

U.S. NUCLEAR REGULATORY COMMISSION  
OFFICE OF INSPECTION AND ENFORCEMENT

Region I

Report No. 50-289/80-09

Docket No. 50-289

License No. DPR-50 Priority -- Category C

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

Facility Name: Three Mile Island, Unit 1

Inspection at: Middletown, Pennsylvania

Inspection conducted: April 1 - May 8, 1980

Inspectors: *L. Gage* 6/10/80  
L. Gage, Reactor Inspector date signed  
*R. Padlino* 6/10/80  
R. Padlino, Reactor Inspector date signed  
*W. F. Sanders* 6/10/80  
W. Sanders, Reactor Inspector date signed  
*P. Koltay* 6/10/80  
P. Koltay, Reactor Inspector date signed  
*A. G. Varela* 6/10/80  
A. Varela, Reactor Inspector date signed  
*G. Napuda* 6/10/80  
G. Napuda, Reactor Inspector date signed  
Approved by: *S. D. Ebnetter* 6/11/80  
S. Ebnetter, Chief, Engineering Support date signed  
Section, RC&ES Branch

Inspection Summary: Inspection on April 1-May 8, 1980 (Report No. 50-289/80-09)  
Areas Inspected: Routine, unannounced inspection by regional-based inspectors of work activities and records associated with the Unit 1 Restart Program, including: inservice inspection observations, ISI evaluation and documentation, pressurizer heaters emergency power supply (task RM-16), tendon surveillance program, hydrogen recombiner (task RM-12), fire protection (task NM-40), engineering design, and identification of safety-related ECMS. The inspection involved 188 inspection hours on site by six NRC regional-based inspectors.

Results: No item of noncompliance was identified.

## DETAILS

### 1. Persons Contacted

#### GPUSC

- \*B. Ballard, Jr., QA Site Manager
- \*N. Kazanas, Manager of Quality Assurance
  - J. Fornicola, Operations QA Supervisor
- \*R. Fenti, Supervisor, QA Audits
  - D. Spear, TMI-1 Project Engineering Manager
  - J. Wright, QC Manager

#### Metropolitan Edison

- I. Porter, SU&T Supervisor
- \*G. Troffer, Deputy Restart Manager
- \*M. Shaffer, Start-up and Test

#### Hartford Steam Boiler

- S. Thoms, ASME ANI

\*denotes personnel present at exit interview.

### 2. Inservice Inspection Observations

(Reference: IE Report 50-289/80-06, Item 80-06-05)

The inspector examined the quality assurance activities, related to the inservice inspection program, for the implementation of the requirements specified in the ASME B&PV Code, 1974 Edition with 1975 Summer Addenda of section XI and V and for compliance with regulatory requirements.

#### a. Calibration Standards

The following calibration standards were initially rejected by the licensee for dimensional variances from the requirements in the B&PV code.

<u>Met-Ed Standard</u>	<u>Variable</u>	<u>Requirement</u>
034-2" Sch 160	Distance from Horiz	ASME Sect V Article 5
024B-2½" Sch 160	Axis of Flat Bottom	T.533.2 Fig-T533(a)
063-6" Sch 40	Hole to End Face of	Fig-T535(a)
021b-10" Sch 160	Std. is 1" - Require-	
017-14" Sch 140	ment is 1.5"	

The 1.5" dimension is intended to prevent coincident reflections from the calibration hole and the corner or end face of the standard. The welds that were examined with a UT system calibrated to these standards was placed in a "hold" status until the problem could be resolved.

