Radionuclides		Slope Factors and Isotope-specific Information							Carcinogenic Target Risk (TR) = 1E-06					
Element (Atomic Number)	Isotope	Lambda (yr^{-1})	Halflife (years)	External Exposure Slope Factor (risk/yr per pCi/g)	External Exposure Slope Factor (1 cm) (risk/yr per pCi/g)	External Exposure Slope Factor (5 cm) (risk/yr per pCi/g)	External Exposure Slope Factor (15 cm) (risk/yr per pCi/g)	Ground Plane External Exposure Slope Factor (risk/yr per pCi/cm^2)	Soil Volume PRG (pCi/g)	Soil Volume @ 1cm PRG (pCi/g)	Soil Volume @ 5cm PRG (pCi/g)	Soil Volume @ 15cm PRG (pCi/g)	Ground Plane PRG (pCi/cm^2)	Soil Volume PRG (mg/kg)
Actinium (89)	Ac-223	1.73E+05	4.00E-06	6.12E-08	1.49E-08	4.05E-08	5.79E-08	1.49E-08	3.1E+07	1.3E+08	4.7E+07	3.3E+07	1.3E+08	7.7E-08
Actinium (89)	Ac-223+D	1.73E+05	4.00E-06	7.62E-08	1.83E-08	4.99E-08	7.19E-08	1.82E-08	2.5E+07	1.0E+08	3.8E+07	2.6E+07	1.0E+08	6.2E-08
Actinium (89)	Ac-224	2.18E+03	3.17E-04	7.08E-07	1.91E-07	5.06E-07	6.91E-07	1.90E-07	3.4E+04	1.3E+05	4.7E+04	3.5E+04	1.3E+05	6.7E-09
Actinium (89)	Ac-225	2.53E+01	2.74E-02	4.12E-08	1.15E-08	2.99E-08	4.02E-08	1.20E-08	6.7E+03	2.4E+04	9.3E+03	6.9E+03	2.3E+04	1.2E-07
Actinium (89)	Ac-225+D	2.53E+01	2.74E-02	1.47E-07	3.74E-08	1.01E-07	1.42E-07	3.75E-08	1.9E+03	7.4E+03	2.7E+03	1.9E+03	7.4E+03	3.2E-08
Actinium (89)	Ac-226	2.07E+02	3.35E-03	4.55E-07	1.14E-07	3.10E-07	4.40E-07	1.14E-07	5.0E+03	2.0E+04	7.3E+03	5.1E+03	2.0E+04	1.1E-08
Actinium (89)	Ac-227	3.18E-02	2.18E+01	1.98E-10	6.88E-11	1.53E-10	1.95E-10	1.65E-10	3.2E+03	9.2E+03	4.2E+03	3.3E+03	3.9E+03	4.4E-05
Actinium (89)	Ac-228	9.87E+02	7.02E-04	4.04E-06	7.83E-07	2.22E-06	3.50E-06	7.65E-07	2.7E+03	1.4E+04	4.9E+03	3.1E+03	1.4E+04	1.2E-09
Actinium (89)	Ac-230	1.79E+05	3.87E-06	2.70E-06	4.88E-07	1.40E-06	2.25E-06	4.81E-07	7.3E+05	4.0E+06	1.4E+06	8.7E+05	4.1E+06	1.8E-09
Actinium (89)	Ac-231	4.86E+04	1.43E-05	1.58E-06	3.72E-07	1.03E-06	1.49E-06	3.71E-07	3.4E+05	1.4E+06	5.2E+05	3.6E+05	1.4E+06	3.1E-09
Actinium (89)	Ac-232	1.84E+05	3.77E-06	5.85E-06	1.02E-06	2.97E-06	4.81E-06	9.94E-07	3.4E+05	2.0E+06	6.8E+05	4.2E+05	2.0E+06	8.4E-10
Actinium (89)	Ac-233	1.51E+05	4.60E-06	2.20E-06	4.63E-07	1.30E-06	2.00E-06	4.64E-07	7.5E+05	3.6E+06	1.3E+06	8.3E+05	3.6E+06	2.3E-09
Silver (47)	Ag-100m	1.63E+05	4.26E-06	1.34E-05	2.58E-06	7.36E-06	1.16E-05	2.52E-06	1.3E+05	6.9E+05	2.4E+05	1.5E+05	7.1E+05	1.6E-10
Silver (47)	Ag-101	3.28E+04	2.11E-05	7.06E-06	1.43E-06	4.05E-06	6.27E-06	1.40E-06	5.1E+04	2.5E+05	8.9E+04	5.7E+04	2.6E+05	3.0E-10
Silver (47)	Ag-102	2.82E+04	2.45E-05	1.62E-05	3.06E-06	8.78E-06	1.39E-05	2.99E-06	1.9E+04	1.0E+05	3.5E+04	2.2E+04	1.0E+05	1.3E-10
Silver (47)	Ag-102m	4.73E+04	1.46E-05	1.00E-05	1.75E-06	5.06E-06	8.22E-06	1.68E-06	5.2E+04	3.0E+05	1.0E+05	6.3E+04	3.1E+05	2.2E-10
Silver (47)	Ag-103	5.54E+03	1.25E-04	3.69E-06	7.53E-07	2.13E-06	3.27E-06	7.39E-07	1.6E+04	8.1E+04	2.9E+04	1.9E+04	8.2E+04	5.9E-10
Silver (47)	Ag-104	5.26E+03	1.32E-04	1.26E-05	2.45E-06	6.99E-06	1.10E-05	2.39E-06	4.6E+03	2.4E+04	8.2E+03	5.2E+03	2.4E+04	1.8E-10
Silver (47)	Ag-104m	1.09E+04	6.37E-05	8.50E-06	1.62E-06	4.63E-06	7.30E-06	1.59E-06	1.4E+04	7.3E+04	2.6E+04	1.6E+04	7.5E+04	2.6E-10
Silver (47)	Ag-105	6.13E+00	1.13E-01	2.10E-06	4.52E-07	1.27E-06	1.93E-06	4.47E-07	3.2E+01	1.5E+02	5.3E+01	3.5E+01	1.5E+02	1.1E-09
Silver (47)	Ag-105m	5.04E+04	1.38E-05	4.18E-09	9.02E-10	2.54E-09	3.84E-09	8.97E-10	1.3E+08	6.1E+08	2.2E+08	1.4E+08	6.2E+08	5.3E-07
Silver (47)	Ag-106	1.52E+04	4.56E-05	3.04E-06	6.41E-07	1.80E-06	2.76E-06	6.35E-07	5.5E+04	2.6E+05	9.2E+04	6.0E+04	2.6E+05	7.4E-10
Silver (47)	Ag-106m	3.05E+01	2.27E-02	1.31E-05	2.54E-06	7.23E-06	1.14E-05	2.48E-06	2.6E+01	1.3E+02	4.6E+01	2.9E+01	1.4E+02	1.7E-10
Silver (47)	Ag-108	1.54E+05	4.51E-06	8.83E-08	1.92E-08	5.25E-08	7.99E-08	2.66E-08	1.9E+07	8.7E+07	3.2E+07	2.1E+07	6.3E+07	2.6E-08
Silver (47)	Ag-108m	1.66E-03	4.18E+02	7.16E-06	1.48E-06	4.17E-06	6.42E-06	1.45E-06	6.2E-02	3.0E-01	1.1E-01	7.0E-02	3.1E-01	7.9E-09
Silver (47)	Ag-108m+D	1.66E-03	4.18E+02	7.17E-06	1.48E-06	4.17E-06	6.43E-06	1.45E-06	6.2E-02	3.0E-01	1.1E-01	7.0E-02	3.1E-01	7.9E-09
Silver (47)	Ag-109m	5.52E+05	1.26E-06	7.61E-09	3.01E-09	6.39E-09	7.62E-09	5.55E-09	7.9E+08	2.0E+09	9.5E+08	7.9E+08	1.1E+09	3.0E-07
Silver (47)	Ag-110	8.88E+05	7.80E-07	1.70E-07	3.77E-08	1.01E-07	1.53E-07	4.93E-08	5.7E+07	2.6E+08	9.7E+07	6.4E+07	2.0E+08	1.4E-08
Silver (47)	Ag-110m	1.01E+00	6.84E-01	1.31E-05	2.52E-06	7.17E-06	1.13E-05	2.45E-06	8.5E-01	4.4E+00	1.5E+00	9.8E-01	4.5E+00	1.8E-10
Silver (47)	Ag-110m+D	1.01E+00	6.84E-01	1.31E-05	2.52E-06	7.17E-06	1.13E-05	2.45E-06	8.5E-01	4.4E+00	1.5E+00	9.8E-01	4.5E+00	1.8E-10
Silver (47)	Ag-111	3.40E+01	2.04E-02	1.10E-07	2.48E-08	6.93E-08	1.03E-07	2.73E-08	3.4E+03	1.5E+04	5.4E+03	3.6E+03	1.4E+04	2.1E-08
Silver (47)	Ag-111m	3.37E+05	2.05E-06	1.37E-08	3.34E-09	8.67E-09	1.27E-08	4.65E-09	2.7E+08	1.1E+09	4.3E+08	2.9E+08	7.9E+08	1.7E-07
Silver (47)	Ag-112	1.94E+03	3.57E-04	3.40E-06	6.33E-07	1.81E-06	2.88E-06	6.25E-07	6.3E+03	3.4E+04	1.2E+04	7.4E+03	3.4E+04	7.0E-10
Silver (47)	Ag-113	1.13E+03	6.13E-04	3.20E-07	6.95E-08	1.94E-07	2.92E-07	7.71E-08	3.9E+04	1.8E+05	6.4E+04	4.2E+04	1.6E+05	7.5E-09
Silver (47)	Ag-113m	3.18E+05	2.18E-06	8.94E-07	1.94E-07	5.46E-07	8.23E-07	1.93E-07	3.9E+06	1.8E+07	6.4E+06	4.2E+06	1.8E+07	2.7E-09
Silver (47)	Ag-114	4.75E+06	1.46E-07	1.35E-06	2.62E-07	7.34E-07	1.16E-06	2.67E-07	3.8E+07	2.0E+08	7.1E+07	4.5E+07	1.9E+08	1.8E-09
Silver (47)	Ag-115	1.82E+04	3.81E-05	2.37E-06	4.37E-07	1.25E-06	2.00E-06	4.32E-07	8.4E+04	4.6E+05	1.6E+05	1.0E+05	4.6E+05	1.0E-09
Silver (47)	Ag-116	1.36E+05	5.10E-06	1.10E-05	1.91E-06	5.51E-06	8.94E-06	1.84E-06	1.4E+05	7.8E+05	2.7E+05	1.7E+05	8.1E+05	2.3E-10
Silver (47)	Ag-117	2.97E+05	2.33E-06	6.66E-06	1.15E-06	3.33E-06	5.41E-06	1.11E-06	4.9E+05	2.8E+06	9.8E+05	6.0E+05	2.9E+06	3.7E-10
Silver (47)	Ag-99	1.76E+05	3.93E-06	1.08E-05	2.09E-06	5.96E-06	9.35E-06	2.04E-06	1.8E+05	9.2E+05	3.2E+05	2.1E+05	9.4E+05	2.0E-10
Aluminum (13)	Al-26	9.67E-07	7.17E+05	1.33E-05	2.37E-06	6.88E-06	1.11E-05	2.30E-06	3.3E-02	1.8E-01	6.4E-02	4.0E-02	1.9E-01	1.7E-06
Aluminum (13)	Al-28	1.63E+05	4.26E-06	9.32E-06	1.57E-06	4.58E-06	7.53E-06	1.52E-06	1.9E+05	1.1E+06	3.9E+05	2.4E+05	1.2E+06	6.4E-11
Aluminum (13)	Al-29	5.55E+04	1.25E-05	6.95E-06	1.24E-06	3.57E-06	5.78E-06	1.20E-06	8.8E+04	4.9E+05	1.7E+05	1.1E+05	5.1E+05	8.9E-11
Americium (95)	Am-237	4.99E+03	1.39E-04	1.35E-06	3.18E-07	8.74E-07	1.27E-06	3.15E-07	4.0E+04	1.7E+05	6.2E+04	4.3E+04	1.7E+05	3.7E-09
Americium (95)	Am-238	3.72E+03	1.86E-04	4.06E-06	8.03E-07	2.26E-06	3.54E-06	7.85E-07	1.0E+04	5.1E+04	1.8E+04	1.2E+04	5.2E+04	1.2E-09
Americium (95)	Am-239	5.10E+02	1.36E-03	6.99E-07	1.91E-07	5.03E-07	6.83E-07	1.93E-07	8.0E+03	2.9E+04	1.1E+04	8.2E+03	2.9E+04	7.3E-09
Americium (95)	Am-240	1.20E+02	5.80E-03	4.71E-06	9.27E-07	2.62E-06	4.09E-06	9.04E-07	2.8E+02	1.4E+03	5.0E+02	3.2E+02	1.4E+03	1.1E-09
Americium (95)	Am-241	1.60E-03	4.32E+02	2.77E-08	1.38E-08	2.58E-08	2.77E-08	1.87E-08	1.6E+01	3.2E+01	1.7E+01	1.6E+01	2.4E+01	4.7E-06
Americium (95)	Am-242	3.79E+02	1.83E-03	3.48E-08	1.09E-08	2.73E-08	3.47E-08	1.24E-08	1.2E+05	3.8E+05	1.5E+05	1.2E+05	3.4E+05	1.5E-07
Americium (95)	Am-242m	4.91E-03	1.41E+02	7.58E-10	3.36E-10	6.20E-10	7.52E-10	1.34E-09	6.1E+02	1.4E+03	7.5E+02	6.2E+02	3.5E+02	5.9E-05

Radionuclides		Slope Factors and Isotope-specific Information							Carcinogenic Target Risk (TR) = 1E-06					
Element (Atomic Number)	Isotope	Lambda (yr^{-1})	Halflife (years)	External Exposure Slope Factor (risk/yr per pCi/g)	External Exposure Slope Factor (1 cm) (risk/yr per pCi/g)	External Exposure Slope Factor (5 cm) (risk/yr per pCi/g)	External Exposure Slope Factor (15 cm) (risk/yr per pCi/g)	Ground Plane External Exposure Slope Factor (risk/yr per pCi/cm^2)	Soil Volume PRG (pCi/g)	Soil Volume @ 1cm PRG (pCi/g)	Soil Volume @ 5cm PRG (pCi/g)	Soil Volume @ 15cm PRG (pCi/g)	Ground Plane PRG (pCi/cm^2)	Soil Volume PRG (mg/kg)
Actinium (89)	Ac-223	1.73E+05	4.00E-06	6.12E-08	1.49E-08	4.05E-08	5.79E-08	1.49E-08	3.1E+07	1.3E+08	4.7E+07	3.3E+07	1.3E+08	7.7E-08
Americium (95)	Am-242m+D	4.91E-03	1.41E+02	4.79E-08	1.36E-08	3.46E-08	4.60E-08	1.60E-08	9.7E+00	3.4E+01	1.3E+01	1.0E+01	2.9E+01	9.3E-07
Americium (95)	Am-243	9.40E-05	7.37E+03	9.78E-08	3.92E-08	8.54E-08	9.78E-08	4.47E-08	4.5E+00	1.1E+01	5.1E+00	4.5E+00	9.8E+00	2.2E-05
Americium (95)	Am-243+D	9.40E-05	7.37E+03	6.67E-07	1.89E-07	4.84E-07	6.49E-07	1.94E-07	6.6E-01	2.3E+00	9.1E-01	6.8E-01	2.3E+00	3.3E-06
Americium (95)	Am-244	6.01E+02	1.15E-03	3.57E-06	7.19E-07	2.02E-06	3.15E-06	7.05E-07	1.8E+03	9.2E+03	3.3E+03	2.1E+03	9.3E+03	1.5E-09
Americium (95)	Am-244m	1.40E+04	4.95E-05	7.26E-08	1.49E-08	4.07E-08	6.32E-08	2.10E-08	2.1E+06	1.0E+07	3.8E+06	2.4E+06	7.3E+06	7.1E-08
Americium (95)	Am-245	2.96E+03	2.34E-04	1.04E-07	2.69E-08	7.23E-08	1.01E-07	2.83E-08	3.1E+05	1.2E+06	4.5E+05	3.2E+05	1.1E+06	5.0E-08
Americium (95)	Am-246	9.34E+03	7.42E-05	3.14E-06	6.59E-07	1.85E-06	2.83E-06	6.53E-07	3.3E+04	1.6E+05	5.5E+04	3.6E+04	1.6E+05	1.7E-09
Americium (95)	Am-246m	1.46E+04	4.76E-05	4.66E-06	8.89E-07	2.52E-06	4.00E-06	8.69E-07	3.4E+04	1.8E+05	6.3E+04	4.0E+04	1.8E+05	1.1E-09
Americium (95)	Am-247	1.58E+04	4.38E-05	4.53E-07	1.14E-07	3.10E-07	4.36E-07	1.19E-07	3.8E+05	1.5E+06	5.6E+05	4.0E+05	1.5E+06	1.2E-08
Argon (18)	Ar-37	7.22E+00	9.60E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	.	.	.	.	.	.
Argon (18)	Ar-39	2.58E-03	2.69E+02	5.95E-10	2.04E-10	4.63E-10	5.87E-10	5.14E-10	8.4E+02	2.5E+03	1.1E+03	8.6E+02	9.8E+02	2.5E-05
Argon (18)	Ar-41	3.32E+03	2.09E-04	6.39E-06	1.16E-06	3.33E-06	5.36E-06	1.12E-06	5.7E+03	3.1E+04	1.1E+04	6.8E+03	3.2E+04	1.4E-10
Argon (18)	Ar-42	2.11E-02	3.29E+01	6.97E-10	2.35E-10	5.38E-10	6.85E-10	7.24E-10	9.0E+02	2.7E+03	1.2E+03	9.1E+02	8.6E+02	3.5E-06
Argon (18)	Ar-42+D	2.11E-02	3.29E+01	1.47E-06	2.62E-07	7.51E-07	1.21E-06	2.66E-07	3.8E-01	2.2E+00	7.5E-01	4.6E-01	2.1E+00	1.5E-09
Argon (18)	Ar-43	6.78E+04	1.02E-05	7.78E-06	1.38E-06	3.96E-06	6.42E-06	1.33E-06	9.6E+04	5.4E+05	1.9E+05	1.2E+05	5.6E+05	1.2E-10
Argon (18)	Ar-44	3.07E+04	2.26E-05	9.82E-06	1.71E-06	4.95E-06	8.06E-06	1.65E-06	3.4E+04	2.0E+05	6.8E+04	4.2E+04	2.0E+05	9.5E-11
Arsenic (33)	As-68	1.44E+05	4.81E-06	1.79E-05	3.36E-06	9.62E-06	1.53E-05	3.28E-06	8.8E+04	4.7E+05	1.6E+05	1.0E+05	4.8E+05	8.1E-11
Arsenic (33)	As-69	2.39E+04	2.90E-05	5.08E-06	1.05E-06	2.97E-06	4.57E-06	1.04E-06	5.2E+04	2.5E+05	8.8E+04	5.7E+04	2.5E+05	2.9E-10
Arsenic (33)	As-70	6.92E+03	1.00E-04	2.04E-05	3.85E-06	1.10E-05	1.74E-05	3.74E-06	3.7E+03	2.0E+04	6.9E+03	4.4E+03	2.0E+04	7.3E-11
Arsenic (33)	As-71	9.30E+01	7.45E-03	2.41E-06	5.19E-07	1.45E-06	2.20E-06	5.08E-07	4.2E+02	2.0E+03	7.0E+02	4.6E+02	2.0E+03	6.3E-10
Arsenic (33)	As-72	2.33E+02	2.97E-03	8.15E-06	1.64E-06	4.63E-06	7.20E-06	1.61E-06	3.1E+02	1.6E+03	5.5E+02	3.5E+02	1.6E+03	1.9E-10
Arsenic (33)	As-73	3.15E+00	2.20E-01	5.73E-09	3.19E-09	5.51E-09	5.73E-09	4.44E-09	6.0E+03	1.1E+04	6.3E+03	6.0E+03	7.8E+03	2.7E-07
Arsenic (33)	As-74	1.42E+01	4.87E-02	3.35E-06	6.97E-07	1.96E-06	3.02E-06	6.84E-07	4.7E+01	2.2E+02	7.9E+01	5.2E+01	2.3E+02	4.7E-10
Arsenic (33)	As-76	2.35E+02	2.95E-03	1.94E-06	3.89E-07	1.10E-06	1.70E-06	3.90E-07	1.3E+03	6.6E+03	2.3E+03	1.5E+03	6.6E+03	8.3E-10
Arsenic (33)	As-77	1.56E+02	4.43E-03	3.39E-08	7.75E-09	2.15E-08	3.18E-08	8.21E-09	5.1E+04	2.2E+05	8.0E+04	5.4E+04	2.1E+05	4.8E-08
Arsenic (33)	As-78	4.02E+03	1.73E-04	6.36E-06	1.19E-06	3.40E-06	5.42E-06	1.16E-06	6.9E+03	3.7E+04	1.3E+04	8.1E+03	3.8E+04	2.6E-10
Arsenic (33)	As-79	4.04E+04	1.71E-05	1.66E-07	3.62E-08	9.86E-08	1.49E-07	4.59E-08	2.7E+06	1.2E+07	4.5E+06	3.0E+06	9.6E+06	1.0E-08
Astatine (85)	At-204	3.96E+04	1.75E-05	1.02E-05	2.13E-06	5.98E-06	9.18E-06	2.09E-06	4.3E+04	2.0E+05	7.3E+04	4.7E+04	2.1E+05	4.3E-10
Astatine (85)	At-205	1.39E+04	4.98E-05	5.15E-06	1.03E-06	2.90E-06	4.51E-06	1.01E-06	3.0E+04	1.5E+05	5.3E+04	3.4E+04	1.5E+05	8.5E-10
Astatine (85)	At-206	1.19E+04	5.82E-05	1.11E-05	2.26E-06	6.37E-06	9.85E-06	2.21E-06	1.2E+04	5.8E+04	2.0E+04	1.3E+04	5.9E+04	3.9E-10
Astatine (85)	At-207	3.37E+03	2.05E-04	9.42E-06	1.80E-06	5.12E-06	8.07E-06	1.75E-06	3.9E+03	2.1E+04	7.2E+03	4.6E+03	2.1E+04	4.7E-10
Astatine (85)	At-208	3.72E+03	1.86E-04	1.40E-05	2.75E-06	7.77E-06	1.21E-05	2.67E-06	2.9E+03	1.5E+04	5.2E+03	3.4E+03	1.5E+04	3.2E-10
Astatine (85)	At-209	1.12E+03	6.18E-04	1.02E-05	2.07E-06	5.81E-06	9.00E-06	2.02E-06	1.2E+03	5.9E+03	2.1E+03	1.4E+03	6.1E+03	4.4E-10
Astatine (85)	At-210	7.49E+02	9.25E-04	1.44E-05	2.63E-06	7.57E-06	1.20E-05	2.56E-06	5.7E+02	3.1E+03	1.1E+03	6.8E+02	3.2E+03	3.1E-10
Astatine (85)	At-211	8.42E+02	8.24E-04	7.39E-08	2.60E-08	6.03E-08	7.31E-08	2.80E-08	1.2E+05	3.5E+05	1.5E+05	1.3E+05	3.3E+05	6.1E-08
Astatine (85)	At-211+D	8.42E+02	8.24E-04	9.57E-08	3.03E-08	7.27E-08	9.24E-08	3.22E-08	9.6E+04	3.0E+05	1.3E+05	1.0E+05	2.9E+05	4.7E-08
Astatine (85)	At-215	2.19E+11	3.17E-12	7.08E-10	1.56E-10	4.37E-10	6.55E-10	1.53E-10	3.4E+15	1.5E+16	5.5E+15	3.7E+15	1.6E+16	6.5E-06
Astatine (85)	At-216	7.28E+10	9.51E-12	6.47E-09	1.94E-09	4.84E-09	6.32E-09	2.02E-09	1.2E+14	4.1E+14	1.6E+14	1.3E+14	3.9E+14	7.1E-07
Astatine (85)	At-217	6.77E+08	1.02E-09	9.36E-10	2.17E-10	5.98E-10	8.78E-10	2.13E-10	7.9E+12	3.4E+13	1.2E+13	8.4E+12	3.5E+13	4.9E-06
Astatine (85)	At-218	1.46E+07	4.76E-08	2.74E-11	8.39E-12	1.84E-11	2.56E-11	2.00E-11	6.5E+12	2.1E+13	9.6E+12	6.9E+12	8.9E+12	1.9E-04
Astatine (85)	At-219	3.90E+05	1.78E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	.	.	.	.	.	.
Astatine (85)	At-220	9.82E+04	7.06E-06	1.86E-06	4.17E-07	1.16E-06	1.73E-06	4.18E-07	5.8E+05	2.6E+06	9.2E+05	6.2E+05	2.6E+06	2.5E-09
Gold (79)	Au-186	3.40E+04	2.04E-05	6.66E-06	1.36E-06	3.83E-06	5.91E-06	1.34E-06	5.6E+04	2.7E+05	9.7E+04	6.3E+04	2.8E+05	5.9E-10
Gold (79)	Au-187	4.34E+04	1.60E-05	4.99E-06	9.38E-07	2.67E-06	4.22E-06	9.14E-07	9.5E+04	5.1E+05	1.8E+05	1.1E+05	5.2E+05	8.0E-10
Gold (79)	Au-190	8.51E+03	8.14E-05	1.18E-05	2.07E-06	5.96E-06	9.66E-06	1.98E-06	7.9E+03	4.5E+04	1.6E+04	9.7E+03	4.7E+04	3.4E-10
Gold (79)	Au-191	1.91E+03	3.63E-04	2.34E-06	5.23E-07	1.44E-06	2.14E-06	5.20E-07	9.0E+03	4.0E+04	1.5E+04	9.8E+03	4.0E+04	1.7E-09
Gold (79)	Au-192	1.23E+03	5.64E-04	9.49E-06	1.70E-06	4.88E-06	7.86E-06	1.63E-06	1.4E+03	7.9E+03	2.8E+03	1.7E+03	8.2E+03	4.3E-10
Gold (79)	Au-193	3.44E+02	2.01E-03	4.67E-07	1.31E-07	3.31E-07	4.48E-07	1.38E-07	8.1E+03	2.9E+04	1.1E+04	8.4E+03	2.7E+04	8.8E-09
Gold (79)	Au-193m	5.60E+06	1.24E-07	7.20E-07	1.71E-07	4.75E-07	6.89E-07	1.69E-07	8.5E+07	3.6E+08	1.3E+08	8.9E+07	3.6E+08	5.7E-09

Radionuclides		Slope Factors and Isotope-specific Information							Carcinogenic Target Risk (TR) = 1E-06					
Element (Atomic Number)	Isotope	Lambda (yr^{-1})	Halflife (years)	External Exposure Slope Factor (risk/yr per pCi/g)	External Exposure Slope Factor (1 cm) (risk/yr per pCi/g)	External Exposure Slope Factor (5 cm) (risk/yr per pCi/g)	External Exposure Slope Factor (15 cm) (risk/yr per pCi/g)	Ground Plane External Exposure Slope Factor (risk/yr per pCi/cm^2)	Soil Volume PRG (pCi/g)	Soil Volume @ 1cm PRG (pCi/g)	Soil Volume @ 5cm PRG (pCi/g)	Soil Volume @ 15cm PRG (pCi/g)	Ground Plane PRG (pCi/cm^2)	Soil Volume PRG (mg/kg)
Actinium (89)	Ac-223	1.73E+05	4.00E-06	6.12E-08	1.49E-08	4.05E-08	5.79E-08	1.49E-08	3.1E+07	1.3E+08	4.7E+07	3.3E+07	1.3E+08	7.7E-08
Gold (79)	Au-194	1.60E+02	4.34E-03	4.79E-06	9.15E-07	2.60E-06	4.10E-06	8.91E-07	3.7E+02	1.9E+03	6.7E+02	4.3E+02	2.0E+03	8.6E-10
Gold (79)	Au-195	1.36E+00	5.10E-01	1.37E-07	5.51E-08	1.19E-07	1.37E-07	6.28E-08	1.1E+02	2.7E+02	1.3E+02	1.1E+02	2.4E+02	3.0E-08
Gold (79)	Au-195m	7.17E+05	9.67E-07	7.34E-07	1.75E-07	4.84E-07	7.01E-07	1.72E-07	1.1E+07	4.5E+07	1.6E+07	1.1E+07	4.6E+07	5.6E-09
Gold (79)	Au-196	4.09E+01	1.69E-02	1.81E-06	4.18E-07	1.15E-06	1.69E-06	4.15E-07	2.5E+02	1.1E+03	3.9E+02	2.6E+02	1.1E+03	2.3E-09
Gold (79)	Au-196m	6.32E+02	1.10E-03	7.12E-07	1.96E-07	5.12E-07	6.95E-07	2.01E-07	9.7E+03	3.5E+04	1.4E+04	1.0E+04	3.4E+04	5.8E-09
Gold (79)	Au-198	9.39E+01	7.38E-03	1.69E-06	3.68E-07	1.04E-06	1.56E-06	3.64E-07	6.1E+02	2.8E+03	9.9E+02	6.6E+02	2.8E+03	2.5E-09
Gold (79)	Au-198m	1.11E+02	6.22E-03	1.75E-06	4.52E-07	1.21E-06	1.69E-06	4.50E-07	7.0E+02	2.7E+03	1.0E+03	7.2E+02	2.7E+03	2.4E-09
Gold (79)	Au-199	8.06E+01	8.60E-03	3.01E-07	8.05E-08	2.15E-07	2.94E-07	8.02E-08	2.9E+03	1.1E+04	4.1E+03	3.0E+03	1.1E+04	1.4E-08
Gold (79)	Au-200	7.53E+03	9.21E-05	1.31E-06	2.52E-07	7.16E-07	1.13E-06	2.52E-07	6.3E+04	3.3E+05	1.2E+05	7.3E+04	3.3E+05	3.2E-09
Gold (79)	Au-200m	3.25E+02	2.13E-03	8.51E-06	1.81E-06	5.08E-06	7.74E-06	1.77E-06	4.2E+02	2.0E+03	7.0E+02	4.6E+02	2.0E+03	5.0E-10
Gold (79)	Au-201	1.40E+04	4.95E-05	1.48E-07	3.21E-08	8.91E-08	1.35E-07	3.61E-08	1.0E+06	4.8E+06	1.7E+06	1.1E+06	4.3E+06	2.9E-08
Gold (79)	Au-202	7.59E+05	9.13E-07	8.31E-07	1.65E-07	4.63E-07	7.24E-07	1.72E-07	1.0E+07	5.0E+07	1.8E+07	1.1E+07	4.8E+07	5.2E-09
Barium (56)	Ba-124	3.31E+04	2.09E-05	2.43E-06	5.04E-07	1.42E-06	2.17E-06	5.03E-07	1.5E+05	7.2E+05	2.6E+05	1.7E+05	7.2E+05	1.1E-09
Barium (56)	Ba-126	3.64E+03	1.90E-04	2.51E-06	5.10E-07	1.44E-06	2.22E-06	5.06E-07	1.6E+04	7.8E+04	2.8E+04	1.8E+04	7.9E+04	1.1E-09
Barium (56)	Ba-127	2.87E+04	2.42E-05	3.16E-06	6.56E-07	1.84E-06	2.84E-06	6.53E-07	9.9E+04	4.8E+05	1.7E+05	1.1E+05	4.8E+05	8.5E-10
Barium (56)	Ba-128	1.04E+02	6.66E-03	1.72E-07	4.32E-08	1.12E-07	1.63E-07	5.14E-08	6.6E+03	2.6E+04	1.0E+04	7.0E+03	2.2E+04	1.6E-08
Barium (56)	Ba-129	2.72E+03	2.55E-04	1.39E-06	2.88E-07	8.05E-07	1.24E-06	2.90E-07	2.1E+04	1.0E+05	3.7E+04	2.4E+04	1.0E+05	2.0E-09
Barium (56)	Ba-129m	2.81E+03	2.47E-04	7.19E-06	1.41E-06	4.02E-06	6.27E-06	1.39E-06	4.3E+03	2.2E+04	7.7E+03	4.9E+03	2.2E+04	3.8E-10
Barium (56)	Ba-131	2.20E+01	3.15E-02	1.84E-06	4.11E-07	1.14E-06	1.70E-06	4.15E-07	1.3E+02	5.9E+02	2.1E+02	1.4E+02	5.8E+02	1.5E-09
Barium (56)	Ba-131m	2.49E+04	2.78E-05	1.67E-07	5.38E-08	1.31E-07	1.67E-07	6.01E-08	1.6E+06	5.1E+06	2.1E+06	1.6E+06	4.5E+06	1.7E-08
Barium (56)	Ba-133	6.59E-02	1.05E+01	1.44E-06	3.34E-07	9.17E-07	1.34E-06	3.44E-07	6.2E-01	2.7E+00	9.7E-01	6.7E-01	2.6E+00	2.4E-09
Barium (56)	Ba-133m	1.56E+02	4.44E-03	2.00E-07	4.88E-08	1.30E-07	1.89E-07	5.45E-08	8.6E+03	3.5E+04	1.3E+04	9.0E+03	3.1E+04	1.4E-08
Barium (56)	Ba-135m	2.12E+02	3.28E-03	1.69E-07	4.20E-08	1.11E-07	1.61E-07	4.80E-08	1.4E+04	5.5E+04	2.1E+04	1.4E+04	4.8E+04	1.7E-08
Barium (56)	Ba-137m	1.43E+05	4.86E-06	2.69E-06	5.47E-07	1.54E-06	2.39E-06	5.36E-07	5.8E+05	2.9E+06	1.0E+06	6.5E+05	2.9E+06	1.1E-09
Barium (56)	Ba-139	4.39E+03	1.58E-04	1.74E-07	4.45E-08	1.18E-07	1.67E-07	5.46E-08	2.8E+05	1.1E+06	4.1E+05	2.9E+05	8.8E+05	1.7E-08
Barium (56)	Ba-140	1.98E+01	3.49E-02	7.59E-07	1.63E-07	4.58E-07	6.94E-07	1.63E-07	2.9E+02	1.3E+03	4.7E+02	3.1E+02	1.3E+03	3.9E-09
Barium (56)	Ba-141	1.99E+04	3.48E-05	4.20E-06	8.41E-07	2.39E-06	3.69E-06	8.28E-07	5.2E+04	2.6E+05	9.1E+04	5.9E+04	2.6E+05	7.1E-10
Barium (56)	Ba-142	3.44E+04	2.02E-05	4.85E-06	9.47E-07	2.69E-06	4.22E-06	9.25E-07	7.8E+04	4.0E+05	1.4E+05	8.9E+04	4.1E+05	6.2E-10
Beryllium (4)	Be-10	4.59E-07	1.51E+06	7.50E-10	2.54E-10	5.79E-10	7.38E-10	6.70E-10	6.5E+02	1.9E+03	8.4E+02	6.6E+02	7.3E+02	2.7E-02
Beryllium (4)	Be-7	4.75E+00	1.46E-01	2.15E-07	4.58E-08	1.29E-07	1.96E-07	4.48E-08	2.4E+02	1.1E+03	4.0E+02	2.7E+02	1.2E+03	6.9E-10
Bismuth (83)	Bi-197	3.92E+04	1.77E-05	7.92E-06	1.53E-06	4.33E-06	6.82E-06	1.49E-06	5.4E+04	2.8E+05	9.9E+04	6.3E+04	2.9E+05	5.3E-10
Bismuth (83)	Bi-200	1.00E+04	6.93E-05	1.08E-05	2.20E-06	6.22E-06	9.59E-06	2.16E-06	1.0E+04	5.0E+04	1.8E+04	1.1E+04	5.1E+04	3.9E-10
Bismuth (83)	Bi-201	3.37E+03	2.05E-04	8.27E-06	1.54E-06	4.39E-06	6.99E-06	1.49E-06	4.5E+03	2.4E+04	8.4E+03	5.3E+03	2.5E+04	5.2E-10
Bismuth (83)	Bi-202	3.53E+03	1.96E-04	1.26E-05	2.50E-06	7.06E-06	1.10E-05	2.43E-06	3.1E+03	1.5E+04	5.5E+03	3.5E+03	1.6E+04	3.4E-10
Bismuth (83)	Bi-203	5.16E+02	1.34E-03	1.16E-05	2.11E-06	6.07E-06	9.73E-06	2.06E-06	4.9E+02	2.7E+03	9.3E+02	5.8E+02	2.8E+03	3.7E-10
Bismuth (83)	Bi-204	5.41E+02	1.28E-03	1.35E-05	2.63E-06	7.45E-06	1.18E-05	2.56E-06	4.4E+02	2.2E+03	7.9E+02	5.0E+02	2.3E+03	3.2E-10
Bismuth (83)	Bi-205	1.65E+01	4.19E-02	8.20E-06	1.50E-06	4.30E-06	6.88E-06	1.45E-06	2.2E+01	1.2E+02	4.2E+01	2.6E+01	1.2E+02	5.3E-10
Bismuth (83)	Bi-206	4.05E+01	1.71E-02	1.52E-05	2.95E-06	8.39E-06	1.32E-05	2.88E-06	2.9E+01	1.5E+02	5.3E+01	3.4E+01	1.5E+02	2.9E-10
Bismuth (83)	Bi-207	2.11E-02	3.29E+01	7.06E-06	1.39E-06	3.92E-06	6.13E-06	1.35E-06	8.0E-02	4.1E-01	1.4E-01	9.2E-02	4.2E-01	1.5E-09
Bismuth (83)	Bi-208	1.88E-06	3.68E+05	1.42E-05	2.22E-06	6.54E-06	1.10E-05	2.10E-06	3.1E-02	2.0E-01	6.7E-02	4.0E-02	2.1E-01	6.6E-06
Bismuth (83)	Bi-210	5.05E+01	1.37E-02	2.77E-09	9.55E-10	2.06E-09	2.69E-09	4.82E-09	2.0E+05	5.8E+05	2.7E+05	2.1E+05	1.1E+05	1.6E-06
Bismuth (83)	Bi-210m	2.28E-07	3.04E+06	1.03E-06	2.34E-07	6.54E-07	9.66E-07	2.29E-07	4.3E-01	1.9E+00	6.7E-01	4.5E-01	1.9E+00	7.6E-04
Bismuth (83)	Bi-210m+D	2.28E-07	3.04E+06	1.03E-06	2.35E-07	6.58E-07	9.71E-07	2.37E-07	4.2E-01	1.9E+00	6.7E-01	4.5E-01	1.8E+00	7.6E-04
Bismuth (83)	Bi-211	1.70E+05	4.07E-06	1.90E-07	4.26E-08	1.19E-07	1.77E-07	4.19E-08	9.8E+06	4.4E+07	1.6E+07	1.1E+07	4.4E+07	2.4E-08
Bismuth (83)	Bi-212	6.02E+03	1.15E-04	4.96E-07	9.58E-08	2.71E-07	4.27E-07	9.91E-08	1.3E+05	6.9E+05	2.4E+05	1.5E+05	6.6E+05	9.1E-09
Bismuth (83)	Bi-212+D	6.02E+03	1.15E-04	4.96E-07	9.58E-08	2.71E-07	4.27E-07	9.91E-08	1.3E+05	6.9E+05	2.4E+05	1.5E+05	6.6E+05	9.1E-09
Bismuth (83)	Bi-212n	5.20E+04	1.33E-05	5.72E-09	1.96E-09	4.15E-09	5.51E-09	8.37E-09	1.1E+08	3.2E+08	1.5E+08	1.1E+08	7.6E+07	8.7E-07
Bismuth (83)	Bi-213	7.99E+03	8.67E-05	5.43E-07	1.18E-07	3.29E-07	4.97E-07	1.20E-07	1.6E+05	7.4E+05	2.7E+05	1.8E+05	7.3E+05	8.3E-09
Bismuth (83)	Bi-213+D	7.99E+03	8.67E-05	5.43E-07	1.18E-07	3.29E-07	4.97E-07	1.20E-07	1.6E+05	7.4E+05	2.7E+05	1.8E+05	7.3E+05	8.3E-09

