GPU Nuclear

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U.S. NUCLEAR REGULATORY COMMISSION

May 29, 1981
LL2-81-0149

TMI Program Office
Attn: Mr. Lake Barrett, Deputy Director
U.S. Nuclear Regulatory Commission
c/o Three Mile Island Nuclear Station
Middletown, Pennsylvania 17057

Dear Sir:

Three Mile Island Nuclear Station, Unit 2 (TMI-2)
Operations License No. DPR-73
Docket No. 50-320
Submerged Demineralizer System

During discussions with members of your staff you have requested that we provide you with the following additional information:

> "Provide the NRC staff with the limits you expect to be used for processed water to be stored on site, i.e., processed water polished and stored on site until a decision for disposal has been made."

Our letter LL2-81-0138 addresses the PWST storage limits based on the PWST rupture analysis as presented in the PEIS and direct radiation exposures from the tanks.

As you are aware the EPICOR II System will be used to polish the effluent from the SDS System during normal operation. When these two systems are used in series, the final effluent from EPICOR is expected to meet the below listed effluent concentration quality:

Isotope	Concentration (uci/ml)
H-3	0.8
Co 60	5E-6
Sr 89	1E-8
Sr 90	1E-5
Nb 95	1E-6
Ru 103	<1E-6
Ru 106	1E-5
Sb 125	1E-5
Cs 134	3E-6
Cs 137	2E-5
Ce 144	1E-5

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These effluent predictions are based on the Spring 1981 Reactor Building sump sample results, EPICOR II processing experience, and the column tests performed at TMI with actual Reactor Building Sump Water.

While GPU intends to polish SDS effluent through EPICOR II during normal operations, this may not always be the case. When specific uses for unpolished SDS effluent arise, GPU intends to bypass the EPICOR II System. We have currently identified several such uses. These are:

1. Reflood of the Reactor Building. GPU may choose to reflood the Reactor Building, using unpolished SDS effluent, after the majority of the water has been processed from the sump. This will reduce the potential for airborne contamination in the Reactor Building until the removal of the sludge.

2. Gross decontamination - Gross spray down of the Reactor Building surfaces, will not require fully polished water, should this decontamination option be chosen.

3. RCS processing via feed and bleed - The RCS System will be processed through SDS in a feed and bleed mode. In this mode, full polishing to remove Ce 144 and Sb 125 would generate large volumes of unnecessary waste due to removal of sodium in the polishing system and the need to add sodium prior to reinjection in the RCS System. The SDS will reduce cesium and strontium concentrations, thereby reducing personnel exposure.

Sincerely,

G. K. Hovey
Vice President, Director Unit 2

GKH:WL:lh

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