

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

Region I

Report No. 50-289/80-30

Docket No. 50-289

License No. DPR-50 Priority -- Category c

Licensee: Metropolitan Edison Company

P. O. Box 480

Middletown, PA 17057

Facility Name: Three Mile Island Nuclear Station, Unit 1

Inspection at: Middletown, Pennsylvania

Inspection conducted: November 1 - December 31, 1980

Inspectors: *DR Haverkamp* 5/4/81
D. R. Haverkamp, Senior Resident Inspector date signed

W A Rekito 5/4/81
W. A. Rekito, Reactor Inspector date signed

Approved by: *A. N. Fasano* 5/4/81
A. N. Fasano, Chief, Three Mile Island date signed
Section, Projects Branch #2

Inspection Summary:

Inspection on November 1 - December 31, 1980 (Inspection Report No. 50-289/80-30)

Areas Inspected: Routine inspections by resident and region-based inspectors (92 hours) of Licensee actions on previous inspection findings; plant operations including facility tours and record reviews; in-office review of licensee event reports; onsite licensee event followup; licensee action on IE Bulletin 79-14; and hydrostatic test of Makeup System piping modifications.
Results: No items on noncompliance were identified.

Details

1. Persons Contacted

General Public Utilities Nuclear Group (GPUNG)

- R. Barley, Lead Mechanical Engineer, TMI-1
- J. Bashista, Mechanical Engineer, TMI-1
- *J. Colitz, Manager Plant Engineering, TMI-1
- *J. Fornicola, Operations Quality Assurance Supervisor, GPUNG
- *R. Harbin, Technical Analyst, TMI-1
- *L. Harding, Supervisor of Licensing, TMI-1
- C. Hartman, Lead Electrical Engineer, TMI-1
- H. Hukill, Vice President and Director, TMI-1
- *D. Mitchell, Licensing Engineer, TMI-1
- J. Pearce, Mechanical Engineer, TMI-1
- J. Pippett, Test Engineer, TMI-1
- *A. Rochino, Engineering Mechanics Manager, GPUNG
- M. Ross, Supervisor of Operations, TMI-1
- M. Shatto, Plant Operations Review Committee (PORC) Secretary, TMI-1
- R. Toole, Manager, TMI-1
- *J. Volence, Engineering Mechanics Engineer, GPUNG

Gilbert Associates Incorporated

J. Gronki, Support Inspection Group

The inspector also interviewed several other licensee employees during the inspection. They included control room operators, maintenance personnel, engineering staff personnel and general office personnel.

*denotes those present at the exit interview on January 9, 1981.

2. Licensee Action on Previous Inspection Findings

(Closed) Unresolved Item 289/77-09-02: Adequacy of Snubber Visual Surveillance Procedure. The inspector reviewed Surveillance Procedure SP 1301-9.9, Revision 11, dated February 22, 1980, "Hydraulic Shock and Sway Suppressors Visual Inspection." The procedure included requirements to check snubber piston rod positions and to grease snubber clevis fittings. The inspector considered the detailed inspection methods to be acceptable and had no further questions concerning this item.

(Closed) Unresolved Item 289/78-24-01: Decay Heat Removal Pump Surveillance Procedure conformance to ASME Section XI testing requirements. The inspector reviewed Surveillance Procedure SP 1300-3B A/B, Revision 13, dated October 1, 1980, "Decay Heat Removal Functional Test and Decay Heat Removal System Valve Operability Test." The procedure included requirements to measure and evaluate pump flowrate as required by IWP 3100. The inspector noted that the measured flowrate did not account for flow through the normally open pump minimum flow recirculation line but determined that the test method was acceptable and had no further questions concerning this item.

(Open) Unresolved Item 289/78-24-02: Main Steam Relief Valve Testing. The inspector reviewed Revision 4 of Surveillance Procedure 1303-11.3, "Main Steam Safety Valves" and determined that the requirements of ASME Section XI, IWV-3510(c), to test additional valves when one fails the functional test, has not yet been included. The inspector noted that the need for a procedure change was previously identified in NRC inspection reports 78-24 and 79-06. This matter was discussed with the licensee's representative, who stated that the requirements would be included prior to performing the next scheduled surveillance. This item remains unresolved pending review of applicable procedure changes.

(Closed) Unresolved Item 289/78-24-03: Check Valve Operability Testing Requirements of ASME Section XI. The inspector reviewed the following Surveillance Procedures:

- SP 1300-3B A/B, Revision 13, dated October 1, 1980, "Decay Heat Removal Functional Test and Decay Heat Removal System Valve Operability Test"
- SP 1300-3H A/B, Revision 7, dated April 28, 1980, "Makeup Pump and Valve Functional Tests"

The inspector determined that check valves DH-V-14, DH-V-16, and MU-V-73 A/B/C, were being tested in a manner which demonstrates that the valves open properly and meets the requirements of IWV-3520(b)(2). The inspector had no further questions concerning this item.

