

U.S. NUCLEAR REGULATORY COMMISSION

DCS No.
50289-840706

Report No. 50-289/84-20
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: July 3 - August 3, 1984

Inspectors:

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R. Conte, Senior Resident Inspector (TMI-1)

8/22/84
date signed

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8/17/84
date signed

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Inspection Summary:

Inspection conducted on July 3 - August 3, 1984 (Inspection Report Number 50-289/84-20)

Areas Inspected: Routine safety inspection by resident and region-based inspectors of licensee action on previous inspection findings; plant operations (shutdown mode) including OTSG tube repair, surveillance testing, and maintenance activities; and technical specification document control. The inspection involved 124 inspector-hours.

Results: No conditions adverse to nuclear safety or regulatory requirements were identified except as noted in paragraphs 2.3 and 2.5. Overall control and routine maintenance of the shutdown plant were good. Licensee action on previous inspection findings including a response to a notice of violation were timely and adequate. The licensee is proceeding methodically in proposing corrective action for the loose plugs in the Steam Generator. Minor problems were found in the area of technical specification document control.

DETAILS

1. Licensee Action on Previous Inspection Findings

(Closed) Violation (289/84-11-04): Failure to properly install a welded cap on a storm drain vent adjacent to a TMI-2 condensate storage tank (designated for TMI-1 use). The licensee's response letter of June 23, 1984, adequately responded to NRC letter of May 31, 1984. Specific corrective steps to avoid further violations were delineated.

Specifically, the cap was installed and welded to the storm drain as required by Field Change Request No. 005047 on file in Job Order/Turnover Package No. A25A-G1377-1, dated May 9, 1984. This was verified by the inspector.

Material Non-Conformance Report (MNCR) No. 80-84, dated April 23, 1984, was issued shortly after inspector identification of the violation. Quality Control verified corrective action for the MNCR on May 30, 1984. The GPU Contract Services Manager issued an internal memorandum (Serial No. A200-84-7029, dated May 14, 1984) to the Catalytic Project Superintendent concerning the matter asking that Catalytic management be reminded of their responsibility for verification and accurate reporting of job completion. Completion of this action was documented in an internal memorandum from Catalytic, dated May 21, 1984.

The licensee characterized the item as an isolated case. The inspector acknowledged the licensee's characterization. Based on past inspector observations, performance by vendor personnel indicates a high regard for following work instructions at TMI-1.

(Closed) Unresolved Item (289/84-10-01): Repair of Intermediate Closed Cooling (IC) Reactor Building (RB) Outside Isolation Valves (IC-V3). The RB Local Leak Rate Test (LLRT) for IC-V3 on April 12, 1984, resulted in total leakage exceeding the technical specification and test acceptance criteria. The valve was repaired, in accordance with Job Ticket (JT) No. CD 415. The valve seal was replaced and stroke distance was readjusted. Three successful LLRT runs were completed on May 13, 1984. Of the three runs, the highest measured leak rate was 7813 sccm (standard cubic centimeters per minute). This value was reported in the licensee's report to the NRC dated July 19, 1984. Total RB LLRT (Type B and C tests) leakage was 43,543 sccm (acceptance criteria is 104,846 sccm).

(Closed) Unresolved Item (289/84-10-02): Use of uncalibrated Rotameters for determination of RB LLRT for IC-V3. The rotameters (Serial Nos. 7711H43941 and 7711H43942) used in the satisfactory test of IC-V3 on May 13, 1983, were calibrated as of that same date and their satisfactory calibrations were documented in Calibration Report Numbers 84-89 and 84-90, attached to the RB LLRT test records.

Apparently, the licensee representative's use of certain rotameters on or about April 13, 1984, that were past due for calibration (August 1983)

were for qualitative information on whether or not progress was made during the repair efforts on IC-V3. The inspector discussed this issue with licensee maintenance management. Licensee representatives stated that there was no intent to use test data from the rotameters that were past due for calibration in the final RB LLRT results or the subsequent evaluation.

