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August 24, 1992
C311-92-2110

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

Dear Sir:

Subject: 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 92-80

Enclosed is the GPU Nuclear reply to the subject Notice of Violation transmitted as Appendix A to Inspection Report 92-80.

As requested in the cover letter forwarding NRC Inspection Report 92-80, responses to NRC concerns regarding thorough and timely reviews of MOV test data, the design basis of RC-V2, and the capability of DH-V3 are attached as Enclosures 2 through 4 respectively.

Sincerely,

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

DVH/emf

Enclosures

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

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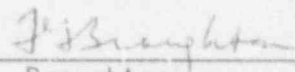
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METROPOLITAN EDISON COMPANY
JERSEY CENTRAL POWER AND LIGHT COMPANY
PENNSYLVANIA ELECTRIC COMPANY
GENERAL PUBLIC UTILITIES NUCLEAR CORPORATION

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 92-80

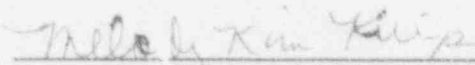
This letter is submitted in response to the Notice of Violation presented in Inspection Report 92-80. All statements contained in this response have been reviewed, and all such statements made and matter set forth therein are true and correct to the best of my knowledge.



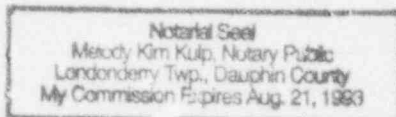
T. G. Broughton
Vice President and Director, TMI-1

Signed and sworn before me this

24th day of August, 1992.



Notary Public



Member, Pennsylvania Association of Notaries

ENCLOSURE 1

Notice of Violation

10 CFR 50, Appendix B, Criterion XVI, states, in part, that, "Measures shall be established to assure that conditions adverse to quality, such as ... deficiencies, deviations, ... and nonconformances are promptly identified and corrected."

The GPU Nuclear Corporation Operational Quality Assurance Plan for Three Mile Island Unit 1 states, in part, that "measures shall be established which ensure that conditions adverse to quality, such as failures, malfunctions, deficiencies ... are promptly identified and corrected."

The valve vendor provided written guidance indicating that the actuator housing should be examined for cracks following overstressing during testing. The valve test data indicated that the valve had been overstressed to the extent that examination was appropriate.

Contrary to the above, the measures to identify conditions adverse to quality were inadequate in that a 6-inch, through-wall crack on the motor-operated valve (MOV) housing for MS-V2A was left undetected by the licensee until the NRC team identified it in June 10, 1992.

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

GPUN Response to the Notice of ViolationI. Reason for the Violation

GPU Nuclear acknowledges that a crack existed in MS-V2A and was first identified by the NRC inspection team. At this time it is not possible to determine how long the crack existed. The body of the inspection report implies that the crack in the operator housing resulted from the open torque switch setting and the measured thrust during the test. The measured thrust slightly exceeded the 120% limit given by the vendor. The open torque switch is backup protection since the valve travel is stopped by the limit switch in the open direction.

The overthrust was discussed by engineering and it was decided that no specific followup action was required. The ITI-MOVATS technician's report noted:

"On 11/11/91, a static as found test was performed to supply a TL-CAL for the analysis of the DP test. The thrusts were found to be high. Open available thrust was 48519 lbs with total at 54216 lbs. (The open torque switch never tripped during plant operation and the operator did not see these values except for this test.) The closed available thrust was 47882 lbs with total thrust at 52557 lbs."

"The spring pack was then changed out to a 0701-212. The grease look(ed) OK. No problems were found with the actuator."

Although investigation is still proceeding, it is possible the crack did not result from the one time overthrust reported in the test results. Nevertheless, future Generic Letter 89-10 MOV's will be inspected following overthrusts as noted below. The vendor guidance regarding visual inspection was in GPU Nuclear possession; however, it had not been received by Vendor Document Control or factored into the Limatorque Maintenance Procedures.

II. Corrective steps Which Have Been Taken and the Results Achieved

The motor operator for MS-V2A has been replaced with a refurbished actuator from warehouse stock. The cracked operator was field inspected by both GPUW and Limatorque. This examination of valve actuator parts revealed that the taper pin for the torque switch had failed at an indeterminant time with the resultant failure of the torque switch to function. A review of records revealed valve MS-V2A was cycled three times for operational purposes following the 9R outage MOVATS test and examination and the failure could have occurred during any one of these operations, although no abnormal indications were observed.

The cracked motor operator housing was sent to an in-house laboratory to undergo destructive testing in an effort to determine the root cause failure, the type of failure (single event or multiple event), and to estimate the date of failure. This analysis is not yet complete. The analysis results will be forwarded under separate cover.

The new motor operator was setup to existing GL 89-10 thrust requirements and is expected to perform as designed.

The vendor written guidance regarding actuator overload has been incorporated into GPUN Limatorque Manual VM-TM-0029.

III. Corrective steps which will be taken to avoid further violations

Guidance will be incorporated in testing procedures by October 31, 1992, to specify the level of examination of the valve actuator when thrust exceeding vendor limits is observed or determined. This may include removal of paint around the upper housing cover area and the performance of a visual inspection by a qualified individual and/or other action as determined appropriate based on the results of the visual inspection and other ongoing analysis.

