FSAR Section 2.4S.13
Tables and Figures

Table 2.4S.13-2A Screening Analysis Considering Radioactive Decay and Representative Conditions

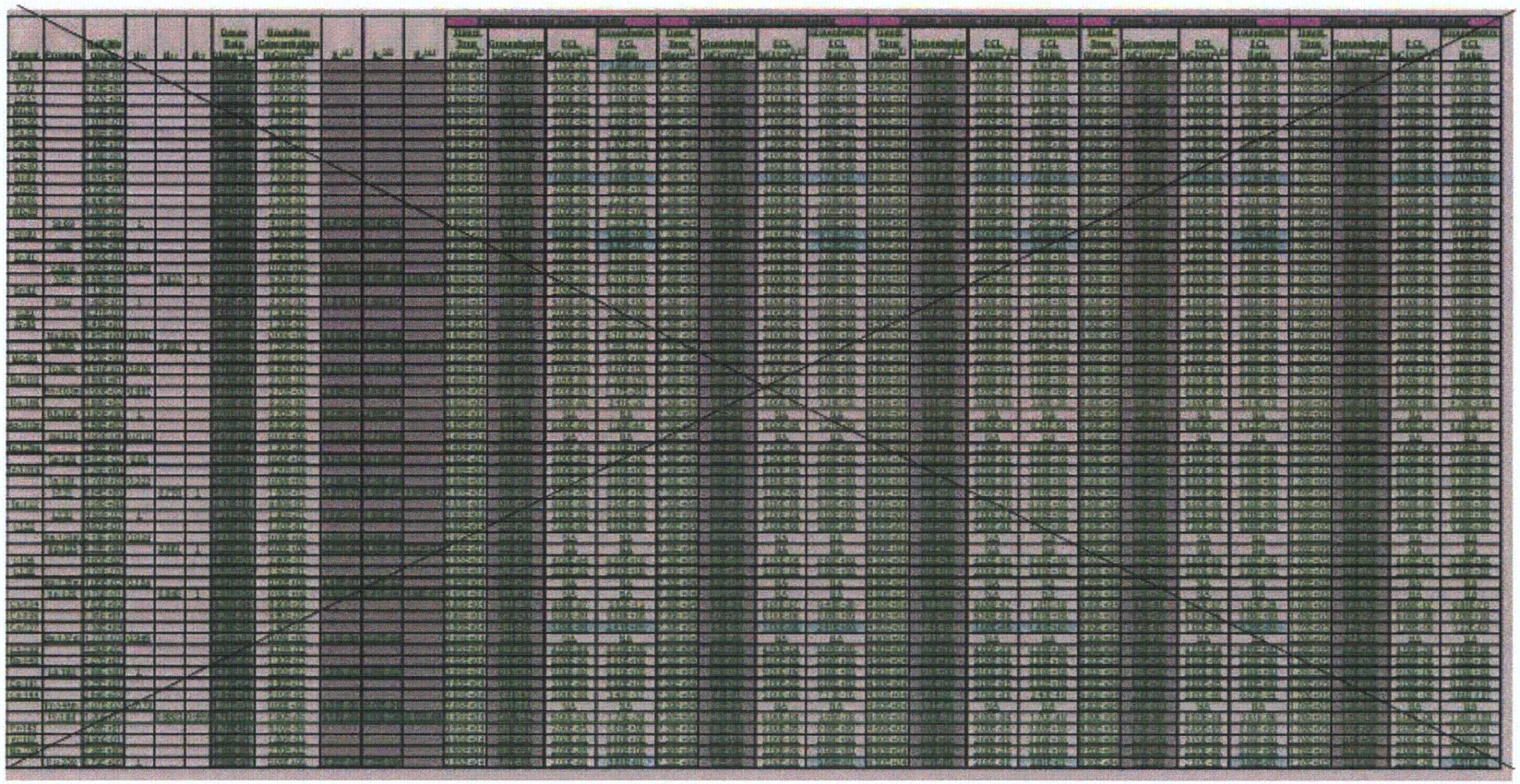


Table 2.4S.13-2A Screening Analysis Considering Radioactive Decay and Representative Conditions

											Pathway 1a Upper Shallow Aquifer				Pathway 1b Lower Shallow Aquifer				Pathway 4 Upper Shallow Aquifer			
Parent	Progeny	Half-life (days)	d12	d13	d23	Decay Rate (days-1)(a)	Bounding Concentration (µCi/cm3)(b)	K1(c)	K2(d)	K3(e)	Travel Time (days)(f)	Groundwater (µCi/cm3)(g)	ECL (µCi/cm3)(h)	Groundwater/ ECL Ratio	Travel Time (days)(f)	Groundwater (µCi/cm3)(g)	ECL (µCi/cm3)(h)	Groundwater/ ECL Ratio	Travel Time (days)(f)	ter (µCi/cm3)(g)	ECL (µCi/cm3)(h)	Groundwater/ECL Ratio
H-3		4.51E+03				1.54E-04	1.00E-02				5.62E+04	1.8E-06	1.00E-03	1.79E-03	4.56E+04	9.0E-06	1.00E-03	9.01E-03	1.20E+05	9.8E-11	1.00E-03	9.78E-08
Na-24		6.25E-01				1.11E+00	3.50E-02				5.62E+04	0.0E+00	5.00E-05	0.00E+00	4.56E+04	0.0E+00	5.00E-05	0.00E+00	1.20E+05	0.0E+00	5.00E-05	0.00E+00
P-32		1.43E+01				4.85E-02	6.50E-04				5.62E+04	0.0E+00	9.00E-06	0.00E+00	4.56E+04	0.0E+00	9.00E-06	0.00E+00	1.20E+05	0.0E+00	9.00E-06	0.00E+00
Cr-51		2.77E+01				2.50E-02	2.00E-02				5.62E+04	0.0E+00	5.00E-04	0.00E+00	4.56E+04	0.0E+00	5.00E-04	0.00E+00	1.20E+05	0.0E+00	5.00E-04	0.00E+00
Mn-54		3.13E+02				2.21E-03	4.30E-04				5.62E+04	4.2E-58	3.00E-05	1.41E-53	4.56E+04	5.7E-48	3.00E-05	1.89E-43	1.20E+05	1.7E-119	3.00E-05	5.57E-115
Mn-56		1.07E-01				6.48E+00	1.80E-01				5.62E+04	0.0E+00	7.00E-05	0.00E+00	4.56E+04	0.0E+00	7.00E-05	0.00E+00	1.20E+05	0.0E+00	7.00E-05	0.00E+00
Fe-55		9.86E+02				7.03E-04	3.20E-03				5.62E+04	2.3E-20	1.00E-04	2.30E-16	4.56E+04	3.8E-17	1.00E-04	3.76E-13	1.20E+05	7.4E-40	1.00E-04	7.39E-36
Fe-59		4.45E+01				1.56E-02	1.20E-04				5.62E+04	0.0E+00	1.00E-05	0.00E+00	4.56E+04	0.0E+00	1.00E-05	0.00E+00	1.20E+05	0.0E+00	1.00E-05	0.00E+00
Co-58		7.08E+01				9.79E-03	8.60E-04				5.62E+04	1.5E-242	2.00E-05	7.51E-238	4.56E+04	8.8E-198	2.00E-05	4.40E-193	1.20E+05	0.0E+00	2.00E-05	0.00E+00
Co-60		1.93E+03				3.59E-04	2.80E-03				5.62E+04	4.9E-12	3.00E-06	1.63E-06	4.56E+04	2.1E-10	3.00E-06	7.14E-05	1.20E+05	5.4E-22	3.00E-06	1.79E-16
Ni-63		3.51E+04				1.97E-05	7.30E-03				5.62E+04	2.4E-03	1.00E-04	2.41E+01	4.56E+04	3.0E-03	1.00E-04	2.97E+01	1.20E+05	6.8E-04	1.00E-04	6.83E+00
Cu-64		5.29E-01				1.31E+00	1.00E-01				5.62E+04	0.0E+00	2.00E-04	0.00E+00	4.56E+04	0.0E+00	2.00E-04	0.00E+00	1.20E+05	0.0E+00	2.00E-04	0.00E+00
Zn-65		2.44E+02				2.84E-03	1.20E-03				5.62E+04	6.3E-73	5.00E-06	1.26E-67	4.56E+04	6.2E-60	5.00E-06	1.23E-54	1.20E+05	1.1E-151	5.00E-06	2.15E-146
Rb-89		1.06E-02				6.54E+01	2.10E-02				5.62E+04	0.0E+00	9.00E-04	0.00E+00	4.56E+04	0.0E+00	9.00E-04	0.00E+00	1.20E+05	0.0E+00	9.00E-04	0.00E+00
	Sr-89	5.05E+01	1			1.37E-02	4.10E-04	-8.61E-08	4.14E-04		5.62E+04	0.0E+00	8.00E-06	0.00E+00	4.56E+04	4.4E-276	8.00E-06	5.55E-271	1.20E+05	0.0E+00	8.00E-06	0.00E+00
Sr-90		1.06E+04				6.54E-05	5.20E-05				5.62E+04	1.3E-06	5.00E-07	2.64E+00	4.56E+04	2.6E-06	5.00E-07	5.26E+00	1.20E+05	2.0E-08	5.00E-07	4.07E-02
	Y-90	2.67E+00	1			2.60E-01	5.20E-05	5.20E-05	-1.31E-08		5.62E+04	1.3E-06	7.00E-06	1.89E-01	4.56E+04	2.6E-06	7.00E-06	3.76E-01	1.20E+05	2.0E-08	7.00E-06	2.90E-03
Sr-91		3.96E-01				1.75E+00	1.40E-02				5.62E+04	0.0E+00	2.00E-05	0.00E+00	4.56E+04	0.0E+00	2.00E-05	0.00E+00	1.20E+05	0.0E+00	2.00E-05	0.00E+00
	Y-91m	3.45E-02	0.578			2.01E+01	0.00E+00	8.86E-03	-8.86E-03		5.62E+04	0.0E+00	2.00E-03	0.00E+00	4.56E+04	0.0E+00	2.00E-03	0.00E+00	1.20E+05	0.0E+00	2.00E-03	0.00E+00
	Y-91	5.58E+01		0.422	1	1.24E-02	5.70E-03	-4.45E-05	5.48E-06	5.76E-03	5.62E+04	6.6E-306	8.00E-06	8.27E-301	4.56E+04	4.2E-249	8.00E-06	5.24E-244	1.20E+05	0.0E+00	8.00E-06	0.00E+00
Sr-92		1.13E-01				6.13E+00	3.80E-02				5.62E+04	0.0E+00	4.00E-05	0.00E+00	4.56E+04	0.0E+00	4.00E-05	0.00E+00	1.20E+05	0.0E+00	4.00E-05	0.00E+00
	Y-92	1.48E-01	1			4.68E+00	2.20E-02	-7.10E-02	1.45E-01		5.62E+04	0.0E+00	4.00E-05	0.00E+00	4.56E+04	0.0E+00	4.00E-05	0.00E+00	1.20E+05	0.0E+00	4.00E-05	0.00E+00
Y-93		4.21E-01				1.65E+00	1.40E-02				5.62E+04	0.0E+00	2.00E-05	0.00E+00	4.56E+04	0.0E+00	2.00E-05	0.00E+00	1.20E+05	0.0E+00	2.00E-05	0.00E+00
Zr-95		6.40E+01				1.08E-02	1.20E-03				5.62E+04	9.0E-268	2.00E-05	4.49E-263	4.56E+04	3.0E-218	2.00E-05	1.50E-213	1.20E+05	0.0E+00	2.00E-05	0.00E+00
	Nb-95m	3.61E+00	0.007			1.92E-01	0.00E+00	8.90E-06	-8.90E-06		5.62E+04	6.7E-270	3.00E-05	2.22E-265	4.56E+04	2.2E-220	3.00E-05	7.43E-216	1.20E+05	0.0E+00	3.00E-05	0.00E+00
	Nb-95	3.52E+01		0.993	1	1.97E-02	1.20E-03	2.65E-03	1.02E-06	1.32E-03	5.62E+04	2.0E-267	3.00E-05	6.61E-263	4.56E+04	6.6E-218	3.00E-05	2.21E-213	1.20E+05	0.0E+00	3.00E-05	0.00E+00
Mo-99		2.75E+00				2.52E-01	6.50E-03				5.62E+04	0.0E+00	2.00E-05	0.00E+00	4.56E+04	0.0E+00	2.00E-05	0.00E+00	1.20E+05	0.0E+00	2.00E-05	0.00E+00
	Tc-99m	2.51E-01	0.876			2.76E+00	6.50E-03	6.27E-03	2.34E-04		5.62E+04	0.0E+00	1.00E+03	0.00E+00	4.56E+04	0.0E+00	1.00E+03	0.00E+00	1.20E+05	0.0E+00	1.00E+03	0.00E+00
Ru-103		3.93E+01				1.76E-02	2.70E-03				5.62E+04	0.0E+00	3.00E-05	0.00E+00	4.56E+04	0.0E+00	3.00E-05	0.00E+00	1.20E+05	0.0E+00	3.00E-05	0.00E+00
	Rh-103m	3.90E-02	0.997			1.78E+01	2.70E-03	2.69E-03	5.43E-06		5.62E+04	0.0E+00	6.00E-03	0.00E+00	4.56E+04	0.0E+00	6.00E-03	0.00E+00	1.20E+05	0.0E+00	6.00E-03	0.00E+00
Ru-106		3.68E+02				1.88E-03	5.20E-04				5.62E+04	6.0E-50	3.00E-06	2.01E-44	4.56E+04	2.5E-41	3.00E-06	8.26E-36	1.20E+05	3.6E-102	3.00E-06	1.19E-96
	Rh-106	3.45E-04	1			2.01E+03	5.20E-04	5.20E-04	-4.88E-10		5.62E+04	6.0E-50	NA	NA	4.56E+04	2.5E-41	NA	NA	1.20E+05	3.6E-102	NA	NA
Ag-110m		2.50E+02				2.77E-03	5.80E-06				5.62E+04	1.4E-73	6.00E-06	2.34E-68	4.56E+04	6.7E-61	6.00E-06	1.12E-55	1.20E+05	1.9E-150	6.00E-06	3.10E-145
	Ag-110	2.85E-04	0.0133			2.43E+03	0.00E+00	7.71E-08	-7.71E-08		5.62E+04	1.9E-75	NA	NA	4.56E+04	8.9E-63	NA	NA	1.20E+05	2.5E-152	NA	NA
Te-129m		3.36E+01				2.06E-02	1.40E-04				5.62E+04	0.0E+00	7.00E-06	0.00E+00	4.56E+04	0.0E+00	7.00E-06	0.00E+00	1.20E+05	0.0E+00	7.00E-06	0.00E+00
	Te-129	4.83E-02	0.65			1.44E+01	0.00E+00	9.11E-05	-9.11E-05		5.62E+04	0.0E+00	4.00E-04	0.00E+00	4.56E+04	0.0E+00	4.00E-04	0.00E+00	1.20E+05	0.0E+00	4.00E-04	0.00E+00
Te-131m		1.25E+00				5.55E-01	3.20E-04				5.62E+04	0.0E+00	8.00E-06	0.00E+00	4.56E+04	0.0E+00	8.00E-06	0.00E+00	1.20E+05	0.0E+00	8.00E-06	0.00E+00
	Te-131	1.74E-02	0.222			3.98E+01	0.00E+00	7.20E-05	-7.20E-05		5.62E+04	0.0E+00	8.00E-05	0.00E+00	4.56E+04	0.0E+00	8.00E-05	0.00E+00	1.20E+05	0.0E+00	8.00E-05	0.00E+00
	I-131	8.04E+00		0.778	1	8.62E-02	1.60E-02	-5.36E-05	1.56E-07	1.60E-02	5.62E+04	0.0E+00	1.00E-06	0.00E+00	4.56E+04	0.0E+00	1.00E-06	0.00E+00	1.20E+05	0.0E+00	1.00E-06	0.00E+00
Te-132		3.26E+00				2.13E-01	9.80E-05				5.62E+04	0.0E+00	9.00E-06	0.00E+00	4.56E+04	0.0E+00	9.00E-06	0.00E+00	1.20E+05	0.0E+00	9.00E-06	0.00E+00
	I-132	9.58E-02	1			7.24E+00	1.40E-01	1.01E-04	1.40E-01		5.62E+04	0.0E+00	1.00E-04	0.00E+00	4.56E+04	0.0E+00	1.00E-04	0.00E+00	1.20E+05	0.0E+00	1.00E-04	0.00E+00
I-133		8.67E-01				7.99E-01	1.10E-01				5.62E+04	0.0E+00	7.00E-06	0.00E+00	4.56E+04	0.0E+00	7.00E-06	0.00E+00	1.20E+05	0.0E+00	7.00E-06	0.00E+00
	Xe-133m	2.19E+00	0.029			3.17E-01	0.00E+00	-2.09E-03	2.09E-03		5.62E+04	0.0E+00	NA	NA	4.56E+04	0.0E+00	NA	NA	1.20E+05	0.0E+00	NA	NA
	Xe-133	5.25E+00		0.971	1	1.32E-01	0.00E+00	-2.11E-02	-1.50E-03	7.75E-02	5.62E+04	0.0E+00	NA	NA	4.56E+04	0.0E+00	NA	NA	1.20E+05	0.0E+00	NA	NA
I-134		3.65E-02				1.90E+01	2.40E-01				5.62E+04	0.0E+00	4.00E-04	0.00E+00	4.56E+04	0.0E+00	4.00E-04	0.00E+00	1.20E+05	0.0E+00	4.00E-04	0.00E+00
I-135		2.75E-01				2.52E+00	1.50E-01				5.62E+04	0.0E+00	3.00E-05	0.00E+00	4.56E+04	0.0E+00	3.00E-05	0.00E+00	1.20E+05	0.0E+00	3.00E-05	0.00E+00
	Xe-135m	1.06E-02	0.154			6.54E+01	0.00E+00	2.40E-02	-2.40E-02		5.62E+04	0.0E+00	NA	NA	4.56E+04	0.0E+00	NA	NA	1.20E+05	0.0E+00	NA	NA