The inspector determined that administrative control requirements (AP's) for test and measurement equipment are clear with respect to the proper use of equipment calibrated within test intervals for important to safety activities. (Reference: AP 1022, Revision 13, March 23, 1984, Control of Measuring and Test Equipment). During this review, the inspector did not identify any violations of these requirements.

2. Plant Operations During Long Term Shutdown

2.1 Routine Review

The resident inspectors periodically inspected the facility to assess compliance with general operating requirements of Section 6 of the 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;
- licensee control of ongoing and special evolutions, including control room personnel awareness of these evolutions;
- control of documents including log keeping practices;
- implementation of radiological controls; and,
- licensee implementation of the security plan including access controls/boundary integrity and badging practices.

The inspectors reviewed the following specific items:

- Random inspections of the control room during regular and back shift hours were conducted which included the selected sections of the shift foreman's log and control room operator's log for the period July 3 - August 3, 1984, and selected sections of other control room daily logs for the period from midnight to the time of review;
- Inspections of areas outside the control room occurred on: July 9, 10, 11, 16, 18, 23, 26, 27, August 1, 3; and,
- Selected licensee planning meetings.

2.2 Surveillance Testing

The inspector observed surveillances to verify that testing had been properly approved by shift supervision, control room operators were knowledgeable regarding testing in progress, approved procedures were being used, redundant systems or components were available as required, test instrumentation was calibrated, work was performed by qualified personnel, and test acceptance criteria were met. Portions of Quarterly Surveillance Procedure 1302-3.1 RMS (Radiation Monitor System) Calibration performed July 23, 24 and 25 was witnessed on each day. In addition, the inspector reviewed the completed data for this surveillance. The inspector verified that test data was complete and that results met Technical Specification requirements. The inspector also verified that the procedure was properly approved and, as written, satisfied the Technical Specification surveillance requirement.

No violations were identified.

2.3 Steam Generator

The abnormal leakage due to one tube (No. 80-45) in the "A" Steam Generator (SG) was addressed in NRC Inspection Report No. 50-289/84-17. At that time, the licensee was in the process of evaluating data from eddy current, bubble, and drip testing on selected tubes. The results of this evaluation was reported by the licensee in a letter, dated July 3, 1984 (Hukill, GPUN, to Stolz, NRR). The referenced letter reported that three tubes would be plugged in the "A" Steam Generator (using the welded plug at the upper tube sheet and "B&W" expansion plug at the lower tubesheet). These tube numbers are: 80-45; 70-8; and 79-41. As previously reported, tube 80-45 had a crack above the qualified section of the expanded joint (tube to tube sheet). The other two tubes were plugged in the interest of minimizing secondary plant activity considering the results of test data on those tubes. The licensee confirmed that eddy current testing results indicated that no known indication grew and that there were no new indications. Further, no tubes that were bubbling slightly and were not plugged had indications below the kinetic expansion joint in the upper tubesheet.

However, during this inspection period an additional problem with the installed Westinghouse Rolled Plugs was identified. Between July 3 and July 9, 1984, the resident inspectors became aware of and the licensee confirmed anomalies in the "A" SG upper tubesheet with respect to the tube plugging records indicating actual tube plug status. This prompted Plant Engineers to inspect and quality control to verify the plug status in the "A" and "B" SG's at the upper and lower tubesheet. Results of this review are summarized below:

- In the "A" SG at the upper tubesheet, the licensee identified misplugging (welded plug) of adjacent tubes (Tube No. 134-74

was plugged instead of No. 135-72). Tube 135-72 has been properly plugged in the upper tubesheet.

