U. S. ATOMIC ENERGY COMMISSION

DIRECTORATE OF REGULATORY OPERATIONS

REGION I

RO Inspection Report No.: 50-289/73-28

Licensee: Metropolitan Edison Company
P.O. Box 542
Reading, Pennsylvania 19603

Three Mile Island - Unit 1

Location: Middletown, Dauphin County, Pennsylvania

Docket No.: 50-289

License No.: CPPR-

Priority:

Category: B

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

Type of Inspection: Routine, Unannounced

Dates of Inspection: December 26-27, 1973

Dates of Previous Inspection: December 19-21, 26-28, 1973

Reporting Inspector: for Seth A. Folsom, Reactor Inspector — 1/17/74 Date

Accompanying Inspectors: _____ Date

_____ Date

Other Accompanying Personnel: Karl Abraham, Public Information Officer

Reviewed By: R. F. Heishman, Senior Reactor Inspector — 1/17/74 Date

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SUMMARY OF FINDINGS

Enforcement Action

Safeguards electrical cabling is not routed in accordance with cabling documentation. (Details paragraph 3)

Licensee Action on Previously Identified Enforcement Matters

Archive samples of valve materials were analyzed for sulphur and phosphorus, and were within specified limits. This item is resolved. (Details paragraph 8)

Unusual Occurrences

None

Design Changes

None identified

Other Significant Findings

A. Current Findings

1. The licensee expects to meet the March 13, 1974 fuel loading date. This date appeared to the inspector to be unrealistic in view of the amount of construction and testing work remaining to be completed. (Details paragraph 2)

B. Status of Previously Reported Unresolved Items

The following items were resolved:

1. Silting of river water intake. (Details paragraph 6)
2. Water damage on building spray motors and valve operators. (Details paragraph 5)
3. Containment bearing plate displacement. (Details paragraph 4)
4. Instrument power motor-generator missile hazard. (Details paragraph 7)
5. Carbon steel hangers on stainless steel pipelines. (Details paragraph 9)

Management Interview

A. A management interview was held at the site on December 27, 1973.

Personnel Attending

W. T. Gunn, Project Site Manager
P. Karish, Site Engineer
G. L. Kopp, Quality Assurance Specialist
S. Levin, Project Engineer, Unit #1
G. L. Roshy, Quality Assurance Engineer
W. S. Shepherd, Project Engineer, Unit #2

United Engineers & Constructors

V. E. Cichocki, Quality Assurance/Quality Control Coordinator
D. C. Lambert, Field Supervisor, Quality Control

Gilbert Associates

R. Zula, Liaison Engineer

The following items were discussed:

A. The inspector stated that for a portion of this inspection he had been accompanied by Karl Abraham, Public Information Officer of Region I, Directorate of Regulatory Operations. This participation by Mr. Abraham had been for the purpose of familiarizing him with the plant and its environs. The licensee acknowledged this information.

B. The inspector stated that the following items had been resolved during the inspection:

1. Silting of river water intake. (Details paragraph 6)

2. Water damage on building spray motors and valve operators. (Details paragraph 5)

3. Containment bearing plate displacement. (Details paragraph 4)

4. Instrument power motor-generator missile hazard. (Details paragraph 7)

5. Aloyco valve material analysis. (Details paragraph 8)

6. Carbon steel hangers on stainless steel pipelines. (Details paragraph 9)

The licensee acknowledged this information:

C. The inspector stated that he had audited the conformance of safeguards cable routing to the cable routing specified in the drawings, pull cards and tray loading summary. Several deficiencies in routing had been identified, in addition to missing or illegible cable identification. The inspector stated that he would perform another audit, involving more cables and raceways in the near future. The licensee acknowledged this information. (Details paragraph 3)

D. The licensee stated that it was expected that the scheduled fuel loading date of March 15, 1974 would be met. The inspector stated that, in view of the construction work and testing remaining to be completed, this schedule appeared to be unrealistic.

E. The inspector stated that he had found a number of electrical cables in contact with the sharp edges of the steel plates installed in the cable spreader room terminal strip enclosure. The licensee stated that this condition would be corrected before the enclosure was completed. This item is unresolved. (Details paragraph 10)

DETAILS

1. Persons Contacted

General Public Utilities Service Corporation

R. Burns, Assistant Project Manager
W. T. Gunn, Project Site Manager
T. Hreczuch, Mechanical Engineer
P. Karish, Site Engineer
G. L. Kopp, Quality Assurance Specialist
S. Levin, Project Engineer, Unit 1
P. Levine, Quality Assurance Engineer
G. L. Roshy,Quality Assurance Engineer
W. S. Shepherd, Project Engineer, Unit 2

United Engineers & Constructors

V. E. Cichocki, Quality Assurance/Quality Control Coordinator
M. John, Quality Control, Electrical
D. C. Lambert, Field Supervisor, Quality Control

Gilbert Associates

R. Zula, Liaison Engineer

2. Schedules

The licensee stated that it was expected that the scheduled fuel loading date of March 13, 1974 would be met. Other schedules included the receipt of the first shipment of nuclear fuel on January 10, 1974, and the start of the containment pressure/leak rate test on February 18, 1974.