Table 2.4S.13-2A Screening Analysis Considering Radioactive Decay and Representative Conditions (continued)

Parent	Progeny	Half-life (days)	d12	d13	d23	Decay Rate (days-1)(a)	Bounding Concentration (µCi/cm3)(b)	K1(c)	K2(d)	K3(e)	Travel Time (days)(f)	Groundwater (µCi/cm3)(g)	ECL (µCi/cm3)(h)	Groundwater/ ECL Ratio	Travel Time (days)(f)	Groundwater (µCi/cm3)(g)	ECL (µCi/cm3)(h)	Groundwater/ ECL Ratio	Travel Time (days)(f)	ter (µCi/cm3)(g)	ECL (µCi/cm3)(h)	Groundwater/ECL Ratio
Cs-136		1.31E+01				5.29E-02	5.90E-05				5.62E+04	0.0E+00	6.00E-06	0.00E+00	4.56E+04	0.0E+00	6.00E-06	0.00E+00	1.20E+05	0.0E+00	6.00E-06	0.00E+00
Cs-137		1.10E+04				6.30E-05	2.40E-04				5.62E+04	7.0E-06	1.00E-06	6.97E+00	4.56E+04	1.4E-05	1.00E-06	1.35E+01	1.20E+05	1.2E-07	1.00E-06	1.25E-01
	Ba-137m	1.77E-03	0.946			3.92E+02	0.00E+00	2.27E-04	-2.27E-04		5.62E+04	6.6E-06	NA	NA	4.56E+04	1.3E-05	NA	NA	1.20E+05	1.2E-07	NA	NA
Cs-138		2.24E-02				3.09E+01	4.10E-02				5.62E+04	0.0E+00	4.00E-04	0.00E+00	4.56E+04	0.0E+00	4.00E-04	0.00E+00	1.20E+05	0.0E+00	4.00E-04	0.00E+00
Ba-140		1.27E+01				5.46E-02	1.30E-03				5.62E+04	0.0E+00	8.00E-06	0.00E+00	4.56E+04	0.0E+00	8.00E-06	0.00E+00	1.20E+05	0.0E+00	8.00E-06	0.00E+00
	La-140	1.68E+00	1			4.13E-01	3.60E-02	1.50E-03	3.45E-02		5.62E+04	0.0E+00	9.00E-06	0.00E+00	4.56E+04	0.0E+00	9.00E-06	0.00E+00	1.20E+05	0.0E+00	9.00E-06	0.00E+00
Ce-141		3.25E+01				2.13E-02	3.90E-03				5.62E+04	0.0E+00	3.00E-05	0.00E+00	4.56E+04	0.0E+00	3.00E-05	0.00E+00	1.20E+05	0.0E+00	3.00E-05	0.00E+00
Ce-144		2.84E+02				2.44E-03	5.10E-04				5.62E+04	1.5E-63	3.00E-06	5.12E-58	4.56E+04	2.2E-52	3.00E-06	7.41E-47	1.20E+05	3.2E-131	3.00E-06	1.08E-125
	Pr-144m	5.07E-03	0.0178			1.37E+02	0.00E+00	9.08E-06	-9.08E-06		5.62E+04	2.7E-65	NA	NA	4.56E+04	4.0E-54	NA	NA	1.20E+05	5.8E-133	NA	NA
	Pr-144	1.20E-02		0.9822	0.999	5.78E+01	1.00E-05	5.01E-04	6.83E-06	3.61E-04	5.62E+04	1.51E-63	6.00E-04	2.51E-60	4.56E+04	2.2E-52	6.00E-04	3.64E-49	1.20E+05	3.2E-131	6.00E-04	5.32E-128
Pr-143		1.36E+01				5.10E-02	5.10E-04				5.62E+04	0.0E+00	2.00E-05	0.00E+00	4.56E+04	0.0E+00	2.00E-05	0.00E+00	1.20E+05	0.0E+00	2.00E-05	0.00E+00
W-187		9.96E-01				6.96E-01	1.00E-03				5.62E+04	0.0E+00	3.00E-05	0.00E+00	4.56E+04	0.0E+00	3.00E-05	0.00E+00	1.20E+05	0.0E+00	3.00E-05	0.00E+00
Np-239		2.36E+00				2.94E-01	2.70E-02				5.62E+04	0.0E+00	2.00E-05	0.00E+00	4.56E+04	0.0E+00	2.00E-05	0.00E+00	1.20E+05	0.0E+00	2.00E-05	0.00E+00
	Pu-239	8.79E+06	1			7.89E-08	0.00E+00	-7.25E-09	7.25E-09		5.62E+04	7.2E-09	2.00E-08	3.61E-01	4.56E+04	7.2E-09	2.00E-08	3.61E-01	1.20E+05	7.2E-09	2.00E-08	3.59E-01

Notes:
Radionuclides in highlight exceed 1% of the ECL for that parameter. ECLs in highlight are exceeded by predicted concentration in previous column.
NA - Not Available
0.00E+00 - Radionuclide decayed to zero concentration at Point of Compliance (POC)
Notes:
(a) Equation 2.4S.13-4
(b) Table 2.4S.13-1
(c) and (d) For the first progeny, K1 and K2 are substitutions for terms in Equation 2.4S.13-9; $K_1 = \frac{d_{12}\lambda_2 C_{10}}{\lambda_2 - \lambda_1}$ and $K_2 = C_{20} - \frac{d_{12}\lambda_2 C_{10}}{\lambda_2 - \lambda_1}$

(e) For the second progeny, K1, K2 and K3 are substitutions for the terms in Equation 2.4S.13-10; $K_1 = \frac{d_{12}\lambda_2 C_{10}}{\lambda_2 - \lambda_1} + \frac{d_{23}\lambda_2 d_{12}\lambda_2 C_{10}}{(\lambda_3 - \lambda_1)(\lambda_2 - \lambda_1)}$, $K_2 = \frac{d_{23}\lambda_3 C_{20}}{\lambda_3 - \lambda_2} - \frac{d_{23}\lambda_3 d_{12}\lambda_2 C_{10}}{(\lambda_3 - \lambda_2)(\lambda_2 - \lambda_1)}$, and $K_3 = C_{30} - \frac{d_{23}\lambda_3 C_{20}}{\lambda_3 - \lambda_2} + \frac{d_{23}\lambda_3 d_{12}\lambda_2 C_{10}}{(\lambda_3 - \lambda_2)(\lambda_2 - \lambda_1)}$
(f) Table 2.4S.12-17
(g) Equation 2.4S.13-8, 2.4S.13-9, or 2.4S.13-10 depending on position in decay chain.
(h) 10CFR20 Appendix B Table 2 Column 2

Table 2.4S.13-2B Screening Analysis Considering Radioactive Decay and Fastest Flow Conditions

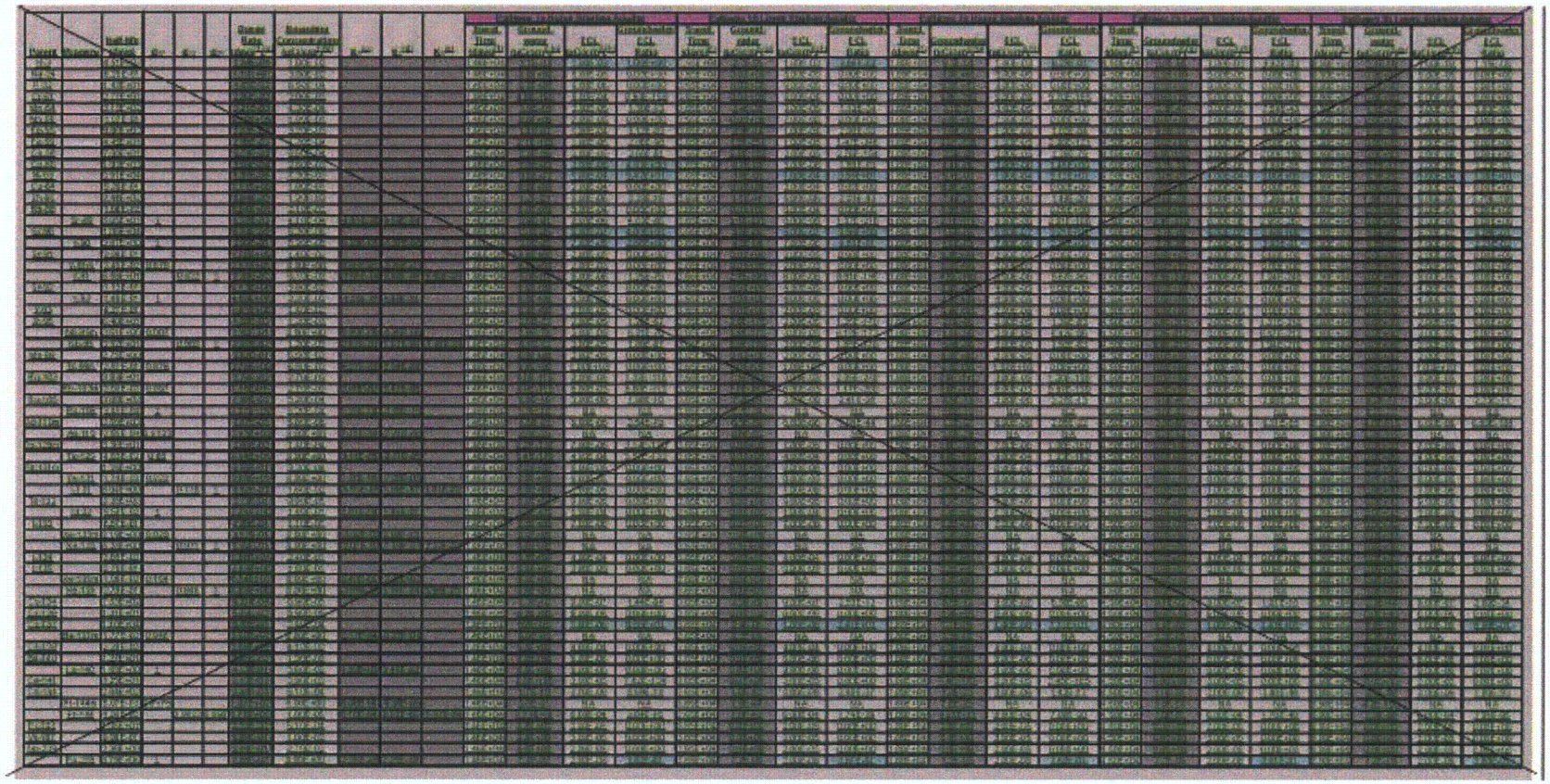


Table 2.4S.13-2B Screening Analysis Considering Radioactive Decay and Fastest Flow Conditions

