

Region I

Report No. 50-289/83-05

Docket No. 50-289

License No. DPR-50 Priority -- Category C

Licensee: GPU Nuclear Corporation
P.O. Box 480
Middletown, Pennsylvania 17057

Facility: Three Mile Island Nuclear Station, Unit 1

Inspection at: Middletown, Pennsylvania

Inspection conducted: January 31 - February 28, 1983

Inspectors: *R. Conte* 3/8/83
R. Conte, Senior Resident Inspector (TMI-1) date signed

F. Young MARCH 8, 1983
F. Young, Resident Inspector (TMI-1) date signed

Approved by: *R. Keimig* 3-10-83
R. Keimig, Acting Chief, Reactor Projects date signed
Section No. 2C, PO No. 2

Inspection Summary:

Inspection conducted on January 31 - February 28, 1983, (Inspection Report Number 50-289/83-05)

Areas Inspected: Routine safety inspection by site inspectors of licensee action on previous inspection findings; plant operations including steam generator repairs and restart modifications. The inspection involved 167 inspector-hours.

Results: Of the three areas reviewed, no violations were identified in two areas and one violation was identified in one area (failure to meet a license condition on inservice pump/valve testing as noted in paragraph 3c).

Details

1. Persons Contacted

General Public Utilities (GPU) Nuclear Corporation

- R. Barley, Lead Mechanical Engineer TMI-1
- J. Colitz, Plant Engineering Director TMI-1
- T. Hawkins, Manager TMI-1, Startup and Test, Technical Functions
- R. Harper, Corrective Maintenance Manager TMI-1
- *C. Kimball, Quality Assurance (QA) Monitor, Nuclear Assurance
- J. Kuehn, Manager, Radiological Controls TMI-1
- *S. Levin, Maintenance and Construction Director TMI-1
- F. Paulewicz, Mechanical Engineer TMI-1
- S. Pruitt, TMI-1 ISI (Inservice Inspection) Supervisor
- H. Shipman, Engineer III, TMI-1
- *C. Smyth, Supervisor TMI-1 Licensing, Technical Functions
- C. Stephenson, Nuclear Licensing Engineer, Technical Functions
- *R. Toole, Operations and Maintenance Director TMI-1

Other personnel in the operations, engineering, and quality assurance staffs were also interviewed.

*denotes those present at an exit interview.

2. Licensee Action on Previous Inspection Findings

(Open) Inspector Follow Item (289/82-BC-35): Technical Support Center Modifications. Modification implementation was completed. One significant incomplete work list item remains to be resolved by the licensee for restart (if permitted). Details are in paragraph 4. The long term upgrade to this facility will be separately reviewed per the NRC Task Action Plan (TAP III.A.1.2).

(Closed) Inspector Follow Item (289/82-SC-11): Installation of hydrogen recombiner. Installation of hydrogen recombiner with dedicated containment penetrations was completed. Details are in paragraph 4. This modification addresses and meets the requirements stated in Task Action Plan (TAP) Item II.E.4.1 which is also considered closed.

3. Plant Operations During Long Term Shutdown

a. Plant Operations Review

Inspections of the facility were conducted to assess compliance with general operating requirements of Section 6 of Technical Specifications in the following areas: licensee review of selected plant parameters for abnormal trends; plant status from a maintenance/modification viewpoint including plant cleanliness; control of documents including log keeping practices; licensee implementation of the security plan including access controls/boundary integrity and badging practices; licensee control of ongoing and special evolutions including control room personnel awareness of these evolutions; and implementation of radiological controls.

Random inspections of the control room during regular and back shift hours were conducted. The selected sections of the shift foreman's log and control room operator's log were reviewed for the period February 1, 1983, to February 28, 1983. Selected sections of other control room daily logs were reviewed for the period from midnight to the time of review. Inspections of areas outside the control room occurred on February 1, 7, 8, 15, 18, 22, 23, and 24, 1983. Selected licensee planning meetings were also observed. Maintenance and surveillance records were reviewed to support the verification of licensee action on previous inspection findings.

On February 11, 1983, the resident inspector was notified by the licensee of corrosion on certain internal components of the recently removed Power Operator Relief Valve (PORV) from the top of the pressurizer (LER No. 83-003). The licensee's inspection was as a result of LER No. 82-011, in which abnormal corrosion was noted on the previously installed PORV (removed prior to September 1981). With respect to the recently disassembled PORV, the licensee reported that corrosion occurred in the inconel and martensitic steel parts. The pilot valve piston and spring were found corroded in the full open position; however, the main valve disc was found in the closed position. The licensee representatives considered this reportable in accordance with Technical Specification 6.9.2.A.9. Visual observation by the resident inspector, on February 11, 1983, confirmed the corrosion conditions noted by the licensee. The type of corrosion remains to be determined and will be the subject of the followup report.

Results of the plant operations review indicated that the licensee continued to exhibit proper managerial control of daily activities. Housekeeping was, in general, adequate for the level of maintenance/modification work conducted. Records were properly completed as sufficient evidence of activities performed.

b. Steam Generator Recovery Program

The repair process continued in both "A" and "B" Once Through Steam Generators (OTSG) with completion of candle debris removal during this inspection period. Tube end milling on all tube ends in the upper OTSG heads was started and is expected to be completed by March 7, 1983. In addition to end milling, tube stabilization, final cleanup and selected testing will be performed. Projected completion of all OTSG repair work to OTSG is mid April 1983.