Radionuclides		Slope Factors and Isotope-specific Information							Carcinogenic Target Risk (TR) = 1E-06					
Element (Atomic Number)	Isotope	Lambda (yr^{-1})	Halflife (years)	External Exposure Slope Factor (risk/yr per pCi/g)	External Exposure Slope Factor (1 cm) (risk/yr per pCi/g)	External Exposure Slope Factor (5 cm) (risk/yr per pCi/g)	External Exposure Slope Factor (15 cm) (risk/yr per pCi/g)	Ground Plane External Exposure Slope Factor (risk/yr per pCi/cm^2)	Soil Volume PRG (pCi/g)	Soil Volume @ 1cm PRG (pCi/g)	Soil Volume @ 5cm PRG (pCi/g)	Soil Volume @ 15cm PRG (pCi/g)	Ground Plane PRG (pCi/cm^2)	Soil Volume PRG (mg/kg)
Actinium (89)	Ac-223	1.73E+05	4.00E-06	6.12E-08	1.49E-08	4.05E-08	5.79E-08	1.49E-08	3.1E+07	1.3E+08	4.7E+07	3.3E+07	1.3E+08	7.7E-08
Bismuth (83)	Bi-214	1.83E+04	3.79E-05	7.34E-06	1.33E-06	3.81E-06	6.14E-06	1.28E-06	2.7E+04	1.5E+05	5.3E+04	3.3E+04	1.6E+05	6.2E-10
Bismuth (83)	Bi-214+D	1.83E+04	3.79E-05	7.34E-06	1.33E-06	3.81E-06	6.14E-06	1.28E-06	2.7E+04	1.5E+05	5.3E+04	3.3E+04	1.6E+05	6.2E-10
Bismuth (83)	Bi-215	4.79E+04	1.45E-05	1.08E-06	2.30E-07	6.45E-07	9.77E-07	2.32E-07	4.8E+05	2.3E+06	8.1E+05	5.4E+05	2.3E+06	4.2E-09
Bismuth (83)	Bi-215+D	4.79E+04	1.45E-05	1.08E-06	2.30E-07	6.45E-07	9.78E-07	2.32E-07	4.8E+05	2.3E+06	8.1E+05	5.4E+05	2.3E+06	4.2E-09
Bismuth (83)	Bi-216	1.68E+05	4.13E-06	3.25E-06	6.89E-07	1.94E-06	2.95E-06	6.88E-07	5.7E+05	2.7E+06	9.5E+05	6.2E+05	2.7E+06	1.4E-09
Berkelium (97)	Bk-245	5.12E+01	1.35E-02	7.09E-07	1.89E-07	5.04E-07	6.90E-07	1.90E-07	7.9E+02	3.0E+03	1.1E+03	8.1E+02	2.9E+03	7.3E-09
Berkelium (97)	Bk-246	1.41E+02	4.93E-03	3.79E-06	7.62E-07	2.15E-06	3.33E-06	7.46E-07	4.1E+02	2.0E+03	7.2E+02	4.6E+02	2.1E+03	1.4E-09
Berkelium (97)	Bk-247	5.02E-04	1.38E+03	4.65E-07	1.22E-07	3.25E-07	4.50E-07	1.23E-07	9.5E-01	3.6E+00	1.4E+00	9.8E-01	3.6E+00	9.1E-07
Berkelium (97)	Bk-248m	2.56E+02	2.71E-03	1.86E-07	4.48E-08	1.21E-07	1.74E-07	4.65E-08	1.5E+04	6.3E+04	2.3E+04	1.6E+04	6.0E+04	2.8E-08
Berkelium (97)	Bk-249	7.67E-01	9.04E-01	4.68E-12	2.02E-12	3.72E-12	4.54E-12	4.24E-12	1.8E+06	4.2E+06	2.3E+06	1.8E+06	2.0E+06	1.1E-03
Berkelium (97)	Bk-250	1.89E+03	3.67E-04	4.27E-06	8.16E-07	2.32E-06	3.68E-06	7.94E-07	4.8E+03	2.5E+04	8.9E+03	5.6E+03	2.6E+04	1.2E-09
Berkelium (97)	Bk-251	6.55E+03	1.06E-04	2.41E-07	6.91E-08	1.80E-07	2.38E-07	7.26E-08	3.0E+05	1.0E+06	4.0E+05	3.0E+05	9.9E+05	2.2E-08
Bromine (35)	Br-72	2.78E+05	2.49E-06	1.41E-05	2.73E-06	7.77E-06	1.23E-05	2.66E-06	2.2E+05	1.1E+06	3.9E+05	2.5E+05	1.1E+06	1.1E-10
Bromine (35)	Br-73	1.07E+05	6.47E-06	6.28E-06	1.32E-06	3.70E-06	5.67E-06	1.31E-06	1.9E+05	8.9E+05	3.2E+05	2.1E+05	9.0E+05	2.5E-10
Bromine (35)	Br-74	1.43E+04	4.83E-05	2.37E-05	3.98E-06	1.15E-05	1.89E-05	3.81E-06	6.6E+03	3.9E+04	1.4E+04	8.3E+03	4.1E+04	6.6E-11
Bromine (35)	Br-74m	7.92E+03	8.75E-05	2.04E-05	3.68E-06	1.06E-05	1.70E-05	3.55E-06	4.2E+03	2.4E+04	8.2E+03	5.1E+03	2.4E+04	7.7E-11
Bromine (35)	Br-75	3.77E+03	1.84E-04	5.14E-06	1.10E-06	3.10E-06	4.69E-06	1.08E-06	8.0E+03	3.8E+04	1.3E+04	8.8E+03	3.8E+04	3.1E-10
Bromine (35)	Br-76	3.75E+02	1.85E-03	1.38E-05	2.48E-06	7.14E-06	1.15E-05	2.39E-06	3.0E+02	1.7E+03	5.7E+02	3.6E+02	1.7E+03	1.2E-10
Bromine (35)	Br-76m	1.67E+07	4.15E-08	5.27E-08	1.98E-08	3.92E-08	4.95E-08	2.74E-08	3.5E+09	9.2E+09	4.7E+09	3.7E+09	6.7E+09	3.1E-08
Bromine (35)	Br-77	1.06E+02	6.51E-03	1.34E-06	2.88E-07	8.09E-07	1.23E-06	2.81E-07	8.7E+02	4.1E+03	1.4E+03	9.5E+02	4.1E+03	1.2E-09
Bromine (35)	Br-77m	8.51E+04	8.14E-06	3.86E-08	1.20E-08	3.03E-08	3.86E-08	1.24E-08	2.4E+07	7.8E+07	3.1E+07	2.4E+07	7.5E+07	4.2E-08
Bromine (35)	Br-78	5.64E+04	1.23E-05	4.54E-06	9.57E-07	2.69E-06	4.12E-06	9.49E-07	1.4E+05	6.5E+05	2.3E+05	1.5E+05	6.5E+05	3.6E-10
Bromine (35)	Br-80	2.06E+04	3.36E-05	3.49E-07	7.34E-08	2.06E-07	3.14E-07	8.08E-08	6.5E+05	3.1E+06	1.1E+06	7.2E+05	2.8E+06	4.9E-09
Bromine (35)	Br-80m	1.37E+03	5.05E-04	5.97E-09	4.63E-09	5.96E-09	5.97E-09	1.06E-08	2.5E+06	3.2E+06	2.5E+06	2.5E+06	1.4E+06	2.8E-07
Bromine (35)	Br-82	1.72E+02	4.03E-03	1.24E-05	2.41E-06	6.84E-06	1.08E-05	2.35E-06	1.5E+02	7.8E+02	2.8E+02	1.7E+02	8.0E+02	1.4E-10
Bromine (35)	Br-82m	5.94E+04	1.17E-05	1.38E-08	2.82E-09	7.77E-09	1.20E-08	3.43E-09	4.7E+07	2.3E+08	8.4E+07	5.4E+07	1.9E+08	1.3E-07
Bromine (35)	Br-83	2.53E+03	2.74E-04	3.19E-08	6.91E-09	1.91E-08	2.90E-08	9.28E-09	8.7E+05	4.0E+06	1.5E+06	9.6E+05	3.0E+06	5.5E-08
Bromine (35)	Br-84	1.15E+04	6.05E-05	9.20E-06	1.53E-06	4.45E-06	7.33E-06	1.47E-06	1.4E+04	8.2E+04	2.8E+04	1.7E+04	8.5E+04	1.9E-10
Bromine (35)	Br-84m	6.07E+04	1.14E-05	1.33E-05	2.50E-06	7.17E-06	1.14E-05	2.44E-06	5.0E+04	2.7E+05	9.3E+04	5.8E+04	2.7E+05	1.3E-10
Bromine (35)	Br-85	1.26E+05	5.52E-06	3.39E-07	6.74E-08	1.87E-07	2.93E-07	7.72E-08	4.1E+06	2.0E+07	7.4E+06	4.7E+06	1.8E+07	5.3E-09
Carbon (6)	C-10	1.14E+06	6.11E-07	7.78E-06	1.61E-06	4.54E-06	6.98E-06	1.58E-06	1.6E+06	7.7E+06	2.7E+06	1.8E+06	7.9E+06	2.7E-11
Carbon (6)	C-11	1.79E+04	3.88E-05	4.45E-06	9.38E-07	2.65E-06	4.04E-06	9.22E-07	4.9E+04	2.3E+05	8.2E+04	5.4E+04	2.4E+05	5.8E-11
Carbon (6)	C-14	1.22E-04	5.70E+03	7.86E-12	4.52E-12	7.34E-12	7.86E-12	9.66E-12	6.2E+04	1.1E+05	6.6E+04	6.2E+04	5.0E+04	1.4E-02
Calcium (20)	Ca-41	6.79E-06	1.02E+05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	.	.	.	.	.	.
Calcium (20)	Ca-45	1.55E+00	4.46E-01	3.96E-11	1.82E-11	3.46E-11	3.96E-11	3.02E-11	4.3E+05	9.4E+05	4.9E+05	4.3E+05	5.6E+05	2.4E-05
Calcium (20)	Ca-47	5.58E+01	1.24E-02	5.20E-06	9.49E-07	2.73E-06	4.38E-06	9.19E-07	1.2E+02	6.4E+02	2.2E+02	1.4E+02	6.6E+02	1.9E-10
Calcium (20)	Ca-49	4.18E+04	1.66E-05	1.75E-05	2.62E-06	7.73E-06	1.32E-05	2.46E-06	2.6E+04	1.7E+05	5.9E+04	3.5E+04	1.9E+05	5.9E-11
Cadmium (48)	Cd-101	2.68E+05	2.59E-06	1.19E-05	2.22E-06	6.37E-06	1.01E-05	2.17E-06	2.5E+05	1.3E+06	4.6E+05	2.9E+05	1.4E+06	1.8E-10
Cadmium (48)	Cd-102	6.62E+04	1.05E-05	3.67E-06	7.51E-07	2.13E-06	3.27E-06	7.39E-07	2.0E+05	9.7E+05	3.4E+05	2.2E+05	9.8E+05	5.9E-10
Cadmium (48)	Cd-103	4.99E+04	1.39E-05	1.03E-05	1.84E-06	5.31E-06	8.58E-06	1.77E-06	5.3E+04	3.0E+05	1.0E+05	6.4E+04	3.1E+05	2.1E-10
Cadmium (48)	Cd-104	6.31E+03	1.10E-04	9.38E-07	2.06E-07	5.62E-07	8.44E-07	2.10E-07	7.4E+04	3.4E+05	1.2E+05	8.2E+04	3.3E+05	2.4E-09
Cadmium (48)	Cd-105	6.56E+03	1.06E-04	6.31E-06	1.15E-06	3.31E-06	5.30E-06	1.12E-06	1.1E+04	6.2E+04	2.2E+04	1.4E+04	6.4E+04	3.5E-10
Cadmium (48)	Cd-107	9.34E+02	7.42E-04	3.26E-08	9.34E-09	2.20E-08	3.04E-08	1.70E-08	3.1E+05	1.1E+06	4.6E+05	3.4E+05	6.0E+05	7.0E-08
Cadmium (48)	Cd-109	5.48E-01	1.26E+00	8.69E-09	4.05E-09	7.45E-09	8.69E-09	1.14E-08	6.9E+02	1.5E+03	8.1E+02	6.9E+02	5.3E+02	2.7E-07
Cadmium (48)	Cd-111m	7.51E+03	9.23E-05	1.03E-06	2.47E-07	6.86E-07	9.91E-07	2.43E-07	7.9E+04	3.3E+05	1.2E+05	8.3E+04	3.4E+05	2.3E-09
Cadmium (48)	Cd-113	9.00E-17	7.70E+15	7.23E-11	3.05E-11	6.13E-11	7.20E-11	4.68E-11	6.8E+03	1.6E+04	8.0E+03	6.8E+03	1.1E+04	1.7E+10
Cadmium (48)	Cd-113m	4.91E-02	1.41E+01	6.80E-10	2.09E-10	4.99E-10	6.61E-10	4.26E-10	1.1E+03	3.6E+03	1.5E+03	1.2E+03	1.8E+03	5.0E-06
Cadmium (48)	Cd-115	1.14E+02	6.10E-03	8.36E-07	1.77E-07	4.97E-07	7.60E-07	1.76E-07	1.5E+03	7.0E+03	2.5E+03	1.6E+03	7.1E+03	2.9E-09
Cadmium (48)	Cd-115m	5.67E+00	1.22E-01	1.66E-07	3.25E-08	9.06E-08	1.42E-07	3.90E-08	3.7E+02	1.9E+03	6.9E+02	4.4E+02	1.6E+03	1.5E-08

Radionuclides		Slope Factors and Isotope-specific Information							Carcinogenic Target Risk (TR) = 1E-06					
Element (Atomic Number)	Isotope	Lambda (yr^{-1})	Halflife (years)	External Exposure Slope Factor (risk/yr per pCi/g)	External Exposure Slope Factor (1 cm) (risk/yr per pCi/g)	External Exposure Slope Factor (5 cm) (risk/yr per pCi/g)	External Exposure Slope Factor (15 cm) (risk/yr per pCi/g)	Ground Plane External Exposure Slope Factor (risk/yr per pCi/cm^2)	Soil Volume PRG (pCi/g)	Soil Volume @ 1cm PRG (pCi/g)	Soil Volume @ 5cm PRG (pCi/g)	Soil Volume @ 15cm PRG (pCi/g)	Ground Plane PRG (pCi/cm^2)	Soil Volume PRG (mg/kg)
Actinium (89)	Ac-223	1.73E+05	4.00E-06	6.12E-08	1.49E-08	4.05E-08	5.79E-08	1.49E-08	3.1E+07	1.3E+08	4.7E+07	3.3E+07	1.3E+08	7.7E-08
Cadmium (48)	Cd-117	2.44E+03	2.84E-04	5.20E-06	9.71E-07	2.78E-06	4.43E-06	9.43E-07	5.1E+03	2.7E+04	9.6E+03	6.0E+03	2.8E+04	4.8E-10
Cadmium (48)	Cd-117m	1.81E+03	3.84E-04	1.03E-05	1.81E-06	5.25E-06	8.50E-06	1.74E-06	1.9E+03	1.1E+04	3.8E+03	2.3E+03	1.1E+04	2.4E-10
Cadmium (48)	Cd-118	7.24E+03	9.57E-05	3.15E-10	1.12E-10	2.50E-10	3.12E-10	1.95E-10	2.8E+08	7.8E+08	3.5E+08	2.8E+08	4.5E+08	8.8E-06
Cadmium (48)	Cd-119	1.35E+05	5.12E-06	8.20E-06	1.45E-06	4.20E-06	6.78E-06	1.41E-06	1.8E+05	1.0E+06	3.5E+05	2.2E+05	1.0E+06	3.1E-10
Cadmium (48)	Cd-119m	1.66E+05	4.19E-06	1.16E-05	2.06E-06	5.92E-06	9.57E-06	1.97E-06	1.6E+05	8.8E+05	3.1E+05	1.9E+05	9.2E+05	2.2E-10
Cerium (58)	Ce-130	1.59E+04	4.36E-05	2.00E-06	4.28E-07	1.19E-06	1.80E-06	4.31E-07	8.7E+04	4.1E+05	1.5E+05	9.7E+04	4.0E+05	1.4E-09
Cerium (58)	Ce-131	3.57E+04	1.94E-05	7.36E-06	1.46E-06	4.15E-06	6.46E-06	1.44E-06	5.3E+04	2.7E+05	9.4E+04	6.1E+04	2.7E+05	3.8E-10
Cerium (58)	Ce-132	1.73E+03	4.01E-04	9.07E-07	2.24E-07	6.07E-07	8.70E-07	2.30E-07	2.1E+04	8.4E+04	3.1E+04	2.2E+04	8.2E+04	3.1E-09
Cerium (58)	Ce-133	3.76E+03	1.85E-04	2.09E-06	4.65E-07	1.28E-06	1.91E-06	4.79E-07	2.0E+04	8.8E+04	3.2E+04	2.1E+04	8.6E+04	1.4E-09
Cerium (58)	Ce-133m	1.24E+03	5.59E-04	8.01E-06	1.54E-06	4.37E-06	6.89E-06	1.51E-06	1.7E+03	8.8E+03	3.1E+03	2.0E+03	9.0E+03	3.5E-10
Cerium (58)	Ce-134	8.00E+01	8.66E-03	1.37E-08	8.15E-09	1.19E-08	1.35E-08	1.80E-08	6.4E+04	1.1E+05	7.3E+04	6.5E+04	4.9E+04	2.1E-07
Cerium (58)	Ce-135	3.43E+02	2.02E-03	3.48E-06	7.32E-07	2.06E-06	3.14E-06	7.26E-07	1.1E+03	5.1E+03	1.8E+03	1.2E+03	5.2E+03	8.2E-10
Cerium (58)	Ce-137	6.75E+02	1.03E-03	5.57E-08	1.69E-08	3.66E-08	5.15E-08	2.69E-08	1.3E+05	4.4E+05	2.0E+05	1.4E+05	2.8E+05	5.2E-08
Cerium (58)	Ce-137m	1.76E+02	3.93E-03	1.48E-07	3.76E-08	9.66E-08	1.40E-07	4.41E-08	1.3E+04	5.1E+04	2.0E+04	1.4E+04	4.4E+04	2.0E-08
Cerium (58)	Ce-139	1.84E+00	3.77E-01	4.53E-07	1.22E-07	3.21E-07	4.44E-07	1.30E-07	4.4E+01	1.7E+02	6.3E+01	4.5E+01	1.6E+02	6.5E-09
Cerium (58)	Ce-141	7.78E+00	8.91E-02	2.28E-07	6.26E-08	1.65E-07	2.24E-07	6.39E-08	3.7E+02	1.4E+03	5.2E+02	3.8E+02	1.3E+03	1.3E-08
Cerium (58)	Ce-143	1.84E+02	3.77E-03	1.08E-06	2.39E-07	6.59E-07	9.90E-07	2.48E-07	1.9E+03	8.4E+03	3.1E+03	2.0E+03	8.1E+03	2.8E-09
Cerium (58)	Ce-144	8.88E-01	7.81E-01	4.92E-08	1.46E-08	3.68E-08	4.86E-08	1.56E-08	2.0E+02	6.7E+02	2.6E+02	2.0E+02	6.2E+02	6.2E-08
Cerium (58)	Ce-144+D	8.88E-01	7.81E-01	2.28E-07	5.01E-08	1.33E-07	2.00E-07	6.25E-08	4.3E+01	1.9E+02	7.3E+01	4.9E+01	1.6E+02	1.3E-08
Cerium (58)	Ce-145	1.21E+05	5.73E-06	3.56E-06	7.27E-07	2.04E-06	3.15E-06	7.29E-07	3.7E+05	1.8E+06	6.5E+05	4.2E+05	1.8E+06	8.7E-10
Californium (98)	Cf-244	1.88E+04	3.69E-05	6.06E-11	6.00E-11	6.05E-11	6.06E-11	4.72E-10	3.4E+09	3.4E+09	3.4E+09	3.4E+09	4.4E+08	8.6E-05
Californium (98)	Cf-246	1.70E+02	4.08E-03	2.08E-10	7.79E-11	1.40E-10	1.88E-10	3.62E-10	9.0E+06	2.4E+07	1.3E+07	9.9E+06	5.1E+06	2.5E-05
Californium (98)	Cf-247	1.95E+03	3.55E-04	2.51E-07	7.27E-08	1.89E-07	2.49E-07	7.62E-08	8.5E+04	2.9E+05	1.1E+05	8.6E+04	2.8E+05	2.1E-08
Californium (98)	Cf-248	7.57E-01	9.15E-01	1.69E-09	3.49E-10	9.04E-10	1.41E-09	6.81E-10	4.9E+03	2.4E+04	9.2E+03	5.9E+03	1.2E+04	3.1E-06
Californium (98)	Cf-249	1.97E-03	3.51E+02	1.33E-06	2.95E-07	8.29E-07	1.24E-06	2.90E-07	3.4E-01	1.5E+00	5.4E-01	3.6E-01	1.6E+00	8.3E-08
Californium (98)	Cf-250	5.30E-02	1.31E+01	4.89E-08	8.72E-09	2.50E-08	4.04E-08	8.70E-09	1.6E+01	9.1E+01	3.2E+01	2.0E+01	9.1E+01	1.5E-07
Californium (98)	Cf-251	7.70E-04	9.00E+02	3.62E-07	9.77E-08	2.60E-07	3.54E-07	9.88E-08	1.2E+00	4.5E+00	1.7E+00	1.2E+00	4.5E+00	7.7E-07
Californium (98)	Cf-252	2.62E-01	2.65E+00	2.28E-06	4.04E-07	1.16E-06	1.87E-06	3.90E-07	1.3E+00	7.1E+00	2.5E+00	1.5E+00	7.4E+00	2.4E-09
Californium (98)	Cf-253	1.42E+01	4.88E-02	3.92E-10	3.08E-10	3.85E-10	3.92E-10	1.39E-09	4.0E+05	5.0E+05	4.0E+05	4.0E+05	1.1E+05	1.4E-05
Californium (98)	Cf-254	4.18E+00	1.66E-01	8.41E-05	1.49E-05	4.30E-05	6.92E-05	1.44E-05	5.4E-01	3.1E+00	1.1E+00	6.6E-01	3.2E+00	6.4E-11
Californium (98)	Cf-255	4.29E+03	1.62E-04	6.97E-10	2.37E-10	5.34E-10	6.84E-10	9.12E-10	7.5E+07	2.2E+08	9.8E+07	7.6E+07	5.7E+07	8.6E-06
Chlorine (17)	Cl-34	1.43E+07	4.84E-08	4.54E-06	9.64E-07	2.71E-06	4.13E-06	9.60E-07	3.5E+07	1.6E+08	5.8E+07	3.8E+07	1.6E+08	1.6E-10
Chlorine (17)	Cl-34m	1.14E+04	6.09E-05	1.06E-05	1.84E-06	5.34E-06	8.66E-06	1.77E-06	1.2E+04	6.8E+04	2.3E+04	1.4E+04	7.0E+04	6.8E-11
Chlorine (17)	Cl-36	2.30E-06	3.01E+05	1.69E-09	4.91E-10	1.18E-09	1.61E-09	1.76E-09	2.6E+02	8.9E+02	3.7E+02	2.7E+02	2.5E+02	7.8E-03
Chlorine (17)	Cl-38	9.78E+03	7.09E-05	7.69E-06	1.27E-06	3.72E-06	6.14E-06	1.23E-06	1.4E+04	8.4E+04	2.9E+04	1.7E+04	8.7E+04	1.0E-10
Chlorine (17)	Cl-39	6.55E+03	1.06E-04	7.16E-06	1.31E-06	3.76E-06	6.02E-06	1.27E-06	1.0E+04	5.5E+04	1.9E+04	1.2E+04	5.6E+04	1.2E-10
Chlorine (17)	Cl-40	2.70E+05	2.57E-06	2.18E-05	3.47E-06	1.02E-05	1.70E-05	3.32E-06	1.4E+05	8.5E+05	2.9E+05	1.7E+05	8.9E+05	3.9E-11
Curium (96)	Cm-238	2.53E+03	2.74E-04	2.03E-07	6.20E-08	1.58E-07	2.02E-07	6.38E-08	1.4E+05	4.5E+05	1.8E+05	1.4E+05	4.3E+05	2.5E-08
Curium (96)	Cm-239	2.09E+03	3.31E-04	8.00E-07	2.13E-07	5.72E-07	7.83E-07	2.13E-07	2.9E+04	1.1E+05	4.0E+04	2.9E+04	1.1E+05	6.3E-09
Curium (96)	Cm-240	9.37E+00	7.40E-02	9.82E-11	6.63E-11	8.76E-11	9.73E-11	4.65E-10	1.0E+06	1.5E+06	1.2E+06	1.1E+06	2.2E+05	5.2E-05
Curium (96)	Cm-241	7.71E+00	8.99E-02	1.94E-06	4.37E-07	1.21E-06	1.79E-06	4.33E-07	4.4E+01	1.9E+02	7.0E+01	4.7E+01	1.9E+02	2.6E-09
Curium (96)	Cm-242	1.55E+00	4.46E-01	7.86E-11	5.59E-11	6.99E-11	7.71E-11	4.12E-10	2.2E+05	3.0E+05	2.4E+05	2.2E+05	4.1E+04	6.5E-05
Curium (96)	Cm-243	2.38E-02	2.91E+01	4.20E-07	1.09E-07	2.91E-07	4.08E-07	1.09E-07	1.4E+00	5.4E+00	2.0E+00	1.4E+00	5.3E+00	2.7E-08
Curium (96)	Cm-244	3.83E-02	1.81E+01	1.40E-10	5.98E-11	9.51E-11	1.25E-10	3.64E-10	4.9E+03	1.1E+04	7.2E+03	5.4E+03	1.9E+03	6.0E-05
Curium (96)	Cm-245	8.15E-05	8.50E+03	2.74E-07	8.13E-08	2.09E-07	2.72E-07	8.34E-08	1.6E+00	5.4E+00	2.1E+00	1.6E+00	5.3E+00	9.3E-06
Curium (96)	Cm-246	1.46E-04	4.76E+03	1.80E-08	3.23E-09	9.23E-09	1.48E-08	3.36E-09	2.4E+01	1.4E+02	4.8E+01	3.0E+01	1.3E+02	8.0E-05
Curium (96)	Cm-247	4.44E-08	1.56E+07	1.31E-06	2.86E-07	8.05E-07	1.21E-06	2.80E-07	3.3E-01	1.5E+00	5.4E-01	3.6E-01	1.6E+00	3.6E-03
Curium (96)	Cm-247+D	4.44E-08	1.56E+07	1.37E-06	3.05E-07	8.48E-07	1.27E-06	3.00E-07	3.2E-01	1.4E+00	5.2E-01	3.4E-01	1.5E+00	3.5E-03
Curium (96)	Cm-248	1.99E-06	3.48E+05	6.54E-06	1.16E-06	3.34E-06	5.39E-06	1.12E-06	6.7E-02	3.8E-01	1.3E-01	8.1E-02	3.9E-01	1.6E-05

Radionuclides		Slope Factors and Isotope-specific Information							Carcinogenic Target Risk (TR) = 1E-06					
Element (Atomic Number)	Isotope	Lambda (yr^{-1})	Halflife (years)	External Exposure Slope Factor (risk/yr per pCi/g)	External Exposure Slope Factor (1 cm) (risk/yr per pCi/g)	External Exposure Slope Factor (5 cm) (risk/yr per pCi/g)	External Exposure Slope Factor (15 cm) (risk/yr per pCi/g)	Ground Plane External Exposure Slope Factor (risk/yr per pCi/cm^2)	Soil Volume PRG (pCi/g)	Soil Volume @ 1cm PRG (pCi/g)	Soil Volume @ 5cm PRG (pCi/g)	Soil Volume @ 15cm PRG (pCi/g)	Ground Plane PRG (pCi/cm^2)	Soil Volume PRG (mg/kg)
Actinium (89)	Ac-223	1.73E+05	4.00E-06	6.12E-08	1.49E-08	4.05E-08	5.79E-08	1.49E-08	3.1E+07	1.3E+08	4.7E+07	3.3E+07	1.3E+08	7.7E-08
Curium (96)	Cm-249	5.68E+03	1.22E-04	8.50E-08	1.79E-08	5.03E-08	7.67E-08	1.93E-08	7.3E+05	3.5E+06	1.2E+06	8.1E+05	3.2E+06	6.2E-08
Curium (96)	Cm-250	8.35E-05	8.30E+03	6.66E-05	1.18E-05	3.40E-05	5.48E-05	1.14E-05	6.6E-03	3.7E-02	1.3E-02	8.0E-03	3.8E-02	3.8E-08
Curium (96)	Cm-250+D	8.35E-05	8.30E+03	6.78E-05	1.20E-05	3.47E-05	5.58E-05	1.17E-05	6.5E-03	3.6E-02	1.3E-02	7.9E-03	3.8E-02	3.8E-08
Curium (96)	Cm-251	2.17E+04	3.20E-05	4.75E-07	1.02E-07	2.84E-07	4.32E-07	1.04E-07	5.0E+05	2.3E+06	8.4E+05	5.5E+05	2.3E+06	1.1E-08
Cobalt (27)	Co-54m	2.46E+05	2.82E-06	1.87E-05	3.59E-06	1.02E-05	1.61E-05	3.49E-06	1.4E+05	7.5E+05	2.6E+05	1.7E+05	7.7E+05	6.1E-11
Cobalt (27)	Co-55	3.46E+02	2.00E-03	9.24E-06	1.82E-06	5.17E-06	8.09E-06	1.77E-06	4.1E+02	2.1E+03	7.3E+02	4.7E+02	2.1E+03	1.3E-10
Cobalt (27)	Co-56	3.28E+00	2.12E-01	1.83E-05	3.21E-06	9.29E-06	1.51E-05	3.09E-06	2.0E+00	1.1E+01	3.9E+00	2.4E+00	1.2E+01	6.5E-11
Cobalt (27)	Co-57	9.31E-01	7.44E-01	3.55E-07	1.02E-07	2.65E-07	3.51E-07	1.01E-07	2.9E+01	1.0E+02	3.8E+01	2.9E+01	1.0E+02	3.4E-09
Cobalt (27)	Co-58	3.57E+00	1.94E-01	4.48E-06	8.95E-07	2.52E-06	3.96E-06	8.71E-07	8.7E+00	4.4E+01	1.5E+01	9.9E+00	4.5E+01	2.7E-10
Cobalt (27)	Co-58m	6.72E+02	1.03E-03	1.00E-12	9.86E-13	1.01E-12	1.00E-12	4.47E-12	7.3E+09	7.5E+09	7.3E+09	7.3E+09	1.6E+09	1.2E-03
Cobalt (27)	Co-60	1.31E-01	5.27E+00	1.24E-05	2.26E-06	6.48E-06	1.04E-05	2.18E-06	1.2E-01	6.6E-01	2.3E-01	1.4E-01	6.8E-01	1.1E-10
Cobalt (27)	Co-60m	3.48E+04	1.99E-05	1.79E-08	3.70E-09	9.88E-09	1.52E-08	3.82E-09	2.1E+07	1.0E+08	3.9E+07	2.5E+07	1.0E+08	7.1E-08
Cobalt (27)	Co-61	3.68E+03	1.88E-04	2.80E-07	7.68E-08	1.86E-07	2.56E-07	8.76E-08	1.4E+05	5.2E+05	2.2E+05	1.6E+05	4.6E+05	4.6E-09
Cobalt (27)	Co-62	2.43E+05	2.85E-06	8.16E-06	1.44E-06	4.15E-06	6.74E-06	1.40E-06	3.3E+05	1.8E+06	6.4E+05	3.9E+05	1.9E+06	1.6E-10
Cobalt (27)	Co-62m	2.62E+04	2.65E-05	1.35E-05	2.43E-06	6.95E-06	1.12E-05	2.34E-06	2.1E+04	1.2E+05	4.1E+04	2.6E+04	1.2E+05	9.7E-11
Chromium (24)	Cr-48	2.82E+02	2.46E-03	1.62E-06	3.87E-07	1.07E-06	1.54E-06	3.79E-07	1.9E+03	8.0E+03	2.9E+03	2.0E+03	8.1E+03	6.3E-10
Chromium (24)	Cr-49	8.61E+03	8.05E-05	4.43E-06	9.58E-07	2.67E-06	4.04E-06	9.50E-07	2.1E+04	9.8E+04	3.5E+04	2.3E+04	9.9E+04	2.4E-10
Chromium (24)	Cr-51	9.13E+00	7.59E-02	1.30E-07	2.90E-08	8.15E-08	1.21E-07	2.81E-08	7.7E+02	3.5E+03	1.2E+03	8.2E+02	3.6E+03	8.4E-09
Chromium (24)	Cr-55	1.04E+05	6.65E-06	2.94E-08	8.67E-09	1.92E-08	2.72E-08	2.08E-08	3.9E+07	1.3E+08	5.9E+07	4.2E+07	5.5E+07	4.0E-08
Chromium (24)	Cr-56	6.13E+04	1.13E-05	1.74E-07	6.39E-08	1.45E-07	1.74E-07	7.97E-08	3.9E+06	1.1E+07	4.6E+06	3.9E+06	8.4E+06	6.8E-09
Cesium (55)	Cs-121	1.41E+05	4.92E-06	5.16E-06	1.09E-06	3.06E-06	4.68E-06	1.08E-06	3.0E+05	1.4E+06	5.0E+05	3.3E+05	1.4E+06	5.0E-10
Cesium (55)	Cs-121m	1.79E+05	3.87E-06	5.13E-06	1.09E-06	3.06E-06	4.66E-06	1.08E-06	3.8E+05	1.8E+06	6.4E+05	4.2E+05	1.8E+06	5.0E-10
Cesium (55)	Cs-123	6.19E+04	1.12E-05	4.72E-06	9.90E-07	2.78E-06	4.25E-06	9.84E-07	1.4E+05	6.9E+05	2.4E+05	1.6E+05	6.9E+05	5.5E-10
Cesium (55)	Cs-124	7.10E+05	9.77E-07	5.22E-06	1.09E-06	3.06E-06	4.69E-06	1.08E-06	1.5E+06	7.1E+06	2.5E+06	1.7E+06	7.2E+06	5.0E-10
Cesium (55)	Cs-125	8.09E+03	8.56E-05	3.29E-06	6.80E-07	1.92E-06	2.95E-06	6.75E-07	2.7E+04	1.3E+05	4.6E+04	3.0E+04	1.3E+05	8.1E-10
Cesium (55)	Cs-126	2.22E+05	3.12E-06	5.10E-06	1.07E-06	3.01E-06	4.61E-06	1.06E-06	4.8E+05	2.3E+06	8.1E+05	5.3E+05	2.3E+06	5.2E-10
Cesium (55)	Cs-127	9.71E+02	7.13E-04	1.74E-06	3.77E-07	1.06E-06	1.60E-06	3.79E-07	6.1E+03	2.8E+04	1.0E+04	6.6E+03	2.8E+04	1.6E-09
Cesium (55)	Cs-128	1.00E+05	6.93E-06	3.90E-06	8.20E-07	2.30E-06	3.53E-06	8.14E-07	2.8E+05	1.3E+06	4.8E+05	3.1E+05	1.3E+06	7.0E-10
Cesium (55)	Cs-129	1.89E+02	3.66E-03	1.04E-06	2.32E-07	6.43E-07	9.63E-07	2.39E-07	2.0E+03	9.0E+03	3.2E+03	2.2E+03	8.7E+03	2.6E-09
Cesium (55)	Cs-130	1.25E+04	5.56E-05	2.16E-06	4.54E-07	1.28E-06	1.95E-06	4.54E-07	6.3E+04	3.0E+05	1.1E+05	7.0E+04	3.0E+05	1.3E-09
Cesium (55)	Cs-130m	1.05E+05	6.58E-06	1.12E-07	4.05E-08	8.91E-08	1.10E-07	5.37E-08	1.0E+07	2.8E+07	1.3E+07	1.0E+07	2.1E+07	2.5E-08
Cesium (55)	Cs-131	2.61E+01	2.65E-02	4.92E-09	4.43E-09	4.91E-09	4.92E-09	1.33E-08	5.8E+04	6.5E+04	5.8E+04	5.8E+04	2.1E+04	5.7E-07
Cesium (55)	Cs-132	3.90E+01	1.78E-02	3.14E-06	6.41E-07	1.81E-06	2.80E-06	6.35E-07	1.4E+02	6.7E+02	2.4E+02	1.5E+02	6.7E+02	8.9E-10
Cesium (55)	Cs-134	3.36E-01	2.06E+00	7.10E-06	1.43E-06	4.04E-06	6.29E-06	1.39E-06	5.2E-01	2.6E+00	9.1E-01	5.8E-01	2.6E+00	4.0E-10
Cesium (55)	Cs-134m	2.09E+03	3.31E-04	5.06E-08	1.58E-08	3.83E-08	5.01E-08	1.95E-08	4.5E+05	1.5E+06	6.0E+05	4.6E+05	1.2E+06	5.6E-08
Cesium (55)	Cs-135	3.01E-07	2.30E+06	5.84E-11	2.58E-11	5.03E-11	5.81E-11	4.09E-11	8.3E+03	1.9E+04	9.7E+03	8.4E+03	1.2E+04	7.2E+00
Cesium (55)	Cs-135m	6.87E+03	1.01E-04	7.43E-06	1.47E-06	4.15E-06	6.50E-06	1.42E-06	1.0E+04	5.1E+04	1.8E+04	1.2E+04	5.3E+04	3.9E-10
Cesium (55)	Cs-136	1.92E+01	3.61E-02	9.92E-06	1.94E-06	5.49E-06	8.64E-06	1.88E-06	2.1E+01	1.1E+02	3.8E+01	2.4E+01	1.1E+02	2.9E-10
Cesium (55)	Cs-137	2.30E-02	3.02E+01	5.52E-10	1.92E-10	4.24E-10	5.42E-10	5.53E-10	1.0E+03	3.0E+03	1.4E+03	1.1E+03	1.0E+03	1.2E-05
Cesium (55)	Cs-137+D	2.30E-02	3.02E+01	2.53E-06	5.17E-07	1.46E-06	2.27E-06	5.07E-07	2.3E-01	1.1E+00	4.0E-01	2.5E-01	1.1E+00	2.6E-09
Cesium (55)	Cs-138	1.09E+04	6.36E-05	1.19E-05	2.11E-06	6.07E-06	9.83E-06	2.04E-06	1.0E+04	5.7E+04	2.0E+04	1.2E+04	5.8E+04	2.5E-10
Cesium (55)	Cs-138m	1.25E+05	5.54E-06	1.91E-06	3.64E-07	1.04E-06	1.63E-06	3.61E-07	7.2E+05	3.8E+06	1.3E+06	8.4E+05	3.8E+06	1.5E-09
Cesium (55)	Cs-139	3.93E+04	1.76E-05	1.62E-06	2.84E-07	8.16E-07	1.33E-06	2.86E-07	2.7E+05	1.5E+06	5.3E+05	3.2E+05	1.5E+06	1.8E-09
Cesium (55)	Cs-140	3.43E+05	2.02E-06	9.14E-06	1.58E-06	4.56E-06	7.44E-06	1.53E-06	4.1E+05	2.4E+06	8.2E+05	5.1E+05	2.5E+06	3.3E-10
Copper (29)	Cu-57	1.11E+08	6.22E-09	5.37E-06	1.12E-06	3.14E-06	4.82E-06	1.11E-06	2.3E+08	1.1E+09	3.9E+08	2.5E+08	1.1E+09	2.3E-10
Copper (29)	Cu-59	2.68E+05	2.58E-06	6.54E-06	1.34E-06	3.77E-06	5.84E-06	1.32E-06	4.5E+05	2.2E+06	7.8E+05	5.0E+05	2.2E+06	1.9E-10
Copper (29)	Cu-60	1.54E+04	4.51E-05	1.94E-05	3.49E-06	1.01E-05	1.61E-05	3.37E-06	8.7E+03	4.8E+04	1.7E+04	1.0E+04	5.0E+04	6.6E-11
Copper (29)	Cu-61	1.82E+03	3.80E-04	3.61E-06	7.55E-07	2.13E-06	3.27E-06	7.43E-07	5.5E+03	2.6E+04	9.4E+03	6.1E+03	2.7E+04	3.6E-10
Copper (29)	Cu-62	3.77E+04	1.84E-05	4.43E-06	9.36E-07	2.63E-06	4.03E-06	9.29E-07	9.3E+04	4.4E+05	1.6E+05	1.0E+05	4.4E+05	3.0E-10

Radionuclides		Slope Factors and Isotope-specific Information							Carcinogenic Target Risk (TR) = 1E-06					
Element (Atomic Number)	Isotope	Lambda (yr^{-1})	Halflife (years)	External Exposure Slope Factor (risk/yr per pCi/g)	External Exposure Slope Factor (1 cm) (risk/yr per pCi/g)	External Exposure Slope Factor (5 cm) (risk/yr per pCi/g)	External Exposure Slope Factor (15 cm) (risk/yr per pCi/g)	Ground Plane External Exposure Slope Factor (risk/yr per pCi/cm^2)	Soil Volume PRG (pCi/g)	Soil Volume @ 1cm PRG (pCi/g)	Soil Volume @ 5cm PRG (pCi/g)	Soil Volume @ 15cm PRG (pCi/g)	Ground Plane PRG (pCi/cm^2)	Soil Volume PRG (mg/kg)
Actinium (89)	Ac-223	1.73E+05	4.00E-06	6.12E-08	1.49E-08	4.05E-08	5.79E-08	1.49E-08	3.1E+07	1.3E+08	4.7E+07	3.3E+07	1.3E+08	7.7E-08
Copper (29)	Cu-64	4.78E+02	1.45E-03	8.07E-07	1.69E-07	4.78E-07	7.32E-07	1.66E-07	6.5E+03	3.1E+04	1.1E+04	7.1E+03	3.2E+04	1.7E-09
Copper (29)	Cu-66	7.11E+04	9.74E-06	4.95E-07	9.70E-08	2.71E-07	4.26E-07	1.06E-07	1.6E+06	8.0E+06	2.9E+06	1.8E+06	7.4E+06	2.8E-09
Copper (29)	Cu-67	9.82E+01	7.06E-03	3.83E-07	9.92E-08	2.69E-07	3.72E-07	9.81E-08	2.8E+03	1.1E+04	4.0E+03	2.9E+03	1.1E+04	3.7E-09
Copper (29)	Cu-69	1.28E+05	5.42E-06	2.53E-06	4.88E-07	1.38E-06	2.18E-06	4.83E-07	5.5E+05	2.9E+06	1.0E+06	6.4E+05	2.9E+06	5.8E-10
Dysprosium (66)	Dy-148	1.10E+05	6.28E-06	3.09E-06	6.43E-07	1.80E-06	2.77E-06	6.38E-07	3.9E+05	1.9E+06	6.7E+05	4.4E+05	1.9E+06	1.0E-09
Dysprosium (66)	Dy-149	8.67E+04	7.99E-06	7.64E-06	1.44E-06	4.07E-06	6.48E-06	1.40E-06	1.2E+05	6.6E+05	2.3E+05	1.5E+05	6.8E+05	4.1E-10
Dysprosium (66)	Dy-150	5.08E+04	1.36E-05	1.09E-06	2.43E-07	6.73E-07	1.01E-06	2.45E-07	5.1E+05	2.3E+06	8.3E+05	5.5E+05	2.3E+06	2.9E-09
Dysprosium (66)	Dy-151	2.03E+04	3.41E-05	6.33E-06	1.22E-06	3.46E-06	5.46E-06	1.20E-06	3.5E+04	1.8E+05	6.4E+04	4.1E+04	1.9E+05	5.1E-10
Dysprosium (66)	Dy-152	2.55E+03	2.72E-04	1.00E-06	2.43E-07	6.59E-07	9.56E-07	2.45E-07	2.8E+04	1.2E+05	4.2E+04	2.9E+04	1.1E+05	3.2E-09
Dysprosium (66)	Dy-153	9.49E+02	7.31E-04	3.68E-06	7.51E-07	2.09E-06	3.21E-06	7.53E-07	2.8E+03	1.4E+04	5.0E+03	3.2E+03	1.4E+04	8.8E-10
Dysprosium (66)	Dy-154	2.31E-07	3.00E+06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	.	.	.	.	.	.
Dysprosium (66)	Dy-155	6.13E+02	1.13E-03	2.85E-06	5.83E-07	1.63E-06	2.51E-06	5.79E-07	2.4E+03	1.2E+04	4.1E+03	2.7E+03	1.2E+04	1.2E-09
Dysprosium (66)	Dy-157	7.46E+02	9.29E-04	1.27E-06	2.97E-07	8.15E-07	1.20E-06	3.01E-07	6.4E+03	2.7E+04	1.0E+04	6.8E+03	2.7E+04	2.6E-09
Dysprosium (66)	Dy-159	1.75E+00	3.96E-01	3.22E-08	2.06E-08	3.16E-08	3.21E-08	3.30E-08	6.0E+02	9.3E+02	6.1E+02	6.0E+02	5.8E+02	1.0E-07
Dysprosium (66)	Dy-165	2.60E+03	2.66E-04	9.80E-08	2.34E-08	6.11E-08	8.96E-08	2.91E-08	2.9E+05	1.2E+06	4.7E+05	3.2E+05	9.8E+05	3.6E-08
Dysprosium (66)	Dy-165m	2.90E+05	2.39E-06	5.62E-08	1.43E-08	3.68E-08	5.24E-08	1.53E-08	5.6E+07	2.2E+08	8.6E+07	6.1E+07	2.1E+08	6.2E-08
Dysprosium (66)	Dy-166	7.44E+01	9.32E-03	6.48E-08	2.60E-08	5.31E-08	6.34E-08	3.32E-08	1.3E+04	3.1E+04	1.5E+04	1.3E+04	2.5E+04	5.4E-08
Dysprosium (66)	Dy-167	5.87E+04	1.18E-05	2.24E-06	4.84E-07	1.35E-06	2.04E-06	4.83E-07	2.9E+05	1.3E+06	4.8E+05	3.1E+05	1.3E+06	1.6E-09
Dysprosium (66)	Dy-168	4.19E+04	1.66E-05	1.59E-06	3.51E-07	9.73E-07	1.46E-06	3.53E-07	2.9E+05	1.3E+06	4.7E+05	3.1E+05	1.3E+06	2.2E-09
Erbium (68)	Er-154	9.77E+04	7.10E-06	1.55E-07	4.58E-08	1.04E-07	1.44E-07	5.80E-08	6.9E+06	2.3E+07	1.0E+07	7.4E+06	1.8E+07	2.1E-08
Erbium (68)	Er-156	1.87E+04	3.71E-05	8.92E-08	3.51E-08	7.01E-08	8.65E-08	4.88E-08	2.3E+06	5.8E+06	2.9E+06	2.4E+06	4.2E+06	3.7E-08
Erbium (68)	Er-159	1.01E+04	6.85E-05	4.33E-06	8.56E-07	2.41E-06	3.77E-06	8.43E-07	2.6E+04	1.3E+05	4.6E+04	2.9E+04	1.3E+05	7.8E-10
Erbium (68)	Er-161	1.89E+03	3.66E-04	4.45E-06	8.84E-07	2.48E-06	3.88E-06	8.70E-07	4.7E+03	2.3E+04	8.3E+03	5.3E+03	2.4E+04	7.7E-10
Erbium (68)	Er-163	4.86E+03	1.43E-04	3.64E-08	2.02E-08	3.36E-08	3.60E-08	2.98E-08	1.5E+06	2.6E+06	1.6E+06	1.5E+06	1.8E+06	9.5E-08
Erbium (68)	Er-165	5.86E+02	1.18E-03	3.06E-08	1.86E-08	2.99E-08	3.06E-08	2.78E-08	2.1E+05	3.5E+05	2.1E+05	2.1E+05	2.3E+05	1.1E-07
Erbium (68)	Er-167m	9.63E+06	7.19E-08	3.27E-07	8.18E-08	2.22E-07	3.16E-07	8.20E-08	3.2E+08	1.3E+09	4.7E+08	3.3E+08	1.3E+09	1.1E-08
Erbium (68)	Er-169	2.69E+01	2.58E-02	9.55E-11	3.89E-11	8.00E-11	9.50E-11	5.76E-11	3.1E+06	7.6E+06	3.7E+06	3.1E+06	5.1E+06	3.8E-05
Erbium (68)	Er-171	8.08E+02	8.58E-04	1.39E-06	3.27E-07	9.00E-07	1.32E-06	3.29E-07	6.4E+03	2.7E+04	9.8E+03	6.7E+03	2.7E+04	2.6E-09
Erbium (68)	Er-172	1.23E+02	5.63E-03	2.13E-06	4.60E-07	1.27E-06	1.93E-06	4.59E-07	6.3E+02	2.9E+03	1.1E+03	7.0E+02	2.9E+03	1.7E-09
Erbium (68)	Er-173	2.54E+05	2.73E-06	3.49E-06	7.42E-07	2.06E-06	3.12E-06	7.38E-07	8.0E+05	3.8E+06	1.4E+06	8.9E+05	3.8E+06	1.1E-09
Einsteinium (99)	Es-249	3.56E+03	1.94E-04	1.61E-06	3.59E-07	9.96E-07	1.48E-06	3.55E-07	2.4E+04	1.1E+05	3.9E+04	2.6E+04	1.1E+05	3.3E-09
Einsteinium (99)	Es-250	7.06E+02	9.82E-04	4.99E-06	1.06E-06	2.95E-06	4.47E-06	1.05E-06	1.6E+03	7.3E+03	2.6E+03	1.7E+03	7.4E+03	1.1E-09
Einsteinium (99)	Es-250m	2.73E+03	2.53E-04	2.45E-06	4.88E-07	1.37E-06	2.13E-06	4.76E-07	1.2E+04	6.1E+04	2.2E+04	1.4E+04	6.3E+04	2.2E-09
Einsteinium (99)	Es-251	1.84E+02	3.77E-03	2.49E-07	7.27E-08	1.89E-07	2.46E-07	7.54E-08	8.1E+03	2.8E+04	1.1E+04	8.2E+03	2.7E+04	2.1E-08
Einsteinium (99)	Es-253	1.24E+01	5.61E-02	1.25E-09	3.01E-10	7.96E-10	1.16E-09	4.06E-10	1.1E+05	4.5E+05	1.7E+05	1.2E+05	3.3E+05	4.3E-06
Einsteinium (99)	Es-254	9.17E-01	7.55E-01	8.17E-09	2.80E-09	6.02E-09	7.86E-09	6.34E-09	1.2E+03	3.6E+03	1.7E+03	1.3E+03	1.6E+03	6.6E-07
Einsteinium (99)	Es-254+D	9.17E-01	7.55E-01	4.29E-06	8.20E-07	2.32E-06	3.69E-06	8.00E-07	2.3E+00	1.2E+01	4.3E+00	2.7E+00	1.3E+01	1.3E-09
Einsteinium (99)	Es-254m	1.54E+02	4.49E-03	2.11E-06	4.32E-07	1.22E-06	1.89E-06	4.24E-07	8.0E+02	3.9E+03	1.4E+03	8.9E+02	4.0E+03	2.6E-09
Einsteinium (99)	Es-255	6.36E+00	1.09E-01	3.44E-09	6.20E-10	1.77E-09	2.84E-09	6.12E-10	2.0E+04	1.1E+05	3.9E+04	2.5E+04	1.1E+05	1.6E-06
Einsteinium (99)	Es-256	1.43E+04	4.83E-05	6.91E-09	2.45E-09	5.01E-09	6.63E-09	1.01E-08	2.3E+07	6.4E+07	3.1E+07	2.4E+07	1.6E+07	7.9E-07
Europium (63)	Eu-142	9.34E+06	7.42E-08	5.57E-06	1.14E-06	3.21E-06	4.96E-06	1.13E-06	1.8E+07	9.0E+07	3.2E+07	2.1E+07	9.1E+07	5.4E-10
Europium (63)	Eu-142m	2.98E+05	2.33E-06	1.58E-05	3.16E-06	8.95E-06	1.39E-05	3.09E-06	2.1E+05	1.0E+06	3.6E+05	2.3E+05	1.1E+06	1.9E-10
Europium (63)	Eu-143	1.41E+05	4.93E-06	5.17E-06	1.03E-06	2.91E-06	4.54E-06	1.02E-06	3.0E+05	1.5E+06	5.3E+05	3.4E+05	1.5E+06	5.9E-10
Europium (63)	Eu-144	2.14E+06	3.23E-07	5.02E-06	1.02E-06	2.90E-06	4.46E-06	1.01E-06	4.7E+06	2.3E+07	8.1E+06	5.3E+06	2.3E+07	6.1E-10
Europium (63)	Eu-145	4.27E+01	1.62E-02	6.10E-06	1.14E-06	3.23E-06	5.16E-06	1.11E-06	7.7E+01	4.1E+02	1.4E+02	9.1E+01	4.2E+02	5.1E-10
Europium (63)	Eu-146	5.49E+01	1.26E-02	1.12E-05	2.17E-06	6.15E-06	9.70E-06	2.11E-06	5.3E+01	2.8E+02	9.8E+01	6.2E+01	2.8E+02	2.8E-10
Europium (63)	Eu-147	1.05E+01	6.60E-02	1.93E-06	4.05E-07	1.12E-06	1.72E-06	4.09E-07	6.0E+01	2.8E+02	1.0E+02	6.7E+01	2.8E+02	1.6E-09
Europium (63)	Eu-148	4.64E+00	1.49E-01	1.01E-05	2.02E-06	5.72E-06	8.90E-06	1.97E-06	5.0E+00	2.5E+01	8.9E+00	5.7E+00	2.6E+01	3.1E-10
Europium (63)	Eu-149	2.72E+00	2.55E-01	1.49E-07	4.17E-08	9.99E-08	1.40E-07	5.15E-08	2.0E+02	7.1E+02	3.0E+02	2.1E+02	5.8E+02	2.1E-08

