

Summary DCCs July 2023																
Radionuclide		Isotope-specific Information		Dose Compliance Concentrations (DCCs)									Protection of Groundwater (DAF = 1)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Resident	Composite Worker	Farmer	Resident	Composite Worker	Farmer	Resident	Resident	Farmer	Resident	Farmer	SSL Dose-based DL=1 (Bq/g)	SSL MCL-based (Bq/g)
				Soil Total DCC DL=1 (Bq/g)	Soil Total DCC DL=1 (Bq/g)	Soil Total DCC DL=1 (Bq/g)	Air Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Air Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Air Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Finfish DCC DL=1 (Bq/g)	Tap Water Total DCC DL=1 (Bq/L)	Tap Water Total DCC DL=1 (Bq/L)				
Actinium (89)	Ac-223	1.73E+05	4.00E-06	3.81E+16	5.55E+16	1.96E+16	9.73E+01	4.09E+02	9.73E+01	4.17E-03	2.20E-02	7.95E-03	1.67E+03	1.64E+03	8.67E+02	2.69E-01
Actinium (89)	Ac-224	2.18E+03	3.17E-04	9.73E+00	3.55E+01	2.91E-02	4.55E-04	5.64E-04	4.36E-04	1.01E-02	7.68E-02	5.66E-02	1.10E-04	1.85E-04	3.65E-05	7.24E-04
Actinium (89)	Ac-225	2.53E+01	2.74E-02	1.56E+00	3.53E+00	8.69E-01	1.75E-04	2.17E-04	1.68E-04	2.61E-01	1.30E-02	4.35E-04	1.01E-02	1.30E-02	1.26E-01	5.07E-03
Actinium (89)	Ac-226	2.07E+02	3.35E-03	6.63E+00	5.03E+01	3.90E-01	1.15E-04	1.42E-04	1.10E-04	1.85E-04	1.34E-03	6.95E-04	1.01E-02	1.34E-03	4.03E-05	1.27E-03
Actinium (89)	Ac-227	3.18E-02	2.18E+01	3.50E-03	7.38E-02	6.61E-06	2.03E-05	2.51E-05	1.94E-05	8.48E-04	6.05E-03	1.63E-03	2.09E-03	1.30E-02	1.95E-05	6.60E-04
Actinium (89)	Ac-228	9.87E+02	7.02E-04	8.45E+00	2.05E+01	1.72E-02	3.41E-05	4.23E-05	3.27E-05	2.09E-03	1.30E-02	4.35E-04	2.09E-03	1.30E-02	3.18E-05	6.22E-04
Actinium (89)	Ac-230	1.79E+05	3.87E-06	1.29E+07	3.01E+08	3.94E+04	1.29E-05	1.60E-05	1.23E-05	1.52E-04	1.10E-03	1.54E-04	1.52E-04	1.10E-03	8.59E-06	2.16E-04
Actinium (89)	Ac-231	4.86E+04	1.43E-05	1.46E+05	2.40E+05	1.14E+02	5.10E-06	6.32E-06	4.88E-06	4.47E-04	3.21E-03	1.24E-03	4.07E-03	1.24E-03	1.94E-05	6.60E-04
Actinium (89)	Ac-232	1.84E+05	3.77E-06	1.81E+12	4.14E+13	2.50E+09	1.79E-05	2.22E-05	1.72E-05	2.48E-04	1.67E-03	1.11E-04	4.07E-03	1.24E-03	2.43E-06	1.61E-04
Actinium (89)	Ac-233	1.51E+05	4.60E-06	1.54E+04	2.40E+04	7.87E+03	1.56E-05	1.93E-05	1.49E-05	5.50E-04	4.07E-03	8.56E-05	4.07E-03	1.24E-03	1.12E-05	3.49E-03
Silver (47)	Ag-100m	1.63E+05	4.26E-06	1.01E+03	1.53E+03	5.10E+02	6.06E-01	1.15E+00	5.92E+00	2.61E-01	1.27E+00	1.07E+00	4.07E-03	1.24E-03	1.47E-02	.
Silver (47)	Ag-101	3.28E+04	2.11E-05	1.09E+03	1.64E+03	5.37E+02	1.36E+00	2.38E+00	1.33E+00	1.10E+00	5.50E+00	3.27E+00	4.07E-03	1.24E-03	4.31E-02	.
Silver (47)	Ag-102	2.82E+04	2.45E-05	6.48E+10	9.45E+10	3.30E+10	2.01E+00	7.92E+00	2.01E+00	9.87E+00	1.85E+01	5.88E+00	4.07E-03	1.24E-03	7.02E+00	.
Silver (47)	Ag-102m	4.73E+04	1.46E-05	8.97E+10	1.31E+11	4.57E+10	1.86E+00	7.58E+00	1.86E+00	2.01E+01	2.26E+01	9.85E+00	4.07E-03	1.24E-03	8.58E+00	.
Silver (47)	Ag-103	5.54E+03	1.25E-04	1.28E+02	1.94E+02	6.41E+01	2.24E+00	3.40E+00	2.17E+00	1.67E+00	7.16E+00	3.75E+00	4.07E-03	1.24E-03	9.64E-01	2.63E+00
Silver (47)	Ag-104	5.26E+03	1.32E-04	3.70E+01	5.40E+01	1.86E+01	2.48E+00	8.91E+00	2.47E+00	6.93E+00	1.72E+01	4.49E+00	4.07E-03	1.24E-03	6.54E+00	.
Silver (47)	Ag-104m	1.09E+04	6.37E-05	1.13E+02	1.66E+02	5.63E+01	3.59E+00	1.27E+01	3.58E+00	6.05E+00	1.79E+01	4.09E+00	4.07E-03	1.24E-03	6.79E+00	.
Silver (47)	Ag-105	6.13E+00	1.13E-01	2.24E-01	3.75E-01	6.42E-02	1.56E+00	2.08E+00	1.50E+00	8.95E-01	3.60E+00	6.45E-01	4.07E-03	1.24E-03	1.37E+00	4.22E+00
Silver (47)	Ag-105m	5.04E+04	1.38E-05	1.85E+03	3.10E+03	5.30E+02	1.56E+00	2.09E+00	1.50E+00	8.98E-01	3.61E+00	6.47E-01	4.07E-03	1.24E-03	1.37E+00	4.23E+00
Silver (47)	Ag-106	1.52E+04	4.56E-05	2.16E+08	3.16E+08	1.06E+08	9.43E+00	3.16E+01	9.39E+00	1.26E+01	3.97E+01	8.62E+00	4.07E-03	1.24E-03	1.51E+01	.
Silver (47)	Ag-106m	3.05E+01	2.27E-02	1.94E-01	3.04E-01	6.99E-02	8.36E-01	1.35E+00	8.12E-01	2.89E-01	1.15E+00	2.08E-01	4.07E-03	1.24E-03	4.37E-01	.
Silver (47)	Ag-108	1.54E+05	4.51E-06	1.11E+18	1.61E+18	5.70E+17	2.60E+02	1.09E+03	2.60E+02	5.09E+03	4.99E+03	1.94E+03	4.07E-03	1.24E-03	1.94E+03	.
Silver (47)	Ag-108m	1.66E-03	4.18E+02	1.01E-02	1.80E-02	2.48E-03	3.97E-02	4.95E-02	3.80E-02	1.79E-01	7.25E-01	1.29E-01	4.07E-03	1.24E-03	2.76E-01	.
Silver (47)	Ag-109m	5.52E+05	1.26E-06	1.28E+22	1.86E+22	6.57E+21	2.09E+03	8.78E+03	2.09E+03	3.32E+04	3.25E+04	1.26E+04	4.07E-03	1.24E-03	1.26E+04	.
Silver (47)	Ag-110	8.88E+05	7.80E-07	1.02E+22	1.49E+22	5.25E+21	1.34E+02	5.64E+02	1.34E+02	2.70E+03	2.64E+03	1.03E+03	4.07E-03	1.24E-03	1.03E+03	.
Silver (47)	Ag-110m	1.01E+00	6.84E-01	9.47E-03	1.58E-02	2.74E-03	1.12E-01	1.43E-01	1.07E-01	1.49E-01	6.00E-01	1.07E-01	4.07E-03	1.24E-03	2.28E-01	1.27E+00
Silver (47)	Ag-111	3.40E+01	2.04E-02	2.86E+00	3.91E+01	2.31E-01	8.29E-01	1.03E+00	7.93E-01	3.06E-01	1.25E+00	2.21E-01	4.07E-03	1.24E-03	4.75E-01	1.41E+00
Silver (47)	Ag-111m	3.37E+05	2.05E-06	2.86E+04	3.91E+05	2.31E+03	8.35E-01	1.04E+00	7.99E-01	3.08E-01	1.26E+00	2.23E-01	4.07E-03	1.24E-03	4.78E-01	1.42E+00
Silver (47)	Ag-112	1.94E+03	3.57E-04	4.64E+01	7.38E+01	1.59E+01	4.30E+00	7.73E+00	4.19E+00	9.23E-01	3.69E+00	6.64E-01	4.07E-03	1.24E-03	1.40E+00	.
Silver (47)	Ag-113	1.13E+03	6.13E-04	1.49E+02	4.44E+02	1.30E+01	1.30E-02	1.61E-02	1.24E-02	1.97E-02	3.27E-02	1.32E-02	4.07E-03	1.24E-03	3.96E-05	.
Silver (47)	Ag-113m	3.18E+05	2.18E-06	6.55E+04	1.94E+05	5.69E+03	1.30E-02	1.61E-02	1.24E-02	1.99E-02	3.28E-02	1.32E-02	4.07E-03	1.24E-03	3.96E-05	.
Silver (47)	Ag-114	4.75E+06	1.46E-07	7.09E+25	1.03E+26	3.65E+25	2.26E+01	9.51E+01	2.26E+01	3.98E+02	3.89E+02	1.51E+02	4.07E-03	1.24E-03	1.51E+02	.
Silver (47)	Ag-115	1.82E+04	3.81E-05	2.69E+02	1.68E+03	5.41E+00	4.12E-03	5.11E-03	3.94E-03	1.47E-02	9.32E-02	6.05E-04	4.07E-03	1.24E-03	5.05E-04	3.99E-03
Silver (47)	Ag-116	1.36E+05	5.10E-06	1.80E+15	2.62E+15	9.27E+14	3.09E+00	1.30E+01	3.09E+00	5.16E+01	5.05E+01	1.96E+01	4.07E-03	1.24E-03	1.96E+01	.
Silver (47)	Ag-117	2.97E+05	2.33E-06	2.99E+03	4.82E+03	3.70E+02	1.60E+00	3.89E+00	1.57E+00	1.00E+00	2.02E+00	1.16E-01	4.07E-03	1.24E-03	2.72E-03	.
Silver (47)	Ag-99	1.76E+05	3.93E-06	5.54E+03	8.10E+03	2.79E+03	1.50E+00	5.01E+00	1.50E+00	3.47E+00	1.16E+01	1.02E+01	4.07E-03	1.24E-03	1.12E-01	.
Aluminum (13)	Al-26	9.67E-07	7.17E+05	6.69E-03	9.81E-03	2.81E-03	1.41E-02	1.75E-02	1.35E-02	1.15E-01	8.49E-01	9.89E-03	4.07E-03	1.24E-03	1.27E+00	.
Aluminum (13)	Al-28	1.63E+05	4.26E-06	1.49E+16	2.17E+16	7.67E+15	3.72E+00	1.56E+01	3.72E+00	6.18E+01	6.06E+01	9.28E+01	4.07E-03	1.24E-03	9.28E+01	.
Aluminum (13)	Al-29	5.55E+04	1.25E-05	1.00E+13	1.46E+13	5.17E+12	4.92E+00	2.07E+01	4.92E+00	8.20E+01	8.03E+01	1.23E+02	4.07E-03	1.24E-03	1.23E+02	.
Americium (95)	Am-237	4.99E+03	1.39E-04	2.99E+02	4.35E+02	1.09E+00	1.39E-05	1.72E-05	1.33E-05	4.87E-04	3.59E-03	5.19E-05	4.07E-03	1.24E-03	5.86E-06	2.09E-04
Americium (95)	Am-238	3.72E+03	1.86E-04	8.13E+01	1.19E+02	6.03E-02	6.58E-06	8.15E-06	6.30E-06	1.39E-04	1.01E-03	2.19E-05	4.07E-03	1.24E-03	6.51E-06	2.01E-04
Americium (95)	Am-239	5.10E+02	1.36E-03	6.35E+01	9.26E+01	3.15E-01	3.61E-06	4.48E-06	3.46E-06	3.47E-04	2.52E-03	2.29E-05	4.07E-03	1.24E-03	1.13E-05	3.91E-04
Americium (95)	Am-240	1.20E+02	5.80E-03	2.27E+00	3.30E+00	1.29E-02	7.33E-06	9.08E-06	7.01E-06	2.14E-04	1.47E-03	1.93E-05	4.07E-03	1.24E-03	2.23E-06	1.52E-04
Americium (95)	Am-241	1.60E-03	4.32E+02	7.76E-02	1.29E+00	1.03E-06	7.54E-06	9.34E-06	7.21E-06	4.00E-04	2.97E-03	4.31E-05	4.07E-03	1.24E-03	5.42E-06	1.92E-04
Americium (95)	Am-242	3.79E+02	1.83E-03	2.71E+02	1.26E+03	1.76E-03	6.38E-06	7.90E-06	6.10E-06	1.38E-04	1.00E-03	2.13E-05	4.07E-03	1.24E-03	6.31E-06	1.64E-04
Americium (95)	Am-242m	4.91E+03	1.41E+02	7.47E-02	1.10E+00	2.86E-07	4.67E-06	5.78E-06	4.47E-06	1.31E-04	9.54E-04	1.98E-05	4.07E-03	1.24E-03	5.84E-06	1.64E-04
Americium (95)	Am-243	9.40E-05	7.37E+03	4.84E-02	1.72E-01	5.36E-07	2.97E-06	3.68E-06	2.84E-06	3.00E-04	2.20E-03	2.10E-05	4.07E-03	1.24E-03	9.71E-06	3.11E-04
Americium (95)	Am-244	6.01E+02	1.15E-03	1.48E+01	2.17E+01	6.84E-03	6.88E-06	8.52E-06	6.58E-06	2.02E-04	1.39E-03	1.64E-05	4.07E-03	1.24E-03	2.19E-06	1.43E-04
Americium (95)	Am-244m	1.40E+04	4.95E-05	3.33E+04	1.19E+06	1.64E-01	6.88E-06	8.52E-06	6.58E-06	2.02E-04	1.39E-03	1.64E-05	4.07E-03	1.24E-03	2.19E-06	1.43E-04

Resident Soil DCCs July 2023												
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)						
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Produce Consumption DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Actinium (89)	Ac-223	1.73E+05	4.00E-06	1.36E+09	1.00E+00	.	.	3.81E+16	.	3.81E+16	1.00E-08	2.57E+03
Actinium (89)	Ac-224	2.18E+03	3.17E-04	1.36E+09	1.00E+00	3.99E+03	1.35E+06	2.45E+01	1.62E+01	9.73E+00	1.00E-08	5.24E-11
Actinium (89)	Ac-225	2.53E+01	2.74E-02	1.36E+09	1.00E+00	1.12E+02	6.02E+03	2.46E+00	4.40E+00	1.56E+00	1.00E-08	7.26E-10
Actinium (89)	Ac-226	2.07E+02	3.35E-03	1.36E+09	1.00E+00	7.18E+02	2.69E+05	3.55E+01	8.25E+00	6.63E+00	1.00E-08	3.80E-10
Actinium (89)	Ac-227	3.18E-02	2.18E+01	1.36E+09	1.00E+00	3.82E-01	2.82E+01	5.52E-02	3.78E-03	3.50E-03	3.12E-01	1.31E-09
Actinium (89)	Ac-228	9.87E+02	7.02E-04	1.36E+09	1.00E+00	2.99E+03	1.51E+05	1.41E+01	2.10E+01	8.45E+00	1.00E-08	1.02E-10
Actinium (89)	Ac-230	1.79E+05	3.87E-06	1.36E+09	1.00E+00	1.41E+09	3.64E+11	2.26E+08	1.38E+07	1.29E+07	8.94E+03	8.67E-07
Actinium (89)	Ac-231	4.86E+04	1.43E-05	1.36E+09	1.00E+00	2.38E+07	1.60E+10	1.66E+05	1.31E+06	1.46E+05	1.00E-08	3.64E-08
Actinium (89)	Ac-232	1.84E+05	3.77E-06	1.36E+09	1.00E+00	4.06E+14	9.08E+16	2.93E+13	1.94E+12	1.81E+12	1.76E+02	1.20E-01
Actinium (89)	Ac-233	1.51E+05	4.60E-06	1.36E+09	1.00E+00	2.65E+07	7.19E+10	1.65E+04	2.26E+05	1.54E+04	1.00E-08	1.24E-09
Silver (47)	Ag-100m	1.63E+05	4.26E-06	1.36E+09	1.00E+00	1.86E+07	2.64E+11	1.05E+03	2.41E+04	1.01E+03	1.00E-08	3.25E-11
Silver (47)	Ag-101	3.28E+04	2.11E-05	1.36E+09	1.00E+00	1.90E+07	1.90E+11	1.13E+03	3.37E+04	1.09E+03	1.00E-08	1.76E-10
Silver (47)	Ag-102	2.82E+04	2.45E-05	1.36E+09	1.00E+00	5.15E+16	1.18E+21	6.49E+10	3.61E+13	6.48E+10	1.00E-08	1.23E-02
Silver (47)	Ag-102m	4.73E+04	1.46E-05	1.36E+09	1.00E+00	7.29E+16	1.67E+21	8.99E+10	5.12E+13	8.97E+10	1.00E-08	1.01E-02
Silver (47)	Ag-103	5.54E+03	1.25E-04	1.36E+09	1.00E+00	4.05E+06	2.28E+10	1.33E+02	3.58E+03	1.28E+02	1.00E-08	1.25E-10
Silver (47)	Ag-104	5.26E+03	1.32E-04	1.36E+09	1.00E+00	1.60E+07	2.53E+11	3.71E+01	1.12E+04	3.70E+01	1.00E-08	3.83E-11
Silver (47)	Ag-104m	1.09E+04	6.37E-05	1.36E+09	1.00E+00	2.89E+07	6.65E+11	1.14E+02	2.03E+04	1.13E+02	1.00E-08	5.67E-11
Silver (47)	Ag-105	6.13E+00	1.13E-01	1.36E+09	1.00E+00	2.41E+03	1.45E+07	2.58E-01	1.69E+00	2.24E-01	1.00E-08	2.01E-10
Silver (47)	Ag-105m	5.04E+04	1.38E-05	1.36E+09	1.00E+00	1.99E+07	1.20E+11	2.13E+03	1.40E+04	1.85E+03	1.00E-08	2.02E-10
Silver (47)	Ag-106	1.52E+04	4.56E-05	1.36E+09	1.00E+00	4.12E+13	9.01E+17	2.17E+08	2.89E+10	2.16E+08	1.00E-08	7.89E-05
Silver (47)	Ag-106m	3.05E+01	2.27E-02	1.36E+09	1.00E+00	3.88E+03	5.16E+07	2.09E-01	2.72E+00	1.94E-01	1.00E-08	3.53E-11
Silver (47)	Ag-108	1.54E+05	4.51E-06	1.36E+09	1.00E+00	.	.	1.11E+18	.	1.11E+18	1.00E-08	4.08E+04
Silver (47)	Ag-108m	1.66E-03	4.18E+02	1.36E+09	1.00E+00	7.88E+01	5.45E+04	1.24E-02	5.53E-02	1.01E-02	1.00E-08	3.46E-08
Silver (47)	Ag-109m	5.52E+05	1.26E-06	1.36E+09	1.00E+00	.	.	1.28E+22	.	1.28E+22	1.00E-08	1.32E+08
Silver (47)	Ag-110	8.88E+05	7.80E-07	1.36E+09	1.00E+00	.	.	1.02E+22	.	1.02E+22	1.00E-08	6.63E+07
Silver (47)	Ag-110m	1.01E+00	6.84E-01	1.36E+09	1.00E+00	1.04E+02	2.53E+05	1.09E-02	7.30E-02	9.47E-03	1.00E-08	5.39E-11
Silver (47)	Ag-111	3.40E+01	2.04E-02	1.36E+09	1.00E+00	4.56E+03	3.84E+07	2.69E+01	3.20E+00	2.86E+00	1.00E-08	4.90E-10
Silver (47)	Ag-111m	3.37E+05	2.05E-06	1.36E+09	1.00E+00	4.56E+07	3.84E+11	2.70E+05	3.20E+04	2.86E+04	1.00E-08	4.94E-10
Silver (47)	Ag-112	1.94E+03	3.57E-04	1.36E+09	1.00E+00	7.86E+05	2.03E+10	5.07E+01	5.52E+02	4.64E+01	1.00E-08	1.41E-10
Silver (47)	Ag-113	1.13E+03	6.13E-04	1.36E+09	1.00E+00	4.68E+05	8.42E+09	3.05E+02	2.93E+02	1.49E+02	1.00E-08	7.83E-10
Silver (47)	Ag-113m	3.18E+05	2.18E-06	1.36E+09	1.00E+00	2.05E+08	3.70E+12	1.34E+05	1.28E+05	6.55E+04	1.00E-08	1.22E-09
Silver (47)	Ag-114	4.75E+06	1.46E-07	1.36E+09	1.00E+00	.	.	7.09E+25	.	7.09E+25	1.00E-08	8.92E+10
Silver (47)	Ag-115	1.82E+04	3.81E-05	1.36E+09	1.00E+00	1.97E+06	2.30E+10	1.15E+03	3.51E+02	2.69E+02	1.00E-08	8.90E-11

