

GPU Nuclear Corporation

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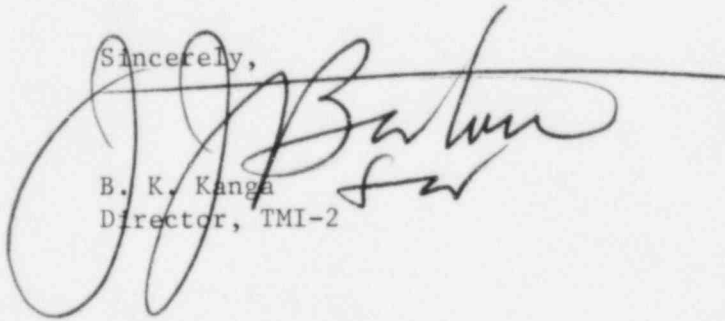
TMI Program Office
Attn: Mr. L. H. Barrett
Deputy Program Director
US Nuclear Regulatory Commission
c/o Three Mile Island Nuclear Station
Middletown, PA 17057-0191

Dear Sir:

Three Mile Island Nuclear Station, Unit 2 (TMI-2)
Operating License No. DPR-73
Docket No. 50-320
Reactor Vessel Head and Internals Handling Fixture (Tripod)

In your letter NRC/TMI 83-050 dated August 8, 1983, you requested additional information on the Tripod. Attached for your use in evaluating and approving the Tripod is GPUNC's response to your request for additional information. If you have any further questions or desire more information, please contact J. E. Larson of my staff.

Sincerely,


B. K. Kanga
Director, TMI-2

BKK:RBS:djb

Attachment

cc: Dr. B. J. Snyder, Program Director - TMI Program Office

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INTERNALS HANDLING FIXTURE (Tripod)

Response to NRC Questions

Question 1.

Provide the NRC with an ALARA dose estimate for performing a non-destructive examination (e.g., liquid penetrant, magnetic particle) on three of the more highly stressed welds on the tripod. You should provide a separate dose estimate for an examination before and after the load test. Also state your justification for the selected welds.

Response 1.a.

The ALARA dose estimate to non-destructively examine the three welds identified below using the magnetic particle technique is approximately 0.825 man-rem per examination. The total dose expenditure to conduct the weld examinations before and after load testing is estimated to be 1.650 man-rem.

Response 1.b.

The specific welds chosen for examination and their respective justifications are:

- A) Gusset plate to leg flange - Near side of leg 248R. This weld was chosen for examination because it represents the most highly stressed weld in the structure (17,800 PSI as shown on Figure 5.2 of the B & W tripod evaluation).
- B) Gusset plate to horizontal beam - Far side of leg 247. This weld was chosen for examination because it represents the second most highly stressed weld in the structure (17,300 PSI as shown on Figure 5.2 of the B & W tripod evaluation).
- C) Leg to pick-up block - Front side of leg 247. This weld was chosen for examination because it represents one of the more highly stressed welds in the structure (15,900 PSI as shown on Figure 5.2 of the B & W tripod evaluation). Further, it was deemed desirable to examine a weld in another region of the tripod structure physically remote from the weld locations chosen in A and B, above.

Question 2.

Provide additional quantitative information to support your conclusion that the member that you performed the finite element stress analysis for has the maximum stress on the welds when compared to the other two members of the tripod.

Response 2.

The finite element analysis correctly assumes that all three legs of the tripod are equally loaded. The maximum loads are then applied to the minimum measured weld sizes. The leg to pick-up block weld was analyzed for the leg that is normal to the block since this connection has the minimum weld length. Because of the tripod geometry the weld stresses on the other two legs, resolved into the plane of the weld, are 86.6% of those on the leg normal to the block, all other factors being the same.

Question 3.

Provide the staff with quantitative critical stress data for the top lifting lug, angular leg, the horizontal beams, the bottom clevis plate, the gusset, and the horizontal strut.

Response 3.

The following membrane stress intensities result from a total load of 540 tons. This is three times the design load of 180 tons and 3.18 times the maximum lift load of 170 tons. The minimum material yield strength is 36,000 psi except for the pipe struts which have a minimum yield strength of 40,000 psi.

<u>Component</u>	<u>Stress, PSI</u>
Top lifting lug	20,600
Angular leg	23,200
Horizontal beam	14,000
Bottom clevis plate	20,100
Gusset	29,000
Horizontal strut	8,400