

U.S. ATOMIC ENERGY COMMISSION

DIRECTORATE OF REGULATORY OPERATIONS

REGION I

RO Inspection Report No: 50-289/74-21

Docket No: 50-289

Licensee: Metropolitan Edison Company

License No: DPR-50

Three Mile Island Unit 1

Priority: \_\_\_\_\_

PO Box 542

Category: B-2

Location: Middletown, Pennsylvania 19603

Type of Licensee: PWR, 831 MWe (B&W)

Type of Inspection: Routine, Announced

Dates of Inspection: 4/20-4/22/74

Dates of Previous Inspection: 4/11-12; 4/16,17/74

Reporting Inspector: *J. N. Hannon*

4-26-74  
Date

J. N. Hannon

Accompanying Inspectors: *R. H. Brickley*

4-26-74  
Date

R. H. Brickley

\_\_\_\_\_  
Date

\_\_\_\_\_  
Date

\_\_\_\_\_  
Date

Other Accompanying Personnel: \_\_\_\_\_

\_\_\_\_\_  
Date

Reviewed By: *E. C. McCabe, Jr.*

4/26/74  
Date

E. C. McCabe, Senior Reactor Inspector  
Reactor Operations Branch

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SUMMARY OF FINDINGS

Enforcement Action

None

Licensee Action on Previously Identified Enforcement Actions

Not inspected

Design Changes

None identified

Unusual Occurrences

Broken Underwater Light

Glass from a shattered underwater light was retrieved from the reactor vessel without incident. (Detail 4)

Other Significant Findings

A. Current Findings

The early phases of the fuel loading were witnessed with no deficiencies noted. (Detail 2)

B. New Unresolved Items

Deficiencies in the licensee's program for indicating operating status of equipment were found to exist. (Detail 3)

C. Status of Previously Reported Unresolved Items

Not inspected

Management Interview

The management interview was held at the site on April 22, 1974 with the following attendees:

Metropolitan Edison Company

Mr. J. G. Herbein, Station Superintendent  
Mr. R. L. Summers, Plant Engineer

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General Public Utilities Service Corporation

Mr. C. L. Roshy, QA Specialist  
Mr. W. T. Sturgeon, QA Specialist

The following summarizes items discussed, which were acknowledged by the licensee in each case:

A. Inspection Purpose

The inspector outlined the scope of the inspection and reviewed with the licensee those items that were covered during the inspection. (Detail 2)

B. Calibration Program

The inspector expressed concern with the licensee's program for control of out-of-calibration safety related instrumentation. (Detail 3)

C. Retrieval of Broken Glass in Reactor Vessel

The inspector reviewed the documentation involved with the recovery of the broken glass and resumption of fueling operations. (Detail 4)

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DETAILS

1. Persons Contacted

Metropolitan Edison Company

Mr. M. Beers, Shift Supervisor  
Mr. J. Chaustik, Shift Supervisor  
Mr. W. Cotter, Project Engineer  
Mr. R. Deakin, Radiation Protection Supervisor  
Mr. R. Ebert, Health Physics and Chemistry  
Mr. J. R. Floyd, Operations Supervisor  
Mr. T. Illjes, Auxiliary Operator  
Mr. Janouski, Health Physics Senior Technician  
Mr. W. E. Potts, QC Supervisor  
Mr. M. Snyder, Instrumentation Foreman  
Mr. J. Wallace, Shift Supervisor  
Mr. D. Weaver, Instrumentation Foreman

General Public Utilities Services Corporation

Mr. S. Levin, Project Engineer

Babcock and Wilcox, Inc.

Mr. J. Phinney, Site Manager

2. Initial Fuel Loading

The early phases of initial fuel loading were witnessed, including observation of fuel handling and shift turnover operations on three different shifts.

A. Overall Crew Performance

(1) Training

The licensee was observed to be conducting fuel handling evolutions with a dummy fuel assembly for each operator involved in the fueling evolution.

(2) Personnel Access Control

Only personnel on the Radiation Work Permit (RWP) were allowed to proceed onto the bridge in the fuel pool area.

- (b) A radiation control point (which also served as a tool control point) was established near the fuel pool to control potential contamination. A clean area was established upon entering containment where protective clothing was provided and dosimeter readings were logged.
- (c) A security guard verified proper clearance before entry into either the reactor building or the fuel handling building. Escorts were provided for construction workers.

