

U. S. ATOMIC ENERGY COMMISSION
DIRECTORATE OF REGULATORY OPERATIONS

REGION I

POOR ORIGINAL

RO Inspection Report No.: 50-289/73-23

Docket No.: 50-289

Licensee: Metropolitan Edison Company

License No.: CPFR-40

Three Mile Island - Unit 1

Priority: _____

Category: B.1

Location: Middletown, Pennsylvania

Type of Licensee: B&W 871 MWe PWR

Type of Inspection: Routine - Announced

Dates of Inspection: November 26, 29 & 30, 1973

Dates of Previous Inspection: November 14-16, 1973

Reporting Inspector: *A.B. Davis*

for R. L. Spessard, Reactor Inspector

12/19/73
DATE

DATE

Accompanying Inspectors: *A.B. Davis*

for W. A. Ruhlman, Reactor Inspector

12/19/73
DATE

DATE

Other Accompanying Personnel: *A.B. Davis*

A.B. Davis, Senior Reactor Inspector

12/19/73
DATE

Reviewed By: *A.B. Davis*

A. B. Davis, Senior Reactor Inspector
Reactor Operation Branch

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12/19/73
DATE

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SUMMARY OF FINDINGS

Enforcement Action

A. Violations

None Identified

B. Safety Items

None Identified

Licensee Action on Previously Identified Enforcement Items

A. None Required Relative to Test and Startup Activities

Unusual Occurrences

None

Other Significant Findings

A. Current

Met Ed has implemented a maintenance program; however, a large number of procedures require development and approval to ensure an effective program is implemented prior to the scheduled core load date of March 22, 1973. (Details, Section 1, Paragraph 5)

B. Status of Previously Reported Unresolved Items

No Change

Management Interview

An exit interview was conducted on November 30, 1973 at the conclusion of the inspection. Items discussed and personnel in attendance were as follows:

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Licensee Representatives

J. Herbein, Assistant Station Superintendent, Met Ed
W. Gunn, Site Project Manager, GPUSC
G. Miller, Test Superintendent, GPUSC
M. Stromberg, Site Auditor, GPUSC
T. Sturgeon, QA Specialist, GPUSC
S. Kakarla, Assistant Lead Test and Startup Engineer, UE&C
L. Finner, Test and Startup Engineer, UE&C

RO:I Representatives

L. Spessard
W. Ruhlman
B. Davis

A. Preoperational Test Results

Inspection findings relative to the review of tests recently completed and accepted by the licensee were discussed. (Details, Section 1, Paragraph 2)

B. Hot Functional Testing

Inspection findings relative to the review of the status of activities affecting commencement of Hot Functional Testing were discussed. (Details, Section 1, Paragraph 3)

C. UE&C Instrument Shop

Inspection findings relative to the review of UE&C's methods of segregating and storing test instruments were discussed. (Details, Section 1, Paragraph 4)

D. Met Ed Maintenance Program

Inspection findings relative to the status and implementation of Met Ed's preventive and corrective maintenance programs were discussed. Additionally, the commitments received from licensee representatives during the inspection were discussed and acknowledged. During these discussions the inspector stressed that a large amount of work in the area of procedure development and approval remained to be done in order to ensure that an effective maintenance program would be

implemented prior to the scheduled core load date. The representatives acknowledged the inspector's concern and indicated their awareness of the work remaining to be done. During discussions of the future preventive maintenance program, the inspector stated that he would expect the surveillance of pipe hangers and restraints to be included in the program. The representatives indicated that methods to accomplish hanger surveillance were already under review. The licensee representatives were informed that Met Ed's maintenance program would be reviewed during subsequent RO inspections. (Details, Section 1, Paragraph 5)

E. System Turnover Packages

Inspection findings relative to the licensee's implementation of testing and documentation requirements concerning system turnover packages were discussed. The inspector stated that all specific deficiencies noted during the inspection had been resolved. Additionally, the inspector discussed his understanding that TP250/2 would be revised to clarify the two (2) areas where generic deficiencies were noted. A licensee representative concurred with the inspector's statement. (Details, Section II, Paragraphs 2 and 3)

F. 10 CFR 19

The inspector stated that based on his observations of the bulletin board in the Office Building the licensee was meeting the requirements of Section 19.11 of 10 CFR 19.