Resident Soil DCCs July 2023												
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)						
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Produce Consumption DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Silver (47)	Ag-116	1.36E+05	5.10E-06	1.36E+09	1.00E+00	.	.	1.80E+15	.	1.80E+15	1.00E-08	8.07E+01
Silver (47)	Ag-117	2.97E+05	2.33E-06	1.36E+09	1.00E+00	1.30E+08	2.12E+12	3.31E+03	3.10E+04	2.99E+03	1.00E-08	6.18E-11
Silver (47)	Ag-99	1.76E+05	3.93E-06	1.36E+09	1.00E+00	3.84E+08	4.08E+12	5.56E+03	1.15E+06	5.54E+03	1.00E-08	1.63E-10
Aluminum (13)	Al-26	9.67E-07	7.17E+05	1.36E+09	1.00E+00	5.06E+01	1.92E+04	6.74E-03	9.70E-01	6.69E-03	1.00E-08	9.44E-06
Aluminum (13)	Al-28	1.63E+05	4.26E-06	1.36E+09	1.00E+00	.	.	1.49E+16	.	1.49E+16	1.00E-08	1.35E+02
Aluminum (13)	Al-29	5.55E+04	1.25E-05	1.36E+09	1.00E+00	.	.	1.00E+13	.	1.00E+13	1.00E-08	2.75E-01
Americium (95)	Am-237	4.99E+03	1.39E-04	1.36E+09	1.00E+00	6.65E+06	2.34E+10	2.99E+02	6.43E+05	2.99E+02	1.00E-08	7.44E-10
Americium (95)	Am-238	3.72E+03	1.86E-04	1.36E+09	1.00E+00	4.09E+05	9.42E+06	8.15E+01	4.01E+04	8.13E+01	1.00E-08	2.73E-10
Americium (95)	Am-239	5.10E+02	1.36E-03	1.36E+09	1.00E+00	3.48E+05	2.99E+08	6.36E+01	3.11E+04	6.35E+01	1.00E-08	1.56E-09
Americium (95)	Am-240	1.20E+02	5.80E-03	1.36E+09	1.00E+00	3.50E+04	1.99E+07	2.27E+00	3.13E+03	2.27E+00	1.00E-08	2.39E-10
Americium (95)	Am-241	1.60E-03	4.32E+02	1.36E+09	1.00E+00	9.77E-01	2.24E+01	3.00E+00	8.70E-02	7.76E-02	1.00E-08	6.11E-07
Americium (95)	Am-242	3.79E+02	1.83E-03	1.36E+09	1.00E+00	6.39E+03	1.81E+05	9.36E+02	4.07E+02	2.71E+02	1.00E-08	9.08E-09
Americium (95)	Am-242m	4.91E-03	1.41E+02	1.36E+09	1.00E+00	9.53E-01	2.14E+01	1.82E+00	8.46E-02	7.47E-02	2.98E+01	1.93E-07
Americium (95)	Am-243	9.40E-05	7.37E+03	1.36E+09	1.00E+00	9.80E-01	2.25E+01	1.30E-01	8.38E-02	4.84E-02	7.86E-02	6.56E-06
Americium (95)	Am-244	6.01E+02	1.15E-03	1.36E+09	1.00E+00	2.22E+04	2.44E+06	1.49E+01	1.41E+03	1.48E+01	1.00E-08	3.14E-10
Americium (95)	Am-244m	1.40E+04	4.95E-05	1.36E+09	1.00E+00	5.74E+05	5.68E+07	1.91E+08	3.54E+04	3.33E+04	1.00E-08	3.04E-08
Americium (95)	Am-245	2.96E+03	2.34E-04	1.36E+09	1.00E+00	6.60E+06	4.62E+08	2.48E+03	5.42E+05	2.47E+03	1.00E-08	1.07E-08
Americium (95)	Am-246	9.34E+03	7.42E-05	1.36E+09	1.00E+00	1.81E+07	1.40E+09	2.64E+02	1.42E+06	2.64E+02	1.00E-08	3.64E-10
Americium (95)	Am-246m	1.46E+04	4.76E-05	1.36E+09	1.00E+00	9.65E+07	2.20E+09	6.26E+07	5.94E+06	5.13E+06	1.00E-08	4.54E-06
Americium (95)	Am-247	1.58E+04	4.38E-05	1.36E+09	1.00E+00	1.12E+11	2.55E+12	2.59E+09	8.96E+09	2.31E+09	1.00E-08	1.89E-03
Argon (18)	Ar-37	7.22E+00	9.60E-02	.	.	.	.	.	.	.	.	.
Argon (18)	Ar-39	2.58E-03	2.69E+02	1.36E+09	9.00E-01	.	.	1.54E+02	.	1.54E+02	1.00E-08	1.22E-04
Argon (18)	Ar-41	3.32E+03	2.09E-04	1.36E+09	1.00E+00	.	.	4.66E+01	.	4.66E+01	1.00E-08	3.02E-11
Argon (18)	Ar-42	2.11E-02	3.29E+01	1.36E+09	9.00E-01	3.99E+02	5.44E+06	6.06E-02	9.23E-02	3.66E-02	7.88E-03	3.82E-09
Argon (18)	Ar-43	6.78E+04	1.02E-05	1.36E+09	1.00E+00	4.91E+07	3.43E+11	1.42E+03	1.14E+04	1.26E+03	1.00E-08	4.21E-11
Argon (18)	Ar-44	3.07E+04	2.26E-05	1.36E+09	1.00E+00	5.56E+13	1.46E+18	1.92E+08	1.29E+10	1.89E+08	1.00E-08	1.42E-05
Arsenic (33)	As-68	1.44E+05	4.81E-06	1.36E+09	1.00E+00	3.02E+07	1.55E+10	5.04E+03	7.52E+03	3.02E+03	1.00E-08	7.46E-11
Arsenic (33)	As-69	2.39E+04	2.90E-05	1.36E+09	1.00E+00	2.12E+07	1.78E+11	4.77E+02	4.88E+03	4.35E+02	1.00E-08	6.58E-11
Arsenic (33)	As-70	6.92E+03	1.00E-04	1.36E+09	1.00E+00	9.14E+06	1.76E+11	3.04E+01	1.04E+04	3.03E+01	1.00E-08	1.60E-11
Arsenic (33)	As-71	9.30E+01	7.45E-03	1.36E+09	1.00E+00	3.59E+04	4.50E+08	3.42E+00	3.72E+01	3.13E+00	1.00E-08	1.25E-10
Arsenic (33)	As-72	2.33E+02	2.97E-03	1.36E+09	1.00E+00	2.24E+04	4.50E+08	2.54E+00	2.56E+01	2.31E+00	1.00E-08	3.74E-11
Arsenic (33)	As-73	3.15E+00	2.20E-01	1.36E+09	1.00E+00	2.18E+03	4.75E+06	4.69E+01	2.49E+00	2.36E+00	1.00E-08	2.87E-09
Arsenic (33)	As-74	1.42E+01	4.87E-02	1.36E+09	1.00E+00	1.97E+03	1.12E+07	3.75E-01	2.25E+00	3.22E-01	1.00E-08	8.77E-11

Resident Soil DCCs July 2023												
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)						
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Produce Consumption DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Arsenic (33)	As-76	2.35E+02	2.95E-03	1.36E+09	1.00E+00	2.58E+04	5.65E+08	1.07E+01	2.95E+01	7.84E+00	1.00E-08	1.33E-10
Arsenic (33)	As-77	1.56E+02	4.43E-03	1.36E+09	1.00E+00	6.89E+04	7.10E+08	4.05E+02	7.88E+01	6.59E+01	1.00E-08	1.70E-09
Arsenic (33)	As-78	4.02E+03	1.73E-04	1.36E+09	1.00E+00	3.57E+06	8.16E+10	5.62E+01	4.09E+03	5.54E+01	1.00E-08	5.65E-11
Arsenic (33)	As-79	4.04E+04	1.71E-05	1.36E+09	1.00E+00	8.55E+11	5.57E+15	8.47E+13	7.89E+07	7.89E+07	1.00E-08	8.08E-06
Astatine (85)	At-204	3.96E+04	1.75E-05	1.36E+09	1.00E+00	9.02E+06	1.04E+11	1.86E+02	1.20E+04	1.83E+02	1.00E-08	4.96E-11
Astatine (85)	At-205	1.39E+04	4.98E-05	1.36E+09	1.00E+00	2.82E+06	2.54E+10	8.15E+01	2.81E+03	7.92E+01	1.00E-08	6.13E-11
Astatine (85)	At-206	1.19E+04	5.82E-05	1.36E+09	1.00E+00	1.06E+05	3.61E+08	5.42E+01	8.92E+02	5.10E+01	1.00E-08	4.63E-11
Astatine (85)	At-207	3.37E+03	2.05E-04	1.36E+09	1.00E+00	1.45E+06	2.22E+09	1.88E+01	1.03E+03	1.85E+01	1.00E-08	5.94E-11
Astatine (85)	At-208	3.72E+03	1.86E-04	1.36E+09	1.00E+00	1.87E+03	5.20E+06	2.35E+01	7.55E+01	1.78E+01	1.00E-08	5.20E-11
Astatine (85)	At-209	1.12E+03	6.18E-04	1.36E+09	1.00E+00	1.77E+04	3.55E+07	9.47E+00	1.75E+02	8.98E+00	1.00E-08	8.77E-11
Astatine (85)	At-210	7.49E+02	9.25E-04	1.36E+09	1.00E+00	1.19E+02	4.18E+05	4.67E+00	4.58E+00	2.27E+00	1.00E-08	3.34E-11
Astatine (85)	At-211	8.42E+02	8.24E-04	1.36E+09	1.00E+00	1.32E+04	1.42E+07	4.68E+02	6.07E+00	5.99E+00	1.00E-08	7.88E-11
Astatine (85)	At-215	2.19E+11	3.17E-12	1.36E+09	1.00E+00	.	.	7.65E+22	.	7.65E+22	1.00E-08	3.95E+03
Astatine (85)	At-216	7.28E+10	9.51E-12	1.36E+09	1.00E+00	1.96E+15	3.96E+17	3.76E+10	1.80E+12	3.68E+10	1.00E-08	5.72E-09
Astatine (85)	At-217	6.77E+08	1.02E-09	1.36E+09	1.00E+00	2.22E+12	7.75E+15	1.84E+10	1.10E+10	6.86E+09	1.00E-08	1.15E-07
Astatine (85)	At-218	1.46E+07	4.76E-08	1.36E+09	9.00E-01	4.20E+07	1.01E+11	6.96E+09	4.83E+05	4.78E+05	9.25E-01	3.75E-10
Astatine (85)	At-219	3.90E+05	1.78E-06	.	.	.	.	.	.	.	.	.
Astatine (85)	At-220	9.82E+04	7.06E-06	1.36E+09	1.00E+00	2.13E+06	1.76E+09	1.21E+03	9.70E+03	1.07E+03	1.00E-08	1.26E-10
Gold (79)	Au-186	3.40E+04	2.04E-05	1.36E+09	1.00E+00	1.59E+07	2.53E+11	2.88E+02	2.91E+04	2.85E+02	1.00E-08	8.16E-11
Gold (79)	Au-187	4.34E+04	1.60E-05	1.36E+09	1.00E+00	3.82E+07	5.47E+11	1.03E+03	5.82E+04	1.01E+03	1.00E-08	2.29E-10
Gold (79)	Au-190	8.51E+03	8.14E-05	1.36E+09	1.00E+00	3.66E+07	6.44E+11	6.44E+01	9.95E+05	6.44E+01	1.00E-08	7.54E-11
Gold (79)	Au-191	1.91E+03	3.63E-04	1.36E+09	1.00E+00	7.61E+05	8.44E+09	5.08E+01	8.27E+02	4.79E+01	1.00E-08	2.51E-10
Gold (79)	Au-192	1.23E+03	5.64E-04	1.36E+09	1.00E+00	1.30E+06	2.35E+10	1.16E+01	3.55E+04	1.16E+01	1.00E-08	9.49E-11
Gold (79)	Au-193	3.44E+02	2.01E-03	1.36E+09	1.00E+00	4.65E+05	5.68E+09	6.41E+01	1.14E+04	6.37E+01	1.00E-08	1.87E-09
Gold (79)	Au-193m	5.60E+06	1.24E-07	1.36E+09	1.00E+00	7.58E+09	9.23E+13	1.04E+06	1.80E+08	1.04E+06	1.00E-08	1.88E-09
Gold (79)	Au-194	1.60E+02	4.34E-03	1.36E+09	1.00E+00	7.19E+04	1.26E+09	2.97E+00	1.96E+03	2.97E+00	1.00E-08	1.89E-10
Gold (79)	Au-195	1.36E+00	5.10E-01	1.36E+09	1.00E+00	1.20E+03	2.01E+06	1.14E+00	3.26E+01	1.10E+00	1.00E-08	8.25E-09
Gold (79)	Au-195m	7.17E+05	9.67E-07	1.36E+09	1.00E+00	6.31E+08	1.06E+12	5.99E+05	1.72E+07	5.78E+05	1.00E-08	8.25E-09
Gold (79)	Au-196	4.09E+01	1.69E-02	1.36E+09	1.00E+00	2.09E+04	2.39E+08	1.98E+00	5.70E+02	1.98E+00	1.00E-08	4.96E-10
Gold (79)	Au-196m	6.32E+02	1.10E-03	1.36E+09	1.00E+00	1.50E+05	1.59E+09	2.20E+01	4.07E+03	2.18E+01	1.00E-08	3.55E-10
Gold (79)	Au-198	9.39E+01	7.38E-03	1.36E+09	1.00E+00	1.57E+04	2.09E+08	4.86E+00	4.27E+02	4.81E+00	1.00E-08	5.32E-10
Gold (79)	Au-198m	1.11E+02	6.22E-03	1.36E+09	1.00E+00	8.63E+03	8.06E+07	2.84E+00	2.35E+02	2.80E+00	1.00E-08	2.61E-10
Gold (79)	Au-199	8.06E+01	8.60E-03	1.36E+09	1.00E+00	3.08E+04	1.97E+08	2.34E+01	8.38E+02	2.28E+01	1.00E-08	2.95E-09



Resident Soil DCCs July 2023												
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)						
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Produce Consumption DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Gold (79)	Au-200	7.53E+03	9.21E-05	1.36E+09	1.00E+00	1.93E+07	3.99E+11	5.10E+02	5.24E+05	5.10E+02	1.00E-08	7.11E-10
Gold (79)	Au-200m	3.25E+02	2.13E-03	1.36E+09	1.00E+00	5.64E+04	8.88E+08	3.29E+00	1.54E+03	3.28E+00	1.00E-08	1.06E-10
Gold (79)	Au-201	1.40E+04	4.95E-05	1.36E+09	1.00E+00	1.43E+13	2.18E+17	1.19E+09	3.90E+11	1.19E+09	1.00E-08	8.92E-04
Gold (79)	Au-202	7.59E+05	9.13E-07	1.36E+09	1.00E+00	.	.	1.60E+21	.	1.60E+21	1.00E-08	2.23E+07
Barium (56)	Ba-124	3.31E+04	2.09E-05	1.36E+09	1.00E+00	1.27E+17	4.07E+21	5.60E+11	1.21E+15	5.60E+11	1.00E-08	1.10E-01
Barium (56)	Ba-126	3.64E+03	1.90E-04	1.36E+09	1.00E+00	2.52E+06	6.01E+10	4.22E+01	2.41E+04	4.22E+01	1.00E-08	7.65E-11
Barium (56)	Ba-127	2.87E+04	2.42E-05	1.36E+09	1.00E+00	2.16E+08	1.33E+12	9.36E+02	8.07E+05	9.34E+02	1.00E-08	2.17E-10
Barium (56)	Ba-128	1.04E+02	6.66E-03	1.36E+09	1.00E+00	6.79E+03	1.38E+08	2.25E+00	6.50E+01	2.17E+00	1.00E-08	1.40E-10
Barium (56)	Ba-129	2.72E+03	2.55E-04	1.36E+09	1.00E+00	4.60E+06	4.67E+10	9.91E+01	2.38E+04	9.87E+01	1.00E-08	2.45E-10
Barium (56)	Ba-129m	2.81E+03	2.47E-04	1.36E+09	1.00E+00	4.00E+06	4.13E+10	3.03E+01	2.23E+04	3.03E+01	1.00E-08	7.29E-11
Barium (56)	Ba-131	2.20E+01	3.15E-02	1.36E+09	1.00E+00	7.51E+03	4.78E+07	1.05E+00	6.17E+01	1.03E+00	1.00E-08	3.21E-10
Barium (56)	Ba-131m	2.49E+04	2.78E-05	1.36E+09	1.00E+00	8.52E+06	5.42E+10	1.18E+03	6.99E+04	1.17E+03	1.00E-08	3.21E-10
Barium (56)	Ba-133	6.59E-02	1.05E+01	1.36E+09	1.00E+00	9.84E+01	2.02E+05	6.32E-02	9.41E-01	5.92E-02	1.00E-08	6.26E-09
Barium (56)	Ba-133m	1.56E+02	4.44E-03	1.36E+09	1.00E+00	4.15E+04	2.73E+08	4.70E+01	3.97E+02	4.20E+01	1.00E-08	1.88E-09
Barium (56)	Ba-135m	2.12E+02	3.28E-03	1.36E+09	1.00E+00	8.68E+04	1.12E+09	1.09E+02	8.31E+02	9.60E+01	1.00E-08	3.21E-09
Barium (56)	Ba-137m	1.43E+05	4.86E-06	1.36E+09	1.00E+00	.	.	8.94E+15	.	8.94E+15	1.00E-08	4.50E+02
Barium (56)	Ba-139	4.39E+03	1.58E-04	1.36E+09	1.00E+00	6.21E+06	1.37E+11	2.07E+03	5.94E+04	2.00E+03	1.00E-08	3.33E-09
Barium (56)	Ba-140	1.98E+01	3.49E-02	1.36E+09	1.00E+00	7.32E+02	5.53E+06	1.45E-01	9.22E+00	1.43E-01	1.00E-08	5.29E-11
Barium (56)	Ba-141	1.99E+04	3.48E-05	1.36E+09	1.00E+00	3.11E+06	1.01E+10	4.40E+03	7.41E+04	4.15E+03	1.00E-08	1.54E-09
Barium (56)	Ba-142	3.44E+04	2.02E-05	1.36E+09	1.00E+00	3.46E+07	7.05E+11	2.49E+02	7.66E+05	2.49E+02	1.00E-08	5.40E-11
Beryllium (4)	Be-10	4.59E-07	1.51E+06	1.36E+09	9.00E-01	1.49E+02	6.00E+04	1.22E+02	2.85E+00	2.74E+00	1.00E-08	3.13E-03
Beryllium (4)	Be-7	4.75E+00	1.46E-01	1.36E+09	1.00E+00	3.20E+04	1.64E+08	1.97E+00	6.14E+02	1.96E+00	1.00E-08	1.52E-10
Bismuth (83)	Bi-197	3.92E+04	1.77E-05	1.36E+09	1.00E+00	2.31E+07	1.68E+10	8.24E+02	8.20E+03	7.48E+02	1.00E-08	1.97E-10
Bismuth (83)	Bi-200	1.00E+04	6.93E-05	1.36E+09	1.00E+00	2.93E+06	3.31E+10	5.14E+01	1.36E+04	5.12E+01	1.00E-08	5.37E-11
Bismuth (83)	Bi-201	3.37E+03	2.05E-04	1.36E+09	1.00E+00	1.66E+06	1.64E+10	2.44E+01	3.89E+03	2.42E+01	1.00E-08	7.57E-11
Bismuth (83)	Bi-202	3.53E+03	1.96E-04	1.36E+09	1.00E+00	6.49E+06	1.02E+11	2.49E+01	5.96E+03	2.48E+01	1.00E-08	7.44E-11
Bismuth (83)	Bi-203	5.16E+02	1.34E-03	1.36E+09	1.00E+00	1.29E+05	1.89E+09	3.64E+00	1.62E+02	3.56E+00	1.00E-08	7.33E-11
Bismuth (83)	Bi-204	5.41E+02	1.28E-03	1.36E+09	1.00E+00	1.73E+05	3.09E+09	3.32E+00	1.59E+02	3.25E+00	1.00E-08	6.43E-11
Bismuth (83)	Bi-205	1.65E+01	4.19E-02	1.36E+09	1.00E+00	3.34E+03	2.95E+07	1.80E-01	3.06E+00	1.70E-01	1.00E-08	1.11E-10
Bismuth (83)	Bi-206	4.05E+01	1.71E-02	1.36E+09	1.00E+00	3.81E+03	4.14E+07	2.37E-01	3.49E+00	2.22E-01	1.00E-08	5.91E-11
Bismuth (83)	Bi-207	2.11E-02	3.29E+01	1.36E+09	1.00E+00	1.42E+02	5.43E+04	1.28E-02	1.30E-01	1.16E-02	1.00E-08	5.99E-09
Bismuth (83)	Bi-208	1.88E-06	3.68E+05	1.36E+09	1.00E+00	1.61E+02	5.73E+04	6.31E-03	1.48E-01	6.05E-03	1.00E-08	3.50E-05
Bismuth (83)	Bi-210	5.05E+01	1.37E-02	1.36E+09	1.00E+00	8.02E+00	2.74E+04	1.02E+03	3.15E-01	3.03E-01	1.00E-08	6.61E-11

