

U.S. NUCLEAR REGULATORY COMMISSION

Region I

Report No. 50-289/85-01
Docket No. 50-289
License No. DPR-50 Priority -- Category C
Licensee: GPU Nuclear Corporation
Post Office Box 480
Middletown, Pennsylvania 17057
Facility: Three Mile Island Nuclear Station, Unit 1
Inspection At: Middletown, Pennsylvania
Inspection Conducted: January 7, 1985 - February 8, 1985
Inspectors: E. J. Conner for 3/8/85
F. Young, Resident Inspector (TMI-1) date
E. J. Conner for 3/8/85
W. Baunack, Project Engineer date
E. J. Conner for 3/8/85
R. Conte, Senior Resident Inspector (TMI-1) date
Approved By: E. J. Conner 3/8/85
E. Conner, Chief, Reactor Projects Section date
No. 1A, DRP

Inspection Summary:

This routine safety inspection (142 hours) covered the following areas; routine shutdown plant operations including steam generator tube repair activities, followup on respiratory allegations protection, record storage and management, and licensee action on previous inspection findings.

Results:

Licensee management continued their detailed involvement in support of daily TMI-1 activities. Licensee actions on cognizant allegations were oriented toward nuclear safety and worker radiation protection and there were attempts to identify specific information to correct adverse conditions.

8503280647 850314
PDR ADOCK 05000289
Q PDR

DETAILS

1.0 Introduction

This inspection report documents the activities conducted by the resident inspectors assisted by region-based personnel. The overall purpose of the inspection was to assess the licensee's activities as they relate to reactor safety and worker radiation protection for the shutdown mode and their readiness for the restart of TMI-1, if permitted.

The inspectors made this assessment by reviewing routine shutdown plant operations including steam generator tube repair activities, followup on various allegations on respiratory protection, records storage and management improprieties, and the licensee's actions on previous inspection findings. Within each area, the inspector lists the specific purpose of review (or verification), scope of the review (or specific inspector activity) and findings. The inspector obtained information through licensee interviews, actual observation of activities (where possible), measurement of radiation levels or performing independent calculations, and review of listed documents or records.

2.0 Plant Operations During Long Term Shutdown

2.1 Routine Review

The resident inspectors periodically inspected the facility to assess the licensee's compliance with general operating requirements of Section 6 of the Technical Specifications in the following areas:

- review of selected plant parameters for abnormal trends;
- plant status from a maintenance/modification viewpoint including plant cleanliness;
- 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,
- 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 which included the selected sections of the shift foreman's log and control room operator's log for the period January 7, 1985, through February 8, 1985; and selected sections of other control room daily logs,
- inspections of areas outside the control room on January 8, 10, 15, 17, 22, 23, 28, 29, February 4 and 7.
- selected licensee planning meetings.

No adverse findings were identified.

2.2 Steam Generator Tube Repairs and Inspection

The licensee completed the Eddy Current Testing required by Technical Specifications (TS) identifying 294 tubes in the "A" Once Through Steam Generator (OTSG) and 30 in the "B" OTSG with indications of greater than 40% through wall.

Current TS require removal of a tube with indications greater than, "40% of the nominal tube wall thickness, unless a higher limit is shown to be acceptable by analysis and approved by NRC". The licensee is in the process of developing the analysis to justify the acceptability of indications between 40 and 70% and expects to submit this analysis by mid-February. At the same time, the licensee is plugging all tubes with confirmed indications greater than 70% through wall. Thus, 93 tubes in the "A" OTSG and 30 tubes in the "B" OTSG will be removed from service by plugging with various types of welded or rolled plugs.

The inspector observed portions of ongoing activities to verify that approved procedures were used, the work was performed by qualified personnel and control room operators were knowledgeable of required testing in progress. This work will continue to be routinely followed by the resident inspectors.

2.3 Other Inspection Activities

The inspectors reviewed the licensee's plan/preparations for a special evolution in which representatives from the International Atomic Energy Agency (IAEA) will be performing inspections of new and spent fuel in the TMI-1 Fuel Handling Building beginning February 4, 1985. These evolutions will serve as training for IAEA safeguard inspectors in the use of visual equipment and state-of-the-art radiation monitoring equipment. Personnel from Sandia Laboratories, who developed this equipment, had been previously on site for initial equipment setup and operability checks during the week of January 14, 1985.