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DETAILS, SECTION 1

1. Persons Contacted

Metropolitan Edison Company

J. Herbein, Assistant Station Superintendent
D. Showlan, Supervisor of Maintenance
J. Floyd, Supervisor of Operations
N. Buhlmer, Lead Mechanical Engineer
H. Mitchell, Electrical Maintenance Supervisor
W. Pfeifer, Electrical Maintenance Foreman
E. Daniel, QC Assistant

General Public Utilities Service Corporation

J. Barton, Startup and Test Manager
G. Miller, Test Superintendent
M. Nelson, Technical Engineer
S. Poje, Shift Test Engineer
T. Faulkner, Senior Test Planner

United Engineers and Constructors

G. Somdahl, Instrument Supervisor

2. Preoperational Test Results

The inspector reviewed the completed test package as accepted by the licensee and is satisfied with the documentation of performance and results of the following tests:

TP 201/2 Core Flooding System Functional Test
SP 75.4 Diesel Fuel Oil Flush

3. Events Leading to Hot Functional Testing (HFT)

The status of the items delineated on the Time-Gridded Schedule of Events to HFT, which was approved on November 16, 1973 in accordance with Test Instruction No. 6 Test Schedules, was discussed with cognizant licensee representatives. According to the representatives,

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project status was on schedule relative to commencement of HFT on December 19, 1973. The inspectors toured the Reactor Building to observe activities in progress. Particular attention was given to the installation of insulation on the Reactor Coolant, Makeup, Core Flood, Decay Heat, Emergency Feed Water, Main Steam and Feed Water Systems and to overall cleanliness and the presence of combustible material. Based on the inspector's observations, the licensee's estimate for project status relative to commencement of HFT appeared realistic.

4. UE&C Instrument Shop

The inspector toured the UE&C Instrument Shop to observe methods of segregation and storage of test instruments. No deficiencies relative to the requirements of Test Instruction 19, Control of Test Equipment, were observed. The previous RO:I finding relative to this matter is resolved.*

5. Met Ed Maintenance Program

a. Preventive Maintenance

The preventive maintenance program being implemented by Met Ed station personnel was established by GPUSC Special Procedure No. 4, Preventive Maintenance TMI Unit 1. This procedure covers systems and components within the QC scope, as defined by Gilbert Associates, Inc. Quality Acceptance Standard for TMI Unit 1, SP-5550. The intent of the procedure is to properly maintain QC controlled equipment from arrival or site through and including normal operations. An Equipment History Card, which specifies the required maintenance and maintenance interval, is provided for each piece of equipment by Gilbert Associates, Inc. The organization (UE&C Construction, UE&C Startup, or Met Ed) having jurisdiction over an individual system or component within the QC scope is responsible for performing preventive maintenance in accordance with applicable Equipment History Card(s). As systems and components are turned over from one organization to another, the applicable Equipment History Cards are likewise turned over. The inspector discussed the preventive maintenance program being implemented by Met Ed station personnel with cognizant Met Ed representatives and reviewed several Equipment History Cards for components in various systems under Met Ed jurisdiction. The inspector's observations and the licensee representatives comments, where appropriate, were as follows:

* RO Inspection Reports No. 50-289/73-15, Paragraph 6.a.(6) and 50-289/73-06, Paragraph 4.f.(3)

