Nuclear

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US Nuclear Regulatory Commission Attn: Document Control Desk Washington, DC 20555

Dear Sirs:

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Three Mile Island Nuclear Station, Unit 2 (TMI-2) Operating License No. DPR-73 Docket No. 50-320 Staging of Hittman Solidification Liners in the Waste Handling and Packaging Facility

The purpose of this letter is to request NRC approval to stage two (2) Hittman solidification liners within the Waste Handling and Packaging Facility (WHPF). The two (2) liners, identified as N40719-19 and N40719-23, contain EPICOR 2 resins and sand filter media from SDS. Activity levels are estimated to be approximately 274 and 228 curies, respectively. Table 1 presents the estimated isotopic inventory of the liners' inventories.

Currently, the liners cannot be shipped off-site due to a bulging phenomenon. The disposition of the liners has been the subject of previous discussions with the TMI Cleanup Project Directorate (TMI-CPD) staff. GPU Nuclear currently plans to inspect the liners to determine the stability of the liner matrix for shipment. For the inspection, the liners will be staged in the WHPF one at a time. The inspection will involve opening of the liner, taking gas samples, inspecting the liner matrix, and taking concrete samples for analysis. The results of the inspection will be analyzed based on criteria developed by Hittman to ensure a stable matrix. As previously committed, the procedure for the inspection will be provided to the TMI-CPD for review and approval.

The WHPF Technical Evaluation Report (TER), Revision 6, submitted via GPU Nuclear letter 4410-87-L-0016 dated February 2, 1987, and approved by the NRC on March 5, 1987, restricts the total quantity of defueling waste to ten (10)

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curies or the total quantity of defueling and normal waste to 15 curies (7.5 curies of defueling waste and 7.5 curies of normal waste). Since the activity of the liners will exceed the WHPF activity limit, an evaluation has been performed to demonstrate that the off-site dose consequences from a postulated liner failure inside the WHPF is bounded by the accident consequences provided in the WHPF TER.

Only one (1) liner will be inside the WHPF at a time. However, to estimate the release of radioactivity from a postulated accident, it is assumed that both liners are breached due to mishandling. Since the liner inventory is immobilized within a cement matrix, it is not readily available for atmospheric release. Therefore, only a small fraction of the liner inventory is assumed to be released. Using a release fraction of 10⁻⁵ for particulates (see Section 8.1.4.2 of the Programmatic Environmental Impact Statement (PEIS)) and 1 for tritium, the maximum dose to an off-site individual from the postulated event is approximately 7 mrem to the bone of a teen. This dose is based on an one-hour dispersion factor of 6.1×10^{-4} sec/M³ for a ground level release (from Appendix 20 of the TMI-2 Final Safety Analysis Report), the dose factors given in NUREG-0172, and the 0-8 hour breathing rate given in Regulatory Guide 1.4. The estimated dose is much less than the off-site dose consequences stated in the WHPF TER for releases from a material fire within the WHPF. The consequences of a breached liner exposed to a fire in the WHPF would not be significantly different since fire would not cause as increase in the quantity of activity released as the liner activity is bonded in cement. The release fraction for such an event is estimated to be 10^{-5} also (Section 9.5.2.1 of the PEIS).

Based on the above evaluation, the placement of the liners in the WHPF, as proposed, is bounded by the previous accident evaluations presented in the WHPF TER. Therefore, GPU Nuclear considers the staging of these liners in the WHPF to be acceptable and requests NRC concurrence.

Per the requirements of 10 CFR 170, an application fee of \$150.00 is enclosed.

Sincerely. Akttenlerfen

F. R. Standerfer Director, TMI-2

FRS/CJO/eml

Attachment

Enclosed: GPU Nuclear Corp. Check No. 005948

cc: Regional Administrator, Region 1 - Mr. W. T. Russell Director, TMI-2 Cleanup Project Directorate - Dr. W. D. Travers

TABLE 1

EXPANDED HITTMAN LINERS INVENTORY (CURIES)

Isotopes	N40719-19	N40719-23	Total
H-3	0.041	0.055	0.096
Sr/Y-90	244.8	208.2	453.0
Sb-125	6.1	7.2	13.3
Te-125	1.4	1.7	3.1
Cs-137/Ba-137m	20.1	10.6	30.7
Other Isotopes	1.7	0.47	2.17
Actinides(2)	0.32	0.01	0.33
Total	274.5	228.2	502.7

Other isotopes include Mn, Fe, Co, Ni, Ru, Rh, Ag, I, CS-134, Ce, and Pr.
Actinides include U, Pu, Np, Am, and Cm.