Resident Soil DCCs July 2023												
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)						
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion	Inhalation	External	Produce	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
						DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)			
Bismuth (83)	Bi-210m	2.28E-07	3.04E+06	1.36E+09	1.00E+00	1.16E+01	2.05E+02	8.49E-02	1.06E-02	9.41E-03	1.00E-08	4.54E-04
Bismuth (83)	Bi-211	1.70E+05	4.07E-06	1.36E+09	1.00E+00	.	.	5.96E+16	.	5.96E+16	1.00E-08	3.87E+03
Bismuth (83)	Bi-212	6.02E+03	1.15E-04	1.36E+09	1.00E+00	3.97E+06	8.00E+08	7.96E+01	3.64E+03	7.79E+01	1.00E-08	1.44E-10
Bismuth (83)	Bi-212n	5.20E+04	1.33E-05	1.36E+09	9.00E-01	.	.	1.81E+14	.	1.81E+14	1.00E-08	3.88E+01
Bismuth (83)	Bi-213	7.99E+03	8.67E-05	1.36E+09	1.00E+00	5.42E+06	4.93E+08	9.29E+02	6.05E+03	8.06E+02	1.00E-08	1.13E-09
Bismuth (83)	Bi-214	1.83E+04	3.79E-05	1.36E+09	1.00E+00	5.28E+04	1.27E+08	8.74E+06	6.07E+02	6.01E+02	9.25E-01	3.68E-10
Bismuth (83)	Bi-215	4.79E+04	1.45E-05	1.36E+09	1.00E+00	4.25E+07	7.73E+09	8.43E+03	2.24E+05	8.13E+03	1.00E-08	1.91E-09
Bismuth (83)	Bi-216	1.68E+05	4.13E-06	1.36E+09	1.00E+00	3.65E+06	3.02E+09	2.07E+03	1.66E+04	1.84E+03	1.00E-08	1.24E-10
Berkelium (97)	Bk-245	5.12E+01	1.35E-02	1.36E+09	1.00E+00	1.48E+04	7.99E+06	6.31E+00	7.56E+02	6.25E+00	1.00E-08	1.57E-09
Berkelium (97)	Bk-246	1.41E+02	4.93E-03	1.36E+09	1.00E+00	5.29E+04	2.09E+07	3.30E+00	2.72E+03	3.29E+00	1.00E-08	3.02E-10
Berkelium (97)	Bk-247	5.02E-04	1.38E+03	1.36E+09	1.00E+00	5.24E-01	1.24E+01	1.88E-01	2.66E-02	2.23E-02	1.00E-08	5.75E-07
Berkelium (97)	Bk-248m	2.56E+02	2.71E-03	1.36E+09	1.00E+00	3.11E+03	1.69E+05	1.21E+02	1.60E+02	6.72E+01	1.00E-08	3.41E-09
Berkelium (97)	Bk-249	7.67E-01	9.04E-01	1.36E+09	1.00E+00	1.91E+02	4.82E+03	2.60E+01	9.68E+00	7.15E+00	5.31E+00	1.22E-07
Berkelium (97)	Bk-250	1.89E+03	3.67E-04	1.36E+09	1.00E+00	3.77E+04	5.15E+06	3.95E+01	1.92E+03	3.87E+01	1.00E-08	2.68E-10
Berkelium (97)	Bk-251	6.55E+03	1.06E-04	1.36E+09	1.00E+00	3.79E+06	1.03E+08	2.35E+03	1.93E+05	2.32E+03	1.00E-08	4.66E-09
Bromine (35)	Br-72	2.78E+05	2.49E-06	1.36E+09	1.00E+00	6.07E+06	1.15E+11	3.02E+03	7.08E+02	5.73E+02	1.00E-08	7.79E-12
Bromine (35)	Br-73	1.07E+05	6.47E-06	1.36E+09	1.00E+00	4.33E+07	1.41E+11	2.12E+03	8.65E+03	1.70E+03	1.00E-08	6.09E-11
Bromine (35)	Br-74	1.43E+04	4.83E-05	1.36E+09	1.00E+00	6.29E+12	1.34E+17	1.09E+07	2.79E+10	1.09E+07	1.00E-08	2.96E-06
Bromine (35)	Br-74m	7.92E+03	8.75E-05	1.36E+09	1.00E+00	1.05E+07	2.16E+11	3.47E+01	4.64E+04	3.47E+01	1.00E-08	1.70E-11
Bromine (35)	Br-75	3.77E+03	1.84E-04	1.36E+09	1.00E+00	2.87E+05	6.12E+09	5.20E+01	2.74E+01	1.79E+01	1.00E-08	1.87E-11
Bromine (35)	Br-76	3.75E+02	1.85E-03	1.36E+09	1.00E+00	1.47E+05	1.62E+09	2.43E+00	6.53E+02	2.42E+00	1.00E-08	2.58E-11
Bromine (35)	Br-76m	1.67E+07	4.15E-08	1.36E+09	1.00E+00	6.57E+09	7.22E+13	1.09E+05	2.92E+07	1.08E+05	1.00E-08	2.59E-11
Bromine (35)	Br-77	1.06E+02	6.51E-03	1.36E+09	1.00E+00	2.06E+05	2.18E+09	7.02E+00	9.14E+02	6.96E+00	1.00E-08	2.64E-10
Bromine (35)	Br-77m	8.51E+04	8.14E-06	1.36E+09	1.00E+00	1.65E+08	1.74E+12	5.61E+03	7.30E+05	5.56E+03	1.00E-08	2.64E-10
Bromine (35)	Br-78	5.64E+04	1.23E-05	1.36E+09	1.00E+00	.	.	1.66E+13	.	1.66E+13	1.00E-08	1.20E+00
Bromine (35)	Br-80	2.06E+04	3.36E-05	1.36E+09	1.00E+00	7.81E+15	1.78E+20	3.49E+11	3.46E+13	3.45E+11	1.00E-08	7.03E-02
Bromine (35)	Br-80m	1.37E+03	5.05E-04	1.36E+09	1.00E+00	1.62E+06	2.12E+10	3.34E+02	7.19E+03	3.19E+02	1.00E-08	9.76E-10
Bromine (35)	Br-82	1.72E+02	4.03E-03	1.36E+09	1.00E+00	5.92E+04	4.89E+08	1.24E+00	2.63E+02	1.23E+00	1.00E-08	3.08E-11
Bromine (35)	Br-82m	5.94E+04	1.17E-05	1.36E+09	1.00E+00	2.09E+07	1.73E+11	4.38E+02	9.27E+04	4.36E+02	1.00E-08	3.15E-11
Bromine (35)	Br-83	2.53E+03	2.74E-04	1.36E+09	1.00E+00	9.83E+06	9.19E+10	6.85E+03	4.36E+04	5.92E+03	1.00E-08	1.02E-08
Bromine (35)	Br-84	1.15E+04	6.05E-05	1.36E+09	1.00E+00	2.26E+07	5.44E+11	1.11E+02	1.00E+05	1.11E+02	1.00E-08	4.28E-11
Bromine (35)	Br-84m	6.07E+04	1.14E-05	1.36E+09	1.00E+00	.	.	1.97E+13	.	1.97E+13	1.00E-08	1.43E+00
Bromine (35)	Br-85	1.26E+05	5.52E-06	1.36E+09	1.00E+00	.	.	2.00E+04	.	2.00E+04	1.00E-08	7.10E-10

Resident Soil DCCs July 2023												
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)						
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Produce Consumption DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Carbon (6)	C-10	1.14E+06	6.11E-07	1.36E+09	1.00E+00	.	.	1.15E+21	.	1.15E+21	1.00E-08	5.32E+05
Carbon (6)	C-11	1.79E+04	3.88E-05	1.36E+09	9.00E-01	1.22E+15	1.64E+19	3.60E+09	1.12E+12	3.59E+09	1.00E-08	1.16E-04
Carbon (6)	C-14	1.22E-04	5.70E+03	1.36E+09	9.00E-01	3.67E+02	3.57E+05	1.12E+04	3.36E-01	3.36E-01	1.00E-08	2.03E-06
Calcium (20)	Ca-41	6.79E-06	1.02E+05	1.36E+09	1.00E+00	7.85E+02	9.54E+06	.	2.18E-01	2.17E-01	1.00E-08	6.88E-05
Calcium (20)	Ca-45	1.55E+00	4.46E-01	1.36E+09	1.00E+00	4.40E+02	1.08E+06	4.11E+03	1.22E-01	1.22E-01	1.00E-08	1.85E-10
Calcium (20)	Ca-47	5.58E+01	1.24E-02	1.36E+09	1.00E+00	4.63E+03	3.83E+07	8.96E-01	1.75E+00	5.92E-01	1.00E-08	2.62E-11
Calcium (20)	Ca-49	4.18E+04	1.66E-05	1.36E+09	1.00E+00	8.82E+07	1.96E+12	1.29E+05	2.89E+06	1.23E+05	1.00E-08	7.59E-09
Cadmium (48)	Cd-101	2.68E+05	2.59E-06	1.36E+09	1.00E+00	1.54E+08	1.54E+12	9.08E+03	2.71E+05	8.79E+03	1.00E-08	1.74E-10
Cadmium (48)	Cd-102	6.62E+04	1.05E-05	1.36E+09	1.00E+00	6.05E+16	1.39E+21	7.33E+10	4.25E+13	7.31E+10	1.00E-08	5.91E-03
Cadmium (48)	Cd-103	4.99E+04	1.39E-05	1.36E+09	1.00E+00	3.65E+07	2.05E+11	1.20E+03	3.22E+04	1.16E+03	1.00E-08	1.25E-10
Cadmium (48)	Cd-104	6.31E+03	1.10E-04	1.36E+09	1.00E+00	6.62E+06	1.47E+11	5.94E+01	1.60E+03	5.73E+01	1.00E-08	4.95E-11
Cadmium (48)	Cd-105	6.56E+03	1.06E-04	1.36E+09	1.00E+00	2.37E+06	1.51E+10	6.97E+01	1.31E+03	6.62E+01	1.00E-08	5.55E-11
Cadmium (48)	Cd-107	9.34E+02	7.42E-04	1.36E+09	1.00E+00	2.53E+06	2.24E+10	2.45E+03	4.27E+02	3.64E+02	1.00E-08	2.19E-09
Cadmium (48)	Cd-109	5.48E-01	1.26E+00	1.36E+09	1.00E+00	1.20E+02	4.13E+05	1.19E+01	2.03E-02	2.02E-02	1.00E-08	2.11E-10
Cadmium (48)	Cd-111m	7.51E+03	9.23E-05	1.36E+09	1.00E+00	9.64E+07	6.20E+11	6.38E+02	1.63E+04	6.14E+02	1.00E-08	4.76E-10
Cadmium (48)	Cd-113	9.00E-17	7.70E+15	1.36E+09	9.00E-01	8.83E+00	1.77E+04	1.28E+03	1.49E-03	1.49E-03	2.25E-07	9.83E+04
Cadmium (48)	Cd-113m	4.91E-02	1.41E+01	1.36E+09	1.00E+00	9.26E+00	1.92E+04	1.27E+02	1.57E-03	1.57E-03	1.00E-08	1.89E-10
Cadmium (48)	Cd-115	1.14E+02	6.10E-03	1.36E+09	1.00E+00	1.31E+04	1.88E+08	6.82E+00	2.35E+00	1.75E+00	1.00E-08	9.28E-11
Cadmium (48)	Cd-115m	5.67E+00	1.22E-01	1.36E+09	1.00E+00	3.04E+02	1.47E+06	2.97E+00	5.14E-02	5.05E-02	1.00E-08	5.37E-11
Cadmium (48)	Cd-117	2.44E+03	2.84E-04	1.36E+09	1.00E+00	1.03E+06	1.74E+10	3.10E+01	2.56E+02	2.76E+01	1.00E-08	6.95E-11
Cadmium (48)	Cd-117m	1.81E+03	3.84E-04	1.36E+09	1.00E+00	1.01E+06	1.36E+10	1.22E+01	1.90E+02	1.15E+01	1.00E-08	3.90E-11
Cadmium (48)	Cd-118	7.24E+03	9.57E-05	1.36E+09	9.00E-01	6.73E+06	1.66E+11	1.28E+03	1.14E+03	6.03E+02	1.00E-08	5.16E-10
Cadmium (48)	Cd-119	1.35E+05	5.12E-06	1.36E+09	1.00E+00	7.88E+10	9.57E+13	6.66E+09	2.42E+07	2.41E+07	1.00E-08	1.11E-06
Cadmium (48)	Cd-119m	1.66E+05	4.19E-06	1.36E+09	1.00E+00	1.44E+10	1.75E+13	1.23E+09	4.43E+06	4.42E+06	1.00E-08	1.67E-07
Cerium (58)	Ce-130	1.59E+04	4.36E-05	1.36E+09	1.00E+00	4.06E+13	8.41E+17	7.84E+07	1.00E+12	7.84E+07	1.00E-08	3.36E-05
Cerium (58)	Ce-131	3.57E+04	1.94E-05	1.36E+09	1.00E+00	1.15E+07	7.56E+10	6.88E+02	9.78E+04	6.83E+02	1.00E-08	1.31E-10
Cerium (58)	Ce-132	1.73E+03	4.01E-04	1.36E+09	1.00E+00	4.09E+05	9.71E+09	1.49E+01	9.51E+03	1.49E+01	1.00E-08	5.95E-11
Cerium (58)	Ce-133	3.76E+03	1.85E-04	1.36E+09	1.00E+00	2.74E+06	1.03E+10	1.19E+02	3.79E+04	1.18E+02	1.00E-08	2.20E-10
Cerium (58)	Ce-133m	1.24E+03	5.59E-04	1.36E+09	1.00E+00	6.17E+05	3.10E+09	1.27E+01	9.92E+03	1.27E+01	1.00E-08	7.14E-11
Cerium (58)	Ce-134	8.00E+01	8.66E-03	1.36E+09	1.00E+00	5.12E+03	1.03E+08	2.23E+00	1.27E+02	2.19E+00	1.00E-08	1.92E-10
Cerium (58)	Ce-135	3.43E+02	2.02E-03	1.36E+09	1.00E+00	2.12E+05	4.04E+09	8.60E+00	5.18E+03	8.59E+00	1.00E-08	1.77E-10
Cerium (58)	Ce-137	6.75E+02	1.03E-03	1.36E+09	1.00E+00	4.39E+06	1.09E+11	1.04E+03	1.09E+05	1.03E+03	1.00E-08	1.09E-08
Cerium (58)	Ce-137m	1.76E+02	3.93E-03	1.36E+09	1.00E+00	5.16E+04	7.26E+08	7.54E+01	1.28E+03	7.11E+01	1.00E-08	2.89E-09

Resident Soil DCCs July 2023												
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)						
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Produce Consumption DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Cerium (58)	Ce-139	1.84E+00	3.77E-01	1.36E+09	1.00E+00	1.45E+03	2.25E+06	4.20E-01	3.59E+01	4.15E-01	1.00E-08	1.65E-09
Cerium (58)	Ce-141	7.78E+00	8.91E-02	1.36E+09	1.00E+00	1.85E+03	4.15E+06	2.97E+00	4.58E+01	2.79E+00	1.00E-08	2.65E-09
Cerium (58)	Ce-143	1.84E+02	3.77E-03	1.36E+09	1.00E+00	1.35E+04	1.09E+08	1.50E+01	2.68E+02	1.42E+01	1.00E-08	5.79E-10
Cerium (58)	Ce-144	8.88E-01	7.81E-01	1.36E+09	1.00E+00	4.79E+01	5.75E+04	5.42E-01	1.18E+00	3.69E-01	1.00E-08	3.14E-09
Cerium (58)	Ce-145	1.21E+05	5.73E-06	1.36E+09	1.00E+00	5.17E+07	1.32E+12	1.06E+05	8.63E+05	9.44E+04	1.00E-08	5.93E-09
Californium (98)	Cf-244	1.88E+04	3.69E-05	1.36E+09	1.00E+00	1.32E+05	6.82E+06	2.66E+04	7.11E+03	5.57E+03	1.55E+01	3.80E-09
Californium (98)	Cf-246	1.70E+02	4.08E-03	1.36E+09	1.00E+00	1.90E+03	6.16E+04	4.86E+04	1.14E+02	1.07E+02	1.00E-08	8.13E-09
Californium (98)	Cf-247	1.95E+03	3.55E-04	1.36E+09	1.00E+00	1.79E+06	4.81E+07	6.72E+02	9.12E+04	6.67E+02	1.00E-08	4.42E-09
Californium (98)	Cf-248	7.57E-01	9.15E-01	1.36E+09	1.00E+00	6.62E+00	3.51E+02	7.38E+01	3.40E-01	3.22E-01	1.00E-08	5.53E-09
Californium (98)	Cf-249	1.97E-03	3.51E+02	1.36E+09	1.00E+00	5.21E-01	1.23E+01	6.61E-02	2.65E-02	1.82E-02	1.00E-08	1.20E-07
Californium (98)	Cf-250	5.30E-02	1.31E+01	1.36E+09	1.00E+00	1.07E+00	1.44E+02	1.87E+00	5.46E-02	5.05E-02	1.00E-08	1.25E-08
Californium (98)	Cf-251	7.70E-04	9.00E+02	1.36E+09	1.00E+00	5.11E-01	1.21E+01	2.41E-01	2.59E-02	2.24E-02	1.00E-08	3.82E-07
Californium (98)	Cf-252	2.62E-01	2.65E+00	1.36E+09	1.00E+00	1.75E+00	1.63E+02	4.46E-02	8.88E-02	2.92E-02	1.00E-08	1.47E-09
Californium (98)	Cf-253	1.42E+01	4.88E-02	1.36E+09	1.00E+00	2.59E+02	5.70E+03	4.79E+02	1.32E+01	1.22E+01	1.00E-08	1.14E-08
Californium (98)	Cf-254	4.18E+00	1.66E-01	1.36E+09	1.00E+00	1.64E+00	1.94E+02	4.51E-03	8.32E-02	4.27E-03	1.00E-08	1.36E-11
Californium (98)	Cf-255	4.29E+03	1.62E-04	1.36E+09	9.00E-01	7.37E+04	1.75E+06	1.35E+04	3.31E+03	2.56E+03	1.00E-08	7.99E-09
Chlorine (17)	Cl-34	1.43E+07	4.84E-08	1.36E+09	1.00E+00	.	.	1.26E+28	.	1.26E+28	6.31E-06	1.57E+12
Chlorine (17)	Cl-34m	1.14E+04	6.09E-05	1.36E+09	1.00E+00	1.93E+07	4.54E+11	9.59E+01	2.25E+02	6.72E+01	1.00E-08	1.05E-11
Chlorine (17)	Cl-36	2.30E-06	3.01E+05	1.36E+09	1.00E+00	1.87E+02	5.50E+04	4.58E+01	2.18E-03	2.18E-03	1.00E-08	1.79E-06
Chlorine (17)	Cl-38	9.78E+03	7.09E-05	1.36E+09	1.00E+00	1.46E+07	3.77E+11	1.14E+02	1.70E+02	6.82E+01	1.00E-08	1.39E-11
Chlorine (17)	Cl-39	6.55E+03	1.06E-04	1.36E+09	1.00E+00	1.35E+07	2.48E+11	8.19E+01	1.57E+02	5.38E+01	1.00E-08	1.68E-11
Chlorine (17)	Cl-40	2.70E+05	2.57E-06	1.36E+09	1.00E+00	.	.	6.57E+16	.	6.57E+16	1.00E-08	5.11E+02
Curium (96)	Cm-238	2.53E+03	2.74E-04	1.36E+09	1.00E+00	2.41E+05	6.33E+06	5.22E+01	1.10E+04	5.19E+01	1.00E-08	2.56E-10
Curium (96)	Cm-239	2.09E+03	3.31E-04	1.36E+09	1.00E+00	1.08E+06	1.20E+09	1.22E+02	8.72E+04	1.22E+02	1.00E-08	7.29E-10
Curium (96)	Cm-240	9.37E+00	7.40E-02	1.36E+09	1.00E+00	6.60E+01	3.41E+03	1.33E+01	3.55E+00	2.78E+00	1.55E+01	3.74E-09
Curium (96)	Cm-241	7.71E+00	8.99E-02	1.36E+09	1.00E+00	1.14E+03	9.63E+04	3.51E-01	7.52E+01	3.49E-01	1.00E-08	5.72E-10
Curium (96)	Cm-242	1.55E+00	4.46E-01	1.36E+09	1.00E+00	2.23E+01	6.17E+02	1.70E+03	1.41E+00	1.32E+00	1.00E-08	1.08E-08
Curium (96)	Cm-243	2.38E-02	2.91E+01	1.36E+09	1.00E+00	1.31E+00	1.42E+02	2.10E-01	8.04E-02	5.57E-02	1.00E-08	2.98E-08
Curium (96)	Cm-244	3.83E-02	1.81E+01	1.36E+09	1.00E+00	1.57E+00	1.55E+02	5.68E+02	9.66E-02	9.09E-02	1.00E-08	3.04E-08
Curium (96)	Cm-245	8.15E-05	8.50E+03	1.36E+09	1.00E+00	5.56E-01	1.27E+01	3.11E-01	4.03E-02	3.36E-02	1.36E+03	5.29E-06
Curium (96)	Cm-246	1.46E-04	4.76E+03	1.36E+09	1.00E+00	9.64E-01	2.20E+01	4.93E+00	5.94E-02	5.52E-02	1.00E-08	4.89E-06
Curium (96)	Cm-247	4.44E-08	1.56E+07	1.36E+09	1.00E+00	3.14E-01	7.14E+00	4.34E-02	2.51E-02	1.51E-02	1.91E+05	4.42E-03
Curium (96)	Cm-248	1.99E-06	3.48E+05	1.36E+09	1.00E+00	2.57E-01	5.96E+00	1.36E-02	1.58E-02	7.12E-03	1.00E-08	4.65E-05