- (1) About 90% of the program is being performed by operations personnel, and the remaining 10% is being performed by maintenance personnel.
- (2) Equipment History Cards maintained by the operations and maintenance organizations were filed in notebooks according to system and according to required maintenance interval, i.e., weekly, monthly, quarterly, etc.
- (3) Documentation contained on the Equipment History Cards reviewed by the inspector indicated that maintenance was being performed in accordance with the requirements of Special Procedure No. 4. Maintenance performed by both operations and maintenance personnel was included in the inspector's review. Additionally, surveillance test procedures were referenced on the cards as the procedure to be used when a Technical Specification surveillance test was to be performed.
- (4) A lubrication schedule covering each component within the QC scope has been developed to insure the proper grease and oils are used during the performance of preventive maintenance.
- (5) Met Ed has depended on Gilbert Associates, Inc. to provide an Equipment History Card for each piece of equipment within the QC scope; however, Met Ed had not verified that all required cards for systems and components under their jurisdiction had been prepared and were included in their program. A licensee representative indicated that these cards are part of the system turnover package which Met Ed accepts and that as such all cards should be present. The representative indicated that a review would be made to insure all required cards were prepared and included in the program.
- (6) Special Procedure No. 4 sets forth general inspection requirements for mechanical and electrical equipment and supplementary inspection requirements, inspection intervals and documentation requirements are provided on Equipment History Cards; however, more detailed inspection requirements/acceptance criteria are needed. For example, criteria for normal oil consumption, valve operating time, presence of contaminants like boric acid,

chlorides and others, normal operating ranges of instruments, and other similar inspections are not included in the program. A licensee representative indicated that the program would be reviewed and more detailed inspection requirements would be included.

- (7) The program established by Special Procedure No. 4 will be used until the unit is declared ready for commercial operation, and at that time a more detailed preventive maintenance program, which is being developed by Met Ed, will be implemented. This program was only in the early stages of development and the program scope and requirements have not yet been defined. During discussions with a licensee representative relative to this program, the inspector was shown an approved preventive maintenance procedure for a non-safety related system which was an example of a procedure to implement this program. The inspector reviewed this procedure and observed that definitive guidance/acceptance criteria was lacking in the following areas: the type of packing and packing adjustments data, pump alignment data, and vibration data. The licensee representative acknowledged the inspector's findings and indicated these findings would be considered on a generic basis in the development of preventive maintenance procedures for this program.

b. Corrective Maintenance

The corrective maintenance program being implemented by Met Ed station personnel was discussed with cognizant Met Ed representatives. The administrative procedure which controls this program including facility changes is Administrative Procedure No. 1016 Implementation and Control of Station Maintenance; however, this procedure is only in draft form. Maintenance, when required, is being performed using this procedure in order to determine its acceptability. This procedure establishes the use of the Work Request Form which includes the following:

- (1) Description of work required
- (2) Determination of whether or not a facility design change is involved
- (3) Assignment of Cognizant Engineer for post maintenance testing, when required
- (4) Management review and approval including QC and PORC, as necessary
- (5) Maintenance procedure to be used
- (6) Description of work performed

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- (7) Results of post maintenance test
- (8) Initiation of revisions to applicable drawings

The inspector was shown the file of completed Work Request Forms, and the inspector selected two of these forms at random for review. No deficiencies relative to documentation contained on these forms (including attached procedures) were observed.

According to the licensee representatives, the administrative procedure with the Work Request Form ensures maintenance or facility design changes are performed in a controlled manner; however, the timeliness of individual jobs is affected because of the complexity of the system. The inspector was informed that further changes to the administrative procedure were under review and that the procedure would be revised. The need to develop and approve numerous maintenance procedures to work on safety related systems prior to core loading was stressed by the inspector during his discussions with the licensee representatives. The representatives acknowledged the inspector's remarks.

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DETAILS SECTION II

Prepared by: William A. Ruhlman

1. Persons Contacted

Met Ed

J. Herbein, Assistant Plant Superintendent
J. Peters, Office Supervisor

UE&C

J. McDevitt, Lead Test and Startup Engineer
J. Fleming, Lead Electrical Engineer
R. Carlson, Lead Instrument and Control Engineer
S. Kakarla, Assistant Lead Test and Startup Engineer

GPUSC

G. Miller, Test Superintendent

2. System Turnover Packages

The inspector made a detailed page-by-page review of four (4) system turnover packages. The licensee approved documents listed below provide detailed requirements for testing and documenting systems from release by construction through startup testing to final acceptance by the licensee. These documents were the basis for package documentation review.

