ENCLOSURE 7

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

MEMORANDUM FOR: T. Novak

FROM: J. Gilray

SUBJECT: QA PRACTICES ASSOCIATED WITH TMI-2 MODIFICATIONS

In regards to reviewing proposed modifications by the NRC Technical Review Group QA considerations has been given as to the extent QA practices, normally associated with 10 CFR Part 50 Appendix B (Seismic Category), should be applied to each modification. Due to the uniqueness of the TMI situation (i.e. urgency to get modifications complete and to within a short time frame) trade-offs to the traditional QA practices have been determined necessary but not to the extent that confidence is lost in meeting end use requirements. Accordingly the following is a QA summary of the QA practices associated with the modifications that have been reviewed to date.

1. Westinghouse Backup DHR Systems

A. During 4/7/79 meeting with Westinghouse I met with QA personnel from GPU (T. Scalaite) and W (W. Meyer and J. Cowfer) to discuss QA controls that would apply to the DHR backup system. It was determined that a practical QA program approach is being applied to this effort. Highlights are as follows:

1. Pullman (a code shop) is fabricating the piping and welding components to ASME - Section III, Class 2; welds will be nondestructive tested in accordance with this code. Welders will be qualified to Code; work will be procedurally controlled.

2. In most cases there will be material test reports and tracability to heats. Where quality standards cannot be met, these events will be documented as nonconforming and a disposition made as to acceptability.

3. Receiving inspection and storage will be controlled by QA personnel.

4. GPU QA will be involved with the DHR backup system activity as an overview QA control.

5. As design and specifications are matured they will be provided to the NRC Review Group for evaluation and comment.

II A. GPU System Criteria for the Steam Generator Cooldown System

Quality Standards will not be to ASME Section III due to the activity being confined to secondary side and schedule constraints. Controls applied will be to ASME Section VIII, ANSI B31.1, ANSI B16.5 and .34. QA practices will be coupled with this modification which will include controlled procedures and disciplines in the areas of design, fabrication, installation and testing of systems.

II B. Modifications for Rad Waste Storage Tanks

- A detailed evaluation of the Modification for additional Rad Waste Storage Tanks is not complete as yet.

- As a result of a preliminary review it appears that these tanks will meet:

  -- Nuclear waste storage tanks standards
  -- ASME Section VIII

- During the coming week of 4/16/79, a detailed evaluation and inspection of this modification will take place including welds and installation of pipes.

- The modifications are under close GPU QA control. The tanks were found unacceptable by GPU QA because of lack of a hydrotest and incomplete ~~pipe~~ welds. The tanks were returned to supplier for additional work. I understand they are now back onsite and are acceptable.

III. I&E Inspection

At the request of the NRC Technical Review Group, I&E was brought in on 4/13/79 from Region I to inspect the activities associated with implementing the TMI-2 Modifications. Special attention will be given by I&E to welding practices including the nondestructive testing of welds.

IV. Meetings

Meetings were held on 4/13/79 with Westinghouse (W) and GPU QA personnel to discuss their QA practices applied to modifications and controls. I&E attended these meetings. Summary of the two meetings are as follows:

1. Meeting with Westinghouse on 4/13/79 - 9AM
Attendees: J. Wright, GPU, QA Mgr; B. Bruce, W, QA Mgr; D. Cowfer, W, QC Engr; L. Tripp and G. Walton, NRC - I&E; J. Gilray, NRC, NRR.

- The QA scope and efforts of Westinghouse in the Design, Procurement, Fabrication, Inspection, Receiving, Installation and Tests associated with the DHR modification were discussed.

- Westinghouse has established a QA program plan to control the above effort and will be commensurate with 10 CFR 50 Appendix B. A draft copy is attached as Enclosure #1. I find this document providing practical QA guidelines for the DHR modification acceptable.

- Significant aspects of the above QA program were also discussed. Highlights are described in attached Enclosure #2.

- The W QA organization responsible for DHR modification was discussed. Presently there are 4 W QA Engineers assigned to this Mod. qualified in 4 disciplines (Design and Design Control; Material and Component Traceability; QA for the Skid and Skid Components; and Welding and Installation). An additional QA Engineer will be assigned to this staff in the near future qualified in QA for I&C and Electrical systems. I find this organization and staffing acceptable.

