GPU Nuclear Corporation
Post Office Box 480
Route 441 South
Middletown, Pennsylvania 17057-0191
717 944-7621
TELEX 84-2386
Writer's Direct Dial Number:
(717) 948-8005

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U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D.C. 20555

Gentlemen:

Subject: Three Mile Island Nuclear Station, Unit I (TMI-1)
Operating License No. DPR-50
Docket No. 50-289
Response to Notices of Violation in Inspection Report 91-30

In accordance with 10 CFR 2.201 this letter transmits the GPU Nuclear response to the Notices of Violation included in Appendix A to Inspection Report 91-30.

Sincerely,

T. G. Broughton
Vice President and Director, TMI-1

WGH

Attachment

cc: Administrator, Region I
TMI-1 Senior Project Manager
TMI Senior Resident Inspector

IE01
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METROPOLITAN EDISON COMPANY
JERSEY CENTRAL POWER AND LIGHT COMPANY
PENNSYLVANIA ELECTRIC COMPANY
GENERAL PUBLIC UTILITIES NUCLEAR CORPORATION

Three Mile Island Nuclear Station, Unit 1 (TMI-1)
Operating License No. DPR-50
Docket No. 50-289

Response to the Notice of Violation
in Inspection Report 91-30

This letter is submitted in response to the Notices of Violation in Inspection Report 91-30, Routine Monthly Inspection of TMI-1 for the period December 29, 1991 through February 1, 1992 dated March 4, 1992. All statements contained in this response have been reviewed, and all such statements made and matter set forth therein are true and correct to the best of my knowledge.

T. G. Broughton
Vice President and Director, TMI-1

Signed and sworn before me this

3rd day of April, 1992.

Melody Kim Kulp

Notarial Seal
Melody Kim Kulp, Notary Public
Londonderry Twp., Dauphin County
My Commission Expires [illegible]
Member, Pennsylvania Association of Notaries

Notice of Violation A

10 CFR 50, Appendix B, Criterion III, requires that measures shall be established to assure that applicable regulatory requirements and design bases are correctly translated into specifications. Measures shall also be established for the selection and review for suitability of application of materials that are essential to the safety-related functions of systems.

The above criterion is implemented by the GPUN Operational Quality Assurance Plan, Rev. 5, step 4.2.3, which states that "the materials, parts, and processes selected by design are reviewed to assure that they are suitable for the intended application, including the compatibility of materials...and quality standards."

The Operational Quality Assurance Plan requirement for ensuring compatibility of materials is implemented by EP-009 "Design Verifications," rev. 4, in the Verification General Checklist, item No. 1.15. This item requires verification of material compatibility.

The Operational Quality Assurance Plan requirement for ensuring proper material quality standards is EP-011, "Methodology for Preparing the Quality Classification List," rev. 4, step 2.1. Step 2.1 states that "The detailed data for each item in the component level Quality Classification List in GMS2 is the basis for the application of the GPUN Operational Quality Assurance Plan." GMS2 listed the pressure boundary of the Intermediate Closed Cooling Water (ICCW) system as Nuclear Safety Related

Contrary to the above, the licensee failed to assign the correct quality classification and verify material compatibility as evidenced by the following examples:

a. Safety Evaluation 113202-046, dated February 2, 1990, and Change Modification Request 90-019, dated January 31, 1990, incorrectly classified a change modification to the Intermediate Closed Cooling Water (ICCW) system piping as Regulatory Required vice Nuclear Safety Related.

b. Change Modification Request 90-0190, dated February [illegible] 1990, failed to adequately evaluate the compatibility of a system corrosion inhibitor, NALCO, with newly installed ICCW piping containing [illegible]ings which were incompatible with NALCO.

This is a Severity Level IV violation (Supplement I).

GPUN Response to Part a.

GPUN agrees with this violation. The Technical Functions departments involved with the system reclassification were unaware of the ICCW system modification. The reclassification activities were being performed independent of the modification. The ICCW system modification was completed on the assumption that the reclassification activity had been completed. As a result, the classification of the hoses, installed as part of the modification, was not consistent with system design classification requirements.

Background

The ICCW system was originally classified as Nuclear Safety Related (NSR) based on its containment isolation function and the outstanding issue on Reactor Coolant Pump seal rupture. With the development of the component level Quality Classification List (QCL) in accordance with Generic Letter 83-28 (ATWS), the ICCW system became multi-classed with components designated as both NSR and Regulatory Required (RR).