											Pathway 1a Upper Shallow Aquifer				Pathway 1b Lower Shallow Aquifer				Pathway 4 Upper Shallow Aquifer			
Parent	Progeny	Half-life (days)	d12	d13	d23	Decay Rate (days-1)(a)	Bounding Concentration (µCi/cm3)(b)	K1(c)	K2(d)	K3(e)	Travel Time (days)(f)	Groundwater (µCi/cm3)(g)	ECL (µCi/cm3)(h)	Groundwater/ ECL Ratio	Travel Time (days)(f)	Groundwater (µCi/cm3)(g)	ECL (µCi/cm3)(h)	Groundwater/ ECL Ratio	Travel Time (days)(f)	ter (µCi/cm3)(g)	ECL (µCi/cm3)(h)	Groundwater/ECL Ratio
H-3		4.51E+03				1.54E-04	1.00E-02				2.09E+04	4.1E-04	1.00E-03	4.05E-01	2.81E+04	1.3E-04	1.00E-03	1.34E-01	4.29E+04	1.4E-05	1.00E-03	1.36E-02
Na-24		6.25E-01				1.11E+00	3.50E-02				2.09E+04	0.0E+00	5.00E-05	0.00E+00	2.81E+04	0.0E+00	5.00E-05	0.00E+00	4.29E+04	0.0E+00	5.00E-05	0.00E+00
P-32		1.43E+01				4.85E-02	6.50E-04				2.09E+04	0.0E+00	9.00E-06	0.00E+00	2.81E+04	0.0E+00	9.00E-06	0.00E+00	4.29E+04	0.0E+00	9.00E-06	0.00E+00
Cr-51		2.77E+01				2.50E-02	2.00E-02				2.09E+04	4.3E-229	5.00E-04	8.68E-226	2.81E+04	1.5E-307	5.00E-04	2.99E-304	4.29E+04	0.0E+00	5.00E-04	0.00E+00
Mn-54		3.13E+02				2.21E-03	4.30E-04				2.09E+04	3.8E-24	3.00E-05	1.25E-19	2.81E+04	4.3E-31	3.00E-05	1.42E-26	4.29E+04	2.6E-45	3.00E-05	8.68E-41
Mn-56		1.07E-01				6.48E+00	1.80E-01				2.09E+04	0.0E+00	7.00E-05	0.00E+00	2.81E+04	0.0E+00	7.00E-05	0.00E+00	4.29E+04	0.0E+00	7.00E-05	0.00E+00
Fe-55		9.86E+02				7.03E-04	3.20E-03				2.09E+04	1.4E-09	1.00E-04	1.37E-05	2.81E+04	8.6E-12	1.00E-04	8.57E-08	4.29E+04	2.6E-16	1.00E-04	2.63E-12
Fe-59		4.45E+01				1.56E-02	1.20E-04				2.09E+04	9.7E-146	1.00E-05	9.71E-141	2.81E+04	1.4E-194	1.00E-05	1.40E-189	4.29E+04	1.5E-294	1.00E-05	1.46E-289
Co-58		7.08E+01				9.79E-03	8.60E-04				2.09E+04	1.8E-92	2.00E-05	8.97E-88	2.81E+04	3.6E-123	2.00E-05	1.80E-118	4.29E+04	5.2E-186	2.00E-05	2.59E-181
Co-60		1.93E+03				3.59E-04	2.80E-03				2.09E+04	1.6E-06	3.00E-06	5.21E-01	2.81E+04	1.2E-07	3.00E-06	3.90E-02	4.29E+04	5.8E-10	3.00E-06	1.93E-04
Ni-63		3.51E+04				1.97E-05	7.30E-03				2.09E+04	4.8E-03	1.00E-04	4.84E+01	2.81E+04	4.2E-03	1.00E-04	4.19E+01	4.29E+04	3.1E-03	1.00E-04	3.13E+01
Cu-64		5.29E-01				1.31E+00	1.00E-01				2.09E+04	0.0E+00	2.00E-04	0.00E+00	2.81E+04	0.0E+00	2.00E-04	0.00E+00	4.29E+04	0.0E+00	2.00E-04	0.00E+00
Zn-65		2.44E+02				2.84E-03	1.20E-03				2.09E+04	2.2E-29	5.00E-06	4.45E-24	2.81E+04	2.8E-38	5.00E-06	5.51E-33	4.29E+04	1.6E-56	5.00E-06	3.21E-51
Rb-89		1.06E-02				6.54E+01	2.10E-02				2.09E+04	0.0E+00	9.00E-04	0.00E+00	2.81E+04	0.0E+00	9.00E-04	0.00E+00	4.29E+04	0.0E+00	9.00E-04	0.00E+00
	Sr-89	5.05E+01	1			1.37E-02	4.10E-04	-8.61E-08	4.14E-04		2.09E+04	1.9E-128	8.00E-06	2.43E-123	2.81E+04	1.8E-171	8.00E-06	2.23E-166	4.29E+04	1.4E-259	8.00E-06	1.75E-254
Sr-90		1.06E+04				6.54E-05	5.20E-05				2.09E+04	1.3E-05	5.00E-07	2.66E+01	2.81E+04	8.3E-06	5.00E-07	1.66E+01	4.29E+04	3.2E-06	5.00E-07	6.31E+00
	Y-90	2.67E+00	1			2.60E-01	5.20E-05	5.20E-05	-1.31E-08		2.09E+04	1.3E-05	7.00E-06	1.90E+00	2.81E+04	8.3E-06	7.00E-06	1.18E+00	4.29E+04	3.2E-06	7.00E-06	4.51E-01
Sr-91		3.96E-01				1.75E+00	1.40E-02				2.09E+04	0.0E+00	2.00E-05	0.00E+00	2.81E+04	0.0E+00	2.00E-05	0.00E+00	4.29E+04	0.0E+00	2.00E-05	0.00E+00
	Y-91m	3.45E-02	0.578			2.01E+01	0.00E+00	8.86E-03	-8.86E-03		2.09E+04	0.0E+00	2.00E-03	0.00E+00	2.81E+04	0.0E+00	2.00E-03	0.00E+00	4.29E+04	0.0E+00	2.00E-03	0.00E+00
	Y-91	5.58E+01		0.422	1	1.24E-02	5.70E-03	-4.45E-05	5.48E-06	5.76E-03	2.09E+04	1.7E-115	8.00E-06	2.18E-110	2.81E+04	2.0E-154	8.00E-06	2.44E-149	4.29E+04	3.6E-234	8.00E-06	4.49E-229
Sr-92		1.13E-01				6.13E+00	3.80E-02				2.09E+04	0.0E+00	4.00E-05	0.00E+00	2.81E+04	0.0E+00	4.00E-05	0.00E+00	4.29E+04	0.0E+00	4.00E-05	0.00E+00
	Y-92	1.48E-01	1			4.68E+00	2.20E-02	-7.10E-02	1.45E-01		2.09E+04	0.0E+00	4.00E-05	0.00E+00	2.81E+04	0.0E+00	4.00E-05	0.00E+00	4.29E+04	0.0E+00	4.00E-05	0.00E+00
Y-93		4.21E-01				1.65E+00	1.40E-02				2.09E+04	0.0E+00	2.00E-05	0.00E+00	2.81E+04	0.0E+00	2.00E-05	0.00E+00	4.29E+04	0.0E+00	2.00E-05	0.00E+00
Zr-95		6.40E+01				1.08E-02	1.20E-03				2.09E+04	9.5E-102	2.00E-05	4.73E-97	2.81E+04	1.0E-135	2.00E-05	5.19E-131	4.29E+04	3.1E-205	2.00E-05	1.57E-200
	Nb-95m	3.61E+00	0.007			1.92E-01	0.00E+00	8.90E-06	-8.90E-06		2.09E+04	7.0E-104	3.00E-05	2.34E-99	2.81E+04	7.7E-138	3.00E-05	2.57E-133	4.29E+04	2.3E-207	3.00E-05	7.77E-203
	Nb-95	3.52E+01		0.993	1	1.97E-02	1.20E-03	2.65E-03	1.02E-06	1.32E-03	2.09E+04	2.1E-101	3.00E-05	6.96E-97	2.81E+04	2.3E-135	3.00E-05	7.64E-131	4.29E+04	6.9E-205	3.00E-05	2.31E-200
Mo-99		2.75E+00				2.52E-01	6.50E-03				2.09E+04	0.0E+00	2.00E-05	0.00E+00	2.81E+04	0.0E+00	2.00E-05	0.00E+00	4.29E+04	0.0E+00	2.00E-05	0.00E+00
	Tc-99m	2.51E-01	0.876			2.76E+00	6.50E-03	6.27E-03	2.34E-04		2.09E+04	0.0E+00	1.00E+03	0.00E+00	2.81E+04	0.0E+00	1.00E+03	0.00E+00	4.29E+04	0.0E+00	1.00E+03	0.00E+00
Ru-103		3.93E+01				1.76E-02	2.70E-03				2.09E+04	4.7E-163	3.00E-05	1.56E-158	2.81E+04	2.3E-218	3.00E-05	7.76E-214	4.29E+04	0.0E+00	3.00E-05	0.00E+00
	Rh-103m	3.90E-02	0.997			1.78E+01	2.70E-03	2.69E-03	5.43E-06		2.09E+04	4.7E-163	6.00E-03	7.80E-161	2.81E+04	2.3E-218	6.00E-03	3.87E-216	4.29E+04	0.0E+00	6.00E-03	0.00E+00
Ru-106		3.68E+02				1.88E-03	5.20E-04				2.09E+04	4.5E-21	3.00E-06	1.50E-15	2.81E+04	5.6E-27	3.00E-06	1.87E-21	4.29E+04	4.6E-39	3.00E-06	1.52E-33
	Rh-106	3.45E-04	1			2.01E+03	5.20E-04	5.20E-04	-4.88E-10		2.09E+04	4.5E-21	NA	NA	2.81E+04	5.6E-27	NA	NA	4.29E+04	4.6E-39	NA	NA
Ag-110m		2.50E+02				2.77E-03	5.80E-06				2.09E+04	4.5E-31	6.00E-06	7.43E-26	2.81E+04	9.0E-40	6.00E-06	1.50E-34	4.29E+04	1.4E-57	6.00E-06	2.40E-52
	Ag-110	2.85E-04	0.0133			2.43E+03	0.00E+00	7.71E-08	-7.71E-08		2.09E+04	5.9E-33	NA	NA	2.81E+04	1.2E-41	NA	NA	4.29E+04	1.9E-59	NA	NA
Te-129m		3.36E+01				2.06E-02	1.40E-04				2.09E+04	1.9E-191	7.00E-06	2.74E-186	2.81E+04	4.0E-256	7.00E-06	5.66E-251	4.29E+04	0.0E+00	7.00E-06	0.00E+00
	Te-129	4.83E-02	0.65			1.44E+01	0.00E+00	9.11E-05	-9.11E-05		2.09E+04	1.3E-191	4.00E-04	3.13E-188	2.81E+04	2.6E-256	4.00E-04	6.45E-253	4.29E+04	0.0E+00	4.00E-04	0.00E+00
Te-131m		1.25E+00				5.55E-01	3.20E-04				2.09E+04	0.0E+00	8.00E-06	0.00E+00	2.81E+04	0.0E+00	8.00E-06	0.00E+00	4.29E+04	0.0E+00	8.00E-06	0.00E+00
	Te-131	1.74E-02	0.222			3.98E+01	0.00E+00	7.20E-05	-7.20E-05		2.09E+04	0.0E+00	8.00E-05	0.00E+00	2.81E+04	0.0E+00	8.00E-05	0.00E+00	4.29E+04	0.0E+00	8.00E-05	0.00E+00
	I-131	8.04E+00		0.778	1	8.62E-02	1.60E-02	-5.36E-05	1.56E-07	1.60E-02	2.09E+04	0.0E+00	1.00E-06	0.00E+00	2.81E+04	0.0E+00	1.00E-06	0.00E+00	4.29E+04	0.0E+00	1.00E-06	0.00E+00
Te-132		3.26E+00				2.13E-01	9.80E-05				2.09E+04	0.0E+00	9.00E-06	0.00E+00	2.81E+04	0.0E+00	9.00E-06	0.00E+00	4.29E+04	0.0E+00	9.00E-06	0.00E+00
	I-132	9.58E-02	1			7.24E+00	1.40E-01	1.01E-04	1.40E-01		2.09E+04	0.0E+00	1.00E-04	0.00E+00	2.81E+04	0.0E+00	1.00E-04	0.00E+00	4.29E+04	0.0E+00	1.00E-04	0.00E+00
I-133		8.67E-01				7.99E-01	1.10E-01				2.09E+04	0.0E+00	7.00E-06	0.00E+00	2.81E+04	0.0E+00	7.00E-06	0.00E+00	4.29E+04	0.0E+00	7.00E-06	0.00E+00
	Xe-133m	2.19E+00	0.029			3.17E-01	0.00E+00	-2.09E-03	2.09E-03		2.09E+04	0.0E+00	NA	NA	2.81E+04	0.0E+00	NA	NA	4.29E+04	0.0E+00	NA	NA
	Xe-133	5.25E+00		0.971	1	1.32E-01	0.00E+00	-2.11E-02	-1.50E-03	7.75E-02	2.09E+04	0.0E+00	NA	NA	2.81E+04	0.0E+00	NA	NA	4.29E+04	0.0E+00	NA	NA
I-134		3.65E-02				1.90E+01	2.40E-01				2.09E+04	0.0E+00	4.00E-04	0.00E+00	2.81E+04	0.0E+00	4.00E-04	0.00E+00	4.29E+04	0.0E+00	4.00E-04	0.00E+00
I-135		2.75E-01				2.52E+00	1.50E-01				2.09E+04	0.0E+00	3.00E-05	0.00E+00	2.81E+04	0.0E+00	3.00E-05	0.00E+00	4.29E+04	0.0E+00	3.00E-05	0.00E+00
	Xe-135m	1.06E-02	0.154			6.54E+01	0.00E+00	2.40E-02	-2.40E-02		2.09E+04	0.0E+00	NA	NA	2.81E+04	0.0E+00	NA	NA	4.29E+04	0.0E+00	NA	NA
	Xe-135	3.79E-01		0.846	1	1.83E+00	0.00E+00	-3.36E-01	6.91E-04	6.65E-02	2.09E+04	0.0E+00	NA	NA	2.81E+04	0.0E+00	NA	NA	4.29E+04	0.0E+00	NA	NA
Cs-134		7.53E+02				9.21E-04	8.90E-05				2.09E+04	4.1E-13	9.00E-07	4.54E-07	2.81E+04	5.3E-16	9.00E-07	5.90E-10	4.29E+04	6.6E-22	9.00E-07	7.28E-16

