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April 14, 1983
5211-83-105

Office of Nuclear Reactor Regulation
Attn: John F. Stolz, Chief
Operating Reactor Branch No. 4
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

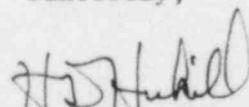
Dear Sir:

Three Mile Island Nuclear Station, Unit 1 (TMI-1)
Operating License No. DPR-50
Docket No. 50-289
Containment Flood Level

On June 11, 1982 GPU Nuclear submitted Containment Flood Level calculations for TMI-1 in accordance with the Partial Initial Decision of December 14, 1981. On July 26, 1982, NRC requested additional information to which GPUN responded on September 17, 1983 (5211-82-233). The information supplied for item 5 of that letter was provided to show some general agreement between water processed at TMI-2 and calculations of flood level performed at TMI-1. Further discussion with personnel at TMI-2 indicates that flushing water was added to water transferred for processing and that RCS leakage occurred throughout the transfer and processing (Enclosure 4). These additional quantities reduce the capacity equivalent to about 6197 gallons per inch (gpi) which is in close agreement to the capacity equivalent to 6100 gpi measured as transferred from the TMI-2 containment (Enclosure 4).

To show the relative comparison between TMI-1 and TMI-2 information, an analysis was performed for TMI-2 (Enclosure 2). The TMI-1 values were then normalized to TMI-2 to show the minor difference in the calculative methods (Enclosure 3). Finally water transferred from containment was measured to show the close agreement between non floodable volumes calculated and measured (Enclosure 4). With the conservative assumptions for floodable volume unchanged, it can be inferred that TMI-1 flood level calculations remain conservative.

Sincerely,


H. D. Hukill

Director, TMI-1

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cc: Regional Administrator, Region I
J. Van Vliet

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TMI-2 CONTAINMENT WATER PROCESSED

As shown in our response to item 5 of the September 17, 1982 letter:

Total Water Processed	642,272 gal.	
Start Level	291.04 ft.	} 8.26
End Level	282.78 ft.	
Capacity Equivalence	6,480 gal/in	

However, during the measuring processing the following quantities of water added to containment:

RCS Leakage (150 gpd x 120 days) =	18,000 gals.
Decon Water (13,500 gal. of which 1/3 atomized) =	9,000 gals.
Total added water =	27,000 gals.

Additionally, in the water processing approximately 1,000 gallons were used for flushing lines.

The capacity equivalence becomes

$$\frac{642,272 \text{ gal.} - 28,000 \text{ gal.}}{8.26 \text{ ft.} \times 12 \text{ in/ft}} = 6,197 \text{ gals/in.}$$

TMI Reactor Building Flooding Analyses Comparison

	<u>TMI-1</u>	<u>TMI-2</u>
I. Reactor Building Volume		
	$V_{rb} = 13,273 \text{ ft}^3/\text{ft}$	$V_{rb} = 13,267 \text{ ft}^3/\text{ft}$
II. RB Non Floodable Volume		
a. RV Cavity	$V_{cav} = 855 \text{ ft}^3/\text{ft}$	$V_{cav} = 855 \text{ ft}^3/\text{ft}$
b. Elevator Shaft	$V_{es} = 99 \text{ ft}^3/\text{ft}$	Ves not included
c. Secondary Shield (D-ring)	$V_{dr} = 1007 \text{ ft}^3/\text{ft}$	$V_{dr} = 1140 \text{ ft}^3/\text{ft}$
d. RC Drain Tank Cubicle	$V_{rcdt} = 105 \text{ ft}^3/\text{ft}$	$V_{wdl} = 518 \text{ ft}^3/\text{ft}$
e. Letdown Cubicle	$V_{dl} = 127 \text{ ft}^3/\text{ft}$	
f. Steam Generator Support	$V_{sg} = 13 \text{ ft}^3/\text{ft}$	$V_{sg} = 226 \text{ ft}^3/\text{ft}$
g. RB taper	$V_t = 266 \text{ ft}^3/\text{ft}$	$V_t = 296 \text{ ft}^3/\text{ft}$
h. RC Drain Tank	V_{dt} not included	$V_{dt} = 184 \text{ ft}^3/\text{ft}$
i. Sump Walls	<u>V_{sw} not applicable</u>	<u>$V_{sw} = 342 \text{ ft}^3/\text{ft}$</u>
	$V_{nf} = 2502 \text{ ft}^3/\text{ft}$	$V_{nf} = 3551 \text{ ft}^3/\text{ft}$
III. Floodable Volume		
	$V_{fv} = V_{rb} - V_{nf}$	$V_{fv} = V_{rb} - V_{nf}$
	$V_{fv} = 10,771 \text{ ft}^3/\text{ft}$	$V_{fv} = 9,716 \text{ ft}^3/\text{ft}$

TMI-1

TMI-2

IV. Water Sources LOCA

a. RCS Volume

$$V_{rcs} = 11,245 \text{ ft}^3$$

$$V_{rcs} = 11,245 \text{ ft}^3$$

b. BWST Volume

$$V_{bwst} = 46,292 \text{ ft}^3$$

$$V_{bwst} = 46,791 \text{ ft}^3$$

c. NaOH Tank Volume

$$V_{NaOH} = 1,345 \text{ ft}^3$$

$$V_{NaOH} = 1885 \text{ ft}^3$$

d. Core Flood Tanks Volume

$$V_{2cft} = 2,080 \text{ ft}^3$$

$$V_{2cft} = 2140 \text{ ft}^3$$

$$V_{loca} = 60,962 \text{ ft}^3$$

$$V_{loca} = 62,061 \text{ ft}^3$$

$$V_{loca} = 455,966 \text{ gal.}$$

$$V_{loca} = 464,185 \text{ gal.}$$

V. LOCA Flood Level

$$L_{loca} = \frac{V_{loca}}{V_{fv}} = \frac{60,962 \text{ ft}^3}{10,771 \text{ ft}^3/\text{ft}} \quad L_{loca} = \frac{V_{loca}}{V_{fv}} = \frac{62,061 \text{ ft}^3}{9,716 \text{ ft}^3/\text{ft}}$$

$$L_{loca} = 5.66 \text{ ft.}$$

$$L_{loca} = 6.36 \text{ ft.}$$