Resident Soil DCCs July 2023												
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)						
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Produce Consumption DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Curium (96)	Cm-249	5.68E+03	1.22E-04	1.36E+09	1.00E+00	1.35E+06	3.57E+07	5.82E+03	6.91E+04	5.35E+03	1.00E-08	1.23E-08
Curium (96)	Cm-250	8.35E-05	8.30E+03	1.36E+09	1.00E+00	3.76E-02	8.74E-01	1.32E-03	2.31E-03	8.21E-04	2.69E-01	1.29E-07
Curium (96)	Cm-251	2.17E+04	3.20E-05	1.36E+09	1.00E+00	1.25E+07	3.41E+08	7.78E+03	6.37E+05	7.68E+03	1.00E-08	4.66E-09
Cobalt (27)	Co-54m	2.46E+05	2.82E-06	1.36E+09	1.00E+00	.	.	1.65E+17	.	1.65E+17	1.00E-08	1.89E+03
Cobalt (27)	Co-55	3.46E+02	2.00E-03	1.36E+09	1.00E+00	5.78E+04	8.98E+08	3.34E+00	8.84E+01	3.22E+00	1.00E-08	2.68E-11
Cobalt (27)	Co-56	3.28E+00	2.12E-01	1.36E+09	1.00E+00	2.30E+02	1.01E+06	1.66E-02	3.37E-01	1.58E-02	1.00E-08	1.42E-11
Cobalt (27)	Co-57	9.31E-01	7.44E-01	1.36E+09	1.00E+00	1.14E+03	3.01E+06	3.75E-01	1.67E+00	3.06E-01	1.00E-08	9.84E-10
Cobalt (27)	Co-58	3.57E+00	1.94E-01	1.36E+09	1.00E+00	8.45E+02	3.44E+06	7.30E-02	1.24E+00	6.89E-02	1.00E-08	5.87E-11
Cobalt (27)	Co-58m	6.72E+02	1.03E-03	1.36E+09	1.00E+00	1.54E+05	6.43E+08	1.37E+01	2.26E+02	1.29E+01	1.00E-08	5.86E-11
Cobalt (27)	Co-60	1.31E-01	5.27E+00	1.36E+09	1.00E+00	4.52E+01	7.10E+04	7.72E-03	6.61E-02	6.91E-03	1.00E-08	1.65E-10
Cobalt (27)	Co-60m	3.48E+04	1.99E-05	1.36E+09	1.00E+00	1.20E+07	1.88E+10	2.05E+03	1.76E+04	1.83E+03	1.00E-08	1.66E-10
Cobalt (27)	Co-61	3.68E+03	1.88E-04	1.36E+09	1.00E+00	8.55E+06	1.36E+11	1.14E+03	1.25E+04	1.05E+03	1.00E-08	9.10E-10
Cobalt (27)	Co-62	2.43E+05	2.85E-06	1.36E+09	1.00E+00	.	.	1.96E+17	.	1.96E+17	1.00E-08	2.62E+03
Cobalt (27)	Co-62m	2.62E+04	2.65E-05	1.36E+09	1.00E+00	4.66E+16	1.13E+21	8.63E+10	6.83E+13	8.62E+10	1.00E-08	1.07E-02
Chromium (24)	Cr-48	2.82E+02	2.46E-03	1.36E+09	1.00E+00	2.35E+04	1.85E+08	1.61E+00	2.17E+02	1.60E+00	1.00E-08	1.43E-11
Chromium (24)	Cr-49	8.61E+03	8.05E-05	1.36E+09	1.00E+00	2.11E+07	2.24E+11	1.72E+02	7.15E+05	1.72E+02	1.00E-08	5.12E-11
Chromium (24)	Cr-51	9.13E+00	7.59E-02	1.36E+09	1.00E+00	4.22E+04	4.62E+08	6.23E+00	2.83E+03	6.21E+00	1.00E-08	1.82E-09
Chromium (24)	Cr-55	1.04E+05	6.65E-06	1.36E+09	1.00E+00	.	.	1.28E+17	.	1.28E+17	1.00E-08	3.53E+03
Chromium (24)	Cr-56	6.13E+04	1.13E-05	1.36E+09	1.00E+00	4.18E+07	8.74E+11	6.49E+02	1.99E+04	6.29E+02	1.00E-08	3.01E-11
Cesium (55)	Cs-121	1.41E+05	4.92E-06	1.36E+09	1.00E+00	4.88E+07	4.06E+11	1.14E+03	2.83E+04	1.09E+03	1.00E-08	4.92E-11
Cesium (55)	Cs-121m	1.79E+05	3.87E-06	1.36E+09	1.00E+00	6.20E+07	5.15E+11	3.93E+03	3.60E+04	3.54E+03	1.00E-08	1.26E-10
Cesium (55)	Cs-123	6.19E+04	1.12E-05	1.36E+09	1.00E+00	4.44E+07	4.77E+11	1.68E+03	8.35E+04	1.64E+03	1.00E-08	1.71E-10
Cesium (55)	Cs-124	7.10E+05	9.77E-07	1.36E+09	1.00E+00	.	.	9.15E+19	.	9.15E+19	1.00E-08	8.39E+05
Cesium (55)	Cs-125	8.09E+03	8.56E-05	1.36E+09	1.00E+00	1.01E+05	1.09E+09	1.69E+02	1.90E+02	8.92E+01	1.00E-08	7.22E-11
Cesium (55)	Cs-126	2.22E+05	3.12E-06	1.36E+09	1.00E+00	.	.	7.08E+16	.	7.08E+16	1.00E-08	2.11E+03
Cesium (55)	Cs-127	9.71E+02	7.13E-04	1.36E+09	1.00E+00	7.30E+06	4.52E+10	3.17E+01	2.73E+04	3.16E+01	1.00E-08	2.17E-10
Cesium (55)	Cs-128	1.00E+05	6.93E-06	1.36E+09	1.00E+00	.	.	1.09E+16	.	1.09E+16	1.00E-08	7.30E+02
Cesium (55)	Cs-129	1.89E+02	3.66E-03	1.36E+09	1.00E+00	5.87E+05	4.44E+09	1.60E+01	2.19E+03	1.59E+01	1.00E-08	5.68E-10
Cesium (55)	Cs-130	1.25E+04	5.56E-05	1.36E+09	1.00E+00	2.39E+12	4.95E+16	1.49E+07	8.93E+09	1.49E+07	1.00E-08	8.15E-06
Cesium (55)	Cs-130m	1.05E+05	6.58E-06	1.36E+09	1.00E+00	1.78E+13	3.69E+17	1.11E+08	6.66E+10	1.11E+08	1.00E-08	7.19E-06
Cesium (55)	Cs-131	2.61E+01	2.65E-02	1.36E+09	1.00E+00	8.40E+04	1.00E+09	3.69E+02	3.14E+02	1.69E+02	1.00E-08	4.46E-08
Cesium (55)	Cs-132	3.90E+01	1.78E-02	1.36E+09	1.00E+00	1.51E+04	2.34E+08	1.10E+00	5.66E+01	1.08E+00	1.00E-08	1.92E-10
Cesium (55)	Cs-134	3.36E-01	2.06E+00	1.36E+09	1.00E+00	1.46E+01	1.16E+05	1.47E-02	5.47E-02	1.16E-02	1.00E-08	2.43E-10

Resident Soil DCCs July 2023												
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)						
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Produce Consumption DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Cesium (55)	Cs-134m	2.09E+03	3.31E-04	1.36E+09	1.00E+00	9.07E+04	7.18E+08	8.96E+01	3.39E+02	7.08E+01	1.00E-08	2.38E-10
Cesium (55)	Cs-135	3.01E-07	2.30E+06	1.36E+09	9.00E-01	8.80E+01	1.76E+05	1.58E+03	3.29E-01	3.28E-01	1.00E-08	7.71E-03
Cesium (55)	Cs-135m	6.87E+03	1.01E-04	1.36E+09	1.00E+00	6.74E+07	7.81E+11	8.24E+01	2.52E+05	8.24E+01	1.00E-08	8.49E-11
Cesium (55)	Cs-136	1.92E+01	3.61E-02	1.36E+09	1.00E+00	1.29E+03	1.39E+07	1.73E-01	4.84E+00	1.67E-01	1.00E-08	6.19E-11
Cesium (55)	Cs-137	2.30E-02	3.02E+01	1.36E+09	1.00E+00	1.77E+01	5.32E+04	3.53E-02	6.61E-02	2.30E-02	1.00E-08	7.18E-09
Cesium (55)	Cs-138	1.09E+04	6.36E-05	1.36E+09	1.00E+00	1.98E+07	4.43E+11	8.21E+01	7.41E+04	8.20E+01	1.00E-08	5.44E-11
Cesium (55)	Cs-138m	1.25E+05	5.54E-06	1.36E+09	1.00E+00	1.46E+12	3.26E+16	6.04E+06	5.45E+09	6.03E+06	1.00E-08	3.49E-07
Cesium (55)	Cs-139	3.93E+04	1.76E-05	1.36E+09	1.00E+00	5.57E+07	1.23E+12	1.86E+04	5.33E+05	1.80E+04	1.00E-08	3.33E-09
Cesium (55)	Cs-140	3.43E+05	2.02E-06	1.36E+09	1.00E+00	1.27E+07	9.57E+10	2.51E+03	1.60E+05	2.47E+03	1.00E-08	5.29E-11
Copper (29)	Cu-57	1.11E+08	6.22E-09	1.36E+09	1.00E+00	1.90E+10	1.83E+14	1.03E+06	9.73E+07	1.02E+06	1.00E-08	2.73E-11
Copper (29)	Cu-59	2.68E+05	2.58E-06	1.36E+09	1.00E+00	1.14E+14	9.39E+16	5.10E+13	9.74E+11	9.48E+11	1.00E-08	1.09E-02
Copper (29)	Cu-60	1.54E+04	4.51E-05	1.36E+09	1.00E+00	2.24E+13	4.67E+17	4.15E+07	4.07E+10	4.15E+07	1.00E-08	8.49E-06
Copper (29)	Cu-61	1.82E+03	3.80E-04	1.36E+09	1.00E+00	2.84E+06	4.43E+10	4.47E+01	5.16E+03	4.43E+01	1.00E-08	7.78E-11
Copper (29)	Cu-62	3.77E+04	1.84E-05	1.36E+09	1.00E+00	.	.	2.14E+12	.	2.14E+12	1.00E-08	1.85E-01
Copper (29)	Cu-64	4.78E+02	1.45E-03	1.36E+09	1.00E+00	6.98E+05	7.71E+09	5.24E+01	1.27E+03	5.03E+01	1.00E-08	3.53E-10
Copper (29)	Cu-66	7.11E+04	9.74E-06	1.36E+09	1.00E+00	.	.	6.32E+14	.	6.32E+14	1.00E-08	3.07E+01
Copper (29)	Cu-67	9.82E+01	7.06E-03	1.36E+09	1.00E+00	5.24E+04	3.26E+08	2.24E+01	9.53E+01	1.81E+01	1.00E-08	6.49E-10
Copper (29)	Cu-69	1.28E+05	5.42E-06	1.36E+09	1.00E+00	7.17E+08	8.71E+12	4.82E+06	7.22E+04	7.12E+04	1.00E-08	2.01E-09
Dysprosium (66)	Dy-148	1.10E+05	6.28E-06	1.36E+09	1.00E+00	3.10E+07	3.95E+09	8.74E+02	1.02E+06	8.73E+02	1.00E-08	6.14E-11
Dysprosium (66)	Dy-149	8.67E+04	7.99E-06	1.36E+09	1.00E+00	1.91E+07	4.38E+10	1.26E+03	5.77E+05	1.26E+03	1.00E-08	1.13E-10
Dysprosium (66)	Dy-150	5.08E+04	1.36E-05	1.36E+09	1.00E+00	1.01E+07	3.48E+10	3.80E+02	2.84E+05	3.80E+02	1.00E-08	5.88E-11
Dysprosium (66)	Dy-151	2.03E+04	3.41E-05	1.36E+09	1.00E+00	6.24E+06	3.08E+10	4.13E+02	2.02E+05	4.12E+02	1.00E-08	1.60E-10
Dysprosium (66)	Dy-152	2.55E+03	2.72E-04	1.36E+09	1.00E+00	5.59E+05	1.08E+10	2.83E+01	1.83E+04	2.82E+01	1.00E-08	8.82E-11
Dysprosium (66)	Dy-153	9.49E+02	7.31E-04	1.36E+09	1.00E+00	2.59E+05	9.77E+08	1.69E+01	8.48E+03	1.69E+01	1.00E-08	1.43E-10
Dysprosium (66)	Dy-154	2.31E-07	3.00E+06	1.36E+09	9.00E-01	3.01E+00	3.38E+02	.	9.88E-02	9.56E-02	1.02E+06	3.34E-03
Dysprosium (66)	Dy-155	6.13E+02	1.13E-03	1.36E+09	1.00E+00	2.66E+05	2.93E+09	1.66E+01	8.73E+03	1.65E+01	1.00E-08	2.19E-10
Dysprosium (66)	Dy-157	7.46E+02	9.29E-04	1.36E+09	1.00E+00	2.22E+06	2.31E+10	5.12E+01	7.27E+04	5.12E+01	1.00E-08	5.65E-10
Dysprosium (66)	Dy-159	1.75E+00	3.96E-01	1.36E+09	1.00E+00	3.49E+03	9.07E+06	5.22E+00	1.14E+02	4.98E+00	1.00E-08	2.37E-08
Dysprosium (66)	Dy-165	2.60E+03	2.66E-04	1.36E+09	1.00E+00	4.06E+06	7.59E+10	2.29E+03	1.33E+05	2.25E+03	1.00E-08	7.48E-09
Dysprosium (66)	Dy-165m	2.90E+05	2.39E-06	1.36E+09	1.00E+00	4.58E+08	8.58E+12	2.58E+05	1.50E+07	2.54E+05	1.00E-08	7.58E-09
Dysprosium (66)	Dy-166	7.44E+01	9.32E-03	1.36E+09	1.00E+00	4.10E+03	5.04E+07	3.39E+01	1.34E+02	2.69E+01	1.00E-08	3.15E-09
Dysprosium (66)	Dy-167	5.87E+04	1.18E-05	1.36E+09	1.00E+00	1.17E+08	1.41E+12	3.56E+03	3.82E+06	3.56E+03	1.00E-08	5.30E-10
Dysprosium (66)	Dy-168	4.19E+04	1.66E-05	1.36E+09	1.00E+00	.	.	2.30E+12	.	2.30E+12	1.00E-08	4.84E-01

Resident Soil DCCs July 2023												
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)						
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Produce Consumption DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Erbium (68)	Er-154	9.77E+04	7.10E-06	1.36E+09	1.00E+00	4.03E+09	1.30E+13	1.44E+05	1.14E+08	1.43E+05	1.00E-08	1.19E-08
Erbium (68)	Er-156	1.87E+04	3.71E-05	1.36E+09	1.00E+00	3.42E+07	6.25E+11	1.71E+02	1.12E+06	1.71E+02	1.00E-08	7.49E-11
Erbium (68)	Er-159	1.01E+04	6.85E-05	1.36E+09	1.00E+00	1.50E+07	4.90E+10	1.60E+02	5.30E+05	1.60E+02	1.00E-08	1.32E-10
Erbium (68)	Er-161	1.89E+03	3.66E-04	1.36E+09	1.00E+00	3.51E+06	5.66E+10	3.73E+01	1.73E+05	3.73E+01	1.00E-08	1.67E-10
Erbium (68)	Er-163	4.86E+03	1.43E-04	1.36E+09	1.00E+00	3.33E+08	6.65E+12	1.08E+04	1.78E+07	1.08E+04	1.00E-08	1.91E-08
Erbium (68)	Er-165	5.86E+02	1.18E-03	1.36E+09	1.00E+00	5.30E+06	1.24E+11	1.54E+03	2.83E+05	1.53E+03	1.00E-08	2.26E-08
Erbium (68)	Er-167m	9.63E+06	7.19E-08	1.36E+09	1.00E+00	.	.	3.32E+28	.	3.32E+28	7.94E-06	3.02E+13
Erbium (68)	Er-169	2.69E+01	2.58E-02	1.36E+09	1.00E+00	1.21E+04	4.61E+07	2.36E+04	6.47E+02	5.99E+02	1.00E-08	1.97E-07
Erbium (68)	Er-171	8.08E+02	8.58E-04	1.36E+09	1.00E+00	3.54E+05	2.57E+09	5.08E+01	1.80E+04	5.07E+01	1.00E-08	5.63E-10
Erbium (68)	Er-172	1.23E+02	5.63E-03	1.36E+09	1.00E+00	7.69E+03	9.62E+07	2.45E+00	2.95E+02	2.43E+00	1.00E-08	1.78E-10
Erbium (68)	Er-173	2.54E+05	2.73E-06	1.36E+09	1.00E+00	1.45E+08	2.47E+12	1.39E+04	4.74E+06	1.38E+04	1.00E-08	4.93E-10
Einsteinium (99)	Es-249	3.56E+03	1.94E-04	1.36E+09	1.00E+00	9.13E+05	2.24E+07	1.94E+02	4.64E+04	1.93E+02	1.00E-08	7.08E-10
Einsteinium (99)	Es-250	7.06E+02	9.82E-04	1.36E+09	1.00E+00	1.38E+04	1.95E+06	1.26E+01	7.01E+02	1.23E+01	1.00E-08	2.29E-10
Einsteinium (99)	Es-250m	2.73E+03	2.53E-04	1.36E+09	1.00E+00	5.53E+04	7.45E+06	9.93E+01	2.81E+03	9.57E+01	1.00E-08	4.59E-10
Einsteinium (99)	Es-251	1.84E+02	3.77E-03	1.36E+09	1.00E+00	7.21E+04	2.87E+06	6.41E+01	3.66E+03	6.29E+01	1.00E-08	4.50E-09
Einsteinium (99)	Es-253	1.24E+01	5.61E-02	1.36E+09	1.00E+00	2.85E+02	7.24E+03	4.19E+02	1.45E+01	1.34E+01	1.00E-08	1.44E-08
Einsteinium (99)	Es-254	9.17E-01	7.55E-01	1.36E+09	1.00E+00	6.73E+00	3.67E+02	3.19E-02	3.42E-01	2.90E-02	2.37E-04	4.22E-10
Einsteinium (99)	Es-254m	1.54E+02	4.49E-03	1.36E+09	1.00E+00	1.97E+03	2.32E+05	6.16E+00	9.81E+01	5.78E+00	1.00E-08	4.98E-10
Einsteinium (99)	Es-255	6.36E+00	1.09E-01	1.36E+09	1.00E+00	1.10E+02	2.61E+03	2.06E+01	4.92E+00	3.83E+00	1.00E-08	8.06E-09
Einsteinium (99)	Es-256	1.43E+04	4.83E-05	1.36E+09	1.00E+00	1.20E+05	5.51E+07	2.07E+01	4.07E+03	2.06E+01	1.00E-08	1.93E-11
Europium (63)	Eu-142	9.34E+06	7.42E-08	1.36E+09	1.00E+00	1.46E+11	3.77E+15	3.18E+06	7.79E+09	3.18E+06	1.00E-08	2.54E-09
Europium (63)	Eu-142m	2.98E+05	2.33E-06	1.36E+09	1.00E+00	2.80E+08	7.25E+12	6.11E+03	1.50E+07	6.11E+03	1.00E-08	1.53E-10
Europium (63)	Eu-143	1.41E+05	4.93E-06	1.36E+09	1.00E+00	1.77E+08	1.53E+11	1.53E+04	8.02E+05	1.50E+04	1.00E-08	8.01E-10
Europium (63)	Eu-144	2.14E+06	3.23E-07	1.36E+09	1.00E+00	.	.	1.03E+23	.	1.03E+23	1.00E-08	3.65E+08
Europium (63)	Eu-145	4.27E+01	1.62E-02	1.36E+09	1.00E+00	1.01E+04	3.89E+07	6.24E-01	2.63E+02	6.22E-01	1.00E-08	1.11E-10
Europium (63)	Eu-146	5.49E+01	1.26E-02	1.36E+09	1.00E+00	8.44E+03	1.29E+08	4.36E-01	2.04E+02	4.35E-01	1.00E-08	6.06E-11
Europium (63)	Eu-147	1.05E+01	6.60E-02	1.36E+09	1.00E+00	4.25E+03	1.76E+07	4.85E-01	1.03E+02	4.83E-01	1.00E-08	3.55E-10
Europium (63)	Eu-148	4.64E+00	1.49E-01	1.36E+09	1.00E+00	6.72E+02	2.48E+06	4.13E-02	1.63E+01	4.12E-02	1.00E-08	6.89E-11
Europium (63)	Eu-149	2.72E+00	2.55E-01	1.36E+09	1.00E+00	3.14E+03	1.31E+07	1.68E+00	7.60E+01	1.65E+00	1.00E-08	4.73E-09
Europium (63)	Eu-150	1.88E-02	3.69E+01	1.36E+09	1.00E+00	1.49E+02	1.65E+04	1.32E-02	3.61E+00	1.32E-02	1.00E-08	5.52E-09
Europium (63)	Eu-150m	4.74E+02	1.46E-03	1.36E+09	1.00E+00	2.09E+05	4.23E+09	2.03E+02	5.06E+03	1.95E+02	1.00E-08	3.24E-09
Europium (63)	Eu-152	5.12E-02	1.35E+01	1.36E+09	1.00E+00	1.37E+02	2.27E+04	1.69E-02	3.31E+00	1.68E-02	1.00E-08	2.62E-09
Europium (63)	Eu-152m	6.52E+02	1.06E-03	1.36E+09	1.00E+00	2.22E+05	5.70E+09	4.31E+01	5.37E+03	4.28E+01	1.00E-08	5.23E-10