The inspector stated that the March 13, 1974 fuel loading date appeared unrealistic in view of the amount of construction and testing work remaining to be completed.

3. Cable Routing

The inspector conducted a detailed examination of the actual routing of safeguards cables as compared to the routing prescribed in the pull cards, drawings and computer runoffs.

A number of cable locations were randomly selected by the inspector. In one area, the item selected for audit was later found to have been covered in an audit by the licensee's QA, in which deficiencies were found.

The inspector found the following deficiencies:

a. In the battery room, 322 ft. elevation, cable tray 834, there were 71 cables installed, whereas the tray loading summary showed a total of 66 cables.

b. In the battery room, 322 ft. elevation, cable tray 448 contained 5 cables, whereas the tray loading summary showed 6 cables installed.

c. In the actuation cabinet room, 348 ft. elevation, cable QC 354 was installed in tray 143, but this cable was not shown on Drawing 179, Revision 41.

d. In same location as above, conduit ME 68 contained cables ME 63, ME 74 and ME83, and were not shown on the signed-off cable pulling slips shown to the inspector. Note: the licensee later produced other copies of the pulling slips in which these cables were shown to be in conduit ME 68.

e. In the control building, 338 ft. elevation, red safeguard switchgear room, there were 60 cables in cable tray 247. The tray loading summary showed 60 cables installed.

f. The cable identification tags were missing or illegible in numerous locations. For example, at one end only of conduits ME 68 and CR 334, there were 5 unlabeled cables and one illegible label.

The inspector stated that he planned to conduct in the near future another audit of cable routing which would include a much larger number of cables, trays and conduits.

4. Containment Bearing Plate Displacement

The inspector examined the documentation relating to the observed displacement of some of the containment bearing plates during tendon tensioning. The documentation included the measured displacement and azimuth, measuring method employed, and tensioning procedure. The field work in detensioning, disassembly and lifting of two selected bearing plates which had exhibited questionable displacement was also observed by the inspector. The condition of the concrete beneath the two bearing plates was considered acceptable, and no deficiencies were observed. This item is resolved.

5. Wetted Building Spray Pump Motors and MOV Motors

The licensee had previously reported on August 31, 1973 that two of the building spray pump motors and two motor-operated valve motors had been accidently wetted during flushing operations. The motors were returned to the vendors for cleaning, repair and re-testing. The motors had since been returned to the site and

re-installed. The inspector examined the installed motors, the deficiency report No. 1081, dated September 24, 1973 which included the vendor's re-certifications, and the subsequent re-meggering of the motors at the site on September 11, 1973. The megger readings were typically 2500 megohms. This item is resolved.

6. River Water Intake Silting

The river water intake area accumulated excessive silt, and dredging operations had been employed for a four-month period to remove the silt. This work has now been completed, and periodic determinations and silt levels in the area have been included in the site procedures. The licensee stated that it was expected that removal of the cofferdam from the Unit 2 intake, scheduled to start in January 1974, would eliminate the cause of the previous accumulation. The inspector examined the constructor's report dated November 26,1973 which included the operations performed and the readings obtained. This item is resolved.

7. Instrument Power Motor-Generator

During a previous inspection, it was observed that the location of the "clean power" motor-generator set was such that its failure endangered adjacent safeguards electrical equipment. The direction of rotation has been reversed by the licensee so that a postulated bearing failure would result in the motor-generator shaft striking the adjacent wall instead of the safeguards electrical equipment. The motor-generator was in operation during the inspection, and the inspector confirmed that the direction of rotation had been changed. This item is resolved.

8. Chemical Analysis - Aloyco Valves

The inspector examined the documentation showing the analyses for sulphur and phosphorus on 158 archive samples of heats of materials used in pressure boundary stainless steel valves. The analyses in each case were within the specification limits of 0.040% maximum for both sulphur and phosphorus. A statistical analysis of the foundry sequence and the standard deviation of the sulphur and phosphorus content of the heats not chemically analyzed provided assurance that the heats were within specifications. This item is resolved.

9. Carbon Steel Hangers on Stainless Steel Piping

The licensee has surveyed all stainless steel piping for evidence of contact with carbon steel in hangers and supports. In those cases where carbon steel was in contact with stainless steel the condition was corrected by providing stainless inserts at the point of contact. The inspector reviewed the constructor's QC report No. W 656, dated December 11, 1973 which contained the statement that no stainless steel piping in safety-related systems were in contact with carbon steel. The inspector performed an independent audit in the field on December 27, 1973, and found no deficiencies. This item is resolved.

10. Terminal Strip Protection

The architect-engineer has provided design drawings for an overhead enclosure in the cable spreader room to protect the electrical terminal strips from damage or accidental contact. The installation of this enclosure was in progress dur[illegible] the inspection.

The inspector found numerous places where electrical cables were in direct contact with the sharp-edged steel plates which formed the enclosure. The licensee stated that this condition would be corrected prior to the completion of the barrier installation, by applying resilient material between the cables and the edges of the plates. This item remains unresolved.