IV. Date of Full Compliance

The actuator for MS-V2A has been replaced and setup to meet the requirements of GL 89-10. Compliance has been achieved.

Appropriate guidance will be incorporated into the testing Procedures by October 31, 1992.

ENCLOSURE 2

Response to Concern with Timely Review of MOV Test Data

To date, 53 static tests and 38 flow tests have been performed at TMI-1. Engineering review of the 53 static tests are complete and results documented. Of the 38 flow tests, 17 have been reviewed and documented by engineering. The 17 flow tests for which the reviews are complete and documented involved full design basis flow conditions. All 17 test results were judged to be acceptable and demonstrated valve operability consistent with the GL 89-10 program. The balance of the flow tests were performed at less than full design basis conditions and test results are currently under review. These reviews are scheduled to be completed by October 1, 1992.

As defined in the TMI-1 GL 89-10 Program Description, Responsibility Section, Plant Engineering has responsibility for initial review and evaluation of MOV diagnostic test data. Technical Functions is responsible for evaluation of flow test data to verify switch setting adequacy as well as the evaluation, analysis and justification of switch setting adequacy for MOVs not capable of being flow tested.

The following action has been taken to achieve a more timely review of future testing:

- Technical Functions engineers will be present at the site to support Plant Engineering in a more timely evaluation of the test results. Alternatively, the Technical Functions engineers will participate in the review of the initial test results remotely from the corporate offices by accessing the MOVATS data on the computer network.

Regarding the specific concern for review of test results for potential overthrusting, engineering reviews by Plant Engineering and Technical Functions will proceed as follows:

- Technical Functions will provide the minimum required and maximum allowable thrust values for each valve.
- Plant Engineering will establish the setpoint screen including allowance for diagnostic equipment accuracy both as applied to the minimum required thrust and to the maximum allowable thrust. This allowance will take into account the specific equipment being used in the respective valves for diagnostic testing.
- Plant Maintenance will perform the valve testing and provide the test data to Plant Engineering to review for discrepancies or problems, including potential overthrusting, or the occurrence of an observed, measured thrust which exceeds the maximum allowable adjusted for diagnostic accuracy. The Technical Functions thrust calculation will identify whether the maximum allowable thrust value is determined by the Limitorque operator structural limit or by a valve structural limit.

- Plant Maintenance and Plant Engineering will ensure that testing does not result in thrust which exceeds the limits as defined for either the Limitorque operator or the valve, taking into consideration Limitorque recommendations as defined by their Technical Bulletins and letters. However, if a limit is exceeded during testing, Plant Engineering will request Technical Functions to assist in the evaluation of the test results.

To ensure a more thorough review of static and dynamic test results, Technical Functions and Plant Engineering will document the specific review methods and criteria employed for the reviews in a revision to the Program Description.

ENCLOSURE 3

Valve RC-V2 Design Basis

The NRC identified concerns related to valve RC-V2. The first was operability of RC-V2 prior to the 9R outage. The second was the GL 89-10 ΔP established for the valve in accordance with the GL 89-10 Program. The TMI-1 Plant Review Group (PRG) met on June 19, 1992 to discuss the operability concern. The PRG considered the ΔP required to meet the Technical Specifications, spring pack relaxation/spring pack gap and degraded grid voltage. In consultation with Technical Functions, it was determined that the ability to close on an RCS pressure of 1600 psi is sufficient to be considered operable by Technical Specifications Bases. Relative to the spring packs, a review of test data by Plant Engineering did not reveal any condition where the MOV was found incapable of performing its function. It also was determined there was sufficient torque for the valve to function at degraded grid voltage at 1600 psi. Therefore, the PRG conclusion was that valve RC-V2 was operable to meet the Technical Specifications function of preventing potential uncontrolled depressurization. The detailed documentation is available for NRC review.

Subsequently, the design ΔP for RC-V2 has been established in the TMI-1 GL 89-10 program as 2367 psi based on other operational considerations. The valve was successfully tested to this value during the 9R outage. No further evaluation is required to address this concern.

ENCLOSURE 4

DH-V3 Operability Review

NRC Inspection Report No. 92-80 requests that GPUN evaluate the capability of DH-V3 to open under design basis conditions. The NRC concern is based on a differential pressure test performed at approximately 165 psi (vs a design of 427 psi) which indicated higher than expected thrust loads. The NRC postulated that extrapolation of test results indicates a potential that DH-V3 would not open under design basis conditions.

The design basis differential pressure for opening DH-V3, as documented in calculation C-1101-900-5360-003, Rev. 3, is 427 psi. Due to conservatism in that calculation, the design basis differential pressure has been reevaluated and calculation C-1101-900-5360-003 will be revised to indicate a design basis differential pressure (to open) of 343 psi. GPUN contacted Anchor Darling to discuss the operating characteristics of the valve. Using the ΔP of 343 psi and the information from Anchor Darling, GPUN evaluated this valve and has determined the motor operator has sufficient capacity so that the valve is capable of performing its safety function as it is currently setup. The detailed evaluation documentation is available for the NRC review.