Radionuclides		Slope Factors and Isotope-specific Information							Carcinogenic Target Risk (TR) = 1E-06					
Element (Atomic Number)	Isotope	Lambda (yr^{-1})	Halflife (years)	External Exposure Slope Factor (risk/yr per pCi/g)	External Exposure Slope Factor (1 cm) (risk/yr per pCi/g)	External Exposure Slope Factor (5 cm) (risk/yr per pCi/g)	External Exposure Slope Factor (15 cm) (risk/yr per pCi/g)	Ground Plane External Exposure Slope Factor (risk/yr per pCi/cm^2)	Soil Volume PRG (pCi/g)	Soil Volume @ 1cm PRG (pCi/g)	Soil Volume @ 5cm PRG (pCi/g)	Soil Volume @ 15cm PRG (pCi/g)	Ground Plane PRG (pCi/cm^2)	Soil Volume PRG (mg/kg)
Actinium (89)	Ac-223	1.73E+05	4.00E-06	6.12E-08	1.49E-08	4.05E-08	5.79E-08	1.49E-08	3.1E+07	1.3E+08	4.7E+07	3.3E+07	1.3E+08	7.7E-08
Europium (63)	Eu-150	1.88E-02	3.69E+01	6.76E-06	1.40E-06	3.96E-06	6.07E-06	1.38E-06	8.1E-02	3.9E-01	1.4E-01	9.0E-02	4.0E-01	1.3E-09
Europium (63)	Eu-150m	4.74E+02	1.46E-03	2.06E-07	4.37E-08	1.21E-07	1.86E-07	4.65E-08	2.5E+04	1.2E+05	4.3E+04	2.8E+04	1.1E+05	1.6E-08
Europium (63)	Eu-152	5.12E-02	1.35E+01	5.41E-06	1.05E-06	2.97E-06	4.66E-06	1.03E-06	1.4E-01	7.4E-01	2.6E-01	1.7E-01	7.6E-01	8.3E-10
Europium (63)	Eu-152m	6.52E+02	1.06E-03	1.34E-06	2.67E-07	7.47E-07	1.17E-06	2.69E-07	5.3E+03	2.7E+04	9.6E+03	6.1E+03	2.7E+04	2.4E-09
Europium (63)	Eu-152n	3.79E+03	1.83E-04	1.51E-07	5.36E-08	1.25E-07	1.51E-07	5.90E-08	2.8E+05	7.7E+05	3.3E+05	2.8E+05	7.0E+05	2.1E-08
Europium (63)	Eu-154	8.06E-02	8.59E+00	5.85E-06	1.13E-06	3.19E-06	5.03E-06	1.10E-06	1.7E-01	9.0E-01	3.2E-01	2.0E-01	9.3E-01	6.5E-10
Europium (63)	Eu-154m	7.92E+03	8.75E-05	1.12E-07	4.39E-08	9.49E-08	1.12E-07	5.30E-08	7.7E+05	2.0E+06	9.1E+05	7.8E+05	1.6E+06	2.9E-08
Europium (63)	Eu-155	1.46E-01	4.76E+00	1.25E-07	4.41E-08	1.03E-07	1.25E-07	4.88E-08	1.3E+01	3.7E+01	1.6E+01	1.3E+01	3.4E+01	2.7E-08
Europium (63)	Eu-156	1.67E+01	4.16E-02	6.13E-06	1.10E-06	3.16E-06	5.10E-06	1.07E-06	3.0E+01	1.7E+02	5.8E+01	3.6E+01	1.7E+02	5.4E-10
Europium (63)	Eu-157	4.00E+02	1.73E-03	1.10E-06	2.50E-07	6.78E-07	1.01E-06	2.59E-07	4.0E+03	1.7E+04	6.5E+03	4.3E+03	1.7E+04	3.0E-09
Europium (63)	Eu-158	7.94E+03	8.73E-05	6.25E-06	1.17E-06	3.34E-06	5.31E-06	1.15E-06	1.4E+04	7.4E+04	2.6E+04	1.6E+04	7.6E+04	5.4E-10
Europium (63)	Eu-159	2.01E+04	3.44E-05	1.16E-06	2.56E-07	6.82E-07	1.03E-06	2.74E-07	1.9E+05	8.6E+05	3.2E+05	2.1E+05	8.0E+05	2.9E-09
Fluorine (9)	F-17	3.39E+05	2.04E-06	4.46E-06	9.42E-07	2.65E-06	4.05E-06	9.32E-07	8.3E+05	3.9E+06	1.4E+06	9.2E+05	4.0E+06	8.1E-11
Fluorine (9)	F-18	3.32E+03	2.09E-04	4.31E-06	9.10E-07	2.56E-06	3.92E-06	8.91E-07	9.4E+03	4.4E+04	1.6E+04	1.0E+04	4.5E+04	9.9E-11
Iron (26)	Fe-52	7.34E+02	9.45E-04	3.07E-06	6.73E-07	1.89E-06	2.83E-06	6.60E-07	2.6E+03	1.2E+04	4.3E+03	2.8E+03	1.2E+04	3.6E-10
Iron (26)	Fe-53	4.28E+04	1.62E-05	5.16E-06	1.09E-06	3.06E-06	4.68E-06	1.08E-06	9.1E+04	4.3E+05	1.5E+05	1.0E+05	4.3E+05	2.2E-10
Iron (26)	Fe-53m	1.44E+05	4.81E-06	1.49E-05	2.76E-06	7.90E-06	1.26E-05	2.66E-06	1.1E+05	5.7E+05	2.0E+05	1.3E+05	5.9E+05	7.5E-11
Iron (26)	Fe-55	2.53E-01	2.74E+00	4.79E-16	1.37E-16	3.59E-16	4.75E-16	1.35E-16	5.8E+09	2.0E+10	7.7E+09	5.8E+09	2.1E+10	2.4E+00
Iron (26)	Fe-59	5.68E+00	1.22E-01	5.81E-06	1.07E-06	3.08E-06	4.93E-06	1.04E-06	1.1E+01	5.8E+01	2.0E+01	1.3E+01	6.0E+01	2.2E-10
Iron (26)	Fe-60	4.62E-07	1.50E+06	1.76E-11	9.27E-12	1.60E-11	1.76E-11	1.77E-11	2.8E+04	5.3E+04	3.0E+04	2.8E+04	2.7E+04	7.0E+00
Iron (26)	Fe-60+D	4.62E-07	1.50E+06	1.24E-05	2.26E-06	6.48E-06	1.04E-05	2.18E-06	3.5E-02	1.9E-01	6.8E-02	4.2E-02	2.0E-01	8.9E-06
Iron (26)	Fe-61	6.09E+04	1.14E-05	6.82E-06	1.26E-06	3.61E-06	5.77E-06	1.23E-06	9.8E+04	5.3E+05	1.8E+05	1.2E+05	5.4E+05	1.9E-10
Iron (26)	Fe-62	3.21E+05	2.16E-06	2.22E-06	4.69E-07	1.32E-06	2.02E-06	4.71E-07	1.6E+06	7.5E+06	2.7E+06	1.7E+06	7.5E+06	5.9E-10
Fermium (100)	Fm-251	1.15E+03	6.05E-04	5.27E-07	1.29E-07	3.47E-07	4.94E-07	1.30E-07	2.4E+04	9.7E+04	3.6E+04	2.5E+04	9.7E+04	1.0E-08
Fermium (100)	Fm-252	2.39E+02	2.90E-03	1.33E-09	2.97E-10	7.34E-10	1.12E-09	6.38E-10	2.0E+06	8.8E+06	3.6E+06	2.3E+06	4.1E+06	4.0E-06
Fermium (100)	Fm-253	8.43E+01	8.22E-03	1.67E-07	4.71E-08	1.23E-07	1.63E-07	5.02E-08	5.5E+03	2.0E+04	7.5E+03	5.6E+03	1.8E+04	3.2E-08
Fermium (100)	Fm-254	1.87E+03	3.70E-04	3.50E-08	6.28E-09	1.79E-08	2.88E-08	6.41E-09	5.9E+05	3.3E+06	1.1E+06	7.1E+05	3.2E+06	1.5E-07
Fermium (100)	Fm-255	3.02E+02	2.29E-03	3.93E-09	1.72E-09	3.31E-09	3.90E-09	4.90E-09	8.4E+05	1.9E+06	1.0E+06	8.5E+05	6.8E+05	1.4E-06
Fermium (100)	Fm-256	2.31E+03	3.00E-04	6.19E-05	1.10E-05	3.16E-05	5.10E-05	1.06E-05	4.1E+02	2.3E+03	8.0E+02	5.0E+02	2.4E+03	8.8E-11
Fermium (100)	Fm-257	2.52E+00	2.75E-01	4.90E-07	1.19E-07	3.21E-07	4.57E-07	1.20E-07	5.6E+01	2.3E+02	8.6E+01	6.0E+01	2.3E+02	1.1E-08
Francium (87)	Fr-212	1.82E+04	3.81E-05	5.25E-06	1.02E-06	2.88E-06	4.53E-06	9.90E-07	3.8E+04	2.0E+05	6.9E+04	4.4E+04	2.0E+05	8.6E-10
Francium (87)	Fr-219	1.09E+09	6.34E-10	1.45E-08	3.23E-09	9.04E-09	1.35E-08	3.18E-09	8.3E+11	3.7E+12	1.3E+12	8.8E+11	3.8E+12	3.2E-07
Francium (87)	Fr-220	7.98E+05	8.69E-07	2.28E-08	7.16E-09	1.76E-08	2.24E-08	7.61E-09	3.8E+08	1.2E+09	5.0E+08	3.9E+08	1.1E+09	2.1E-07
Francium (87)	Fr-220+D	7.98E+05	8.69E-07	2.92E-08	9.10E-09	2.24E-08	2.87E-08	9.62E-09	3.0E+08	9.6E+08	3.9E+08	3.0E+08	9.1E+08	1.6E-07
Francium (87)	Fr-221	7.43E+04	9.32E-06	1.05E-07	2.56E-08	7.06E-08	1.01E-07	2.52E-08	7.8E+06	3.2E+07	1.2E+07	8.1E+06	3.2E+07	4.5E-08
Francium (87)	Fr-221+D	7.43E+04	9.32E-06	1.06E-07	2.58E-08	7.12E-08	1.02E-07	2.55E-08	7.7E+06	3.2E+07	1.1E+07	8.0E+06	3.2E+07	4.4E-08
Francium (87)	Fr-222	2.57E+04	2.70E-05	6.80E-07	1.58E-07	4.35E-07	6.35E-07	1.62E-07	4.1E+05	1.8E+06	6.5E+05	4.4E+05	1.7E+06	6.9E-09
Francium (87)	Fr-223	1.66E+04	4.19E-05	1.35E-07	4.00E-08	9.60E-08	1.30E-07	4.83E-08	1.3E+06	4.5E+06	1.9E+06	1.4E+06	3.8E+06	3.5E-08
Francium (87)	Fr-224	1.09E+05	6.34E-06	2.56E-06	4.97E-07	1.41E-06	2.21E-06	4.92E-07	4.7E+05	2.4E+06	8.5E+05	5.4E+05	2.4E+06	1.9E-09
Francium (87)	Fr-227	1.47E+05	4.70E-06	1.80E-06	3.98E-07	1.09E-06	1.63E-06	4.04E-07	9.0E+05	4.1E+06	1.5E+06	9.9E+05	4.0E+06	2.7E-09
Gallium (31)	Ga-64	1.39E+05	5.00E-06	1.68E-05	2.99E-06	8.61E-06	1.39E-05	2.90E-06	9.0E+04	5.1E+05	1.8E+05	1.1E+05	5.2E+05	8.1E-11
Gallium (31)	Ga-65	2.40E+04	2.89E-05	5.01E-06	1.06E-06	2.97E-06	4.53E-06	1.05E-06	5.2E+04	2.5E+05	8.8E+04	5.8E+04	2.5E+05	2.8E-10
Gallium (31)	Ga-66	6.40E+02	1.08E-03	1.27E-05	2.17E-06	6.26E-06	1.03E-05	2.08E-06	5.5E+02	3.2E+03	1.1E+03	6.8E+02	3.4E+03	1.1E-10
Gallium (31)	Ga-67	7.76E+01	8.93E-03	5.41E-07	1.35E-07	3.66E-07	5.17E-07	1.33E-07	1.6E+03	6.3E+03	2.3E+03	1.6E+03	6.4E+03	2.6E-09
Gallium (31)	Ga-68	5.38E+03	1.29E-04	4.17E-06	8.74E-07	2.47E-06	3.77E-06	8.66E-07	1.4E+04	6.7E+04	2.4E+04	1.6E+04	6.8E+04	3.5E-10
Gallium (31)	Ga-70	1.72E+04	4.02E-05	4.25E-08	9.40E-09	2.47E-08	3.75E-08	1.73E-08	4.4E+06	2.0E+07	7.7E+06	5.0E+06	1.1E+07	3.5E-08
Gallium (31)	Ga-72	4.31E+02	1.61E-03	1.35E-05	2.41E-06	6.93E-06	1.12E-05	2.31E-06	3.5E+02	2.0E+03	6.8E+02	4.2E+02	2.0E+03	1.1E-10
Gallium (31)	Ga-73	1.25E+03	5.55E-04	1.42E-06	3.14E-07	8.84E-07	1.32E-06	3.13E-07	9.6E+03	4.4E+04	1.5E+04	1.0E+04	4.4E+04	1.1E-09
Gallium (31)	Ga-74	4.49E+04	1.54E-05	1.61E-05	2.76E-06	8.03E-06	1.31E-05	2.67E-06	3.0E+04	1.8E+05	6.1E+04	3.8E+04	1.8E+05	9.8E-11

Radionuclides		Slope Factors and Isotope-specific Information							Carcinogenic Target Risk (TR) = 1E-06					
Element (Atomic Number)	Isotope	Lambda (yr^{-1})	Halflife (years)	External Exposure Slope Factor (risk/yr per pCi/g)	External Exposure Slope Factor (1 cm) (risk/yr per pCi/g)	External Exposure Slope Factor (5 cm) (risk/yr per pCi/g)	External Exposure Slope Factor (15 cm) (risk/yr per pCi/g)	Ground Plane External Exposure Slope Factor (risk/yr per pCi/cm^2)	Soil Volume PRG (pCi/g)	Soil Volume @ 1cm PRG (pCi/g)	Soil Volume @ 5cm PRG (pCi/g)	Soil Volume @ 15cm PRG (pCi/g)	Ground Plane PRG (pCi/cm^2)	Soil Volume PRG (mg/kg)
Actinium (89)	Ac-223	1.73E+05	4.00E-06	6.12E-08	1.49E-08	4.05E-08	5.79E-08	1.49E-08	3.1E+07	1.3E+08	4.7E+07	3.3E+07	1.3E+08	7.7E-08
Gadolinium (64)	Gd-142	3.11E+05	2.23E-06	4.69E-06	9.47E-07	2.67E-06	4.15E-06	9.34E-07	7.3E+05	3.6E+06	1.3E+06	8.2E+05	3.6E+06	6.4E-10
Gadolinium (64)	Gd-143m	1.99E+05	3.49E-06	9.63E-06	1.92E-06	5.44E-06	8.47E-06	1.89E-06	2.3E+05	1.1E+06	4.0E+05	2.6E+05	1.2E+06	3.2E-10
Gadolinium (64)	Gd-144	8.15E+04	8.50E-06	4.24E-06	8.09E-07	2.30E-06	3.63E-06	7.96E-07	2.1E+05	1.1E+06	3.9E+05	2.5E+05	1.1E+06	7.2E-10
Gadolinium (64)	Gd-145	1.58E+04	4.38E-05	1.23E-05	2.11E-06	6.13E-06	1.00E-05	2.04E-06	1.4E+04	8.2E+04	2.8E+04	1.7E+04	8.5E+04	2.5E-10
Gadolinium (64)	Gd-145m	2.57E+05	2.70E-06	3.07E-06	6.24E-07	1.76E-06	2.73E-06	6.13E-07	9.2E+05	4.5E+06	1.6E+06	1.0E+06	4.6E+06	1.0E-09
Gadolinium (64)	Gd-146	5.24E+00	1.32E-01	5.64E-07	1.78E-07	4.30E-07	5.58E-07	2.01E-07	1.0E+02	3.2E+02	1.3E+02	1.0E+02	2.9E+02	5.5E-09
Gadolinium (64)	Gd-147	1.59E+02	4.35E-03	6.18E-06	1.26E-06	3.55E-06	5.48E-06	1.24E-06	2.8E+02	1.4E+03	4.9E+02	3.2E+02	1.4E+03	5.1E-10
Gadolinium (64)	Gd-148	9.29E-03	7.46E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	.	.	.	.	.	.
Gadolinium (64)	Gd-149	2.73E+01	2.54E-02	2.04E-06	4.56E-07	1.26E-06	1.87E-06	4.60E-07	1.5E+02	6.5E+02	2.4E+02	1.6E+02	6.5E+02	1.5E-09
Gadolinium (64)	Gd-150	3.87E-07	1.79E+06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	.	.	.	.	.	.
Gadolinium (64)	Gd-151	2.04E+00	3.40E-01	1.41E-07	4.39E-08	1.02E-07	1.38E-07	5.43E-08	1.6E+02	5.1E+02	2.2E+02	1.6E+02	4.1E+02	2.3E-08
Gadolinium (64)	Gd-152	6.42E-15	1.08E+14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	.	.	.	.	.	.
Gadolinium (64)	Gd-153	1.05E+00	6.59E-01	1.61E-07	6.33E-08	1.35E-07	1.61E-07	8.07E-08	7.2E+01	1.8E+02	8.6E+01	7.2E+01	1.4E+02	2.0E-08
Gadolinium (64)	Gd-159	3.29E+02	2.11E-03	1.90E-07	4.52E-08	1.21E-07	1.77E-07	4.92E-08	1.9E+04	8.0E+04	3.0E+04	2.0E+04	7.3E+04	1.8E-08
Gadolinium (64)	Gd-162	4.34E+04	1.60E-05	1.75E-06	3.81E-07	1.07E-06	1.62E-06	3.76E-07	2.7E+05	1.2E+06	4.4E+05	2.9E+05	1.3E+06	2.0E-09
Germanium (32)	Ge-66	2.69E+03	2.58E-04	2.83E-06	6.05E-07	1.70E-06	2.57E-06	5.98E-07	1.0E+04	4.9E+04	1.7E+04	1.1E+04	4.9E+04	5.0E-10
Germanium (32)	Ge-67	1.93E+04	3.60E-05	6.32E-06	1.30E-06	3.68E-06	5.65E-06	1.28E-06	3.3E+04	1.6E+05	5.7E+04	3.7E+04	1.6E+05	2.3E-10
Germanium (32)	Ge-68	9.34E-01	7.42E-01	4.05E-13	4.05E-13	4.05E-13	4.05E-13	1.47E-11	2.5E+07	2.5E+07	2.5E+07	2.5E+07	6.9E+05	3.6E-03
Germanium (32)	Ge-68+D	9.34E-01	7.42E-01	4.17E-06	8.74E-07	2.47E-06	3.77E-06	8.66E-07	2.5E+00	1.2E+01	4.1E+00	2.7E+00	1.2E+01	3.5E-10
Germanium (32)	Ge-69	1.55E+02	4.46E-03	4.44E-06	8.63E-07	2.45E-06	3.86E-06	8.41E-07	3.8E+02	2.0E+03	7.0E+02	4.4E+02	2.0E+03	3.3E-10
Germanium (32)	Ge-71	2.21E+01	3.13E-02	4.11E-13	4.11E-13	4.11E-13	4.11E-13	1.49E-11	5.9E+08	5.9E+08	5.9E+08	5.9E+08	1.6E+07	3.7E-03
Germanium (32)	Ge-75	4.40E+03	1.57E-04	1.41E-07	3.29E-08	9.17E-08	1.34E-07	3.64E-08	3.4E+05	1.5E+06	5.3E+05	3.6E+05	1.3E+06	1.1E-08
Germanium (32)	Ge-77	5.37E+02	1.29E-03	4.80E-06	9.81E-07	2.78E-06	4.27E-06	9.61E-07	1.2E+03	6.0E+03	2.1E+03	1.4E+03	6.1E+03	3.4E-10
Germanium (32)	Ge-78	4.14E+03	1.67E-04	1.10E-06	2.52E-07	7.10E-07	1.05E-06	2.45E-07	4.1E+04	1.8E+05	6.4E+04	4.3E+04	1.8E+05	1.5E-09
Hydrogen (1)	H-3	5.63E-02	1.23E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	.	.	.	.	.	.
Hafnium (72)	Hf-167	1.78E+05	3.90E-06	2.53E-06	5.59E-07	1.55E-06	2.34E-06	5.57E-07	7.7E+05	3.5E+06	1.3E+06	8.3E+05	3.5E+06	1.4E-09
Hafnium (72)	Hf-169	1.12E+05	6.16E-06	2.62E-06	5.74E-07	1.59E-06	2.39E-06	5.72E-07	4.7E+05	2.1E+06	7.8E+05	5.1E+05	2.2E+06	1.4E-09
Hafnium (72)	Hf-170	3.79E+02	1.83E-03	1.62E-06	3.76E-07	1.01E-06	1.49E-06	3.81E-07	2.6E+03	1.1E+04	4.1E+03	2.8E+03	1.1E+04	2.2E-09
Hafnium (72)	Hf-172	3.71E-01	1.87E+00	1.51E-07	6.33E-08	1.30E-07	1.51E-07	7.87E-08	2.7E+01	6.4E+01	3.1E+01	2.7E+01	5.2E+01	2.4E-08
Hafnium (72)	Hf-172+D	3.71E-01	1.87E+00	1.51E-07	6.33E-08	1.30E-07	1.51E-07	7.87E-08	2.7E+01	6.4E+01	3.1E+01	2.7E+01	5.2E+01	2.4E-08
Hafnium (72)	Hf-173	2.57E+02	2.69E-03	1.30E-06	3.31E-07	8.74E-07	1.24E-06	3.36E-07	2.2E+03	8.5E+03	3.2E+03	2.3E+03	8.4E+03	2.8E-09
Hafnium (72)	Hf-174	3.47E-16	2.00E+15	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	.	.	.	.	.	.
Hafnium (72)	Hf-175	3.61E+00	1.92E-01	1.28E-06	3.05E-07	8.24E-07	1.20E-06	3.07E-07	3.1E+01	1.3E+02	4.8E+01	3.3E+01	1.3E+02	2.9E-09
Hafnium (72)	Hf-177m	7.09E+03	9.78E-05	8.72E-06	2.02E-06	5.60E-06	8.21E-06	2.00E-06	8.9E+03	3.8E+04	1.4E+04	9.5E+03	3.9E+04	4.3E-10
Hafnium (72)	Hf-178m	2.24E-02	3.10E+01	9.08E-06	2.02E-06	5.62E-06	8.41E-06	1.98E-06	6.3E-02	2.8E-01	1.0E-01	6.8E-02	2.9E-01	9.7E-10
Hafnium (72)	Hf-179m	1.01E+01	6.86E-02	3.49E-06	8.09E-07	2.22E-06	3.27E-06	8.04E-07	3.2E+01	1.4E+02	5.0E+01	3.4E+01	1.4E+02	1.1E-09
Hafnium (72)	Hf-180m	1.10E+03	6.28E-04	3.89E-06	8.82E-07	2.45E-06	3.62E-06	8.71E-07	3.1E+03	1.4E+04	4.9E+03	3.3E+03	1.4E+04	9.8E-10
Hafnium (72)	Hf-181	5.97E+00	1.16E-01	2.14E-06	4.78E-07	1.32E-06	1.97E-06	4.72E-07	3.1E+01	1.4E+02	4.9E+01	3.3E+01	1.4E+02	1.8E-09
Hafnium (72)	Hf-182	7.70E-08	9.00E+06	9.10E-07	2.13E-07	5.94E-07	8.65E-07	2.09E-07	4.8E-01	2.1E+00	7.4E-01	5.1E-01	2.1E+00	2.2E-03
Hafnium (72)	Hf-182+D	7.70E-08	9.00E+06	6.94E-06	1.37E-06	3.85E-06	6.00E-06	1.33E-06	6.3E-02	3.2E-01	1.1E-01	7.3E-02	3.3E-01	2.9E-04
Hafnium (72)	Hf-182m	5.92E+03	1.17E-04	3.71E-06	8.11E-07	2.24E-06	3.39E-06	8.03E-07	1.7E+04	8.0E+04	2.9E+04	1.9E+04	8.1E+04	1.0E-09
Hafnium (72)	Hf-183	5.69E+03	1.22E-04	3.41E-06	7.01E-07	1.96E-06	3.02E-06	6.94E-07	1.8E+04	8.9E+04	3.2E+04	2.1E+04	9.0E+04	1.1E-09
Hafnium (72)	Hf-184	1.47E+03	4.70E-04	8.08E-07	2.00E-07	5.40E-07	7.71E-07	2.03E-07	2.0E+04	8.1E+04	3.0E+04	2.1E+04	7.9E+04	4.8E-09
Mercury (80)	Hg-190	1.82E+04	3.81E-05	5.30E-07	1.58E-07	3.98E-07	5.21E-07	1.63E-07	3.8E+05	1.3E+06	5.0E+05	3.8E+05	1.2E+06	7.6E-09
Mercury (80)	Hg-191m	7.17E+03	9.67E-05	6.56E-06	1.33E-06	3.76E-06	5.78E-06	1.30E-06	1.2E+04	5.9E+04	2.1E+04	1.4E+04	6.1E+04	6.2E-10
Mercury (80)	Hg-192	1.25E+03	5.54E-04	8.73E-07	2.26E-07	5.98E-07	8.37E-07	2.30E-07	1.6E+04	6.1E+04	2.3E+04	1.6E+04	6.0E+04	4.7E-09
Mercury (80)	Hg-193	1.60E+03	4.34E-04	3.75E-06	7.36E-07	2.07E-06	3.23E-06	7.22E-07	4.7E+03	2.4E+04	8.4E+03	5.4E+03	2.4E+04	1.1E-09
Mercury (80)	Hg-193+D	1.60E+03	4.34E-04	3.77E-06	7.42E-07	2.09E-06	3.26E-06	7.27E-07	4.6E+03	2.4E+04	8.4E+03	5.4E+03	2.4E+04	1.1E-09
Mercury (80)	Hg-193m	5.14E+02	1.35E-03	4.64E-06	9.14E-07	2.58E-06	4.03E-06	8.93E-07	1.2E+03	6.2E+03	2.2E+03	1.4E+03	6.3E+03	8.8E-10

Radionuclides		Slope Factors and Isotope-specific Information							Carcinogenic Target Risk (TR) = 1E-06					
Element (Atomic Number)	Isotope	Lambda (yr^{-1})	Halflife (years)	External Exposure Slope Factor (risk/yr per pCi/g)	External Exposure Slope Factor (1 cm) (risk/yr per pCi/g)	External Exposure Slope Factor (5 cm) (risk/yr per pCi/g)	External Exposure Slope Factor (15 cm) (risk/yr per pCi/g)	Ground Plane External Exposure Slope Factor (risk/yr per pCi/cm^2)	Soil Volume PRG (pCi/g)	Soil Volume @ 1cm PRG (pCi/g)	Soil Volume @ 5cm PRG (pCi/g)	Soil Volume @ 15cm PRG (pCi/g)	Ground Plane PRG (pCi/cm^2)	Soil Volume PRG (mg/kg)
Actinium (89)	Ac-223	1.73E+05	4.00E-06	6.12E-08	1.49E-08	4.05E-08	5.79E-08	1.49E-08	3.1E+07	1.3E+08	4.7E+07	3.3E+07	1.3E+08	7.7E-08
Mercury (80)	Hg-194	1.58E-03	4.40E+02	3.61E-12	3.61E-12	3.61E-12	3.61E-12	8.59E-11	1.2E+05	1.2E+05	1.2E+05	1.2E+05	5.2E+03	3.0E-02
Mercury (80)	Hg-194+D	1.58E-03	4.40E+02	4.79E-06	9.15E-07	2.60E-06	4.10E-06	8.91E-07	9.3E-02	4.9E-01	1.7E-01	1.1E-01	5.0E-01	2.2E-08
Mercury (80)	Hg-195	5.77E+02	1.20E-03	7.19E-07	1.66E-07	4.37E-07	6.45E-07	1.68E-07	8.8E+03	3.8E+04	1.4E+04	9.8E+03	3.8E+04	5.8E-09
Mercury (80)	Hg-195m	1.46E+02	4.75E-03	7.29E-07	1.71E-07	4.63E-07	6.77E-07	1.72E-07	2.2E+03	9.3E+03	3.4E+03	2.4E+03	9.3E+03	5.7E-09
Mercury (80)	Hg-197	9.35E+01	7.41E-03	1.21E-07	4.89E-08	1.06E-07	1.21E-07	5.53E-08	8.4E+03	2.1E+04	9.7E+03	8.4E+03	1.8E+04	3.4E-08
Mercury (80)	Hg-197m	2.55E+02	2.72E-03	2.60E-07	7.57E-08	1.92E-07	2.55E-07	7.75E-08	1.1E+04	3.7E+04	1.5E+04	1.1E+04	3.6E+04	1.6E-08
Mercury (80)	Hg-199m	8.54E+03	8.12E-05	5.69E-07	1.51E-07	3.98E-07	5.48E-07	1.53E-07	1.6E+05	6.2E+05	2.3E+05	1.7E+05	6.1E+05	7.4E-09
Mercury (80)	Hg-203	5.43E+00	1.28E-01	9.20E-07	2.13E-07	5.96E-07	8.73E-07	2.08E-07	6.5E+01	2.8E+02	1.0E+02	6.8E+01	2.9E+02	4.7E-09
Mercury (80)	Hg-205	7.00E+04	9.89E-06	2.46E-08	6.61E-09	1.68E-08	2.36E-08	1.30E-08	3.1E+07	1.2E+08	4.6E+07	3.3E+07	5.9E+07	1.8E-07
Mercury (80)	Hg-206	4.47E+04	1.55E-05	4.83E-07	1.10E-07	3.06E-07	4.52E-07	1.12E-07	1.0E+06	4.5E+06	1.6E+06	1.1E+06	4.4E+06	9.1E-09
Mercury (80)	Hg-207	1.26E+05	5.52E-06	1.32E-05	2.37E-06	6.84E-06	1.10E-05	2.29E-06	1.0E+05	5.8E+05	2.0E+05	1.3E+05	6.0E+05	3.3E-10
Holmium (67)	Ho-150	2.85E+05	2.44E-06	8.57E-06	1.76E-06	4.95E-06	7.65E-06	1.73E-06	3.6E+05	1.8E+06	6.3E+05	4.1E+05	1.8E+06	3.7E-10
Holmium (67)	Ho-153	1.81E+05	3.82E-06	4.44E-06	9.30E-07	2.62E-06	3.99E-06	9.20E-07	4.5E+05	2.1E+06	7.6E+05	5.0E+05	2.2E+06	7.3E-10
Holmium (67)	Ho-153m	3.92E+04	1.77E-05	4.47E-06	9.60E-07	2.67E-06	4.06E-06	9.54E-07	9.6E+04	4.5E+05	1.6E+05	1.1E+05	4.5E+05	7.3E-10
Holmium (67)	Ho-154	3.10E+04	2.24E-05	8.48E-06	1.72E-06	4.86E-06	7.52E-06	1.69E-06	4.0E+04	2.0E+05	7.0E+04	4.5E+04	2.0E+05	3.9E-10
Holmium (67)	Ho-154m	1.17E+05	5.90E-06	1.06E-05	2.22E-06	6.26E-06	9.59E-06	2.18E-06	1.2E+05	5.8E+05	2.1E+05	1.3E+05	5.9E+05	3.1E-10
Holmium (67)	Ho-155	7.59E+03	9.13E-05	2.57E-06	5.36E-07	1.49E-06	2.29E-06	5.36E-07	3.2E+04	1.5E+05	5.6E+04	3.6E+04	1.6E+05	1.3E-09
Holmium (67)	Ho-156	6.50E+03	1.07E-04	9.73E-06	1.89E-06	5.34E-06	8.38E-06	1.84E-06	7.3E+03	3.8E+04	1.3E+04	8.5E+03	3.9E+04	3.4E-10
Holmium (67)	Ho-157	2.89E+04	2.40E-05	2.25E-06	4.97E-07	1.36E-06	2.04E-06	5.04E-07	1.4E+05	6.4E+05	2.3E+05	1.5E+05	6.3E+05	1.5E-09
Holmium (67)	Ho-159	1.10E+04	6.29E-05	1.25E-06	3.10E-07	8.15E-07	1.16E-06	3.25E-07	9.7E+04	3.9E+05	1.5E+05	1.0E+05	3.7E+05	2.7E-09
Holmium (67)	Ho-160	1.42E+04	4.87E-05	7.65E-06	1.53E-06	4.30E-06	6.70E-06	1.51E-06	2.0E+04	1.0E+05	3.6E+04	2.3E+04	1.0E+05	4.4E-10
Holmium (67)	Ho-161	2.45E+03	2.83E-04	5.41E-08	2.71E-08	4.82E-08	5.37E-08	4.09E-08	5.0E+05	9.9E+05	5.6E+05	5.0E+05	6.6E+05	6.3E-08
Holmium (67)	Ho-162	2.43E+04	2.85E-05	5.86E-07	1.28E-07	3.38E-07	5.11E-07	1.37E-07	4.5E+05	2.1E+06	7.9E+05	5.2E+05	1.9E+06	5.9E-09
Holmium (67)	Ho-162m	5.44E+03	1.27E-04	2.41E-06	4.84E-07	1.35E-06	2.09E-06	4.83E-07	2.5E+04	1.2E+05	4.4E+04	2.8E+04	1.2E+05	1.4E-09
Holmium (67)	Ho-163	1.52E-04	4.57E+03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	.	.	.	.	.	.
Holmium (67)	Ho-164	1.26E+04	5.52E-05	2.77E-08	1.51E-08	2.60E-08	2.77E-08	2.30E-08	5.0E+06	9.1E+06	5.3E+06	5.0E+06	6.0E+06	1.3E-07
Holmium (67)	Ho-164m	9.59E+03	7.23E-05	3.61E-08	2.17E-08	3.51E-08	3.61E-08	3.29E-08	2.9E+06	4.8E+06	3.0E+06	2.9E+06	3.2E+06	9.7E-08
Holmium (67)	Ho-166	2.27E+02	3.06E-03	1.20E-07	2.67E-08	6.89E-08	1.03E-07	3.58E-08	2.1E+04	9.3E+04	3.6E+04	2.4E+04	6.9E+04	2.9E-08
Holmium (67)	Ho-166m	5.78E-04	1.20E+03	7.15E-06	1.48E-06	4.15E-06	6.39E-06	1.45E-06	6.2E-02	3.0E-01	1.1E-01	6.9E-02	3.0E-01	3.4E-08
Holmium (67)	Ho-167	1.96E+03	3.54E-04	1.45E-06	3.29E-07	9.15E-07	1.35E-06	3.25E-07	1.5E+04	6.5E+04	2.3E+04	1.6E+04	6.6E+04	2.5E-09
Holmium (67)	Ho-168	1.22E+05	5.69E-06	4.03E-06	8.01E-07	2.26E-06	3.54E-06	7.92E-07	3.3E+05	1.7E+06	5.9E+05	3.8E+05	1.7E+06	8.9E-10
Holmium (67)	Ho-168m	1.66E+05	4.19E-06	5.11E-09	3.08E-09	4.99E-09	5.11E-09	4.64E-09	3.5E+08	5.9E+08	3.6E+08	3.5E+08	3.9E+08	7.0E-07
Holmium (67)	Ho-170	1.32E+05	5.25E-06	7.78E-06	1.54E-06	4.35E-06	6.80E-06	1.52E-06	1.9E+05	9.4E+05	3.3E+05	2.1E+05	9.5E+05	4.6E-10
Iodine (53)	I-118	2.66E+04	2.61E-05	9.25E-06	1.87E-06	5.29E-06	8.20E-06	1.83E-06	3.1E+04	1.6E+05	5.5E+04	3.6E+04	1.6E+05	2.7E-10
Iodine (53)	I-118m	4.29E+04	1.62E-05	1.72E-05	3.44E-06	9.73E-06	1.52E-05	3.36E-06	2.7E+04	1.4E+05	4.8E+04	3.1E+04	1.4E+05	1.5E-10
Iodine (53)	I-119	1.91E+04	3.63E-05	3.86E-06	8.26E-07	2.32E-06	3.53E-06	8.17E-07	5.4E+04	2.5E+05	9.0E+04	5.9E+04	2.6E+05	6.5E-10
Iodine (53)	I-120	4.46E+03	1.55E-04	1.30E-05	2.37E-06	6.80E-06	1.09E-05	2.30E-06	3.8E+03	2.1E+04	7.2E+03	4.5E+03	2.1E+04	2.0E-10
Iodine (53)	I-120m	6.87E+03	1.01E-04	1.65E-05	3.19E-06	9.10E-06	1.42E-05	3.12E-06	4.6E+03	2.4E+04	8.3E+03	5.3E+03	2.4E+04	1.5E-10
Iodine (53)	I-121	2.86E+03	2.42E-04	1.55E-06	3.46E-07	9.64E-07	1.44E-06	3.46E-07	2.0E+04	9.1E+04	3.3E+04	2.2E+04	9.1E+04	1.7E-09
Iodine (53)	I-122	1.00E+05	6.91E-06	4.25E-06	8.89E-07	2.50E-06	3.84E-06	8.83E-07	2.6E+05	1.2E+06	4.4E+05	2.9E+05	1.2E+06	6.1E-10
Iodine (53)	I-123	4.57E+02	1.51E-03	5.14E-07	1.33E-07	3.57E-07	4.99E-07	1.40E-07	9.8E+03	3.8E+04	1.4E+04	1.0E+04	3.6E+04	5.1E-09
Iodine (53)	I-124	6.06E+01	1.14E-02	5.16E-06	9.96E-07	2.84E-06	4.47E-06	9.77E-07	1.3E+02	6.7E+02	2.3E+02	1.5E+02	6.8E+02	5.1E-10
Iodine (53)	I-125	4.26E+00	1.63E-01	7.27E-09	6.74E-09	7.27E-09	7.27E-09	2.29E-08	6.4E+03	6.9E+03	6.4E+03	6.4E+03	2.0E+03	3.7E-07
Iodine (53)	I-126	1.96E+01	3.54E-02	1.88E-06	3.92E-07	1.10E-06	1.69E-06	3.88E-07	1.1E+02	5.5E+02	1.9E+02	1.3E+02	5.5E+02	1.4E-09
Iodine (53)	I-128	1.46E+04	4.75E-05	2.97E-07	6.50E-08	1.80E-07	2.72E-07	7.33E-08	5.4E+05	2.5E+06	8.9E+05	5.9E+05	2.2E+06	9.2E-09
Iodine (53)	I-129	4.41E-08	1.57E+07	6.18E-09	5.32E-09	6.15E-09	6.18E-09	1.48E-08	7.1E+01	8.2E+01	7.1E+01	7.1E+01	3.0E+01	4.0E-01
Iodine (53)	I-130	4.91E+02	1.41E-03	9.66E-06	1.96E-06	5.55E-06	8.61E-06	1.91E-06	5.6E+02	2.7E+03	9.7E+02	6.2E+02	2.8E+03	2.9E-10
Iodine (53)	I-130m	4.12E+04	1.68E-05	4.73E-07	9.71E-08	2.73E-07	4.22E-07	9.87E-08	9.5E+05	4.6E+06	1.7E+06	1.1E+06	4.6E+06	5.8E-09
Iodine (53)	I-131	3.15E+01	2.20E-02	1.60E-06	3.49E-07	9.81E-07	1.48E-06	3.42E-07	2.2E+02	9.9E+02	3.5E+02	2.3E+02	1.0E+03	1.7E-09