The licensee's UT level III representative performed a demonstration in an attempt to prove that the response from a side drilled hole for a circular scan calibration is not adversely affected by its location with respect to the end face and the corners of the calibration standards. This was performed on the calibration standards listed in page 2 and was observed by the ANI and the NRC inspectors. The demonstration was satisfactorily performed. The licensee's representative stated that the demonstration method satisfies the Code, per Section IWA 2240 ASME Section XI, 1979, "Alternative Examinations," which states: "Alternative examination methods, combination of methods, or newly developed techniques may be substituted for the methods specified in this division provided the results yield demonstrated equivalence or superiority to the satisfaction of the inspection specialist." The interpretation and application of this paragraph of the Code to this problem was not shared by the ANI and the NRC inspector. The licensee stated that an interpretation was being requested from the ASME Code Committee.

b. Other Dimensional Variations

Other dimensional variations were discovered and actions performed as described:

<u>Serial #</u>	<u>Product ID</u>	<u>Variance</u>	<u>Action</u>
015	RC Pipe 3x4x12 (clad)	No 1/2t hole	Install a 1/2t hole
017	14" Schd 140	Hole Location & Depth. Drill Bit Broken off	Replace Block
021	10" Sch 14	Hole Location & Depth	Replace Block
022	4" Sch 160	Hole Location	Replace Block
024 & 034	2 & 2 1/2" Sch 160	Hole Location & Depth	Use the 2 inch Standard for exam. of both pipe sizes. Consider replace- ment but not mandatory.
063	6" Sch 40	Hole Depth Questioned	

The variations were corrected and calibration tests were performed to demonstrate that the UT system, calibrated to the corrected standards, would be within the calibration tolerance of 2 dB on amplitude and within a 5% change on the sweep line of the original calibration records for the welds tested. These calibration tests were witnessed by the ANI inspector. The NRC inspector considered them satisfactory.

The inspector noted that the problem of dimensional differences in the calibration standards (as discussed in para. 2.a.) had been identified by the licensee and discussed in a correspondence interchange between the licensee and his NDE contractor in 1976. In addition, the independent nondestructive test evaluations performed by Material Consultant International (MCI) in 1977 had specific findings and recommendations on the integrity of the calibration standards. These are described on pages 7-9 of MCI final report 77-272/NRC Contract 05-77-062.

The inspector identified this as an unresolved item, which will be the subject of a further review by an NRC inspector during a subsequent IE inspection. (80-06-05)

### 3. ISI Evaluation and Documentation

The inspector evaluated the licensee's requirements for identifying, characterizing, evaluating, dispositioning, recording, and reporting relevant and irrelevant indications. The required actions are described in the licensee's ISI Project Organizational Responsibilities Document (Rev. 0). The inspector noted that the requirements were not clearly delineated. The licensee stated that appropriate revisions would be made and specific instructions would be developed.

The inspector reviewed the test data. He noted that the licensee had identified several discrepancies in the data sheets for FW-W-1 and FW-W-2 welds. Licensee action is being taken.

The inspector identified these areas as an item of concern pending his review of the revised project document, the new instructions, and the actions taken on the two welds. (80-09-01)

### 4. Pressurizer Heaters Emergency Power Supply (Task RM-16)

The inspector examined the following documents:

Purchase Order Nos. 86073, 86074, 86086 and 86110

Specification Nos. SP-1101Y-017, SP-110Y-021, SP-1101Y-030

Med-Ed Specification GED-ES-9

System Design Description - SDD-902-A

Drawing Nos. SS-202-044-LP1, SS-202-004-LP2, SS-202-004-LS1, SS-202-004-LS2, SS-208-313, SS-208-314, SS-209-463, SS-209-420, SS-209-489, SS-209-563, SS-209-492

Circuit Nos. LS51, LS52, LS54, LS55, LS56, RP724, LP58, AL293, AL294, CK2 and CK3

The inspector noted that the high temperature (200° C) cable specified as a replacement for the 90° C cable in the containment building connected between the heater element and T-161, had not been ordered yet. This cable is a requirement of system design description SDD-902-A, paragraph 3.2.3.5.

No items of noncompliance were identified.

5. Tendon Surveillance Program

The inspector reviewed the licensee's tendon surveillance program, including anchorage assembly, surveillance wire, buttonheads, five designated vertical tendons, tendon gallery/lower anchor end and the same tendons/anchorage at the dome/ring girder. He also inspected lift-off force measurements, and distressing and restressing on four vertical tendons, conforming to requirements committed in original tech specs to Regulatory Guide 1.35, Revision 1.

He reviewed records of VSL Corp activities, condition of the anchorage assembly and buttonhead cracks. VSL removed one surveillance wire for rust inspection and tension tests.