(Closed) Unresolved Item 289/78-24-04: ASME Inservice Testing Requirements of Valves With Fail-Safe Actuators. The inspector reviewed various surveillance procedures and discussed this matter with the licensee's representative. All fail-safe valves are the air-operated type and the method used to test these valves vents all air pressure from the operator diaphragm using the normal control switch. The inspector determined that this was an acceptable method for meeting the requirements of IWV-3410(e) and had no further questions concerning this item.

(Open) Unresolved Item 289/79-06-01: Operating Temperature Affect on Hydraulic Snubber Functional Testing. The licensee completed an engineering evaluation for the functional characteristics of hydraulic shock suppressors at operating temperatures. The results of this evaluation were documented in a memo to the Unit 1 Superintendent, dated June 4, 1979, and in the minutes of PORC Meeting 79-23. One corrective action of the evaluation was that the acceptance criteria for snubber lock-up velocities as stated in SP 1303-9.9, "Functional Testing of Hydraulic Snubbers" would be revised to account for the difference in temperature between operating and testing conditions. Licensee personnel stated that this change is most important for the Basic Engineering type snubbers, but the procedure has not yet been revised. The inspector determined that a procedure change

request was being prepared and was scheduled for review by PORC during the week of January 5, 1981. The inspector reviewed the evaluation reports which determined analytically that the temperature adjusted lock-up velocities for all snubbers in service were satisfactory and met the newly established acceptance criteria. The inspector had no further questions concerning this item at this time. This item will remain unresolved pending completion of appropriate changes to the snubber functional test procedure.

(Closed) Unresolved Item 289/79-06-02: Apparent Past Snubber Discrepancies. The licensee corrected each of the noted discrepancies and performed evaluations and tests to determine if operability of the subject snubbers was affected. These actions were documented in a memorandum to the Unit 1 Superintendent, dated June 4, 1979, and in the minutes of PORC Meeting 79-23. The inspector reviewed these records and independently observed the general condition of snubbers in the Auxiliary and Intermediate Buildings. No unacceptable conditions were identified and the inspector had no further questions concerning this item.

3. Review of Plant Operations

Inspection tours of selected plant areas were conducted during the day shift with respect to housekeeping and cleanliness, fire protection, radiological controls, physical security and plant protection, operation and maintenance administrative controls and Technical Specification compliance. Acceptance criteria for the above areas included requirements or Technical Specifications, applicable regulatory guides and standards and approved licensee plans and procedures.

In addition to conducting the plant area tours, the inspector regularly visited the Control Room during normal work hours to observe operations in progress, review logs and records and to conduct discussions with Control Room personnel. The inspector also frequently attended the licensee's Plan-of-the-Day (POD) meetings, held by licensee management and supervisory personnel at 9:00 a.m., each Monday, Wednesday and Friday, to assess licensee evaluation of plant conditions, status and problems and to review the licensee's plans for conducting certain major plant operations and maintenance activities which require special department coordination and management review.

No items of noncompliance were identified during the review and observation of plant operations.

4. In-Office Review of Licensee Event Reports (LER's)

The inspector reviewed the LER's listed below, which were submitted to the NRC Region I office, to verify that the details of the event were clearly reported including the accuracy of the description of

cause and the adequacy of corrective action. The inspector determined whether further information was required from the licensee, whether the event should be classified as an Abnormal Occurrence, whether the information involved with the event should be submitted to the Licensing Boards, and whether the event warranted onsite followup.

The following LER's were reviewed:

- *-- LER 80-001/01T-0, dated February 6, 1980, and LER 80-001/01X-1, dated May 30, 1980 (Potential overloading condition that could exist on the 1P 480V bus during certain failures and conditions)
- LER 80-002/03L-0, dated February 29, 1980 (Annual inspection of Diesel Generator 1A was not performed due to unavailable spare parts and licensee's policy to maintain a backup power supply for the Decay Heat Removal System in service)
- *-- LER 80-03/01T-0, dated February 20, 1980, and LER 80-03/1T-1, dated March 4, 1980 (Makeup pump discharge check valves MU-V-73 A/C found to have damaged locking devices on the valve seat holddown bolts)
- *-- LER 80-04/01T-0, dated March 20, 1980, and LER 80-04/01T-1, dated July 3, 1980 (Errors were discovered in the seismic analysis for Decay Heat Removal Piping near valves DH-V-1 and DH-V-2, by IE Bulletin 79-14)
- LER 80-05/99X-0, dated March 27, 1980 (Special report of expected anomalies for Rosemount Model 1152 pressure transmitters when conditions are outside the calibrated range. These transmitters are currently used as narrow range instruments for the Reactor Coolant System)
- *-- LER 80-06/01T-0, dated April 8, 1980 (Local leak rate test of containment isolation valve RB-V-7 resulted in exceeding the Technical Specification limit, for total combined leakage of 0.6 L_a)
- *-- LER 80-07/01T-0, dated May 7, 1980 (Failure of the leak rate test system piping welds to meet ANSI B31.1.0 Power Piping Code requirements)
- *-- LER 80-08/99X-0, dated June 30, 1980, and LER 80-08/99X-1, dated July 4, 1980 (Deterioration of the "A" Emergency Diesel Generator bearing insulation which could lead to possible generator bearing failure)
- LER 80-09/03L-0, dated June 26, 1980 (Reactor Building tendon surveillance date was exceeded prior to completing the surveillance)

*denotes those LER's selected for onsite followup

- *-- LER 80-10/01T-0, dated June 30, 1980 (Nonconservative errors identified in the FSAR description of the steam generator tube rupture safety analysis)
- LER 80-11/03L-0, dated July 11, 1980 (Failure to perform the Reactor Building Spray System compressed air test within the allowable time period)
- *-- LER 80-12/01T-0, dated July 11, 1980 (Reanalysis performed, as part of IE Bulletin 79-01B corrective actions, revealed that post accident pressure and temperature in the intermediate building following a postulated main steam line break would be higher than previously analyzed)
- *-- LER 80-13/03L-0, dated August 18, 1980 (A pressurizer code safety valve was tested and found to open at a pressure below the setpoint limit)
- *-- LER 80-14/03L-0, dated August 14, 1980 (During routine surveillance one hydraulic snubber was determined to be inoperable because it had a low fluid level and failed the functional test)
- *-- LER 80-15/04T-0, dated August 14, 1980, and LER 80-15/04T-1, dated September 9, 1980 (River water discharge temperature was more than 3 degrees below the inlet river water temperature for approximately six hours, which was a violation of Environmental Technical Specification 2.1.a(1))
- *-- LER 80-17/01T-0, dated October 8, 1980 (During equipment environmental qualification review per IE Bulletin 79-01B, three safety-related valves were identified which lacked qualification documentation for the brakes on the motor operators)
- *-- LER 80-18/01T-0, dated November 4, 1980 (While replacing operating coils for ASCO solenoid valves per IE Bulletin 79-01A, it was determined that several of the replacement coils were not the correct type)

The above LER's were closed based on satisfactory in-office review except those LER's selected for onsite followup.

5. Onsite Licensee Event Followup

For those LER's selected for onsite followup (denoted in Paragraph 4), the inspector verified that the reporting requirements of Technical Specifications and applicable licensee procedures had been met,

*denotes those LER's selected for onsite followup

that appropriate corrective action had been taken, that the event was reviewed by the licensee as required by Technical Specifications, and that continued operation of the facility was conducted in conformance with Technical Specification limits.

The inspector's findings regarding these licensee events were acceptable, unless otherwise noted below.

- LER 80-04 reported the inadequate design of Decay Heat Removal System piping supports adjacent to valves DH-V-1 and DH-V-2. This condition was discovered while performing piping reanalysis of non-conformances identified by inspections required by IE Bulletin 79-14. The cause of this specific problem was identified as errors in selecting input data for the original piping seismic analysis. In addition to modifying the existing supports for valves DH-V-1 and DH-V-2, the corrective actions described continuing the IE Bulletin 79-14 reanalysis and reporting any similar analysis errors as updates to the event report.

The inspector reviewed the modification records of the support for valve DH-V-2. The support for valve DH-V- has not yet been modified. In addition, the inspector determined that many other safety-related pipe supports required modifications as a result of IE Bulletin 79-14 reanalysis and questioned why the licensee had not reported these as indicated in the LER. The licensee's representative stated that other identified support deficiencies were not as severe and did not result in the potential for stressing the associated piping beyond code allowable values. However, reanalysis will continue and a further review of the reporting requirements would be conducted.

The inspector stated that this matter is unresolved pending the submission of a corrected updated event report or until additional justification is provided for not issuing an updated LER (289/80-30-01).