Radionuclides		Slope Factors and Isotope-specific Information							Carcinogenic Target Risk (TR) = 1E-06					
Element (Atomic Number)	Isotope	Lambda (yr^{-1})	Halflife (years)	External Exposure Slope Factor (risk/yr per pCi/g)	External Exposure Slope Factor (1 cm) (risk/yr per pCi/g)	External Exposure Slope Factor (5 cm) (risk/yr per pCi/g)	External Exposure Slope Factor (15 cm) (risk/yr per pCi/g)	Ground Plane External Exposure Slope Factor (risk/yr per pCi/cm^2)	Soil Volume PRG (pCi/g)	Soil Volume @ 1cm PRG (pCi/g)	Soil Volume @ 5cm PRG (pCi/g)	Soil Volume @ 15cm PRG (pCi/g)	Ground Plane PRG (pCi/cm^2)	Soil Volume PRG (mg/kg)
Actinium (89)	Ac-223	1.73E+05	4.00E-06	6.12E-08	1.49E-08	4.05E-08	5.79E-08	1.49E-08	3.1E+07	1.3E+08	4.7E+07	3.3E+07	1.3E+08	7.7E-08
Iodine (53)	I-132	2.65E+03	2.62E-04	1.05E-05	2.07E-06	5.88E-06	9.21E-06	2.02E-06	2.8E+03	1.4E+04	4.9E+03	3.1E+03	1.4E+04	2.7E-10
Iodine (53)	I-132m	4.38E+03	1.58E-04	1.48E-06	3.05E-07	8.56E-07	1.32E-06	3.01E-07	3.2E+04	1.6E+05	5.6E+04	3.6E+04	1.6E+05	1.9E-09
Iodine (53)	I-133	2.92E+02	2.37E-03	2.73E-06	5.62E-07	1.59E-06	2.45E-06	5.53E-07	1.2E+03	5.7E+03	2.0E+03	1.3E+03	5.8E+03	1.0E-09
Iodine (53)	I-134	6.94E+03	9.99E-05	1.23E-05	2.37E-06	6.73E-06	1.06E-05	2.30E-06	6.2E+03	3.2E+04	1.1E+04	7.1E+03	3.3E+04	2.3E-10
Iodine (53)	I-134m	1.01E+05	6.85E-06	1.06E-06	2.43E-07	6.73E-07	9.97E-07	2.46E-07	1.0E+06	4.6E+06	1.6E+06	1.1E+06	4.5E+06	2.7E-09
Iodine (53)	I-135	9.24E+02	7.50E-04	7.86E-06	1.42E-06	4.09E-06	6.57E-06	1.38E-06	1.3E+03	7.1E+03	2.5E+03	1.5E+03	7.3E+03	3.7E-10
Indium (49)	In-103	3.64E+05	1.90E-06	1.31E-05	2.48E-06	7.08E-06	1.12E-05	2.42E-06	3.0E+05	1.6E+06	5.6E+05	3.6E+05	1.7E+06	1.7E-10
Indium (49)	In-105	7.18E+04	9.65E-06	8.90E-06	1.75E-06	4.97E-06	7.75E-06	1.70E-06	8.8E+04	4.5E+05	1.6E+05	1.0E+05	4.6E+05	2.5E-10
Indium (49)	In-106	5.87E+04	1.18E-05	1.63E-05	3.27E-06	9.23E-06	1.44E-05	3.19E-06	3.9E+04	2.0E+05	7.0E+04	4.5E+04	2.0E+05	1.4E-10
Indium (49)	In-106m	7.00E+04	9.89E-06	1.37E-05	2.54E-06	7.27E-06	1.16E-05	2.46E-06	5.6E+04	3.0E+05	1.1E+05	6.6E+04	3.1E+05	1.6E-10
Indium (49)	In-107	1.12E+04	6.16E-05	7.25E-06	1.36E-06	3.89E-06	6.18E-06	1.32E-06	1.7E+04	9.0E+04	3.2E+04	2.0E+04	9.3E+04	3.1E-10
Indium (49)	In-108	6.28E+03	1.10E-04	1.84E-05	3.55E-06	1.01E-05	1.60E-05	3.44E-06	3.7E+03	1.9E+04	6.8E+03	4.3E+03	2.0E+04	1.2E-10
Indium (49)	In-108m	9.20E+03	7.53E-05	1.39E-05	2.41E-06	6.99E-06	1.13E-05	2.32E-06	7.2E+03	4.2E+04	1.4E+04	8.9E+03	4.3E+04	1.7E-10
Indium (49)	In-109	1.45E+03	4.79E-04	2.79E-06	5.66E-07	1.60E-06	2.46E-06	5.56E-07	5.7E+03	2.8E+04	9.9E+03	6.4E+03	2.8E+04	8.3E-10
Indium (49)	In-109m	2.72E+05	2.55E-06	2.74E-06	5.59E-07	1.58E-06	2.45E-06	5.48E-07	1.1E+06	5.3E+06	1.9E+06	1.2E+06	5.4E+06	8.4E-10
Indium (49)	In-110	1.24E+03	5.59E-04	1.44E-05	2.82E-06	8.00E-06	1.25E-05	2.76E-06	9.4E+02	4.8E+03	1.7E+03	1.1E+03	4.9E+03	1.6E-10
Indium (49)	In-110m	5.27E+03	1.31E-04	7.25E-06	1.43E-06	4.07E-06	6.35E-06	1.40E-06	8.0E+03	4.0E+04	1.4E+04	9.1E+03	4.1E+04	3.2E-10
Indium (49)	In-111	9.02E+01	7.68E-03	1.42E-06	3.46E-07	9.57E-07	1.38E-06	3.43E-07	6.9E+02	2.9E+03	1.0E+03	7.2E+02	2.9E+03	1.7E-09
Indium (49)	In-111m	4.73E+04	1.46E-05	2.06E-06	4.32E-07	1.21E-06	1.87E-06	4.24E-07	2.5E+05	1.2E+06	4.3E+05	2.8E+05	1.2E+06	1.1E-09
Indium (49)	In-112	2.43E+04	2.85E-05	1.15E-06	2.41E-07	6.80E-07	1.04E-06	2.41E-07	2.3E+05	1.1E+06	3.9E+05	2.6E+05	1.1E+06	2.1E-09
Indium (49)	In-112m	1.77E+04	3.91E-05	6.91E-08	1.92E-08	4.95E-08	6.78E-08	2.36E-08	2.8E+06	1.0E+07	3.9E+06	2.9E+06	8.2E+06	3.4E-08
Indium (49)	In-113m	3.66E+03	1.89E-04	1.07E-06	2.34E-07	6.56E-07	9.88E-07	2.30E-07	3.8E+04	1.7E+05	6.1E+04	4.1E+04	1.7E+05	2.3E-09
Indium (49)	In-114	3.04E+05	2.28E-06	2.35E-08	6.17E-09	1.46E-08	2.11E-08	1.56E-08	1.4E+08	5.4E+08	2.3E+08	1.6E+08	2.1E+08	1.0E-07
Indium (49)	In-114m	5.11E+00	1.36E-01	2.94E-07	6.52E-08	1.82E-07	2.71E-07	6.69E-08	1.9E+02	8.6E+02	3.1E+02	2.1E+02	8.4E+02	8.2E-09
Indium (49)	In-114m+D	5.11E+00	1.36E-01	3.16E-07	7.12E-08	1.96E-07	2.92E-07	8.21E-08	1.8E+02	7.9E+02	2.9E+02	1.9E+02	6.8E+02	7.7E-09
Indium (49)	In-115	1.57E-15	4.41E+14	2.74E-10	9.90E-11	2.19E-10	2.72E-10	1.58E-10	1.8E+03	4.9E+03	2.2E+03	1.8E+03	3.1E+03	2.5E+08
Indium (49)	In-115m	1.35E+03	5.12E-04	6.33E-07	1.41E-07	3.96E-07	5.92E-07	1.41E-07	2.3E+04	1.0E+05	3.7E+04	2.5E+04	1.0E+05	3.9E-09
Indium (49)	In-116m	6.69E+03	1.04E-04	1.23E-05	2.22E-06	6.37E-06	1.02E-05	2.14E-06	6.0E+03	3.3E+04	1.2E+04	7.2E+03	3.4E+04	2.0E-10
Indium (49)	In-117	8.43E+03	8.22E-05	2.91E-06	6.30E-07	1.76E-06	2.66E-06	6.18E-07	3.2E+04	1.5E+05	5.2E+04	3.5E+04	1.5E+05	8.6E-10
Indium (49)	In-117m	3.13E+03	2.21E-04	3.35E-07	7.90E-08	2.19E-07	3.19E-07	8.34E-08	1.0E+05	4.3E+05	1.6E+05	1.1E+05	4.1E+05	7.4E-09
Indium (49)	In-118	4.37E+06	1.59E-07	4.67E-07	9.30E-08	2.54E-07	3.99E-07	1.04E-07	1.0E+08	5.1E+08	1.9E+08	1.2E+08	4.6E+08	5.4E-09
Indium (49)	In-118m	8.35E+04	8.30E-06	1.34E-05	2.52E-06	7.19E-06	1.15E-05	2.45E-06	6.8E+04	3.6E+05	1.3E+05	8.0E+04	3.7E+05	1.9E-10
Indium (49)	In-119	1.52E+05	4.57E-06	3.54E-06	7.08E-07	2.00E-06	3.12E-06	6.98E-07	4.7E+05	2.3E+06	8.3E+05	5.3E+05	2.4E+06	7.1E-10
Indium (49)	In-119m	2.02E+04	3.42E-05	3.30E-07	6.56E-08	1.82E-07	2.85E-07	7.53E-08	6.7E+05	3.4E+06	1.2E+06	7.8E+05	2.9E+06	7.7E-09
Indium (49)	In-121	9.46E+05	7.32E-07	4.38E-06	8.56E-07	2.41E-06	3.81E-06	8.42E-07	2.4E+06	1.2E+07	4.3E+06	2.7E+06	1.2E+07	5.9E-10
Indium (49)	In-121m	9.39E+04	7.38E-06	2.76E-07	6.11E-08	1.56E-07	2.37E-07	7.82E-08	3.7E+06	1.7E+07	6.6E+06	4.3E+06	1.3E+07	9.3E-09
Iridium (77)	Ir-180	2.43E+05	2.85E-06	6.96E-06	1.46E-06	4.09E-06	6.27E-06	1.44E-06	3.8E+05	1.8E+06	6.5E+05	4.2E+05	1.9E+06	5.5E-10
Iridium (77)	Ir-182	2.43E+04	2.85E-05	6.15E-06	1.28E-06	3.61E-06	5.51E-06	1.26E-06	4.3E+04	2.1E+05	7.4E+04	4.8E+04	2.1E+05	6.3E-10
Iridium (77)	Ir-183	6.28E+03	1.10E-04	5.44E-06	1.04E-06	2.95E-06	4.64E-06	1.02E-06	1.3E+04	6.6E+04	2.3E+04	1.5E+04	6.7E+04	7.1E-10
Iridium (77)	Ir-184	1.96E+03	3.53E-04	8.92E-06	1.75E-06	4.97E-06	7.74E-06	1.72E-06	2.4E+03	1.2E+04	4.3E+03	2.8E+03	1.3E+04	4.4E-10
Iridium (77)	Ir-185	4.22E+02	1.64E-03	3.92E-06	7.38E-07	2.09E-06	3.29E-06	7.23E-07	1.2E+03	6.3E+03	2.2E+03	1.4E+03	6.4E+03	1.0E-09
Iridium (77)	Ir-186	3.65E+02	1.90E-03	7.52E-06	1.48E-06	4.18E-06	6.52E-06	1.45E-06	5.3E+02	2.7E+03	9.5E+02	6.1E+02	2.8E+03	5.3E-10
Iridium (77)	Ir-186m	3.16E+03	2.19E-04	5.84E-06	1.11E-06	3.16E-06	4.99E-06	1.08E-06	5.9E+03	3.1E+04	1.1E+04	6.9E+03	3.2E+04	6.8E-10
Iridium (77)	Ir-187	5.78E+02	1.20E-03	1.28E-06	2.84E-07	7.66E-07	1.15E-06	2.86E-07	4.9E+03	2.2E+04	8.3E+03	5.5E+03	2.2E+04	3.1E-09
Iridium (77)	Ir-188	1.46E+02	4.74E-03	1.04E-05	1.83E-06	5.27E-06	8.55E-06	1.76E-06	1.5E+02	8.8E+02	3.0E+02	1.9E+02	9.1E+02	3.8E-10
Iridium (77)	Ir-189	1.92E+01	3.62E-02	1.60E-07	5.47E-08	1.25E-07	1.56E-07	6.13E-08	1.3E+03	3.8E+03	1.7E+03	1.3E+03	3.4E+03	2.5E-08
Iridium (77)	Ir-190	2.15E+01	3.23E-02	6.21E-06	1.33E-06	3.74E-06	5.65E-06	1.31E-06	3.8E+01	1.8E+02	6.3E+01	4.2E+01	1.8E+02	6.5E-10
Iridium (77)	Ir-190m	5.42E+03	1.28E-04	7.09E-13	7.10E-13	7.10E-13	7.09E-13	2.10E-11	8.4E+10	8.4E+10	8.4E+10	8.4E+10	2.8E+09	5.7E-03
Iridium (77)	Ir-190n	1.97E+03	3.52E-04	9.10E-08	3.74E-08	7.85E-08	9.05E-08	4.38E-08	2.4E+05	5.8E+05	2.7E+05	2.4E+05	4.9E+05	4.4E-08

Radionuclides		Slope Factors and Isotope-specific Information							Carcinogenic Target Risk (TR) = 1E-06					
Element (Atomic Number)	Isotope	Lambda (yr^{-1})	Halflife (years)	External Exposure Slope Factor (risk/yr per pCi/g)	External Exposure Slope Factor (1 cm) (risk/yr per pCi/g)	External Exposure Slope Factor (5 cm) (risk/yr per pCi/g)	External Exposure Slope Factor (15 cm) (risk/yr per pCi/g)	Ground Plane External Exposure Slope Factor (risk/yr per pCi/cm^2)	Soil Volume PRG (pCi/g)	Soil Volume @ 1cm PRG (pCi/g)	Soil Volume @ 5cm PRG (pCi/g)	Soil Volume @ 15cm PRG (pCi/g)	Ground Plane PRG (pCi/cm^2)	Soil Volume PRG (mg/kg)
Actinium (89)	Ac-223	1.73E+05	4.00E-06	6.12E-08	1.49E-08	4.05E-08	5.79E-08	1.49E-08	3.1E+07	1.3E+08	4.7E+07	3.3E+07	1.3E+08	7.7E-08
Iridium (77)	Ir-191m	4.42E+06	1.57E-07	1.60E-07	5.42E-08	1.28E-07	1.59E-07	5.85E-08	3.0E+08	8.9E+08	3.8E+08	3.1E+08	8.3E+08	2.5E-08
Iridium (77)	Ir-192	3.43E+00	2.02E-01	3.39E-06	7.44E-07	2.09E-06	3.14E-06	7.27E-07	1.1E+01	5.0E+01	1.8E+01	1.2E+01	5.2E+01	1.2E-09
Iridium (77)	Ir-192m	2.51E+05	2.76E-06	1.79E-10	4.89E-11	1.21E-10	1.69E-10	1.24E-10	1.5E+10	5.6E+10	2.3E+10	1.6E+10	2.2E+10	2.3E-05
Iridium (77)	Ir-192n	2.88E-03	2.41E+02	1.17E-09	4.32E-10	9.64E-10	1.16E-09	6.34E-10	3.9E+02	1.1E+03	4.7E+02	3.9E+02	7.2E+02	5.0E-05
Iridium (77)	Ir-193m	2.40E+01	2.88E-02	4.62E-10	2.06E-10	4.18E-10	4.64E-10	2.65E-10	5.7E+05	1.3E+06	6.3E+05	5.7E+05	9.9E+05	8.9E-06
Iridium (77)	Ir-194	3.15E+02	2.20E-03	4.12E-07	8.72E-08	2.45E-07	3.71E-07	9.47E-08	8.4E+03	4.0E+04	1.4E+04	9.3E+03	3.6E+04	1.0E-08
Iridium (77)	Ir-194m	1.48E+00	4.68E-01	1.01E-05	2.13E-06	6.02E-06	9.19E-06	2.09E-06	1.6E+00	7.6E+00	2.7E+00	1.8E+00	7.7E+00	4.1E-10
Iridium (77)	Ir-195	2.43E+03	2.85E-04	1.12E-07	4.13E-08	9.30E-08	1.12E-07	4.86E-08	2.4E+05	6.4E+05	2.9E+05	2.4E+05	5.5E+05	3.7E-08
Iridium (77)	Ir-195m	1.60E+03	4.34E-04	1.48E-06	3.34E-07	9.23E-07	1.38E-06	3.32E-07	1.2E+04	5.2E+04	1.9E+04	1.3E+04	5.3E+04	2.8E-09
Iridium (77)	Ir-196	4.20E+05	1.65E-06	1.07E-06	2.20E-07	6.20E-07	9.55E-07	2.28E-07	4.3E+06	2.1E+07	7.4E+06	4.8E+06	2.0E+07	3.9E-09
Iridium (77)	Ir-196m	4.34E+03	1.60E-04	1.07E-05	2.26E-06	6.35E-06	9.69E-06	2.21E-06	4.5E+03	2.1E+04	7.5E+03	4.9E+03	2.2E+04	3.9E-10
Potassium (19)	K-38	4.77E+04	1.45E-05	1.61E-05	2.80E-06	8.15E-06	1.32E-05	2.71E-06	3.2E+04	1.9E+05	6.4E+04	4.0E+04	1.9E+05	5.0E-11
Potassium (19)	K-40	5.54E-10	1.25E+09	7.99E-07	1.42E-07	4.09E-07	6.62E-07	1.42E-07	5.5E-01	3.1E+00	1.1E+00	6.6E-01	3.1E+00	7.7E-02
Potassium (19)	K-42	4.91E+02	1.41E-03	1.47E-06	2.62E-07	7.51E-07	1.21E-06	2.65E-07	3.7E+03	2.1E+04	7.2E+03	4.4E+03	2.0E+04	6.1E-10
Potassium (19)	K-43	2.72E+02	2.55E-03	4.20E-06	8.86E-07	2.50E-06	3.82E-06	8.68E-07	7.1E+02	3.4E+03	1.2E+03	7.8E+02	3.4E+03	2.2E-10
Potassium (19)	K-44	1.65E+04	4.21E-05	1.24E-05	2.09E-06	6.09E-06	9.99E-06	2.02E-06	1.5E+04	8.6E+04	3.0E+04	1.8E+04	8.9E+04	7.6E-11
Potassium (19)	K-45	2.11E+04	3.29E-05	9.33E-06	1.62E-06	4.69E-06	7.62E-06	1.55E-06	2.5E+04	1.4E+05	4.9E+04	3.0E+04	1.5E+05	1.0E-10
Potassium (19)	K-46	2.08E+05	3.33E-06	1.53E-05	2.50E-06	7.27E-06	1.20E-05	2.39E-06	1.5E+05	9.1E+05	3.1E+05	1.9E+05	9.5E+05	6.4E-11
Krypton (36)	Kr-74	3.17E+04	2.19E-05	4.43E-06	9.60E-07	2.69E-06	4.05E-06	9.50E-07	7.8E+04	3.6E+05	1.3E+05	8.6E+04	3.6E+05	3.6E-10
Krypton (36)	Kr-75	8.49E+04	8.16E-06	5.52E-06	1.18E-06	3.31E-06	5.01E-06	1.17E-06	1.7E+05	7.9E+05	2.8E+05	1.9E+05	8.0E+05	2.9E-10
Krypton (36)	Kr-76	4.10E+02	1.69E-03	1.69E-06	3.77E-07	1.06E-06	1.58E-06	3.71E-07	2.7E+03	1.2E+04	4.2E+03	2.8E+03	1.2E+04	9.5E-10
Krypton (36)	Kr-76+D	4.10E+02	1.69E-03	1.69E-06	3.77E-07	1.06E-06	1.58E-06	3.71E-07	2.7E+03	1.2E+04	4.2E+03	2.8E+03	1.2E+04	9.5E-10
Krypton (36)	Kr-77	4.90E+03	1.42E-04	4.32E-06	9.45E-07	2.63E-06	3.97E-06	9.35E-07	1.2E+04	5.7E+04	2.0E+04	1.4E+04	5.7E+04	3.8E-10
Krypton (36)	Kr-79	1.73E+02	4.00E-03	1.07E-06	2.28E-07	6.41E-07	9.75E-07	2.22E-07	1.8E+03	8.3E+03	3.0E+03	1.9E+03	8.6E+03	1.6E-09
Krypton (36)	Kr-81	3.03E-06	2.29E+05	3.26E-09	7.58E-10	2.11E-09	3.09E-09	1.16E-09	1.3E+02	5.8E+02	2.1E+02	1.4E+02	3.8E+02	7.0E-03
Krypton (36)	Kr-81m	1.67E+06	4.15E-07	4.59E-07	1.13E-07	3.14E-07	4.46E-07	1.11E-07	4.0E+07	1.6E+08	5.8E+07	4.1E+07	1.6E+08	3.8E-09
Krypton (36)	Kr-83m	3.32E+03	2.09E-04	1.25E-11	1.19E-11	1.24E-11	1.25E-11	1.87E-10	2.9E+09	3.0E+09	2.9E+09	2.9E+09	1.9E+08	1.4E-04
Krypton (36)	Kr-85	6.44E-02	1.08E+01	1.06E-08	2.35E-09	6.46E-09	9.73E-09	3.28E-09	8.3E+01	3.7E+02	1.4E+02	9.1E+01	2.7E+02	2.1E-07
Krypton (36)	Kr-85m	1.36E+03	5.11E-04	5.45E-07	1.38E-07	3.76E-07	5.29E-07	1.37E-07	2.7E+04	1.1E+05	4.0E+04	2.8E+04	1.1E+05	3.3E-09
Krypton (36)	Kr-87	4.77E+03	1.45E-04	4.00E-06	7.06E-07	2.04E-06	3.29E-06	6.90E-07	1.3E+04	7.4E+04	2.6E+04	1.6E+04	7.6E+04	4.6E-10
Krypton (36)	Kr-88	2.14E+03	3.24E-04	1.02E-05	1.69E-06	4.95E-06	8.15E-06	1.62E-06	2.3E+03	1.4E+04	4.7E+03	2.9E+03	1.4E+04	1.8E-10
Krypton (36)	Kr-89	1.16E+05	5.99E-06	9.81E-06	1.71E-06	4.93E-06	8.00E-06	1.65E-06	1.3E+05	7.4E+05	2.6E+05	1.6E+05	7.7E+05	1.9E-10
Lanthanum (57)	La-128	7.03E+04	9.86E-06	1.30E-05	2.58E-06	7.32E-06	1.14E-05	2.53E-06	5.9E+04	3.0E+05	1.1E+05	6.8E+04	3.0E+05	2.1E-10
Lanthanum (57)	La-129	3.14E+04	2.21E-05	3.92E-06	8.35E-07	2.34E-06	3.56E-06	8.29E-07	8.8E+04	4.1E+05	1.5E+05	9.7E+04	4.1E+05	7.0E-10
Lanthanum (57)	La-130	4.19E+04	1.66E-05	1.02E-05	2.04E-06	5.77E-06	8.99E-06	1.98E-06	4.5E+04	2.3E+05	7.9E+04	5.1E+04	2.3E+05	2.7E-10
Lanthanum (57)	La-131	6.17E+03	1.12E-04	2.72E-06	5.87E-07	1.64E-06	2.48E-06	5.86E-07	2.5E+04	1.2E+05	4.1E+04	2.7E+04	1.2E+05	1.0E-09
Lanthanum (57)	La-132	1.26E+03	5.48E-04	9.42E-06	1.78E-06	5.10E-06	8.07E-06	1.74E-06	1.5E+03	7.8E+03	2.7E+03	1.7E+03	8.0E+03	3.0E-10
Lanthanum (57)	La-132m	1.50E+04	4.62E-05	2.84E-06	5.98E-07	1.67E-06	2.56E-06	5.92E-07	5.8E+04	2.7E+05	9.8E+04	6.4E+04	2.8E+05	9.9E-10
Lanthanum (57)	La-133	1.55E+03	4.47E-04	6.01E-07	1.30E-07	3.57E-07	5.44E-07	1.37E-07	2.8E+04	1.3E+05	4.8E+04	3.1E+04	1.2E+05	4.7E-09
Lanthanum (57)	La-134	5.65E+04	1.23E-05	3.14E-06	6.59E-07	1.86E-06	2.84E-06	6.57E-07	2.0E+05	9.4E+05	3.3E+05	2.2E+05	9.4E+05	9.1E-10
Lanthanum (57)	La-135	3.11E+02	2.23E-03	5.16E-08	1.54E-08	3.34E-08	4.74E-08	2.50E-08	6.6E+04	2.2E+05	1.0E+05	7.2E+04	1.4E+05	5.6E-08
Lanthanum (57)	La-136	3.69E+04	1.88E-05	1.72E-06	3.64E-07	1.02E-06	1.55E-06	3.67E-07	2.4E+05	1.1E+06	4.0E+05	2.6E+05	1.1E+06	1.7E-09
Lanthanum (57)	La-137	1.16E-05	6.00E+04	6.87E-09	5.83E-09	6.86E-09	6.87E-09	1.53E-08	6.4E+01	7.5E+01	6.4E+01	6.4E+01	2.9E+01	1.5E-03
Lanthanum (57)	La-138	6.79E-12	1.02E+11	6.05E-06	1.10E-06	3.16E-06	5.08E-06	1.06E-06	7.2E-02	4.0E-01	1.4E-01	8.6E-02	4.1E-01	2.9E+00
Lanthanum (57)	La-140	1.51E+02	4.60E-03	1.15E-05	2.06E-06	5.94E-06	9.57E-06	2.00E-06	1.4E+02	8.0E+02	2.8E+02	1.7E+02	8.3E+02	2.6E-10
Lanthanum (57)	La-141	1.55E+03	4.47E-04	1.56E-07	3.06E-08	8.37E-08	1.32E-07	4.09E-08	1.1E+05	5.5E+05	2.0E+05	1.3E+05	4.1E+05	1.9E-08
Lanthanum (57)	La-142	4.00E+03	1.73E-04	1.24E-05	2.06E-06	6.02E-06	9.90E-06	1.97E-06	3.5E+03	2.1E+04	7.3E+03	4.4E+03	2.2E+04	2.4E-10
Lanthanum (57)	La-143	2.57E+04	2.70E-05	1.35E-06	2.45E-07	7.01E-07	1.13E-06	2.49E-07	2.1E+05	1.1E+06	4.0E+05	2.5E+05	1.1E+06	2.2E-09
Lutetium (71)	Lu-165	3.39E+04	2.04E-05	4.87E-06	9.79E-07	2.75E-06	4.25E-06	9.68E-07	7.6E+04	3.8E+05	1.4E+05	8.7E+04	3.8E+05	7.2E-10

Radionuclides		Slope Factors and Isotope-specific Information							Carcinogenic Target Risk (TR) = 1E-06					
Element (Atomic Number)	Isotope	Lambda (yr^{-1})	Halflife (years)	External Exposure Slope Factor (risk/yr per pCi/g)	External Exposure Slope Factor (1 cm) (risk/yr per pCi/g)	External Exposure Slope Factor (5 cm) (risk/yr per pCi/g)	External Exposure Slope Factor (15 cm) (risk/yr per pCi/g)	Ground Plane External Exposure Slope Factor (risk/yr per pCi/cm^2)	Soil Volume PRG (pCi/g)	Soil Volume @ 1cm PRG (pCi/g)	Soil Volume @ 5cm PRG (pCi/g)	Soil Volume @ 15cm PRG (pCi/g)	Ground Plane PRG (pCi/cm^2)	Soil Volume PRG (mg/kg)
Actinium (89)	Ac-223	1.73E+05	4.00E-06	6.12E-08	1.49E-08	4.05E-08	5.79E-08	1.49E-08	3.1E+07	1.3E+08	4.7E+07	3.3E+07	1.3E+08	7.7E-08
Lutetium (71)	Lu-167	7.07E+03	9.80E-05	8.09E-06	1.48E-06	4.24E-06	6.77E-06	1.44E-06	9.6E+03	5.2E+04	1.8E+04	1.1E+04	5.4E+04	4.4E-10
Lutetium (71)	Lu-169	1.78E+02	3.89E-03	6.12E-06	1.16E-06	3.29E-06	5.20E-06	1.14E-06	3.2E+02	1.7E+03	5.9E+02	3.8E+02	1.7E+03	5.9E-10
Lutetium (71)	Lu-169m	1.37E+05	5.07E-06	1.54E-13	1.51E-13	1.54E-13	1.54E-13	3.85E-12	9.7E+12	9.9E+12	9.7E+12	9.7E+12	3.9E+11	2.3E-02
Lutetium (71)	Lu-170	1.26E+02	5.51E-03	1.30E-05	2.22E-06	6.43E-06	1.05E-05	2.14E-06	1.1E+02	6.2E+02	2.1E+02	1.3E+02	6.4E+02	2.8E-10
Lutetium (71)	Lu-171	3.07E+01	2.26E-02	2.69E-06	5.66E-07	1.55E-06	2.38E-06	5.69E-07	1.3E+02	5.9E+02	2.2E+02	1.4E+02	5.9E+02	1.4E-09
Lutetium (71)	Lu-171m	2.77E+05	2.51E-06	4.33E-10	2.02E-10	3.96E-10	4.33E-10	2.53E-10	7.0E+09	1.5E+10	7.6E+09	7.0E+09	1.2E+10	8.4E-06
Lutetium (71)	Lu-172	3.78E+01	1.84E-02	9.01E-06	1.75E-06	4.95E-06	7.79E-06	1.72E-06	4.6E+01	2.4E+02	8.4E+01	5.3E+01	2.4E+02	4.1E-10
Lutetium (71)	Lu-172m	9.84E+04	7.04E-06	9.32E-13	6.67E-13	9.27E-13	9.32E-13	2.49E-12	1.2E+12	1.6E+12	1.2E+12	1.2E+12	4.3E+11	3.9E-03
Lutetium (71)	Lu-173	5.06E-01	1.37E+00	4.47E-07	1.33E-07	3.19E-07	4.29E-07	1.49E-07	1.2E+01	4.2E+01	1.7E+01	1.3E+01	3.7E+01	8.2E-09
Lutetium (71)	Lu-174	2.09E-01	3.31E+00	3.75E-07	8.71E-08	2.19E-07	3.25E-07	9.48E-08	6.1E+00	2.6E+01	1.1E+01	7.1E+00	2.4E+01	9.9E-09
Lutetium (71)	Lu-174m	1.78E+00	3.89E-01	9.19E-08	3.64E-08	7.32E-08	8.77E-08	4.61E-08	2.1E+02	5.4E+02	2.7E+02	2.2E+02	4.2E+02	4.0E-08
Lutetium (71)	Lu-176	1.80E-11	3.85E+10	1.79E-06	4.24E-07	1.17E-06	1.70E-06	4.17E-07	2.5E-01	1.0E+00	3.7E-01	2.6E-01	1.1E+00	4.7E+00
Lutetium (71)	Lu-176m	1.67E+03	4.15E-04	2.81E-08	1.09E-08	2.35E-08	2.80E-08	1.70E-08	6.5E+05	1.7E+06	7.8E+05	6.5E+05	1.1E+06	1.3E-07
Lutetium (71)	Lu-177	3.81E+01	1.82E-02	1.14E-07	2.97E-08	7.94E-08	1.11E-07	2.98E-08	3.7E+03	1.4E+04	5.2E+03	3.8E+03	1.4E+04	3.3E-08
Lutetium (71)	Lu-177m	1.58E+00	4.39E-01	3.63E-06	8.71E-07	2.39E-06	3.44E-06	8.66E-07	4.8E+00	2.0E+01	7.2E+00	5.0E+00	2.0E+01	1.0E-09
Lutetium (71)	Lu-178	1.28E+04	5.40E-05	6.06E-07	1.14E-07	3.21E-07	5.11E-07	1.20E-07	2.3E+05	1.2E+06	4.4E+05	2.7E+05	1.2E+06	6.2E-09
Lutetium (71)	Lu-178m	1.58E+04	4.39E-05	4.03E-06	9.32E-07	2.58E-06	3.78E-06	9.24E-07	4.3E+04	1.9E+05	6.7E+04	4.6E+04	1.9E+05	9.4E-10
Lutetium (71)	Lu-179	1.32E+03	5.24E-04	1.16E-07	2.78E-08	7.64E-08	1.10E-07	3.29E-08	1.3E+05	5.2E+05	1.9E+05	1.3E+05	4.4E+05	3.3E-08
Lutetium (71)	Lu-180	6.39E+04	1.08E-05	7.16E-06	1.37E-06	3.89E-06	6.14E-06	1.33E-06	9.8E+04	5.1E+05	1.8E+05	1.1E+05	5.3E+05	5.3E-10
Lutetium (71)	Lu-181	1.04E+05	6.66E-06	2.43E-06	5.17E-07	1.44E-06	2.20E-06	5.20E-07	4.7E+05	2.2E+06	7.9E+05	5.2E+05	2.2E+06	1.6E-09
Magnesium (12)	Mg-27	3.85E+04	1.80E-05	4.20E-06	8.20E-07	2.32E-06	3.65E-06	8.06E-07	1.0E+05	5.1E+05	1.8E+05	1.2E+05	5.2E+05	1.4E-10
Magnesium (12)	Mg-28	2.90E+02	2.39E-03	6.55E-06	1.22E-06	3.49E-06	5.57E-06	1.19E-06	4.9E+02	2.6E+03	9.1E+02	5.7E+02	2.7E+03	9.1E-11
Manganese (25)	Mn-50m	2.08E+05	3.33E-06	2.22E-05	4.22E-06	1.20E-05	1.90E-05	4.11E-06	1.0E+05	5.4E+05	1.9E+05	1.2E+05	5.5E+05	4.8E-11
Manganese (25)	Mn-51	7.88E+03	8.79E-05	4.37E-06	9.23E-07	2.60E-06	3.97E-06	9.15E-07	2.0E+04	9.4E+04	3.3E+04	2.2E+04	9.4E+04	2.5E-10
Manganese (25)	Mn-52	4.52E+01	1.53E-02	1.67E-05	3.14E-06	8.97E-06	1.42E-05	3.04E-06	3.0E+01	1.6E+02	5.5E+01	3.5E+01	1.6E+02	6.6E-11
Manganese (25)	Mn-52m	1.73E+04	4.01E-05	1.15E-05	2.19E-06	6.24E-06	9.89E-06	2.13E-06	1.6E+04	8.6E+04	3.0E+04	1.9E+04	8.9E+04	9.6E-11
Manganese (25)	Mn-53	1.87E-07	3.70E+06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	.	.	.	.	.	.
Manganese (25)	Mn-54	8.10E-01	8.55E-01	3.89E-06	7.66E-07	2.17E-06	3.41E-06	7.46E-07	2.3E+00	1.2E+01	4.1E+00	2.6E+00	1.2E+01	3.0E-10
Manganese (25)	Mn-56	2.35E+03	2.94E-04	8.44E-06	1.52E-06	4.37E-06	7.04E-06	1.47E-06	3.1E+03	1.7E+04	5.9E+03	3.7E+03	1.8E+04	1.4E-10
Manganese (25)	Mn-57	2.56E+05	2.71E-06	4.39E-07	9.45E-08	2.60E-07	3.93E-07	1.05E-07	6.4E+06	3.0E+07	1.1E+07	7.1E+06	2.7E+07	2.8E-09
Manganese (25)	Mn-58m	3.35E+05	2.07E-06	1.18E-05	2.17E-06	6.20E-06	9.92E-06	2.11E-06	3.1E+05	1.7E+06	5.9E+05	3.7E+05	1.7E+06	1.0E-10
Molybdenum (42)	Mo-101	2.49E+04	2.78E-05	7.11E-06	1.32E-06	3.79E-06	6.04E-06	1.28E-06	3.8E+04	2.1E+05	7.2E+04	4.5E+04	2.1E+05	3.0E-10
Molybdenum (42)	Mo-102	3.22E+04	2.15E-05	6.81E-08	1.70E-08	4.65E-08	6.59E-08	1.96E-08	5.2E+06	2.1E+07	7.6E+06	5.4E+06	1.8E+07	3.2E-08
Molybdenum (42)	Mo-89	1.73E+05	4.01E-06	5.52E-06	1.14E-06	3.21E-06	4.95E-06	1.13E-06	3.4E+05	1.7E+06	5.9E+05	3.8E+05	1.7E+06	3.4E-10
Molybdenum (42)	Mo-90	1.09E+03	6.35E-04	3.44E-06	7.38E-07	2.07E-06	3.13E-06	7.25E-07	3.5E+03	1.6E+04	5.8E+03	3.8E+03	1.6E+04	5.6E-10
Molybdenum (42)	Mo-91	2.35E+04	2.95E-05	4.32E-06	9.12E-07	2.56E-06	3.92E-06	9.05E-07	6.0E+04	2.8E+05	1.0E+05	6.6E+04	2.8E+05	4.5E-10
Molybdenum (42)	Mo-91m	3.38E+05	2.05E-06	6.52E-06	1.26E-06	3.59E-06	5.66E-06	1.23E-06	5.7E+05	2.9E+06	1.0E+06	6.5E+05	3.0E+06	3.0E-10
Molybdenum (42)	Mo-93	1.73E-04	4.00E+03	2.13E-10	2.13E-10	2.13E-10	2.13E-10	2.32E-09	2.1E+03	2.1E+03	2.1E+03	2.1E+03	1.9E+02	2.2E-03
Molybdenum (42)	Mo-93m	8.86E+02	7.82E-04	1.12E-05	2.07E-06	5.98E-06	9.53E-06	2.02E-06	8.7E+02	4.7E+03	1.6E+03	1.0E+03	4.8E+03	1.8E-10
Molybdenum (42)	Mo-99	9.21E+01	7.53E-03	6.57E-07	1.36E-07	3.81E-07	5.87E-07	1.37E-07	1.5E+03	7.4E+03	2.6E+03	1.7E+03	7.4E+03	3.2E-09
Nitrogen (7)	N-13	3.66E+04	1.90E-05	4.45E-06	9.40E-07	2.65E-06	4.05E-06	9.25E-07	1.0E+05	4.7E+05	1.7E+05	1.1E+05	4.8E+05	6.9E-11
Nitrogen (7)	N-16	3.07E+06	2.26E-07	2.60E-05	3.44E-06	1.00E-05	1.77E-05	3.14E-06	1.3E+06	9.8E+06	3.3E+06	1.9E+06	1.1E+07	1.3E-11
Sodium (11)	Na-22	2.66E-01	2.60E+00	1.03E-05	2.00E-06	5.68E-06	8.94E-06	1.94E-06	2.8E-01	1.5E+00	5.1E-01	3.3E-01	1.5E+00	4.5E-11
Sodium (11)	Na-24	4.06E+02	1.71E-03	2.20E-05	3.53E-06	1.04E-05	1.73E-05	3.36E-06	2.0E+02	1.3E+03	4.3E+02	2.6E+02	1.3E+03	2.3E-11
Niobium (41)	Nb-87	9.71E+04	7.13E-06	5.17E-06	1.12E-06	3.14E-06	4.74E-06	1.12E-06	2.1E+05	9.5E+05	3.4E+05	2.2E+05	9.5E+05	3.6E-10
Niobium (41)	Nb-88	2.51E+04	2.76E-05	1.95E-05	3.87E-06	1.09E-05	1.70E-05	3.77E-06	1.4E+04	7.1E+04	2.5E+04	1.6E+04	7.3E+04	9.6E-11
Niobium (41)	Nb-88m	4.68E+04	1.48E-05	1.93E-05	3.74E-06	1.06E-05	1.67E-05	3.65E-06	2.7E+04	1.4E+05	4.8E+04	3.1E+04	1.4E+05	9.7E-11
Niobium (41)	Nb-89	2.99E+03	2.32E-04	6.52E-06	1.23E-06	3.51E-06	5.56E-06	1.20E-06	5.0E+03	2.7E+04	9.3E+03	5.9E+03	2.7E+04	2.9E-10
Niobium (41)	Nb-89m	5.52E+03	1.26E-04	5.72E-06	1.20E-06	3.40E-06	5.18E-06	1.19E-06	1.1E+04	5.0E+04	1.8E+04	1.2E+04	5.1E+04	3.3E-10