- In the "A" SG at the upper tubesheet, a Westinghouse (W) Rolled Plug was missing from No. 148-35 while a loose "W" type plug (pulled out by hand using a wrench) was found in tube No. 65-38. (The loose plug had a number on it traceable to the lot used at the section of the SG at which tube No. 148-35 is located). The loose plug was removed and a "W" type plug was installed in Tube 148-35.
- Three "W" type plugs were missing from the "A" SG lower tube-sheet sheet (Tube Nos. 10-62; 133-77, 134-73). No replugging has occurred.
- Two "W" type plugs were missing from the "B" SG lower tubesheet (Tube Nos. 12-51, 42-16). No replugging has occurred.

By letter, dated July 18, 1984, the licensee reported the above information and provided a tentative conclusion that the missing plugs were in the reactor vessel.

On July 30, 1984, the senior resident inspector, assisted by a technical expert from NRR, discussed with licensee representatives licensee plans for determining the cause of the loose "W" type plugs, corrective steps for the missing plugs/tubes with missing plugs and corrective steps to assure additional "W" type plugs do not come loose. The licensee has reviewed the qualification program for the design and installation of plugs with the vendor. Licensee representatives provided a tentative conclusion that the design is adequate and that it appears there were installation errors for the subject plugs. However, no specific deficiencies were enumerated with respect to these errors. To assure that other installation errors are identified, the licensee contracted with the vendor to provide a qualification program to check the proper installation of the "W" type plugs. Although approximately 1000 plugs are installed in both SG's, the sample size of plugs to be tested was not determined. The inspector acknowledged that this testing on the SG "W" type plugs could be accomplished if properly evaluated in accordance with 10 CFR 50.59. In-plant testing of the plugs is expected to start early to mid August 1984.

The licensee representatives also indicated that an evaluation will be documented to justify continued operation with the "W" type plugs assumed to be in the reactor vessel.

These corrective maintenance activities on the SG's will continue to be routinely reviewed by the resident inspectors. The licensee is preparing an LER on this matter.

2.4 Other Maintenance Activities

Selected maintenance activities were reviewed to verify the below listed aspects.

- Documentation was complete and accurate to support the work actually accomplished.
- Procedures and testing was appropriate to the repair circumstances.
- Post Maintenance test results were acceptable in accordance with the procedures and/or Technical Specification and the component was properly restored to normal service.

The below listed activities were reviewed.

- Job Ticket (JT) No. CD 415, request date March 9, 1984, completed signoff June 5, 1984. Intermediate Closed Cooling (IC) Containment Isolation Valve (IC-V3) seat replacement and stroke adjustment.
- JT No. 512, requested March 27, 1984, (activity on hold for quality control release of parts). Replacement of Solenoid Operator for IC-V3.

Results of this review are noted below. Procedures and test procedures used were appropriate to the repair circumstances with satisfactory test results. There was evidence of plant engineering involvement in the repair process as noted by a documented engineering evaluation and by the description of resolution of the repair activity. Quality Control was involved in the procurement of replacement parts. The documentation of the resolution of the job ticket reflected extensive use of continuation sheets by maintenance personnel to describe in detail the resolution of the activity. This is in keeping with commitments made to the Restart Atomic Safety and Licensing Board on the adequacy of maintenance record keeping.

2.5 Diesel Generator Relays

Between 9:30 A.M. and 10:00 A.M. on July 16, 1984, licensee representatives determined that differential current relays for the Emergency Diesel Generators (EDG's) were not Seismically qualified (Category I). The relays lockout the EDG's (output breaker trip and diesel mechanical trip) on a current imbalance in the EDG windings. The relays are manufactured by General Electric for use in Westinghouse Switchgear. Apparently licensee representatives' discussions with these vendors confirmed that the relays installed at TMI-1 were not designed for Seismic Category I use. A 10 CFR 50.72 Report (Section B.2.iii) was made at 12:43 P.M. July 16, 1984.

The licensee made this determination subsequent to the issuance earlier this year of an INPO (Institute of Nuclear Plant Operations) Significant Event Report for a similar problem identified at Palisades.

The licensee is attempting to obtain qualified replacement parts and will be submitting a licensee event report on this issue. This area will be reviewed during further inspections (289/84-LO-05).