Table 2.4S.13-2B Screening Analysis Considering Radioactive Decay and Fastest Flow Conditions (continued)

Parent	Progeny	Half-life (days)	d12	d13	d23	Decay Rate (days-1)(a)	Bounding Concentration (µCi/cm3)(b)	K1(c)	K2(d)	K3(e)	Travel Time (days)(f)	Groundwater (µCi/cm3)(g)	ECL (µCi/cm3)(h)	Groundwater/ ECL Ratio	Travel Time (days)(f)	Groundwater (µCi/cm3)(g)	ECL (µCi/cm3)(h)	Groundwater/ ECL Ratio	Travel Time (days)(f)	ter (µCi/cm3)(g)	ECL (µCi/cm3)(h)	Groundwater/ECL Ratio
	Xe-135	3.79E-01		0.846	1	1.83E+00	0.00E+00	-3.36E-01	6.91E-04	6.65E-02	2.09E+04	0.0E+00	NA	NA	2.81E+04	0.0E+00	NA	NA	4.29E+04	0.0E+00	NA	NA
Cs-134		7.53E+02				9.21E-04	8.90E-05				2.09E+04	4.1E-13	9.00E-07	4.54E-07	2.81E+04	5.3E-16	9.00E-07	5.90E-10	4.29E+04	6.6E-22	9.00E-07	7.28E-16
Cs-136		1.31E+01				5.29E-02	5.90E-05				2.09E+04	0.0E+00	6.00E-06	0.00E+00	2.81E+04	0.0E+00	6.00E-06	0.00E+00	4.29E+04	0.0E+00	6.00E-06	0.00E+00
Cs-137		1.10E+04				6.30E-05	2.40E-04				2.09E+04	6.4E-05	1.00E-06	6.45E+01	2.81E+04	4.1E-05	1.00E-06	4.09E+01	4.29E+04	1.6E-05	1.00E-06	1.61E+01
	Ba-137m	1.77E-03	0.946			3.92E+02	0.00E+00	2.27E-04	-2.27E-04		2.09E+04	6.1E-05	NA	NA	2.81E+04	3.9E-05	NA	NA	4.29E+04	1.5E-05	NA	NA
Cs-138		2.24E-02				3.09E+01	4.10E-02				2.09E+04	0.0E+00	4.00E-04	0.00E+00	2.81E+04	0.0E+00	4.00E-04	0.00E+00	4.29E+04	0.0E+00	4.00E-04	0.00E+00
Ba-140		1.27E+01				5.46E-02	1.30E-03				2.09E+04	0.0E+00	8.00E-06	0.00E+00	2.81E+04	0.0E+00	8.00E-06	0.00E+00	4.29E+04	0.0E+00	8.00E-06	0.00E+00
	La-140	1.68E+00	1			4.13E-01	3.60E-02	1.50E-03	3.45E-02		2.09E+04	0.0E+00	9.00E-06	0.00E+00	2.81E+04	0.0E+00	9.00E-06	0.00E+00	4.29E+04	0.0E+00	9.00E-06	0.00E+00
Ce-141		3.25E+01				2.13E-02	3.90E-03				2.09E+04	2.5E-196	3.00E-05	8.45E-192	2.81E+04	3.4E-263	3.00E-05	1.13E-258	4.29E+04	0.0E+00	3.00E-05	0.00E+00
Ce-144		2.84E+02				2.44E-03	5.10E-04				2.09E+04	4.0E-26	3.00E-06	1.33E-20	2.81E+04	8.8E-34	3.00E-06	2.95E-28	4.29E+04	1.9E-49	3.00E-06	6.38E-44
	Pr-144m	5.07E-03	0.0178			1.37E+02	0.00E+00	9.08E-06	-9.08E-06		2.09E+04	7.1E-28	NA	NA	2.81E+04	1.6E-35	NA	NA	4.29E+04	3.4E-51	NA	NA
	Pr-144	1.20E-02		0.9822	0.999	5.78E+01	1.00E-05	5.01E-04	6.63E-06	3.61E-04	2.09E+04	3.91E-28	6.00E-04	6.51E-23	2.81E+04	8.7E-34	6.00E-04	1.45E-30	4.29E+04	1.9E-49	6.00E-04	3.12E-46
Pr-143		1.36E+01				5.10E-02	5.10E-04				2.09E+04	0.0E+00	2.00E-05	0.00E+00	2.81E+04	0.0E+00	2.00E-05	0.00E+00	4.29E+04	0.0E+00	2.00E-05	0.00E+00
W-187		9.96E-01				6.96E-01	1.00E-03				2.09E+04	0.0E+00	3.00E-05	0.00E+00	2.81E+04	0.0E+00	3.00E-05	0.00E+00	4.29E+04	0.0E+00	3.00E-05	0.00E+00
Np-239		2.36E+00				2.94E-01	2.70E-02				2.09E+04	0.0E+00	2.00E-05	0.00E+00	2.81E+04	0.0E+00	2.00E-05	0.00E+00	4.29E+04	0.0E+00	2.00E-05	0.00E+00
	Pu-239	8.79E+06	1			7.89E-08	0.00E+00	-7.25E-09	7.25E-09		2.09E+04	7.2E-09	2.00E-08	3.62E-01	2.81E+04	7.2E-09	2.00E-08	3.62E-01	4.29E+04	7.2E-09	2.00E-08	3.61E-01

Notes:
Radionuclides in highlight exceed 1% of the ECL for that parameter. ECLs in highlight are exceeded by predicted concentration in previous column.
NA - Not Available
0.00E+00 - Radionuclide decayed to zero concentration at Point of Compliance (POC)
Notes:
(a) Equation 2.4S.13-4
(b) Table 2.4S.13-1
(c) and (d) For the first progeny, K1 and K2 are substitutions for terms in Equation 2.4S.13-9; $K_1 = \frac{d_{12}\lambda_2 C_{10}}{\lambda_2 - \lambda_1}$ and $K_2 = C_{10} - \frac{d_{12}\lambda_2 C_{10}}{\lambda_2 - \lambda_1}$

(e) For the second progeny, K1, K2 and K3 are substitutions for the terms in Equation 2.4S.13-10; $K_1 = \frac{d_{13}\lambda_3 C_{10}}{\lambda_3 - \lambda_1} + \frac{d_{23}\lambda_2 d_{12}\lambda_3 C_{10}}{(\lambda_2 - \lambda_1)(\lambda_3 - \lambda_1)}$, $K_2 = \frac{d_{23}\lambda_3 C_{10}}{\lambda_3 - \lambda_2} - \frac{d_{23}\lambda_2 d_{12}\lambda_3 C_{10}}{(\lambda_2 - \lambda_1)(\lambda_3 - \lambda_2)}$, and $K_3 = C_{10} - \frac{d_{13}\lambda_3 C_{10}}{\lambda_3 - \lambda_1} - \frac{d_{23}\lambda_3 C_{10}}{\lambda_3 - \lambda_2} + \frac{d_{23}\lambda_2 d_{12}\lambda_3 C_{10}}{(\lambda_3 - \lambda_1)(\lambda_3 - \lambda_2)}$
(f) Table 2.4S.12-17
(g) Equation 2.4S.13-8, 2.4S.13-9, or 2.4S.13-10 depending on position in decay chain.
(h) 10CFR20 Appendix B Table 2 Column 2

Table 2.4S.13-4 Transport Analysis Considering Dispersion, Advection, Radioactive Decay, and Retardation

Pathway 1a) Upper Shallow Aquifer at Site Boundary - Representative Conditions

Pathway length	7,300	ft					
Travel time	100	yr (ave.)					
Pore water velocity	73	ft/yr					
Dispersivity	50.3	ft					
Coeff dispersion	3675	ft^2/yr					
Total porosity	0.41	from Table 2.4S.12-14					
Effective porosity	0.33	from Table 2.4S.12-14					
Bulk density	1.58	converted from Table 2.4S.12-14					
Input period	60	yr (estimated life of plant)					
Radionuclide	H-3	Co-60	Ni-63	Sr-90	Y-90	Cs-137	Pu-239
ECL	1.00E-03	3.00E-06	1.00E-04	5.00E-07	7.00E-06	1.00E-06	2.00E-08
C(0,t)	1.00E-02	2.84E-03	7.32E-03	5.15E-05	5.15E-05	2.36E-04	7.25E-09
K_d (cm^3/g) (Lab ave.)	0	10.4	46.4	2	15.08	231.5	166.5
R	1.0	50.8	223.2	18.6	73.2	1109.4	798.2
L(yr-1)	5.61E-02	1.31E-01	7.21E-03	2.39E-02	9.48E+01	2.30E-02	2.88E-05
U	78	321	170	95	10102	617	75

RESULT: Using representative (average) travel time, K_d and porosity values, the 1-D advection+decay+redardation+dispersion model indicates at 7,300 ft:

- **No violations of ECL**
- Identifies C(x,t)/ECL ratio that exceeds 1% of ECL but below ECL
- No violation of sum of fractions occurred.

Table 2.4S.13-4 Transport Analysis Considering Dispersion, Advection, Radioactive Decay, and Retardation (Continued)

Pathway 1a) Upper Shallow Aquifer at Site Boundary - Representative Conditions

x (ft)	t (yr)	C(x,t)/ECL							Sum of Fractions
		H-3	Co-60	Ni-63	Sr-90	Y-90	Cs-137	Pu-239	
7300	2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	4	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	6	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	8	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	12	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	16	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	18	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	20	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	22	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	24	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	26	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	28	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	30	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	32	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	34	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	36	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	38	7.19E-18	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.19E-18
7300	40	3.64E-16	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.64E-16
7300	42	1.26E-14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.26E-14
7300	44	2.92E-13	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.92E-13
7300	46	4.83E-12	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.83E-12
7300	48	5.92E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.92E-11
7300	50	5.59E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.59E-10
7300	52	4.18E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.18E-09
7300	54	2.55E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.55E-08
7300	56	1.29E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.29E-07
7300	58	5.58E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.58E-07
7300	60	2.07E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.07E-06
7300	62	6.76E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.76E-06
7300	64	1.95E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.95E-05
7300	66	5.06E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.06E-05
7300	68	1.19E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.19E-04
7300	70	2.56E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.56E-04
7300	72	5.07E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.07E-04
7300	74	9.32E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.32E-04
7300	76	1.60E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.60E-03
7300	78	2.59E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.59E-03
7300	80	3.96E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.96E-03
7300	82	5.75E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.75E-03
7300	84	7.96E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.96E-03
7300	86	1.06E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.06E-02
7300	88	1.35E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.35E-02
7300	90	1.67E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.67E-02
7300	92	2.00E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.00E-02

Table 2.4S.13-4 Transport Analysis Considering Dispersion, Advection, Radioactive Decay, and Retardation (Continued)

Pathway 1a) Upper Shallow Aquifer at Site Boundary - Representative Conditions

x (ft)	t (yr)	C(x,t)/ECL							Sum of Fractions
		H-3	Co-60	Ni-63	Sr-90	Y-90	Cs-137	Pu-239	
7300	94	2.32E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.32E-02
7300	96	2.64E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.64E-02
7300	98	2.93E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.93E-02
7300	100	3.19E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.19E-02
7300	110	4.02E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.02E-02
7300	120	4.27E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.27E-02
7300	130	4.29E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.29E-02
7300	140	3.92E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.92E-02
7300	150	2.65E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.65E-02
7300	160	1.13E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.13E-02
7300	170	2.98E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.98E-03
7300	180	5.19E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.19E-04
7300	190	6.41E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.41E-05
7300	200	5.96E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.96E-06
7300	250	2.53E-12	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.53E-12
7300	300	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	400	0.00E+00	0.00E+00	0.00E+00	2.96E-20	0.00E+00	0.00E+00	0.00E+00	2.96E-20
7300	500	0.00E+00	0.00E+00	0.00E+00	2.68E-14	0.00E+00	0.00E+00	0.00E+00	2.68E-14
7300	600	0.00E+00	0.00E+00	0.00E+00	4.22E-11	0.00E+00	0.00E+00	0.00E+00	4.22E-11
7300	700	0.00E+00	0.00E+00	0.00E+00	1.74E-09	0.00E+00	0.00E+00	0.00E+00	1.74E-09
7300	800	0.00E+00	6.53E-116	0.00E+00	6.98E-09	0.00E+00	0.00E+00	0.00E+00	6.98E-09
7300	900	0.00E+00	1.18E-110	0.00E+00	5.68E-09	0.00E+00	0.00E+00	0.00E+00	5.68E-09
7300	1,000	0.00E+00	1.41E-107	0.00E+00	1.49E-09	0.00E+00	0.00E+00	0.00E+00	1.49E-09
7300	1,100	0.00E+00	4.52E-106	0.00E+00	1.70E-10	0.00E+00	0.00E+00	0.00E+00	1.70E-10
7300	1,200	0.00E+00	9.38E-106	0.00E+00	1.04E-11	0.00E+00	0.00E+00	0.00E+00	1.04E-11
7300	1,300	0.00E+00	2.25E-106	0.00E+00	3.93E-13	0.00E+00	0.00E+00	0.00E+00	3.93E-13
7300	1,400	0.00E+00	9.42E-108	0.00E+00	1.02E-14	0.00E+00	0.00E+00	0.00E+00	1.02E-14
7300	1,500	0.00E+00	9.54E-110	0.00E+00	1.97E-16	0.00E+00	0.00E+00	0.00E+00	1.97E-16
7300	1,600	0.00E+00	3.01E-112	0.00E+00	2.98E-18	0.00E+00	0.00E+00	0.00E+00	2.98E-18
7300	1,700	0.00E+00	3.65E-115	0.00E+00	3.71E-20	0.00E+00	0.00E+00	0.00E+00	3.71E-20
7300	1,800	0.00E+00	1.95E-118	0.00E+00	3.94E-22	0.00E+00	0.00E+00	0.00E+00	3.94E-22
7300	1,900	0.00E+00	0.00E+00	0.00E+00	5.33E-24	0.00E+00	0.00E+00	0.00E+00	5.33E-24
7300	2,000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	2,100	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	2,200	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	2,300	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	2,400	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	2,500	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	2,600	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	2,700	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	2,800	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	2,900	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	3,000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	3,100	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	3,200	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	3,300	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Table 2.4S.13-4 Transport Analysis Considering Dispersion, Advection, Radioactive Decay, and Retardation (Continued)