The purpose of this resident inspector review was to assure that the licensee:

- maintained the control of safeguard material consistent with established rules and regulations;
- provided adequate measures to assure the protection of spent fuel assemblies, especially during lift evolutions; and,
- prepared special procedures and/or adopted existing procedures for proper implementation during the special evolutions.

The inspectors observed portions of the preparatory setup and operability check out of equipment during the week of January 14, 1985. Also, the inspectors monitored the training evolutions during the week of February 4, 1985. Review of the following documents occurred.

- Special Temporary Procedures (STP) No. 1-84-0002, Spent Fuel Pool Activities, dated January 14, 1985.
- STP No. 1-85-0003, Uranium Measurements for Assemblies in Dry Fuel Storage, dated January 14, 1985.

The inspectors found that the licensee had appropriately planned for the evolution and had properly implemented procedures including a special temporary procedure as the overall controlling document. Personnel used existing fuel handling procedures to assure the safe handling of spent fuel assemblies. The Radcon Department provided considerable health physics coverage to assist in personal safety and ALARA for the evolutions. The inspector verified the proper implementation of SOP No. 1-85-0002, Spent Fuel Activities, and identified no adverse conditions.

Followup to an allegation concerning respiratory protection use in the OTSGs repair was completed. The inspectors documented the results of that review in NRC Inspection Report No. 50-289/85-04.

During the week of February 4, 1985, the verification of Salem ATWS (Anticipated Transients Without Scram) interim actions implemented by the licensee was performed. The inspectors documented the results of that review in NRC Inspection Report No. 50-289/85-07.

3.0 Maintenance and Construction (M&C) Records Storage Allegation

On January 23, 1985, the resident inspectors became aware of a concern relating to M&C records storage by an unsigned note placed in the NRC site mail box. The note indicated a number of storage boxes containing M&C records were improperly stored in a trailer and in danger of being destroyed by fire. The trailer was outside the protected area and contained a Xerox machine used by numerous people.

As a result of this concern, the inspectors reviewed the M&C records storage procedure. This review showed that M&C handles their records in accordance with Administrative Procedure 1024, Receipt, Storage, Retrieval and Distribution of TMI Unit No. 1 Records. Basically, the licensee stores original records in locked fireproof cabinets until they are filmed for permanent retention. The inspector verified that the records stored in the trailer were convenience copies of records and/or material labeled "for informations only." The inspectors had no further questions regarding M&C records storage.

4.0 Allegation on Management Improprieties by Employee

4.1 Background

On November 1, 1984, the President of GPUN reported to the TMI-1 Senior Resident Inspector that an employee alleged improprieties by GPUN management with respect to nuclear safety equipment. The employee's job in the Division of Human Resources required him to perform efficiency studies for the company which involved personnel manning and ways of conducting business.

In early 1984, the employee had filed an equal employment opportunity complaint against GPUN with the State of New Jersey, Department of Law and Public Safety, Division on Civil Rights. The case went to hearing in June of 1984 and was disposed in GPUN's favor, as noted in a letter from the State of New Jersey dated December 13, 1984. However, during the June 1984 hearing, the employee alleged improper qualifications of his supervisor with whom the employee recently competed for the supervisor's position. Subsequent review by licensee representatives of this allegation identified that the employee making the allegation never provided a grade transcript supporting his college degree and graduate work. On October 17, 1984 when the employee failed to provide the information within a reasonable period of time, GPUN suspended him with pay and gave him a week to provide the required information. After the week, the suspension was changed to a suspension without pay until he provided the requested information. About October 29, 1984, the employee sent a mailgram to the President of GPU alleging in very general terms, issues dealing with nuclear safety equipment. The President of GPU forwarded the mailgram to the President of GPUN who assigned the Director of Nuclear

Security to be lead investigator into the allegation. Because of the nature of the allegations, the licensee reinstated the employee's pay, but left him on suspension. Subsequent to the licensee's investigative interviews of this employee and other related personnel, the employee and GPUN came to an agreement leading to termination of the employee on or about January 18, 1985. The licensee's investigation revealed no substantiated nuclear safety issues.

4.2 Licensee Investigation and Findings

The licensee's investigator conducted his investigation of the employee's allegations primarily by interview of various other licensee employees with whom the employee worked. The licensee's investigator also reviewed the written studies that the employee produced for the company.