Resident Soil DCCs July 2023												
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)						
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Produce Consumption DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Europium (63)	Eu-152n	3.79E+03	1.83E-04	1.36E+09	1.00E+00	8.44E+06	1.68E+09	7.93E+02	2.04E+05	7.90E+02	1.00E-08	1.66E-09
Europium (63)	Eu-154	8.06E-02	8.59E+00	1.36E+09	1.00E+00	9.26E+01	1.99E+04	1.59E-02	2.24E+00	1.58E-02	1.00E-08	1.58E-09
Europium (63)	Eu-154m	7.92E+03	8.75E-05	1.36E+09	1.00E+00	8.64E+06	1.95E+09	1.24E+03	2.09E+05	1.23E+03	1.00E-08	1.26E-09
Europium (63)	Eu-155	1.46E-01	4.76E+00	1.36E+09	1.00E+00	5.52E+02	3.62E+05	7.33E-01	1.34E+01	6.94E-01	1.00E-08	3.87E-08
Europium (63)	Eu-156	1.67E+01	4.16E-02	1.36E+09	1.00E+00	1.26E+03	8.29E+06	2.43E-01	3.05E+01	2.41E-01	1.00E-08	1.18E-10
Europium (63)	Eu-157	4.00E+02	1.73E-03	1.36E+09	1.00E+00	1.11E+05	2.31E+09	3.19E+01	2.69E+03	3.15E+01	1.00E-08	6.49E-10
Europium (63)	Eu-158	7.94E+03	8.73E-05	1.36E+09	1.00E+00	1.52E+07	2.98E+11	1.13E+02	3.69E+05	1.13E+02	1.00E-08	1.18E-10
Europium (63)	Eu-159	2.01E+04	3.44E-05	1.36E+09	1.00E+00	6.73E+06	1.26E+11	9.23E+03	2.20E+05	8.84E+03	1.00E-08	3.66E-09
Fluorine (9)	F-17	3.39E+05	2.04E-06	1.36E+09	1.00E+00	.	.	1.32E+18	.	1.32E+18	1.00E-08	3.48E+03
Fluorine (9)	F-18	3.32E+03	2.09E-04	1.36E+09	9.00E-01	1.24E+07	1.10E+11	7.55E+01	5.48E+04	7.54E+01	1.00E-08	2.15E-11
Iron (26)	Fe-52	7.34E+02	9.45E-04	1.36E+09	1.00E+00	8.69E+04	1.93E+09	4.38E+00	1.87E+02	4.28E+00	1.00E-08	1.59E-11
Iron (26)	Fe-53	4.28E+04	1.62E-05	1.36E+09	1.00E+00	1.28E+15	1.37E+18	3.06E+12	6.11E+11	5.09E+11	1.00E-08	3.31E-02
Iron (26)	Fe-53m	1.44E+05	4.81E-06	1.36E+09	1.00E+00	4.32E+15	4.63E+18	7.23E+12	2.06E+12	1.60E+12	1.00E-08	3.09E-02
Iron (26)	Fe-55	2.53E-01	2.74E+00	1.36E+09	1.00E+00	4.77E+02	2.75E+06	2.05E+08	1.37E+00	1.36E+00	1.00E-08	1.55E-08
Iron (26)	Fe-59	5.68E+00	1.22E-01	1.36E+09	1.00E+00	4.84E+02	2.81E+06	8.79E-02	1.39E+00	8.26E-02	1.00E-08	4.50E-11
Iron (26)	Fe-60	4.62E-07	1.50E+06	1.36E+09	9.00E-01	1.51E+00	6.65E+03	7.24E-03	4.20E-03	2.65E-03	8.73E+01	1.81E-05
Iron (26)	Fe-61	6.09E+04	1.14E-05	1.36E+09	1.00E+00	1.42E+08	2.25E+12	1.89E+04	2.07E+05	1.73E+04	1.00E-08	9.10E-10
Iron (26)	Fe-62	3.21E+05	2.16E-06	1.36E+09	1.00E+00	.	.	7.11E+16	.	7.11E+16	1.00E-08	7.20E+02
Fermium (100)	Fm-251	1.15E+03	6.05E-04	1.36E+09	1.00E+00	3.89E+05	1.77E+07	1.29E+02	1.83E+04	1.28E+02	1.00E-08	1.47E-09
Fermium (100)	Fm-252	2.39E+02	2.90E-03	1.36E+09	1.00E+00	1.82E+03	1.02E+05	9.38E+03	8.71E+01	8.23E+01	1.00E-08	4.55E-09
Fermium (100)	Fm-253	8.43E+01	8.22E-03	1.36E+09	1.00E+00	1.83E+03	4.83E+04	4.36E+01	8.54E+01	2.84E+01	1.00E-08	4.47E-09
Fermium (100)	Fm-254	1.87E+03	3.70E-04	1.36E+09	1.00E+00	3.61E+04	4.68E+06	4.45E+03	1.78E+03	1.23E+03	1.00E-08	8.73E-09
Fermium (100)	Fm-255	3.02E+02	2.29E-03	1.36E+09	1.00E+00	1.80E+04	1.45E+06	5.87E+03	6.10E+02	5.36E+02	1.00E-08	2.37E-08
Fermium (100)	Fm-256	2.31E+03	3.00E-04	1.36E+09	1.00E+00	1.93E+04	8.89E+06	3.33E+00	6.56E+02	3.32E+00	1.00E-08	1.93E-11
Fermium (100)	Fm-257	2.52E+00	2.75E-01	1.36E+09	1.00E+00	1.54E+01	4.20E+02	4.88E-01	5.62E-01	2.57E-01	1.00E-08	1.37E-09
Francium (87)	Fr-212	1.82E+04	3.81E-05	1.36E+09	1.00E+00	9.10E+03	2.54E+07	2.68E+02	3.73E+02	1.53E+02	1.00E-08	9.35E-11
Francium (87)	Fr-219	1.09E+09	6.34E-10	1.36E+09	1.00E+00	.	.	3.83E+20	.	3.83E+20	1.00E-08	4.02E+03
Francium (87)	Fr-220	7.98E+05	8.69E-07	1.36E+09	1.00E+00	5.25E+08	1.06E+11	1.06E+04	4.81E+05	1.04E+04	1.00E-08	1.50E-10
Francium (87)	Fr-221	7.43E+04	9.32E-06	1.36E+09	1.00E+00	5.04E+07	4.59E+09	1.20E+04	5.63E+04	9.89E+03	1.00E-08	1.54E-09
Francium (87)	Fr-222	2.57E+04	2.70E-05	1.36E+09	1.00E+00	7.40E+04	1.78E+08	1.23E+07	8.51E+02	8.42E+02	9.25E-01	3.82E-10
Francium (87)	Fr-223	1.66E+04	4.19E-05	1.36E+09	1.00E+00	1.77E+04	3.86E+06	1.22E+03	6.98E+01	6.57E+01	1.00E-08	4.64E-11
Francium (87)	Fr-224	1.09E+05	6.34E-06	1.36E+09	1.00E+00	1.86E+05	6.38E+07	1.34E+03	7.41E+02	4.76E+02	1.00E-08	5.11E-11
Francium (87)	Fr-227	1.47E+05	4.70E-06	1.36E+09	1.00E+00	1.77E+06	1.31E+08	2.56E+05	1.75E+04	1.62E+04	3.12E-01	1.31E-09



Resident Soil DCCs July 2023												
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)						
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Produce Consumption DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Gallium (31)	Ga-64	1.39E+05	5.00E-06	1.36E+09	1.00E+00	.	.	1.21E+15	.	1.21E+15	1.00E-08	2.93E+01
Gallium (31)	Ga-65	2.40E+04	2.89E-05	1.36E+09	1.00E+00	1.81E+06	3.18E+10	1.18E+03	1.82E+02	1.58E+02	1.00E-08	2.24E-11
Gallium (31)	Ga-66	6.40E+02	1.08E-03	1.36E+09	1.00E+00	9.35E+04	2.46E+09	4.48E+00	7.20E+03	4.47E+00	1.00E-08	2.42E-11
Gallium (31)	Ga-67	7.76E+01	8.93E-03	1.36E+09	1.00E+00	6.93E+04	5.66E+08	1.26E+01	5.34E+03	1.25E+01	1.00E-08	5.68E-10
Gallium (31)	Ga-68	5.38E+03	1.29E-04	1.36E+09	1.00E+00	9.19E+06	1.92E+11	1.14E+02	7.08E+05	1.14E+02	1.00E-08	7.56E-11
Gallium (31)	Ga-70	1.72E+04	4.02E-05	1.36E+09	1.00E+00	4.19E+14	8.57E+18	1.40E+11	3.23E+13	1.39E+11	1.00E-08	2.97E-02
Gallium (31)	Ga-72	4.31E+02	1.61E-03	1.36E+09	1.00E+00	6.80E+04	1.41E+09	2.84E+00	5.24E+03	2.83E+00	1.00E-08	2.49E-11
Gallium (31)	Ga-73	1.25E+03	5.55E-04	1.36E+09	1.00E+00	8.08E+05	1.50E+10	7.75E+01	6.23E+04	7.74E+01	1.00E-08	2.37E-10
Gallium (31)	Ga-74	4.49E+04	1.54E-05	1.36E+09	1.00E+00	.	.	1.16E+12	.	1.16E+12	1.00E-08	1.00E-01
Gadolinium (64)	Gd-142	3.11E+05	2.23E-06	1.36E+09	1.00E+00	2.93E+08	7.58E+12	6.39E+03	1.56E+07	6.39E+03	1.00E-08	1.53E-10
Gadolinium (64)	Gd-143m	1.99E+05	3.49E-06	1.36E+09	1.00E+00	2.50E+08	2.17E+11	2.16E+04	1.13E+06	2.12E+04	1.00E-08	8.01E-10
Gadolinium (64)	Gd-144	8.15E+04	8.50E-06	1.36E+09	1.00E+00	.	.	1.99E+14	.	1.99E+14	1.00E-08	1.85E+01
Gadolinium (64)	Gd-145	1.58E+04	4.38E-05	1.36E+09	1.00E+00	3.73E+06	1.44E+10	2.31E+02	9.74E+04	2.31E+02	1.00E-08	1.11E-10
Gadolinium (64)	Gd-145m	2.57E+05	2.70E-06	1.36E+09	1.00E+00	6.05E+07	2.34E+11	3.75E+03	1.58E+06	3.74E+03	1.00E-08	1.11E-10
Gadolinium (64)	Gd-146	5.24E+00	1.32E-01	1.36E+09	1.00E+00	4.42E+02	1.33E+06	3.98E-02	1.21E+01	3.96E-02	1.00E-08	5.79E-11
Gadolinium (64)	Gd-147	1.59E+02	4.35E-03	1.36E+09	1.00E+00	2.67E+04	1.91E+08	1.75E+00	7.62E+02	1.75E+00	1.00E-08	8.44E-11
Gadolinium (64)	Gd-148	9.29E-03	7.46E+01	1.36E+09	9.00E-01	3.25E+00	3.32E+02	.	1.06E-01	1.03E-01	1.00E-08	8.60E-08
Gadolinium (64)	Gd-149	2.73E+01	2.54E-02	1.36E+09	1.00E+00	6.93E+03	3.98E+07	1.10E+00	2.11E+02	1.10E+00	1.00E-08	3.14E-10
Gadolinium (64)	Gd-150	3.87E-07	1.79E+06	1.36E+09	9.00E-01	3.43E+00	3.86E+02	.	1.12E-01	1.09E-01	1.00E-08	2.21E-03
Gadolinium (64)	Gd-151	2.04E+00	3.40E-01	1.36E+09	1.00E+00	1.77E+03	3.93E+06	1.42E+00	5.81E+01	1.39E+00	1.00E-08	5.39E-09
Gadolinium (64)	Gd-152	6.42E-15	1.08E+14	1.36E+09	9.00E-01	4.37E+00	1.09E+02	.	1.43E-01	1.38E-01	1.06E-04	1.72E+05
Gadolinium (64)	Gd-153	1.05E+00	6.59E-01	1.36E+09	1.00E+00	1.00E+03	1.34E+06	8.45E-01	3.29E+01	8.23E-01	1.00E-08	6.28E-09
Gadolinium (64)	Gd-159	3.29E+02	2.11E-03	1.36E+09	1.00E+00	1.10E+05	2.05E+09	1.51E+02	3.60E+03	1.44E+02	1.00E-08	3.67E-09
Gadolinium (64)	Gd-162	4.34E+04	1.60E-05	1.36E+09	1.00E+00	.	.	4.20E+11	.	4.20E+11	1.00E-08	8.22E-02
Germanium (32)	Ge-66	2.69E+03	2.58E-04	1.36E+09	1.00E+00	3.63E+05	8.67E+09	1.54E+01	1.08E+03	1.52E+01	1.00E-08	1.95E-11
Germanium (32)	Ge-67	1.93E+04	3.60E-05	1.36E+09	1.00E+00	1.72E+07	1.41E+11	3.12E+03	1.33E+06	3.11E+03	1.00E-08	5.68E-10
Germanium (32)	Ge-68	9.34E-01	7.42E-01	1.36E+09	1.00E+00	1.96E+02	1.01E+05	3.26E-02	4.87E-02	1.95E-02	1.00E-08	7.46E-11
Germanium (32)	Ge-69	1.55E+02	4.46E-03	1.36E+09	1.00E+00	1.38E+05	1.16E+09	3.12E+00	3.19E+01	2.84E+00	1.00E-08	6.62E-11
Germanium (32)	Ge-71	2.21E+01	3.13E-02	1.36E+09	1.00E+00	3.25E+05	3.37E+09	2.15E+06	7.50E+01	7.50E+01	1.00E-08	1.26E-08
Germanium (32)	Ge-75	4.40E+03	1.57E-04	1.36E+09	1.00E+00	1.65E+07	2.16E+11	2.70E+03	3.81E+03	1.58E+03	1.00E-08	1.41E-09
Germanium (32)	Ge-77	5.37E+02	1.29E-03	1.36E+09	1.00E+00	1.32E+05	1.26E+09	9.87E+00	5.46E+01	8.36E+00	1.00E-08	6.28E-11
Germanium (32)	Ge-78	4.14E+03	1.67E-04	1.36E+09	1.00E+00	2.36E+06	4.07E+10	4.93E+01	1.11E+03	4.72E+01	1.00E-08	4.66E-11
Hydrogen (1)	H-3	5.63E-02	1.23E+01	1.70E+01	9.00E-01	5.22E+03	9.76E-02	.	1.00E-01	4.95E-02	1.00E-08	1.38E-10

Resident Soil DCCs July 2023												
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)						
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Produce Consumption DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Hafnium (72)	Hf-167	1.78E+05	3.90E-06	1.36E+09	1.00E+00	4.79E+07	2.56E+11	1.74E+03	1.62E+06	1.74E+03	1.00E-08	8.55E-11
Hafnium (72)	Hf-169	1.12E+05	6.16E-06	1.36E+09	1.00E+00	1.47E+07	5.77E+10	1.44E+03	5.65E+05	1.44E+03	1.00E-08	1.14E-10
Hafnium (72)	Hf-170	3.79E+02	1.83E-03	1.36E+09	1.00E+00	5.03E+04	7.58E+08	2.32E+00	1.97E+03	2.32E+00	1.00E-08	5.45E-11
Hafnium (72)	Hf-172	3.71E-01	1.87E+00	1.36E+09	1.00E+00	8.91E+01	9.07E+04	1.18E-02	3.04E+00	1.17E-02	3.08E-02	2.85E-10
Hafnium (72)	Hf-173	2.57E+02	2.69E-03	1.36E+09	1.00E+00	1.24E+05	3.21E+08	1.52E+01	3.83E+03	1.52E+01	1.00E-08	5.35E-10
Hafnium (72)	Hf-174	3.47E-16	2.00E+15	1.36E+09	9.00E-01	7.37E-01	4.14E+02	.	1.78E-02	1.74E-02	3.49E+00	4.59E+05
Hafnium (72)	Hf-175	3.61E+00	1.92E-01	1.36E+09	1.00E+00	1.63E+03	5.26E+06	2.54E-01	3.95E+01	2.52E-01	1.00E-08	6.40E-10
Hafnium (72)	Hf-177m	7.09E+03	9.78E-05	1.36E+09	1.00E+00	1.52E+07	1.40E+11	7.15E+01	3.69E+05	7.15E+01	1.00E-08	9.36E-11
Hafnium (72)	Hf-178m	2.24E-02	3.10E+01	1.36E+09	1.00E+00	4.73E+01	9.65E+03	9.80E-03	1.14E+00	9.71E-03	1.00E-08	4.06E-09
Hafnium (72)	Hf-179m	1.01E+01	6.86E-02	1.36E+09	1.00E+00	1.40E+03	4.52E+06	2.54E-01	3.38E+01	2.52E-01	1.00E-08	2.34E-10
Hafnium (72)	Hf-180m	1.10E+03	6.28E-04	1.36E+09	1.00E+00	1.16E+06	1.45E+10	2.50E+01	2.81E+04	2.50E+01	1.00E-08	2.14E-10
Hafnium (72)	Hf-181	5.97E+00	1.16E-01	1.36E+09	1.00E+00	9.27E+02	2.01E+06	2.46E-01	2.24E+01	2.43E-01	1.00E-08	3.87E-10
Hafnium (72)	Hf-182	7.70E-08	9.00E+06	1.36E+09	1.00E+00	4.29E+01	6.96E+03	1.29E-02	1.15E+00	1.27E-02	6.98E+00	1.58E-03
Hafnium (72)	Hf-182m	5.92E+03	1.17E-04	1.36E+09	1.00E+00	1.26E+06	2.18E+09	7.63E+01	4.06E+04	7.61E+01	1.00E-08	1.23E-10
Hafnium (72)	Hf-183	5.69E+03	1.22E-04	1.36E+09	1.00E+00	6.82E+05	4.85E+09	1.16E+02	2.19E+04	1.15E+02	1.00E-08	1.94E-10
Hafnium (72)	Hf-184	1.47E+03	4.70E-04	1.36E+09	1.00E+00	2.14E+05	3.52E+09	1.71E+01	6.06E+03	1.70E+01	1.00E-08	1.11E-10
Mercury (80)	Hg-190	1.82E+04	3.81E-05	1.36E+09	1.00E+00	7.82E+07	1.38E+12	1.38E+02	2.13E+06	1.38E+02	1.00E-08	7.54E-11
Mercury (80)	Hg-191m	7.17E+03	9.67E-05	1.36E+09	1.00E+00	2.56E+06	1.87E+10	6.44E+01	2.19E+03	6.25E+01	1.00E-08	8.74E-11
Mercury (80)	Hg-192	1.25E+03	5.54E-04	1.36E+09	1.00E+00	5.70E+05	2.30E+09	1.08E+01	3.04E+02	1.04E+01	1.00E-08	8.38E-11
Mercury (80)	Hg-193	1.60E+03	4.34E-04	1.36E+09	1.00E+00	1.19E+06	3.26E+09	3.34E+01	8.07E+02	3.21E+01	1.00E-08	2.03E-10
Mercury (80)	Hg-193m	5.14E+02	1.35E-03	1.36E+09	1.00E+00	1.61E+05	3.27E+08	7.60E+00	6.39E+01	6.79E+00	1.00E-08	1.34E-10
Mercury (80)	Hg-194	1.58E-03	4.40E+02	1.36E+09	1.00E+00	1.12E+02	8.83E+04	1.86E-02	4.56E-02	1.32E-02	3.83E-02	8.55E-08
Mercury (80)	Hg-195	5.77E+02	1.20E-03	1.36E+09	1.00E+00	3.34E+05	4.06E+08	6.18E+01	2.94E+02	5.10E+01	1.00E-08	9.05E-10
Mercury (80)	Hg-195m	1.46E+02	4.75E-03	1.36E+09	1.00E+00	3.13E+04	2.87E+07	1.05E+01	1.26E+01	5.74E+00	1.00E-08	4.02E-10
Mercury (80)	Hg-197	9.35E+01	7.41E-03	1.36E+09	1.00E+00	6.41E+04	4.05E+07	6.55E+01	1.97E+01	1.51E+01	1.00E-08	1.67E-09
Mercury (80)	Hg-197m	2.55E+02	2.72E-03	1.36E+09	1.00E+00	6.12E+04	5.09E+07	5.92E+01	1.88E+01	1.43E+01	1.00E-08	5.78E-10
Mercury (80)	Hg-199m	8.54E+03	8.12E-05	1.36E+09	1.00E+00	4.83E+07	9.81E+10	1.31E+03	1.48E+04	1.21E+03	1.00E-08	1.47E-09
Mercury (80)	Hg-203	5.43E+00	1.28E-01	1.36E+09	1.00E+00	1.75E+03	1.55E+06	5.21E-01	5.38E-01	2.64E-01	1.00E-08	5.19E-10
Mercury (80)	Hg-205	7.00E+04	9.89E-06	1.36E+09	1.00E+00	.	.	1.01E+16	.	1.01E+16	1.00E-08	1.54E+03
Mercury (80)	Hg-206	4.47E+04	1.55E-05	1.36E+09	1.00E+00	.	.	3.53E+13	.	3.53E+13	1.00E-08	8.53E+00
Mercury (80)	Hg-207	1.26E+05	5.52E-06	1.36E+09	1.00E+00	.	.	1.87E+16	.	1.87E+16	1.00E-08	1.62E+03
Holmium (67)	Ho-150	2.85E+05	2.44E-06	1.36E+09	1.00E+00	5.64E+07	1.95E+11	2.13E+03	1.59E+06	2.13E+03	1.00E-08	5.88E-11
Holmium (67)	Ho-153	1.81E+05	3.82E-06	1.36E+09	1.00E+00	4.93E+07	1.87E+11	3.23E+03	1.62E+06	3.22E+03	1.00E-08	1.43E-10