2.6 Security

During daily entry and egress from the protected area, the inspector verified that access controls were in accordance with the security plan and that security posts were properly manned. During facility tours, the inspector verified that protected area gates were locked or guarded and that isolation zones were free of obstructions. The inspector examined vital area access points to verify that they were properly locked or guarded and that access control was in accordance with the security plan.

During a plant tour, the inspector noted that several individuals working in a vital area routinely were removing their badges including their key card and placed them within their hard hats located on the floor next to their work area. These individuals were working overhead on scaffolds installing insulation for fire protection modifications. Due to the scaffolding arrangement, most of the time the individuals were not able to see their badges. Another individual could have easily taken the badge and key card without the worker's knowledge.

The inspector indicated to a licensee representative that this was a poor practice. The licensee representative acknowledged this and stated that this was a potential problem in radiological controlled areas also, and would be reviewed with subsequent guidance issued to the plant staff. On subsequent tours of the plant, the inspector did not see a reoccurrence of this practice. Licensee resolution of this area will be followed by NRC (289/84-20-01).

2.7 Summary

Based on this sampling of various licensee activities noted above, the inspector did not identify any conditions adverse to nuclear safety or regulatory requirements except as noted in paragraphs 2.3 and 2.5. Personnel stationed in the control room appeared to have overall control of daily activities, including problem areas that needed resolution. The planning meetings indicated an attempt to proceed safely with daily activities including surveillance and maintenance items and to resolve any inter-department coordination problems. Licensee upper management continued their detailed involvement in site activities.

3. Technical Specifications Document Control

The inspector reviewed various controlled copies of the licensee's technical specifications by comparison with Docket 50-289 Technical Specifications held in the Public Document Room in Washington, D.C. to determine if the licensee's controlled copies were accurate and current. The inspector noted the following findings. There were several minor errors pertaining to pages found out of order and lines of print restated twice. Other errors, which were mainly typographical, involved reference to non-existing tables and to a stated time limit for a Limiting Condition for Operation (LCO). This LCO, which dealt with safety related backup fire hoses, was listed in controlled copies as two hours instead of 1 hour. The licensee indicated this LCO had never been invoked.

The inspector informed the licensee of these errors and they were immediately corrected. The licensee informed the inspector that these errors were due to a past practice of poor proofreading on retyped TS pages. The retyping was necessary because of poor quality pages received from NRR. Generally, the best available copies are reproduced for distribution. The licensee, by letter dated July 12, 1984 to J. Stoltz, NRR, has discontinued the retyping of TS pages.

Also, the inspector noted that the controlled copy found in the control room and the copies held by licensing, engineering and the Plant Review Group Chairman were inconsistent with respect to the installation of Amendment 78, dated October 20, 1982. The amendment was issued but not effective per NRC cover letter. It was not incorporated in the control room copy (filed as a separate package in front of the binder) but it was incorporated in all other controlled copies examined. Later NRC amendments to the TS incorporated the ineffective pages of Amendment 78. The licensee proposed to resolve this administrative problem by asking NRC to make Amendment 78 immediately effective.

No violations were identified.

4. Unresolved Items

Unresolved items are matters about which information is required in order to ascertain whether they are acceptable items or violations. Unresolved item(s) closed during this inspection are discussed in paragraph 1.

5. Exit Interview

The inspectors met periodically with the licensee representatives to discuss the inspection scope and findings. At the conclusion of the inspection on August 3, 1984, the inspector summarized the inspection findings to the following exit meeting attendees:

- M. A Nelson, Supervisor Unit 1 Review Program, TMI-1
- S. Otto, Licensing Engineer, Technical Functions Division (TFD)

- C. W. Smyth, TMI-1 Licensing Manager, TFD
- R. A. Szczech, Licensing Engineer, TFD
- R. J. Toole, Operations and Maintenance Director, TMI-1