- a. Test Procedure 250/2-TCN-3 - 9/21/73
Testing of Mechanical and Electrical Equipment (TP 250/2)
- b. Test Instruction 5 - Rev 0 - 6/27/73
System Turnover (TI-5)
- c. Quality Control 6 - Rev 4 thru Field Change 9/29/73
Final Acceptance Inspection (QC 16)

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During the inspection some procedural deficiencies were noted. However, all system turnover packages reviewed were in substantial conformance with the licensee's procedures. The packages reviewed and the inspector's findings are as follows:

a. Rod Control System (MTX-53)

This package contained fifteen (15) file folders of material numbered and arranged in accordance with TI-5.

Six cables had been identified as being improperly terminated on the print used for the check. A field questionnaire had been generated as required. However, neither the field questionnaire nor the individual cables were noted on the Incomplete Items List.

When notified by the inspector, the item was added to the list by a licensee representative.

b. Makeup and Purification System (MTX-144)

This package was subdivided into two (2) parts due to its size. The two (2) parts together contained thirty (30) file folders of material numbered and arranged in accordance with TI-5.

The Incomplete Items Lists (2) noted the deficiencies in accordance with the applicable procedures. However, the time completion section of the list had not been completed.

Sixteen (16) copies of Form ME-1 had been completed as required, but a signature identifying the data taker was missing.

Several electrical checkoff sheets indicated that test 05 (PT and CT Check) had been completed on systems where the test was not applicable.

Six (6) instrument sheets were included that stated the instrument checkout was not complete. These instruments also appeared on the Incomplete Items List. However, the sheets erroneously indicated the instruments had been accepted.

These deficiencies, representing a very small (<0.1%) portion of the package documentation, were corrected by licensee representatives prior to the completion of the inspection.

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c. Batteries and Battery Charges (MTX-276)

This package contained six (6) file folders of documentation. No apparent discrepancies were found during the inspection of this package.

d. Core Flood System (MTX-63)

There were eight (8) folders of documentation in this package.

Part of the documentation in the folder for Valve CF-V-2A was a completed megger test sheet. Other documentation indicated the megger test was incomplete.

A licensee representative contacted the appropriate employee and the contradiction was resolved.

RO:I has no further questions on these packages at this time.

3. TP 250/2

During the inspection the following generic deficiencies were found in TP 250/2:

a. Procedure - Step 2 (Page 11)

The statement in Step 2 of the procedure states requirements for signatures on UE&C Startup Turnover Agreement (TO-1). The statement is inconsistent with the practice of using a facsimile instead of an original signature for the UE&C Construction Department.

b. Tab 2, Section V, (Page 28)

Paragraph "A" - General Requirements is in conflict with Section I, Paragraph C11, regarding cables requiring a megger check. In addition, Paragraph "A" refers to a paragraph "D" which is non-existent.

A licensee representative stated that TP 250/2 would be revised to eliminate these conflicts. These items will be checked during a future inspection.

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| MEMO ROUTE SLIP Form AEC-93 (Rev. May 14, 1947) AECM 0240 | | See me about this. Note and return. | For concurrence. For signature. | For action. For information. |
|--|------------------|---|------------------------------------|---------------------------------|
| TO (Name and unit) RO Chief, FS&EB RO:HQ (5) RO Files Central Mail & Files Regulatory Standards | INITIALS | REMARKS METROPOLITAN EDISON COMPANY THREE MILE ISLAND 1 INSPECTION REPORT #50-289/73-23 | | |
| | DATE | | | |
| | (3) | | | |
| TO (Name and unit) Directorate of Licensing (13) OGC Regional Directors (II, III, IV) | INITIALS | REMARKS The above inspection report is forwarded for information. Distribution will be made by this office to the PDR, Local PDR, NSIC, DTIE, and State Representatives after review by the licensee for proprietary information. | | |
| | DATE | | | |
| | | | | |
| TO (Name and unit) | INITIALS | REMARKS | | |
| | DATE | | | |
| | | | | |
| FROM (Name and unit) <i>E. J. Brunner</i> E. J. Brunner Region I | REMARKS | | | |
| PHONE NO. 8-337-1246 | DATE 12/20/73 | | | |

USE OTHER SIDE FOR ADDITIONAL REMARKS

GPO : 1971 O - 445-443

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