The licensee initiated NRC #QC-80-39 against VSL/procedure SP-GED-GS-6: split shims, supplied by VSL for 1977 surveillance and presently being used, do not have required certifications. VSL was directed to perform a material analysis on one of each thickness of shim to verify their usability.

The inspector identified this as an unresolved item, which will be the subject of a further review by an NRC inspector during a subsequent IE inspection. (80-09-02)

6. Hydrogen Recombiner (Task RM-12)

The inspector reviewed licensee QC report SI-527, for surveillance of the contractor's (Catalytic) installation of Grinnel couplers for concrete anchors for the tanks. This report identifies conformance to contract drawing number E-901-33001, as required by ECM-065.

No items of noncompliance were identified.

7. Fire Protection (Task NM-40)

(Reference: IE Report 50-289/80-06, Item 80-06-01)

The inspector reviewed specification SP-355 and purchase order 110-580 for the Halon system installed in the computer area. He noted that the purchase order, dated August 9, 1979, was marked "QA not required," while the purchase requisition, dated February 8, 1979, was marked "QA required." He brought this apparent discrepancy to the attention of the licensee. The licensee stated an inspection of the now-installed Halon system will be promptly initiated, as well as a noncompliance report.

The inspector reviewed ECMs 063-Electrical Smoke Detectors and S-064-Electrical Halon System and fire damper actuation. He noted that, while the mechanical installations were covered by the QA program (with the exception of the Halon system previously noted), the electrical installations were not covered by the QA program. He brought this apparent discrepancy to the attention of the licensee.

The inspector identified these apparent discrepancies as an unresolved item, which will be the subject of a further review by an NRC inspector during a subsequent IE inspection. (80-06-01)

8. Engineering Design

(Reference IE Report 50-289/80-06, paragraph 2)

The inspector had identified, in an earlier inspection report (reference) the apparent exclusion of the "Recommended Requirements for Restart of TMI-1" (the Restart Report) from the list of design verification bases.

The inspector interviewed the licensee's corporate engineering personnel and reviewed various documents to determine what actions had been taken. The licensee stated that formal directives had been issued to his engineers to review the Restart Report and compare the design modifications to the requirements in the report. He provided GPU memo No. TMI-1/E565, dated March 12, 1980, as documentation.

No items of noncompliance were identified.

9. Identification of Safety-Related ECMs

(Reference: IE Report 50-289/80-04, Item 80-04-01)

The inspector had identified, in an earlier inspection report (reference), the possible exclusion of some ECMs from the grouping that has been identified as within the scope of the QA program; that is, safety-related.

The licensee recognized the inspector's concern and indicated that they would consider reviewing all "non-safety" ECMs generated prior to the issuance of the Restart Report and the "Status Report on the Evaluation of Licensee Compliance."

The inspector interviewed the licensee's corporate engineering personnel and reviewed various documents to determine what actions had been taken.

The inspector determined that the licensee had reviewed the "non-safety" ECMs generated earlier. The following modification tasks were affected, as indicated:

<u>Task</u>	<u>ECM</u>
RM-1	Particular ECMs not identified
RM-4	Particular ECMs not identified
RM-10	11, 57
RM-14	S-007 (Rev. 1)
LM-1	Particular ECMs not identified
LM-2	032 (Revs. 0 and 1)
LM-5	S-58 (Rev. 1)
NM-40	S-063 (Rev. 0) and S-064 (Rev. 0)

The licensee stated that a revised issue of the listing of safety-related equipment (superceding the listing contained in his procedure GP-1008, Revision 2) would be published on May 22, 1980 (the QCL List). This new listing will be the basis for determining which ECMs are within the scope of the QA program.

No items of noncompliance were identified.

#### 10. Unresolved Items

Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable items, items of noncompliance, or deviations. New unresolved items disclosed during this inspection are discussed in paragraphs 2, 3, 5, and 7.

#### 11. Exit Interview

The inspectors met with the licensee representatives (denoted in paragraph 1) at the conclusion of the inspection on May 8, 1980. The inspector summarized the purpose and scope of the inspection and the findings. The licensee acknowledged the findings.