Pathway 1a) Upper Shallow Aquifer at Site Boundary - Representative Conditions

		C(x,t)/ECL							Sum of
x (ft)	t (yr)	H-3	Co-60	Ni-63	Sr-90	Y-90	Cs-137	Pu-239	Fractions
7300	3.400	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	3.500	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	3.600	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	3.700	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	3.800	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	3.900	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	4.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	4.100	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	4.200	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	4.300	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	4.400	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	4.500	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	4.600	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	4.700	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	4.800	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	4.900	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	5.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	5.100	0.00E+00	0.00E+00	2.80E-57	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.80E-57
7300	5.200	0.00E+00	0.00E+00	1.40E-56	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.40E-56
7300	5.300	0.00E+00	0.00E+00	1.20E-55	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-55
7300	5.400	0.00E+00	0.00E+00	8.30E-55	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.30E-55
7300	5.500	0.00E+00	0.00E+00	5.24E-54	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.24E-54
7300	5.600	0.00E+00	0.00E+00	3.00E-53	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.00E-53
7300	5.700	0.00E+00	0.00E+00	1.57E-52	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.57E-52
7300	5.800	0.00E+00	0.00E+00	7.50E-52	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.50E-52
7300	5.900	0.00E+00	0.00E+00	3.30E-51	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.30E-51
7300	6.000	0.00E+00	0.00E+00	1.34E-50	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.34E-50
7300	6.100	0.00E+00	0.00E+00	5.05E-50	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.05E-50
7300	6.200	0.00E+00	0.00E+00	1.77E-49	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.77E-49
7300	6.300	0.00E+00	0.00E+00	5.81E-49	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.81E-49
7300	6.400	0.00E+00	0.00E+00	1.78E-48	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.78E-48
7300	6.500	0.00E+00	0.00E+00	5.15E-48	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.15E-48
7300	6.600	0.00E+00	0.00E+00	1.40E-47	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.40E-47
7300	6.700	0.00E+00	0.00E+00	3.60E-47	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.60E-47
7300	6.800	0.00E+00	0.00E+00	8.76E-47	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.76E-47
7300	6.900	0.00E+00	0.00E+00	2.03E-46	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.03E-46
7300	7.000	0.00E+00	0.00E+00	4.46E-46	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.46E-46
7300	7.100	0.00E+00	0.00E+00	9.35E-46	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.35E-46
7300	7.200	0.00E+00	0.00E+00	1.88E-45	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.88E-45
7300	7.300	0.00E+00	0.00E+00	3.60E-45	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.60E-45
7300	7.400	0.00E+00	0.00E+00	6.63E-45	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.63E-45
7300	7.500	0.00E+00	0.00E+00	1.17E-44	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.17E-44
7300	7.600	0.00E+00	0.00E+00	2.00E-44	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.00E-44
7300	7.700	0.00E+00	0.00E+00	3.27E-44	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.27E-44
7300	7.800	0.00E+00	0.00E+00	5.18E-44	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.18E-44
7300	7.900	0.00E+00	0.00E+00	7.92E-44	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.92E-44

Table 2.4S.13-4 Transport Analysis Considering Dispersion, Advection, Radioactive Decay, and Retardation (Continued)

Pathway 1a) Upper Shallow Aquifer at Site Boundary - Representative Conditions

x (ft)	t (yr)	C(x,t)/EC1							Sum of Fractions
		H-3	Co-60	Ni-63	Sr-90	Y-90	Cs-137	Pu-239	
7300	8.000	0.00E+00	0.00E+00	1.17E-43	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.17E-43
7300	8.100	0.00E+00	0.00E+00	1.68E-43	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.68E-43
7300	8.200	0.00E+00	0.00E+00	2.34E-43	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.34E-43
7300	8.300	0.00E+00	0.00E+00	3.16E-43	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.16E-43
7300	8.400	0.00E+00	0.00E+00	4.15E-43	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.15E-43
7300	8.500	0.00E+00	0.00E+00	5.29E-43	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.29E-43
7300	8.600	0.00E+00	0.00E+00	6.59E-43	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.59E-43
7300	8.700	0.00E+00	0.00E+00	7.98E-43	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.98E-43
7300	8.800	0.00E+00	0.00E+00	9.45E-43	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.45E-43
7300	8.900	0.00E+00	0.00E+00	1.09E-42	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.09E-42
7300	9.000	0.00E+00	0.00E+00	1.23E-42	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.23E-42
7300	9.100	0.00E+00	0.00E+00	1.36E-42	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.36E-42
7300	9.200	0.00E+00	0.00E+00	1.47E-42	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.47E-42
7300	9.300	0.00E+00	0.00E+00	1.56E-42	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.56E-42
7300	9.400	0.00E+00	0.00E+00	1.61E-42	0.00E+00	0.00E+00	6.77E-250	0.00E+00	1.61E-42
7300	9.500	0.00E+00	0.00E+00	1.64E-42	0.00E+00	0.00E+00	4.06E-249	0.00E+00	1.64E-42
7300	9.600	0.00E+00	0.00E+00	1.64E-42	0.00E+00	0.00E+00	3.32E-248	0.00E+00	1.64E-42
7300	9.700	0.00E+00	0.00E+00	1.60E-42	0.00E+00	0.00E+00	2.44E-247	0.00E+00	1.60E-42
7300	9.800	0.00E+00	0.00E+00	1.54E-42	0.00E+00	0.00E+00	1.64E-246	0.00E+00	1.54E-42
7300	9.900	0.00E+00	0.00E+00	1.46E-42	0.00E+00	0.00E+00	1.01E-245	0.00E+00	1.46E-42
7300	10.000	0.00E+00	0.00E+00	1.36E-42	0.00E+00	0.00E+00	5.76E-245	0.00E+00	1.36E-42
7300	11.000	0.00E+00	0.00E+00	2.93E-43	0.00E+00	0.00E+00	3.42E-239	0.00E+00	2.93E-43
7300	12.000	0.00E+00	0.00E+00	1.85E-44	0.00E+00	0.00E+00	4.49E-236	0.00E+00	1.85E-44
7300	13.000	0.00E+00	0.00E+00	4.56E-46	0.00E+00	0.00E+00	5.34E-235	0.00E+00	4.56E-46
7300	14.000	0.00E+00	0.00E+00	5.37E-48	0.00E+00	0.00E+00	1.57E-235	0.00E+00	5.37E-48
7300	15.000	0.00E+00	0.00E+00	3.50E-50	0.00E+00	0.00E+00	2.41E-237	0.00E+00	3.50E-50
7300	16.000	0.00E+00	0.00E+00	1.41E-52	0.00E+00	0.00E+00	3.34E-240	0.00E+00	1.41E-52
7300	17.000	0.00E+00	0.00E+00	3.90E-55	0.00E+00	0.00E+00	6.42E-244	0.00E+00	3.90E-55
7300	18.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.47E-248	0.00E+00	2.47E-248
7300	19.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	20.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	21.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	22.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	23.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	24.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	25.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	26.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	27.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	28.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	29.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	30.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	31.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	32.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.25E-18	8.25E-18
7300	33.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.43E-17	7.43E-17
7300	34.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.71E-16	5.71E-16
7300	35.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.89E-15	3.89E-15

Table 2.4S.13-4 Transport Analysis Considering Dispersion, Advection, Radioactive Decay, and Retardation (Continued)

Pathway 1a) Upper Shallow Aquifer at Site Boundary - Representative Conditions

x (ft)	t (yr)	C(x,t)/ECL							Sum of Fractions
		H-3	Co-60	Ni-63	Sr-90	Y-90	Cs-137	Pu-239	
7300	36.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.31E-14	2.31E-14
7300	37.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.22E-13	1.22E-13
7300	38.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.70E-13	5.70E-13
7300	39.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.41E-12	2.41E-12
7300	40.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.24E-12	9.24E-12
7300	41.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.24E-11	3.24E-11
7300	42.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.05E-10	1.05E-10
7300	43.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.12E-10	3.12E-10
7300	44.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.67E-10	8.67E-10
7300	45.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.25E-09	2.25E-09
7300	46.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.49E-09	5.49E-09
7300	47.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.26E-08	1.26E-08
7300	48.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.74E-08	2.74E-08
7300	49.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.66E-08	5.66E-08
7300	50.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.11E-07	1.11E-07
7300	51.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.09E-07	2.09E-07
7300	52.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.76E-07	3.76E-07
7300	53.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.50E-07	6.50E-07
7300	54.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.08E-06	1.08E-06
7300	55.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.73E-06	1.73E-06
7300	56.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.68E-06	2.68E-06
7300	57.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.02E-06	4.02E-06
7300	58.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.84E-06	5.84E-06
7300	59.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.25E-06	8.25E-06
7300	60.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.13E-05	1.13E-05
7300	61.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.51E-05	1.51E-05
7300	62.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.97E-05	1.97E-05
7300	63.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.51E-05	2.51E-05
7300	64.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.12E-05	3.12E-05
7300	65.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.80E-05	3.80E-05
7300	66.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.53E-05	4.53E-05
7300	67.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.29E-05	5.29E-05
7300	68.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.06E-05	6.06E-05
7300	69.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.83E-05	6.83E-05
7300	70.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.56E-05	7.56E-05
7300	71.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.22E-05	8.22E-05
7300	72.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.81E-05	8.81E-05
7300	73.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.29E-05	9.29E-05
7300	74.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.65E-05	9.65E-05
7300	75.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.90E-05	9.90E-05
7300	76.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.00E-04	1.00E-04
7300	77.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.99E-05	9.99E-05
7300	78.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.84E-05	9.84E-05
7300	79.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.59E-05	9.59E-05
7300	80.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.23E-05	9.23E-05
7300	81.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.79E-05	8.79E-05

Table 2.4S.13-4 Transport Analysis Considering Dispersion, Advection, Radioactive Decay, and Retardation (Continued)

Pathway 1a) Upper Shallow Aquifer at Site Boundary - Representative Conditions

		Cix tVECL							Sum of
x (ft)	t (yr)	H-3	Co-60	Ni-63	Sr-90	Y-90	Cs-137	Pu-239	Fractions
7300	82.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.28E-05	8.28E-05
7300	83.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.72E-05	7.72E-05
7300	84.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.13E-05	7.13E-05
7300	85.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.52E-05	6.52E-05
7300	86.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.90E-05	5.90E-05
7300	87.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.30E-05	5.30E-05
7300	88.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.72E-05	4.72E-05
7300	89.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.16E-05	4.16E-05
7300	90.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.64E-05	3.64E-05
7300	91.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.17E-05	3.17E-05
7300	92.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.73E-05	2.73E-05
7300	93.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.34E-05	2.34E-05
7300	94.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.99E-05	1.99E-05
7300	95.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.68E-05	1.68E-05
7300	96.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.41E-05	1.41E-05
7300	97.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.17E-05	1.17E-05
7300	98.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.70E-06	9.70E-06
7300	99.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.98E-06	7.98E-06
7300	100.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.53E-06	6.53E-06
7300	101.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.32E-06	5.32E-06
7300	102.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.30E-06	4.30E-06
7300	103.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.46E-06	3.46E-06
7300	104.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.77E-06	2.77E-06
7300	105.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.21E-06	2.21E-06
7300	106.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.75E-06	1.75E-06
7300	107.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.38E-06	1.38E-06
7300	108.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.09E-06	1.09E-06
7300	109.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.48E-07	8.48E-07
7300	110.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.60E-07	6.60E-07
7300	111.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.12E-07	5.12E-07
7300	112.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.95E-07	3.95E-07
7300	113.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.04E-07	3.04E-07
7300	114.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.33E-07	2.33E-07
7300	115.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.77E-07	1.77E-07
7300	116.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.35E-07	1.35E-07
7300	117.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.02E-07	1.02E-07
7300	118.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.71E-08	7.71E-08
7300	119.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.80E-08	5.80E-08
7300	120.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.35E-08	4.35E-08
7300	121.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.25E-08	3.25E-08
7300	122.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.42E-08	2.42E-08
7300	123.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.79E-08	1.79E-08
7300	124.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.33E-08	1.33E-08
7300	125.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.80E-09	9.80E-09
7300	126.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.21E-09	7.21E-09
7300	127.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.29E-09	5.29E-09

Table 2.4S.13-4 Transport Analysis Considering Dispersion, Advection, Radioactive Decay, and Retardation (Continued)

Pathway 1a) Upper Shallow Aquifer at Site Boundary - Representative Conditions

x (ft)	t (yr)	C(x,t)/ECL							Sum of Fractions
		H-3	Co-60	Ni-63	Sr-90	Y-90	Cs-137	Pu-239	
7300	128.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.87E-09	3.87E-09
7300	129.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.83E-09	2.83E-09
7300	130.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.06E-09	2.06E-09
7300	131.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.49E-09	1.49E-09
7300	132.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.08E-09	1.08E-09
7300	133.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.81E-10	7.81E-10
7300	134.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.63E-10	5.63E-10
7300	135.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.05E-10	4.05E-10
7300	136.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.90E-10	2.90E-10
7300	137.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.08E-10	2.08E-10
7300	138.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.48E-10	1.48E-10
7300	139.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.06E-10	1.06E-10
7300	140.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.52E-11	7.52E-11
7300	141.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.33E-11	5.33E-11
7300	142.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.78E-11	3.78E-11
7300	143.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.67E-11	2.67E-11
7300	144.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.88E-11	1.88E-11
7300	145.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.33E-11	1.33E-11
7300	146.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.32E-12	9.32E-12
7300	147.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.54E-12	6.54E-12
7300	148.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.58E-12	4.58E-12
7300	149.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.20E-12	3.20E-12
7300	150.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.23E-12	2.23E-12
	Max =	4.29E-02	9.38E-106	1.64E-42	6.98E-09	0.00E+00	5.34E-235	1.00E-04	4.29E-02

Table 2.4S.13-4 Transport Analysis Considering Dispersion, Advection, Radioactive Decay, and Retardation (Continued)

Pathway 1b) Lower Shallow Aquifer at Site Boundary - Representative Scenario

Pathway length	7,300	ft				
Travel time	200	yr (ave.)				
Pore water velocity	36.53	ft/yr				
Dispersivity	50.31	ft				
Coeff dispersion	1838	ft^2/yr				
Total porosity	0.39	from Table 2.4S.12-14				
Effective porosity	0.31	from Table 2.4S.12-14				
Bulk density	1.63	converted from Table 2.4S.12-14				
Input period	60	yr (estimated life of plant)				
Radionuclide	H-3	Ni-63	Sr-90	Y-90	Cs-137	Pu-239
ECL	1.00E-03	1.00E-04	5.00E-07	7.00E-06	1.00E-06	2.00E-08
C(0,t)	1.00E-02	7.32E-03	5.15E-05	5.15E-05	2.36E-04	7.25E-09
K_d (cm^3/g) (Lab ave.)	0	81.8	2	15.08	234.6	792.1
R	1	431	12	80	1236	4166
l (yr-1)	5.61E-02	7.21E-03	2.39E-02	9.48E+01	2.30E-02	2.88E-05
U	42	156	58	7481	458	47

RESULT: Using representative (average) travel time, K_d and porosity values, the 1-D advection+decay+redardation+dispersion model indicates at 7,300 ft.