- The QA activities accomplished to date were discussed. Highlights are described in the attached Enclosure #3.

- Conclusion: Based on a review and evaluation of W's QA practices, controls and organization it is concluded that the W QA program for the DHR system is sufficient to assure adequate QA controls and practices will be applied to this modification.

2. Meeting with GPU on 4/13/79 - 1PM
Attendees: J. Wright, GPU, QA Mgr; Earl Allen, GPU, QA Mgr; George Trofer, MetEd, QA Mgr; Terry Mackey, MetEd, QC Supervisor; T. Scalaite, MetEd, QA Engineer; L. Tripp and G. Walton, NRC - I&E; and J. Gilray, NRR, NRC.

- The QA Scope and Effort of GPU and MetEd associated with the TMI-2 modifications were discussed.

- The GPU/MetEd QA organization responsible for the TMI-2 modifications were discussed. A team of 12 QA engineers managed by J. Wright of GPU were brought in from the Forked River facility to be specifically responsible for the QA activities for the TMI-2 modifications. This team has talent in all QA disciplines including welding and nondestructive testing. I find this organization and staffing acceptable.

- This team has established a QA program specifically tailored for the TMI-2 Modifications and is expected to be approved by GPU and MetEd for use by 4/20/79. This program will be compatable with the MetEd Operational QA program previously accepted by NRC.

- GPU QA has demonstrated their QA involvement by inspecting all incoming structures systems and components designated for the modifications to determine their classification and quality. Those items where the quality is unknown are tagged accordingly and if used controls are implemented to maintain tracability. Nuclear waste storage tanks were returned to supplier because they were not hydro-tested and all welds were not completed.

- QA activities on TMI-2 modification being performed by GPU/MetEd QA personnel were discussed. Highlights are described in the attached Enclosure #4.

- Conclusion: Based on a review and evaluation of GPU/MetEd's QA practices, controls, and organization, it is concluded that the GPU/MetEd QA program for the TMI-2 modifications is sufficient to assure adequate QA controls and practices will be applied.

V. Conclusions

Based on the above discussion, the QA programs and implementation of these programs by W and GPU/MetEd are considered acceptable to assure compliance with 10 CFR 50 Appendix B and the design and specification requirements for TMI-2 modifications.

J. Gilray

cc: R. Mattson

Primary Makeup and Pressure Control System

Burns and Roe has a conceptual design for providing a standby primary makeup and pressure control system in the event further degradation occurs to the existing systems. The system consists of five 900 gallon tanks in series connected to the pressurizer spray piping. The last tank (furthest from spray piping) will be pressurized with nitrogen. The multiple tank concept minimizes the diffusion of nitrogen into the primary system. Two positive displacement pumps of variable capacity (10-90 GPM) will take suction from the first tank (closest to spray piping) to provide makeup. Level controls are installed on the tanks for cycling the pumps on and off. This system is scheduled to be operational in 20 days.

Burns and Roe recognizes the difficulty in identifying an acceptable tie in for overpressurization protection. They are currently proposing relieving into the 18 inch line that goes to the reactor building sump. We do not believe that this line should be opened for this purpose. Based on B&W analyses, the maximum vessel pressure for NDT considerations should not exceed 1000 psi.

Several alternative paths for manual relief were identified during a meeting with B&R, B&W and GPU on April 15, 1979. They included:

1. Letdown to makeup tank (outside containment)
2. Relief valve on DHR system (inside containment)
3. Electromagnetic pressurizer relief valve (inside containment)
4. Pressurizer vent line valve (inside containment)

Letdown to the makeup tank and the pressurizer vent line appears to be feasible but will require further analyses. In addition, an analysis has to be performed to determine the most limiting overpressurization transient in the natural recirculation mode to establish the time before operator action is necessary to respond to these transients. The limiting transient is probably one of of the following:

1. Loss of electrical power on secondary side.
2. Loss of natural circulation
3. Inadvertent makeup pump operation.

Sensitivity studies would also have to be performed with the primary system operating at various pressures to establish limiting operator action times. GPU and B&W plan to perform these calculations.

Two questions requiring further consideration were identified. They were:

1. Would the letdown system be operational during the natural recirculation mode?

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2. Does the operability of this system effect the schedule as to when the plant goes into the natural circulation mode of operation?