In his mailgram, the employee alleged: (1) questionable financial practices, (2) improper installation and removal of nuclear safety equipment, (3) blatant disregard for documenting procedural requirements, and (4) arrogant defiance of human factor considerations in GPU Nuclear management. The investigator found that this individual based his allegations on hearsay and on a cursory knowledge of information he obtained while working at TMI. The investigator concluded that the allegations were not substantiated. The licensee's investigation is documented in two internal memoranda dated November 16, 1984, and January 14, 1985, along with field notes filed in Security File No. C84-117.

4.3 NRC Review

The purpose of the inspector's allegation followup was to review and evaluate the licensee's actions on these allegations, to assure they meet their responsibilities for corrective action and applicable reporting to NRC on matters affecting nuclear safety or quality in accordance with 10 CFR 50.72 and 50.73 and 10 CFR 50 Appendix B Criterion XVI.

In addition to interviews with the licensee's investigator, the inspector reviewed the following documents:

- TMI-II Division Job Content/Utilization Study (Phase 2), May 1984;
- Licensee Inter-Office Memorandum (IOM), from Operations Analysis Staff to Office of the Director TMI-2, Preliminary Findings of Phase 2, Step 1, dated November 21, 1983;

- IOM, from Nuclear Security Director to President of GPUN, Preliminary Report on Confidential Investigation of Allegation dated November 16, 1984;
- IOM No. C84-117, from Nuclear Security Director to President GPUN, Final Report of Confidential Investigation of Allegation dated January 14, 1985;
- Security File No. C84-117 Investigation Field Notes; and,
- Letter, from State of New Jersey, Department of Law and Public Safety, Division on Civil Rights, to GPUN, Disposition of Equal Opportunity Complaint, dated December 13, 1984.

4.4 Inspector Findings

The inspector found the licensee's investigation was well planned and reasonably thorough, the investigator's conclusions were appropriate, and there were no signs of harassment of the employee. Overall, licensee management exhibited considerable effort in attempting to uncover specifics for the general allegations made by the individual.

The actions of the GPU and GPUN Presidents were substantial in making appropriate delegations for investigation to a senior company official. Appropriate resources were made available to the investigator. Although not reportable, the licensee took the initiative to informally notify the resident inspector in a timely manner as soon as the allegeder made nuclear safety implications. Further, licensee management periodically briefed the resident inspector on the status of the investigation.

During the licensee's investigation, Region I referred this matter to the NRC's Office of Investigation (OI) and that office conducted an inquiry by interviewing the allegeder. The OI representative documented the review along with a transcript of the allegeder's interview in OI Inquiry Report No. Q-1-84-030, dated December 21, 1984. The inspector reviewed that report and he found that the allegeder provided similar but more specific information (however, still general to that provided by the allegeder to the licensee).

The allegeder provided no new safety issues beyond those mentioned in paragraph 4.2. Region I representatives will complete the review of the inquiry report for issues not provided to the licensee and evaluate them for appropriate additional action, if any. The NRC's TMI Program Office (TMIPO) reviewed and properly dispositioned safety issues with the TMI-2 polar crane in NRC Inspection Report 50-320/84-24 and is reviewing NRC inspection findings in area of engineering modification turnover.

5.0 Licensee Action on Previous Inspection Findings

(Closed) Unresolved Item (289/79-20-02): NRC staff to review licensee actions to prevent recurrence of contaminated spent fuel pool water. The fill and drain pipe for the Spent Fuel Cask Loading Pit has an inverted (squared) "J" pipe with the open end in the pit at the 323' 6" elevation. To prevent a siphon effect in case of a fill/drain line break outside of the pit (and therefore an unintentional lowering of cask pit level), a vent line with an isolation valve, SF-V66 (normally open) is connected to the top of the "J" leg. The top of the vent line is at an elevation below the spent fuel pool high level alarm (345' elevation). With the cask pit gate open, depending on spent fuel pool/cask loading pit level, a radioactive spill could result from the vent line attached to SF-V66.

After two such spills were experienced during fill and drain evolutions in 1979, the licensee evaluated closing SF-V66 to prevent recurrence of a spill. The licensee approved a revision to Operating Procedure 1104-6, Spent Fuel Cooling, requiring the SF-V66 valve be "locked closed." The inspector verified the valve is locked closed, observed a "Danger - Do Not Operate" Red Tag installed on the valve, and reviewed Revision 12 to OP 1104-6.

Fill and drain evolutions for the cask loading pit are very infrequent. Along with auxiliary operator tours, high and low level alarms (345 and 343.9 elevations, respectively) for the Spent Fuel Pools warn operators of abnormal water levels in those pools. If an unlikely break should occur in the pit fill/drain line, water level would lower to the 323' elevation (inverted "J" leg elevation with SF-V66 closed). This would not cause uncovering of spent fuel assemblies or adversely affect pool cooling capability of the Spent Fuel Pool Cooling System. Accordingly, the licensee's interim actions to resolve the spill concern are acceptable.