- LER 80-06 described excessive leakage found while performing a local leak rate test of containment isolation valve RB-V-7, which caused the Technical Specification limit for total combined leakage of $.6 L_a$ to be exceeded. The reported corrective action to prevent recurrence was to replace the existing valve with one of an improved design. The licensee representative stated that the replacement valve was on site and would be installed following issuance of the necessary engineering change documents. The inspector reviewed the Reactor Building Local Leak Rate Test Procedure, SP 1303-11.18, and current test records. This review verified that all valves have been tested within the past two years which is required by 10 CFR 50, Appendix J. This LER will remain open pending completion of the corrective actions and additional NRC review during a subsequent inspection (289/80-30-02).

- LER 80-13 reported a Pressurizer code safety valve (RC-RV-1B) which when tested, opened at a pressure less than the setpoint lower limit. As part of the corrective actions the licensee committed to conduct an investigation to determine the exact cause and submit a report of their evaluations to the NRC by November 1, 1980. The inspector reviewed the applicable Surveillance Procedure, SP 1303-11.2, and an engineering memorandum dated December 16, 1980, regarding the followup report to LER 80-13. This memorandum reported completion of the investigation which concluded that this event was an isolated case and the exact cause of the failure could not be positively identified. The memorandum also described a plan to revise the surveillance procedure to require documentation of all valve adjustments which would aid any future analysis. This LER will remain open pending issuance of a followup event report (289/80-30-03).

6. Followup to IE Bulletin 79-14

The inspector reviewed the licensee followup actions to IE Bulletin 79-14, "Seismic Analysis for As-Built Safety Related Piping Systems" to verify that the written response was within the time period stated in the Bulletin and included the information required to be reported, and adequate corrective action commitments based on information presented in the bulletin and the licensee's response, and that appropriate licensee management review was accomplished.

The inspector's review included discussions with licensee representatives and onsite contractor personnel and review of facility records including five letters to NRC Region I dated August 24, 1979, January 15, 1980, March 31, 1980, May 2, 1980, and October 13, 1980.

The acceptance criteria for the above review included inspector judgement and requirements of applicable Technical Specifications and facility procedures.

Based on the above review the inspector identified the following findings concerning the adequacy of the licensee's followup actions.

- a. The licensee's written responses including the "Final Report," submitted to the NRC on October 13, 1980, did not address the following specific Bulletin requirements for identified nonconformances.
 - Requirement 4.A; Evaluate the effect of the nonconformance upon system operability and comply with the reporting requirements of Technical Specifications.
 - Requirement 4.C; Submit a schedule for correcting nonconforming systems so they conform to the design documents and submit a description of the work required to establish conformance.

-- Requirement 4.D; Evaluate and improve quality assurance procedures to assure that future modifications are handled efficiently.

- b. The inspector noted that the timeliness of licensee's actions did not appear to be prompt considering the fact that the plant has been in cold shutdown condition since issuance of the bulletin. This determination is based on the status of the overall effort described in the latest reponse "Final Report" dated October 13, 1980. That is; Of the approximate 2400 supports within the scope of this bulletin, 1170 had been reviewed and evaluated resulting in the need to redesign 331 and as of that date 141 had been redesigned. It was estimated that less than ten supports have been modified to date.
- c. The inspector noted that licensee management review of this bulletin and responses did not appear to be adequate. This determination is based on the existence of the problems identified above and the fact that neither the PORC nor the Site Quality Assurance Group for Modifications and Operations had reviewed these documents.

The licensee's representative explained their intent to update the information provided in their response during the first quarter of 1981. However, recognizing the inspector's concerns, the licensee's representative stated that a revised response would be submitted to the NRC which addresses the specific identified problems.

This matter is unresolved pending review of licensee's further actions and submittal of a revised response (289/79-BU-14).

7. Hydrostatic Test of Makeup System Piping Modification

On December 17, 1980, the inspector observed an attempted hydrostatic test of the HPI cross-connect line installed per Engineering Change ECM-S-007. The test was being conducted in accordance with an approved procedure TP 250/3.1, MTX 144.5.1.3, dated December 12, 1980. The test was not completed on this date due to an inability to attain the required test pressure of 3813 psig. The test was attempted again on December 23, 1980, with the same results. The test engineer stated that the probable cause of this problem was seat leakage past the test boundary valves and the limited capacity of the available test pump. The inspector reviewed the test procedure, test gage calibration records, and the Startup and Test Manual, AP 1047, Revision 0. Observations by the inspector included a sample valve position verification, test equipment installation, pressurization and documentation of results. At the end of this inspection period the test had not been completed and the licensee was evaluating different test methods including the use of a larger capacity test pump. The inspector identified no unacceptable conditions and had no further questions at this time.

8. Exit Interview

Meetings were held with senior facility management periodically during the course of the inspection to discuss the inspection scope and findings. The inspector met with the licensee representatives (denoted in Paragraph 1) at the conclusion of the inspection on January 9, 1981.