(3) Communications

The licensee was observed to maintain continuous phone communications between fueling stations. The licensee made an effort to upgrade the phone-talking procedures in use during fuel handling to minimize confusion.

B. Technical Specification Requirements

(1) Shift Supervision

Responsible licensed personnel were verified to be in control of plant activities, including a Senior Reactor Operator directly supervising fuel handling in the Reactor Building, and both a Senior Reactor Operator and a licensed Reactor Operator in the Control Room.

(2) Adherence to Approved Procedures

- (a) Initial Fueling Procedure IFP-401 controlled the loading sequence and was being followed by supervisory personnel.
- (b) Health Physics Procedure 1623, Personnel Control During Initial Fuel Handling, was found to indicate the location of the control access point in the Reactor Building erroneously. The licensee stated that an exception would be taken to the procedure in this case. The inspector had no further questions at this time.

(3) Nuclear Instrumentation

- (a) The two auxiliary channels of nuclear instrumentation were observed to be operating and data was being re-

corded by technicians from instrumentation located in the reactor building.

- (b) One of the two installed source range detectors (NI-1) was observed to be operating and data was being recorded in the control room. The other channel (NI-2) was reportedly out of commission with the high voltage power supply de-energized.

(4) Neutron Multiplication Surveillance

- (a) Three plots of inverse multiplication were being recorded, one for each of the source range channels in operation.
- (b) Response checks on the instrumentation were conducted satisfactorily less than 8 hours prior to commencing fueling operations on 4-20-74, and the inspector verified that an appropriate entry was made in the fuel handling log.
- (c) Neutron instrumentation was calibrated on 4-19-74 and plateau curves for each of the detectors were reviewed by the inspector.

(5) Boron Concentration Surveillance

- (a) Boron samples were being taken on the Decay Heat Removal (DHR) System every 4 hours. Other boron samples were collected on an 8 hour basis, including the transfer canal, the fuel pool, and the reactor vessel.
- (b) Typical readings reportedly varied from 2184 ppm to 2281 ppm, indicating close agreement.

(5) Plant System Status

- (a) The inspector verified by observation that the DHR System was in the required line-up for fueling, as documented by Form IFI-209-Part B- Appendix L, DHR System Valve line-up.
- (b) Supervisory Personnel were found to be knowledgeable of the operational status of critical systems.

- (c) A portable area monitor was placed on the main bridge in the Reactor Building as a back up to RM-G7, which was observed to alarm spuriously.

C. Record Keeping

- (1) A procedural change to allow recording the DHR Pump Suction temperature instead of the fuel pool and reactor pool temperatures was verified to have been made in accordance with applicable procedures and the necessary approvals had been obtained.
- (2) A log of items carried into the vessel bridge area was being maintained for accountability of tools and other loose items.
- (3) Fuel loading records were observed to be kept current, as well as the fuel display boards.
- (4) The control room log was reviewed with the control room operators and methods were discussed that could result in improved record keeping. The inspector had no further questions at this time.

3. Calibration of Safety Related Instrumentation

Source Range Nuclear Detector NI-2 was observed to be de-energized with no apparent indication for the operator that it was undergoing maintenance, that it was de-energized, or that it was out-of-calibration. Work Request 1304 was subsequently provided to trouble-shoot NI-2. However, the high voltage power supply had been de-energized prior to the generation of the work request due to instrument malfunction, and therefore the instrument was out of service for some time before a tag was placed on the NI cabinet indicating maintenance was in progress. No indication was provided at the local read-out in the control room to indicate that the instrument was out of service or out of calibration, although the control room operators were aware of the status of NI-2.

The inspector stated that while this condition did not jeopardize the fueling operation, since minimum instrumentation requirements were satisfied, it could nevertheless lead to operational difficulties unless a uniform method was established to alert the operators when safety related instrumentation is out of calibration. The licensee acknowledged this statement and agreed to evaluate the problem and propose a solution. This matter is unresolved pending review of the licensee's proposed solution.

4. Broken Glass in Reactor Vessel

The inspector observed the restored glass bulb that had been recovered from the reactor vessel. A licensee representative stated that he was satisfied that all of the glass had been recovered, and that an Abnormal Occurrence Report, 74-01, would be issued to report the incident.

The inspector reviewed the procedure that had been written to control the broken glass recovery, along with the administrative controls that had been invoked to preclude a recurrence, and had no further questions at this time.

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