U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 50-289/84-27

Docket No. 50-289

License No. DPR-50

Licensee: GPU Nuclear Corporation

P.O. Box 480

Middletown, Pennsylvania 17057

Facility Name: Three Mile Island Unit 1

Inspection At: Middletown, Pennsylvania and Parsippany, New Jersey

Inspection Conducted: September 4 - 7, 1984

Inspectors: P K Kapen — 9-28-'84
P. K. Eapen Ph.D., Lead Reactor Engineer — date

Approved by: S. D. Ebneter — 10/16/84
S. D. Ebneter, Chief, Engineering Programs Branch — date

Inspection Summary: Routine unannounced Inspection on September 4 - 7, 1984 (Report No. 50-289/84-27).

Areas Inspected: Licensee's Action on previous NRC findings and design change activities. The inspection involved 12 inspection hours on site and 15 inspection hours at the engineering offices by one region-based inspector.

Results: No violations were identified.

1. Persons Contacted

General Public Utility Nuclear Corporation

*B. Alatary, Quality Assurance (QA) Engineering Manager
*B. Bader, QA Program Development and Audit Manager
R. Bensel, Manager, Technical Support Maintenance and Construction
*D. Croneberger, Director, Engineering and Design
E. Eisen, Project Engineer
J. Faulkner, Manager, Planning
R. Fenti, Operational QA Manager
*M. Graham Licensing Engineer
*N. Kazanas, Director, QA
*R. Keaten, Dierector, Engineering Projects
*R. Long, Vice President, Nuclear Assurance
*R. Markowski, Manager, QA Program Development and Audit
C. Smyth, TMI-1, Licensing Manager
R. Wilson, Vice President, Technical Functions

United States Nuclear Regulatory Commission

R. Conte, Senior Resident Inspector
F. Young, Resident Inspector

The inspector interviewed other personnel during the inspection.

*Denotes those present at the exit interview.

2. Licensee's Actions on Previous Inspection Findings

(Closed) Open Item (289/83-06-04): Convert the integrated drawing control list to a computerized list. The integrated drawing control list was converted into the computer based configuration control system. The user training for the new Configuration Control List was completed in June of 1983. The inspector reviewed three randomly selected document updates and noted that the updates were posted promptly in the computerized system. The update information was readily available to the users, from the computer terminals located at the site and corporate office.

The computer based Configuration Control List reduced the workload of the clerks. It also provides better quality information to the user.

This item is closed.

(Closed) Open Item (289/83-10-01): Aperture cards did not reflect outstanding drawing changes.

The licensee developed a computerized data management system to update and promptly post outstanding changes to drawings and other documents.

This list is now readily available to the aperture card user from the CRT terminals located adjacent to aperture card readers. The aperture card users are instructed to consult the drawing list and the cummulative daily transaction report to obtain all outstanding changes against a given drawing.

The inspector randomly selected three aperture cards for design drawings and verified that the outstanding changes for each drawing were readily available from the CRT terminal.

This item is closed.

(Closed) Unresolved Item (289/83-16-01). Test reports for Task RM-13J transmitters were not available for NRC review.

The inspector reviewed the environmental qualification report (Wyle Report No. 455923, dated May 4, 1983) for Task RM-13J transmitters. This report was accepted by the licensee for TMI-1 application, on August 20, 1984. The licensee made the test report available for review to the NRC Equipment Qualification Audit team on September 6, 1984. The findings of this NRC team audit will be addressed in a separate NRC letter.

The inspector reviewed the "System Component Evaluation Work Sheets" for Task RM-13J transmitters and noted that the qualification parameters met or exceeded the required environmental parameters.

This item is closed.

(Closed) Unresolved Item (84-06-02): Degraded grid voltage test report for the Limitorque operators was not available.

The licensee established the adequacy of the Limitorque operators to function during degraded grid voltage conditions on the basis of qualification by similarity. Babcock and Wilcox (B&W) compared TMI-1 Limitorque operators to those supplied to the Bellefonte Nuclear site and concluded that these operators are similar. Degraded grid voltage test data are available for the Bellefonte Limitorque operators. The test data indicated that the operators were operable at 80% and 120% of rated grid voltage.

The inspector reviewed the test data for the Bellefonte Limitorque operators, B&W's torque settings calculations and B&W's bases for qualification by similarity and found these to be adequate.

This item is closed.