Due to the significance and severity of the OTSG tube degradation, the inspector frequently observed various aspects of the repair process. On several occasions the inspector observed the candle debris removal and tube end milling process being performed in the OTSGs. A selected review of records, completed at the job site, was conducted. The adequacy of the procedures used at the time of observation was also reviewed. In addition, discussions were conducted with several craftsmen and supervisors on different shifts to assess the knowledge level and understanding by key individuals.

Results of this review are similar to that described in paragraph 3.a, above.

c. Inservice Pump/Valve Tests

The inspector reviewed the implementation of License Amendment No. 71, dated August 3, 1981. This amendment approves the Inservice Testing Program for safety related pumps and valves in accordance with 10 CFR 50.55(e) and (f), and provides a safety evaluation for the NRC action including the justification of licensee exemption to certain code requirements.

It was noted that Table 2.2 of the NRC Safety Evaluation listed equipment and associated tests for which the licensee did not provide sufficient information to justify exemption from testing requirements. Accordingly, Amendment No. 71 provided a license condition (paragraph 2.c.6(3)) that the licensee propose alternatives to inservice tests for the equipment listed in Table 2.2 by the dates also listed in Table 2.2 (December 31, 1981 to September 30, 1982). Based on discussions with licensee representatives and review of docketed correspondence, the licensee apparently has not met the intent of license condition in that only one letter dated September 25, 1981, was submitted on 2 of 15 pumps. The type of testing for the 49 valves listed in Table 2.2 were not addressed by the licensee. This represents apparent violation of License Condition 2.c.6(3) (289/83-05-01).

It should also be noted that the implementation dates per Table 2.2 for these tests are in the future (90 days after the NRC finds the exemption request acceptable or first cycle after restart). In addition, based on previous inspections, the licensee is conducting inservice testing on safety related equipment to maintain a degree of readiness of equipment for restart (if permitted). However, these tests may not rigorously meet code requirements as noted in the NRC's safety evaluation for License Amendment No. 71 for which NRC approval exemptions would be needed.

4. Restart Modification

a. Task PM-8A, Technical Support Center Modifications

A review of Task PM-8A was conducted to verify that the new designs provided are consistent and meet the requirements delineated in NUREG-0680 (and supplements), Section 8.2.2.2.b and NUREG-0746 (and supplements). The proposed design of Task PM-8A was to: provide vital electrical power receptacles for a cathode ray tube (CRT) repeater from the Mod Comp Computer and for the associated Hard Copy Printer (HCP) at the Technical Support Center (TSC); provide conduit and cable layout to connect the CRT to the Mod Comp Computer; provide 10 duplex receptacles in the TSC and six emergency lights for the TSC, and other key emergency planning areas in the control building (powered from an emergency diesel generator via the 1N, 480V bus and the control building heating and ventilation distribution panel); provide an intercom system between the TSC,

control room and shift supervisors office; and provide seismic restraints for radiation monitors, desks, file cabinets and miscellaneous office equipment in the TSC.

The inspector reviewed, on a sampling basis, the documentation associated with the implementation of the modification including as built drawings, test packages, quality control inspection reports, field change requests and the documentation for Engineering Change Memoranda (ECM) S-219, S-245, and S-258, and revisions thereto. A walkdown of the installation of selected components was also conducted.

Implementation of the modification package was acceptable except as noted below. Field Change Request (FCR) No. C2649, dated April 20, 1982, requests clarification of the ECM 258 implementation. The ECM requires, in part, the seismic installation of miscellaneous office equipment, CRT, and HCP to prevent an adverse effect on safety related equipment in the TSC during a seismic event. The FCR is under review by the licensee's technical function division and the incomplete work is listed as Incomplete Work List (IWL) Item No. 12 for ECM 258. The inspector considered this a significant IWL that needs to be resolved before restart (if permitted). Licensee representatives acknowledged this (289/82-BC-35).

b. Task RM-12, Installation of Hydrogen Recombiner

Review of Task RM-12 was performed to verify that the design provided is consistent and meets the requirements delineated in NUREG-0680 (and supplements), Section 8-2.1.5, Atomic Safety and Licensing Board (ASLB) Partial Initial Decision (PID), dated December 4, 1981 and NRC Task Action Plan Item II.E.1.4. The purpose of Task RM-12 is to install a post LOCA (Loss of Coolant Accident) hydrogen recombining system which will serve as a means of controlling combustible gas concentrations in containment following a LOCA. The hydrogen recombining will limit the containment hydrogen concentration to four percent in order to prevent a hydrogen burn. The system consists of hydrogen recombining, control console dedicated piping containment penetrations with isolation valves and provisions for installation of a second recombining unit. The hydrogen recombiners utilized for the system are Rockwell Thermal Hydrogen Recombiner units.

The inspector reviewed, on a sampling basis, the documentation associated with the implementation of the modification including as-built drawings, test packages, weld history, field change requests and the documentation associated with Engineering Change Memoranda S-199, S-073, S-085, S-065 and S-072. In addition, a system walkdown of the installed hydrogen recombining and associated piping and isolation valves was conducted.

Based on the above, the inspector considered the work defined in this task adequate except for testing. Testing of the work dealing with the second hydrogen recombiner is not complete. This testing will be reviewed during a subsequent NRC inspection in the preoperational test area.

5. Inspector Follow Items

Inspector follow items identified in this report (paragraph 2) are matters that require NRC verification of licensee completion as a result of the TMI-1 Restart Hearings or as a result of restart commitments made to the NRC.

6. Exit Interview

The inspectors met periodically with the licensee representatives (denoted in paragraph 1) and at the conclusion of the inspection on February 28, 1983, to discuss the inspection scope and findings.