▶No violations of ECL

▶No violation of sum of fractions occurred.

Table 2.4S.13-4 Transport Analysis Considering Dispersion, Advection, Radioactive Decay, and Retardation (Continued)

Pathway 1b) Lower Shallow Aquifer at Site Boundary - Representative Scenario

x (ft)	t (yr)	C(x,t)/ECL						Sum of Fractions
		H-3	Ni-63	Sr-90	Y-90	Cs-137	Pu-239	
7300	2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	4	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	6	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	8	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	12	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	16	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	18	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	20	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	22	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	24	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	26	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	28	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	30	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	32	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	34	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	36	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	38	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	40	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	42	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	44	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	46	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	48	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	50	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	52	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	54	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	56	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	58	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	60	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	62	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	64	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	66	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	68	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	70	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	72	1.48E-20	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.48E-20
7300	74	8.86E-20	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.86E-20
7300	76	8.12E-19	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.12E-19
7300	78	6.00E-18	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.00E-18
7300	80	3.93E-17	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.93E-17
7300	82	2.30E-16	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.30E-16
7300	84	1.21E-15	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.21E-15
7300	86	5.80E-15	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.80E-15
7300	88	2.53E-14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.53E-14
7300	90	1.01E-13	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.01E-13
7300	92	3.76E-13	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.76E-13

Table 2.4S.13-4 Transport Analysis Considering Dispersion, Advection, Radioactive Decay, and Retardation (Continued)

Pathway 1b) Lower Shallow Aquifer at Site Boundary - Representative Scenario

		C(x,t)/ECL						Sum of
x(ft)	t(yr)	H-3	Ni-63	Sr-90	Y-90	Cs-137	Pu-239	Fractions
7300	94	1.29E-12	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.29E-12
7300	96	4.14E-12	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.14E-12
7300	98	1.24E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.24E-11
7300	100	3.51E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.51E-11
7300	110	2.84E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.84E-09
7300	120	7.73E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.73E-08
7300	130	9.21E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.21E-07
7300	140	5.77E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.77E-06
7300	150	2.20E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.20E-05
7300	160	5.64E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.64E-05
7300	170	1.07E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.07E-04
7300	180	1.62E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.62E-04
7300	190	2.06E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.06E-04
7300	200	2.31E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.31E-04
7300	250	5.88E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.88E-05
7300	300	4.85E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.85E-07
7300	400	8.46E-14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.46E-14
7300	500	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	600	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	700	0.00E+00	0.00E+00	1.82E-32	0.00E+00	0.00E+00	0.00E+00	1.82E-32
7300	800	0.00E+00	0.00E+00	1.23E-27	0.00E+00	0.00E+00	0.00E+00	1.23E-27
7300	900	0.00E+00	0.00E+00	3.11E-24	0.00E+00	0.00E+00	0.00E+00	3.11E-24
7300	1,000	0.00E+00	0.00E+00	7.69E-22	0.00E+00	0.00E+00	0.00E+00	7.69E-22
7300	1,100	0.00E+00	0.00E+00	3.48E-20	0.00E+00	0.00E+00	0.00E+00	3.48E-20
7300	1,200	0.00E+00	0.00E+00	4.34E-19	0.00E+00	0.00E+00	0.00E+00	4.34E-19
7300	1,300	0.00E+00	0.00E+00	2.01E-18	0.00E+00	0.00E+00	0.00E+00	2.01E-18
7300	1,400	0.00E+00	0.00E+00	4.21E-18	0.00E+00	0.00E+00	0.00E+00	4.21E-18
7300	1,500	0.00E+00	0.00E+00	4.70E-18	0.00E+00	0.00E+00	0.00E+00	4.70E-18
7300	1,600	0.00E+00	0.00E+00	3.14E-18	0.00E+00	0.00E+00	0.00E+00	3.14E-18
7300	1,700	0.00E+00	0.00E+00	1.37E-18	0.00E+00	0.00E+00	0.00E+00	1.37E-18
7300	1,800	0.00E+00	0.00E+00	4.19E-19	0.00E+00	0.00E+00	0.00E+00	4.19E-19
7300	1,900	0.00E+00	0.00E+00	9.53E-20	0.00E+00	0.00E+00	0.00E+00	9.53E-20
7300	2,000	0.00E+00	0.00E+00	1.68E-20	0.00E+00	0.00E+00	0.00E+00	1.68E-20
7300	2,100	0.00E+00	0.00E+00	2.39E-21	0.00E+00	0.00E+00	0.00E+00	2.39E-21
7300	2,200	0.00E+00	0.00E+00	2.82E-22	0.00E+00	0.00E+00	0.00E+00	2.82E-22
7300	2,300	0.00E+00	0.00E+00	2.83E-23	0.00E+00	0.00E+00	0.00E+00	2.83E-23
7300	2,400	0.00E+00	0.00E+00	2.47E-24	0.00E+00	0.00E+00	0.00E+00	2.47E-24
7300	2,500	0.00E+00	0.00E+00	1.90E-25	0.00E+00	0.00E+00	0.00E+00	1.90E-25
7300	2,600	0.00E+00	0.00E+00	1.31E-26	0.00E+00	0.00E+00	0.00E+00	1.31E-26
7300	2,700	0.00E+00	0.00E+00	8.18E-28	0.00E+00	0.00E+00	0.00E+00	8.18E-28
7300	2,800	0.00E+00	0.00E+00	4.67E-29	0.00E+00	0.00E+00	0.00E+00	4.67E-29
7300	2,900	0.00E+00	0.00E+00	2.48E-30	0.00E+00	0.00E+00	0.00E+00	2.48E-30
7300	3,000	0.00E+00	0.00E+00	1.19E-31	0.00E+00	0.00E+00	0.00E+00	1.19E-31
7300	3,100	0.00E+00	0.00E+00	4.96E-33	0.00E+00	0.00E+00	0.00E+00	4.96E-33
7300	3,200	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	3,300	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Table 2.4S.13-4 Transport Analysis Considering Dispersion, Advection, Radioactive Decay, and Retardation (Continued)

Pathway 1b) Lower Shallow Aquifer at Site Boundary - Representative Scenario

		C/x,t/ECL						
x (ft)	t (yr)	H-3	Ni-63	Sr-90	Y-90	Cs-137	Pu-239	Sum of Fractions
7300	3.400	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	3.500	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	3.600	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	3.700	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	3.800	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	3.900	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	4.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	4.100	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	4.200	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	4.300	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	4.400	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	4.500	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	4.600	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	4.700	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	4.800	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	4.900	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	5.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	5.100	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	5.200	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	5.300	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	5.400	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	5.500	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	5.600	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	5.700	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	5.800	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	5.900	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	6.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	6.100	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	6.200	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	6.300	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	6.400	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	6.500	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	6.600	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	6.700	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	6.800	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	6.900	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	7.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	7.100	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	7.200	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	7.300	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	7.400	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	7.500	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	7.600	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	7.700	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	7.800	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	7.900	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Table 2.4S.13-4 Transport Analysis Considering Dispersion, Advection, Radioactive Decay, and Retardation (Continued)

Pathway 1b) Lower Shallow Aquifer at Site Boundary - Representative Scenario

		C/x,t)/ECL						Sum of
x(ft)	t (yr)	H-3	Ni-63	Sr-90	Y-90	Cs-137	Pu-239	Fractions
7300	8.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	8.100	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	8.200	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	8.300	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	8.400	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	8.500	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	8.600	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	8.700	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	8.800	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	8.900	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	9.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	9.100	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	9.200	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	9.300	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	9.400	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	9.500	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	9.600	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	9.700	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	9.800	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	9.900	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	10.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	11.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	12.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	13.000	0.00E+00	6.80E-117	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.80E-117
7300	14.000	0.00E+00	9.25E-113	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.25E-113
7300	15.000	0.00E+00	1.28E-109	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.28E-109
7300	16.000	0.00E+00	2.74E-107	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.74E-107
7300	17.000	0.00E+00	1.27E-105	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.27E-105
7300	18.000	0.00E+00	1.63E-104	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.63E-104
7300	19.000	0.00E+00	7.14E-104	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.14E-104
7300	20.000	0.00E+00	1.26E-103	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.26E-103
7300	21.000	0.00E+00	1.01E-103	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.01E-103
7300	22.000	0.00E+00	4.12E-104	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.12E-104
7300	23.000	0.00E+00	9.33E-105	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.33E-105
7300	24.000	0.00E+00	1.27E-105	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.27E-105
7300	25.000	0.00E+00	1.09E-106	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.09E-106
7300	26.000	0.00E+00	6.30E-108	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.30E-108
7300	27.000	0.00E+00	2.55E-109	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.55E-109
7300	28.000	0.00E+00	7.53E-111	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.53E-111
7300	29.000	0.00E+00	1.67E-112	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.67E-112
7300	30.000	0.00E+00	2.87E-114	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.87E-114
7300	31.000	0.00E+00	3.90E-116	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.90E-116
7300	32.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	33.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	34.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	35.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Table 2.4S.13-4 Transport Analysis Considering Dispersion, Advection, Radioactive Decay, and Retardation (Continued)

Pathway 1b) Lower Shallow Aquifer at Site Boundary - Representative Scenario

x (ft)	t (yr)	C(x,t)/ECL						Sum of Fractions
		H-3	Ni-63	Sr-90	Y-90	Cs-137	Pu-239	
7300	36.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	37.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	38.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	39.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	40.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	41.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	42.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	43.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	44.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	45.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	46.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	47.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	48.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	49.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	50.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	51.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	52.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	53.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	54.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	55.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	56.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	57.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	58.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	59.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	60.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	61.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	62.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	63.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	64.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	65.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	66.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	67.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	68.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	69.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	70.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	71.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	72.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	73.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	74.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	75.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	76.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	77.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	78.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	79.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	80.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	81.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Table 2.4S.13-4 Transport Analysis Considering Dispersion, Advection, Radioactive Decay, and Retardation (Continued)

Pathway 1b) Lower Shallow Aquifer at Site Boundary - Representative Scenario

x (ft)	t (yr)	C(x,t)/ECL						Sum of Fractions
		H-3	Ni-63	Sr-90	Y-90	Cs-137	Pu-239	
7300	82.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	83.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	84.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	85.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	86.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	87.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	88.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	89.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	90.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	91.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	92.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	93.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	94.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	95.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	96.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	97.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	98.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	99.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	100.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	101.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	102.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	103.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	104.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	105.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	106.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	107.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	108.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	109.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	110.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	111.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	112.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	113.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	114.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	115.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	116.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	117.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	118.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	119.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	120.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	121.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	122.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	123.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	124.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	125.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	126.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	127.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Table 2.4S.13-4 Transport Analysis Considering Dispersion, Advection, Radioactive Decay, and Retardation (Continued)

Pathway 1b) Lower Shallow Aquifer at Site Boundary - Representative Scenario

x (ft)	t (yr)	C/x,t/EC1						Sum of Fractions
		H-3	Ni-63	Sr-90	Y-90	Cs-137	Pu-239	
7300	128.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	129.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	130.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	131.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	132.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	133.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	134.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	135.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	136.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	137.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	138.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	139.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	140.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	141.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	142.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	143.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	144.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	145.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	146.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	147.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	148.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	149.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	150.000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Max =	2.31E-04	1.26E-103	4.70E-18	0.00E+00	0.00E+00	0.00E+00	2.31E-04

Table 2.4S.13-4 Transport Analysis Considering Dispersion, Advection, Radioactive Decay, and Retardation

Pathway 1a) Upper Shallow Aquifer at East Site Boundary - Representative Conditions				
Pathway length =	7,300	ft		
Travel time =	154	yr (ave.)		
Pore water velocity =	47	ft/yr		
Dispersivity =	50.3	ft		
Coeff dispersion =	2389	ft2/yr		
Total porosity =	0.41	from Table 2.4S.12-12		
Effective porosity =	0.33	from Table 2.4S.12-13		
Bulk density =	1.58	from Table 2.4S.12-14		
Input period =	60	yr (estimated life of plant)		
Radionuclide	Ni-63	Sr-90	Cs-137	Pu-239
ECL	1.00E-04	5.00E-07	1.00E-06	2.00E-08
C(0,t)	7.32E-03	5.15E-05	2.36E-04	7.25E-09
Kd (cm3/g) (Lab ave.)	46.4	2	231.5	166.5
R	223.2	10.6	1109.4	798.2
l (yr-1)	7.21E-03	2.39E-02	2.30E-02	2.88E-05
U	133	68	496	50

