DEC 15 1980

Docket No. 50-320

Dr. Frank Parker, Chairman
School of Engineering
Vanderbilt University
Nashville, Tennessee 37203

Dear Dr. Parker:

The staff of the Three Mile Island Program Office (TMIPO) was pleased to meet with the members of the NCRP Task Group SC-38 on Disposal of Accident Generated Waste Water at the first meeting of the Task Group on November 20, 1980. To aid in the NCRP evaluation of the disposition of processed TMI-2 accident generated waste water, the TMIPO staff has provided the Task Group with copies of ORNL/TM-7448 (Evaluation of the Submerged Demineralizer System Flowsheet for Decontamination of High-Activity-Level Water at Three Mile Island Unit 2 Nuclear Power Station) and the report by the Nuclear Regulatory Commission Special Inquiry Group (Rogovin - Three Mile Island, A Report to the Commissioners and to the Public). Additionally, the Task Group requested the latest source term for processed water from auxiliary building tanks. Correspondingly, the radionuclide distributions of processed water contained in the borated water storage tank (BWST), condensate storage tank (COT-1-A), clean water receiver tank (CC-T-2), off-spec water receiver tank (CC-T-1), and condensate test tank (WDL-T-9B) are provided in Enclosure 1.

At your request, the next Task Group meeting is scheduled to be held on December 18, 1980 at the Three Mile Island Station and will include a tour of the site. The proposed agenda for the meeting is enclosed.

As discussed at the November 20 meeting regarding the schedule for the Task Group evaluation of the disposition of processed accident generated waste water, the TMIPO would appreciate submittal of a preliminary report of the Task Group evaluation by the end of January 1981. Consistent with our schedule for forwarding the Final Programmatic Environmental Impact Statement (FPEIS) to the Commission for their review, we would appreciate submittal of a final report of the Task Group evaluation by the end of February 1981 so that it can be forwarded to the Commission for their consideration along with the FPEIS.

If you have any questions, please contact R. Weller (301-492-8174) of my staff.

Sincerely,

/S/

Bernard J. Snyder, Program Director
Three Mile Island Program Office
Office of Nuclear Reactor Regulation

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Enclosures:
1. Radionuclide Distribution of Auxiliary Building Water
2. Agenda for Dec. 18, 1980 Meeting of Task Group SC-38

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RWeller/prf	BJSnyder
12/15/80	12/15/80

ENCLOSURE 1

1) BWST Before addition of processed water
9/23/79 Sample # 25569

ISOTOPE	CONC. (μCi/ml)	% ERROR
H 3	1.44×10^{-2}	–
Cr 51	$< 2997 \times 10^{-5}$	–
Co 57	2.96×10^{-6}	190
Co 58	6.534×10^{-4}	12.2
Co 60	4.155×10^{-5}	12.4
Zr 95	$< 4.812 \times 10^{-6}$	–
Nb 95	$< 2.865 \times 10^{-6}$	–
Ag 110m	6.039×10^{-6}	–
Sb 125	2.718×10^{-5}	161
Cs 134	5.066×10^{-4}	13.1
Cs 137	8.913×10^{-4}	12.2
Ce 141	$< 4.029 \times 10^{-6}$	–
Ru 106	8.565×10^{-4}	–
Gross Bγ	1.6×10^{-3}	3.1

2) BWST After addition of processed water – originally 329,821 gallons processed water added to 129,781 gallons of existing water – see above sample – total in BWST 12/3/80 – 422,322 gallons.
9/23/80 sample # 49862 422,322 gallons

ISOTOPE	CONC. (μCi/ml)	% ERROR	Total Curies	Total γ Activity (Ci)
H 3	1.1×10^{-1}	–	175.834	
Cr 51	$< 1.373 \times 10^{-5}$	–	$< 2.195 \times 10^{-2}$	
Mn 54	1.484×10^{-6}	14.4	2.372×10^{-3}	9.721×10^{-1}
Co 57	9.66×10^{-7}	32.9	1.544×10^{-3}	
Co 58	1.40×10^{-5}	2.88	2.238×10^{-2}	
Co 60	1.695×10^{-5}	2.74	2.709×10^{-2}	
Zr 95	$< 1.283 \times 10^{-6}$	–	$< 2.051 \times 10^{-3}$	
Nb 95	$< 7.229 \times 10^{-7}$	–	$< 1.156 \times 10^{-3}$	
Ru 103	$< 1.706 \times 10^{-6}$	–	$< 2.727 \times 10^{-3}$	
Ru 106	$< 1.217 \times 10^{-5}$	–	$< 1.945 \times 10^{-2}$	
Ag 110m	$< 1.504 \times 10^{-6}$	–	$< 2.404 \times 10^{-3}$	
Sn 113	$< 2.479 \times 10^{-6}$	–	$< 3.963 \times 10^{-3}$	
Sb 125	1.038×10^{-5}	15.26	1.659×10^{-2}	