Resident Soil DCCs July 2023												
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)						
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Produce Consumption DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Holmium (67)	Ho-153m	3.92E+04	1.77E-05	1.36E+09	1.00E+00	1.07E+07	4.02E+10	6.98E+02	3.50E+05	6.97E+02	1.00E-08	1.43E-10
Holmium (67)	Ho-154	3.10E+04	2.24E-05	1.36E+09	1.00E+00	1.20E+11	4.53E+13	1.49E+06	3.92E+09	1.49E+06	1.00E-08	3.88E-07
Holmium (67)	Ho-154m	1.17E+05	5.90E-06	1.36E+09	1.00E+00	1.53E+12	1.72E+14	8.57E+14	5.03E+10	4.87E+10	1.02E+06	3.34E-03
Holmium (67)	Ho-155	7.59E+03	9.13E-05	1.36E+09	1.00E+00	3.01E+06	3.41E+10	1.15E+02	9.86E+04	1.15E+02	1.00E-08	1.23E-10
Holmium (67)	Ho-156	6.50E+03	1.07E-04	1.36E+09	1.00E+00	1.19E+07	2.18E+11	5.96E+01	3.90E+05	5.96E+01	1.00E-08	7.49E-11
Holmium (67)	Ho-157	2.89E+04	2.40E-05	1.36E+09	1.00E+00	8.60E+07	8.95E+11	1.99E+03	2.82E+06	1.98E+03	1.00E-08	5.65E-10
Holmium (67)	Ho-159	1.10E+04	6.29E-05	1.36E+09	1.00E+00	2.01E+07	5.60E+10	7.58E+02	6.58E+05	7.57E+02	1.00E-08	5.73E-10
Holmium (67)	Ho-160	1.42E+04	4.87E-05	1.36E+09	1.00E+00	2.79E+13	3.45E+17	2.98E+07	9.16E+11	2.98E+07	1.00E-08	1.76E-05
Holmium (67)	Ho-161	2.45E+03	2.83E-04	1.36E+09	1.00E+00	3.33E+07	5.98E+11	3.72E+03	1.09E+06	3.71E+03	1.00E-08	1.28E-08
Holmium (67)	Ho-162	2.43E+04	2.85E-05	1.36E+09	1.00E+00	5.72E+17	6.68E+21	1.58E+12	1.88E+16	1.58E+12	1.00E-08	5.51E-01
Holmium (67)	Ho-162m	5.44E+03	1.27E-04	1.36E+09	1.00E+00	3.58E+07	4.38E+11	1.75E+02	1.17E+06	1.75E+02	1.00E-08	2.73E-10
Holmium (67)	Ho-163	1.52E-04	4.57E+03	1.36E+09	1.00E+00	5.81E+04	7.78E+06	.	1.90E+03	1.84E+03	1.00E-08	1.04E-01
Holmium (67)	Ho-164	1.26E+04	5.52E-05	1.36E+09	1.00E+00	7.40E+12	8.70E+16	1.18E+09	2.43E+11	1.18E+09	1.00E-08	8.05E-04
Holmium (67)	Ho-164m	9.59E+03	7.23E-05	1.36E+09	1.00E+00	6.36E+07	8.88E+11	1.21E+04	2.09E+06	1.20E+04	1.00E-08	1.08E-08
Holmium (67)	Ho-166	2.27E+02	3.06E-03	1.36E+09	1.00E+00	2.73E+04	5.90E+08	1.59E+02	8.94E+02	1.34E+02	1.00E-08	5.15E-09
Holmium (67)	Ho-166m	5.78E-04	1.20E+03	1.36E+09	1.00E+00	9.11E+01	7.42E+03	1.24E-02	2.99E+00	1.24E-02	1.00E-08	1.86E-07
Holmium (67)	Ho-167	1.96E+03	3.54E-04	1.36E+09	1.00E+00	3.89E+06	4.71E+10	1.19E+02	1.27E+05	1.19E+02	1.00E-08	5.30E-10
Holmium (67)	Ho-168	1.22E+05	5.69E-06	1.36E+09	1.00E+00	.	.	5.70E+15	.	5.70E+15	1.00E-08	4.12E+02
Holmium (67)	Ho-168m	1.66E+05	4.19E-06	1.36E+09	1.00E+00	.	.	2.67E+15	.	2.67E+15	1.00E-08	1.42E+02
Holmium (67)	Ho-170	1.32E+05	5.25E-06	1.36E+09	1.00E+00	.	.	2.93E+15	.	2.93E+15	1.00E-08	1.98E+02
Iodine (53)	I-118	2.66E+04	2.61E-05	1.36E+09	1.00E+00	1.49E+06	1.98E+10	6.61E+02	7.73E+02	3.56E+02	1.00E-08	8.30E-11
Iodine (53)	I-118m	4.29E+04	1.62E-05	1.36E+09	1.00E+00	2.41E+06	3.19E+10	1.07E+03	1.25E+03	5.75E+02	1.00E-08	8.30E-11
Iodine (53)	I-119	1.91E+04	3.63E-05	1.36E+09	1.00E+00	1.29E+07	2.26E+11	4.87E+02	9.77E+03	4.64E+02	1.00E-08	1.52E-10
Iodine (53)	I-120	4.46E+03	1.55E-04	1.36E+09	1.00E+00	2.53E+06	3.02E+10	3.06E+01	4.76E+03	3.04E+01	1.00E-08	4.28E-11
Iodine (53)	I-120m	6.87E+03	1.01E-04	1.36E+09	1.00E+00	7.60E+06	9.31E+10	3.72E+01	1.43E+04	3.71E+01	1.00E-08	3.40E-11
Iodine (53)	I-121	2.86E+03	2.42E-04	1.36E+09	1.00E+00	9.91E+05	8.24E+09	6.30E+01	5.75E+02	5.68E+01	1.00E-08	1.26E-10
Iodine (53)	I-122	1.00E+05	6.91E-06	1.36E+09	1.00E+00	.	.	6.33E+15	.	6.33E+15	1.00E-08	4.03E+02
Iodine (53)	I-123	4.57E+02	1.51E-03	1.36E+09	1.00E+00	3.28E+05	3.52E+09	7.77E+01	6.17E+02	6.90E+01	1.00E-08	9.73E-10
Iodine (53)	I-124	6.06E+01	1.14E-02	1.36E+09	1.00E+00	7.41E+02	8.47E+06	1.04E+00	1.39E+00	5.96E-01	1.00E-08	6.40E-11
Iodine (53)	I-125	4.26E+00	1.63E-01	1.36E+09	1.00E+00	5.31E+01	5.74E+05	4.01E+01	9.99E-02	9.94E-02	1.00E-08	1.53E-10
Iodine (53)	I-126	1.96E+01	3.54E-02	1.36E+09	1.00E+00	1.11E+02	1.25E+06	9.25E-01	2.09E-01	1.70E-01	1.00E-08	5.75E-11
Iodine (53)	I-128	1.46E+04	4.75E-05	1.36E+09	1.00E+00	1.40E+13	1.13E+17	1.08E+09	2.63E+10	1.04E+09	1.00E-08	4.78E-04
Iodine (53)	I-129	4.41E-08	1.57E+07	1.36E+09	1.00E+00	1.92E+00	2.03E+04	1.15E+01	3.61E-03	3.60E-03	1.00E-08	5.52E-04

Resident Soil DCCs July 2023												
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)						
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Produce Consumption DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Iodine (53)	I-130	4.91E+02	1.41E-03	1.36E+09	1.00E+00	4.13E+04	4.57E+08	4.51E+00	7.78E+01	4.26E+00	1.00E-08	5.92E-11
Iodine (53)	I-130m	4.12E+04	1.68E-05	1.36E+09	1.00E+00	4.13E+06	4.56E+10	4.51E+02	7.77E+03	4.26E+02	1.00E-08	7.05E-11
Iodine (53)	I-131	3.15E+01	2.20E-02	1.36E+09	1.00E+00	2.34E+02	2.65E+06	1.74E+00	4.40E-01	3.51E-01	1.00E-08	7.64E-11
Iodine (53)	I-132	2.65E+03	2.62E-04	1.36E+09	1.00E+00	1.52E+06	1.50E+10	2.24E+01	2.85E+03	2.22E+01	1.00E-08	5.81E-11
Iodine (53)	I-132m	4.38E+03	1.58E-04	1.36E+09	1.00E+00	1.60E+06	1.53E+10	3.70E+01	3.00E+03	3.65E+01	1.00E-08	5.78E-11
Iodine (53)	I-133	2.92E+02	2.37E-03	1.36E+09	1.00E+00	1.03E+04	1.17E+08	9.21E+00	1.93E+01	6.23E+00	1.00E-08	1.49E-10
Iodine (53)	I-134	6.94E+03	9.99E-05	1.36E+09	1.00E+00	1.18E+07	9.40E+10	5.04E+01	2.21E+04	5.03E+01	1.00E-08	5.09E-11
Iodine (53)	I-134m	1.01E+05	6.85E-06	1.36E+09	1.00E+00	1.76E+08	1.40E+12	7.52E+02	3.30E+05	7.50E+02	1.00E-08	5.21E-11
Iodine (53)	I-135	9.24E+02	7.50E-04	1.36E+09	1.00E+00	1.64E+05	1.75E+09	9.04E+00	3.08E+02	8.78E+00	1.00E-08	6.73E-11
Indium (49)	In-103	3.64E+05	1.90E-06	1.36E+09	1.00E+00	2.66E+08	1.49E+12	8.75E+03	2.35E+05	8.44E+03	1.00E-08	1.25E-10
Indium (49)	In-105	7.18E+04	9.65E-06	1.36E+09	1.00E+00	2.59E+07	1.65E+11	7.62E+02	1.44E+04	7.24E+02	1.00E-08	5.55E-11
Indium (49)	In-106	5.87E+04	1.18E-05	1.36E+09	1.00E+00	.	.	7.47E+12	.	7.47E+12	1.00E-08	7.07E-01
Indium (49)	In-106m	7.00E+04	9.89E-06	1.36E+09	1.00E+00	.	.	2.13E+13	.	2.13E+13	1.00E-08	1.69E+00
Indium (49)	In-107	1.12E+04	6.16E-05	1.36E+09	1.00E+00	1.88E+07	2.02E+11	1.38E+02	5.14E+03	1.34E+02	1.00E-08	6.69E-11
Indium (49)	In-108	6.28E+03	1.10E-04	1.36E+09	1.00E+00	1.50E+07	2.41E+11	3.04E+01	1.16E+06	3.04E+01	1.00E-08	2.74E-11
Indium (49)	In-108m	9.20E+03	7.53E-05	1.36E+09	1.00E+00	2.02E+07	4.46E+11	5.93E+01	1.55E+06	5.93E+01	1.00E-08	3.65E-11
Indium (49)	In-109	1.45E+03	4.79E-04	1.36E+09	1.00E+00	2.95E+05	1.07E+09	4.60E+01	5.34E+01	2.47E+01	1.00E-08	9.78E-11
Indium (49)	In-109m	2.72E+05	2.55E-06	1.36E+09	1.00E+00	5.55E+07	2.02E+11	8.61E+03	1.00E+04	4.64E+03	1.00E-08	9.75E-11
Indium (49)	In-110	1.24E+03	5.59E-04	1.36E+09	1.00E+00	9.50E+05	1.66E+10	7.70E+00	7.32E+04	7.70E+00	1.00E-08	3.59E-11
Indium (49)	In-110m	5.27E+03	1.31E-04	1.36E+09	1.00E+00	9.14E+06	1.93E+11	6.45E+01	7.04E+05	6.45E+01	1.00E-08	7.06E-11
Indium (49)	In-111	9.02E+01	7.68E-03	1.36E+09	1.00E+00	5.53E+04	6.90E+08	5.55E+00	4.26E+03	5.54E+00	1.00E-08	3.58E-10
Indium (49)	In-111m	4.73E+04	1.46E-05	1.36E+09	1.00E+00	2.90E+07	3.61E+11	2.91E+03	2.23E+06	2.90E+03	1.00E-08	3.57E-10
Indium (49)	In-112	2.43E+04	2.85E-05	1.36E+09	1.00E+00	1.87E+17	2.62E+21	8.65E+11	1.44E+16	8.65E+11	1.00E-08	2.09E-01
Indium (49)	In-112m	1.77E+04	3.91E-05	1.36E+09	1.00E+00	4.31E+14	4.98E+18	2.84E+09	3.32E+13	2.84E+09	1.00E-08	9.42E-04
Indium (49)	In-113m	3.66E+03	1.89E-04	1.36E+09	1.00E+00	2.17E+07	3.21E+11	3.03E+02	1.67E+06	3.03E+02	1.00E-08	4.90E-10
Indium (49)	In-114	3.04E+05	2.28E-06	1.36E+09	1.00E+00	.	.	1.68E+20	.	1.68E+20	1.00E-08	3.30E+06
Indium (49)	In-114m	5.11E+00	1.36E-01	1.36E+09	1.00E+00	2.06E+02	7.52E+05	1.39E+00	1.58E+01	1.27E+00	1.00E-08	1.49E-09
Indium (49)	In-115	1.57E-15	4.41E+14	1.36E+09	9.00E-01	6.54E+00	5.36E+03	3.43E+02	5.04E-01	4.68E-01	1.79E-08	1.79E+06
Indium (49)	In-115m	1.35E+03	5.12E-04	1.36E+09	1.00E+00	2.64E+06	4.01E+10	1.88E+02	2.04E+05	1.88E+02	1.00E-08	8.39E-10
Indium (49)	In-116m	6.69E+03	1.04E-04	1.36E+09	1.00E+00	1.89E+07	2.60E+11	4.91E+01	1.45E+06	4.91E+01	1.00E-08	4.46E-11
Indium (49)	In-117	8.43E+03	8.22E-05	1.36E+09	1.00E+00	4.50E+07	4.00E+11	2.56E+02	1.67E+05	2.56E+02	1.00E-08	1.86E-10
Indium (49)	In-117m	3.13E+03	2.21E-04	1.36E+09	1.00E+00	3.86E+06	6.19E+10	1.62E+02	9.43E+04	1.62E+02	1.00E-08	3.16E-10
Indium (49)	In-118	4.37E+06	1.59E-07	1.36E+09	1.00E+00	.	.	7.59E+25	.	7.59E+25	1.00E-08	1.07E+11



Resident Soil DCCs July 2023												
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)						
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Produce Consumption DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Indium (49)	In-118m	8.35E+04	8.30E-06	1.36E+09	1.00E+00	.	.	9.63E+13	.	9.63E+13	1.00E-08	7.14E+00
Indium (49)	In-119	1.52E+05	4.57E-06	1.36E+09	1.00E+00	1.32E+10	1.60E+13	1.12E+09	4.06E+06	4.04E+06	1.00E-08	1.66E-07
Indium (49)	In-119m	2.02E+04	3.42E-05	1.36E+09	1.00E+00	3.15E+10	3.82E+13	2.64E+09	9.66E+06	9.62E+06	1.00E-08	2.97E-06
Indium (49)	In-121	9.46E+05	7.32E-07	1.36E+09	1.00E+00	7.78E+08	7.41E+12	7.34E+08	2.39E+05	2.39E+05	1.00E-08	1.60E-09
Indium (49)	In-121m	9.39E+04	7.38E-06	1.36E+09	1.00E+00	6.87E+07	7.24E+11	6.58E+07	2.11E+04	2.11E+04	1.00E-08	1.43E-09
Iridium (77)	Ir-180	2.43E+05	2.85E-06	1.36E+09	1.00E+00	7.00E+15	8.93E+19	9.91E+09	2.10E+13	9.91E+09	1.00E-08	3.85E-04
Iridium (77)	Ir-182	2.43E+04	2.85E-05	1.36E+09	1.00E+00	5.01E+06	7.35E+10	3.00E+02	5.28E+03	2.84E+02	1.00E-08	1.12E-10
Iridium (77)	Ir-183	6.28E+03	1.10E-04	1.36E+09	1.00E+00	8.86E+05	3.37E+09	5.56E+01	5.04E+02	5.01E+01	1.00E-08	7.65E-11
Iridium (77)	Ir-184	1.96E+03	3.53E-04	1.36E+09	1.00E+00	1.87E+06	2.89E+10	1.96E+01	5.61E+03	1.95E+01	1.00E-08	9.60E-11
Iridium (77)	Ir-185	4.22E+02	1.64E-03	1.36E+09	1.00E+00	9.60E+04	4.90E+08	5.59E+00	2.88E+02	5.48E+00	1.00E-08	1.26E-10
Iridium (77)	Ir-186	3.65E+02	1.90E-03	1.36E+09	1.00E+00	1.17E+05	1.90E+09	4.32E+00	3.49E+02	4.27E+00	1.00E-08	1.14E-10
Iridium (77)	Ir-186m	3.16E+03	2.19E-04	1.36E+09	1.00E+00	2.67E+06	4.21E+10	3.65E+01	7.99E+03	3.64E+01	1.00E-08	1.12E-10
Iridium (77)	Ir-187	5.78E+02	1.20E-03	1.36E+09	1.00E+00	8.84E+05	1.39E+10	3.98E+01	2.65E+03	3.93E+01	1.00E-08	6.66E-10
Iridium (77)	Ir-188	1.46E+02	4.74E-03	1.36E+09	1.00E+00	3.53E+04	5.62E+08	1.26E+00	1.06E+02	1.24E+00	1.00E-08	8.37E-11
Iridium (77)	Ir-189	1.92E+01	3.62E-02	1.36E+09	1.00E+00	1.35E+04	6.71E+07	1.03E+01	4.06E+01	8.20E+00	1.00E-08	4.24E-09
Iridium (77)	Ir-190	2.15E+01	3.23E-02	1.36E+09	1.00E+00	3.67E+03	3.02E+07	3.05E-01	1.10E+01	2.97E-01	1.00E-08	1.38E-10
Iridium (77)	Ir-190m	5.42E+03	1.28E-04	1.36E+09	1.00E+00	9.20E+05	7.59E+09	7.71E+01	2.76E+03	7.50E+01	1.00E-08	1.38E-10
Iridium (77)	Ir-190n	1.97E+03	3.52E-04	1.36E+09	1.00E+00	1.71E+06	1.85E+10	2.55E+01	5.11E+03	2.54E+01	1.00E-08	1.29E-10
Iridium (77)	Ir-191m	4.42E+06	1.57E-07	1.36E+09	1.00E+00	.	.	2.41E+26	.	2.41E+26	1.00E-08	5.45E+11
Iridium (77)	Ir-192	3.43E+00	2.02E-01	1.36E+09	1.00E+00	4.52E+02	1.06E+06	9.22E-02	1.35E+00	8.63E-02	1.00E-08	2.54E-10
Iridium (77)	Ir-192m	2.51E+05	2.76E-06	1.36E+09	1.00E+00	3.31E+07	7.81E+10	6.76E+03	9.93E+04	6.33E+03	1.00E-08	2.54E-10
Iridium (77)	Ir-192n	2.88E-03	2.41E+02	1.36E+09	1.00E+00	7.64E+01	3.22E+04	2.62E-02	2.29E-01	2.35E-02	1.68E+00	8.22E-08
Iridium (77)	Ir-193m	2.40E+01	2.88E-02	1.36E+09	1.00E+00	1.40E+04	3.91E+07	4.35E+03	4.18E+01	4.13E+01	1.00E-08	1.74E-08
Iridium (77)	Ir-194	3.15E+02	2.20E-03	1.36E+09	1.00E+00	3.98E+04	1.02E+09	6.63E+01	1.19E+02	4.26E+01	1.00E-08	1.38E-09
Iridium (77)	Ir-194m	1.48E+00	4.68E-01	1.36E+09	1.00E+00	1.69E+02	3.16E+05	1.68E-02	5.07E-01	1.62E-02	1.00E-08	1.12E-10
Iridium (77)	Ir-195	2.43E+03	2.85E-04	1.36E+09	1.00E+00	4.09E+06	6.41E+10	1.83E+03	1.23E+04	1.59E+03	1.00E-08	6.71E-09
Iridium (77)	Ir-195m	1.60E+03	4.34E-04	1.36E+09	1.00E+00	6.45E+05	4.91E+09	9.13E+01	7.66E+02	8.16E+01	1.00E-08	5.22E-10
Iridium (77)	Ir-196	4.20E+05	1.65E-06	1.36E+09	1.00E+00	.	.	2.43E+19	.	2.43E+19	1.00E-08	5.95E+05
Iridium (77)	Ir-196m	4.34E+03	1.60E-04	1.36E+09	1.00E+00	7.05E+06	8.81E+10	3.60E+01	2.11E+04	3.59E+01	1.00E-08	8.51E-11
Potassium (19)	K-38	4.77E+04	1.45E-05	1.36E+09	1.00E+00	.	.	2.89E+12	.	2.89E+12	1.00E-08	1.21E-01
Potassium (19)	K-40	5.54E-10	1.25E+09	1.36E+09	1.00E+00	2.83E+01	2.47E+04	1.12E-01	6.54E-03	6.18E-03	1.00E-08	2.34E-02
Potassium (19)	K-42	4.91E+02	1.41E-03	1.36E+09	1.00E+00	1.94E+05	2.64E+09	2.95E+01	4.48E+01	1.78E+01	1.00E-08	7.97E-11
Potassium (19)	K-43	2.72E+02	2.55E-03	1.36E+09	1.00E+00	1.98E+05	1.38E+09	5.73E+00	4.57E+01	5.10E+00	1.00E-08	4.22E-11

