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March 18, 1985

TMI Program Office
Attn: Dr. B. J. Snyder
Program Director
US Nuclear Regulatory Commission
Washington, DC 20555

Dear Dr. Snyder:

Three Mile Island Nuclear Station, Unit 2 (TMI-2)
Operating License No. DPR-73
Docket No. 50-320
Safety Evaluation for Probing the
Lower Reactor Vessel Head

GPU Nuclear previously submitted by GPU Nuclear letter 4410-85-L-0002, dated January 3, 1985, a Safety Evaluation Report for activities attendant to probing the lower reactor vessel head. Based on the results of recent video inspections, we have re-evaluated the scope of the subject activity and the validity of the previous stress analysis for the incore guide tubes. This letter provides the conclusions of that evaluation.

Data obtained from the video inspections of the lower head raised the question as to whether the reactor vessel inner walls and the welds joining the incore guide tubes to the reactor vessel have retained structural integrity. In that respect, it is clear that pressure retaining capability has been demonstrated based on the pressure history of the Reactor Coolant System (RCS). There is no evidence of lack of structural integrity based on the fact that the RCS operated for extended periods of time at pressures of >1000 psig, 600 psig, 350 psig, and 90 psig, prior to depressurization. The RCS was then subsequently repressurized and depressurized several times. In this context, GPU Nuclear has concluded that the proposed incremental stresses to be applied to the reactor vessel are infinitesimal compared to those applied

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by previous operating pressures. Because of the success in operating at the pressures described above, it has been concluded that the mechanical wire probing through the incore detector nozzles will not jeopardize the integrity of the RCS.

Additionally, we have more thoroughly researched the long-term sump chemistry with the intent of determining precisely the chemistry conditions of the fluid in contact with the in-core piping. Our information indicates that in the interim between the accident (March 28, 1979) and the onset of Containment Decontamination (September 1982) the Reactor Building fluid pH ranged from 7.4 to 8.7. During Gross Decontamination Activities, unbuffered borated water was employed, causing the sump water pH to range from 6.95 to 7.9. The most recent sump pH data (November 7, 1984) indicates a pH of 7.6. These pH findings, which differ from the information provided in our January 3, 1985 SER submittal (see Page 6 of 17), do not alter our conclusions regarding the low likelihood of stress corrosion cracking and the safeness of performing this test.

Additionally, because of the information gathered from the video inspections, the incore inspection program will be modified to expand and confirm data derived from the video inspections. The mechanical probes will be inserted more deeply into the reactor vessel to maximize the collection of mechanical information concerning structural degradation in and above the flow baffles. Also, several probe locations will be selected to permit entry into the lower head periphery so that one of the incore tubes observed during the camera examination can be probed. The combination of probing more deeply and ranging further radially will provide increased confidence concerning information gathered from this examination.

Sincerely,



F. R. Standerfer
Vice President/Director, TMI-2

FRS/RBS/vjf

cc: Deputy Program Director - TMI Program Office, Dr. W. D. Travers