Cs 134	1.51×10^{-4}	0.76	2.542×10^{-1}
Cs 137	3.538×10^{-4}	0.50	5.735×10^{-1}
Ce 141	$< 2.372 \times 10^{-6}$	–	$< 3.792 \times 10^{-3}$
Ce 144	$< 1.061 \times 10^{-5}$	–	$< 1.696 \times 10^{-2}$
Gross βγ	3.01×10^{-4}	0.49	4.811×10^{-1}

3) CoT-1-A
9/22/80 Sample # 49860 240,341 gallons

Isotope	Conc. (uci/ml)	% Error	Total Curies	Total γ Activity (Ci)
H-3	1.8×10^{-1}	–	163.744	
Cr 51	$< 9.009 \times 10^{-7}$	–	$< 8.195 \times 10^{-4}$	8.302×10^{-3}
Mn 54	$< 4.003 \times 10^{-8}$	–	$< 3.641 \times 10^{-5}$	
Co 58	$< 3.82 \times 10^{-8}$	–	$< 3.475 \times 10^{-5}$	
Co 60	8.42×10^{-8}	20.9	7.66×10^{-5}	
Zr 95	$< 5.934 \times 10^{-8}$	–	$< 5.398 \times 10^{-5}$	
Nb 95	$< 4.043 \times 10^{-8}$	–	$< 3.678 \times 10^{-5}$	
Ru 103	$< 9.414 \times 10^{-8}$	–	$< 8.564 \times 10^{-5}$	
Ru 106	$< 6.874 \times 10^{-7}$	–	$< 6.253 \times 10^{-4}$	
Ag 110m	$< 4.048 \times 10^{-7}$	–	$< 3.682 \times 10^{-4}$	
Sn 113	$< 1.418 \times 10^{-7}$	–	$< 1.29 \times 10^{-4}$	
Sb 125	$< 3.083 \times 10^{-7}$	–	$< 2.805 \times 10^{-4}$	
Cs 134	6.997×10^{-7}	6.43	6.365×10^{-4}	
Cs 137	4.593×10^{-6}	2.44	4.178×10^{-3}	
Ce 141	$< 1.857 \times 10^{-7}$	–	$< 1.689 \times 10^{-4}$	
Ce 144	$< 8.487 \times 10^{-7}$	–	$< 7.721 \times 10^{-4}$	
Gross βγ	3.78×10^{-6}	35.4	3.439×10^{-3}	

4) CC-T-1
10/22/80 Sample # 51331 25,489 gallons

Isotope	Conc. (uci/ml)	% Error	Total Curies	Total γ Activity (Ci)
H 3	66×10^{-2}	–	6.367	
Cr 51	$< 3.184 \times 10^{-6}$	–	$< 3.072 \times 10^{-4}$	2.098×10^{-3}
Mn 54	$< 3.239 \times 10^{-7}$	–	$< 3.125 \times 10^{-5}$	
Co 58	$< 3.188 \times 10^{-7}$	–	$< 3.076 \times 10^{-5}$	

Co60	$< 4.9 \times 10^{-7}$	–	$< 4.727 \times 10^{-5}$
Zr95	$< 5.443 \times 10^{-7}$	–	$< 5.251 \times 10^{-5}$
Nb95	$< 3.034 \times 10^{-7}$	–	$< 2.927 \times 10^{-5}$
Ru103	$< 3.612 \times 10^{-7}$	–	$< 3.485 \times 10^{-5}$
Ru106	$< 2.563 \times 10^{-6}$	–	$< 2.473 \times 10^{-4}$
Ag110m	$< 6.633 \times 10^{-7}$	–	$< 6.399 \times 10^{-5}$
Sn113	$< 6.17 \times 10^{-7}$	–	$< 5.953 \times 10^{-5}$
Sb125	$< 1.314 \times 10^{-6}$	–	$< 1.268 \times 10^{-4}$
Cs134	1.02×10^{-6}	19.69	9.841×10^{-5}
Cs137	6.773×10^{-6}	6.28	6.534×10^{-4}
Ce141	$< 6.39 \times 10^{-7}$	–	$< 6.165 \times 10^{-5}$
Ce144	$< 2.634 \times 10^{-6}$	–	$< 2.541 \times 10^{-4}$
Gross βγ	5.29×10^{-6}	17.2	5.104×10^{-4}

