NUREG-0956

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March 27, 1985

Mr. Mel Silberberg
Fuel Behavior Branch
Office of Nuclear Regulatory Research
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mel:

Enclosed for your records is the information telecopied to you on March 25 (retention factors on March 26). You should find enclosed six tables giving calculated results for:

- Locational distribution of three fission product species for Surry V sequence (from Volume V, BMI-2104)
- Locational distribution of fission product groups for Peach Bottom AE sequence
- Time dependent release for fission product groups -- Peach Bottom TC-γ'
- CORSOR predicted release from core region for Surry AB and TMLB' -- with and without control rods
- Cumulative aerosol mass retained in RCS for Surry AB and TMLB' -- with and without control rods
- Retention factors in RCS for AB and TMLB' with and without control rods.

I hope you found this information useful.

Sincerely,

James A. Gieseke
Physico-Chemical Systems Section

JAG:drr

cc: R. Meyer
[redacted]

TABLE 7.18a. LOCATIONAL DISTRIBUTION OF SPECIES AFTER ACCIDENT IS COMPLETED, V

	Fraction of Core Inventory			
Species	RCS	Containment	Safeguards Building	Environment
CsI	0.50	1.8×10^{-2}	6.9×10^{-2}	0.41
CsOH	0.51	1.7×10^{-2}	7.1×10^{-2}	0.40
Te	0.13	0.71	4.4×10^{-2}	0.12

TABLE 7.18b. LOCATIONAL DISTRIBUTION OF SPECIES AFTER ACCIDENT IS COMPLETED, V WITH WATER

	Fraction of Core Inventory			
Species	RCS	Containment	Safeguards Building*	Environment
CsI	0.50	1.8×10^{-2}	0.40	7.9×10^{-2}
CsOH	0.51	1.7×10^{-2}	0.40	7.3×10^{-2}
Te	0.13	0.71	0.14	2.5×10^{-2}

*A water depth of 3 feet is assumed.

LOCATIONAL DISTRIBUTION OF FISSION PRODUCT GROUPS FOR PEACH BOTTOM AE-γ'

Group	Fraction of Core Inventory					
	RCS	Drywell	Melt	Pool	Wetwell	Environment
CsI	0.19	2.3×10^{-2}	0	0.47	~0	0.32
CsOH	0.19	2.6×10^{-2}	0	0.48	~0	0.31
Te	2.6×10^{-2}	3.7×10^{-2}	0.23	3.7×10^{-2}	~0	0.67
Sr	9.6×10^{-2}	2.1×10^{-2}	0.36	2.3×10^{-2}	~0	0.50
Ru	4.0×10^{-2}	~0	0.95	6.6×10^{-3}	~0	5.0×10^{-3}
La	4.9×10^{-4}	~0	0.98	5.5×10^{-5}	~0	2.1×10^{-2}

FRACTION OF CORE INVENTORY RELEASED TO THE ATMOSPHERE
FOR GROUPS OF REACTOR SAFETY STUDY (TC-γ')

Time, hr	Group 2 I	Group 3 Cs	Group 4 Te	Group 5 Sr	Group 6 Ru	Group 7 La
1	0	0	0	0	0	0
2	5.0×10^{-4}	2.7×10^{-4}	5.4×10^{-7}	3.3×10^{-5}	6.4×10^{-6}	4.0×10^{-7}
3.6	4.4×10^{-2}	3.8×10^{-2}	3.3×10^{-2}	1.5×10^{-3}	7.0×10^{-4}	1.3×10^{-5}
4	1.3×10^{-1}	1.3×10^{-1}	9.5×10^{-2}	1.2×10^{-2}	1.9×10^{-3}	5.0×10^{-4}
7	1.6×10^{-1}	1.4×10^{-1}	2.3×10^{-1}	2.8×10^{-1}	1.9×10^{-3}	1.2×10^{-2}
10	1.6×10^{-1}	1.4×10^{-1}	3.8×10^{-1}	3.9×10^{-1}	1.9×10^{-3}	1.8×10^{-2}
15	1.6×10^{-1}	1.4×10^{-1}	4.8×10^{-1}	3.9×10^{-1}	1.9×10^{-3}	1.8×10^{-2}
20	1.6×10^{-1}	1.4×10^{-1}	4.8×10^{-1}	3.9×10^{-1}	1.9×10^{-3}	1.8×10^{-2}

CORSOR Predictions of Masses Released from Core
for the ABγ and TMLB'ε Surry Accident Sequences

	ABγ (kg)	TMLB'ε (kg)
I	12	12
Cs	131	130
Te	9	9
Ba	63	12
Sr	8	4
Ru group	33	16
La group	0.8	0.3
Sn	217.	110.
Zr cladding	6	2
Fe	237	85
Ag rod	1440	1290
In rod	100	72
Cd rod	158	135.

CUMULATIVE AEROSOL MASS RETAINED IN THE RCS FOR THE AB-γ AND TMLB'-ε SURRY SEQUENCES WITH AND WITHOUT CONTROL RODS

AB-γ			TMLB'-ε		
Time (sec)	With Rods (kg)	Without Rods (kg)	Time (sec)	With Rods (kg)	Without Rods (kg)
302	655	2.40	106	265	1.70
904	1209	23.95	306	469	6.87
1505	1834	72.66	511	648	14.73
2107	1850	74.08	714	783	23.17
2711	1871	76.07	917	901	32.71
3314	1934	83.57	1120	1001	42.40
3916	2047	98.24	1323	1092	52.30
4516	2145	115	1527	1201	64.99
4819	2190	124	1934	1688	119
5118	2232	133	2340	1733	125

Time 0 = Start of melting.

Retention factors for the entire RCS for the ABγ and TMLB'ε Surr Aceident Sequences with and without control rods

	ABγ		TMLB'ε	
	WITH RODS	WITHOUT RODS	WITH RODS	WITHOUT RODS
CsI	.03	.03	.85	.76
CsOH	.04	.04	.86	.77
AEROSOL	.48	.45	.93	.80
Te	.70	.66	.85	.87
Sr group	.72	.62	.91	.87
Ru group	.71	.62	.81	.81
La group	.78	.71	.90	.86