Radionuclides		Slope Factors and Isotope-specific Information							Carcinogenic Target Risk (TR) = 1E-06					
Element (Atomic Number)	Isotope	Lambda (yr^{-1})	Halflife (years)	External Exposure Slope Factor (risk/yr per pCi/g)	External Exposure Slope Factor (1 cm) (risk/yr per pCi/g)	External Exposure Slope Factor (5 cm) (risk/yr per pCi/g)	External Exposure Slope Factor (15 cm) (risk/yr per pCi/g)	Ground Plane External Exposure Slope Factor (risk/yr per pCi/cm^2)	Soil Volume PRG (pCi/g)	Soil Volume @ 1cm PRG (pCi/g)	Soil Volume @ 5cm PRG (pCi/g)	Soil Volume @ 15cm PRG (pCi/g)	Ground Plane PRG (pCi/cm^2)	Soil Volume PRG (mg/kg)
Actinium (89)	Ac-223	1.73E+05	4.00E-06	6.12E-08	1.49E-08	4.05E-08	5.79E-08	1.49E-08	3.1E+07	1.3E+08	4.7E+07	3.3E+07	1.3E+08	7.7E-08
Niobium (41)	Nb-90	4.16E+02	1.67E-03	2.13E-05	3.70E-06	1.07E-05	1.74E-05	3.55E-06	2.1E+02	1.2E+03	4.3E+02	2.6E+02	1.3E+03	9.0E-11
Niobium (41)	Nb-91	1.02E-03	6.80E+02	7.15E-09	1.63E-09	4.32E-09	6.52E-09	3.39E-09	6.2E+01	2.7E+02	1.0E+02	6.8E+01	1.3E+02	1.1E-05
Niobium (41)	Nb-91m	4.16E+00	1.67E-01	1.21E-07	2.26E-08	6.45E-08	1.03E-07	2.37E-08	3.7E+02	2.0E+03	7.1E+02	4.4E+02	1.9E+03	1.6E-08
Niobium (41)	Nb-92	2.00E-08	3.47E+07	6.90E-06	1.37E-06	3.89E-06	6.07E-06	1.34E-06	6.3E-02	3.2E-01	1.1E-01	7.2E-02	3.3E-01	5.7E-04
Niobium (41)	Nb-92m	2.49E+01	2.78E-02	4.55E-06	8.78E-07	2.48E-06	3.93E-06	8.54E-07	6.0E+01	3.1E+02	1.1E+02	6.9E+01	3.2E+02	4.3E-10
Niobium (41)	Nb-93m	4.30E-02	1.61E+01	3.81E-11	3.83E-11	3.79E-11	3.81E-11	4.16E-10	1.9E+04	1.9E+04	1.9E+04	1.9E+04	1.7E+03	7.9E-05
Niobium (41)	Nb-94	3.41E-05	2.03E+04	7.22E-06	1.43E-06	4.05E-06	6.34E-06	1.39E-06	6.1E-02	3.1E-01	1.1E-01	6.9E-02	3.2E-01	3.2E-07
Niobium (41)	Nb-94m	5.82E+04	1.19E-05	2.08E-08	4.18E-09	1.16E-08	1.81E-08	5.53E-09	3.1E+07	1.5E+08	5.5E+07	3.5E+07	1.2E+08	9.6E-08
Niobium (41)	Nb-95	7.23E+00	9.59E-02	3.53E-06	7.02E-07	1.98E-06	3.11E-06	6.85E-07	2.2E+01	1.1E+02	4.0E+01	2.5E+01	1.2E+02	5.7E-10
Niobium (41)	Nb-95m	7.01E+01	9.89E-03	2.38E-07	5.62E-08	1.57E-07	2.29E-07	5.63E-08	3.2E+03	1.4E+04	4.9E+03	3.4E+03	1.4E+04	8.5E-09
Niobium (41)	Nb-96	2.60E+02	2.67E-03	1.15E-05	2.26E-06	6.39E-06	1.00E-05	2.20E-06	2.5E+02	1.3E+03	4.5E+02	2.8E+02	1.3E+03	1.8E-10
Niobium (41)	Nb-97	5.05E+03	1.37E-04	3.01E-06	6.13E-07	1.73E-06	2.69E-06	6.05E-07	1.8E+04	9.0E+04	3.2E+04	2.1E+04	9.1E+04	6.8E-10
Niobium (41)	Nb-98m	7.10E+03	9.76E-05	1.35E-05	2.56E-06	7.30E-06	1.16E-05	2.49E-06	5.7E+03	3.0E+04	1.1E+04	6.7E+03	3.1E+04	1.5E-10
Niobium (41)	Nb-99	1.46E+06	4.76E-07	5.42E-07	1.55E-07	4.00E-07	5.32E-07	1.68E-07	2.9E+07	1.0E+08	4.0E+07	3.0E+07	9.5E+07	3.9E-09
Niobium (41)	Nb-99m	1.40E+05	4.95E-06	3.92E-06	6.71E-07	1.94E-06	3.16E-06	6.54E-07	3.9E+05	2.3E+06	7.9E+05	4.8E+05	2.3E+06	5.4E-10
Neodymium (60)	Nd-134	4.29E+04	1.62E-05	2.11E-06	4.73E-07	1.31E-06	1.95E-06	4.75E-07	2.2E+05	9.9E+05	3.6E+05	2.4E+05	9.9E+05	1.3E-09
Neodymium (60)	Nd-135	2.94E+04	2.36E-05	5.35E-06	1.14E-06	3.19E-06	4.86E-06	1.14E-06	6.0E+04	2.8E+05	1.0E+05	6.6E+04	2.8E+05	5.4E-10
Neodymium (60)	Nd-136	7.19E+03	9.64E-05	9.77E-07	2.24E-07	5.98E-07	8.90E-07	2.36E-07	8.1E+04	3.5E+05	1.3E+05	8.9E+04	3.3E+05	3.0E-09
Neodymium (60)	Nd-137	9.46E+03	7.32E-05	5.28E-06	1.05E-06	2.95E-06	4.62E-06	1.04E-06	2.0E+04	9.9E+04	3.5E+04	2.2E+04	1.0E+05	5.5E-10
Neodymium (60)	Nd-138	1.20E+03	5.75E-04	6.84E-08	2.19E-08	4.78E-08	6.53E-08	3.21E-08	1.9E+05	6.0E+05	2.8E+05	2.0E+05	4.1E+05	4.3E-08
Neodymium (60)	Nd-139	1.23E+04	5.65E-05	1.89E-06	3.92E-07	1.10E-06	1.69E-06	3.95E-07	7.1E+04	3.4E+05	1.2E+05	7.9E+04	3.4E+05	1.6E-09
Neodymium (60)	Nd-139m	1.10E+03	6.28E-04	7.22E-06	1.42E-06	4.00E-06	6.27E-06	1.39E-06	1.7E+03	8.5E+03	3.0E+03	1.9E+03	8.7E+03	4.1E-10
Neodymium (60)	Nd-140	7.51E+01	9.23E-03	1.12E-08	8.71E-09	1.12E-08	1.12E-08	1.89E-08	7.3E+04	9.4E+04	7.4E+04	7.3E+04	4.3E+04	2.7E-07
Neodymium (60)	Nd-141	2.44E+03	2.84E-04	2.31E-07	5.23E-08	1.35E-07	2.04E-07	6.14E-08	1.2E+05	5.1E+05	2.0E+05	1.3E+05	4.3E+05	1.3E-08
Neodymium (60)	Nd-141m	3.52E+05	1.97E-06	3.19E-06	6.39E-07	1.80E-06	2.81E-06	6.24E-07	1.2E+06	6.0E+06	2.1E+06	1.4E+06	6.2E+06	9.4E-10
Neodymium (60)	Nd-144	3.03E-16	2.29E+15	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	.	.	.	.	.	.
Neodymium (60)	Nd-147	2.30E+01	3.01E-02	4.88E-07	1.15E-07	3.08E-07	4.51E-07	1.21E-07	5.2E+02	2.2E+03	8.2E+02	5.6E+02	2.1E+03	6.4E-09
Neodymium (60)	Nd-149	3.51E+03	1.97E-04	1.45E-06	3.29E-07	9.08E-07	1.34E-06	3.30E-07	2.7E+04	1.2E+05	4.2E+04	2.9E+04	1.2E+05	2.2E-09
Neodymium (60)	Nd-151	2.93E+04	2.37E-05	3.84E-06	7.66E-07	2.17E-06	3.35E-06	7.54E-07	8.3E+04	4.2E+05	1.5E+05	9.6E+04	4.3E+05	8.4E-10
Neodymium (60)	Nd-152	3.20E+04	2.17E-05	6.42E-07	1.47E-07	4.11E-07	6.06E-07	1.47E-07	5.4E+05	2.4E+06	8.5E+05	5.8E+05	2.4E+06	5.0E-09
Neon (10)	Ne-19	1.27E+06	5.46E-07	4.47E-06	9.45E-07	2.65E-06	4.06E-06	9.36E-07	3.1E+06	1.5E+07	5.2E+06	3.4E+06	1.5E+07	9.0E-11
Neon (10)	Ne-24	1.08E+05	6.43E-06	2.37E-06	5.03E-07	1.41E-06	2.16E-06	5.01E-07	5.0E+05	2.3E+06	8.4E+05	5.5E+05	2.4E+06	2.2E-10
Nickel (28)	Ni-56	4.16E+01	1.66E-02	7.74E-06	1.56E-06	4.41E-06	6.84E-06	1.52E-06	5.9E+01	2.9E+02	1.0E+02	6.7E+01	3.0E+02	1.5E-10
Nickel (28)	Ni-57	1.71E+02	4.06E-03	9.47E-06	1.74E-06	4.99E-06	7.99E-06	1.68E-06	2.0E+02	1.1E+03	3.7E+02	2.3E+02	1.1E+03	1.3E-10
Nickel (28)	Ni-59	6.86E-06	1.01E+05	6.77E-11	1.43E-11	4.02E-11	6.15E-11	1.40E-11	6.5E+03	3.1E+04	1.1E+04	7.1E+03	3.1E+04	1.1E-01
Nickel (28)	Ni-63	6.92E-03	1.00E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	.	.	.	.	.	.
Nickel (28)	Ni-65	2.41E+03	2.87E-04	2.79E-06	5.04E-07	1.45E-06	2.34E-06	4.93E-07	9.5E+03	5.2E+04	1.8E+04	1.1E+04	5.4E+04	4.9E-10
Nickel (28)	Ni-66	1.11E+02	6.23E-03	3.53E-11	1.63E-11	3.08E-11	3.51E-11	2.74E-11	3.8E+07	8.3E+07	4.4E+07	3.8E+07	4.9E+07	4.4E-05
Neptunium (93)	Np-232	2.48E+04	2.80E-05	5.22E-06	1.07E-06	3.01E-06	4.64E-06	1.05E-06	5.2E+04	2.5E+05	9.0E+04	5.9E+04	2.6E+05	9.4E-10
Neptunium (93)	Np-233	1.01E+04	6.89E-05	2.28E-07	6.88E-08	1.74E-07	2.25E-07	7.09E-08	4.8E+05	1.6E+06	6.3E+05	4.9E+05	1.6E+06	2.2E-08
Neptunium (93)	Np-234	5.75E+01	1.21E-02	5.37E-06	9.75E-07	2.80E-06	4.48E-06	9.43E-07	1.2E+02	6.5E+02	2.2E+02	1.4E+02	6.7E+02	9.3E-10
Neptunium (93)	Np-235	6.39E-01	1.09E+00	1.41E-09	5.19E-10	1.14E-09	1.41E-09	1.46E-09	4.9E+03	1.3E+04	6.1E+03	4.9E+03	4.8E+03	3.5E-06
Neptunium (93)	Np-235+D	6.39E-01	1.09E+00	1.41E-09	5.19E-10	1.14E-09	1.41E-09	1.46E-09	4.9E+03	1.3E+04	6.1E+03	4.9E+03	4.8E+03	3.5E-06
Neptunium (93)	Np-236	4.50E-06	1.54E+05	3.90E-07	1.13E-07	2.91E-07	3.85E-07	1.17E-07	1.1E+00	3.9E+00	1.5E+00	1.1E+00	3.8E+00	1.1E-04
Neptunium (93)	Np-236m	2.70E+02	2.57E-03	1.32E-07	3.79E-08	9.70E-08	1.28E-07	3.92E-08	2.2E+04	7.8E+04	3.0E+04	2.3E+04	7.5E+04	3.8E-08
Neptunium (93)	Np-237	3.23E-07	2.14E+06	5.17E-08	1.74E-08	4.13E-08	5.15E-08	2.10E-08	8.5E+00	2.5E+01	1.1E+01	8.5E+00	2.1E+01	1.2E-02
Neptunium (93)	Np-237+D	3.23E-07	2.14E+06	8.55E-07	2.07E-07	5.64E-07	8.12E-07	2.09E-07	5.1E-01	2.1E+00	7.8E-01	5.4E-01	2.1E+00	7.3E-04
Neptunium (93)	Np-238	1.19E+02	5.80E-03	2.78E-06	5.31E-07	1.51E-06	2.39E-06	5.18E-07	4.7E+02	2.5E+03	8.7E+02	5.5E+02	2.5E+03	1.8E-09
Neptunium (93)	Np-239	1.07E+02	6.46E-03	5.69E-07	1.49E-07	3.98E-07	5.51E-07	1.49E-07	2.1E+03	7.9E+03	3.0E+03	2.1E+03	7.9E+03	8.9E-09

Radionuclides		Slope Factors and Isotope-specific Information							Carcinogenic Target Risk (TR) = 1E-06					
Element (Atomic Number)	Isotope	Lambda (yr^{-1})	Halflife (years)	External Exposure Slope Factor (risk/yr per pCi/g)	External Exposure Slope Factor (1 cm) (risk/yr per pCi/g)	External Exposure Slope Factor (5 cm) (risk/yr per pCi/g)	External Exposure Slope Factor (15 cm) (risk/yr per pCi/g)	Ground Plane External Exposure Slope Factor (risk/yr per pCi/cm^2)	Soil Volume PRG (pCi/g)	Soil Volume @ 1cm PRG (pCi/g)	Soil Volume @ 5cm PRG (pCi/g)	Soil Volume @ 15cm PRG (pCi/g)	Ground Plane PRG (pCi/cm^2)	Soil Volume PRG (mg/kg)
Actinium (89)	Ac-223	1.73E+05	4.00E-06	6.12E-08	1.49E-08	4.05E-08	5.79E-08	1.49E-08	3.1E+07	1.3E+08	4.7E+07	3.3E+07	1.3E+08	7.7E-08
Neptunium (93)	Np-240	5.88E+03	1.18E-04	4.67E-06	9.45E-07	2.67E-06	4.13E-06	9.27E-07	1.4E+04	6.8E+04	2.4E+04	1.6E+04	7.0E+04	1.1E-09
Neptunium (93)	Np-240m	5.04E+04	1.37E-05	1.46E-06	2.93E-07	8.28E-07	1.28E-06	2.94E-07	3.8E+05	1.9E+06	6.7E+05	4.3E+05	1.9E+06	3.5E-09
Neptunium (93)	Np-241	2.62E+04	2.64E-05	1.15E-07	3.18E-08	8.26E-08	1.11E-07	3.65E-08	2.5E+06	9.0E+06	3.5E+06	2.6E+06	7.9E+06	4.5E-08
Neptunium (93)	Np-242	1.66E+05	4.19E-06	1.32E-06	2.43E-07	6.95E-07	1.11E-06	2.45E-07	1.4E+06	7.5E+06	2.6E+06	1.6E+06	7.4E+06	3.9E-09
Neptunium (93)	Np-242m	6.62E+04	1.05E-05	4.12E-06	8.26E-07	2.34E-06	3.63E-06	8.14E-07	1.8E+05	8.8E+05	3.1E+05	2.0E+05	8.9E+05	1.2E-09
Oxygen (8)	O-14	3.10E+05	2.24E-06	1.68E-05	2.91E-06	8.44E-06	1.38E-05	2.79E-06	2.0E+05	1.2E+06	4.0E+05	2.5E+05	1.2E+06	1.8E-11
Oxygen (8)	O-15	1.79E+05	3.88E-06	4.46E-06	9.42E-07	2.65E-06	4.05E-06	9.32E-07	4.9E+05	2.3E+06	8.2E+05	5.4E+05	2.3E+06	7.9E-11
Oxygen (8)	O-19	8.26E+05	8.39E-07	4.52E-06	8.59E-07	2.45E-06	3.86E-06	8.44E-07	2.0E+06	1.1E+07	3.7E+06	2.3E+06	1.1E+07	8.9E-11
Osmium (76)	Os-180	1.69E+04	4.09E-05	3.64E-07	9.57E-08	2.41E-07	3.37E-07	1.03E-07	5.1E+05	1.9E+06	7.7E+05	5.5E+05	1.8E+06	1.0E-08
Osmium (76)	Os-181	3.47E+03	2.00E-04	6.24E-06	1.23E-06	3.46E-06	5.39E-06	1.20E-06	6.1E+03	3.1E+04	1.1E+04	7.0E+03	3.2E+04	6.2E-10
Osmium (76)	Os-182	2.75E+02	2.52E-03	1.62E-06	3.74E-07	1.02E-06	1.51E-06	3.76E-07	1.9E+03	8.1E+03	2.9E+03	2.0E+03	8.0E+03	2.4E-09
Osmium (76)	Os-183	4.67E+02	1.48E-03	2.38E-06	5.44E-07	1.47E-06	2.18E-06	5.45E-07	2.1E+03	9.4E+03	3.5E+03	2.3E+03	9.4E+03	1.6E-09
Osmium (76)	Os-183m	6.13E+02	1.13E-03	4.68E-06	9.00E-07	2.54E-06	4.02E-06	8.79E-07	1.4E+03	7.5E+03	2.6E+03	1.7E+03	7.6E+03	8.3E-10
Osmium (76)	Os-185	2.70E+00	2.56E-01	2.98E-06	6.22E-07	1.73E-06	2.66E-06	6.14E-07	9.9E+00	4.8E+01	1.7E+01	1.1E+01	4.8E+01	1.3E-09
Osmium (76)	Os-186	3.47E-16	2.00E+15	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	.	.	.	.	.	.
Osmium (76)	Os-189m	1.05E+03	6.62E-04	5.92E-13	5.90E-13	5.92E-13	5.92E-13	1.82E-11	1.9E+10	1.9E+10	1.9E+10	1.9E+10	6.3E+08	6.8E-03
Osmium (76)	Os-190m	3.68E+04	1.88E-05	6.76E-06	1.45E-06	4.07E-06	6.18E-06	1.41E-06	6.0E+04	2.8E+05	9.9E+04	6.5E+04	2.9E+05	6.0E-10
Osmium (76)	Os-191	1.64E+01	4.22E-02	1.77E-07	6.03E-08	1.42E-07	1.76E-07	6.50E-08	1.0E+03	3.0E+03	1.3E+03	1.0E+03	2.8E+03	2.3E-08
Osmium (76)	Os-191m	4.63E+02	1.50E-03	8.26E-09	3.74E-09	7.51E-09	8.26E-09	4.51E-09	6.1E+05	1.4E+06	6.8E+05	6.1E+05	1.1E+06	4.9E-07
Osmium (76)	Os-193	2.02E+02	3.44E-03	2.46E-07	5.85E-08	1.58E-07	2.30E-07	6.19E-08	9.0E+03	3.8E+04	1.4E+04	9.6E+03	3.6E+04	1.7E-08
Osmium (76)	Os-194	1.16E-01	6.00E+00	1.54E-09	1.03E-09	1.52E-09	1.54E-09	1.80E-09	8.7E+02	1.3E+03	8.8E+02	8.7E+02	7.4E+02	2.8E-06
Osmium (76)	Os-194+D	1.16E-01	6.00E+00	4.13E-07	8.84E-08	2.47E-07	3.72E-07	9.64E-08	3.2E+00	1.5E+01	5.4E+00	3.6E+00	1.4E+01	1.1E-08
Osmium (76)	Os-196	1.04E+04	6.64E-05	3.01E-07	7.08E-08	1.92E-07	2.81E-07	7.41E-08	3.8E+05	1.6E+06	5.9E+05	4.1E+05	1.5E+06	1.4E-08
Phosphorus (15)	P-30	1.46E+05	4.75E-06	4.50E-06	9.53E-07	2.67E-06	4.09E-06	9.47E-07	3.6E+05	1.7E+06	6.0E+05	3.9E+05	1.7E+06	1.4E-10
Phosphorus (15)	P-32	1.77E+01	3.91E-02	9.42E-09	3.18E-09	6.73E-09	9.00E-09	1.20E-08	2.3E+04	6.8E+04	3.2E+04	2.4E+04	1.8E+04	8.0E-08
Phosphorus (15)	P-33	9.98E+00	6.94E-02	3.71E-11	1.72E-11	3.25E-11	3.70E-11	2.90E-11	3.3E+06	7.1E+06	3.7E+06	3.3E+06	4.2E+06	2.1E-05
Protactinium (91)	Pa-227	9.51E+03	7.29E-05	4.19E-08	1.46E-08	3.44E-08	4.19E-08	1.61E-08	2.5E+06	7.1E+06	3.0E+06	2.5E+06	6.5E+06	1.2E-07
Protactinium (91)	Pa-228	2.76E+02	2.51E-03	6.18E-06	1.22E-06	3.44E-06	5.37E-06	1.19E-06	4.9E+02	2.5E+03	8.8E+02	5.6E+02	2.5E+03	7.8E-10
Protactinium (91)	Pa-229	1.69E+02	4.11E-03	1.45E-07	4.75E-08	1.16E-07	1.45E-07	4.99E-08	1.3E+04	3.9E+04	1.6E+04	1.3E+04	3.7E+04	3.4E-08
Protactinium (91)	Pa-230	1.45E+01	4.77E-02	2.94E-06	5.98E-07	1.67E-06	2.58E-06	5.85E-07	5.4E+01	2.7E+02	9.5E+01	6.2E+01	2.7E+02	1.7E-09
Protactinium (91)	Pa-231	2.12E-05	3.28E+04	1.27E-07	2.97E-08	8.20E-08	1.20E-07	3.14E-08	3.4E+00	1.5E+01	5.3E+00	3.6E+00	1.4E+01	7.3E-05
Protactinium (91)	Pa-232	1.93E+02	3.59E-03	4.29E-06	8.50E-07	2.41E-06	3.76E-06	8.29E-07	4.9E+02	2.5E+03	8.8E+02	5.6E+02	2.6E+03	1.2E-09
Protactinium (91)	Pa-233	9.38E+00	7.39E-02	8.03E-07	1.91E-07	5.23E-07	7.60E-07	1.88E-07	1.3E+02	5.4E+02	2.0E+02	1.4E+02	5.5E+02	6.2E-09
Protactinium (91)	Pa-234	9.06E+02	7.65E-04	6.62E-06	1.32E-06	3.74E-06	5.80E-06	1.28E-06	1.5E+03	7.5E+03	2.7E+03	1.7E+03	7.7E+03	7.5E-10
Protactinium (91)	Pa-234m	3.11E+05	2.23E-06	9.06E-08	1.92E-08	5.16E-08	7.93E-08	2.86E-08	3.8E+07	1.8E+08	6.6E+07	4.3E+07	1.2E+08	5.5E-08
Protactinium (91)	Pa-235	1.49E+04	4.66E-05	4.44E-09	1.53E-09	3.23E-09	4.29E-09	6.97E-09	3.7E+07	1.1E+08	5.0E+07	3.8E+07	2.3E+07	1.1E-06
Protactinium (91)	Pa-236	4.00E+04	1.73E-05	4.43E-06	8.20E-07	2.35E-06	3.75E-06	8.02E-07	9.9E+04	5.3E+05	1.9E+05	1.2E+05	5.5E+05	1.1E-09
Protactinium (91)	Pa-237	4.19E+04	1.66E-05	2.80E-06	5.60E-07	1.59E-06	2.48E-06	5.53E-07	1.6E+05	8.2E+05	2.9E+05	1.9E+05	8.3E+05	1.8E-09
Lead (82)	Pb-194	3.04E+04	2.28E-05	4.87E-06	9.58E-07	2.71E-06	4.20E-06	9.38E-07	6.8E+04	3.5E+05	1.2E+05	7.9E+04	3.5E+05	8.5E-10
Lead (82)	Pb-195m	2.43E+04	2.85E-05	7.20E-06	1.50E-06	4.20E-06	6.45E-06	1.47E-06	3.7E+04	1.8E+05	6.3E+04	4.1E+04	1.8E+05	5.8E-10
Lead (82)	Pb-196	9.84E+03	7.04E-05	1.87E-06	4.32E-07	1.18E-06	1.73E-06	4.29E-07	5.8E+04	2.5E+05	9.2E+04	6.2E+04	2.5E+05	2.2E-09
Lead (82)	Pb-197	4.55E+04	1.52E-05	7.20E-06	1.36E-06	3.87E-06	6.13E-06	1.32E-06	6.9E+04	3.7E+05	1.3E+05	8.1E+04	3.8E+05	5.8E-10
Lead (82)	Pb-197m	8.47E+03	8.18E-05	5.01E-06	1.05E-06	2.95E-06	4.50E-06	1.03E-06	1.9E+04	8.8E+04	3.1E+04	2.1E+04	9.0E+04	8.4E-10
Lead (82)	Pb-198	2.53E+03	2.74E-04	1.62E-06	3.81E-07	1.04E-06	1.52E-06	3.78E-07	1.7E+04	7.3E+04	2.7E+04	1.8E+04	7.3E+04	2.6E-09
Lead (82)	Pb-199	4.05E+03	1.71E-04	4.78E-06	9.23E-07	2.62E-06	4.10E-06	8.98E-07	9.3E+03	4.8E+04	1.7E+04	1.1E+04	4.9E+04	8.9E-10
Lead (82)	Pb-200	2.82E+02	2.45E-03	5.95E-07	1.67E-07	4.28E-07	5.77E-07	1.70E-07	5.2E+03	1.9E+04	7.2E+03	5.4E+03	1.8E+04	7.1E-09
Lead (82)	Pb-201	6.51E+02	1.07E-03	3.16E-06	6.74E-07	1.87E-06	2.85E-06	6.63E-07	2.3E+03	1.1E+04	3.8E+03	2.5E+03	1.1E+04	1.3E-09
Lead (82)	Pb-201m	3.58E+05	1.93E-06	1.58E-06	3.31E-07	9.25E-07	1.41E-06	3.29E-07	2.5E+06	1.2E+07	4.2E+06	2.8E+06	1.2E+07	2.7E-09
Lead (82)	Pb-202	1.32E-05	5.25E+04	2.99E-12	2.99E-12	2.99E-12	2.99E-12	8.68E-11	1.5E+05	1.5E+05	1.5E+05	1.5E+05	5.0E+03	4.4E+00

Radionuclides		Slope Factors and Isotope-specific Information							Carcinogenic Target Risk (TR) = 1E-06					
Element (Atomic Number)	Isotope	Lambda (yr^{-1})	Halflife (years)	External Exposure Slope Factor (risk/yr per pCi/g)	External Exposure Slope Factor (1 cm) (risk/yr per pCi/g)	External Exposure Slope Factor (5 cm) (risk/yr per pCi/g)	External Exposure Slope Factor (15 cm) (risk/yr per pCi/g)	Ground Plane External Exposure Slope Factor (risk/yr per pCi/cm^2)	Soil Volume PRG (pCi/g)	Soil Volume @ 1cm PRG (pCi/g)	Soil Volume @ 5cm PRG (pCi/g)	Soil Volume @ 15cm PRG (pCi/g)	Ground Plane PRG (pCi/cm^2)	Soil Volume PRG (mg/kg)
Actinium (89)	Ac-223	1.73E+05	4.00E-06	6.12E-08	1.49E-08	4.05E-08	5.79E-08	1.49E-08	3.1E+07	1.3E+08	4.7E+07	3.3E+07	1.3E+08	7.7E-08
Lead (82)	Pb-202+D	1.32E-05	5.25E+04	1.81E-06	4.09E-07	1.12E-06	1.68E-06	4.06E-07	2.4E-01	1.1E+00	3.9E-01	2.6E-01	1.1E+00	7.2E-06
Lead (82)	Pb-202m	1.72E+03	4.03E-04	9.07E-06	1.82E-06	5.16E-06	8.01E-06	1.77E-06	2.1E+03	1.0E+04	3.7E+03	2.4E+03	1.1E+04	4.7E-10
Lead (82)	Pb-203	1.17E+02	5.92E-03	1.10E-06	2.69E-07	7.29E-07	1.04E-06	2.69E-07	1.2E+03	4.8E+03	1.8E+03	1.2E+03	4.8E+03	3.9E-09
Lead (82)	Pb-204m	5.42E+03	1.28E-04	9.53E-06	1.89E-06	5.34E-06	8.36E-06	1.83E-06	6.2E+03	3.1E+04	1.1E+04	7.1E+03	3.2E+04	4.5E-10
Lead (82)	Pb-205	4.53E-08	1.53E+07	3.02E-12	3.03E-12	3.03E-12	3.02E-12	8.79E-11	1.4E+05	1.4E+05	1.4E+05	1.4E+05	5.0E+03	1.3E+03
Lead (82)	Pb-209	1.87E+03	3.71E-04	5.37E-10	1.84E-10	4.17E-10	5.29E-10	5.65E-10	4.2E+07	1.2E+08	5.4E+07	4.3E+07	4.0E+07	9.2E-06
Lead (82)	Pb-210	3.12E-02	2.22E+01	1.48E-09	9.53E-10	1.47E-09	1.48E-09	1.72E-09	4.3E+02	6.6E+02	4.3E+02	4.3E+02	3.7E+02	5.6E-06
Lead (82)	Pb-211	1.01E+04	6.87E-05	2.91E-07	6.03E-08	1.69E-07	2.60E-07	6.40E-08	3.8E+05	1.8E+06	6.5E+05	4.2E+05	1.7E+06	1.5E-08
Lead (82)	Pb-212	5.71E+02	1.21E-03	4.96E-07	1.24E-07	3.36E-07	4.78E-07	1.24E-07	1.3E+04	5.0E+04	1.9E+04	1.3E+04	5.0E+04	9.1E-09
Lead (82)	Pb-214	1.36E+04	5.10E-05	9.94E-07	2.26E-07	6.30E-07	9.31E-07	2.23E-07	1.5E+05	6.6E+05	2.4E+05	1.6E+05	6.7E+05	4.6E-09
Palladium (46)	Pd-100	6.97E+01	9.95E-03	2.02E-07	7.36E-08	1.68E-07	2.02E-07	8.72E-08	3.8E+03	1.0E+04	4.5E+03	3.8E+03	8.7E+03	1.1E-08
Palladium (46)	Pd-101	7.17E+02	9.67E-04	1.45E-06	2.97E-07	8.41E-07	1.30E-06	2.98E-07	5.4E+03	2.6E+04	9.3E+03	6.1E+03	2.6E+04	1.5E-09
Palladium (46)	Pd-103	1.49E+01	4.66E-02	1.13E-09	7.83E-10	9.64E-10	1.10E-09	4.81E-09	1.4E+05	2.1E+05	1.7E+05	1.5E+05	3.4E+04	1.9E-06
Palladium (46)	Pd-107	1.07E-07	6.50E+06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	.	.	.	.	.	.
Palladium (46)	Pd-109	4.43E+02	1.56E-03	1.27E-08	4.37E-09	9.75E-09	1.24E-08	1.02E-08	3.8E+05	1.1E+06	5.0E+05	3.9E+05	4.8E+05	1.8E-07
Palladium (46)	Pd-109m	7.77E+04	8.92E-06	3.76E-07	9.32E-08	2.58E-07	3.65E-07	9.27E-08	2.3E+06	9.1E+06	3.3E+06	2.3E+06	9.2E+06	6.2E-09
Palladium (46)	Pd-111	1.56E+04	4.45E-05	2.37E-07	4.80E-08	1.33E-07	2.08E-07	5.70E-08	7.2E+05	3.5E+06	1.3E+06	8.2E+05	3.0E+06	1.0E-08
Palladium (46)	Pd-112	2.89E+02	2.40E-03	1.89E-10	1.67E-10	1.84E-10	1.89E-10	1.37E-09	1.7E+07	1.9E+07	1.7E+07	1.7E+07	2.3E+06	1.3E-05
Palladium (46)	Pd-114	1.51E+05	4.60E-06	9.94E-08	2.47E-08	6.69E-08	9.53E-08	3.06E-08	1.7E+07	6.7E+07	2.5E+07	1.7E+07	5.4E+07	2.4E-08
Palladium (46)	Pd-96	1.79E+05	3.87E-06	6.43E-06	1.30E-06	3.68E-06	5.70E-06	1.27E-06	3.0E+05	1.5E+06	5.3E+05	3.4E+05	1.5E+06	3.2E-10
Palladium (46)	Pd-97	1.17E+05	5.90E-06	1.13E-05	2.13E-06	6.11E-06	9.68E-06	2.08E-06	1.1E+05	6.0E+05	2.1E+05	1.3E+05	6.2E+05	1.8E-10
Palladium (46)	Pd-98	2.06E+04	3.37E-05	1.65E-06	3.57E-07	9.86E-07	1.48E-06	3.55E-07	1.4E+05	6.3E+05	2.3E+05	1.5E+05	6.3E+05	1.3E-09
Palladium (46)	Pd-99	1.70E+04	4.07E-05	5.79E-06	1.15E-06	3.25E-06	5.07E-06	1.13E-06	3.2E+04	1.6E+05	5.7E+04	3.7E+04	1.7E+05	3.6E-10
Promethium (61)	Pm-136	2.04E+05	3.39E-06	1.23E-05	2.52E-06	7.12E-06	1.10E-05	2.48E-06	1.8E+05	8.9E+05	3.1E+05	2.0E+05	9.0E+05	2.4E-10
Promethium (61)	Pm-137m	1.52E+05	4.57E-06	7.67E-06	1.62E-06	4.54E-06	6.91E-06	1.60E-06	2.2E+05	1.0E+06	3.7E+05	2.4E+05	1.0E+06	3.8E-10
Promethium (61)	Pm-139	8.78E+04	7.90E-06	4.15E-06	8.63E-07	2.43E-06	3.74E-06	8.56E-07	2.3E+05	1.1E+06	4.0E+05	2.6E+05	1.1E+06	7.1E-10
Promethium (61)	Pm-140	2.38E+06	2.92E-07	4.74E-06	9.90E-07	2.78E-06	4.27E-06	9.83E-07	5.5E+06	2.6E+07	9.3E+06	6.1E+06	2.6E+07	6.3E-10
Promethium (61)	Pm-140m	6.12E+04	1.13E-05	1.39E-05	2.78E-06	7.85E-06	1.23E-05	2.72E-06	4.8E+04	2.4E+05	8.5E+04	5.5E+04	2.5E+05	2.1E-10
Promethium (61)	Pm-141	1.74E+04	3.98E-05	3.29E-06	6.65E-07	1.89E-06	2.91E-06	6.61E-07	5.8E+04	2.9E+05	1.0E+05	6.6E+04	2.9E+05	9.1E-10
Promethium (61)	Pm-142	5.40E+05	1.28E-06	3.81E-06	7.94E-07	2.24E-06	3.43E-06	7.90E-07	1.6E+06	7.4E+06	2.6E+06	1.7E+06	7.5E+06	7.9E-10
Promethium (61)	Pm-143	9.55E-01	7.26E-01	1.33E-06	2.73E-07	7.57E-07	1.17E-06	2.77E-07	7.9E+00	3.8E+01	1.4E+01	9.0E+00	3.8E+01	2.3E-09
Promethium (61)	Pm-144	6.97E-01	9.95E-01	6.90E-06	1.42E-06	4.00E-06	6.18E-06	1.40E-06	1.1E+00	5.4E+00	1.9E+00	1.2E+00	5.4E+00	4.4E-10
Promethium (61)	Pm-145	3.92E-02	1.77E+01	1.58E-08	1.09E-08	1.54E-08	1.58E-08	2.14E-08	4.4E+01	6.3E+01	4.4E+01	4.4E+01	3.2E+01	3.1E-07
Promethium (61)	Pm-146	1.25E-01	5.53E+00	3.27E-06	6.78E-07	1.91E-06	2.93E-06	6.70E-07	4.4E-01	2.1E+00	7.5E-01	4.9E-01	2.1E+00	9.9E-10
Promethium (61)	Pm-147	2.64E-01	2.62E+00	3.22E-11	1.39E-11	2.75E-11	3.21E-11	2.25E-11	9.0E+04	2.1E+05	1.1E+05	9.0E+04	1.3E+05	9.7E-05
Promethium (61)	Pm-148	4.71E+01	1.47E-02	2.80E-06	5.23E-07	1.50E-06	2.38E-06	5.14E-07	1.8E+02	9.9E+02	3.4E+02	2.2E+02	1.0E+03	1.1E-09
Promethium (61)	Pm-148m	6.13E+00	1.13E-01	8.94E-06	1.83E-06	5.16E-06	7.99E-06	1.79E-06	7.5E+00	3.7E+01	1.3E+01	8.4E+00	3.8E+01	3.5E-10
Promethium (61)	Pm-149	1.14E+02	6.06E-03	5.10E-08	1.15E-08	3.19E-08	4.75E-08	1.46E-08	2.5E+04	1.1E+05	3.9E+04	2.6E+04	8.6E+04	6.2E-08
Promethium (61)	Pm-150	2.27E+03	3.06E-04	7.06E-06	1.33E-06	3.81E-06	6.04E-06	1.30E-06	3.5E+03	1.9E+04	6.5E+03	4.1E+03	1.9E+04	4.5E-10
Promethium (61)	Pm-151	2.14E+02	3.24E-03	1.31E-06	2.91E-07	8.09E-07	1.21E-06	2.91E-07	1.8E+03	8.0E+03	2.9E+03	1.9E+03	8.1E+03	2.5E-09
Promethium (61)	Pm-152	8.84E+04	7.84E-06	1.37E-06	2.67E-07	7.51E-07	1.18E-06	2.73E-07	7.1E+05	3.6E+06	1.3E+06	8.2E+05	3.5E+06	2.4E-09
Promethium (61)	Pm-152m	4.84E+04	1.43E-05	6.99E-06	1.37E-06	3.87E-06	6.06E-06	1.33E-06	7.6E+04	3.9E+05	1.4E+05	8.8E+04	4.0E+05	4.6E-10
Promethium (61)	Pm-153	6.94E+04	9.99E-06	2.21E-07	6.18E-08	1.58E-07	2.15E-07	7.37E-08	3.4E+06	1.2E+07	4.8E+06	3.5E+06	1.0E+07	1.5E-08
Promethium (61)	Pm-154	2.11E+05	3.29E-06	9.04E-06	1.58E-06	4.58E-06	7.43E-06	1.53E-06	2.6E+05	1.5E+06	5.0E+05	3.1E+05	1.5E+06	3.6E-10
Promethium (61)	Pm-154m	1.36E+05	5.10E-06	8.58E-06	1.61E-06	4.60E-06	7.30E-06	1.56E-06	1.7E+05	9.3E+05	3.2E+05	2.0E+05	9.5E+05	3.8E-10
Polonium (84)	Po-203	9.92E+03	6.98E-05	7.59E-06	1.47E-06	4.15E-06	6.53E-06	1.42E-06	1.4E+04	7.4E+04	2.6E+04	1.7E+04	7.6E+04	5.7E-10
Polonium (84)	Po-204	1.72E+03	4.03E-04	4.95E-06	1.03E-06	2.88E-06	4.39E-06	1.01E-06	3.8E+03	1.8E+04	6.5E+03	4.3E+03	1.9E+04	8.8E-10
Polonium (84)	Po-205	3.66E+03	1.89E-04	7.37E-06	1.42E-06	4.04E-06	6.34E-06	1.39E-06	5.4E+03	2.8E+04	9.9E+03	6.3E+03	2.9E+04	5.9E-10
Polonium (84)	Po-206	2.87E+01	2.41E-02	5.21E-06	1.07E-06	2.99E-06	4.61E-06	1.05E-06	6.0E+01	2.9E+02	1.1E+02	6.8E+01	3.0E+02	8.4E-10

Radionuclides		Slope Factors and Isotope-specific Information							Carcinogenic Target Risk (TR) = 1E-06					
Element (Atomic Number)	Isotope	Lambda (yr^{-1})	Halflife (years)	External Exposure Slope Factor (risk/yr per pCi/g)	External Exposure Slope Factor (1 cm) (risk/yr per pCi/g)	External Exposure Slope Factor (5 cm) (risk/yr per pCi/g)	External Exposure Slope Factor (15 cm) (risk/yr per pCi/g)	Ground Plane External Exposure Slope Factor (risk/yr per pCi/cm^2)	Soil Volume PRG (pCi/g)	Soil Volume @ 1cm PRG (pCi/g)	Soil Volume @ 5cm PRG (pCi/g)	Soil Volume @ 15cm PRG (pCi/g)	Ground Plane PRG (pCi/cm^2)	Soil Volume PRG (mg/kg)
Actinium (89)	Ac-223	1.73E+05	4.00E-06	6.12E-08	1.49E-08	4.05E-08	5.79E-08	1.49E-08	3.1E+07	1.3E+08	4.7E+07	3.3E+07	1.3E+08	7.7E-08
Polonium (84)	Po-207	1.05E+03	6.62E-04	5.86E-06	1.16E-06	3.25E-06	5.09E-06	1.13E-06	2.0E+03	9.9E+03	3.5E+03	2.3E+03	1.0E+04	7.5E-10
Polonium (84)	Po-208	2.39E-01	2.90E+00	8.91E-11	1.91E-11	5.31E-11	8.04E-11	1.88E-11	2.9E+04	1.4E+05	4.9E+04	3.3E+04	1.4E+05	5.0E-05
Polonium (84)	Po-209	6.79E-03	1.02E+02	2.65E-08	5.53E-09	1.54E-08	2.36E-08	5.42E-09	1.8E+01	8.6E+01	3.1E+01	2.0E+01	8.8E+01	1.1E-06
Polonium (84)	Po-210	1.83E+00	3.79E-01	4.51E-11	8.95E-12	2.54E-11	3.96E-11	8.70E-12	4.4E+05	2.2E+06	7.9E+05	5.1E+05	2.3E+06	9.9E-05
Polonium (84)	Po-211	4.24E+07	1.64E-08	3.76E-08	7.49E-09	2.11E-08	3.32E-08	7.31E-09	1.2E+10	6.2E+10	2.2E+10	1.4E+10	6.3E+10	1.2E-07
Polonium (84)	Po-212	7.31E+13	9.48E-15	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	.	.	.	.	.	.
Polonium (84)	Po-212m	4.85E+05	1.43E-06	4.20E-07	6.76E-08	1.98E-07	3.30E-07	6.43E-08	1.3E+07	7.8E+07	2.7E+07	1.6E+07	8.2E+07	1.1E-08
Polonium (84)	Po-213	5.20E+12	1.33E-13	1.73E-10	3.46E-11	9.73E-11	1.52E-10	3.36E-11	3.3E+17	1.6E+18	5.9E+17	3.8E+17	1.7E+18	2.6E-05
Polonium (84)	Po-214	1.33E+11	5.21E-12	3.85E-10	7.62E-11	2.15E-10	3.37E-10	7.43E-11	3.8E+15	1.9E+16	6.8E+15	4.3E+15	2.0E+16	1.2E-05
Polonium (84)	Po-215	1.23E+10	5.65E-11	7.48E-10	1.62E-10	4.54E-10	6.89E-10	1.59E-10	1.8E+14	8.3E+14	3.0E+14	2.0E+14	8.5E+14	6.1E-06
Polonium (84)	Po-216	1.51E+08	4.60E-09	7.10E-11	1.41E-11	3.98E-11	6.24E-11	1.37E-11	2.3E+13	1.2E+14	4.1E+13	2.6E+13	1.2E+14	6.5E-05
Polonium (84)	Po-218	1.17E+05	5.90E-06	6.84E-15	3.16E-15	5.98E-15	6.82E-15	5.30E-15	2.1E+14	4.5E+14	2.4E+14	2.1E+14	2.7E+14	7.5E-01
Praseodymium (59)	Pr-134	3.31E+04	2.09E-05	1.42E-05	2.88E-06	8.13E-06	1.26E-05	2.81E-06	2.5E+04	1.3E+05	4.5E+04	2.9E+04	1.3E+05	2.0E-10
Praseodymium (59)	Pr-134m	2.14E+04	3.23E-05	1.08E-05	2.09E-06	5.98E-06	9.39E-06	2.06E-06	2.2E+04	1.1E+05	3.9E+04	2.5E+04	1.1E+05	2.6E-10
Praseodymium (59)	Pr-135	1.52E+04	4.57E-05	3.74E-06	7.83E-07	2.19E-06	3.36E-06	7.81E-07	4.4E+04	2.1E+05	7.6E+04	4.9E+04	2.1E+05	7.7E-10
Praseodymium (59)	Pr-136	2.78E+04	2.49E-05	9.98E-06	1.94E-06	5.51E-06	8.66E-06	1.89E-06	3.0E+04	1.6E+05	5.5E+04	3.5E+04	1.6E+05	2.9E-10
Praseodymium (59)	Pr-137	4.74E+03	1.46E-04	1.56E-06	3.25E-07	9.10E-07	1.40E-06	3.28E-07	3.3E+04	1.6E+05	5.7E+04	3.7E+04	1.6E+05	1.9E-09
Praseodymium (59)	Pr-138	2.51E+05	2.76E-06	3.58E-06	7.57E-07	2.13E-06	3.25E-06	7.53E-07	7.7E+05	3.6E+06	1.3E+06	8.5E+05	3.7E+06	8.2E-10
Praseodymium (59)	Pr-138m	2.86E+03	2.42E-04	1.13E-05	2.24E-06	6.37E-06	9.95E-06	2.20E-06	2.8E+03	1.4E+04	4.9E+03	3.2E+03	1.4E+04	2.6E-10
Praseodymium (59)	Pr-139	1.38E+03	5.03E-04	4.75E-07	1.02E-07	2.78E-07	4.25E-07	1.10E-07	3.2E+04	1.5E+05	5.4E+04	3.5E+04	1.4E+05	6.2E-09
Praseodymium (59)	Pr-140	1.07E+05	6.45E-06	2.35E-06	4.97E-07	1.39E-06	2.13E-06	4.99E-07	5.0E+05	2.4E+06	8.4E+05	5.5E+05	2.4E+06	1.3E-09
Praseodymium (59)	Pr-142	3.18E+02	2.18E-03	3.13E-07	5.62E-08	1.60E-07	2.58E-07	6.36E-08	1.1E+04	6.2E+04	2.2E+04	1.3E+04	5.5E+04	9.6E-09
Praseodymium (59)	Pr-142m	2.49E+04	2.78E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	.	.	.	.	.	.
Praseodymium (59)	Pr-143	1.86E+01	3.72E-02	1.63E-09	5.60E-10	1.23E-09	1.60E-09	2.91E-09	1.2E+05	3.6E+05	1.7E+05	1.3E+05	7.0E+04	1.9E-06
Praseodymium (59)	Pr-144	2.11E+04	3.29E-05	1.79E-07	3.55E-08	9.58E-08	1.51E-07	4.67E-08	1.3E+06	6.5E+06	2.4E+06	1.5E+06	4.9E+06	1.7E-08
Praseodymium (59)	Pr-144m	5.06E+04	1.37E-05	1.24E-08	4.91E-09	8.67E-09	1.12E-08	8.87E-09	4.5E+07	1.1E+08	6.4E+07	5.0E+07	6.2E+07	2.5E-07
Praseodymium (59)	Pr-145	1.01E+03	6.83E-04	9.47E-08	2.00E-08	5.42E-08	8.34E-08	2.80E-08	1.2E+05	5.6E+05	2.1E+05	1.3E+05	4.0E+05	3.3E-08
Praseodymium (59)	Pr-146	1.51E+04	4.59E-05	4.97E-06	9.17E-07	2.63E-06	4.19E-06	8.98E-07	3.3E+04	1.8E+05	6.3E+04	3.9E+04	1.8E+05	6.2E-10
Praseodymium (59)	Pr-147	2.72E+04	2.55E-05	2.04E-06	4.24E-07	1.17E-06	1.81E-06	4.37E-07	1.5E+05	7.0E+05	2.5E+05	1.6E+05	6.8E+05	1.5E-09
Praseodymium (59)	Pr-148	1.59E+05	4.36E-06	4.80E-06	9.06E-07	2.60E-06	4.10E-06	8.90E-07	3.6E+05	1.9E+06	6.7E+05	4.2E+05	2.0E+06	6.6E-10
Praseodymium (59)	Pr-148m	1.81E+05	3.82E-06	4.16E-06	8.69E-07	2.45E-06	3.75E-06	8.62E-07	4.8E+05	2.3E+06	8.1E+05	5.3E+05	2.3E+06	7.6E-10
Platinum (78)	Pt-184	2.11E+04	3.29E-05	2.62E-06	6.20E-07	1.67E-06	2.43E-06	6.24E-07	8.8E+04	3.7E+05	1.4E+05	9.5E+04	3.7E+05	1.5E-09
Platinum (78)	Pt-186	2.92E+03	2.37E-04	2.85E-06	6.09E-07	1.68E-06	2.56E-06	6.04E-07	1.1E+04	5.2E+04	1.9E+04	1.2E+04	5.3E+04	1.4E-09
Platinum (78)	Pt-187	2.58E+03	2.68E-04	2.43E-06	5.36E-07	1.46E-06	2.20E-06	5.36E-07	1.2E+04	5.3E+04	1.9E+04	1.3E+04	5.3E+04	1.6E-09
Platinum (78)	Pt-188	2.48E+01	2.79E-02	6.15E-07	1.65E-07	4.26E-07	5.88E-07	1.70E-07	4.4E+02	1.6E+03	6.4E+02	4.6E+02	1.6E+03	6.5E-09
Platinum (78)	Pt-189	5.58E+02	1.24E-03	1.87E-06	4.17E-07	1.13E-06	1.68E-06	4.19E-07	3.3E+03	1.5E+04	5.4E+03	3.6E+03	1.5E+04	2.1E-09
Platinum (78)	Pt-190	1.07E-12	6.50E+11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	.	.	.	.	.	.
Platinum (78)	Pt-191	9.03E+01	7.68E-03	9.68E-07	2.43E-07	6.33E-07	9.03E-07	2.50E-07	1.0E+03	4.1E+03	1.6E+03	1.1E+03	4.0E+03	4.2E-09
Platinum (78)	Pt-193	1.39E-02	5.00E+01	1.91E-12	1.92E-12	1.92E-12	1.91E-12	5.27E-11	2.7E+05	2.7E+05	2.7E+05	2.7E+05	9.8E+03	7.3E-03
Platinum (78)	Pt-193m	5.84E+01	1.19E-02	1.66E-08	7.02E-09	1.47E-08	1.65E-08	8.16E-09	3.9E+04	9.1E+04	4.4E+04	3.9E+04	7.8E+04	2.5E-07
Platinum (78)	Pt-195m	6.29E+01	1.10E-02	1.27E-07	4.97E-08	1.09E-07	1.27E-07	5.62E-08	5.4E+03	1.4E+04	6.3E+03	5.4E+03	1.2E+04	3.3E-08
Platinum (78)	Pt-197	3.05E+02	2.27E-03	5.73E-08	1.84E-08	4.45E-08	5.65E-08	1.98E-08	5.8E+04	1.8E+05	7.5E+04	5.9E+04	1.7E+05	7.3E-08
Platinum (78)	Pt-197m	3.82E+03	1.82E-04	2.38E-07	6.43E-08	1.64E-07	2.27E-07	6.70E-08	1.8E+05	6.5E+05	2.5E+05	1.8E+05	6.2E+05	1.8E-08
Platinum (78)	Pt-199	1.18E+04	5.86E-05	8.57E-07	1.83E-07	5.14E-07	7.80E-07	1.86E-07	1.5E+05	7.1E+05	2.5E+05	1.7E+05	7.0E+05	4.9E-09
Platinum (78)	Pt-200	4.86E+02	1.43E-03	1.58E-07	4.61E-08	1.16E-07	1.53E-07	4.86E-08	3.4E+04	1.2E+05	4.6E+04	3.5E+04	1.1E+05	2.7E-08
Platinum (78)	Pt-202	1.38E+02	5.02E-03	8.87E-09	2.99E-09	6.31E-09	8.48E-09	1.11E-08	1.9E+05	5.6E+05	2.7E+05	2.0E+05	1.5E+05	5.4E-07
Platinum (78)	Pt-202+D	1.38E+02	5.02E-03	8.41E-07	1.68E-07	4.69E-07	7.32E-07	1.82E-07	1.8E+03	9.0E+03	3.2E+03	2.1E+03	8.3E+03	5.1E-09
Plutonium (94)	Pu-232	1.08E+04	6.41E-05	1.49E-07	4.71E-08	1.18E-07	1.49E-07	4.86E-08	7.9E+05	2.5E+06	1.0E+06	7.9E+05	2.4E+06	3.3E-08
Plutonium (94)	Pu-234	6.90E+02	1.00E-03	1.62E-07	5.08E-08	1.27E-07	1.61E-07	5.27E-08	4.7E+04	1.5E+05	5.9E+04	4.7E+04	1.4E+05	3.1E-08