RESULT: Using "representative" (average) travel time, Kd and porosity values, the 1-D advection+decay+redardation+dispersion model indicates that at 7,300 ft:

- ►No ECL violations
- ►No sum of fraction violations.
- ►C(x,t)/ECL ratios below 1%

Table 2.4S.13-4 Transport Analysis Considering Dispersion, Advection, Radioactive Decay, and Retardation (continued)

Pathway 1a) Upper Shallow Aquifer at East Site Boundary - Representative Conditions						
x (ft)	t (yr)	C(x,t)/ECL				Sum
		Ni-63	Sr-90	Cs-137	Pu-239	
7300	50	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	500	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	600	0.00E+00	3.03E-23	0.00E+00	0.00E+00	3.03E-23
7300	700	0.00E+00	4.88E-19	0.00E+00	0.00E+00	4.88E-19
7300	800	0.00E+00	2.37E-16	0.00E+00	0.00E+00	2.37E-16
7300	900	0.00E+00	1.09E-14	0.00E+00	0.00E+00	1.09E-14
7300	1,000	0.00E+00	9.50E-14	0.00E+00	0.00E+00	9.50E-14
7300	1,100	0.00E+00	2.42E-13	0.00E+00	0.00E+00	2.42E-13
7300	1,200	0.00E+00	2.43E-13	0.00E+00	0.00E+00	2.43E-13
7300	1,300	0.00E+00	1.19E-13	0.00E+00	0.00E+00	1.19E-13
7300	1,400	0.00E+00	3.31E-14	0.00E+00	0.00E+00	3.31E-14
7300	1,500	0.00E+00	5.83E-15	0.00E+00	0.00E+00	5.83E-15
7300	1,600	0.00E+00	7.12E-16	0.00E+00	0.00E+00	7.12E-16
7300	1,700	0.00E+00	6.42E-17	0.00E+00	0.00E+00	6.42E-17
7300	1,800	0.00E+00	4.50E-18	0.00E+00	0.00E+00	4.50E-18
7300	1,900	0.00E+00	2.55E-19	0.00E+00	0.00E+00	2.55E-19
7300	2,000	0.00E+00	1.21E-20	0.00E+00	0.00E+00	1.21E-20
7300	2,100	0.00E+00	4.92E-22	0.00E+00	0.00E+00	4.92E-22
7300	2,200	0.00E+00	1.75E-23	0.00E+00	0.00E+00	1.75E-23
7300	2,300	0.00E+00	5.57E-25	0.00E+00	0.00E+00	5.57E-25
7300	2,400	0.00E+00	1.61E-26	0.00E+00	0.00E+00	1.61E-26
7300	2,500	0.00E+00	4.88E-28	0.00E+00	0.00E+00	4.88E-28
7300	2,600	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	2,700	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	2,800	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	2,900	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	3,000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	4,000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	5,000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	6,000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	7,000	1.57E-71	0.00E+00	0.00E+00	0.00E+00	1.57E-71
7300	7,500	3.95E-68	0.00E+00	0.00E+00	0.00E+00	3.95E-68
7300	8,000	2.01E-65	0.00E+00	0.00E+00	0.00E+00	2.01E-65
7300	9,000	1.63E-61	0.00E+00	0.00E+00	0.00E+00	1.63E-61
7300	10,000	4.09E-59	0.00E+00	0.00E+00	0.00E+00	4.09E-59
7300	11,000	8.27E-58	0.00E+00	0.00E+00	0.00E+00	8.27E-58
7300	12,000	2.53E-57	0.00E+00	0.00E+00	0.00E+00	2.53E-57
7300	13,000	1.81E-57	0.00E+00	0.00E+00	0.00E+00	1.81E-57
7300	14,000	4.15E-58	0.00E+00	3.50E-302	0.00E+00	4.15E-58
7300	14,500	1.39E-58	0.00E+00	1.34E-300	0.00E+00	1.39E-58
7300	15,000	3.82E-59	0.00E+00	1.86E-299	0.00E+00	3.82E-59

Table 2.4S.13-4 Transport Analysis Considering Dispersion, Advection, Radioactive Decay, and Retardation (continued)

Pathway 1a) Upper Shallow Aquifer at East Site Boundary - Representative Conditions						
x (ft)	t (yr)	C(x,t)/ECL				Sum
		Ni-63	Sr-90	Cs-137	Pu-239	
7300	15,500	8.70E-60	0.00E+00	1.03E-298	0.00E+00	8.70E-60
7300	16,000	1.68E-60	0.00E+00	2.46E-298	0.00E+00	1.68E-60
7300	16,500	2.78E-61	0.00E+00	2.76E-298	0.00E+00	2.78E-61
7300	17,000	4.01E-62	0.00E+00	1.55E-298	0.00E+00	4.01E-62
7300	18,000	5.77E-64	0.00E+00	7.76E-300	0.00E+00	5.77E-64
7300	19,000	5.42E-66	0.00E+00	4.59E-302	0.00E+00	5.42E-66
7300	20,000	3.54E-68	0.00E+00	0.00E+00	0.00E+00	3.54E-68
7300	25,000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	50,000	0.00E+00	0.00E+00	0.00E+00	9.96E-18	9.96E-18
7300	55,000	0.00E+00	0.00E+00	0.00E+00	5.68E-15	5.68E-15
7300	60,000	0.00E+00	0.00E+00	0.00E+00	8.66E-13	8.66E-13
7300	65,000	0.00E+00	0.00E+00	0.00E+00	4.72E-11	4.72E-11
7300	70,000	0.00E+00	0.00E+00	0.00E+00	1.15E-09	1.15E-09
7300	75,000	0.00E+00	0.00E+00	0.00E+00	1.46E-08	1.46E-08
7300	80,000	0.00E+00	0.00E+00	0.00E+00	1.10E-07	1.10E-07
7300	85,000	0.00E+00	0.00E+00	0.00E+00	5.37E-07	5.37E-07
7300	90,000	0.00E+00	0.00E+00	0.00E+00	1.83E-06	1.83E-06
7300	95,000	0.00E+00	0.00E+00	0.00E+00	4.62E-06	4.62E-06
7300	100,000	0.00E+00	0.00E+00	0.00E+00	9.02E-06	9.02E-06
7300	105,000	0.00E+00	0.00E+00	0.00E+00	1.41E-05	1.41E-05
7300	110,000	0.00E+00	0.00E+00	0.00E+00	1.83E-05	1.83E-05
7300	115,000	0.00E+00	0.00E+00	0.00E+00	2.01E-05	2.01E-05
7300	116,000	0.00E+00	0.00E+00	0.00E+00	2.01E-05	2.01E-05
7300	117,000	0.00E+00	0.00E+00	0.00E+00	2.00E-05	2.00E-05
7300	118,000	0.00E+00	0.00E+00	0.00E+00	1.98E-05	1.98E-05
7300	119,000	0.00E+00	0.00E+00	0.00E+00	1.95E-05	1.95E-05
7300	120,000	0.00E+00	0.00E+00	0.00E+00	1.91E-05	1.91E-05
7300	125,000	0.00E+00	0.00E+00	0.00E+00	1.60E-05	1.60E-05
7300	130,000	0.00E+00	0.00E+00	0.00E+00	1.20E-05	1.20E-05
7300	135,000	0.00E+00	0.00E+00	0.00E+00	8.09E-06	8.09E-06
7300	140,000	0.00E+00	0.00E+00	0.00E+00	5.01E-06	5.01E-06
7300	145,000	0.00E+00	0.00E+00	0.00E+00	2.87E-06	2.87E-06
7300	150,000	0.00E+00	0.00E+00	0.00E+00	1.53E-06	1.53E-06
7300	200,000	0.00E+00	0.00E+00	0.00E+00	1.78E-10	1.78E-10
7300	250,000	0.00E+00	0.00E+00	0.00E+00	1.14E-15	1.14E-15
7300	300,000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Max =	2.53E-57	2.43E-13	2.76E-298	2.01E-05	2.01E-05

Table 2.4S.13-4 Transport Analysis Considering Dispersion, Advection, Radioactive Decay, and Retardation (Continued)

Pathway 1b) Lower Shallow Aquifer at East Site Boundary - Representative Scenario				
Pathway length =	7,300	ft		
Travel time =	125	yr (ave.)		
Pore water velocity =	58	ft/yr		
Dispersivity =	50.3	ft		
Coeff dispersion =	2940	ft2/yr		
Total porosity =	0.39	from Table 2.4S.12-12		
Effective porosity =	0.31	from Table 2.4S.12-13		
Bulk density =	1.63	from Table 2.4S.12-14		
Input period =	60	yr (estimated life of plant)		
Radionuclide	Ni-63	Sr-90	Cs-137	Pu-239
ECL	1.00E-04	5.00E-07	1.00E-06	2.00E-08
C(0,t)	7.32E-03	5.15E-05	2.36E-04	7.25E-09
Kd (cm3/g) (Lab ave.)	81.8	2	234.6	792.1
R	431	12	1235	4166
l (yr-1)	7.21E-03	2.39E-02	2.30E-02	2.88E-05
U	200	82	581	69

RESULT: Using representative (average) travel time, K_d and porosity values, the 1-D advection+decay+redardation+dispersion model indicates at 7,300 ft:

- ►No ECL violations
- ►No sum of fraction violations.
- ►H-3 C(x,t)/ECL ratio exceeds 1% from 130 to 160 yrs.

Table 2.4S.13-4 Transport Analysis Considering Dispersion, Advection, Radioactive Decay, and Retardation (Continued)

Pathway 1b) Lower Shallow Aquifer at East Site Boundary - Representative Scenario						
x (ft)	t (yr)	C(x,t)/ECL				Sum
		Ni-63	Sr-90	Cs-137	Pu-239	
7300	5	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	50	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	500	0.00E+00	1.51E-24	0.00E+00	0.00E+00	1.51E-24
7300	600	0.00E+00	5.30E-19	0.00E+00	0.00E+00	5.30E-19
7300	700	0.00E+00	1.31E-15	0.00E+00	0.00E+00	1.31E-15
7300	800	0.00E+00	1.46E-13	0.00E+00	0.00E+00	1.46E-13
7300	900	0.00E+00	1.99E-12	0.00E+00	0.00E+00	1.99E-12
7300	1,000	0.00E+00	6.09E-12	0.00E+00	0.00E+00	6.09E-12
7300	1,100	0.00E+00	6.23E-12	0.00E+00	0.00E+00	6.23E-12
7300	1,200	0.00E+00	2.77E-12	0.00E+00	0.00E+00	2.77E-12
7300	1,300	0.00E+00	6.50E-13	0.00E+00	0.00E+00	6.50E-13
7300	1,400	0.00E+00	9.21E-14	0.00E+00	0.00E+00	9.21E-14
7300	1,500	0.00E+00	8.71E-15	0.00E+00	0.00E+00	8.71E-15
7300	2,000	0.00E+00	1.32E-21	0.00E+00	0.00E+00	1.32E-21
7300	2,500	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	5,000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	7,500	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	10,000	2.44E-88	0.00E+00	0.00E+00	0.00E+00	2.44E-88
7300	15,000	3.06E-77	0.00E+00	2.15E-282	0.00E+00	3.06E-77
7300	16,000	3.81E-77	0.00E+00	2.34E-282	0.00E+00	3.81E-77
7300	17,000	1.82E-77	0.00E+00	1.62E-283	0.00E+00	1.82E-77
7300	18,000	3.92E-78	0.00E+00	1.14E-285	0.00E+00	3.92E-78
7300	19,000	4.31E-79	0.00E+00	1.16E-288	0.00E+00	4.31E-79
7300	20,000	2.68E-80	0.00E+00	2.28E-292	0.00E+00	2.68E-80
7300	25,000	5.28E-89	0.00E+00	0.00E+00	0.00E+00	5.28E-89
7300	50,000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	100,000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	150,000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	175,000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7300	200,000	0.00E+00	0.00E+00	0.00E+00	3.52E-22	3.52E-22
7300	250,000	0.00E+00	0.00E+00	0.00E+00	3.19E-16	3.19E-16
7300	300,000	0.00E+00	0.00E+00	0.00E+00	5.53E-13	5.53E-13
7300	350,000	0.00E+00	0.00E+00	0.00E+00	2.73E-11	2.73E-11
7300	400,000	0.00E+00	0.00E+00	0.00E+00	1.46E-10	1.46E-10
7300	410,000	0.00E+00	0.00E+00	0.00E+00	1.68E-10	1.68E-10
7300	415,000	0.00E+00	0.00E+00	0.00E+00	1.77E-10	1.77E-10
7300	420,000	0.00E+00	0.00E+00	0.00E+00	1.84E-10	1.84E-10
7300	425,000	0.00E+00	0.00E+00	0.00E+00	1.88E-10	1.88E-10
7300	430,000	0.00E+00	0.00E+00	0.00E+00	1.90E-10	1.90E-10
7300	435,000	0.00E+00	0.00E+00	0.00E+00	1.91E-10	1.91E-10
7300	440,000	0.00E+00	0.00E+00	0.00E+00	1.88E-10	1.88E-10

Table 2.4S.13-4 Transport Analysis Considering Dispersion, Advection, Radioactive Decay, and Retardation (Continued)