Plant Engineering initiated Change Modification Request (CMR) 90-019 to install flexible hoses in the ICCW CRDM supply and return lines as recommended by B&W, the manufacturer of the CRDMs. The portion of the ICCW system which was to be modified by CMR-90-019 remained NSR after the system became multi-classified. At approximately the same time that Plant Engineering was planning the modification, Technical Functions initiated a QCL activity to downgrade additional portions of the ICCW system to RR. The reclassification effort, including the portion of the system being modified by the CMR, was never completed. Based on a review of the FSAR and the system level QCL (ES-011) and believing that the reclassification to RR was complete, installation of hoses was begun during the 8R outage, continued during the 9R outage and are expected to be completed during 10R and 11R. As a consequence, the quality level of the hoses installed was not consistent with the QCL.

Corrective Actions Taken and Results Achieved

Technical Functions has reviewed the design/safety basis of the ICCW system. Justification for downgrading additional portions of the ICCW system to RR, including the portion in question, has been documented by a Safety Evaluation. Technical Functions is in the process of reviewing and approving the QCL checklists and updating GMS2 to complete the reclassification of the downgraded portions of the ICCW system.

Corrective Actions to Avoid Further Violations

Plant Engineering and Engineering and Design personnel will be advised of the need to continue to follow proceduralized practices such as consulting the QCL prior to initiating work on design modifications and assuring consistency of part-with-application quality classifications. The processes to be used when there is a disagreement with an existing classification or when major classification changes are required will be reiterated.

Date of Full Compliance

Full compliance will be achieved with the issuance of the memo reiterating procedural practices, the approval of the QCL checklists and update of GMS2. These actions will be complete by April 30, 1992.

GPUN Response to Part b.

GPUN agrees with this violation. The organizations involved failed to identify the incompatibility of the o-rings with the NALCO corrosion inhibitor.

Background

Quick connect couplings and flexible hoses (hose assemblies) were installed on the stator cooling water lines to enhance ALARA compliance while eliminating difficulties encountered with uncoupling and connecting the previously installed rigid tubing lines. An additional benefit of the modification was an automatic shutoff feature at the fittings on both flexible hoses to minimize water spillage and eliminate the need to drain the ICCW headers on the service structure.

Investigation into the cause of the plant incident was documented in Plant Incident Report 1-91-09. It identified that the o-rings were a sub-part of the couplings and that they were made of ethylene-propylene (EP). The o-rings were found to exhibit a 30%-volume-by-weight gain as a result of exposure to NALCO 41. The o-rings dislodged from the coupling poppet body valve as a result of the combined effects of ICCW flow and pressure transients that occurred during system startup and the swelling that resulted from the exposure to NALCO 41.

CMR 90-019, and the corresponding Safety Evaluation, SE-CMR-113202-046, identified the compatibility of the NALCO 41 treated ICCW coolant water with 316 stainless steel. It failed to consider the possible existence of other components in the assembly which may not have been compatible with NALCO 41.

The compatibility of the o-rings with NALCO was not evaluated at the time because the presence of the o-rings in the connectors was unknown. The components, as supplied by B&W, were identified by a B&W part number as opposed to a manufacturer's part number and the B&W field change documentation did not include a bill of materials for the parts of each component. As a result, it was not apparent that the hose assemblies contained any material other than stainless steel. GPUN did not attempt to obtain more detailed information from B&W.

Corrective Actions Taken and Results Achieved

MNCR No. 920004 and GPUN Memo No. 3310-92-0027 were issued to document the conditions existing as a result the partial completion of CMR 90-019. These documents justify continued operation and establish corrective actions to resolve the incompatibility problem.

Corrective Actions to Avoid Further Violations

TMI-1 Plant Engineers will be made aware of this incident via an AP 1076 Plant Experience Report. Because of the importance of equipment manufacturing/ construction details to material compatibility concerns, the report will stress the need to obtain complete material lists for vendor supplied equipment as considered necessary. Plant Lead Engineers and Managers will also be informed of the incident to raise the level of sensitivity to material compatibility concerns and to assure proper reviews have been conducted during the design phase.