5) CC-T-2

11/27/80 Sample # 52969 44,791 gallons

Isotope	Conc (uci/ml)	% Error	Total Curies	Total γ Activity (ci)
* H 3	6.4×10^{-2}	–	10.85	
Cr51	$< 2.35 \times 10^{-6}$	–	$< 3.984 \times 10^{-4}$	$< 2.109 \times 10^{-3}$
Mn54	$< 3.239 \times 10^{-7}$	–	$< 5.491 \times 10^{-5}$	
Co58	$< 3.188 \times 10^{-7}$	–	$< 5.405 \times 10^{-5}$	
Co60	$< 4.9 \times 10^{-7}$	–	$< 8.307 \times 10^{-5}$	
Zr95	$< 5.441 \times 10^{-7}$	–	$< 9.224 \times 10^{-5}$	
Nb95	$< 3.032 \times 10^{-7}$	–	$< 5.14 \times 10^{-5}$	
Ru103	$< 2.325 \times 10^{-7}$	–	$< 3.942 \times 10^{-5}$	
Ru106	$< 2.563 \times 10^{-6}$	–	$< 4.345 \times 10^{-4}$	
Ag110m	$< 3.931 \times 10^{-7}$	–	$< 6.664 \times 10^{-5}$	
Sn113	$< 3.562 \times 10^{-7}$	–	$< 6.039 \times 10^{-5}$	
Sb125	$< 8.178 \times 10^{-7}$	–	$< 1.386 \times 10^{-4}$	
Cs134	$< 3.624 \times 10^{-7}$	–	$< 6.144 \times 10^{-5}$	
Cs137	8.032×10^{-7}	17.96	1.362×10^{-4}	
Ce141	$< 4.653 \times 10^{-7}$	–	$< 7.888 \times 10^{-5}$	
Ce144	$< 2.115 \times 10^{-6}$	–	$< 3.586 \times 10^{-4}$	
Gross βγ	4.86×10^{-6}	18.56	8.239×10^{-4}	

* Sample # 51739 10/31/80

6) WDL-T 9B

NO SAMPLE AVAILABLE, USING DATA FROM #4 - CC-T-1 (initial source)

9,834 GALLONS

ISOTOPE	TOTAL CURIES	TOTAL γ ACTIVITY (Ci)
H-3	2.457	
Cr 51	$< 1.195 \times 10^{-4}$	$< 8.095 \times 10^{-4}$
Mn 54	$< 1.206 \times 10^{-5}$	
Co 58	$< 1.187 \times 10^{-5}$	
Co 60	$< 1.824 \times 10^{-5}$	
Zr 95	$< 2.026 \times 10^{-5}$	
Nb 95	$< 1.129 \times 10^{-5}$	
Ru 103	$< 1.344 \times 10^{-5}$	
Ru 106	$< 9.54 \times 10^{-5}$	
Ag 110m	$< 2.469 \times 10^{-5}$	
Sn 113	$< 2.297 \times 10^{-5}$	
Sb 125	$< 4.891 \times 10^{-5}$	
Cs 134	3.797×10^{-5}	
Cs 137	2.521×10^{-4}	
Ce 141	$< 2.378 \times 10^{-5}$	
Ce 144	$< 9.804 \times 10^{-5}$	
Gross βγ	1.969×10^{-4}	

7) Processed Water Inventory

Overall curie totals:

H-3 - 359.252

γ - $< 9.854 \times 10^{-1}$

Gross βγ - 4.861×10^{-1}

ISOTOPE	TOTAL CURIES	AVERAGE CONCENTRATION (μci/ml)
H3	359.282	1.278×10^{-1}
Cr51	< 2.36×10^{-2}	< 8.394×10^{-6}
Co57	1.544×10^{-3}	5.492×10^{-7}
Co58	< 2.281×10^{-2}	< 8.007×10^{-6}
Co60	< 2.732×10^{-2}	< 9.718×10^{-6}
Zr95	< 2.27×10^{-3}	< 8.074×10^{-7}
Nb95	< 2.18×10^{-3}	< 7.754×10^{-7}
Ru103	< 2.9×10^{-3}	< 1.032×10^{-6}
Ru106	< 2.076×10^{-2}	< 7.384×10^{-6}
Ag110m	< 2.928×10^{-3}	< 1.041×10^{-6}
Sn113	< 4.235×10^{-3}	< 1.506×10^{-6}
Sb125	< 1.718×10^{-2}	< 6.111×10^{-6}
Cs134	< 2.55×10^{-1}	< 9.07×10^{-5}
Cs137	5.752×10^{-1}	2.046×10^{-4}
Ce141	< 4.125×10^{-3}	< 1.467×10^{-6}
Ce144	< 1.844×10^{-2}	< 6.559×10^{-6}
Mn54	< 2.507×10^{-3}	< 8.917×10^{-7}
Gross β	4.861×10^{-1}	1.729×10^{-4}

Results from SAI

	BWST	COT-1A
Co 57	$1.9 \pm 0.7 \times 10^{-6}$	<LLD
Sb 125	$7.7 \pm 1.2 \times 10^{-6}$	$< 5.3 \times 10^{-7}$
Cs 134	$1.5 \pm 0.1 \times 10^{-4}$	$5.1 \pm 0.3 \times 10^{-7}$
Cs 137	$3.0 \pm 0.1 \times 10^{-4}$	$3.3 \pm 0.1 \times 10^{-6}$
Co 58	$1.2 \pm 0.1 \times 10^{-5}$	$< 2.9 \times 10^{-8}$
Mn 54	$1.2 \pm 0.3 \times 10^{-6}$	$< 5.4 \times 10^{-8}$
Zn 65	$8.5 \pm 6.0 \times 10^{-7}$	$< 1.3 \times 10^{-7}$
Co 60	$1.4 \pm 0.3 \times 10^{-5}$	$6.5 \pm 2.4 \times 10^{-8}$

<u>after Cs removal</u>

	BWST
Sb 125	$9.6 \pm 0.2 \times 10^{-6}$
Ru 106	$8.9 \pm 6.7 \times 10^{-7}$
Ag 110m	$1.2 \pm 0.9 \times 10^{-7}$
Ce-144	<2.1 E-7

Transuranics

	BWST	COT-1A
Pu 239/240	$5.1 \pm 0.6 \times 10^{-10}$	$< 2.1 \times 10^{-11}$
Am 241	$7.5 \pm 0.8 \times 10^{-10}$	$2.8 \pm 1.3 \times 10^{-10}$
Pu 238	$6.2 \pm 1.5 \times 10^{-10}$	$< 7.1 \times 10^{-10}$
Cm 242/243	$1.2 \pm 0.4 \times 10^{-10}$	$< 1.4 \times 10^{-10}$
Cm 244	$1.4 \pm 0.4 \times 10^{-10}$	$< 1.2 \times 10^{-10}$

ENCLOSURE 2

PROPOSED AGENDA

NATIONAL COUNCIL ON RADIATION PROTECTION

TASK FORCE MEETING AT TMI

DECEMBER 18, 1980

	Morning: Tour of TMI	
0845	Meet at TMI Observation Center	R. Weller/R. McGoey
0900	Commence Tour by Met Ed Bus	R. Weller/R. McGoey
	Tour Items: • Over North Bridge Past Unit 1	
	• Provide Unit 1 and 2 Orientation	
	• Travel to Unit 2 Providing Building Layout Orientation	
	• Point Out Condensate Storage Tanks	
	• Travel to East Side Pointing Out BWST, EPICOR II	
	• Travel to Release Point (RML 7, Mech. Draft Cooling Towers)	
	• Travel to Unit 2 Entry Point	
	• Tour SDS (FHB)	
	• Tour EPICOR II (Control Room	
	• Travel to TMI 2 Administration Building	
1200	Box Lunch at TMI 2 Administration Building, Conference Room 209	R. McGoey
1300	Commence Meeting/Presentation	
1300	"Welcome to TMI"	G. Hovey
1315	Summarize Source Term Data	R. Weller/R. McGoey
1430	Review TMI Analytical Capability (Geli Detectors, Accuracy, Library)	K. Hofstetter
1500	Site Description (Hydrology, Meteorology)	W. Riethle
1615	Summary/Conclusion	R. Weller
1630	Additional Topics as Necessary	NRC/NCRP