Pathway 1b) Lower Shallow Aquifer at East Site Boundary - Representative Scenario						
x (ft)	t (yr)	C(x,t)/ECL				Sum
		Ni-63	Sr-90	Cs-137	Pu-239	
7300	445,000	0.00E+00	0.00E+00	0.00E+00	1.84E-10	1.84E-10
7300	450,000	0.00E+00	0.00E+00	0.00E+00	1.79E-10	1.79E-10
7300	455,000	0.00E+00	0.00E+00	0.00E+00	1.71E-10	1.71E-10
7300	460,000	0.00E+00	0.00E+00	0.00E+00	1.62E-10	1.62E-10
7300	465,000	0.00E+00	0.00E+00	0.00E+00	1.53E-10	1.53E-10
7300	470,000	0.00E+00	0.00E+00	0.00E+00	1.42E-10	1.42E-10
7300	475,000	0.00E+00	0.00E+00	0.00E+00	1.31E-10	1.31E-10
7300	480,000	0.00E+00	0.00E+00	0.00E+00	1.20E-10	1.20E-10
7300	485,000	0.00E+00	0.00E+00	0.00E+00	1.09E-10	1.09E-10
7300	490,000	0.00E+00	0.00E+00	0.00E+00	9.81E-11	9.81E-11
7300	495,000	0.00E+00	0.00E+00	0.00E+00	8.76E-11	8.76E-11
7300	500,000	0.00E+00	0.00E+00	0.00E+00	7.76E-11	7.76E-11
7300	600,000	0.00E+00	0.00E+00	0.00E+00	1.86E-12	1.86E-12
7300	700,000	0.00E+00	0.00E+00	0.00E+00	7.64E-15	7.64E-15
7300	800,000	0.00E+00	0.00E+00	0.00E+00	1.04E-17	1.04E-17
7300	900,000	0.00E+00	0.00E+00	0.00E+00	6.83E-21	6.83E-21
7300	1,000,000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Max =	3.81E-77	6.23E-12	2.34E-282	1.91E-10	1.91E-10

Table 2.4S.13-4 Transport Analysis Considering Dispersion, Advection, Radioactive Decay, and Retardation (Continued)

Pathway 4) Upper Shallow Aquifer at West Site Boundary - Representative Conditions				
Pathway length =	6,000	ft		
Travel time =	329	yr (ave.)		
Pore water velocity =	18	ft/yr		
Dispersivity =	47.3	ft		
Coeff dispersion =	863	ft2/yr		
Total porosity =	0.41	from Table 2.4S.12-12		
Effective porosity =	0.33	from Table 2.4S.12-13		
Bulk density =	1.58	from Table 2.4S.12-14		
Input period =	60	yr (estimated life of plant)		
Radionuclide	Ni-63	Sr-90	Cs-137	Pu-239
ECL	1.00E-04	5.00E-07	1.00E-06	2.00E-08
C(0,t)	7.32E-03	5.15E-05	2.36E-04	7.25E-09
Kd (cm3/g) (Lab ave.)	46.4	2	231.5	166.5
R	223.2	10.6	1109.4	798.2
l (yr-1)	7.21E-03	2.39E-02	2.30E-02	2.88E-05
U	77	35	298	20

RESULT: Using "representative" (average) travel time, K_d and porosity values, the 1-D advection+decay+redardation+dispersion model indicates that at 6,000 ft:

- ►No ECL violations
- ►No sum of fraction violations.
- ►C(x,t)/ECL ratios below 1%

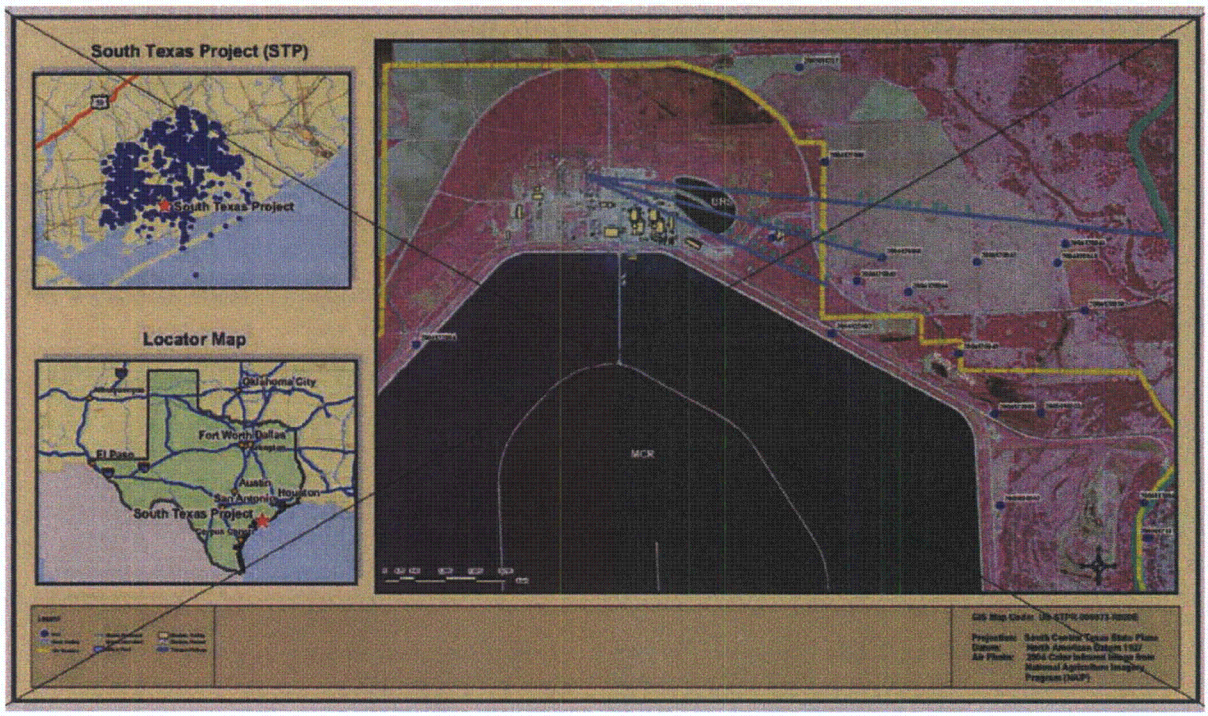
Table 2.4S.13-4 Transport Analysis Considering Dispersion, Advection, Radioactive Decay, and Retardation (Continued)

Pathway 4) Upper Shallow Aquifer at West Site Boundary - Representative Conditions

x (ft)	t (yr)	C(x,t)/ECL				Sum
		Ni-63	Sr-90	Cs-137	Pu-239	
6000	5	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6000	50	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6000	500	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6000	1,000	0.00E+00	9.06E-35	0.00E+00	0.00E+00	9.06E-35
6000	1,500	0.00E+00	1.08E-25	0.00E+00	0.00E+00	1.08E-25
6000	1,600	0.00E+00	4.30E-25	0.00E+00	0.00E+00	4.30E-25
6000	1,700	0.00E+00	9.84E-25	0.00E+00	0.00E+00	9.84E-25
6000	1,800	0.00E+00	1.42E-24	0.00E+00	0.00E+00	1.42E-24
6000	1,850	0.00E+00	1.46E-24	0.00E+00	0.00E+00	1.46E-24
6000	1,900	0.00E+00	1.38E-24	0.00E+00	0.00E+00	1.38E-24
6000	2,000	0.00E+00	9.68E-25	0.00E+00	0.00E+00	9.68E-25
6000	2,500	0.00E+00	4.54E-27	0.00E+00	0.00E+00	4.54E-27
6000	3,000	0.00E+00	4.92E-31	0.00E+00	0.00E+00	4.92E-31
6000	3,500	0.00E+00	6.26E-36	0.00E+00	0.00E+00	6.26E-36
6000	4,000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6000	5,000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6000	10,000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6000	11,000	1.16E-101	0.00E+00	0.00E+00	0.00E+00	1.16E-101
6000	12,000	2.46E-97	0.00E+00	0.00E+00	0.00E+00	2.46E-97
6000	13,000	3.45E-94	0.00E+00	0.00E+00	0.00E+00	3.45E-94
6000	14,000	5.72E-92	0.00E+00	0.00E+00	0.00E+00	5.72E-92
6000	15,000	1.72E-90	0.00E+00	0.00E+00	0.00E+00	1.72E-90
6000	16,000	1.29E-89	0.00E+00	0.00E+00	0.00E+00	1.29E-89
6000	16,500	2.28E-89	0.00E+00	0.00E+00	0.00E+00	2.28E-89
6000	17,000	3.10E-89	0.00E+00	0.00E+00	0.00E+00	3.10E-89
6000	17,500	3.33E-89	0.00E+00	0.00E+00	0.00E+00	3.33E-89
6000	18,000	2.88E-89	0.00E+00	0.00E+00	0.00E+00	2.88E-89
6000	19,000	1.20E-89	0.00E+00	0.00E+00	0.00E+00	1.20E-89
6000	20,000	2.53E-90	0.00E+00	0.00E+00	0.00E+00	2.53E-90
6000	22,000	2.13E-92	0.00E+00	0.00E+00	0.00E+00	2.13E-92
6000	23,000	9.82E-94	0.00E+00	0.00E+00	0.00E+00	9.82E-94
6000	24,000	3.09E-95	0.00E+00	0.00E+00	0.00E+00	3.09E-95
6000	25,000	6.93E-97	0.00E+00	0.00E+00	0.00E+00	6.93E-97
6000	50,000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6000	100,000	0.00E+00	0.00E+00	0.00E+00	6.13E-19	6.13E-19
6000	125,000	0.00E+00	0.00E+00	0.00E+00	1.90E-13	1.90E-13
6000	150,000	0.00E+00	0.00E+00	0.00E+00	2.41E-10	2.41E-10
6000	175,000	0.00E+00	0.00E+00	0.00E+00	1.33E-08	1.33E-08
6000	200,000	0.00E+00	0.00E+00	0.00E+00	1.05E-07	1.05E-07
6000	210,000	0.00E+00	0.00E+00	0.00E+00	1.61E-07	1.61E-07

Table 2.4S.13-4 Transport Analysis Considering Dispersion, Advection, Radioactive Decay, and Retardation (Continued)

Pathway 4) Upper Shallow Aquifer at West Site Boundary - Representative Conditions						
x (ft)	t (yr)	C(x,t)/ECL				Sum
		Ni-63	Sr-90	Cs-137	Pu-239	
6000	220,000	0.00E+00	0.00E+00	0.00E+00	2.08E-07	2.08E-07
6000	230,000	0.00E+00	0.00E+00	0.00E+00	2.31E-07	2.31E-07
6000	240,000	0.00E+00	0.00E+00	0.00E+00	2.23E-07	2.23E-07
6000	250,000	0.00E+00	0.00E+00	0.00E+00	1.92E-07	1.92E-07
6000	275,000	0.00E+00	0.00E+00	0.00E+00	8.52E-08	8.52E-08
6000	300,000	0.00E+00	0.00E+00	0.00E+00	2.31E-08	2.31E-08
6000	325,000	0.00E+00	0.00E+00	0.00E+00	4.28E-09	4.28E-09
6000	350,000	0.00E+00	0.00E+00	0.00E+00	5.89E-10	5.89E-10
6000	375,000	0.00E+00	0.00E+00	0.00E+00	6.39E-11	6.39E-11
6000	400,000	0.00E+00	0.00E+00	0.00E+00	5.71E-12	5.71E-12
6000	425,000	0.00E+00	0.00E+00	0.00E+00	4.36E-13	4.36E-13
6000	450,000	0.00E+00	0.00E+00	0.00E+00	2.91E-14	2.91E-14
6000	475,000	0.00E+00	0.00E+00	0.00E+00	1.74E-15	1.74E-15
6000	500,000	0.00E+00	0.00E+00	0.00E+00	9.47E-17	9.47E-17
6000	525,000	0.00E+00	0.00E+00	0.00E+00	4.76E-18	4.76E-18
6000	550,000	0.00E+00	0.00E+00	0.00E+00	2.36E-19	2.36E-19
6000	575,000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6000	600,000	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Max =	3.33E-89	1.46E-24	0.00E+00	2.31E-07	2.31E-07



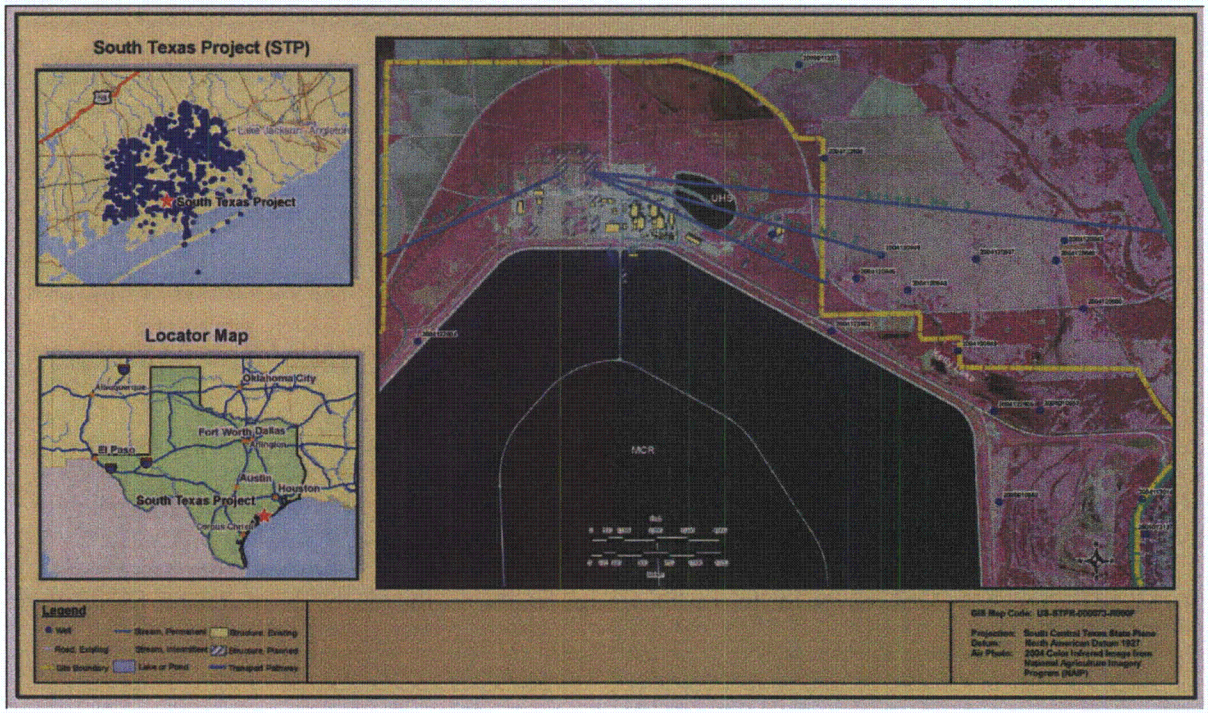


Figure 2.4S.13-2 Groundwater Transport Pathways