Radionuclides		Slope Factors and Isotope-specific Information							Carcinogenic Target Risk (TR) = 1E-06					
Element (Atomic Number)	Isotope	Lambda (yr^{-1})	Halflife (years)	External Exposure Slope Factor (risk/yr per pCi/g)	External Exposure Slope Factor (1 cm) (risk/yr per pCi/g)	External Exposure Slope Factor (5 cm) (risk/yr per pCi/g)	External Exposure Slope Factor (15 cm) (risk/yr per pCi/g)	Ground Plane External Exposure Slope Factor (risk/yr per pCi/cm^2)	Soil Volume PRG (pCi/g)	Soil Volume @ 1cm PRG (pCi/g)	Soil Volume @ 5cm PRG (pCi/g)	Soil Volume @ 15cm PRG (pCi/g)	Ground Plane PRG (pCi/cm^2)	Soil Volume PRG (mg/kg)
Actinium (89)	Ac-223	1.73E+05	4.00E-06	6.12E-08	1.49E-08	4.05E-08	5.79E-08	1.49E-08	3.1E+07	1.3E+08	4.7E+07	3.3E+07	1.3E+08	7.7E-08
Plutonium (94)	Pu-235	1.44E+04	4.81E-05	2.38E-07	7.02E-08	1.78E-07	2.32E-07	7.29E-08	6.6E+05	2.2E+06	8.9E+05	6.8E+05	2.2E+06	2.1E-08
Plutonium (94)	Pu-236	2.42E-01	2.86E+00	1.14E-10	6.63E-11	9.90E-11	1.13E-10	4.17E-10	2.3E+04	4.0E+04	2.7E+04	2.4E+04	6.4E+03	4.4E-05
Plutonium (94)	Pu-237	5.60E+00	1.24E-01	1.14E-07	3.64E-08	9.02E-08	1.14E-07	3.85E-08	5.4E+02	1.7E+03	6.8E+02	5.4E+02	1.6E+03	4.4E-08
Plutonium (94)	Pu-238	7.90E-03	8.77E+01	6.91E-11	4.80E-11	6.30E-11	6.87E-11	3.68E-10	7.0E+03	1.0E+04	7.7E+03	7.0E+03	1.3E+03	4.1E-04
Plutonium (94)	Pu-239	2.87E-05	2.41E+04	2.09E-10	6.88E-11	1.51E-10	2.01E-10	2.06E-10	2.1E+03	6.4E+03	2.9E+03	2.2E+03	2.1E+03	3.4E-02
Plutonium (94)	Pu-239+D	2.87E-05	2.41E+04	2.09E-10	6.88E-11	1.51E-10	2.01E-10	2.06E-10	2.1E+03	6.4E+03	2.9E+03	2.2E+03	2.1E+03	3.4E-02
Plutonium (94)	Pu-240	1.06E-04	6.56E+03	7.12E-11	4.78E-11	6.43E-11	7.04E-11	3.50E-10	6.2E+03	9.2E+03	6.8E+03	6.2E+03	1.3E+03	2.7E-02
Plutonium (94)	Pu-241	4.83E-02	1.44E+01	4.06E-12	1.25E-12	3.16E-12	4.04E-12	1.30E-12	1.9E+05	6.0E+05	2.4E+05	1.9E+05	5.8E+05	1.8E-03
Plutonium (94)	Pu-242	1.85E-06	3.75E+05	4.36E-10	1.06E-10	2.43E-10	3.68E-10	3.63E-10	1.0E+03	4.1E+03	1.8E+03	1.2E+03	1.2E+03	2.6E-01
Plutonium (94)	Pu-243	1.22E+03	5.66E-04	5.52E-08	1.83E-08	4.37E-08	5.44E-08	2.00E-08	2.4E+05	7.3E+05	3.1E+05	2.5E+05	6.7E+05	9.3E-08
Plutonium (94)	Pu-244	8.66E-09	8.00E+07	9.87E-08	1.75E-08	5.04E-08	8.13E-08	1.72E-08	4.4E+00	2.5E+01	8.7E+00	5.4E+00	2.6E+01	2.4E-01
Plutonium (94)	Pu-244+D	8.66E-09	8.00E+07	1.58E-06	3.16E-07	8.89E-07	1.38E-06	3.16E-07	2.8E-01	1.4E+00	4.9E-01	3.2E-01	1.4E+00	1.5E-02
Plutonium (94)	Pu-245	5.78E+02	1.20E-03	1.73E-06	3.64E-07	1.02E-06	1.55E-06	3.57E-07	3.7E+03	1.7E+04	6.2E+03	4.1E+03	1.8E+04	3.0E-09
Plutonium (94)	Pu-246	2.33E+01	2.97E-02	4.09E-07	1.11E-07	2.91E-07	3.99E-07	1.15E-07	6.3E+02	2.3E+03	8.8E+02	6.4E+02	2.2E+03	1.3E-08
Radium (88)	Ra-219	2.19E+09	3.17E-10	6.60E-07	1.51E-07	4.20E-07	6.19E-07	1.48E-07	3.6E+10	1.6E+11	5.7E+10	3.9E+10	1.6E+11	7.1E-09
Radium (88)	Ra-219+D	2.19E+09	3.17E-10	6.60E-07	1.51E-07	4.20E-07	6.19E-07	1.48E-07	3.6E+10	1.6E+11	5.7E+10	3.9E+10	1.6E+11	7.1E-09
Radium (88)	Ra-220	1.22E+09	5.68E-10	2.00E-08	4.28E-09	1.21E-08	1.83E-08	4.20E-09	6.7E+11	3.1E+12	1.1E+12	7.3E+11	3.2E+12	2.3E-07
Radium (88)	Ra-221	7.81E+05	8.88E-07	1.06E-07	2.97E-08	7.77E-08	1.04E-07	3.01E-08	8.1E+07	2.9E+08	1.1E+08	8.2E+07	2.8E+08	4.4E-08
Radium (88)	Ra-221+D	7.81E+05	8.88E-07	1.06E-07	2.97E-08	7.79E-08	1.04E-07	3.01E-08	8.1E+07	2.9E+08	1.1E+08	8.2E+07	2.8E+08	4.4E-08
Radium (88)	Ra-222	5.75E+05	1.20E-06	3.71E-08	8.33E-09	2.35E-08	3.49E-08	8.14E-09	1.7E+08	7.6E+08	2.7E+08	1.8E+08	7.7E+08	1.3E-07
Radium (88)	Ra-223	2.21E+01	3.13E-02	4.55E-07	1.17E-07	3.12E-07	4.37E-07	1.18E-07	5.3E+02	2.1E+03	7.8E+02	5.5E+02	2.1E+03	1.0E-08
Radium (88)	Ra-223+D	2.21E+01	3.13E-02	6.91E-07	1.71E-07	4.61E-07	6.59E-07	1.69E-07	3.5E+02	1.4E+03	5.3E+02	3.7E+02	1.4E+03	6.9E-09
Radium (88)	Ra-224	6.91E+01	1.00E-02	3.91E-08	9.23E-09	2.58E-08	3.74E-08	9.01E-09	1.9E+04	8.2E+04	2.9E+04	2.0E+04	8.4E+04	1.2E-07
Radium (88)	Ra-224+D	6.91E+01	1.00E-02	4.19E-08	9.83E-09	2.75E-08	3.99E-08	9.60E-09	1.8E+04	7.7E+04	2.8E+04	1.9E+04	7.9E+04	1.1E-07
Radium (88)	Ra-225	1.70E+01	4.08E-02	6.11E-09	4.45E-09	6.07E-09	6.10E-09	8.84E-09	3.0E+04	4.2E+04	3.1E+04	3.0E+04	2.1E+04	7.8E-07
Radium (88)	Ra-226	4.33E-04	1.60E+03	2.50E-08	6.33E-09	1.73E-08	2.43E-08	6.25E-09	1.8E+01	7.0E+01	2.5E+01	1.8E+01	7.0E+01	1.8E-05
Radium (88)	Ra-226+D	4.33E-04	1.60E+03	8.37E-06	1.56E-06	4.47E-06	7.10E-06	1.52E-06	5.3E-02	2.8E-01	9.9E-02	6.2E-02	2.9E-01	5.3E-08
Radium (88)	Ra-227	8.63E+03	8.03E-05	5.60E-07	1.26E-07	3.51E-07	5.21E-07	1.31E-07	1.7E+05	7.5E+05	2.7E+05	1.8E+05	7.2E+05	8.6E-09
Radium (88)	Ra-228	1.21E-01	5.75E+00	3.43E-11	3.46E-11	3.44E-11	3.43E-11	4.44E-10	4.0E+04	4.0E+04	4.0E+04	4.0E+04	3.1E+03	1.5E-04
Radium (88)	Ra-228+D	1.21E-01	5.75E+00	4.04E-06	7.83E-07	2.22E-06	3.50E-06	7.65E-07	3.4E-01	1.8E+00	6.2E-01	4.0E-01	1.8E+00	1.3E-09
Radium (88)	Ra-230	3.92E+03	1.77E-04	2.71E-07	6.67E-08	1.79E-07	2.56E-07	6.76E-08	1.6E+05	6.4E+05	2.4E+05	1.7E+05	6.3E+05	1.8E-08
Rubidium (37)	Rb-77	9.66E+04	7.17E-06	6.82E-06	1.42E-06	3.98E-06	6.11E-06	1.40E-06	1.6E+05	7.5E+05	2.7E+05	1.7E+05	7.6E+05	2.4E-10
Rubidium (37)	Rb-78	2.06E+04	3.36E-05	2.09E-05	3.53E-06	1.02E-05	1.67E-05	3.39E-06	1.1E+04	6.4E+04	2.2E+04	1.4E+04	6.7E+04	7.9E-11
Rubidium (37)	Rb-78m	6.35E+04	1.09E-05	1.53E-05	2.91E-06	8.29E-06	1.31E-05	2.83E-06	4.5E+04	2.4E+05	8.4E+04	5.3E+04	2.5E+05	1.1E-10
Rubidium (37)	Rb-79	1.59E+04	4.36E-05	6.28E-06	1.32E-06	3.72E-06	5.69E-06	1.31E-06	2.8E+04	1.3E+05	4.7E+04	3.1E+04	1.3E+05	2.7E-10
Rubidium (37)	Rb-80	6.54E+05	1.06E-06	5.31E-06	1.12E-06	3.14E-06	4.81E-06	1.11E-06	1.3E+06	6.4E+06	2.3E+06	1.5E+06	6.4E+06	3.2E-10
Rubidium (37)	Rb-81	1.33E+03	5.22E-04	2.20E-06	4.61E-07	1.30E-06	2.00E-06	4.53E-07	6.6E+03	3.1E+04	1.1E+04	7.3E+03	3.2E+04	7.8E-10
Rubidium (37)	Rb-81m	1.19E+04	5.80E-05	9.83E-08	2.13E-08	5.85E-08	8.80E-08	2.20E-08	1.3E+06	6.1E+06	2.2E+06	1.5E+06	6.0E+06	1.8E-08
Rubidium (37)	Rb-82	2.86E+05	2.42E-06	4.92E-06	1.03E-06	2.90E-06	4.45E-06	1.02E-06	6.4E+05	3.0E+06	1.1E+06	7.0E+05	3.1E+06	3.5E-10
Rubidium (37)	Rb-82m	9.38E+02	7.39E-04	1.37E-05	2.67E-06	7.57E-06	1.19E-05	2.59E-06	7.5E+02	3.8E+03	1.4E+03	8.6E+02	4.0E+03	1.3E-10
Rubidium (37)	Rb-83	2.93E+00	2.36E-01	2.13E-06	4.45E-07	1.26E-06	1.93E-06	4.37E-07	1.5E+01	7.2E+01	2.6E+01	1.7E+01	7.4E+01	8.3E-10
Rubidium (37)	Rb-84	7.72E+00	8.98E-02	4.16E-06	8.28E-07	2.34E-06	3.65E-06	8.09E-07	2.0E+01	1.0E+02	3.6E+01	2.3E+01	1.0E+02	4.3E-10
Rubidium (37)	Rb-84m	1.80E+04	3.85E-05	1.53E-06	3.46E-07	9.70E-07	1.44E-06	3.36E-07	1.3E+05	5.7E+05	2.0E+05	1.4E+05	5.9E+05	1.2E-09
Rubidium (37)	Rb-86	1.36E+01	5.11E-02	4.59E-07	8.80E-08	2.48E-07	3.93E-07	9.33E-08	3.2E+02	1.7E+03	6.0E+02	3.8E+02	1.6E+03	4.0E-09
Rubidium (37)	Rb-86m	3.58E+05	1.93E-06	2.42E-06	5.03E-07	1.42E-06	2.18E-06	4.92E-07	1.6E+06	7.8E+06	2.8E+06	1.8E+06	8.0E+06	7.6E-10
Rubidium (37)	Rb-87	1.41E-11	4.92E+10	1.01E-10	4.26E-11	8.59E-11	1.01E-10	6.46E-11	4.8E+03	1.1E+04	5.7E+03	4.8E+03	7.5E+03	5.8E+04
Rubidium (37)	Rb-88	2.05E+04	3.38E-05	3.41E-06	5.88E-07	1.70E-06	2.77E-06	5.77E-07	6.6E+04	3.8E+05	1.3E+05	8.1E+04	3.9E+05	5.5E-10
Rubidium (37)	Rb-89	2.40E+04	2.88E-05	1.13E-05	2.00E-06	5.75E-06	9.34E-06	1.93E-06	2.3E+04	1.3E+05	4.6E+04	2.8E+04	1.4E+05	1.7E-10
Rubidium (37)	Rb-90	1.38E+05	5.01E-06	1.11E-05	1.72E-06	4.99E-06	8.42E-06	1.62E-06	1.4E+05	8.8E+05	3.0E+05	1.8E+05	9.3E+05	1.7E-10

Radionuclides		Slope Factors and Isotope-specific Information							Carcinogenic Target Risk (TR) = 1E-06					
Element (Atomic Number)	Isotope	Lambda (yr^{-1})	Halflife (years)	External Exposure Slope Factor (risk/yr per pCi/g)	External Exposure Slope Factor (1 cm) (risk/yr per pCi/g)	External Exposure Slope Factor (5 cm) (risk/yr per pCi/g)	External Exposure Slope Factor (15 cm) (risk/yr per pCi/g)	Ground Plane External Exposure Slope Factor (risk/yr per pCi/cm^2)	Soil Volume PRG (pCi/g)	Soil Volume @ 1cm PRG (pCi/g)	Soil Volume @ 5cm PRG (pCi/g)	Soil Volume @ 15cm PRG (pCi/g)	Ground Plane PRG (pCi/cm^2)	Soil Volume PRG (mg/kg)
Actinium (89)	Ac-223	1.73E+05	4.00E-06	6.12E-08	1.49E-08	4.05E-08	5.79E-08	1.49E-08	3.1E+07	1.3E+08	4.7E+07	3.3E+07	1.3E+08	7.7E-08
Rubidium (37)	Rb-90m	8.47E+04	8.18E-06	1.68E-05	2.82E-06	8.16E-06	1.34E-05	2.70E-06	5.5E+04	3.3E+05	1.1E+05	6.9E+04	3.4E+05	1.1E-10
Rhenium (75)	Re-178	2.76E+04	2.51E-05	8.20E-06	1.49E-06	4.26E-06	6.81E-06	1.45E-06	3.7E+04	2.0E+05	7.1E+04	4.4E+04	2.1E+05	4.6E-10
Rhenium (75)	Re-179	1.87E+04	3.71E-05	4.76E-06	9.58E-07	2.69E-06	4.18E-06	9.40E-07	4.3E+04	2.1E+05	7.6E+04	4.9E+04	2.2E+05	8.0E-10
Rhenium (75)	Re-180	1.49E+05	4.64E-06	5.41E-06	1.08E-06	3.03E-06	4.72E-06	1.06E-06	3.0E+05	1.5E+06	5.4E+05	3.5E+05	1.5E+06	7.1E-10
Rhenium (75)	Re-181	3.05E+02	2.27E-03	3.32E-06	7.10E-07	1.96E-06	2.99E-06	7.04E-07	1.0E+03	4.7E+03	1.7E+03	1.1E+03	4.7E+03	1.2E-09
Rhenium (75)	Re-182	9.49E+01	7.31E-03	7.83E-06	1.58E-06	4.41E-06	6.82E-06	1.55E-06	1.3E+02	6.6E+02	2.4E+02	1.5E+02	6.7E+02	4.9E-10
Rhenium (75)	Re-182m	4.78E+02	1.45E-03	5.58E-06	1.07E-06	3.01E-06	4.75E-06	1.05E-06	9.4E+02	4.9E+03	1.7E+03	1.1E+03	5.0E+03	6.9E-10
Rhenium (75)	Re-183	3.61E+00	1.92E-01	3.55E-07	1.13E-07	2.69E-07	3.47E-07	1.25E-07	1.1E+02	3.5E+02	1.5E+02	1.1E+02	3.2E+02	1.1E-08
Rhenium (75)	Re-184	6.66E+00	1.04E-01	3.93E-06	8.00E-07	2.22E-06	3.46E-06	7.86E-07	1.9E+01	9.1E+01	3.3E+01	2.1E+01	9.3E+01	9.9E-10
Rhenium (75)	Re-184m	1.50E+00	4.63E-01	1.48E-06	3.29E-07	8.97E-07	1.34E-06	3.29E-07	1.1E+01	5.0E+01	1.8E+01	1.2E+01	5.0E+01	2.6E-09
Rhenium (75)	Re-186	6.80E+01	1.02E-02	5.48E-08	1.68E-08	4.15E-08	5.41E-08	2.02E-08	1.4E+04	4.4E+04	1.8E+04	1.4E+04	3.7E+04	7.2E-08
Rhenium (75)	Re-186m	3.47E-06	2.00E+05	1.81E-08	8.74E-09	1.66E-08	1.81E-08	1.14E-08	2.4E+01	5.0E+01	2.6E+01	2.4E+01	3.8E+01	2.5E-03
Rhenium (75)	Re-186m+D	3.47E-06	2.00E+05	7.29E-08	2.54E-08	5.81E-08	7.22E-08	3.16E-08	6.0E+00	1.7E+01	7.5E+00	6.1E+00	1.4E+01	6.3E-04
Rhenium (75)	Re-187	1.68E-11	4.12E+10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	.	.	.	.	.	.
Rhenium (75)	Re-188	3.57E+02	1.94E-03	2.52E-07	5.79E-08	1.57E-07	2.31E-07	6.62E-08	1.6E+04	6.8E+04	2.5E+04	1.7E+04	5.9E+04	1.6E-08
Rhenium (75)	Re-188m	1.96E+04	3.54E-05	1.14E-07	4.63E-08	9.90E-08	1.14E-07	5.36E-08	1.9E+06	4.6E+06	2.2E+06	1.9E+06	4.0E+06	3.5E-08
Rhenium (75)	Re-189	2.50E+02	2.77E-03	2.04E-07	4.89E-08	1.35E-07	1.94E-07	5.07E-08	1.3E+04	5.6E+04	2.0E+04	1.4E+04	5.4E+04	2.0E-08
Rhenium (75)	Re-190	1.17E+05	5.90E-06	5.84E-06	1.22E-06	3.44E-06	5.25E-06	1.20E-06	2.2E+05	1.1E+06	3.7E+05	2.4E+05	1.1E+06	6.9E-10
Rhenium (75)	Re-190m	1.90E+03	3.65E-04	3.93E-06	8.37E-07	2.34E-06	3.56E-06	8.27E-07	5.3E+03	2.5E+04	8.9E+03	5.8E+03	2.5E+04	1.0E-09
Rhodium (45)	Rh-100	2.92E+02	2.37E-03	1.37E-05	2.41E-06	6.99E-06	1.13E-05	2.34E-06	2.3E+02	1.3E+03	4.6E+02	2.8E+02	1.4E+03	1.6E-10
Rhodium (45)	Rh-100m	7.92E+04	8.75E-06	1.87E-07	3.92E-08	1.06E-07	1.63E-07	4.48E-08	4.6E+06	2.2E+07	8.1E+06	5.3E+06	1.9E+07	1.1E-08
Rhodium (45)	Rh-101	2.10E-01	3.30E+00	9.50E-07	2.39E-07	6.54E-07	9.21E-07	2.38E-07	2.4E+00	9.7E+00	3.5E+00	2.5E+00	9.7E+00	2.3E-09
Rhodium (45)	Rh-101m	5.83E+01	1.19E-02	1.11E-06	2.50E-07	7.02E-07	1.05E-06	2.46E-07	5.7E+02	2.5E+03	9.1E+02	6.1E+02	2.6E+03	1.9E-09
Rhodium (45)	Rh-102	1.22E+00	5.67E-01	2.20E-06	4.58E-07	1.29E-06	1.97E-06	4.51E-07	6.1E+00	2.9E+01	1.0E+01	6.8E+00	3.0E+01	9.9E-10
Rhodium (45)	Rh-102m	1.85E-01	3.74E+00	9.77E-06	1.96E-06	5.55E-06	8.64E-06	1.91E-06	2.1E-01	1.0E+00	3.7E-01	2.4E-01	1.1E+00	2.2E-10
Rhodium (45)	Rh-103m	6.49E+03	1.07E-04	8.65E-11	8.28E-11	8.65E-11	8.65E-11	5.21E-10	8.2E+08	8.6E+08	8.2E+08	8.2E+08	1.4E+08	2.5E-05
Rhodium (45)	Rh-104	5.17E+05	1.34E-06	7.59E-08	1.80E-08	4.63E-08	6.91E-08	2.90E-08	7.5E+07	3.1E+08	1.2E+08	8.2E+07	2.0E+08	2.9E-08
Rhodium (45)	Rh-104m	8.39E+04	8.26E-06	3.83E-08	1.85E-08	3.40E-08	3.79E-08	2.83E-08	2.4E+07	5.0E+07	2.7E+07	2.4E+07	3.3E+07	5.8E-08
Rhodium (45)	Rh-105	1.72E+02	4.04E-03	3.13E-07	7.02E-08	1.98E-07	2.94E-07	6.87E-08	6.0E+03	2.7E+04	9.5E+03	6.4E+03	2.7E+04	7.1E-09
Rhodium (45)	Rh-106	7.33E+05	9.45E-07	9.71E-07	2.02E-07	5.64E-07	8.69E-07	2.11E-07	8.3E+06	4.0E+07	1.4E+07	9.2E+06	3.8E+07	2.3E-09
Rhodium (45)	Rh-106m	2.78E+03	2.49E-04	1.33E-05	2.60E-06	7.40E-06	1.16E-05	2.52E-06	2.3E+03	1.2E+04	4.1E+03	2.6E+03	1.2E+04	1.7E-10
Rhodium (45)	Rh-107	1.68E+04	4.13E-05	1.28E-06	2.86E-07	8.05E-07	1.20E-06	2.84E-07	1.4E+05	6.4E+05	2.3E+05	1.5E+05	6.5E+05	1.8E-09
Rhodium (45)	Rh-108	1.30E+06	5.33E-07	1.46E-06	3.12E-07	8.71E-07	1.33E-06	3.20E-07	9.8E+06	4.6E+07	1.6E+07	1.1E+07	4.5E+07	1.6E-09
Rhodium (45)	Rh-109	2.73E+05	2.54E-06	1.21E-06	2.75E-07	7.68E-07	1.14E-06	2.80E-07	2.5E+06	1.1E+07	3.9E+06	2.6E+06	1.1E+07	1.9E-09
Rhodium (45)	Rh-94	3.10E+05	2.24E-06	1.83E-05	3.44E-06	9.83E-06	1.56E-05	3.34E-06	1.8E+05	9.9E+05	3.4E+05	2.2E+05	1.0E+06	1.1E-10
Rhodium (45)	Rh-95	7.26E+04	9.55E-06	1.23E-05	2.30E-06	6.59E-06	1.05E-05	2.24E-06	6.5E+04	3.5E+05	1.2E+05	7.6E+04	3.5E+05	1.6E-10
Rhodium (45)	Rh-95m	1.86E+05	3.73E-06	4.33E-06	7.90E-07	2.26E-06	3.62E-06	7.65E-07	4.7E+05	2.6E+06	9.0E+05	5.6E+05	2.7E+06	4.7E-10
Rhodium (45)	Rh-96	3.68E+04	1.88E-05	1.83E-05	3.59E-06	1.02E-05	1.60E-05	3.49E-06	2.2E+04	1.1E+05	4.0E+04	2.5E+04	1.2E+05	1.1E-10
Rhodium (45)	Rh-96m	2.41E+05	2.87E-06	6.12E-06	1.16E-06	3.31E-06	5.23E-06	1.13E-06	4.3E+05	2.3E+06	8.0E+05	5.0E+05	2.3E+06	3.3E-10
Rhodium (45)	Rh-97	1.19E+04	5.84E-05	6.54E-06	1.31E-06	3.72E-06	5.78E-06	1.28E-06	2.0E+04	9.9E+04	3.5E+04	2.2E+04	1.0E+05	3.2E-10
Rhodium (45)	Rh-97m	7.88E+03	8.79E-05	1.10E-05	1.92E-06	5.57E-06	9.03E-06	1.86E-06	7.9E+03	4.5E+04	1.6E+04	9.6E+03	4.7E+04	1.9E-10
Rhodium (45)	Rh-98	4.19E+04	1.66E-05	8.24E-06	1.67E-06	4.71E-06	7.31E-06	1.63E-06	5.6E+04	2.8E+05	9.7E+04	6.3E+04	2.8E+05	2.5E-10
Rhodium (45)	Rh-99	1.57E+01	4.41E-02	2.31E-06	4.93E-07	1.38E-06	2.10E-06	4.89E-07	7.4E+01	3.5E+02	1.2E+02	8.2E+01	3.5E+02	9.1E-10
Rhodium (45)	Rh-99m	1.29E+03	5.37E-04	2.84E-06	5.83E-07	1.65E-06	2.53E-06	5.71E-07	5.0E+03	2.4E+04	8.6E+03	5.6E+03	2.5E+04	7.4E-10
Radon (86)	Rn-207	3.94E+04	1.76E-05	4.27E-06	8.93E-07	2.50E-06	3.83E-06	8.76E-07	1.0E+05	4.8E+05	1.7E+05	1.1E+05	4.9E+05	1.0E-09
Radon (86)	Rn-209	1.28E+04	5.42E-05	5.41E-06	1.07E-06	3.03E-06	4.71E-06	1.04E-06	2.6E+04	1.3E+05	4.6E+04	3.0E+04	1.3E+05	8.2E-10
Radon (86)	Rn-210	2.53E+03	2.74E-04	2.62E-07	5.47E-08	1.53E-07	2.34E-07	5.37E-08	1.1E+05	5.1E+05	1.8E+05	1.2E+05	5.2E+05	1.7E-08
Radon (86)	Rn-211	4.16E+02	1.67E-03	8.71E-06	1.69E-06	4.80E-06	7.54E-06	1.65E-06	5.2E+02	2.7E+03	9.5E+02	6.0E+02	2.8E+03	5.1E-10
Radon (86)	Rn-212	1.52E+04	4.55E-05	1.54E-09	3.12E-10	8.80E-10	1.37E-09	3.04E-10	1.1E+08	5.3E+08	1.9E+08	1.2E+08	5.5E+08	2.9E-06

Radionuclides		Slope Factors and Isotope-specific Information							Carcinogenic Target Risk (TR) = 1E-06					
Element (Atomic Number)	Isotope	Lambda (yr^{-1})	Halflife (years)	External Exposure Slope Factor (risk/yr per pCi/g)	External Exposure Slope Factor (1 cm) (risk/yr per pCi/g)	External Exposure Slope Factor (5 cm) (risk/yr per pCi/g)	External Exposure Slope Factor (15 cm) (risk/yr per pCi/g)	Ground Plane External Exposure Slope Factor (risk/yr per pCi/cm^2)	Soil Volume PRG (pCi/g)	Soil Volume @ 1cm PRG (pCi/g)	Soil Volume @ 5cm PRG (pCi/g)	Soil Volume @ 15cm PRG (pCi/g)	Ground Plane PRG (pCi/cm^2)	Soil Volume PRG (mg/kg)
Actinium (89)	Ac-223	1.73E+05	4.00E-06	6.12E-08	1.49E-08	4.05E-08	5.79E-08	1.49E-08	3.1E+07	1.3E+08	4.7E+07	3.3E+07	1.3E+08	7.7E-08
Radon (86)	Rn-215	9.50E+12	7.29E-14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	.	.	.	.	.	.
Radon (86)	Rn-216	4.86E+11	1.43E-12	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	.	.	.	.	.	.
Radon (86)	Rn-217	4.05E+10	1.71E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	.	.	.	.	.	.
Radon (86)	Rn-218	6.24E+08	1.11E-09	3.39E-09	6.97E-10	1.96E-09	3.04E-09	6.81E-10	2.0E+12	9.8E+12	3.5E+12	2.3E+12	1.0E+13	1.4E-06
Radon (86)	Rn-219	5.52E+06	1.26E-07	2.35E-07	5.29E-08	1.49E-07	2.21E-07	5.17E-08	2.6E+08	1.1E+09	4.1E+08	2.7E+08	1.2E+09	2.0E-08
Radon (86)	Rn-219+D	5.52E+06	1.26E-07	2.36E-07	5.31E-08	1.49E-07	2.22E-07	5.18E-08	2.6E+08	1.1E+09	4.1E+08	2.7E+08	1.2E+09	2.0E-08
Radon (86)	Rn-220	3.93E+05	1.76E-06	2.77E-09	5.77E-10	1.63E-09	2.50E-09	5.65E-10	1.6E+09	7.5E+09	2.6E+09	1.7E+09	7.6E+09	1.7E-06
Radon (86)	Rn-222	6.62E+01	1.05E-02	1.69E-09	3.57E-10	1.01E-09	1.54E-09	3.50E-10	4.3E+05	2.0E+06	7.2E+05	4.7E+05	2.1E+06	2.8E-06
Radon (86)	Rn-222+D	6.62E+01	1.05E-02	1.69E-09	3.57E-10	1.01E-09	1.54E-09	3.50E-10	4.3E+05	2.0E+06	7.2E+05	4.7E+05	2.1E+06	2.8E-06
Radon (86)	Rn-223	1.50E+04	4.62E-05	1.48E-06	3.08E-07	8.61E-07	1.32E-06	3.09E-07	1.1E+05	5.3E+05	1.9E+05	1.2E+05	5.3E+05	3.2E-09
Ruthenium (44)	Ru-103	6.44E+00	1.08E-01	2.15E-06	4.56E-07	1.28E-06	1.96E-06	4.46E-07	3.3E+01	1.5E+02	5.5E+01	3.6E+01	1.6E+02	1.0E-09
Ruthenium (44)	Ru-105	1.37E+03	5.07E-04	3.34E-06	6.86E-07	1.92E-06	2.98E-06	6.74E-07	4.5E+03	2.2E+04	7.8E+03	5.0E+03	2.2E+04	6.7E-10
Ruthenium (44)	Ru-106	6.77E-01	1.02E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	.	.	.	.	.	.
Ruthenium (44)	Ru-106+D	6.77E-01	1.02E+00	9.71E-07	2.02E-07	5.64E-07	8.69E-07	2.11E-07	7.6E+00	3.7E+01	1.3E+01	8.5E+00	3.5E+01	2.3E-09
Ruthenium (44)	Ru-107	9.71E+04	7.13E-06	1.62E-06	3.21E-07	9.06E-07	1.41E-06	3.23E-07	6.6E+05	3.3E+06	1.2E+06	7.5E+05	3.3E+06	1.4E-09
Ruthenium (44)	Ru-108	8.01E+04	8.66E-06	2.06E-07	5.42E-08	1.46E-07	2.01E-07	5.91E-08	4.3E+06	1.6E+07	6.0E+06	4.4E+06	1.5E+07	1.1E-08
Ruthenium (44)	Ru-92	9.98E+04	6.94E-06	9.12E-06	1.85E-06	5.23E-06	8.07E-06	1.82E-06	1.2E+05	5.9E+05	2.1E+05	1.4E+05	6.0E+05	2.1E-10
Ruthenium (44)	Ru-94	7.03E+03	9.86E-05	2.23E-06	4.65E-07	1.31E-06	2.01E-06	4.55E-07	3.5E+04	1.7E+05	5.9E+04	3.8E+04	1.7E+05	9.0E-10
Ruthenium (44)	Ru-95	3.69E+03	1.88E-04	5.71E-06	1.12E-06	3.18E-06	4.97E-06	1.09E-06	7.1E+03	3.6E+04	1.3E+04	8.1E+03	3.7E+04	3.5E-10
Ruthenium (44)	Ru-97	8.72E+01	7.95E-03	8.65E-07	2.04E-07	5.70E-07	8.28E-07	2.02E-07	1.1E+03	4.7E+03	1.7E+03	1.2E+03	4.7E+03	2.4E-09
Sulfur (16)	S-35	2.89E+00	2.40E-01	8.72E-12	4.88E-12	8.09E-12	8.72E-12	1.01E-11	4.0E+06	7.2E+06	4.3E+06	4.0E+06	3.5E+06	9.5E-05
Sulphur (16)	S-37	7.21E+04	9.61E-06	1.62E-05	2.43E-06	7.17E-06	1.23E-05	2.29E-06	4.9E+04	3.3E+05	1.1E+05	6.4E+04	3.5E+05	4.8E-11
Sulphur (16)	S-38	2.14E+03	3.24E-04	8.96E-06	1.47E-06	4.32E-06	7.16E-06	1.41E-06	2.6E+03	1.6E+04	5.4E+03	3.3E+03	1.7E+04	9.0E-11
Antimony (51)	Sb-111	2.91E+05	2.38E-06	6.49E-06	1.37E-06	3.83E-06	5.86E-06	1.35E-06	4.9E+05	2.3E+06	8.3E+05	5.4E+05	2.4E+06	3.6E-10
Antimony (51)	Sb-113	5.46E+04	1.27E-05	5.56E-06	1.16E-06	3.27E-06	5.02E-06	1.15E-06	1.1E+05	5.1E+05	1.8E+05	1.2E+05	5.2E+05	4.3E-10
Antimony (51)	Sb-114	1.04E+05	6.64E-06	1.28E-05	2.45E-06	6.97E-06	1.10E-05	2.38E-06	8.9E+04	4.7E+05	1.6E+05	1.0E+05	4.8E+05	1.9E-10
Antimony (51)	Sb-115	1.13E+04	6.11E-05	3.84E-06	8.07E-07	2.28E-06	3.48E-06	7.97E-07	3.2E+04	1.5E+05	5.5E+04	3.6E+04	1.6E+05	6.4E-10
Antimony (51)	Sb-116	2.31E+04	3.01E-05	1.11E-05	2.04E-06	5.87E-06	9.35E-06	1.98E-06	2.3E+04	1.2E+05	4.3E+04	2.7E+04	1.3E+05	2.2E-10
Antimony (51)	Sb-116m	6.04E+03	1.15E-04	1.46E-05	2.80E-06	7.94E-06	1.25E-05	2.72E-06	4.5E+03	2.4E+04	8.3E+03	5.3E+03	2.4E+04	1.7E-10
Antimony (51)	Sb-117	2.17E+03	3.20E-04	5.84E-07	1.47E-07	3.98E-07	5.62E-07	1.52E-07	4.1E+04	1.6E+05	6.0E+04	4.2E+04	1.6E+05	4.3E-09
Antimony (51)	Sb-118	1.01E+05	6.85E-06	3.53E-06	7.40E-07	2.09E-06	3.20E-06	7.36E-07	3.1E+05	1.5E+06	5.3E+05	3.5E+05	1.5E+06	7.1E-10
Antimony (51)	Sb-118m	1.21E+03	5.71E-04	1.23E-05	2.34E-06	6.65E-06	1.05E-05	2.28E-06	1.1E+03	5.7E+03	2.0E+03	1.3E+03	5.8E+03	2.0E-10
Antimony (51)	Sb-119	1.59E+02	4.36E-03	2.57E-09	2.50E-09	2.58E-09	2.57E-09	1.06E-08	6.8E+05	7.0E+05	6.8E+05	6.8E+05	1.6E+05	9.8E-07
Antimony (51)	Sb-120	2.29E+04	3.02E-05	1.94E-06	4.07E-07	1.15E-06	1.75E-06	4.08E-07	1.3E+05	6.2E+05	2.2E+05	1.4E+05	6.2E+05	1.3E-09
Antimony (51)	Sb-120m	4.39E+01	1.58E-02	1.15E-05	2.20E-06	6.26E-06	9.85E-06	2.15E-06	4.2E+01	2.2E+02	7.7E+01	4.9E+01	2.2E+02	2.2E-10
Antimony (51)	Sb-122	9.29E+01	7.46E-03	1.98E-06	4.11E-07	1.16E-06	1.79E-06	4.09E-07	5.1E+02	2.5E+03	8.8E+02	5.7E+02	2.5E+03	1.3E-09
Antimony (51)	Sb-122m	8.69E+04	7.97E-06	7.66E-08	3.59E-08	6.97E-08	7.66E-08	5.00E-08	1.2E+07	2.7E+07	1.4E+07	1.2E+07	1.9E+07	3.4E-08
Antimony (51)	Sb-124	4.20E+00	1.65E-01	9.06E-06	1.67E-06	4.78E-06	7.66E-06	1.61E-06	5.1E+00	2.8E+01	9.6E+00	6.0E+00	2.9E+01	2.9E-10
Antimony (51)	Sb-124m	2.35E+05	2.95E-06	1.96E-06	4.05E-07	1.14E-06	1.76E-06	3.97E-07	1.3E+06	6.3E+06	2.3E+06	1.5E+06	6.5E+06	1.3E-09
Antimony (51)	Sb-124n	1.80E+04	3.84E-05	9.63E-14	9.43E-14	9.66E-14	9.63E-14	3.90E-13	2.0E+12	2.1E+12	2.0E+12	2.0E+12	5.1E+11	2.7E-02
Antimony (51)	Sb-125	2.51E-01	2.76E+00	1.83E-06	3.89E-07	1.09E-06	1.67E-06	3.86E-07	1.5E+00	7.1E+00	2.5E+00	1.7E+00	7.1E+00	1.5E-09
Antimony (51)	Sb-126	2.05E+01	3.38E-02	1.25E-05	2.54E-06	7.16E-06	1.11E-05	2.48E-06	1.8E+01	8.8E+01	3.1E+01	2.0E+01	9.1E+01	2.1E-10
Antimony (51)	Sb-126m	1.90E+04	3.64E-05	6.94E-06	1.43E-06	4.02E-06	6.21E-06	1.40E-06	3.0E+04	1.5E+05	5.2E+04	3.4E+04	1.5E+05	3.9E-10
Antimony (51)	Sb-127	6.57E+01	1.05E-02	3.09E-06	6.37E-07	1.79E-06	2.77E-06	6.25E-07	2.3E+02	1.1E+03	4.0E+02	2.6E+02	1.2E+03	8.7E-10
Antimony (51)	Sb-128	6.74E+02	1.03E-03	1.41E-05	2.84E-06	8.03E-06	1.25E-05	2.77E-06	5.2E+02	2.6E+03	9.2E+02	5.9E+02	2.7E+03	1.9E-10
Antimony (51)	Sb-128m	3.50E+04	1.98E-05	8.65E-06	1.76E-06	4.95E-06	7.69E-06	1.73E-06	4.4E+04	2.2E+05	7.7E+04	5.0E+04	2.2E+05	3.1E-10
Antimony (51)	Sb-129	1.38E+03	5.02E-04	6.97E-06	1.33E-06	3.77E-06	5.99E-06	1.28E-06	2.2E+03	1.1E+04	4.0E+03	2.5E+03	1.2E+04	3.9E-10
Antimony (51)	Sb-130	9.22E+03	7.52E-05	1.51E-05	2.99E-06	8.46E-06	1.32E-05	2.91E-06	6.7E+03	3.4E+04	1.2E+04	7.7E+03	3.5E+04	1.8E-10
Antimony (51)	Sb-130m	5.78E+04	1.20E-05	1.27E-05	2.48E-06	7.02E-06	1.10E-05	2.42E-06	5.0E+04	2.5E+05	9.0E+04	5.7E+04	2.6E+05	2.2E-10

