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April 24, 1979

NOTE TO: Victor Stello, Jr., Director, TMI Operations

FROM: Frank J. Miraglia, Coordinator, Team B

Attached for your information is the updated primary coolant sample analyses.

/s/
Frank J. Miraglia
Coordinator
Team B

Attachment:
As Stated

cc: see attached distribution list

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OFFICE ➔	Team B					
SURNAME ➔	Fjmiraglia:dlr					
DATE ➔	04/24/79					

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4/24/79

Nuclide	T 1/2	1st Primary Coolant Sample Analyses corrected to 3/30/79 Bettis: Coolant concentration (μ Ci/cc)	1st Primary Coolant Sample Analyses corrected to 3/30/79 Bettis: Fraction* of Core in Primary Coolant	2nd Primary Coolant Sample Analyses corrected to 4/11/79 SRL: Coolant concentration (μCi/cc)	SRL: Fraction* of Core in Primary Coolant	ORNL: Coolant concentration (μCi/cc)	ORNL: Fraction* of Core in Primary Coolant	Bettis: Coolant concentration (μCi/cc)	Bettis: Fraction* of Core in Primary Coolant	BAW: Coolant concentration (μCi/cc)	BAW: fraction* of Core in Primary Coolant
I-131	8d	1.4×10^{4}	0.095	7.25×10^{3}	0.14	8.2×10^{3}	0.155	8.5×10^{3}	0.16	6.7×10^{3}	0.13
I-133	20.8h	6.8×10^{3}	0.083								
Cs-134	2Y	6.3×10^{1}	0.068	7.7×10^{1}	0.086	8.2×10^{1}	0.091	7.4×10^{1}	0.083	7.3×10^{1}	0.082
Cs-136	13d	1.8×10^{2}	0.10	1.2×10^{2}	0.12	1.1×10^{2}	0.12	1.1×10^{2}	0.12	9.5×10^{1}	0.10
Cs-137	30Y	2.7×10^{2}	0.11	3.2×10^{2}	0.13	3.3×10^{2}	0.13	3.4×10^{2}	0.13	2.8×10^{2}	0.11
Sr-89	50d	5.4	0.000031	1.0×10^{3}	0.0060	6.0×10^{2}	0.0042	7.3×10^{2}	0.004		
Sr-90	29Y					5.0×10^{1}	0.022				
Ru-106	368d	3.6×10^{-1}	0.000039								
Ba-140	12.8d	2.1×10^{1}	0.000066	2.6×10^{2}	0.0015	2.9×10^{2}	0.0018	2.2×10^{2}	0.0014	1.5×10^{2}	0.00094
La-140	40h			1.4×10^{2}	0.00075	1.6×10^{2}	0.00086	1.4×10^{2}	0.00075		
Mo-99	66h			1.3×10^{2}	0.012	1.8×10^{2}	0.017			1.3×10^{2}	0.012
Te-132	78h	2.0×10^{2}	0.0012								
Ce-141	32d			1.05×10^{2}	0.00051						
Ba-136m	0.35s daughter of Cs-136			9.0×10^{1}	0.61						
Gross α		3.6×10^{-4}	1×10^{-10}	$<1 \times 10^{-3}$	$<1 \times 10^{-8}$	$<4.5 \times 10^{-4}$	$<4.6 \times 10^{-9}$	1.3×10^{-3}	1.3×10^{-8}		
U				<1 ppb		<20 ppb					
H^3	12Y					1.2	0.1				
pH				7.0		8.0		7.7		8.4	

*Based on a primary coolant volume of 3.8×10^{8} ml. If the make-up water (9×10^{8} ml) from the BWST is included and considered to be at the same concentration, the fraction of the core in the coolant would be about a factor of 3 higher.

4/24/79

Nuclide	T 1/2	1st Primary Coolant Sample Analyses corrected to 3/30/79 Bettis		2nd Primary Coolant Sample Analyses corrected to 4/11/79 SRL		ORNL		Bettis		B&W	
		Coolant concentration (μ Ci/cc)	Fraction * of Core in Primary Coolant	Coolant concentration (μ Ci/cc)	Fraction * of Core in Primary Coolant	Coolant concentration (μ Ci/cc)	Fraction * of Core in Primary Coolant	Coolant concentration (μ Ci/cc)	Fraction * of Core in Primary Coolant	Coolant concentration (μ Ci/cc)	Fraction * of Core in Primary Coolant
I-131	8d	1.4×10^{4}	0.095	7.25×10^{3}	0.14	8.2×10^{3}	0.155	8.5×10^{3}	0.16	6.7×10^{3}	0.13
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Cs-134	2Y	6.3×10^{1}	0.068	7.7×10^{1}	0.086	8.2×10^{1}	0.091	7.4×10^{1}	0.083	7.3×10^{1}	0.082
Cs-136	13d	1.8×10^{2}	0.10	1.2×10^{2}	0.12	1.1×10^{2}	0.12	1.1×10^{2}	0.12	9.5×10^{1}	0.10
Cs-137	30Y	2.7×10^{2}	0.11	3.2×10^{2}	0.13	3.3×10^{2}	0.13	3.4×10^{2}	0.13	2.8×10^{2}	0.11
Sr-89	50d	5.4	0.000031	1.0×10^{3}	0.0060	6.0×10^{2}	0.0042	7.3×10^{2}	0.004		
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Ba-140	12.8d	2.1×10^{1}	0.000066	2.6×10^{2}	0.0015	2.9×10^{2}	0.0018	2.2×10^{2}	0.0014	1.5×10^{2}	0.00094
La-140	40h			1.4×10^{2}	0.00075	1.6×10^{2}	0.00086	1.4×10^{2}	0.00075		
Mo-99	66h			1.3×10^{2}	0.012	1.8×10^{2}	0.017			1.3×10^{2}	0.012
Te-132	78h	2.0×10^{2}	0.0012								
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Ba-136m	0.35s daughter of Cs-136			9.0×10^{1}	0.61						
Gross α		3.6×10^{-4}	1×10^{-10}	$<1 \times 10^{-3}$	$<1 \times 10^{-8}$	$<4.5 \times 10^{-4}$	$<4.6 \times 10^{-9}$	1.3×10^{-3}	1.3×10^{-8}		
U				<1 ppb		<20 ppb					
H^3	12Y					1.2	0.1				
pH				7.0		8.0		7.7		8.4	

*Based on a primary coolant volume of 3.8×10^{8} ml. If the make-up water (9×10^{8} ml) from the BWST is included and considered to be at the same concentration, the fraction of the core in the coolant would be about a factor of 3 higher.

REVISIONS TO PRIMARY COOLANT ANALYSES

This table, dated 4/24/79, presents corrections to three of the radionuclide analyses reported by Savannah River Laboratory for the second primary coolant sample. I-131 coolant concentration has been changed from 4.5×10^3 μCi/cc to 7.25×10^3 μCi/cc; a counting efficiency error for I-131 was corrected. Sr coolant concentration has been changed from 1.5×10^3 μ Ci/cc to 1.0×10^3 μCi/cc. Ba-140 coolant concentration has been changed from 1.7×10^2 μCi/cc to 2.6×10^2 μCi/cc; a dilution factor error was corrected. B. Grimes received these corrections from R. Overman, SRL, by telephone on April 23, 1979. The fractions of core in the primary coolant for those nuclides were also changed to reflect corrections in coolant concentration.