Date of Full Compliance

Full compliance will be achieved by the verified routing of the Plant Experience Report within Plant Engineering (leads and manager) and the Technical Functions, E&D managers, by May 31, 1992.

Notice of Violation B

10 CFR 50, Appendix B, Criterion XVI, requires that measures shall be taken to assure that conditions adverse to quality , such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances are promptly identified and corrected.

Drawing No. C-302-661, "Makeup and Purification," shows that the tubing to gauges MU-22-PI-2 and MU-22-PI-3 is within the seismic category I boundary.

Contrary to the above, the licensee failed to promptly correct and restore tubing to MU-22-PI-2 and MU-22-PI-3 to seismic category I requirements. The gauges were changed by January 27, 1990, with the existing mounting hardware unable to attach to the new gauges. No documentation was available showing repair or replacement of the mounting hardware. Further, on January 8, 1992, licensee management became aware of the condition and failed to correct the condition or issue a work request until notified by the NRC on January 23, 1992.

This is a Severity Level IV violation (Supplement I).

GPUN Response

GPUN agrees with the violation as written. The cause of the violation was two-fold: (1) a coincident lack of attention to detail and a lack of appreciation for the significance of the gauge supports at the point at which the gauge mounting hardware was not re-made and (2) a failure to follow through with corrective action once the condition was brought to supervisory/ management attention by the technician.

Background

Photographs taken on June 22, 1989, prior to the implementation of EER 89-016, showed the existing 0-3000 psig gauge mounting intact. EER 89-016, implemented in January 1990, replaced the existing gauges with 0-5000 psig gauges and directed that the existing mounting hardware be reused. The holes through the mounting tabs on both the old and new gauges would not allow the use of 1/4 x 24 mounting machine screws which fit the unistrut spring nut. As a result, a smaller machine screw and nut combination was used for mounting the gauges with the spring nuts acting as a mounting surface for the down-sized fasteners.

The EER close-out identifies that work was completed per Job Orders 9455 through 9457 on January 27, 1990. Since the EER was closed out, it must be assumed that the direction provided by the EER was complied with.

Documented maintenance actions involving the gauges, included two annual calibrations (4/90 and 12/91) and a job order, initiated in January 1990, to repair a leak at the tubing to gauge connection of MU-22-PI2. The gauges were left improperly mounted after one of these maintenance actions.

On January 7, 1992, when no leakage could be found at the gauge, the I&C Technician assigned to the task attempted to reinstall the mounting hardware and encountered "the bolting/hole size problem." He was reassigned to a higher priority task before the gauge was remounted. The fact that the gauge was not properly mounted was brought to the attention to the Operations Shift Supervisor, the Plant Operations Director and noted in the I&C Work Log by the I&C Technician. Since the job order dealt only with the leak, and since no leak was found, the job order was closed without the gauge being remounted.

During a plant tour performed on January 3, 1992 the Plant Operations Director visually inspected the mounting of the gauges and concluded that the configuration was adequate for operability and could be corrected later.

Corrective Actions Taken and Results Achieved

A work request was initiated to remount the gauges and an Engineering Evaluation Request (EER) was initiated to evaluate the gauge mounting hardware. Plant Engineering evaluated the mounting requirements and provided alternative guidance for mounting the gauges to the existing unistrut hanger. The gauges were mounted in accordance with the EER instructions on January 24, 1992.

Corrective Actions to Avoid Further Violations

Plant Materiel Department personnel were made aware of the seismic mounting problems identified by the violation via memos and discussion of the specifics during shop meetings. Emphasis was placed on the need for Plant Materiel craft personnel to return component mounts to their design condition following any maintenance activity that may affect them. Department supervisors and managers, who are assigned responsibilities for performing area inspections, were charged with specific responsibility to inspect component mounts during their periodic inspections to ensure that they are made-up and secure. Individuals of both groups will be expected to identify damaged or inoperative mounts and submit a Work Request, Material Nonconformance Report (MNCR), EER, or CMR, as appropriate, to document the condition and assure that follow-up action is initiated.

Date of Full Compliance

Full compliance will be achieved with the completion of the review of the circumstances of the violation and the dissemination of the Plant Materiel guidance on the handling of future deficiencies. Plant Materiel Group Supervisors will complete the review with their foremen and technicians by April 30, 1992.