The licensee plans a modification to raise the top of the vent line above spent fuel pool level 348' elevation as a long term and permanent fix to the radioactivity spill concern (Modification Request No. 058M). This modification is subject to future review.

(Closed) Inspector Follow Items (289/83-32-02) and (289/83-32-03): During the review of completed surveillance tests, a large number of outstanding exceptions and deficiencies were identified.

Subsequently, the licensee revised Administration Procedure 1001J, TS Surveillance Testing Program to more clearly specify the review of test exceptions and deficiencies, the assignment of responsibility for corrective actions, and the logging and tracking of deficiencies. A Coordinator maintains a log of all outstanding deficiencies. Also, the Preventive Maintenance Supervisor maintains a TS Surveillance Deficiency Action Items Master Report. This report identifies the surveillance test, the deficiency or exception, the individual responsible for corrective action, and the due date for the correction.

The inspector reviewed all open deficiencies identified during surveillance tests conducted during the past year. A total of 62 open deficiencies existed; 32 of these deficiencies required some work to correct the condition. The remainder were open because the licensee could not perform the surveillance due to plant conditions or some other technical reason.

The inspector verified that each deficiency which required work had a job ticket issued to complete the work. The TS Surveillance Deficiency Action Item Master Report, dated January 26, 1985, listed a total of 111 exceptions and deficiencies. The majority of the exceptions deal with required procedure changes. Of the 111 items on the list, only 8 were identified prior to June of 1984. The results of this inspection indicate significant improvement in the review, logging, tracking, and closing out of surveillance exceptions and deficiencies.

(Closed) Unresolved Item (289/84-06-01): Licensee evaluation and corrective action for engineering packages (NM-40) approved after actual cable pull evolutions. The licensee expanded GPUN Audit No. S-TMI-84-03 to provide closer scrutiny of engineering package NM-40 for fire protection modifications. The results of the audit indicated that a similar problem was found in ECM-063 and ECM-081 (reviewed by the NRC inspector). The licensee's audit section referred the entire engineering package to the quality control QA supervisor for a detailed document review by QC personnel. In various Document Review Reports, QC personnel identified a number of administrative discrepancies that were minor in nature, but they also confirmed the lack of formal engineering preapproval for cable pulling on the subject ECM's.

The licensee believes the cable pull approval problem is minor. In the 1980 time frame, verbal approval usually occurred; and preoperational test personnel performed satisfactorily basic electrical tests of installed cable in addition to satisfactory functional tests of the subject modifications.

The inspector's review of Administrative Procedure 1043, Revision G, January 10, 1983, "Control of Plant Modifications" confirms that the licensee requires formal engineering approval before cable pulling for current modifications.

6.0 Unresolved Items

Unresolved items are matters about which information is required in order to ascertain whether they are acceptable items, violations or deviations. Unresolved item(s) addressed during this inspection are discussed in paragraph 5.

7.0 Inspection Findings

Based on the review of the various licensee activities noted above, the inspector identified no conditions adverse to nuclear safety or regulatory requirements. Personnel stationed in the control room presented a posture of 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, and to resolve any inter-department interface problems. Licensee upper management continued their detailed involvement in site activities.

Licensee action on cognizant allegations was oriented toward uncovering specifics to identify adverse conditions for corrective action. Management exhibited concern over the existence of these allegations and acted in a timely manner for proper disposition of the alleege's concern. There was no sign of harassment of individuals by licensee management by licensee investigators.

Licensee actions on previous inspection findings were acceptable to resolve the applicable issue.

Although the plant is not physically ready to be started, the licensee continues to make progress toward a planned April 9, 1985, criticality date, if permitted by NRC.

8.0 Exit Interview

The inspectors discussed the inspection scope and findings with licensee management at the exit interview conducted on February 8, 1985. The following personnel attended the exit meeting:

- B. Ballard, Manager, MOD and Operation QA, Nuclear Assurance Division
- J. Colitz, Plant Engineer Director, TMI-1 Division
- C. Smyth, Manager, TMI-1 Licensing, Technical Functions Division
- R. Toole, Operations and Maintenance Director, TMI-1

The licensee indicated that of the subjects discussed at the exit meeting, no proprietary information was identified.