Resident Soil DCCs July 2023												
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)						
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Produce Consumption DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Potassium (19)	K-44	1.65E+04	4.21E-05	1.36E+09	1.00E+00	6.44E+13	1.69E+18	2.22E+08	1.49E+10	2.19E+08	1.00E-08	3.07E-05
Potassium (19)	K-45	2.11E+04	3.29E-05	1.36E+09	1.00E+00	5.96E+06	1.47E+10	5.54E+07	1.65E+03	1.65E+03	1.00E-08	1.85E-10
Potassium (19)	K-46	2.08E+05	3.33E-06	1.36E+09	1.00E+00	.	.	2.73E+16	.	2.73E+16	1.00E-08	3.16E+02
Krypton (36)	Kr-74	3.17E+04	2.19E-05	1.36E+09	1.00E+00	7.60E+12	1.62E+17	1.32E+07	3.37E+10	1.32E+07	1.00E-08	1.62E-06
Krypton (36)	Kr-75	8.49E+04	8.16E-06	1.36E+09	1.00E+00	6.47E+06	1.38E+11	1.17E+03	6.17E+02	4.04E+02	1.00E-08	1.87E-11
Krypton (36)	Kr-76	4.10E+02	1.69E-03	1.36E+09	1.00E+00	1.61E+05	1.77E+09	2.37E+00	7.14E+02	2.36E+00	1.00E-08	2.29E-11
Krypton (36)	Kr-77	4.90E+03	1.42E-04	1.36E+09	1.00E+00	9.48E+06	1.00E+11	7.61E+01	4.21E+04	7.59E+01	1.00E-08	6.26E-11
Krypton (36)	Kr-79	1.73E+02	4.00E-03	1.36E+09	1.00E+00	.	.	1.43E+01	.	1.43E+01	1.00E-08	3.43E-10
Krypton (36)	Kr-81	3.03E-06	2.29E+05	1.36E+09	1.00E+00	.	.	2.68E+01	.	2.68E+01	1.00E-08	3.77E-02
Krypton (36)	Kr-81m	1.67E+06	4.15E-07	1.36E+09	1.00E+00	.	.	1.48E+13	.	1.48E+13	1.00E-08	3.77E-02
Krypton (36)	Kr-83m	3.32E+03	2.09E-04	1.36E+09	1.00E+00	.	.	1.58E+07	.	1.58E+07	1.00E-08	2.08E-05
Krypton (36)	Kr-85	6.44E-02	1.08E+01	1.36E+09	1.00E+00	.	.	8.44E+00	.	8.44E+00	1.00E-08	5.84E-07
Krypton (36)	Kr-85m	1.36E+03	5.11E-04	1.36E+09	1.00E+00	.	.	2.18E+02	.	2.18E+02	1.00E-08	7.16E-10
Krypton (36)	Kr-87	4.77E+03	1.45E-04	1.36E+09	1.00E+00	3.84E+16	4.43E+19	1.06E+02	1.83E+13	1.06E+02	1.00E-08	1.01E-10
Krypton (36)	Kr-88	2.14E+03	3.24E-04	1.36E+09	1.00E+00	4.07E+06	1.41E+11	1.41E+01	1.94E+03	1.40E+01	1.00E-08	3.02E-11
Krypton (36)	Kr-89	1.16E+05	5.99E-06	1.36E+09	1.00E+00	7.49E+06	2.89E+10	8.51E+05	2.06E+03	2.06E+03	1.00E-08	8.31E-11
Lanthanum (57)	La-128	7.03E+04	9.86E-06	1.36E+09	1.00E+00	4.58E+06	9.34E+10	1.52E+03	4.39E+04	1.47E+03	1.00E-08	1.40E-10
Lanthanum (57)	La-129	3.14E+04	2.21E-05	1.36E+09	1.00E+00	5.23E+07	5.32E+11	9.68E+02	2.72E+05	9.64E+02	1.00E-08	2.08E-10
Lanthanum (57)	La-130	4.19E+04	1.66E-05	1.36E+09	1.00E+00	.	.	1.74E+12	.	1.74E+12	1.00E-08	2.83E-01
Lanthanum (57)	La-131	6.17E+03	1.12E-04	1.36E+09	1.00E+00	1.98E+06	1.31E+10	1.19E+02	1.69E+04	1.18E+02	1.00E-08	1.31E-10
Lanthanum (57)	La-132	1.26E+03	5.48E-04	1.36E+09	1.00E+00	5.43E+05	1.27E+10	1.19E+01	1.20E+04	1.19E+01	1.00E-08	6.53E-11
Lanthanum (57)	La-132m	1.50E+04	4.62E-05	1.36E+09	1.00E+00	8.47E+06	1.98E+11	1.86E+02	1.88E+05	1.86E+02	1.00E-08	8.60E-11
Lanthanum (57)	La-133	1.55E+03	4.47E-04	1.36E+09	1.00E+00	1.82E+06	4.64E+09	1.98E+02	1.99E+04	1.96E+02	1.00E-08	8.79E-10
Lanthanum (57)	La-134	5.65E+04	1.23E-05	1.36E+09	1.00E+00	.	.	2.42E+13	.	2.42E+13	1.00E-08	3.01E+00
Lanthanum (57)	La-135	3.11E+02	2.23E-03	1.36E+09	1.00E+00	1.76E+06	3.71E+10	5.17E+02	3.89E+04	5.10E+02	1.00E-08	1.16E-08
Lanthanum (57)	La-136	3.69E+04	1.88E-05	1.36E+09	1.00E+00	.	.	3.82E+12	.	3.82E+12	1.00E-08	7.39E-01
Lanthanum (57)	La-137	1.16E-05	6.00E+04	1.36E+09	1.00E+00	2.09E+03	2.33E+05	1.04E+01	4.64E+01	8.46E+00	1.00E-08	5.26E-03
Lanthanum (57)	La-138	6.79E-12	1.02E+11	1.36E+09	1.00E+00	1.70E+02	1.35E+04	1.48E-02	3.76E+00	1.47E-02	1.00E-08	1.57E+01
Lanthanum (57)	La-140	1.51E+02	4.60E-03	1.36E+09	1.00E+00	1.31E+04	2.45E+08	1.18E+00	2.91E+02	1.17E+00	1.00E-08	5.71E-11
Lanthanum (57)	La-141	1.55E+03	4.47E-04	1.36E+09	1.00E+00	2.42E+05	7.88E+08	3.42E+02	5.76E+03	3.22E+02	1.00E-08	1.54E-09
Lanthanum (57)	La-142	4.00E+03	1.73E-04	1.36E+09	1.00E+00	4.02E+06	8.20E+10	2.90E+01	8.91E+04	2.90E+01	1.00E-08	5.40E-11
Lanthanum (57)	La-143	2.57E+04	2.70E-05	1.36E+09	1.00E+00	1.88E+06	1.53E+10	2.08E+03	3.73E+04	1.97E+03	1.00E-08	5.75E-10
Lutetium (71)	Lu-165	3.39E+04	2.04E-05	1.36E+09	1.00E+00	1.59E+07	2.59E+11	1.32E+03	5.31E+05	1.32E+03	1.00E-08	3.36E-10

Resident Soil DCCs July 2023												
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)						
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Produce Consumption DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Lutetium (71)	Lu-167	7.07E+03	9.80E-05	1.36E+09	1.00E+00	1.91E+06	1.02E+10	6.92E+01	6.43E+04	6.91E+01	1.00E-08	8.55E-11
Lutetium (71)	Lu-169	1.78E+02	3.89E-03	1.36E+09	1.00E+00	2.33E+04	9.15E+07	2.29E+00	8.96E+02	2.29E+00	1.00E-08	1.14E-10
Lutetium (71)	Lu-169m	1.37E+05	5.07E-06	1.36E+09	1.00E+00	1.79E+07	7.01E+10	1.76E+03	6.86E+05	1.75E+03	1.00E-08	1.14E-10
Lutetium (71)	Lu-170	1.26E+02	5.51E-03	1.36E+09	1.00E+00	2.39E+04	3.64E+08	8.67E-01	1.28E+03	8.67E-01	1.00E-08	6.15E-11
Lutetium (71)	Lu-171	3.07E+01	2.26E-02	1.36E+09	1.00E+00	7.88E+03	6.07E+07	1.02E+00	4.21E+02	1.01E+00	1.00E-08	2.96E-10
Lutetium (71)	Lu-171m	2.77E+05	2.51E-06	1.36E+09	1.00E+00	7.10E+07	5.47E+11	9.16E+03	3.80E+06	9.14E+03	1.00E-08	2.96E-10
Lutetium (71)	Lu-172	3.78E+01	1.84E-02	1.36E+09	1.00E+00	5.19E+03	4.60E+07	3.74E-01	2.77E+02	3.73E-01	1.00E-08	8.92E-11
Lutetium (71)	Lu-172m	9.84E+04	7.04E-06	1.36E+09	1.00E+00	1.35E+07	1.20E+11	9.75E+02	7.23E+05	9.73E+02	1.00E-08	8.92E-11
Lutetium (71)	Lu-173	5.06E-01	1.37E+00	1.36E+09	1.00E+00	6.08E+02	7.11E+05	2.47E-01	3.25E+01	2.45E-01	1.00E-08	4.39E-09
Lutetium (71)	Lu-174	2.09E-01	3.31E+00	1.36E+09	1.00E+00	6.72E+02	4.92E+05	2.62E-01	3.59E+01	2.60E-01	1.00E-08	1.13E-08
Lutetium (71)	Lu-174m	1.78E+00	3.89E-01	1.36E+09	1.00E+00	6.26E+02	8.59E+05	1.33E+00	3.35E+01	1.28E+00	1.00E-08	6.56E-09
Lutetium (71)	Lu-176	1.80E-11	3.85E+10	1.36E+09	1.00E+00	9.60E+01	1.36E+04	4.88E-02	5.13E+00	4.84E-02	1.00E-08	2.48E+01
Lutetium (71)	Lu-176m	1.67E+03	4.15E-04	1.36E+09	1.00E+00	1.71E+06	2.78E+10	4.70E+03	9.13E+04	4.45E+03	1.00E-08	2.46E-08
Lutetium (71)	Lu-177	3.81E+01	1.82E-02	1.36E+09	1.00E+00	1.21E+04	6.33E+07	2.92E+01	6.45E+02	2.79E+01	1.00E-08	6.80E-09
Lutetium (71)	Lu-177m	1.58E+00	4.39E-01	1.36E+09	1.00E+00	1.90E+02	2.44E+05	4.76E-02	1.02E+01	4.74E-02	1.00E-08	2.79E-10
Lutetium (71)	Lu-178	1.28E+04	5.40E-05	1.36E+09	1.00E+00	2.02E+12	4.05E+16	7.93E+07	1.08E+11	7.92E+07	1.00E-08	5.77E-05
Lutetium (71)	Lu-178m	1.58E+04	4.39E-05	1.36E+09	1.00E+00	7.42E+13	8.30E+17	3.05E+08	3.97E+12	3.05E+08	1.00E-08	1.81E-04
Lutetium (71)	Lu-179	1.32E+03	5.24E-04	1.36E+09	1.00E+00	1.03E+06	2.23E+10	9.81E+02	5.53E+04	9.63E+02	1.00E-08	6.83E-09
Lutetium (71)	Lu-180	6.39E+04	1.08E-05	1.36E+09	1.00E+00	.	.	1.03E+14	.	1.03E+14	1.00E-08	1.52E+01
Lutetium (71)	Lu-181	1.04E+05	6.66E-06	1.36E+09	1.00E+00	1.62E+07	3.51E+10	4.29E+03	3.91E+05	4.24E+03	1.00E-08	3.87E-10
Magnesium (12)	Mg-27	3.85E+04	1.80E-05	1.36E+09	1.00E+00	.	.	4.39E+12	.	4.39E+12	1.00E-08	1.61E-01
Magnesium (12)	Mg-28	2.90E+02	2.39E-03	1.36E+09	1.00E+00	2.39E+04	4.25E+08	1.64E+00	7.17E+01	1.60E+00	1.00E-08	8.10E-12
Manganese (25)	Mn-50m	2.08E+05	3.33E-06	1.36E+09	1.00E+00	.	.	1.88E+16	.	1.88E+16	1.00E-08	2.37E+02
Manganese (25)	Mn-51	7.88E+03	8.79E-05	1.36E+09	1.00E+00	1.06E+07	1.82E+11	1.55E+02	7.07E+03	1.51E+02	1.00E-08	5.14E-11
Manganese (25)	Mn-52	4.52E+01	1.53E-02	1.36E+09	1.00E+00	4.65E+03	5.98E+07	2.43E-01	2.22E+00	2.19E-01	1.00E-08	1.32E-11
Manganese (25)	Mn-52m	1.73E+04	4.01E-05	1.36E+09	1.00E+00	1.01E+08	1.30E+12	5.29E+03	4.82E+04	4.76E+03	1.00E-08	7.52E-10
Manganese (25)	Mn-53	1.87E-07	3.70E+06	1.36E+09	1.00E+00	5.61E+03	6.01E+06	.	2.67E+00	2.67E+00	1.00E-08	3.96E-02
Manganese (25)	Mn-54	8.10E-01	8.55E-01	1.36E+09	1.00E+00	3.81E+02	8.89E+05	3.35E-02	1.81E-01	2.82E-02	1.00E-08	9.87E-11
Manganese (25)	Mn-56	2.35E+03	2.94E-04	1.36E+09	1.00E+00	1.60E+06	3.35E+10	2.49E+01	7.64E+02	2.41E+01	1.00E-08	3.01E-11
Manganese (25)	Mn-57	2.56E+05	2.71E-06	1.36E+09	1.00E+00	.	.	6.35E+18	.	6.35E+18	1.00E-08	7.42E+04
Manganese (25)	Mn-58m	3.35E+05	2.07E-06	1.36E+09	1.00E+00	.	.	5.31E+17	.	5.31E+17	1.00E-08	4.82E+03
Molybdenum (42)	Mo-101	2.49E+04	2.78E-05	1.36E+09	1.00E+00	4.10E+15	6.72E+19	2.76E+10	1.61E+10	1.02E+10	1.00E-08	2.16E-03
Molybdenum (42)	Mo-102	3.22E+04	2.15E-05	1.36E+09	1.00E+00	2.16E+17	6.35E+21	1.34E+13	1.38E+14	1.22E+13	1.00E-08	2.02E+00

Resident Soil DCCs July 2023												
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)						
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Produce Consumption DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Molybdenum (42)	Mo-89	1.73E+05	4.01E-06	1.36E+09	1.00E+00	2.89E+07	4.79E+11	1.29E+03	5.67E+05	1.29E+03	1.00E-08	3.48E-11
Molybdenum (42)	Mo-90	1.09E+03	6.35E-04	1.36E+09	1.00E+00	1.34E+05	1.96E+09	3.96E+00	4.04E+02	3.93E+00	1.00E-08	1.70E-11
Molybdenum (42)	Mo-91	2.35E+04	2.95E-05	1.36E+09	1.00E+00	2.15E+10	1.45E+13	4.35E+07	1.81E+08	3.50E+07	1.00E-08	7.10E-06
Molybdenum (42)	Mo-91m	3.38E+05	2.05E-06	1.36E+09	1.00E+00	2.82E+08	3.30E+11	5.06E+05	2.37E+06	4.17E+05	1.00E-08	5.88E-09
Molybdenum (42)	Mo-93	1.73E-04	4.00E+03	1.36E+09	1.00E+00	7.19E+01	5.34E+05	2.39E+02	4.73E-02	4.73E-02	1.00E-08	1.33E-06
Molybdenum (42)	Mo-93m	8.86E+02	7.82E-04	1.36E+09	1.00E+00	1.40E+06	9.03E+09	7.06E+00	8.87E+02	7.01E+00	1.00E-08	3.86E-11
Molybdenum (42)	Mo-99	9.21E+01	7.53E-03	1.36E+09	1.00E+00	2.68E+04	1.74E+08	8.07E+00	2.74E+00	2.04E+00	1.00E-08	1.15E-10
Nitrogen (7)	N-13	3.66E+04	1.90E-05	1.36E+09	9.00E-01	.	.	1.44E+12	.	1.44E+12	1.00E-08	2.68E-02
Nitrogen (7)	N-16	3.07E+06	2.26E-07	1.36E+09	1.00E+00	.	.	4.37E+23	.	4.37E+23	1.00E-08	1.20E+08
Sodium (11)	Na-22	2.66E-01	2.60E+00	1.36E+09	1.00E+00	6.82E+01	7.93E+04	9.84E-03	1.31E-01	9.15E-03	1.00E-08	3.96E-11
Sodium (11)	Na-24	4.06E+02	1.71E-03	1.36E+09	1.00E+00	1.73E+05	1.53E+09	1.66E+00	3.33E+02	1.65E+00	1.00E-08	5.11E-12
Niobium (41)	Nb-87	9.71E+04	7.13E-06	1.36E+09	1.00E+00	1.77E+07	2.82E+11	1.00E+03	1.01E+05	9.92E+02	1.00E-08	4.66E-11
Niobium (41)	Nb-88	2.51E+04	2.76E-05	1.36E+09	1.00E+00	3.41E+06	6.17E+09	1.92E+02	5.38E+04	1.91E+02	2.24E-02	3.52E-11
Niobium (41)	Nb-88m	4.68E+04	1.48E-05	1.36E+09	1.00E+00	6.36E+06	1.15E+10	3.58E+02	1.00E+05	3.57E+02	2.24E-02	3.52E-11
Niobium (41)	Nb-89	2.99E+03	2.32E-04	1.36E+09	1.00E+00	5.00E+05	8.30E+09	2.23E+01	9.83E+03	2.23E+01	1.00E-08	3.48E-11
Niobium (41)	Nb-89m	5.52E+03	1.26E-04	1.36E+09	1.00E+00	1.13E+06	1.75E+10	3.60E+01	2.75E+04	3.59E+01	1.00E-08	3.04E-11
Niobium (41)	Nb-90	4.16E+02	1.67E-03	1.36E+09	1.00E+00	5.96E+04	1.15E+09	1.76E+00	5.01E+02	1.75E+00	1.00E-08	1.99E-11
Niobium (41)	Nb-91	1.02E-03	6.80E+02	1.36E+09	1.00E+00	3.74E+03	1.11E+06	1.22E+01	3.14E+01	8.78E+00	1.00E-08	4.11E-05
Niobium (41)	Nb-91m	4.16E+00	1.67E-01	1.36E+09	1.00E+00	1.74E+03	2.03E+06	3.11E+00	1.46E+01	2.56E+00	1.00E-08	2.94E-09
Niobium (41)	Nb-92	2.00E-08	3.47E+07	1.36E+09	1.00E+00	1.83E+02	7.73E+04	1.29E-02	1.54E+00	1.28E-02	1.00E-08	3.09E-03
Niobium (41)	Nb-92m	2.49E+01	2.78E-02	1.36E+09	1.00E+00	9.25E+03	1.05E+08	4.90E-01	7.77E+01	4.87E-01	1.00E-08	9.43E-11
Niobium (41)	Nb-93m	4.30E-02	1.61E+01	1.36E+09	1.00E+00	1.33E+03	1.07E+06	1.56E+03	1.12E+01	1.10E+01	1.00E-08	1.25E-06
Niobium (41)	Nb-94	3.41E-05	2.03E+04	1.36E+09	1.00E+00	1.04E+02	4.29E+04	1.23E-02	8.76E-01	1.22E-02	1.00E-08	1.76E-06
Niobium (41)	Nb-94m	5.82E+04	1.19E-05	1.36E+09	1.00E+00	1.78E+11	7.35E+13	2.11E+07	1.50E+09	2.08E+07	1.00E-08	1.77E-06
Niobium (41)	Nb-95	7.23E+00	9.59E-02	1.36E+09	1.00E+00	2.24E+03	8.23E+06	1.83E-01	1.88E+01	1.81E-01	1.00E-08	1.25E-10
Niobium (41)	Nb-95m	7.01E+01	9.89E-03	1.36E+09	1.00E+00	1.06E+04	5.45E+07	1.75E+00	8.88E+01	1.71E+00	1.00E-08	1.22E-10
Niobium (41)	Nb-96	2.60E+02	2.67E-03	1.36E+09	1.00E+00	4.25E+04	7.26E+08	2.02E+00	3.58E+02	2.01E+00	1.00E-08	3.89E-11
Niobium (41)	Nb-97	5.05E+03	1.37E-04	1.36E+09	1.00E+00	1.28E+07	2.08E+11	1.48E+02	1.07E+05	1.48E+02	1.00E-08	1.49E-10
Niobium (41)	Nb-98m	7.10E+03	9.76E-05	1.36E+09	1.00E+00	1.16E+07	2.21E+11	4.70E+01	9.76E+04	4.70E+01	1.00E-08	3.40E-11
Niobium (41)	Nb-99	1.46E+06	4.76E-07	1.36E+09	1.00E+00	4.24E+08	2.76E+12	1.28E+05	4.33E+04	3.24E+04	1.00E-08	1.15E-10
Niobium (41)	Nb-99m	1.40E+05	4.95E-06	1.36E+09	1.00E+00	4.07E+07	2.65E+11	1.23E+04	4.17E+03	3.11E+03	1.00E-08	1.15E-10
Neodymium (60)	Nd-134	4.29E+04	1.62E-05	1.36E+09	1.00E+00	2.74E+06	5.50E+10	1.19E+03	6.79E+04	1.17E+03	1.00E-08	1.92E-10
Neodymium (60)	Nd-135	2.94E+04	2.36E-05	1.36E+09	1.00E+00	1.81E+07	3.46E+11	7.37E+02	4.43E+05	7.36E+02	1.00E-08	1.77E-10