3. Design changes

3.1 References/Requirements

-- 10 CFR 50 Appendix B

-- 10 CFR 50.59

-- GPU Nuclear Operational Quality Assurance Plan

-- ANSI N45.2.11 - 1974

-- Engineering Procedure (EP)-005, System Design Description, Rev. 7

-- EP-009, Design Verification, Rev. 6

-- EP-16, Safety Evaluation, Rev. 3

-- EP-025, As Built Drawings, Rev. 2

-- Engineering Management Procedure (EMP)-008, Technical Document Release

-- EMP-014, Project Reviews, Rev. 2

-- EMP-015, Field Questionnaires, Change Notices, and Change Requests, Rev. 5

3.2 Scope of the inspection

The activities and documents identified in paragraph 3.3, were reviewed to assure:

-- Design input requirements such as design bases, regulatory requirements, codes, and standards were identified, documented, and their selection reviewed and approved.

-- Design activities were prescribed and accomplished in accordance with procedures.

-- Applicable design inputs were correctly translated into specifications, drawings, procedures or instructions.

-- Controls were established for responsibilities, lines of communications and documentation requirements for internal and external interfaces.

-- Design verification was established to determine the adequacy of the design to meet the requirements specified in design inputs.

-- Procedures were established to control the issuance of design documents and their changes.

-- Design documentation and records were maintained.

-- Audits were conducted to verify compliance with all aspects of the QA program for design and design change activities.

-- Modified systems were installed in accordance with the approved design.

-- Safety Evaluations were conducted in accordance with the requirements of 10 CFR 50.59 and the bases for the evaluations were provided.

-- Engineering and technical inputs were provided to the operations, pre-operational test, and training groups for procedure development to reflect the modified system.

3.3 Activities and Documents Review

-- Budget Activity (B/A) No 412012 Emergency Feed Water Restart Upgrade

-- B/A No 412023 Reactor Coolant System Inventory Trending System

-- B/A No 412024 Emergency Feed Water Long Term Upgrade

-- B/A No 412225 H2/02 Gas Analyzer

-- Technical Function Active Work Order Directory (dated July 3, 1984)

-- 1983 Corporate Audit List (schedule)

-- 1984 Corporate Audit List (schedule)

3.4 QA/QC Involvement Indesign Change Activities

Quality Assurance personnel actively participate in all phases of design change activities. Conceptual and final design documents are reviewed by QA. The QA Engineering group closely monitors corporate engineering and design activities. In addition, the corporate QA audit group audits design change program using a number of adequately scheduled and prepared audits. Installations of the modifications are frequently audited and monitored by Site QA organization. The inspector reviewed random samples of these site and corporate QA audits and monitoring reports. The selected audits and monitoring activities were adequately prepared and well conducted. The audited organizations took prompt actions to correct identified deficiencies.

3.5 Findings

The inspector reviewed the design change packages for the modifications identified in paragraph 3.3 with the cognizant engineers. The design inputs were clearly specified and translated into drawings and work instructions. The design inputs were independently verified by competent

engineers. Safety evaluations were adequately conducted and the bases for safety acceptance were clearly stated. Management overview of the design changes was effective. The comments and concerns identified during reviews were adequately addressed.

Not withstanding the above efforts, an excessive number of field changes continued to exist in each of the design changes reviewed. The inspector discussed this matter with the licensee's senior management at the corporate office. The senior management stated that they were concerned about the field changes and were taking actions to minimize field changes for recent design changes. A recent NRC inspection at the Oyster Creek site (Report No. 50-219/84-09) also identified the existence of an excessive number of field changes at that site. In light of this finding corporate management initiated an extensive review of field change requests. Based on the results of this review the licensee took nine steps to address the concern. These steps were also made applicable to TMI-1 field changes. The details of the review and the steps taken to strengthen the field change activities are documented in GPU Letter to NRC Region I dated August 9, 1984. One of the steps was to require a detailed constructability review for each new modification.

The inspector reviewed the licensee's actions to minimize field changes and found these to be adequate. The effectiveness of these actions will be reviewed in subsequent routine NRC inspections.

No violations were identified.

4.0 Exit Meeting

The inspector met with the licensee's representatives (identified in paragraph 1.0), at the conclusion of the inspection on September 7, 1984, to summarize the findings of this inspection. The licensee's representatives acknowledged the inspector's statements.

AT no time during this inspection was written material provided to the licensee by the inspector.