Radionuclides		Slope Factors and Isotope-specific Information							Carcinogenic Target Risk (TR) = 1E-06					
Element (Atomic Number)	Isotope	Lambda (yr^{-1})	Halflife (years)	External Exposure Slope Factor (risk/yr per pCi/g)	External Exposure Slope Factor (1 cm) (risk/yr per pCi/g)	External Exposure Slope Factor (5 cm) (risk/yr per pCi/g)	External Exposure Slope Factor (15 cm) (risk/yr per pCi/g)	Ground Plane External Exposure Slope Factor (risk/yr per pCi/cm^2)	Soil Volume PRG (pCi/g)	Soil Volume @ 1cm PRG (pCi/g)	Soil Volume @ 5cm PRG (pCi/g)	Soil Volume @ 15cm PRG (pCi/g)	Ground Plane PRG (pCi/cm^2)	Soil Volume PRG (mg/kg)
Actinium (89)	Ac-223	1.73E+05	4.00E-06	6.12E-08	1.49E-08	4.05E-08	5.79E-08	1.49E-08	3.1E+07	1.3E+08	4.7E+07	3.3E+07	1.3E+08	7.7E-08
Antimony (51)	Sb-131	1.58E+04	4.38E-05	1.01E-05	1.87E-06	5.36E-06	8.56E-06	1.81E-06	1.7E+04	9.3E+04	3.2E+04	2.0E+04	9.6E+04	2.7E-10
Antimony (51)	Sb-133	1.46E+05	4.76E-06	1.38E-05	2.43E-06	7.04E-06	1.14E-05	2.36E-06	1.2E+05	6.6E+05	2.3E+05	1.4E+05	6.8E+05	2.1E-10
Scandium (21)	Sc-42m	3.52E+05	1.97E-06	2.02E-05	3.81E-06	1.09E-05	1.73E-05	3.70E-06	1.9E+05	1.0E+06	3.5E+05	2.2E+05	1.0E+06	4.4E-11
Scandium (21)	Sc-43	1.56E+03	4.44E-04	4.27E-06	9.06E-07	2.56E-06	3.89E-06	8.91E-07	4.0E+03	1.9E+04	6.7E+03	4.4E+03	1.9E+04	2.1E-10
Scandium (21)	Sc-44	1.53E+03	4.53E-04	9.95E-06	1.94E-06	5.55E-06	8.69E-06	1.90E-06	1.7E+03	8.6E+03	3.0E+03	1.9E+03	8.8E+03	9.4E-11
Scandium (21)	Sc-44m	1.04E+02	6.69E-03	1.12E-06	2.48E-07	7.01E-07	1.04E-06	2.42E-07	1.0E+03	4.6E+03	1.6E+03	1.1E+03	4.7E+03	8.4E-10
Scandium (21)	Sc-46	3.02E+00	2.30E-01	9.63E-06	1.83E-06	5.21E-06	8.28E-06	1.77E-06	3.4E+00	1.8E+01	6.3E+00	4.0E+00	1.9E+01	1.0E-10
Scandium (21)	Sc-47	7.55E+01	9.18E-03	3.63E-07	9.47E-08	2.58E-07	3.56E-07	9.29E-08	2.3E+03	8.7E+03	3.2E+03	2.3E+03	8.9E+03	2.8E-09
Scandium (21)	Sc-48	1.39E+02	4.99E-03	1.63E-05	3.05E-06	8.69E-06	1.39E-05	2.94E-06	9.3E+01	5.0E+02	1.8E+02	1.1E+02	5.2E+02	6.2E-11
Scandium (21)	Sc-49	6.37E+03	1.09E-04	1.90E-08	5.40E-09	1.22E-08	1.73E-08	1.55E-08	3.7E+06	1.3E+07	5.7E+06	4.0E+06	4.5E+06	5.5E-08
Scandium (21)	Sc-50	2.13E+05	3.25E-06	1.59E-05	2.90E-06	8.31E-06	1.33E-05	2.80E-06	1.5E+05	8.1E+05	2.8E+05	1.8E+05	8.3E+05	6.7E-11
Selenium (34)	Se-70	8.86E+03	7.82E-05	2.99E-06	6.45E-07	1.81E-06	2.73E-06	6.39E-07	3.2E+04	1.5E+05	5.4E+04	3.6E+04	1.5E+05	5.0E-10
Selenium (34)	Se-71	7.68E+04	9.02E-06	7.23E-06	1.48E-06	4.17E-06	6.43E-06	1.46E-06	1.2E+05	5.7E+05	2.0E+05	1.3E+05	5.8E+05	2.1E-10
Selenium (34)	Se-72	3.01E+01	2.30E-02	1.93E-08	1.25E-08	1.91E-08	1.93E-08	2.02E-08	1.7E+04	2.6E+04	1.7E+04	1.7E+04	1.6E+04	7.9E-08
Selenium (34)	Se-73	8.49E+02	8.16E-04	4.55E-06	9.88E-07	2.76E-06	4.17E-06	9.80E-07	2.0E+03	9.4E+03	3.4E+03	2.2E+03	9.5E+03	3.4E-10
Selenium (34)	Se-73m	9.15E+03	7.57E-05	1.14E-06	2.41E-07	6.76E-07	1.03E-06	2.37E-07	8.8E+04	4.2E+05	1.5E+05	9.7E+04	4.2E+05	1.4E-09
Selenium (34)	Se-75	2.11E+00	3.28E-01	1.42E-06	3.42E-07	9.43E-07	1.37E-06	3.34E-07	1.6E+01	6.8E+01	2.5E+01	1.7E+01	6.9E+01	1.1E-09
Selenium (34)	Se-77m	1.26E+06	5.50E-07	2.90E-07	7.51E-08	2.04E-07	2.84E-07	7.36E-08	4.8E+07	1.8E+08	6.8E+07	4.9E+07	1.9E+08	5.6E-09
Selenium (34)	Se-79	2.35E-06	2.95E+05	9.08E-12	5.21E-12	8.48E-12	9.08E-12	1.10E-11	5.4E+04	9.3E+04	5.7E+04	5.4E+04	4.4E+04	3.5E+00
Selenium (34)	Se-79m	9.29E+04	7.46E-06	2.21E-08	7.25E-09	1.78E-08	2.21E-08	7.68E-09	4.6E+07	1.4E+08	5.7E+07	4.6E+07	1.3E+08	7.6E-08
Selenium (34)	Se-81	1.97E+04	3.51E-05	4.18E-08	9.81E-09	2.60E-08	3.84E-08	1.73E-08	5.2E+06	2.2E+07	8.3E+06	5.6E+06	1.3E+07	4.1E-08
Selenium (34)	Se-81m	6.36E+03	1.09E-04	3.57E-08	1.12E-08	2.80E-08	3.56E-08	1.15E-08	1.9E+06	6.2E+06	2.5E+06	2.0E+06	6.0E+06	4.8E-08
Selenium (34)	Se-83	1.63E+04	4.24E-05	1.26E-05	2.35E-06	6.76E-06	1.07E-05	2.29E-06	1.4E+04	7.6E+04	2.6E+04	1.7E+04	7.8E+04	1.4E-10
Selenium (34)	Se-83m	3.12E+05	2.22E-06	4.83E-06	8.97E-07	2.56E-06	4.10E-06	8.79E-07	7.1E+05	3.8E+06	1.3E+06	8.3E+05	3.9E+06	3.6E-10
Selenium (34)	Se-84	1.17E+05	5.90E-06	1.77E-06	3.87E-07	1.09E-06	1.65E-06	3.85E-07	7.2E+05	3.3E+06	1.2E+06	7.8E+05	3.3E+06	1.0E-09
Silicon (14)	Si-31	2.32E+03	2.99E-04	1.10E-08	3.08E-09	7.10E-09	1.01E-08	1.05E-08	2.3E+06	8.2E+06	3.6E+06	2.5E+06	2.4E+06	6.0E-08
Silicon (14)	Si-32	5.25E-03	1.32E+02	2.64E-11	1.28E-11	2.35E-11	2.64E-11	2.27E-11	2.0E+04	4.1E+04	2.2E+04	2.0E+04	2.3E+04	2.3E-04
Silicon (14)	Si-32+D	5.25E-03	1.32E+02	9.45E-09	3.19E-09	6.74E-09	9.03E-09	1.20E-08	5.5E+01	1.6E+02	7.7E+01	5.8E+01	4.3E+01	6.5E-07
Samarium (62)	Sm-139	1.42E+05	4.89E-06	6.46E-06	1.33E-06	3.76E-06	5.77E-06	1.31E-06	2.4E+05	1.2E+06	4.1E+05	2.7E+05	1.2E+06	4.6E-10
Samarium (62)	Sm-140	2.46E+04	2.82E-05	2.46E-06	4.99E-07	1.40E-06	2.17E-06	4.97E-07	1.1E+05	5.4E+05	1.9E+05	1.2E+05	5.4E+05	1.2E-09
Samarium (62)	Sm-141	3.57E+04	1.94E-05	6.40E-06	1.28E-06	3.62E-06	5.64E-06	1.25E-06	6.1E+04	3.1E+05	1.1E+05	6.9E+04	3.1E+05	4.7E-10
Samarium (62)	Sm-141m	1.61E+04	4.30E-05	8.87E-06	1.75E-06	4.97E-06	7.75E-06	1.72E-06	2.0E+04	1.0E+05	3.6E+04	2.3E+04	1.0E+05	3.4E-10
Samarium (62)	Sm-142	5.02E+03	1.38E-04	3.71E-07	8.48E-08	2.24E-07	3.36E-07	9.34E-08	1.5E+05	6.5E+05	2.5E+05	1.6E+05	5.9E+05	8.1E-09
Samarium (62)	Sm-143	4.16E+04	1.66E-05	2.28E-06	4.78E-07	1.34E-06	2.06E-06	4.80E-07	2.0E+05	9.5E+05	3.4E+05	2.2E+05	9.5E+05	1.3E-09
Samarium (62)	Sm-143m	3.31E+05	2.09E-06	3.14E-06	6.28E-07	1.78E-06	2.77E-06	6.14E-07	1.2E+06	5.8E+06	2.0E+06	1.3E+06	5.9E+06	9.7E-10
Samarium (62)	Sm-145	7.44E-01	9.32E-01	3.72E-08	2.47E-08	3.64E-08	3.72E-08	4.47E-08	2.2E+02	3.3E+02	2.2E+02	2.2E+02	1.8E+02	8.3E-08
Samarium (62)	Sm-146	6.73E-09	1.03E+08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	.	.	.	.	.	.
Samarium (62)	Sm-147	6.54E-12	1.06E+11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	.	.	.	.	.	.
Samarium (62)	Sm-148	9.90E-17	7.00E+15	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	.	.	.	.	.	.
Samarium (62)	Sm-151	7.70E-03	9.00E+01	3.85E-13	3.83E-13	3.85E-13	3.85E-13	2.41E-12	1.2E+06	1.3E+06	1.3E+06	1.2E+06	2.0E+05	4.8E-02
Samarium (62)	Sm-153	1.31E+02	5.31E-03	1.11E-07	4.09E-08	9.04E-08	1.10E-07	5.07E-08	1.3E+04	3.5E+04	1.6E+04	1.3E+04	2.8E+04	2.9E-08
Samarium (62)	Sm-155	1.63E+04	4.24E-05	2.80E-07	8.39E-08	2.11E-07	2.76E-07	9.35E-08	6.4E+05	2.1E+06	8.5E+05	6.5E+05	1.9E+06	1.2E-08
Samarium (62)	Sm-156	6.46E+02	1.07E-03	3.62E-07	9.51E-08	2.54E-07	3.51E-07	9.68E-08	2.0E+04	7.4E+04	2.8E+04	2.0E+04	7.3E+04	9.2E-09
Samarium (62)	Sm-157	4.54E+04	1.53E-05	1.73E-06	3.72E-07	1.03E-06	1.56E-06	3.75E-07	2.9E+05	1.3E+06	4.8E+05	3.2E+05	1.3E+06	1.9E-09
Tin (50)	Sn-106	1.90E+05	3.65E-06	5.30E-06	1.09E-06	3.06E-06	4.73E-06	1.07E-06	3.9E+05	1.9E+06	6.8E+05	4.4E+05	1.9E+06	4.2E-10
Tin (50)	Sn-108	3.54E+04	1.96E-05	2.79E-06	6.05E-07	1.70E-06	2.56E-06	5.99E-07	1.4E+05	6.4E+05	2.3E+05	1.5E+05	6.5E+05	8.2E-10
Tin (50)	Sn-109	2.02E+04	3.42E-05	1.09E-05	1.94E-06	5.62E-06	9.08E-06	1.88E-06	2.0E+04	1.1E+05	3.9E+04	2.4E+04	1.2E+05	2.1E-10
Tin (50)	Sn-110	1.48E+03	4.69E-04	1.09E-06	2.48E-07	6.99E-07	1.03E-06	2.49E-07	1.5E+04	6.5E+04	2.3E+04	1.6E+04	6.5E+04	2.1E-09
Tin (50)	Sn-111	1.03E+04	6.72E-05	2.21E-06	4.35E-07	1.24E-06	1.93E-06	4.31E-07	5.1E+04	2.6E+05	9.1E+04	5.9E+04	2.6E+05	1.1E-09

Radionuclides		Slope Factors and Isotope-specific Information							Carcinogenic Target Risk (TR) = 1E-06					
Element (Atomic Number)	Isotope	Lambda (yr^{-1})	Halflife (years)	External Exposure Slope Factor (risk/yr per pCi/g)	External Exposure Slope Factor (1 cm) (risk/yr per pCi/g)	External Exposure Slope Factor (5 cm) (risk/yr per pCi/g)	External Exposure Slope Factor (15 cm) (risk/yr per pCi/g)	Ground Plane External Exposure Slope Factor (risk/yr per pCi/cm^2)	Soil Volume PRG (pCi/g)	Soil Volume @ 1cm PRG (pCi/g)	Soil Volume @ 5cm PRG (pCi/g)	Soil Volume @ 15cm PRG (pCi/g)	Ground Plane PRG (pCi/cm^2)	Soil Volume PRG (mg/kg)
Actinium (89)	Ac-223	1.73E+05	4.00E-06	6.12E-08	1.49E-08	4.05E-08	5.79E-08	1.49E-08	3.1E+07	1.3E+08	4.7E+07	3.3E+07	1.3E+08	7.7E-08
Tin (50)	Sn-113	2.20E+00	3.15E-01	2.28E-08	6.61E-09	1.55E-08	2.18E-08	1.27E-08	1.1E+03	3.6E+03	1.6E+03	1.1E+03	1.9E+03	1.1E-07
Tin (50)	Sn-113m	1.70E+04	4.07E-05	2.24E-09	1.75E-09	2.15E-09	2.24E-09	6.43E-09	8.3E+07	1.1E+08	8.7E+07	8.3E+07	2.9E+07	1.1E-06
Tin (50)	Sn-117m	1.84E+01	3.77E-02	4.69E-07	1.24E-07	3.33E-07	4.60E-07	1.27E-07	4.3E+02	1.6E+03	6.1E+02	4.4E+02	1.6E+03	5.3E-09
Tin (50)	Sn-119m	8.63E-01	8.03E-01	1.56E-09	1.52E-09	1.56E-09	1.56E-09	6.63E-09	6.0E+03	6.2E+03	6.0E+03	6.0E+03	1.4E+03	1.6E-06
Tin (50)	Sn-121	2.25E+02	3.09E-03	1.33E-10	5.23E-11	1.10E-10	1.33E-10	7.51E-11	2.1E+07	5.2E+07	2.5E+07	2.1E+07	3.6E+07	2.1E-05
Tin (50)	Sn-121m	1.58E-02	4.39E+01	8.91E-10	7.87E-10	8.84E-10	8.91E-10	2.60E-09	6.0E+02	6.7E+02	6.0E+02	6.0E+02	2.0E+02	8.8E-06
Tin (50)	Sn-121m+D	1.58E-02	4.39E+01	9.94E-10	8.28E-10	9.70E-10	9.94E-10	2.66E-09	5.3E+02	6.4E+02	5.5E+02	5.3E+02	2.0E+02	7.9E-06
Tin (50)	Sn-123	1.96E+00	3.54E-01	3.89E-08	8.15E-09	2.19E-08	3.37E-08	1.42E-08	5.5E+02	2.6E+03	9.8E+02	6.4E+02	1.5E+03	6.7E-08
Tin (50)	Sn-123m	9.09E+03	7.62E-05	4.66E-07	1.21E-07	3.29E-07	4.55E-07	1.25E-07	2.1E+05	8.2E+05	3.0E+05	2.2E+05	8.0E+05	5.6E-09
Tin (50)	Sn-125	2.62E+01	2.64E-02	1.63E-06	3.08E-07	8.76E-07	1.39E-06	3.07E-07	1.8E+02	9.3E+02	3.3E+02	2.1E+02	9.4E+02	1.6E-09
Tin (50)	Sn-125m	3.83E+04	1.81E-05	1.45E-06	3.19E-07	8.99E-07	1.34E-06	3.21E-07	2.9E+05	1.3E+06	4.7E+05	3.1E+05	1.3E+06	1.8E-09
Tin (50)	Sn-126	3.01E-06	2.30E+05	9.95E-08	3.66E-08	8.35E-08	9.97E-08	4.26E-08	4.4E+00	1.2E+01	5.2E+00	4.4E+00	1.0E+01	3.6E-04
Tin (50)	Sn-126+D	3.01E-06	2.30E+05	8.78E-06	1.82E-06	5.10E-06	7.87E-06	1.79E-06	5.0E-02	2.4E-01	8.6E-02	5.6E-02	2.5E-01	4.0E-06
Tin (50)	Sn-127	2.89E+03	2.40E-04	9.24E-06	1.72E-06	4.91E-06	7.83E-06	1.67E-06	3.4E+03	1.8E+04	6.4E+03	4.0E+03	1.9E+04	2.9E-10
Tin (50)	Sn-127m	8.82E+04	7.86E-06	2.58E-06	5.27E-07	1.49E-06	2.30E-06	5.27E-07	3.7E+05	1.8E+06	6.5E+05	4.2E+05	1.8E+06	1.0E-09
Tin (50)	Sn-128	6.17E+03	1.12E-04	2.38E-06	5.17E-07	1.43E-06	2.17E-06	5.24E-07	2.8E+04	1.3E+05	4.7E+04	3.1E+04	1.3E+05	1.1E-09
Tin (50)	Sn-129	1.63E+05	4.24E-06	4.75E-06	9.30E-07	2.63E-06	4.15E-06	9.17E-07	3.8E+05	1.9E+06	6.8E+05	4.3E+05	2.0E+06	5.8E-10
Tin (50)	Sn-130	9.79E+04	7.08E-06	3.98E-06	8.39E-07	2.35E-06	3.58E-06	8.31E-07	2.7E+05	1.3E+06	4.6E+05	3.0E+05	1.3E+06	6.9E-10
Tin (50)	Sn-130m	2.14E+05	3.23E-06	4.15E-06	8.03E-07	2.28E-06	3.57E-06	7.97E-07	5.7E+05	2.9E+06	1.0E+06	6.6E+05	2.9E+06	6.7E-10
Strontium (38)	Sr-79	1.62E+05	4.28E-06	5.08E-06	1.09E-06	3.06E-06	4.64E-06	1.09E-06	3.5E+05	1.6E+06	5.8E+05	3.8E+05	1.6E+06	3.3E-10
Strontium (38)	Sr-80	3.43E+03	2.02E-04	1.87E-06	3.94E-07	1.11E-06	1.69E-06	3.86E-07	2.0E+04	9.5E+04	3.4E+04	2.2E+04	9.7E+04	9.1E-10
Strontium (38)	Sr-81	1.63E+04	4.24E-05	5.99E-06	1.27E-06	3.57E-06	5.44E-06	1.26E-06	3.0E+04	1.4E+05	5.0E+04	3.3E+04	1.4E+05	2.9E-10
Strontium (38)	Sr-82	9.97E+00	6.95E-02	4.79E-11	4.78E-11	4.78E-11	4.79E-11	8.89E-10	2.3E+06	2.3E+06	2.3E+06	2.3E+06	1.2E+05	3.6E-05
Strontium (38)	Sr-82+D	9.97E+00	6.95E-02	4.92E-06	1.03E-06	2.90E-06	4.45E-06	1.02E-06	2.2E+01	1.1E+02	3.8E+01	2.5E+01	1.1E+02	3.5E-10
Strontium (38)	Sr-83	1.87E+02	3.70E-03	3.69E-06	7.42E-07	2.09E-06	3.26E-06	7.25E-07	5.6E+02	2.8E+03	9.8E+02	6.3E+02	2.8E+03	4.8E-10
Strontium (38)	Sr-85	3.90E+00	1.78E-01	2.15E-06	4.52E-07	1.28E-06	1.95E-06	4.44E-07	2.0E+01	9.4E+01	3.3E+01	2.2E+01	9.6E+01	8.4E-10
Strontium (38)	Sr-85m	5.39E+03	1.29E-04	8.13E-07	1.92E-07	5.40E-07	7.80E-07	1.88E-07	7.3E+04	3.1E+05	1.1E+05	7.6E+04	3.1E+05	2.2E-09
Strontium (38)	Sr-87m	2.16E+03	3.21E-04	1.33E-06	2.91E-07	8.22E-07	1.24E-06	2.85E-07	1.8E+04	8.1E+04	2.9E+04	1.9E+04	8.3E+04	1.4E-09
Strontium (38)	Sr-89	5.01E+00	1.38E-01	7.24E-09	2.41E-09	5.14E-09	6.91E-09	9.67E-09	7.6E+03	2.3E+04	1.1E+04	7.9E+03	5.7E+03	2.6E-07
Strontium (38)	Sr-90	2.41E-02	2.88E+01	4.83E-10	1.67E-10	3.77E-10	4.76E-10	3.74E-10	1.3E+03	3.9E+03	1.7E+03	1.4E+03	1.7E+03	9.7E-06
Strontium (38)	Sr-90+D	2.41E-02	2.88E+01	1.95E-08	6.26E-09	1.35E-08	1.84E-08	1.70E-08	3.0E+01	9.3E+01	4.3E+01	3.2E+01	3.4E+01	2.2E-07
Strontium (38)	Sr-91	6.30E+02	1.10E-03	3.34E-06	6.50E-07	1.84E-06	2.91E-06	6.39E-07	2.1E+03	1.1E+04	3.7E+03	2.4E+03	1.1E+04	5.8E-10
Strontium (38)	Sr-92	2.28E+03	3.04E-04	6.69E-06	1.20E-06	3.46E-06	5.58E-06	1.15E-06	3.7E+03	2.1E+04	7.2E+03	4.5E+03	2.2E+04	2.9E-10
Strontium (38)	Sr-93	4.91E+04	1.41E-05	1.09E-05	2.04E-06	5.83E-06	9.28E-06	1.98E-06	4.9E+04	2.6E+05	9.2E+04	5.8E+04	2.7E+05	1.8E-10
Strontium (38)	Sr-94	2.90E+05	2.39E-06	7.19E-06	1.28E-06	3.70E-06	5.98E-06	1.24E-06	4.4E+05	2.5E+06	8.6E+05	5.3E+05	2.6E+06	2.8E-10
Tantalum (73)	Ta-170	5.39E+04	1.29E-05	4.65E-06	9.81E-07	2.75E-06	4.18E-06	9.75E-07	1.3E+05	6.0E+05	2.1E+05	1.4E+05	6.1E+05	7.8E-10
Tantalum (73)	Ta-172	9.90E+03	7.00E-05	7.78E-06	1.52E-06	4.30E-06	6.74E-06	1.48E-06	1.4E+04	7.1E+04	2.5E+04	1.6E+04	7.3E+04	4.7E-10
Tantalum (73)	Ta-173	1.93E+03	3.58E-04	2.43E-06	4.99E-07	1.38E-06	2.11E-06	5.00E-07	8.7E+03	4.2E+04	1.5E+04	1.0E+04	4.2E+04	1.5E-09
Tantalum (73)	Ta-174	5.33E+03	1.30E-04	4.32E-06	8.63E-07	2.43E-06	3.76E-06	8.50E-07	1.3E+04	6.8E+04	2.4E+04	1.6E+04	6.9E+04	8.6E-10
Tantalum (73)	Ta-175	5.78E+02	1.20E-03	5.03E-06	9.70E-07	2.73E-06	4.30E-06	9.54E-07	1.3E+03	6.5E+03	2.3E+03	1.5E+03	6.6E+03	7.4E-10
Tantalum (73)	Ta-176	7.50E+02	9.24E-04	1.10E-05	1.96E-06	5.62E-06	9.11E-06	1.89E-06	7.4E+02	4.2E+03	1.5E+03	9.0E+02	4.3E+03	3.4E-10
Tantalum (73)	Ta-177	1.07E+02	6.46E-03	1.21E-07	4.45E-08	9.51E-08	1.17E-07	5.29E-08	9.7E+03	2.6E+04	1.2E+04	1.0E+04	2.2E+04	3.1E-08
Tantalum (73)	Ta-178	3.91E+04	1.77E-05	3.88E-07	9.27E-08	2.34E-07	3.40E-07	9.96E-08	1.1E+06	4.6E+06	1.8E+06	1.3E+06	4.3E+06	9.8E-09
Tantalum (73)	Ta-178m	2.57E+03	2.69E-04	4.33E-06	1.01E-06	2.78E-06	4.06E-06	1.01E-06	6.5E+03	2.8E+04	1.0E+04	6.9E+03	2.8E+04	8.7E-10
Tantalum (73)	Ta-179	3.81E-01	1.82E+00	2.80E-08	1.44E-08	2.63E-08	2.80E-08	1.87E-08	1.5E+02	2.9E+02	1.6E+02	1.5E+02	2.2E+02	1.4E-07
Tantalum (73)	Ta-180	7.45E+02	9.31E-04	6.07E-08	2.90E-08	5.55E-08	6.08E-08	3.67E-08	1.3E+05	2.8E+05	1.5E+05	1.3E+05	2.2E+05	6.3E-08
Tantalum (73)	Ta-182	2.21E+00	3.14E-01	6.02E-06	1.15E-06	3.25E-06	5.14E-06	1.12E-06	4.0E+00	2.1E+01	7.4E+00	4.7E+00	2.2E+01	6.4E-10
Tantalum (73)	Ta-182m	2.30E+04	3.01E-05	7.75E-07	2.13E-07	5.53E-07	7.55E-07	2.20E-07	3.2E+05	1.2E+06	4.6E+05	3.3E+05	1.1E+06	5.0E-09
Tantalum (73)	Ta-183	4.96E+01	1.40E-02	9.43E-07	2.45E-07	6.43E-07	9.04E-07	2.49E-07	5.8E+02	2.2E+03	8.5E+02	6.0E+02	2.2E+03	4.1E-09

Radionuclides		Slope Factors and Isotope-specific Information							Carcinogenic Target Risk (TR) = 1E-06					
Element (Atomic Number)	Isotope	Lambda (yr^{-1})	Halflife (years)	External Exposure Slope Factor (risk/yr per pCi/g)	External Exposure Slope Factor (1 cm) (risk/yr per pCi/g)	External Exposure Slope Factor (5 cm) (risk/yr per pCi/g)	External Exposure Slope Factor (15 cm) (risk/yr per pCi/g)	Ground Plane External Exposure Slope Factor (risk/yr per pCi/cm^2)	Soil Volume PRG (pCi/g)	Soil Volume @ 1cm PRG (pCi/g)	Soil Volume @ 5cm PRG (pCi/g)	Soil Volume @ 15cm PRG (pCi/g)	Ground Plane PRG (pCi/cm^2)	Soil Volume PRG (mg/kg)
Actinium (89)	Ac-223	1.73E+05	4.00E-06	6.12E-08	1.49E-08	4.05E-08	5.79E-08	1.49E-08	3.1E+07	1.3E+08	4.7E+07	3.3E+07	1.3E+08	7.7E-08
Tantalum (73)	Ta-184	6.98E+02	9.93E-04	6.84E-06	1.43E-06	4.02E-06	6.14E-06	1.40E-06	1.1E+03	5.4E+03	1.9E+03	1.2E+03	5.5E+03	5.7E-10
Tantalum (73)	Ta-185	7.37E+03	9.40E-05	4.94E-07	1.30E-07	3.40E-07	4.74E-07	1.40E-07	1.6E+05	6.2E+05	2.4E+05	1.7E+05	5.8E+05	8.0E-09
Tantalum (73)	Ta-186	3.47E+04	2.00E-05	6.13E-06	1.30E-06	3.64E-06	5.53E-06	1.27E-06	6.2E+04	2.9E+05	1.0E+05	6.9E+04	3.0E+05	6.4E-10
Terbium (65)	Tb-146	9.50E+05	7.29E-07	1.80E-05	3.25E-06	9.34E-06	1.49E-05	3.14E-06	5.8E+05	3.2E+06	1.1E+06	7.0E+05	3.3E+06	1.7E-10
Terbium (65)	Tb-147	3.70E+03	1.87E-04	1.03E-05	1.96E-06	5.57E-06	8.83E-06	1.91E-06	3.9E+03	2.1E+04	7.3E+03	4.6E+03	2.1E+04	3.0E-10
Terbium (65)	Tb-147m	1.95E+05	3.56E-06	9.41E-06	1.70E-06	4.88E-06	7.85E-06	1.65E-06	2.3E+05	1.3E+06	4.4E+05	2.7E+05	1.3E+06	3.3E-10
Terbium (65)	Tb-148	6.07E+03	1.14E-04	1.12E-05	2.13E-06	6.05E-06	9.60E-06	2.07E-06	5.9E+03	3.1E+04	1.1E+04	6.9E+03	3.2E+04	2.8E-10
Terbium (65)	Tb-148m	1.66E+05	4.19E-06	1.42E-05	2.88E-06	8.09E-06	1.26E-05	2.80E-06	1.3E+05	6.3E+05	2.2E+05	1.4E+05	6.5E+05	2.2E-10
Terbium (65)	Tb-149	1.47E+03	4.70E-04	6.29E-06	1.21E-06	3.44E-06	5.41E-06	1.18E-06	2.6E+03	1.3E+04	4.7E+03	3.0E+03	1.4E+04	5.0E-10
Terbium (65)	Tb-149m	8.76E+04	7.91E-06	6.18E-06	1.25E-06	3.51E-06	5.46E-06	1.23E-06	1.6E+05	7.7E+05	2.7E+05	1.8E+05	7.8E+05	5.1E-10
Terbium (65)	Tb-150	1.74E+03	3.97E-04	1.20E-05	2.15E-06	6.17E-06	9.94E-06	2.07E-06	1.6E+03	8.9E+03	3.1E+03	1.9E+03	9.2E+03	2.7E-10
Terbium (65)	Tb-150m	6.28E+04	1.10E-05	1.11E-05	2.30E-06	6.46E-06	9.96E-06	2.25E-06	6.2E+04	3.0E+05	1.1E+05	6.9E+04	3.1E+05	2.9E-10
Terbium (65)	Tb-151	3.45E+02	2.01E-03	4.13E-06	8.78E-07	2.45E-06	3.72E-06	8.72E-07	9.1E+02	4.3E+03	1.5E+03	1.0E+03	4.3E+03	7.8E-10
Terbium (65)	Tb-151m	8.74E+05	7.93E-07	2.93E-07	6.52E-08	1.76E-07	2.65E-07	6.76E-08	3.3E+07	1.5E+08	5.5E+07	3.6E+07	1.4E+08	1.1E-08
Terbium (65)	Tb-152	3.47E+02	2.00E-03	7.03E-06	1.32E-06	3.77E-06	5.98E-06	1.28E-06	5.4E+02	2.9E+03	1.0E+03	6.4E+02	3.0E+03	4.6E-10
Terbium (65)	Tb-152m	8.67E+04	7.99E-06	3.05E-06	6.69E-07	1.86E-06	2.79E-06	6.68E-07	3.1E+05	1.4E+06	5.1E+05	3.4E+05	1.4E+06	1.1E-09
Terbium (65)	Tb-153	1.08E+02	6.41E-03	1.19E-06	2.75E-07	7.38E-07	1.09E-06	2.83E-07	9.9E+02	4.3E+03	1.6E+03	1.1E+03	4.2E+03	2.7E-09
Terbium (65)	Tb-154	2.82E+02	2.45E-03	1.15E-05	1.98E-06	5.72E-06	9.33E-06	1.91E-06	2.7E+02	1.6E+03	5.4E+02	3.3E+02	1.6E+03	2.9E-10
Terbium (65)	Tb-155	4.75E+01	1.46E-02	4.31E-07	1.29E-07	3.16E-07	4.19E-07	1.44E-07	1.2E+03	4.0E+03	1.6E+03	1.2E+03	3.6E+03	7.6E-09
Terbium (65)	Tb-156	4.73E+01	1.47E-02	8.91E-06	1.72E-06	4.89E-06	7.68E-06	1.68E-06	5.8E+01	3.0E+02	1.1E+02	6.7E+01	3.1E+02	3.7E-10
Terbium (65)	Tb-156m	2.49E+02	2.79E-03	3.18E-08	1.91E-08	3.10E-08	3.18E-08	2.80E-08	8.6E+04	1.4E+05	8.8E+04	8.6E+04	9.7E+04	1.0E-07
Terbium (65)	Tb-156n	1.15E+03	6.05E-04	4.17E-09	2.00E-09	3.74E-09	4.17E-09	2.77E-09	3.0E+06	6.3E+06	3.4E+06	3.0E+06	4.5E+06	8.0E-07
Terbium (65)	Tb-157	9.76E-03	7.10E+01	3.00E-09	2.00E-09	2.97E-09	3.00E-09	3.37E-09	1.6E+02	2.5E+02	1.7E+02	1.6E+02	1.5E+02	5.1E-06
Terbium (65)	Tb-158	3.85E-03	1.80E+02	3.60E-06	7.14E-07	2.00E-06	3.13E-06	7.06E-07	1.3E-01	6.4E-01	2.3E-01	1.5E-01	6.5E-01	1.0E-08
Terbium (65)	Tb-160	3.50E+00	1.98E-01	5.24E-06	1.02E-06	2.90E-06	4.54E-06	9.94E-07	7.3E+00	3.8E+01	1.3E+01	8.4E+00	3.9E+01	6.5E-10
Terbium (65)	Tb-161	3.66E+01	1.89E-02	3.50E-08	1.73E-08	3.16E-08	3.48E-08	2.53E-08	1.1E+04	2.3E+04	1.3E+04	1.2E+04	1.6E+04	9.8E-08
Terbium (65)	Tb-162	4.79E+04	1.45E-05	4.94E-06	1.01E-06	2.84E-06	4.39E-06	9.88E-07	1.1E+05	5.2E+05	1.8E+05	1.2E+05	5.3E+05	7.0E-10
Terbium (65)	Tb-163	1.87E+04	3.71E-05	3.34E-06	7.21E-07	2.02E-06	3.07E-06	7.09E-07	6.1E+04	2.8E+05	1.0E+05	6.7E+04	2.9E+05	1.0E-09
Terbium (65)	Tb-164	1.21E+05	5.71E-06	1.15E-05	2.20E-06	6.28E-06	9.88E-06	2.15E-06	1.2E+05	6.0E+05	2.1E+05	1.3E+05	6.2E+05	3.0E-10
Terbium (65)	Tb-165	1.73E+05	4.01E-06	4.12E-06	7.57E-07	2.17E-06	3.47E-06	7.40E-07	4.6E+05	2.5E+06	8.7E+05	5.5E+05	2.6E+06	8.5E-10
Technetium (43)	Tc-101	2.57E+04	2.70E-05	1.38E-06	3.08E-07	8.65E-07	1.28E-06	3.05E-07	2.0E+05	9.1E+05	3.2E+05	2.2E+05	9.2E+05	1.6E-09
Technetium (43)	Tc-102	4.14E+06	1.67E-07	4.65E-07	9.73E-08	2.65E-07	4.09E-07	1.09E-07	9.8E+07	4.7E+08	1.7E+08	1.1E+08	4.2E+08	4.7E-09
Technetium (43)	Tc-102m	8.37E+04	8.28E-06	1.21E-05	2.22E-06	6.37E-06	1.02E-05	2.15E-06	7.6E+04	4.1E+05	1.4E+05	9.0E+04	4.3E+05	1.8E-10
Technetium (43)	Tc-104	1.99E+04	3.48E-05	1.12E-05	2.00E-06	5.75E-06	9.28E-06	1.94E-06	1.9E+04	1.1E+05	3.8E+04	2.3E+04	1.1E+05	2.0E-10
Technetium (43)	Tc-105	4.79E+04	1.45E-05	3.63E-06	7.23E-07	2.04E-06	3.16E-06	7.15E-07	1.4E+05	7.3E+05	2.6E+05	1.7E+05	7.3E+05	6.1E-10
Technetium (43)	Tc-91	1.16E+05	5.97E-06	1.23E-05	2.22E-06	6.39E-06	1.02E-05	2.16E-06	1.0E+05	5.7E+05	2.0E+05	1.2E+05	5.9E+05	1.6E-10
Technetium (43)	Tc-91m	1.10E+05	6.28E-06	6.40E-06	1.33E-06	3.74E-06	5.74E-06	1.31E-06	1.9E+05	9.1E+05	3.2E+05	2.1E+05	9.2E+05	3.0E-10
Technetium (43)	Tc-92	8.57E+04	8.09E-06	1.80E-05	3.47E-06	9.88E-06	1.55E-05	3.37E-06	5.2E+04	2.7E+05	9.5E+04	6.0E+04	2.8E+05	1.1E-10
Technetium (43)	Tc-93	2.21E+03	3.14E-04	7.79E-06	1.40E-06	4.02E-06	6.49E-06	1.34E-06	3.1E+03	1.7E+04	6.0E+03	3.7E+03	1.8E+04	2.5E-10
Technetium (43)	Tc-93m	8.37E+03	8.28E-05	4.81E-06	8.20E-07	2.39E-06	3.89E-06	7.86E-07	1.9E+04	1.1E+05	3.8E+04	2.4E+04	1.2E+05	4.1E-10
Technetium (43)	Tc-94	1.24E+03	5.57E-04	1.23E-05	2.43E-06	6.89E-06	1.08E-05	2.37E-06	1.1E+03	5.6E+03	2.0E+03	1.3E+03	5.7E+03	1.6E-10
Technetium (43)	Tc-94m	7.00E+03	9.89E-05	9.18E-06	1.78E-06	5.04E-06	7.95E-06	1.74E-06	8.4E+03	4.3E+04	1.5E+04	9.6E+03	4.4E+04	2.2E-10
Technetium (43)	Tc-95	3.04E+02	2.28E-03	3.63E-06	7.21E-07	2.04E-06	3.20E-06	7.05E-07	9.2E+02	4.6E+03	1.6E+03	1.0E+03	4.7E+03	5.6E-10
Technetium (43)	Tc-95m	4.15E+00	1.67E-01	2.99E-06	6.18E-07	1.74E-06	2.67E-06	6.05E-07	1.5E+01	7.3E+01	2.6E+01	1.7E+01	7.5E+01	6.8E-10
Technetium (43)	Tc-96	5.91E+01	1.17E-02	1.16E-05	2.28E-06	6.48E-06	1.02E-05	2.23E-06	5.6E+01	2.8E+02	1.0E+02	6.4E+01	2.9E+02	1.8E-10
Technetium (43)	Tc-96m	7.07E+03	9.80E-05	1.97E-07	3.81E-08	1.08E-07	1.70E-07	3.84E-08	3.9E+05	2.0E+06	7.2E+05	4.5E+05	2.0E+06	1.0E-08
Technetium (43)	Tc-97	2.67E-07	2.60E+06	2.86E-10	2.88E-10	2.86E-10	2.86E-10	2.78E-09	1.5E+03	1.5E+03	1.5E+03	1.5E+03	1.6E+02	1.1E+00
Technetium (43)	Tc-97m	2.81E+00	2.47E-01	1.03E-09	5.34E-10	8.87E-10	1.03E-09	2.77E-09	3.0E+04	5.8E+04	3.5E+04	3.0E+04	1.1E+04	2.0E-06
Technetium (43)	Tc-98	1.65E-07	4.20E+06	6.45E-06	1.30E-06	3.68E-06	5.71E-06	1.27E-06	6.8E-02	3.4E-01	1.2E-01	7.7E-02	3.4E-01	7.8E-05

