained at Oconne 2.

(d) TP 800/11 Core Power Distribution

Test is partially complete and included testing at the 15% and 40% FP test plateau. Additionally, a Partial Test Summary for the 15% and 40% FP test plateaus was approved by the licensee prior to power escalation to the next higher test plateau.

(e) TP 800/18 Power Imbalance Detector Correlation Test

Test is partially complete and included testing at the 40% FP test plateau. Additionally, a Partial Test Summary for the 40% FP test plateau was approved by the licensee prior to power escalation to the next higher test plateau.

(f) TP 800/20 Rod Reactivity Worth Measurement

Test is partially complete and included testing at the 40% FP test plateau. Additionally, a Partial Test Summary for the 40% FP test plateau was approved by the licensee prior to escalation to the next higher test plateau.

(g) TP 800/21 Unit Startup and Power Escalation Test

Test is partially complete and included testing from 0 to 76% FP test plateau. Additionally, a Partial Test Summary for the 15% and 40% FP test plateaus was approved by the licensee prior to power escalation to the next higher test plateau. The inspector also observed the following: Licensee evaluated the data obtained at the 0%, 15% and 40% FP test plateaus and authorized operation at the next higher power level; Licensee reset the high flux trips as required by this procedure prior to power escalation to the next higher test plateau; and Licensee performed core and plant surveys to assure safe operation during the increase of power level and arrival at the new power level.

(h) TP 800/22 NSS Heat Balance

Test is partially complete and included testing at the

0-15%, 15%, 30%, 35%, 40%, 50%, 65%, and 76% FP test plateaus. Additionally a Partial Test Summary for the 15% and 40% FP test plateaus was approved by the licensee prior to power escalation to the next higher test plateau.

(i) TP 800/31 Pseudo Dropped Rod

Test is partially complete and included testing at the 40% FP test plateau. Additionally, the Partial Test Summary for the 40% FP test plateau was approved by the licensee prior to power escalation to the next higher test plateau.

(j) TP 800/32 Loss of Off-Site Power Test

Test is complete, and the results were accepted by the licensee prior to power escalation to the next higher test plateau.

(2) Verification by RO:I

The inspector verified by review of the Official Field Copy of the completed test procedure or the partially completed test procedure with corresponding Partial Test Summary that the test results for the procedures listed below had been evaluated by the licensee and that he had determined them to be acceptable and/or had taken proper corrective action on non-acceptable findings. No deficiencies were identified, and the inspector's observations are included, were appropriate.

(a) TP 800/8 ICS Tuning at Power

Test is partially complete and included testing through the 40% FP test plateau. Additionally, a Partial Test Summary for the 15% and 40% FP test plateaus was approved by the licensee prior to power escalation to the next higher test plateau.

(b) TP 800/14 Turbine/Reactor Trip

Test is partially complete and included the reactor trip at the 40% FP test plateau. Additionally, a Partial Test Summary for the 40% FP test plateau was approved by the licensee prior to power escalation to the next test plateau.

The turbine trip at 30% FP was rescheduled to be conducted during a planned shutdown from the 76% FP test plateau. However, during this RO inspection while operating at 76% FP, an oil leak developed on the No. 3 turbine control valve which required removal of the turbine from service to affect repairs. As a result, the turbine trip at 30% was conducted. The licensee had not evaluated the acceptability of these test results by the completion of the RO inspection. The inspector observed operations in the Control Room during this occurrence and noted that plant parameters were controlled within Technical Specification limits.

(c) TP 800/23 Unit Load Transient Test

Test is partially complete and included testing at the 40% FP test plateau. Additionally, a Partial Test Summary for the 40% FP test plateau was approved by the licensee prior to power escalation to the next higher test plateau.

(d) TP 800/33 Psuedo Rod Ejection Test

Test is complete, and the results were accepted by the licensee prior to power escalation to the next higher test plateau.

(e) TP 800/36 Shutdown from Outside Control Room

Test is complete, and the results were accepted by the licensee prior to power escalation to the next higher test plateau.

(f) SP 710/2 Controlling Procedure for Post Fuel Load Precritical Testing

Test is complete, and the results were accepted by the licensee. (Report 50-289/74-25, Detail 3.c)

(3) Other Test Results

The inspector observed during review of TWG Meeting Minutes for the period June 10-July 12, 1974 (Meetings 116-122) and Official Field Copies of Partial Test Summaries for the 15% and 40% FP test plateaus that the results of the tests listed below had been evaluated by the licensee prior to escalation to the next higher test plateau.

(a) TP 800/6 Steam Bypass Testing
(b) TP 800/7 Feed System Operation and Testing
(c) TP 800/9 Turbine Generator Operation and Testing
(d) TP 800/12 Unit Load Steady State Test
(e) TP 800/24 Incore Detector Testing
(f) TP 800/30 Power Escalation Checkpoints

4. Westinghouse DB-50 Reactor Trip Breakers

The licensee was provided a copy of Westinghouse Data Letter No. 74-2, dated February 19, 1974 which superseded instructions in Westinghouse Bulletin No. NSD-TB-74-1, dated January 11, 1974. The earlier bulletin had been discussed with the licensee during a previous RO inspection (Report 50-289/74-05, Detail 13.b), and it was determined that the licensee's DB-50 breakers did not have mechanical undervoltage trip devices.