Radionuclides		Slope Factors and Isotope-specific Information							Carcinogenic Target Risk (TR) = 1E-06					
Element (Atomic Number)	Isotope	Lambda (yr^{-1})	Halflife (years)	External Exposure Slope Factor (risk/yr per pCi/g)	External Exposure Slope Factor (1 cm) (risk/yr per pCi/g)	External Exposure Slope Factor (5 cm) (risk/yr per pCi/g)	External Exposure Slope Factor (15 cm) (risk/yr per pCi/g)	Ground Plane External Exposure Slope Factor (risk/yr per pCi/cm^2)	Soil Volume PRG (pCi/g)	Soil Volume @ 1cm PRG (pCi/g)	Soil Volume @ 5cm PRG (pCi/g)	Soil Volume @ 15cm PRG (pCi/g)	Ground Plane PRG (pCi/cm^2)	Soil Volume PRG (mg/kg)
Actinium (89)	Ac-223	1.73E+05	4.00E-06	6.12E-08	1.49E-08	4.05E-08	5.79E-08	1.49E-08	3.1E+07	1.3E+08	4.7E+07	3.3E+07	1.3E+08	7.7E-08
Technetium (43)	Tc-99	3.28E-06	2.11E+05	8.28E-11	3.49E-11	7.02E-11	8.24E-11	5.34E-11	5.3E+03	1.3E+04	6.2E+03	5.3E+03	8.2E+03	3.1E-01
Technetium (43)	Tc-99m	1.01E+03	6.87E-04	3.95E-07	1.07E-07	2.88E-07	3.89E-07	1.06E-07	2.8E+04	1.0E+05	3.8E+04	2.8E+04	1.0E+05	5.3E-09
Tellurium (52)	Te-113	2.14E+05	3.23E-06	1.06E-05	2.02E-06	5.77E-06	9.11E-06	1.97E-06	2.2E+05	1.2E+06	4.1E+05	2.6E+05	1.2E+06	2.3E-10
Tellurium (52)	Te-114	2.40E+04	2.89E-05	6.01E-06	1.13E-06	3.23E-06	5.13E-06	1.10E-06	4.4E+04	2.3E+05	8.1E+04	5.1E+04	2.4E+05	4.0E-10
Tellurium (52)	Te-115	6.28E+04	1.10E-05	1.06E-05	2.04E-06	5.79E-06	9.14E-06	1.98E-06	6.5E+04	3.4E+05	1.2E+05	7.5E+04	3.5E+05	2.3E-10
Tellurium (52)	Te-115m	5.44E+04	1.27E-05	1.25E-05	2.35E-06	6.71E-06	1.07E-05	2.28E-06	4.8E+04	2.5E+05	8.9E+04	5.6E+04	2.6E+05	2.0E-10
Tellurium (52)	Te-116	2.44E+03	2.84E-04	2.95E-07	7.36E-08	1.91E-07	2.72E-07	8.52E-08	9.0E+04	3.6E+05	1.4E+05	9.8E+04	3.1E+05	8.3E-09
Tellurium (52)	Te-117	5.87E+03	1.18E-04	7.41E-06	1.38E-06	3.96E-06	6.31E-06	1.34E-06	8.7E+03	4.7E+04	1.6E+04	1.0E+04	4.8E+04	3.4E-10
Tellurium (52)	Te-118	4.22E+01	1.64E-02	2.72E-09	2.62E-09	2.73E-09	2.72E-09	9.91E-09	1.7E+05	1.8E+05	1.7E+05	1.7E+05	4.7E+04	9.2E-07
Tellurium (52)	Te-118+D	4.22E+01	1.64E-02	3.53E-06	7.42E-07	2.09E-06	3.20E-06	7.45E-07	1.3E+02	6.2E+02	2.2E+02	1.4E+02	6.2E+02	7.1E-10
Tellurium (52)	Te-119	3.78E+02	1.83E-03	3.44E-06	6.88E-07	1.94E-06	3.04E-06	6.77E-07	1.2E+03	6.0E+03	2.1E+03	1.4E+03	6.1E+03	7.3E-10
Tellurium (52)	Te-119m	5.38E+01	1.29E-02	7.06E-06	1.34E-06	3.81E-06	6.04E-06	1.31E-06	8.3E+01	4.4E+02	1.5E+02	9.8E+01	4.5E+02	3.6E-10
Tellurium (52)	Te-121	1.32E+01	5.25E-02	2.46E-06	5.16E-07	1.45E-06	2.22E-06	5.11E-07	5.9E+01	2.8E+02	1.0E+02	6.5E+01	2.8E+02	1.0E-09
Tellurium (52)	Te-121m	1.64E+00	4.22E-01	7.86E-07	1.83E-07	5.08E-07	7.41E-07	1.83E-07	2.3E+01	9.8E+01	3.5E+01	2.4E+01	9.8E+01	3.3E-09
Tellurium (52)	Te-123	1.16E-15	6.00E+14	4.72E-12	4.54E-12	4.73E-12	4.72E-12	1.73E-11	9.3E+04	9.7E+04	9.3E+04	9.3E+04	2.5E+04	1.9E+10
Tellurium (52)	Te-123m	2.12E+00	3.27E-01	4.47E-07	1.18E-07	3.18E-07	4.39E-07	1.21E-07	5.2E+01	2.0E+02	7.3E+01	5.3E+01	1.9E+02	5.8E-09
Tellurium (52)	Te-125m	4.41E+00	1.57E-01	6.91E-09	5.90E-09	6.74E-09	6.91E-09	1.93E-08	7.0E+03	8.2E+03	7.2E+03	7.0E+03	2.5E+03	3.8E-07
Tellurium (52)	Te-127	6.49E+02	1.07E-03	2.10E-08	4.67E-09	1.30E-08	1.95E-08	5.29E-09	3.4E+05	1.5E+06	5.5E+05	3.6E+05	1.3E+06	1.3E-07
Tellurium (52)	Te-127m	2.32E+00	2.99E-01	2.67E-09	1.94E-09	2.45E-09	2.63E-09	6.02E-09	9.5E+03	1.3E+04	1.0E+04	9.7E+03	4.2E+03	1.0E-06
Tellurium (52)	Te-129	5.23E+03	1.32E-04	2.57E-07	5.51E-08	1.53E-07	2.34E-07	6.20E-08	2.2E+05	1.0E+06	3.7E+05	2.5E+05	9.2E+05	1.1E-08
Tellurium (52)	Te-129m	7.53E+00	9.21E-02	1.39E-07	2.93E-08	8.00E-08	1.24E-07	3.41E-08	5.9E+02	2.8E+03	1.0E+03	6.7E+02	2.4E+03	2.0E-08
Tellurium (52)	Te-131	1.46E+04	4.76E-05	1.77E-06	3.79E-07	1.06E-06	1.60E-06	3.79E-07	9.0E+04	4.2E+05	1.5E+05	1.0E+05	4.2E+05	1.6E-09
Tellurium (52)	Te-131m	2.02E+02	3.42E-03	6.75E-06	1.32E-06	3.74E-06	5.87E-06	1.28E-06	3.3E+02	1.7E+03	5.9E+02	3.8E+02	1.7E+03	4.1E-10
Tellurium (52)	Te-132	7.89E+01	8.78E-03	7.82E-07	1.91E-07	5.23E-07	7.52E-07	1.96E-07	1.1E+03	4.5E+03	1.7E+03	1.1E+03	4.4E+03	3.6E-09
Tellurium (52)	Te-133	2.91E+04	2.38E-05	5.70E-06	1.08E-06	3.10E-06	4.89E-06	1.05E-06	5.6E+04	2.9E+05	1.0E+05	6.5E+04	3.0E+05	5.0E-10
Tellurium (52)	Te-133m	6.57E+03	1.05E-04	8.76E-06	1.68E-06	4.78E-06	7.57E-06	1.63E-06	8.2E+03	4.3E+04	1.5E+04	9.5E+03	4.4E+04	3.2E-10
Tellurium (52)	Te-134	8.71E+03	7.95E-05	3.72E-06	7.87E-07	2.20E-06	3.36E-06	7.73E-07	2.6E+04	1.2E+05	4.3E+04	2.8E+04	1.2E+05	7.6E-10
Thorium (90)	Th-223	3.64E+07	1.90E-08	1.84E-07	5.66E-08	1.41E-07	1.82E-07	5.84E-08	2.2E+09	7.0E+09	2.8E+09	2.2E+09	6.8E+09	2.6E-08
Thorium (90)	Th-224	2.08E+07	3.33E-08	8.02E-08	1.98E-08	5.46E-08	7.73E-08	1.96E-08	2.8E+09	1.2E+10	4.2E+09	2.9E+09	1.2E+10	5.9E-08
Thorium (90)	Th-226	1.19E+04	5.82E-05	2.36E-08	6.50E-09	1.71E-08	2.31E-08	6.62E-09	5.5E+06	2.0E+07	7.6E+06	5.6E+06	2.0E+07	2.0E-07
Thorium (90)	Th-227	1.35E+01	5.12E-02	4.45E-07	1.07E-07	2.93E-07	4.24E-07	1.07E-07	3.3E+02	1.4E+03	5.1E+02	3.5E+02	1.4E+03	1.1E-08
Thorium (90)	Th-228	3.63E-01	1.91E+00	5.64E-09	1.67E-09	4.22E-09	5.55E-09	1.89E-09	7.0E+02	2.4E+03	9.4E+02	7.2E+02	2.1E+03	8.6E-07
Thorium (90)	Th-229	9.44E-05	7.34E+03	2.24E-07	6.76E-08	1.71E-07	2.22E-07	7.08E-08	2.0E+00	6.5E+00	2.6E+00	2.0E+00	6.2E+00	9.2E-06
Thorium (90)	Th-229+D	9.44E-05	7.34E+03	2.30E-07	7.21E-08	1.77E-07	2.28E-07	7.96E-08	1.9E+00	6.1E+00	2.5E+00	1.9E+00	5.5E+00	9.0E-06
Thorium (90)	Th-230	9.19E-06	7.54E+04	8.45E-10	3.01E-10	6.78E-10	8.35E-10	4.92E-10	5.2E+02	1.5E+03	6.5E+02	5.2E+02	8.9E+02	2.5E-02
Thorium (90)	Th-231	2.38E+02	2.91E-03	2.49E-08	8.93E-09	2.04E-08	2.49E-08	1.24E-08	1.0E+05	2.9E+05	1.3E+05	1.0E+05	2.1E+05	2.0E-07
Thorium (90)	Th-232	4.93E-11	1.41E+10	3.58E-10	1.52E-10	3.10E-10	3.57E-10	3.26E-10	1.2E+03	2.9E+03	1.4E+03	1.2E+03	1.3E+03	1.1E+04
Thorium (90)	Th-232+D	4.93E-11	1.41E+10	4.04E-06	7.83E-07	2.22E-06	3.50E-06	7.66E-07	1.1E-01	5.6E-01	2.0E-01	1.3E-01	5.7E-01	9.9E-01
Thorium (90)	Th-233	1.63E+04	4.24E-05	1.44E-07	3.21E-08	8.78E-08	1.31E-07	3.62E-08	1.2E+06	5.6E+06	2.0E+06	1.4E+06	4.9E+06	3.4E-08
Thorium (90)	Th-234	1.05E+01	6.60E-02	1.77E-08	6.50E-09	1.49E-08	1.77E-08	7.33E-09	6.5E+03	1.8E+04	7.7E+03	6.5E+03	1.6E+04	2.8E-07
Thorium (90)	Th-234+D	1.05E+01	6.60E-02	1.08E-07	2.58E-08	6.65E-08	9.70E-08	3.60E-08	1.1E+03	4.5E+03	1.7E+03	1.2E+03	3.2E+03	4.6E-08
Thorium (90)	Th-235	5.13E+04	1.35E-05	2.48E-07	5.23E-08	1.45E-07	2.22E-07	5.92E-08	2.3E+06	1.1E+07	3.9E+06	2.5E+06	9.5E+06	2.0E-08
Thorium (90)	Th-236	9.71E+03	7.13E-05	1.32E-07	3.05E-08	8.33E-08	1.23E-07	3.33E-08	8.1E+05	3.5E+06	1.3E+06	8.7E+05	3.2E+06	3.8E-08
Titanium (22)	Ti-44	1.16E-02	6.00E+01	2.48E-07	9.99E-08	2.17E-07	2.48E-07	1.12E-07	2.0E+00	5.0E+00	2.3E+00	2.0E+00	4.5E+00	1.5E-08
Titanium (22)	Ti-44+D	1.16E-02	6.00E+01	1.02E-05	2.04E-06	5.77E-06	8.93E-06	2.02E-06	4.9E-02	2.5E-01	8.7E-02	5.6E-02	2.5E-01	3.7E-10
Titanium (22)	Ti-45	1.97E+03	3.52E-04	3.79E-06	8.01E-07	2.26E-06	3.46E-06	7.88E-07	5.7E+03	2.7E+04	9.5E+03	6.2E+03	2.7E+04	2.5E-10
Titanium (22)	Ti-51	6.32E+04	1.10E-05	1.56E-06	3.42E-07	9.60E-07	1.45E-06	3.43E-07	4.4E+05	2.0E+06	7.2E+05	4.8E+05	2.0E+06	6.9E-10
Titanium (22)	Ti-52	2.14E+05	3.23E-06	3.78E-07	1.09E-07	2.84E-07	3.75E-07	1.18E-07	6.2E+06	2.2E+07	8.3E+06	6.3E+06	2.0E+07	2.9E-09
Thallium (81)	Tl-190	1.40E+05	4.95E-06	5.71E-06	1.20E-06	3.36E-06	5.16E-06	1.19E-06	2.7E+05	1.3E+06	4.6E+05	3.0E+05	1.3E+06	7.1E-10

Radionuclides		Slope Factors and Isotope-specific Information							Carcinogenic Target Risk (TR) = 1E-06					
Element (Atomic Number)	Isotope	Lambda (yr^{-1})	Halflife (years)	External Exposure Slope Factor (risk/yr per pCi/g)	External Exposure Slope Factor (1 cm) (risk/yr per pCi/g)	External Exposure Slope Factor (5 cm) (risk/yr per pCi/g)	External Exposure Slope Factor (15 cm) (risk/yr per pCi/g)	Ground Plane External Exposure Slope Factor (risk/yr per pCi/cm^2)	Soil Volume PRG (pCi/g)	Soil Volume @ 1cm PRG (pCi/g)	Soil Volume @ 5cm PRG (pCi/g)	Soil Volume @ 15cm PRG (pCi/g)	Ground Plane PRG (pCi/cm^2)	Soil Volume PRG (mg/kg)
Actinium (89)	Ac-223	1.73E+05	4.00E-06	6.12E-08	1.49E-08	4.05E-08	5.79E-08	1.49E-08	3.1E+07	1.3E+08	4.7E+07	3.3E+07	1.3E+08	7.7E-08
Thallium (81)	Tl-190m	9.84E+04	7.04E-06	1.09E-05	2.24E-06	6.33E-06	9.76E-06	2.21E-06	9.9E+04	4.8E+05	1.7E+05	1.1E+05	4.9E+05	3.7E-10
Thallium (81)	Tl-194	1.10E+04	6.28E-05	3.91E-06	8.35E-07	2.34E-06	3.55E-06	8.27E-07	3.1E+04	1.4E+05	5.2E+04	3.4E+04	1.5E+05	1.1E-09
Thallium (81)	Tl-194m	1.11E+04	6.24E-05	1.11E-05	2.30E-06	6.45E-06	9.91E-06	2.25E-06	1.1E+04	5.3E+04	1.9E+04	1.2E+04	5.4E+04	3.7E-10
Thallium (81)	Tl-195	5.23E+03	1.32E-04	5.83E-06	1.08E-06	3.06E-06	4.89E-06	1.04E-06	9.8E+03	5.3E+04	1.9E+04	1.2E+04	5.5E+04	7.1E-10
Thallium (81)	Tl-196	3.30E+03	2.10E-04	8.92E-06	1.67E-06	4.76E-06	7.55E-06	1.61E-06	4.0E+03	2.2E+04	7.6E+03	4.8E+03	2.2E+04	4.7E-10
Thallium (81)	Tl-197	2.14E+03	3.24E-04	1.89E-06	3.98E-07	1.10E-06	1.67E-06	3.95E-07	1.2E+04	5.9E+04	2.1E+04	1.4E+04	5.9E+04	2.2E-09
Thallium (81)	Tl-198	1.15E+03	6.05E-04	9.69E-06	1.78E-06	5.10E-06	8.14E-06	1.73E-06	1.3E+03	7.0E+03	2.5E+03	1.5E+03	7.3E+03	4.3E-10
Thallium (81)	Tl-198m	3.25E+03	2.13E-04	5.14E-06	1.10E-06	3.08E-06	4.67E-06	1.08E-06	6.9E+03	3.2E+04	1.2E+04	7.6E+03	3.3E+04	8.2E-10
Thallium (81)	Tl-199	8.18E+02	8.47E-04	8.64E-07	2.11E-07	5.62E-07	8.06E-07	2.14E-07	1.0E+04	4.2E+04	1.6E+04	1.1E+04	4.2E+04	4.9E-09
Thallium (81)	Tl-200	2.33E+02	2.98E-03	5.93E-06	1.17E-06	3.33E-06	5.17E-06	1.15E-06	4.3E+02	2.2E+03	7.7E+02	4.9E+02	2.2E+03	7.2E-10
Thallium (81)	Tl-201	8.33E+01	8.32E-03	1.88E-07	6.65E-08	1.53E-07	1.87E-07	7.25E-08	4.8E+03	1.4E+04	5.9E+03	4.9E+03	1.3E+04	2.3E-08
Thallium (81)	Tl-202	2.07E+01	3.35E-02	1.83E-06	4.13E-07	1.13E-06	1.69E-06	4.10E-07	1.2E+02	5.5E+02	2.0E+02	1.3E+02	5.5E+02	2.3E-09
Thallium (81)	Tl-204	1.83E-01	3.78E+00	2.99E-09	1.16E-09	2.52E-09	2.97E-09	2.39E-09	6.8E+02	1.8E+03	8.0E+02	6.8E+02	8.5E+02	1.5E-06
Thallium (81)	Tl-206	8.67E+04	7.99E-06	6.11E-09	2.07E-09	4.41E-09	5.86E-09	8.57E-09	1.6E+08	4.6E+08	2.2E+08	1.6E+08	1.1E+08	7.2E-07
Thallium (81)	Tl-206m	9.74E+04	7.12E-06	1.07E-05	2.20E-06	6.22E-06	9.55E-06	2.15E-06	1.0E+05	4.8E+05	1.7E+05	1.1E+05	5.0E+05	4.1E-10
Thallium (81)	Tl-207	7.64E+04	9.08E-06	1.59E-08	3.81E-09	9.60E-09	1.42E-08	9.53E-09	5.3E+07	2.2E+08	8.7E+07	5.9E+07	8.8E+07	2.8E-07
Thallium (81)	Tl-208	1.19E+05	5.81E-06	1.75E-05	2.90E-06	8.44E-06	1.39E-05	2.77E-06	7.5E+04	4.5E+05	1.5E+05	9.4E+04	4.7E+05	2.5E-10
Thallium (81)	Tl-209	1.69E+05	4.11E-06	1.03E-05	1.91E-06	5.47E-06	8.71E-06	1.86E-06	1.8E+05	9.7E+05	3.4E+05	2.1E+05	9.9E+05	4.3E-10
Thallium (81)	Tl-210	2.80E+05	2.47E-06	1.34E-05	2.48E-06	7.12E-06	1.14E-05	2.41E-06	2.3E+05	1.2E+06	4.3E+05	2.7E+05	1.3E+06	3.3E-10
Thulium (69)	Tm-161	1.21E+04	5.75E-05	5.79E-06	1.11E-06	3.12E-06	4.90E-06	1.10E-06	2.3E+04	1.2E+05	4.2E+04	2.7E+04	1.2E+05	5.9E-10
Thulium (69)	Tm-162	1.68E+04	4.13E-05	9.31E-06	1.69E-06	4.84E-06	7.75E-06	1.65E-06	2.0E+04	1.1E+05	3.8E+04	2.4E+04	1.1E+05	3.7E-10
Thulium (69)	Tm-163	3.35E+03	2.07E-04	6.04E-06	1.15E-06	3.25E-06	5.14E-06	1.13E-06	6.1E+03	3.2E+04	1.1E+04	7.1E+03	3.2E+04	5.7E-10
Thulium (69)	Tm-164	1.82E+05	3.81E-06	3.50E-06	6.97E-07	1.96E-06	3.06E-06	6.89E-07	5.7E+05	2.9E+06	1.0E+06	6.5E+05	2.9E+06	9.9E-10
Thulium (69)	Tm-165	2.02E+02	3.43E-03	2.21E-06	4.86E-07	1.33E-06	2.00E-06	4.88E-07	1.0E+03	4.6E+03	1.7E+03	1.1E+03	4.5E+03	1.6E-09
Thulium (69)	Tm-166	7.88E+02	8.79E-04	9.52E-06	1.74E-06	4.99E-06	7.97E-06	1.69E-06	9.1E+02	4.9E+03	1.7E+03	1.1E+03	5.1E+03	3.7E-10
Thulium (69)	Tm-167	2.73E+01	2.53E-02	4.03E-07	1.12E-07	2.82E-07	3.88E-07	1.21E-07	7.4E+02	2.7E+03	1.1E+03	7.7E+02	2.5E+03	8.8E-09
Thulium (69)	Tm-168	2.72E+00	2.55E-01	5.35E-06	1.11E-06	3.10E-06	4.78E-06	1.10E-06	5.6E+00	2.7E+01	9.6E+00	6.2E+00	2.7E+01	6.7E-10
Thulium (69)	Tm-170	1.97E+00	3.52E-01	7.99E-09	3.19E-09	6.76E-09	7.95E-09	6.08E-09	2.7E+03	6.7E+03	3.2E+03	2.7E+03	3.5E+03	4.5E-07
Thulium (69)	Tm-171	3.61E-01	1.92E+00	6.66E-10	3.49E-10	6.30E-10	6.66E-10	4.66E-10	5.9E+03	1.1E+04	6.3E+03	5.9E+03	8.5E+03	5.5E-06
Thulium (69)	Tm-172	9.55E+01	7.26E-03	2.34E-06	4.24E-07	1.21E-06	1.95E-06	4.15E-07	4.5E+02	2.5E+03	8.6E+02	5.4E+02	2.5E+03	1.6E-09
Thulium (69)	Tm-173	7.37E+02	9.41E-04	1.62E-06	3.53E-07	9.94E-07	1.49E-06	3.49E-07	5.0E+03	2.3E+04	8.1E+03	5.4E+03	2.3E+04	2.3E-09
Thulium (69)	Tm-174	6.75E+04	1.03E-05	7.80E-06	1.61E-06	4.54E-06	6.96E-06	1.58E-06	9.5E+04	4.6E+05	1.6E+05	1.1E+05	4.7E+05	4.7E-10
Thulium (69)	Tm-175	2.40E+04	2.89E-05	4.94E-06	9.90E-07	2.80E-06	4.36E-06	9.70E-07	5.3E+04	2.7E+05	9.4E+04	6.0E+04	2.7E+05	7.5E-10
Thulium (69)	Tm-176	1.97E+05	3.52E-06	9.47E-06	1.75E-06	4.99E-06	7.96E-06	1.69E-06	2.3E+05	1.2E+06	4.3E+05	2.7E+05	1.3E+06	3.9E-10
Uranium (92)	U-227	3.31E+05	2.09E-06	3.89E-07	9.88E-08	2.67E-07	3.75E-07	9.87E-08	9.3E+06	3.7E+07	1.4E+07	9.7E+06	3.7E+07	1.2E-08
Uranium (92)	U-228	4.00E+04	1.73E-05	1.14E-08	3.23E-09	8.37E-09	1.12E-08	3.49E-09	3.8E+07	1.4E+08	5.2E+07	3.9E+07	1.3E+08	4.2E-07
Uranium (92)	U-230	1.22E+01	5.70E-02	3.07E-09	9.14E-10	2.28E-09	3.00E-09	1.24E-09	4.3E+04	1.5E+05	5.8E+04	4.4E+04	1.1E+05	1.6E-06
Uranium (92)	U-231	6.02E+01	1.15E-02	1.66E-07	5.40E-08	1.32E-07	1.65E-07	5.94E-08	4.0E+03	1.2E+04	5.0E+03	4.0E+03	1.1E+04	3.0E-08
Uranium (92)	U-232	1.01E-02	6.89E+01	5.44E-10	2.02E-10	4.33E-10	5.37E-10	5.04E-10	9.1E+02	2.5E+03	1.1E+03	9.2E+02	9.8E+02	4.1E-05
Uranium (92)	U-233	4.35E-06	1.59E+05	7.11E-10	2.07E-10	5.06E-10	6.88E-10	3.57E-10	6.2E+02	2.1E+03	8.7E+02	6.4E+02	1.2E+03	6.4E-02
Uranium (92)	U-234	2.82E-06	2.46E+05	2.53E-10	1.09E-10	2.11E-10	2.52E-10	3.82E-10	1.7E+03	4.0E+03	2.1E+03	1.7E+03	1.1E+03	2.8E-01
Uranium (92)	U-235	9.84E-10	7.04E+08	5.51E-07	1.40E-07	3.83E-07	5.36E-07	1.39E-07	7.9E-01	3.1E+00	1.1E+00	8.2E-01	3.2E+00	3.7E-01
Uranium (92)	U-235+D	9.84E-10	7.04E+08	5.76E-07	1.49E-07	4.04E-07	5.60E-07	1.52E-07	7.6E-01	2.9E+00	1.1E+00	7.8E-01	2.9E+00	3.5E-01
Uranium (92)	U-235m	1.40E+04	4.95E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	.	.	.	.	.	.
Uranium (92)	U-236	2.96E-08	2.34E+07	1.24E-10	6.24E-11	1.07E-10	1.23E-10	3.06E-10	3.5E+03	7.0E+03	4.1E+03	3.6E+03	1.4E+03	5.5E+01
Uranium (92)	U-237	3.75E+01	1.85E-02	3.72E-07	1.07E-07	2.73E-07	3.65E-07	1.12E-07	1.1E+03	3.8E+03	1.5E+03	1.1E+03	3.6E+03	1.4E-08
Uranium (92)	U-238	1.55E-10	4.47E+09	1.24E-10	5.25E-11	9.42E-11	1.16E-10	2.48E-10	3.5E+03	8.3E+03	4.7E+03	3.8E+03	1.8E+03	1.1E+04
Uranium (92)	U-238+D	1.55E-10	4.47E+09	1.19E-07	2.78E-08	7.25E-08	1.06E-07	3.83E-08	3.7E+00	1.6E+01	6.0E+00	4.1E+00	1.1E+01	1.1E+01
Uranium (92)	U-239	1.55E+04	4.46E-05	1.19E-07	3.83E-08	8.93E-08	1.14E-07	4.60E-08	1.4E+06	4.4E+06	1.9E+06	1.5E+06	3.7E+06	4.3E-08

Radionuclides		Slope Factors and Isotope-specific Information							Carcinogenic Target Risk (TR) = 1E-06					
Element (Atomic Number)	Isotope	Lambda (yr^{-1})	Halflife (years)	External Exposure Slope Factor (risk/yr per pCi/g)	External Exposure Slope Factor (1 cm) (risk/yr per pCi/g)	External Exposure Slope Factor (5 cm) (risk/yr per pCi/g)	External Exposure Slope Factor (15 cm) (risk/yr per pCi/g)	Ground Plane External Exposure Slope Factor (risk/yr per pCi/cm^2)	Soil Volume PRG (pCi/g)	Soil Volume @ 1cm PRG (pCi/g)	Soil Volume @ 5cm PRG (pCi/g)	Soil Volume @ 15cm PRG (pCi/g)	Ground Plane PRG (pCi/cm^2)	Soil Volume PRG (mg/kg)
Actinium (89)	Ac-223	1.73E+05	4.00E-06	6.12E-08	1.49E-08	4.05E-08	5.79E-08	1.49E-08	3.1E+07	1.3E+08	4.7E+07	3.3E+07	1.3E+08	7.7E-08
Uranium (92)	U-240	4.31E+02	1.61E-03	1.15E-08	3.62E-09	8.87E-09	1.14E-08	4.65E-09	4.1E+05	1.3E+06	5.3E+05	4.1E+05	1.0E+06	4.4E-07
Uranium (92)	U-242	2.17E+04	3.20E-05	1.52E-07	3.61E-08	9.57E-08	1.40E-07	4.03E-08	1.6E+06	6.6E+06	2.5E+06	1.7E+06	5.9E+06	3.4E-08
Vanadium (23)	V-47	1.12E+04	6.20E-05	4.36E-06	9.19E-07	2.58E-06	3.96E-06	9.10E-07	2.8E+04	1.3E+05	4.7E+04	3.1E+04	1.3E+05	2.3E-10
Vanadium (23)	V-48	1.58E+01	4.38E-02	1.40E-05	2.63E-06	7.55E-06	1.20E-05	2.56E-06	1.2E+01	6.6E+01	2.3E+01	1.4E+01	6.8E+01	7.3E-11
Vanadium (23)	V-49	7.67E-01	9.04E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	.	.	.	.	.	.
Vanadium (23)	V-50	4.62E-18	1.50E+17	7.22E-06	1.27E-06	3.66E-06	5.95E-06	1.21E-06	6.3E-02	3.6E-01	1.2E-01	7.7E-02	3.8E-01	1.3E+06
Vanadium (23)	V-52	9.73E+04	7.12E-06	7.33E-06	1.30E-06	3.76E-06	6.07E-06	1.26E-06	1.5E+05	8.2E+05	2.8E+05	1.8E+05	8.4E+05	1.5E-10
Vanadium (23)	V-53	2.26E+05	3.06E-06	5.01E-06	9.53E-07	2.71E-06	4.30E-06	9.35E-07	4.9E+05	2.6E+06	9.1E+05	5.8E+05	2.6E+06	2.2E-10
Tungsten (74)	W-177	2.76E+03	2.51E-04	3.70E-06	8.00E-07	2.19E-06	3.30E-06	7.96E-07	8.2E+03	3.8E+04	1.4E+04	9.1E+03	3.8E+04	1.0E-09
Tungsten (74)	W-178	1.17E+01	5.92E-02	1.80E-08	8.93E-09	1.68E-08	1.80E-08	1.13E-08	7.1E+03	1.4E+04	7.7E+03	7.1E+03	1.1E+04	2.1E-07
Tungsten (74)	W-178+D	1.17E+01	5.92E-02	4.05E-07	1.02E-07	2.50E-07	3.57E-07	1.11E-07	3.2E+02	1.3E+03	5.1E+02	3.6E+02	1.2E+03	9.3E-09
Tungsten (74)	W-179	9.83E+03	7.05E-05	5.90E-08	2.97E-08	5.51E-08	5.90E-08	3.97E-08	1.8E+06	3.6E+06	2.0E+06	1.8E+06	2.7E+06	6.5E-08
Tungsten (74)	W-179m	5.69E+04	1.22E-05	1.21E-07	3.98E-08	9.25E-08	1.19E-07	4.44E-08	5.1E+06	1.6E+07	6.7E+06	5.2E+06	1.4E+07	3.1E-08
Tungsten (74)	W-181	2.09E+00	3.32E-01	4.79E-08	2.37E-08	4.47E-08	4.79E-08	3.01E-08	4.8E+02	9.6E+02	5.1E+02	4.8E+02	7.6E+02	8.0E-08
Tungsten (74)	W-185	3.37E+00	2.06E-01	2.81E-10	1.03E-10	2.28E-10	2.80E-10	1.34E-10	1.3E+05	3.6E+05	1.6E+05	1.3E+05	2.7E+05	1.4E-05
Tungsten (74)	W-185m	2.28E+05	3.04E-06	6.05E-08	1.86E-08	4.58E-08	5.95E-08	1.97E-08	4.1E+07	1.3E+08	5.5E+07	4.2E+07	1.3E+08	6.5E-08
Tungsten (74)	W-187	2.56E+02	2.71E-03	1.91E-06	4.05E-07	1.13E-06	1.73E-06	4.02E-07	1.5E+03	6.9E+03	2.5E+03	1.6E+03	7.0E+03	2.1E-09
Tungsten (74)	W-188	3.62E+00	1.91E-01	7.02E-09	1.69E-09	4.61E-09	6.68E-09	1.69E-09	5.7E+03	2.4E+04	8.6E+03	5.9E+03	2.3E+04	5.7E-07
Tungsten (74)	W-190	1.21E+04	5.71E-05	3.61E-07	1.14E-07	2.76E-07	3.55E-07	1.25E-07	3.7E+05	1.2E+06	4.8E+05	3.7E+05	1.1E+06	1.1E-08
Xenon (54)	Xe-120	9.11E+03	7.61E-05	1.56E-06	3.34E-07	9.25E-07	1.41E-06	3.42E-07	6.4E+04	3.0E+05	1.1E+05	7.1E+04	2.9E+05	1.6E-09
Xenon (54)	Xe-121	9.08E+03	7.63E-05	6.99E-06	1.30E-06	3.72E-06	5.91E-06	1.27E-06	1.4E+04	7.6E+04	2.7E+04	1.7E+04	7.8E+04	3.7E-10
Xenon (54)	Xe-122	3.02E+02	2.29E-03	1.83E-07	4.47E-08	1.18E-07	1.73E-07	5.27E-08	1.8E+04	7.4E+04	2.8E+04	1.9E+04	6.3E+04	1.4E-08
Xenon (54)	Xe-123	2.92E+03	2.37E-04	2.76E-06	5.60E-07	1.58E-06	2.44E-06	5.56E-07	1.2E+04	5.7E+04	2.0E+04	1.3E+04	5.8E+04	9.5E-10
Xenon (54)	Xe-125	3.59E+02	1.93E-03	9.36E-07	2.20E-07	6.03E-07	8.80E-07	2.28E-07	4.2E+03	1.8E+04	6.5E+03	4.5E+03	1.7E+04	2.8E-09
Xenon (54)	Xe-127	6.95E+00	9.97E-02	9.52E-07	2.32E-07	6.33E-07	9.12E-07	2.36E-07	8.0E+01	3.3E+02	1.2E+02	8.3E+01	3.2E+02	2.8E-09
Xenon (54)	Xe-127m	3.16E+05	2.19E-06	4.82E-07	1.33E-07	3.51E-07	4.75E-07	1.38E-07	7.2E+06	2.6E+07	9.8E+06	7.3E+06	2.5E+07	5.6E-09
Xenon (54)	Xe-129m	2.85E+01	2.43E-02	4.25E-08	1.66E-08	3.19E-08	4.15E-08	3.27E-08	7.3E+03	1.9E+04	9.8E+03	7.5E+03	9.5E+03	6.4E-08
Xenon (54)	Xe-131m	2.14E+01	3.24E-02	1.45E-08	6.09E-09	1.13E-08	1.42E-08	1.26E-08	1.6E+04	3.8E+04	2.1E+04	1.6E+04	1.9E+04	1.9E-07
Xenon (54)	Xe-133	4.82E+01	1.44E-02	6.74E-08	2.71E-08	5.77E-08	6.75E-08	3.50E-08	7.8E+03	2.0E+04	9.2E+03	7.8E+03	1.5E+04	4.2E-08
Xenon (54)	Xe-133m	1.16E+02	6.00E-03	9.26E-08	2.43E-08	6.22E-08	8.89E-08	3.05E-08	1.4E+04	5.2E+04	2.0E+04	1.4E+04	4.2E+04	3.1E-08
Xenon (54)	Xe-135	6.64E+02	1.04E-03	9.69E-07	2.24E-07	6.26E-07	9.20E-07	2.20E-07	7.5E+03	3.2E+04	1.2E+04	7.9E+03	3.3E+04	3.0E-09
Xenon (54)	Xe-135m	2.38E+04	2.91E-05	1.84E-06	3.89E-07	1.09E-06	1.67E-06	3.82E-07	1.4E+05	6.7E+05	2.4E+05	1.6E+05	6.8E+05	1.6E-09
Xenon (54)	Xe-137	9.54E+04	7.26E-06	9.22E-07	1.92E-07	5.34E-07	8.22E-07	2.01E-07	1.1E+06	5.4E+06	2.0E+06	1.3E+06	5.2E+06	3.2E-09
Xenon (54)	Xe-138	2.59E+04	2.68E-05	5.60E-06	9.90E-07	2.86E-06	4.64E-06	9.57E-07	5.1E+04	2.9E+05	9.9E+04	6.1E+04	3.0E+05	5.2E-10
Yttrium (39)	Y-81	3.10E+05	2.23E-06	5.00E-06	1.08E-06	3.03E-06	4.57E-06	1.08E-06	6.8E+05	3.1E+06	1.1E+06	7.4E+05	3.1E+06	3.4E-10
Yttrium (39)	Y-83	5.14E+04	1.35E-05	6.02E-06	1.23E-06	3.47E-06	5.37E-06	1.21E-06	9.4E+04	4.6E+05	1.6E+05	1.0E+05	4.6E+05	2.9E-10
Yttrium (39)	Y-83m	1.28E+05	5.42E-06	3.58E-06	7.70E-07	2.17E-06	3.28E-06	7.62E-07	3.9E+05	1.8E+06	6.5E+05	4.3E+05	1.8E+06	4.9E-10
Yttrium (39)	Y-84m	9.22E+03	7.52E-05	1.87E-05	3.64E-06	1.03E-05	1.62E-05	3.55E-06	5.4E+03	2.8E+04	9.8E+03	6.2E+03	2.8E+04	9.6E-11
Yttrium (39)	Y-85	2.27E+03	3.06E-04	4.73E-06	9.92E-07	2.80E-06	4.29E-06	9.76E-07	5.2E+03	2.5E+04	8.9E+03	5.8E+03	2.5E+04	3.8E-10
Yttrium (39)	Y-85m	1.25E+03	5.55E-04	6.21E-06	1.19E-06	3.40E-06	5.36E-06	1.16E-06	2.2E+03	1.1E+04	4.0E+03	2.6E+03	1.2E+04	2.9E-10
Yttrium (39)	Y-86	4.12E+02	1.68E-03	1.73E-05	3.21E-06	9.21E-06	1.47E-05	3.12E-06	2.6E+02	1.4E+03	4.9E+02	3.1E+02	1.4E+03	1.1E-10
Yttrium (39)	Y-86m	7.59E+03	9.13E-05	8.34E-07	1.96E-07	5.47E-07	7.93E-07	1.90E-07	1.0E+05	4.2E+05	1.5E+05	1.0E+05	4.4E+05	2.2E-09
Yttrium (39)	Y-87	7.61E+01	9.11E-03	1.89E-06	4.02E-07	1.13E-06	1.73E-06	3.95E-07	4.4E+02	2.1E+03	7.4E+02	4.8E+02	2.1E+03	9.8E-10
Yttrium (39)	Y-87m	4.54E+02	1.53E-03	1.27E-06	2.78E-07	7.87E-07	1.18E-06	2.73E-07	3.9E+03	1.8E+04	6.3E+03	4.2E+03	1.8E+04	1.5E-09
Yttrium (39)	Y-88	2.37E+00	2.92E-01	1.37E-05	2.39E-06	6.91E-06	1.12E-05	2.29E-06	1.9E+00	1.1E+01	3.8E+00	2.3E+00	1.1E+01	1.4E-10
Yttrium (39)	Y-89m	1.40E+06	4.97E-07	4.25E-06	8.26E-07	2.34E-06	3.69E-06	8.02E-07	3.6E+06	1.9E+07	6.5E+06	4.1E+06	1.9E+07	4.4E-10
Yttrium (39)	Y-90	9.47E+01	7.32E-03	1.90E-08	6.09E-09	1.31E-08	1.80E-08	1.67E-08	5.4E+04	1.7E+05	7.9E+04	5.8E+04	6.2E+04	1.0E-07
Yttrium (39)	Y-90m	1.90E+03	3.64E-04	2.60E-06	5.75E-07	1.62E-06	2.42E-06	5.64E-07	8.0E+03	3.6E+04	1.3E+04	8.6E+03	3.7E+04	7.3E-10
Yttrium (39)	Y-91	4.32E+00	1.60E-01	2.28E-08	5.34E-09	1.34E-08	2.01E-08	1.27E-08	2.1E+03	8.9E+03	3.5E+03	2.4E+03	3.7E+03	8.5E-08

Radionuclides		Slope Factors and Isotope-specific Information							Carcinogenic Target Risk (TR) = 1E-06					
Element (Atomic Number)	Isotope	Lambda (yr^{-1})	Halflife (years)	External Exposure Slope Factor (risk/yr per pCi/g)	External Exposure Slope Factor (1 cm) (risk/yr per pCi/g)	External Exposure Slope Factor (5 cm) (risk/yr per pCi/g)	External Exposure Slope Factor (15 cm) (risk/yr per pCi/g)	Ground Plane External Exposure Slope Factor (risk/yr per pCi/cm^2)	Soil Volume PRG (pCi/g)	Soil Volume @ 1cm PRG (pCi/g)	Soil Volume @ 5cm PRG (pCi/g)	Soil Volume @ 15cm PRG (pCi/g)	Ground Plane PRG (pCi/cm^2)	Soil Volume PRG (mg/kg)
Actinium (89)	Ac-223	1.73E+05	4.00E-06	6.12E-08	1.49E-08	4.05E-08	5.79E-08	1.49E-08	3.1E+07	1.3E+08	4.7E+07	3.3E+07	1.3E+08	7.7E-08
Yttrium (39)	Y-91m	7.33E+03	9.46E-05	2.34E-06	4.86E-07	1.37E-06	2.10E-06	4.75E-07	3.4E+04	1.7E+05	5.9E+04	3.8E+04	1.7E+05	8.3E-10
Yttrium (39)	Y-92	1.71E+03	4.04E-04	1.26E-06	2.43E-07	6.86E-07	1.08E-06	2.49E-07	1.5E+04	7.7E+04	2.7E+04	1.7E+04	7.6E+04	1.6E-09
Yttrium (39)	Y-93	5.96E+02	1.16E-03	4.95E-07	9.53E-08	2.67E-07	4.22E-07	1.04E-07	1.3E+04	6.9E+04	2.4E+04	1.5E+04	6.3E+04	4.0E-09
Yttrium (39)	Y-94	1.95E+04	3.56E-05	3.81E-06	7.23E-07	2.06E-06	3.26E-06	7.13E-07	5.6E+04	3.0E+05	1.0E+05	6.5E+04	3.0E+05	5.2E-10
Yttrium (39)	Y-95	3.54E+04	1.96E-05	5.91E-06	9.70E-07	2.82E-06	4.67E-06	9.32E-07	6.6E+04	4.0E+05	1.4E+05	8.3E+04	4.2E+05	3.4E-10
Ytterbium (70)	Yb-162	1.93E+04	3.59E-05	8.07E-07	2.06E-07	5.36E-07	7.60E-07	2.13E-07	2.6E+05	1.0E+06	3.9E+05	2.8E+05	9.9E+05	4.3E-09
Ytterbium (70)	Yb-163	3.30E+04	2.10E-05	3.23E-06	6.45E-07	1.81E-06	2.81E-06	6.39E-07	1.1E+05	5.6E+05	2.0E+05	1.3E+05	5.7E+05	1.1E-09
Ytterbium (70)	Yb-164	4.81E+03	1.44E-04	9.03E-08	3.33E-08	6.82E-08	8.55E-08	4.22E-08	5.8E+05	1.6E+06	7.7E+05	6.2E+05	1.2E+06	3.9E-08
Ytterbium (70)	Yb-165	3.68E+04	1.88E-05	1.20E-06	2.73E-07	7.19E-07	1.07E-06	2.85E-07	3.3E+05	1.5E+06	5.6E+05	3.8E+05	1.4E+06	2.9E-09
Ytterbium (70)	Yb-166	1.07E+02	6.47E-03	9.52E-08	4.88E-08	8.86E-08	9.52E-08	6.55E-08	1.2E+04	2.4E+04	1.3E+04	1.2E+04	1.8E+04	3.7E-08
Ytterbium (70)	Yb-167	2.08E+04	3.33E-05	6.24E-07	1.94E-07	4.63E-07	6.04E-07	2.16E-07	3.7E+05	1.2E+06	4.9E+05	3.8E+05	1.1E+06	5.7E-09
Ytterbium (70)	Yb-169	7.90E+00	8.77E-02	8.04E-07	2.43E-07	5.90E-07	7.83E-07	2.69E-07	1.1E+02	3.6E+02	1.5E+02	1.1E+02	3.2E+02	4.5E-09
Ytterbium (70)	Yb-175	6.04E+01	1.15E-02	1.52E-07	3.47E-08	9.60E-08	1.41E-07	3.44E-08	4.4E+03	1.9E+04	6.9E+03	4.7E+03	1.9E+04	2.4E-08
Ytterbium (70)	Yb-177	3.18E+03	2.18E-04	8.58E-07	1.74E-07	4.84E-07	7.48E-07	1.75E-07	4.1E+04	2.0E+05	7.2E+04	4.6E+04	2.0E+05	4.4E-09
Ytterbium (70)	Yb-178	4.92E+03	1.41E-04	1.56E-07	3.47E-08	9.73E-08	1.46E-07	3.44E-08	3.4E+05	1.6E+06	5.5E+05	3.7E+05	1.6E+06	2.4E-08
Ytterbium (70)	Yb-179	4.55E+04	1.52E-05	4.29E-06	8.95E-07	2.52E-06	3.86E-06	8.85E-07	1.2E+05	5.6E+05	2.0E+05	1.3E+05	5.6E+05	8.9E-10
Zinc (30)	Zn-60	1.53E+05	4.53E-06	6.69E-06	1.41E-06	3.96E-06	6.06E-06	1.39E-06	2.5E+05	1.2E+06	4.2E+05	2.8E+05	1.2E+06	1.9E-10
Zinc (30)	Zn-61	2.45E+05	2.83E-06	7.12E-06	1.41E-06	4.00E-06	6.25E-06	1.39E-06	3.8E+05	1.9E+06	6.7E+05	4.3E+05	1.9E+06	1.8E-10
Zinc (30)	Zn-62	6.61E+02	1.05E-03	1.89E-06	3.98E-07	1.12E-06	1.72E-06	3.93E-07	3.8E+03	1.8E+04	6.5E+03	4.2E+03	1.8E+04	7.0E-10
Zinc (30)	Zn-63	9.47E+03	7.32E-05	4.86E-06	1.01E-06	2.86E-06	4.38E-06	1.00E-06	2.1E+04	1.0E+05	3.6E+04	2.4E+04	1.0E+05	2.8E-10
Zinc (30)	Zn-65	1.04E+00	6.69E-01	2.80E-06	5.27E-07	1.50E-06	2.39E-06	5.09E-07	4.0E+00	2.2E+01	7.6E+00	4.7E+00	2.2E+01	4.9E-10
Zinc (30)	Zn-69	6.46E+03	1.07E-04	1.68E-09	5.70E-10	1.26E-09	1.63E-09	2.93E-09	4.2E+07	1.2E+08	5.6E+07	4.3E+07	2.4E+07	8.7E-07
Zinc (30)	Zn-69m	4.41E+02	1.57E-03	1.76E-06	3.81E-07	1.07E-06	1.62E-06	3.74E-07	2.7E+03	1.3E+04	4.5E+03	3.0E+03	1.3E+04	8.3E-10
Zinc (30)	Zn-71	1.49E+05	4.66E-06	1.45E-06	2.95E-07	8.31E-07	1.28E-06	3.00E-07	1.1E+06	5.5E+06	2.0E+06	1.3E+06	5.4E+06	1.0E-09
Zinc (30)	Zn-71m	1.53E+03	4.52E-04	6.88E-06	1.43E-06	4.04E-06	6.20E-06	1.40E-06	2.4E+03	1.2E+04	4.2E+03	2.7E+03	1.2E+04	2.2E-10
Zinc (30)	Zn-72	1.31E+02	5.31E-03	4.67E-07	1.26E-07	3.38E-07	4.60E-07	1.24E-07	3.1E+03	1.1E+04	4.2E+03	3.1E+03	1.2E+04	3.3E-09
Zirconium (40)	Zr-85	4.63E+04	1.50E-05	6.56E-06	1.36E-06	3.83E-06	5.90E-06	1.34E-06	7.7E+04	3.7E+05	1.3E+05	8.6E+04	3.8E+05	2.8E-10
Zirconium (40)	Zr-86	3.68E+02	1.88E-03	1.07E-06	2.47E-07	6.89E-07	1.01E-06	2.45E-07	3.8E+03	1.6E+04	5.8E+03	4.0E+03	1.6E+04	1.7E-09
Zirconium (40)	Zr-87	3.61E+03	1.92E-04	4.10E-06	8.54E-07	2.41E-06	3.70E-06	8.45E-07	9.7E+03	4.6E+04	1.6E+04	1.1E+04	4.7E+04	4.5E-10
Zirconium (40)	Zr-88	3.03E+00	2.28E-01	1.60E-06	3.49E-07	9.85E-07	1.48E-06	3.43E-07	2.1E+01	9.5E+01	3.4E+01	2.2E+01	9.7E+01	1.2E-09
Zirconium (40)	Zr-89	7.74E+01	8.95E-03	5.36E-06	1.06E-06	2.99E-06	4.68E-06	1.03E-06	1.6E+02	8.0E+02	2.8E+02	1.8E+02	8.3E+02	3.5E-10
Zirconium (40)	Zr-89m	8.75E+04	7.92E-06	2.87E-06	5.81E-07	1.65E-06	2.56E-06	5.66E-07	3.3E+05	1.6E+06	5.8E+05	3.7E+05	1.7E+06	6.6E-10
Zirconium (40)	Zr-93	4.53E-07	1.53E+06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	.	.	.	.	.	.
Zirconium (40)	Zr-95	3.95E+00	1.75E-01	3.36E-06	6.74E-07	1.91E-06	2.98E-06	6.57E-07	1.3E+01	6.4E+01	2.3E+01	1.5E+01	6.6E+01	6.0E-10
Zirconium (40)	Zr-97	3.63E+02	1.91E-03	4.08E-06	8.09E-07	2.30E-06	3.58E-06	7.97E-07	.	.	.	.	.	.