Resident Soil DCCs July 2023												
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)						
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Produce Consumption DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Neodymium (60)	Nd-136	7.19E+03	9.64E-05	1.36E+09	1.00E+00	9.56E+06	1.96E+11	5.83E+01	2.51E+05	5.83E+01	1.00E-08	5.78E-11
Neodymium (60)	Nd-137	9.46E+03	7.32E-05	1.36E+09	1.00E+00	1.42E+07	2.94E+11	1.22E+02	3.38E+05	1.22E+02	1.00E-08	9.23E-11
Neodymium (60)	Nd-138	1.20E+03	5.75E-04	1.36E+09	1.00E+00	3.21E+05	8.72E+09	2.90E+01	1.05E+04	2.89E+01	1.00E-08	1.74E-10
Neodymium (60)	Nd-139	1.23E+04	5.65E-05	1.36E+09	1.00E+00	8.44E+06	1.48E+10	1.26E+03	1.97E+05	1.25E+03	1.00E-08	7.42E-10
Neodymium (60)	Nd-139m	1.10E+03	6.28E-04	1.36E+09	1.00E+00	3.94E+05	1.21E+09	1.18E+01	1.07E+04	1.18E+01	1.00E-08	7.82E-11
Neodymium (60)	Nd-140	7.51E+01	9.23E-03	1.36E+09	1.00E+00	6.43E+03	1.24E+08	2.80E+00	2.11E+02	2.76E+00	1.00E-08	2.70E-10
Neodymium (60)	Nd-141	2.44E+03	2.84E-04	1.36E+09	1.00E+00	5.01E+07	8.39E+11	9.32E+02	1.64E+06	9.31E+02	1.00E-08	2.82E-09
Neodymium (60)	Nd-141m	3.52E+05	1.97E-06	1.36E+09	1.00E+00	7.20E+09	1.21E+14	1.34E+05	2.36E+08	1.34E+05	1.00E-08	2.81E-09
Neodymium (60)	Nd-144	3.03E-16	2.29E+15	1.36E+09	9.00E-01	4.40E+00	1.09E+02	.	1.44E-01	1.39E-01	3.33E+00	3.48E+06
Neodymium (60)	Nd-147	2.30E+01	3.01E-02	1.36E+09	1.00E+00	3.43E+03	1.31E+07	4.15E+00	8.49E+01	3.95E+00	1.00E-08	1.32E-09
Neodymium (60)	Nd-149	3.51E+03	1.97E-04	1.36E+09	1.00E+00	5.30E+05	8.17E+09	2.07E+02	2.65E+03	1.92E+02	1.00E-08	4.26E-10
Neodymium (60)	Nd-151	2.93E+04	2.37E-05	1.36E+09	1.00E+00	6.77E+06	1.01E+11	1.96E+03	3.07E+04	1.84E+03	1.00E-08	4.98E-10
Neodymium (60)	Nd-152	3.20E+04	2.17E-05	1.36E+09	1.00E+00	4.72E+17	1.03E+22	4.19E+12	1.55E+16	4.19E+12	1.00E-08	1.04E+00
Neon (10)	Ne-19	1.27E+06	5.46E-07	1.36E+09	1.00E+00	.	.	2.41E+22	.	2.41E+22	1.00E-08	1.89E+07
Neon (10)	Ne-24	1.08E+05	6.43E-06	1.36E+09	1.00E+00	4.57E+07	4.04E+11	4.38E+02	8.80E+04	4.36E+02	1.00E-08	5.10E-12
Nickel (28)	Ni-56	4.16E+01	1.66E-02	1.36E+09	1.00E+00	2.21E+03	1.07E+07	1.47E-01	4.07E+00	1.42E-01	1.00E-08	1.00E-11
Nickel (28)	Ni-57	1.71E+02	4.06E-03	1.36E+09	1.00E+00	2.92E+04	2.81E+08	1.57E+00	1.49E+02	1.56E+00	1.00E-08	2.73E-11
Nickel (28)	Ni-59	6.86E-06	1.01E+05	1.36E+09	1.00E+00	2.92E+03	2.40E+06	1.30E+03	2.49E+01	2.42E+01	1.00E-08	1.09E-02
Nickel (28)	Ni-63	6.92E-03	1.00E+02	1.36E+09	9.00E-01	1.18E+03	9.87E+05	.	1.01E+01	9.97E+00	1.00E-08	4.76E-06
Nickel (28)	Ni-65	2.41E+03	2.87E-04	1.36E+09	1.00E+00	2.28E+06	1.31E+10	7.73E+01	1.95E+04	7.70E+01	1.00E-08	1.09E-10
Nickel (28)	Ni-66	1.11E+02	6.23E-03	1.36E+09	9.00E-01	6.22E+03	1.14E+08	1.94E+01	5.31E+01	1.42E+01	1.00E-08	4.42E-10
Neptunium (93)	Np-232	2.48E+04	2.80E-05	1.36E+09	1.00E+00	9.56E+05	6.92E+07	3.34E+04	8.99E+03	7.04E+03	8.32E+00	3.46E-09
Neptunium (93)	Np-233	1.01E+04	6.89E-05	1.36E+09	1.00E+00	6.49E+08	5.69E+10	3.82E+03	8.17E+06	3.82E+03	1.00E-08	4.64E-09
Neptunium (93)	Np-234	5.75E+01	1.21E-02	1.36E+09	1.00E+00	1.62E+04	2.25E+08	9.60E-01	1.44E+02	9.53E-01	1.00E-08	2.04E-10
Neptunium (93)	Np-235	6.39E-01	1.09E+00	1.36E+09	1.00E+00	3.95E+03	4.72E+06	7.98E+01	3.52E+01	2.43E+01	1.00E-08	4.68E-07
Neptunium (93)	Np-236	4.50E-06	1.54E+05	1.36E+09	1.00E+00	1.88E+00	9.28E+01	6.72E-02	1.93E-02	1.49E-02	7.20E+02	4.10E-05
Neptunium (93)	Np-236m	2.70E+02	2.57E-03	1.36E+09	1.00E+00	5.30E+03	4.92E+05	1.77E+02	2.13E+02	1.18E+02	1.00E-08	5.41E-09
Neptunium (93)	Np-237	3.23E-07	2.14E+06	1.36E+09	1.00E+00	2.63E-01	2.33E+01	5.38E-02	3.16E-03	2.95E-03	6.15E+05	1.14E-04
Neptunium (93)	Np-238	1.19E+02	5.80E-03	1.36E+09	1.00E+00	8.53E+03	3.03E+05	3.85E+00	1.78E+02	3.77E+00	1.00E-08	3.93E-10
Neptunium (93)	Np-239	1.07E+02	6.46E-03	1.36E+09	1.00E+00	2.23E+04	5.10E+07	1.65E+01	2.00E+02	1.52E+01	1.00E-08	1.78E-09
Neptunium (93)	Np-240	5.88E+03	1.18E-04	1.36E+09	1.00E+00	1.08E+07	1.00E+09	1.12E+02	1.24E+05	1.12E+02	1.00E-08	2.40E-10
Neptunium (93)	Np-240m	5.04E+04	1.37E-05	1.36E+09	1.00E+00	3.85E+08	8.67E+09	2.79E+07	3.78E+07	1.54E+07	1.00E-08	3.84E-06
Neptunium (93)	Np-241	2.62E+04	2.64E-05	1.36E+09	1.00E+00	1.73E+07	3.95E+08	5.50E+07	1.55E+06	1.38E+06	5.43E+01	6.67E-07

Resident Soil DCCs July 2023												
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)						
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Produce Consumption DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Neptunium (93)	Np-242	1.66E+05	4.19E-06	1.36E+09	1.00E+00	7.60E+10	1.71E+12	1.12E+13	7.46E+09	6.76E+09	1.00E-08	5.18E-04
Neptunium (93)	Np-242m	6.62E+04	1.05E-05	1.36E+09	1.00E+00	3.04E+10	6.84E+11	4.49E+12	2.98E+09	2.70E+09	1.00E-08	5.18E-04
Oxygen (8)	O-14	3.10E+05	2.24E-06	1.36E+09	1.00E+00	.	.	7.17E+17	.	7.17E+17	1.00E-08	1.70E+03
Oxygen (8)	O-15	1.79E+05	3.88E-06	1.36E+09	9.00E-01	.	.	2.38E+16	.	2.38E+16	1.00E-08	1.05E+02
Oxygen (8)	O-19	8.26E+05	8.39E-07	1.36E+09	1.00E+00	.	.	4.93E+20	.	4.93E+20	1.00E-08	5.95E+05
Osmium (76)	Os-180	1.69E+04	4.09E-05	1.36E+09	1.00E+00	5.25E+14	6.70E+18	7.44E+08	1.57E+12	7.43E+08	1.00E-08	4.14E-04
Osmium (76)	Os-181	3.47E+03	2.00E-04	1.36E+09	1.00E+00	1.03E+06	1.13E+10	3.22E+01	3.78E+02	2.96E+01	1.00E-08	8.11E-11
Osmium (76)	Os-182	2.75E+02	2.52E-03	1.36E+09	1.00E+00	5.67E+04	8.32E+08	3.40E+00	5.98E+01	3.21E+00	1.00E-08	1.12E-10
Osmium (76)	Os-183	4.67E+02	1.48E-03	1.36E+09	1.00E+00	6.91E+04	2.53E+08	1.51E+01	3.78E+01	1.08E+01	1.00E-08	2.21E-10
Osmium (76)	Os-183m	6.13E+02	1.13E-03	1.36E+09	1.00E+00	9.00E+04	3.33E+08	1.02E+01	4.96E+01	8.43E+00	1.00E-08	1.32E-10
Osmium (76)	Os-185	2.70E+00	2.56E-01	1.36E+09	1.00E+00	1.06E+03	3.67E+06	8.59E-02	3.18E+00	8.36E-02	1.00E-08	3.00E-10
Osmium (76)	Os-186	3.47E-16	2.00E+15	1.36E+09	9.00E-01	5.41E+00	4.87E+02	.	1.62E-02	1.62E-02	3.49E+00	4.55E+05
Osmium (76)	Os-189m	1.05E+03	6.62E-04	1.36E+09	1.00E+00	1.03E+07	3.58E+11	7.98E+07	3.09E+04	3.08E+04	1.00E-08	2.91E-07
Osmium (76)	Os-190m	3.68E+04	1.88E-05	1.36E+09	1.00E+00	.	.	9.30E+11	.	9.30E+11	1.00E-08	2.52E-01
Osmium (76)	Os-191	1.64E+01	4.22E-02	1.36E+09	1.00E+00	4.81E+03	1.63E+07	7.96E+00	1.44E+01	5.12E+00	1.00E-08	3.12E-09
Osmium (76)	Os-191m	4.63E+02	1.50E-03	1.36E+09	1.00E+00	1.16E+05	4.25E+08	2.14E+02	3.47E+02	1.32E+02	1.00E-08	2.86E-09
Osmium (76)	Os-193	2.02E+02	3.44E-03	1.36E+09	1.00E+00	4.10E+04	6.95E+08	7.15E+01	1.23E+02	4.52E+01	1.00E-08	2.27E-09
Osmium (76)	Os-194	1.16E-01	6.00E+00	1.36E+09	1.00E+00	4.70E+01	2.54E+04	2.22E-01	1.41E-01	8.60E-02	5.42E-03	7.58E-09
Osmium (76)	Os-196	1.04E+04	6.64E-05	1.36E+09	1.00E+00	1.64E+07	3.45E+11	6.65E+02	4.91E+04	6.57E+02	1.00E-08	6.47E-10
Phosphorus (15)	P-30	1.46E+05	4.75E-06	1.36E+09	1.00E+00	.	.	6.72E+15	.	6.72E+15	1.00E-08	7.25E+01
Phosphorus (15)	P-32	1.77E+01	3.91E-02	1.36E+09	9.00E-01	1.22E+03	8.89E+06	1.08E+02	1.17E-01	1.17E-01	1.00E-08	1.11E-11
Phosphorus (15)	P-33	9.98E+00	6.94E-02	1.36E+09	9.00E-01	6.88E+03	1.12E+07	2.46E+04	6.62E-01	6.62E-01	1.00E-08	1.15E-10
Protactinium (91)	Pa-227	9.51E+03	7.29E-05	1.36E+09	1.00E+00	6.24E+04	6.57E+06	1.58E+03	2.64E+02	2.25E+02	1.00E-08	2.82E-10
Protactinium (91)	Pa-228	2.76E+02	2.51E-03	1.36E+09	1.00E+00	8.20E+02	4.27E+04	2.90E+00	5.65E+00	1.91E+00	1.00E-08	8.29E-11
Protactinium (91)	Pa-229	1.69E+02	4.11E-03	1.36E+09	1.00E+00	8.75E+04	6.11E+06	9.76E+01	1.51E+03	9.16E+01	1.00E-08	6.52E-09
Protactinium (91)	Pa-230	1.45E+01	4.77E-02	1.36E+09	1.00E+00	2.96E+02	1.43E+04	4.39E-01	3.00E+00	3.82E-01	1.00E-08	3.17E-10
Protactinium (91)	Pa-231	2.12E-05	3.28E+04	1.36E+09	1.00E+00	1.97E-01	6.96E+00	5.02E-02	1.82E-03	1.74E-03	2.10E+02	9.95E-07
Protactinium (91)	Pa-232	1.93E+02	3.59E-03	1.36E+09	1.00E+00	7.45E+03	5.39E+05	4.00E+00	7.01E+01	3.83E+00	1.00E-08	2.41E-10
Protactinium (91)	Pa-233	9.38E+00	7.39E-02	1.36E+09	1.00E+00	1.65E+03	4.48E+06	1.03E+00	1.41E+01	9.56E-01	1.00E-08	1.25E-09
Protactinium (91)	Pa-234	9.06E+02	7.65E-04	1.36E+09	1.00E+00	3.79E+05	4.66E+09	1.22E+01	3.23E+03	1.21E+01	1.00E-08	1.64E-10
Protactinium (91)	Pa-234m	3.11E+05	2.23E-06	1.36E+09	1.00E+00	1.22E+10	3.02E+12	2.58E+06	1.20E+08	2.57E+06	1.00E-08	1.01E-07
Protactinium (91)	Pa-235	1.49E+04	4.66E-05	1.36E+09	1.00E+00	2.83E+12	1.02E+14	6.02E+10	2.64E+10	2.50E+10	4.49E+05	2.07E-02
Protactinium (91)	Pa-236	4.00E+04	1.73E-05	1.36E+09	1.00E+00	5.74E+12	3.17E+14	6.45E+12	6.81E+10	6.70E+10	1.00E-08	2.07E-02

Resident Soil DCCs July 2023												
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)						
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Produce Consumption DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Protactinium (91)	Pa-237	4.19E+04	1.66E-05	1.36E+09	1.00E+00	9.17E+06	4.36E+10	9.74E+03	1.09E+05	8.93E+03	1.00E-08	2.65E-09
Lead (82)	Pb-194	3.04E+04	2.28E-05	1.36E+09	1.00E+00	1.11E+08	1.07E+12	6.81E+02	8.00E+05	6.81E+02	1.00E-08	2.28E-10
Lead (82)	Pb-195m	2.43E+04	2.85E-05	1.36E+09	1.00E+00	1.30E+07	1.68E+10	3.26E+02	1.22E+04	3.18E+02	1.00E-08	1.34E-10
Lead (82)	Pb-196	9.84E+03	7.04E-05	1.36E+09	1.00E+00	2.32E+07	2.81E+11	8.12E+01	3.10E+05	8.11E+01	1.00E-08	8.47E-11
Lead (82)	Pb-197	4.55E+04	1.52E-05	1.36E+09	1.00E+00	2.87E+07	1.96E+10	2.00E+03	9.58E+03	1.66E+03	1.00E-08	3.76E-10
Lead (82)	Pb-197m	8.47E+03	8.18E-05	1.36E+09	1.00E+00	4.62E+06	3.60E+09	8.95E+01	1.76E+03	8.52E+01	1.00E-08	1.04E-10
Lead (82)	Pb-198	2.53E+03	2.74E-04	1.36E+09	1.00E+00	3.14E+06	3.31E+10	1.99E+01	3.00E+04	1.99E+01	1.00E-08	8.18E-11
Lead (82)	Pb-199	4.05E+03	1.71E-04	1.36E+09	1.00E+00	1.12E+07	9.42E+10	6.39E+01	9.67E+04	6.38E+01	1.00E-08	1.65E-10
Lead (82)	Pb-200	2.82E+02	2.45E-03	1.36E+09	1.00E+00	9.07E+04	1.00E+09	3.84E+00	7.02E+02	3.82E+00	1.00E-08	1.42E-10
Lead (82)	Pb-201	6.51E+02	1.07E-03	1.36E+09	1.00E+00	4.67E+05	3.94E+09	1.72E+01	3.88E+03	1.71E+01	1.00E-08	2.77E-10
Lead (82)	Pb-201m	3.58E+05	1.93E-06	1.36E+09	1.00E+00	2.57E+08	2.17E+12	9.43E+03	2.13E+06	9.39E+03	1.00E-08	2.76E-10
Lead (82)	Pb-202	1.32E-05	5.25E+04	1.36E+09	1.00E+00	1.08E+01	4.11E+04	4.85E-02	5.85E-02	2.65E-02	5.12E-01	2.12E-05
Lead (82)	Pb-202m	1.72E+03	4.03E-04	1.36E+09	1.00E+00	1.71E+06	2.24E+10	1.65E+01	1.15E+04	1.65E+01	1.00E-08	1.02E-10
Lead (82)	Pb-203	1.17E+02	5.92E-03	1.36E+09	1.00E+00	8.86E+04	9.96E+08	9.36E+00	4.67E+02	9.18E+00	1.00E-08	8.35E-10
Lead (82)	Pb-204m	5.42E+03	1.28E-04	1.36E+09	1.00E+00	2.10E+07	3.36E+11	5.07E+01	1.11E+05	5.07E+01	1.00E-08	1.00E-10
Lead (82)	Pb-205	4.53E-08	1.53E+07	1.36E+09	1.00E+00	6.60E+02	2.47E+06	1.54E+04	3.48E+00	3.46E+00	1.00E-08	8.22E-01
Lead (82)	Pb-209	1.87E+03	3.71E-04	1.36E+09	9.00E-01	5.80E+06	5.87E+10	3.07E+05	3.06E+04	2.77E+04	1.00E-08	1.63E-07
Lead (82)	Pb-210	3.12E-02	2.22E+01	1.36E+09	1.00E+00	9.00E-02	2.16E+02	1.49E+01	1.04E-03	1.02E-03	9.25E-01	3.61E-10
Lead (82)	Pb-211	1.01E+04	6.87E-05	1.36E+09	1.00E+00	8.95E+06	1.63E+09	1.78E+03	4.72E+04	1.71E+03	1.00E-08	1.88E-09
Lead (82)	Pb-212	5.71E+02	1.21E-03	1.36E+09	1.00E+00	1.24E+04	1.03E+07	7.02E+00	5.67E+01	6.25E+00	1.00E-08	1.22E-10
Lead (82)	Pb-214	1.36E+04	5.10E-05	1.36E+09	1.00E+00	3.92E+04	9.43E+07	2.44E+06	4.51E+02	4.46E+02	9.25E-01	3.68E-10
Palladium (46)	Pd-100	6.97E+01	9.95E-03	1.36E+09	1.00E+00	7.98E+03	1.13E+08	4.50E-01	1.03E+01	4.31E-01	1.00E-08	3.24E-11
Palladium (46)	Pd-101	7.17E+02	9.67E-04	1.36E+09	1.00E+00	4.14E+05	4.14E+09	2.47E+01	7.35E+02	2.39E+01	1.00E-08	1.76E-10
Palladium (46)	Pd-103	1.49E+01	4.66E-02	1.36E+09	1.00E+00	1.29E+04	6.49E+07	8.18E+02	1.20E+01	1.18E+01	1.00E-08	4.28E-09
Palladium (46)	Pd-107	1.07E-07	6.50E+06	1.36E+09	9.00E-01	4.39E+03	3.33E+06	.	4.02E+00	4.02E+00	1.00E-08	2.12E-01
Palladium (46)	Pd-109	4.43E+02	1.56E-03	1.36E+09	1.00E+00	1.34E+05	2.21E+09	2.74E+03	1.23E+02	1.17E+02	1.00E-08	1.51E-09
Palladium (46)	Pd-109m	7.77E+04	8.92E-06	1.36E+09	1.00E+00	2.33E+07	3.85E+11	4.78E+05	2.14E+04	2.04E+04	1.00E-08	1.51E-09
Palladium (46)	Pd-111	1.56E+04	4.45E-05	1.36E+09	1.00E+00	2.11E+06	1.77E+10	1.24E+04	1.48E+03	1.32E+03	1.00E-08	4.93E-10
Palladium (46)	Pd-112	2.89E+02	2.40E-03	1.36E+09	1.00E+00	1.63E+04	4.14E+08	7.55E+00	1.43E+01	4.94E+00	1.00E-08	1.01E-10
Palladium (46)	Pd-114	1.51E+05	4.60E-06	1.36E+09	1.00E+00	.	.	3.52E+16	.	3.52E+16	1.00E-08	1.40E+03
Palladium (46)	Pd-96	1.79E+05	3.87E-06	1.36E+09	1.00E+00	.	.	1.88E+12	.	1.88E+12	1.00E-08	5.29E-02
Palladium (46)	Pd-97	1.17E+05	5.90E-06	1.36E+09	1.00E+00	1.40E+08	1.84E+12	1.19E+04	2.38E+05	1.13E+04	1.00E-08	4.91E-10
Palladium (46)	Pd-98	2.06E+04	3.37E-05	1.36E+09	1.00E+00	3.93E+15	9.15E+19	6.88E+09	3.60E+12	6.86E+09	1.00E-08	1.71E-03

Resident Soil DCCs July 2023												
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)						
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Produce Consumption DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Palladium (46)	Pd-99	1.70E+04	4.07E-05	1.36E+09	1.00E+00	3.71E+07	3.94E+11	5.37E+02	1.11E+05	5.35E+02	1.00E-08	1.63E-10
Promethium (61)	Pm-136	2.04E+05	3.39E-06	1.36E+09	1.00E+00	2.72E+08	5.56E+12	1.66E+03	7.14E+06	1.66E+03	1.00E-08	5.78E-11
Promethium (61)	Pm-137m	1.52E+05	4.57E-06	1.36E+09	1.00E+00	4.17E+08	9.09E+12	8.21E+03	8.08E+06	8.20E+03	1.00E-08	3.88E-10
Promethium (61)	Pm-139	8.78E+04	7.90E-06	1.36E+09	1.00E+00	6.04E+07	1.06E+11	8.99E+03	1.41E+06	8.94E+03	1.00E-08	7.42E-10
Promethium (61)	Pm-140	2.38E+06	2.92E-07	1.36E+09	1.00E+00	2.04E+08	3.92E+12	8.85E+04	6.68E+06	8.73E+04	1.00E-08	2.70E-10
Promethium (61)	Pm-140m	6.12E+04	1.13E-05	1.36E+09	1.00E+00	5.24E+06	1.01E+11	2.28E+03	1.72E+05	2.25E+03	1.00E-08	2.70E-10
Promethium (61)	Pm-141	1.74E+04	3.98E-05	1.36E+09	1.00E+00	3.58E+08	6.00E+12	6.66E+03	1.17E+07	6.66E+03	1.00E-08	2.82E-09
Promethium (61)	Pm-142	5.40E+05	1.28E-06	1.36E+09	1.00E+00	.	.	2.64E+19	.	2.64E+19	1.00E-08	3.64E+05
Promethium (61)	Pm-143	9.55E-01	7.26E-01	1.36E+09	1.00E+00	1.20E+03	1.04E+06	1.04E-01	5.44E+00	1.02E-01	1.00E-08	8.01E-10
Promethium (61)	Pm-144	6.97E-01	9.95E-01	1.36E+09	1.00E+00	2.60E+02	1.60E+05	1.78E-02	1.18E+00	1.76E-02	1.00E-08	1.90E-10
Promethium (61)	Pm-145	3.92E-02	1.77E+01	1.36E+09	1.00E+00	1.60E+03	2.60E+05	4.98E+00	7.25E+00	2.95E+00	1.00E-08	5.72E-07
Promethium (61)	Pm-146	1.25E-01	5.53E+00	1.36E+09	1.00E+00	2.09E+02	4.88E+04	2.88E-02	9.49E-01	2.80E-02	1.00E-08	1.71E-09
Promethium (61)	Pm-147	2.64E-01	2.62E+00	1.36E+09	1.00E+00	7.28E+02	4.70E+05	2.94E+03	3.30E+00	3.28E+00	1.00E-08	9.57E-08
Promethium (61)	Pm-148	4.71E+01	1.47E-02	1.36E+09	1.00E+00	2.97E+03	4.12E+07	1.50E+00	1.35E+01	1.35E+00	1.00E-08	2.22E-10
Promethium (61)	Pm-148m	6.13E+00	1.13E-01	1.36E+09	1.00E+00	5.86E+02	2.11E+06	6.01E-02	2.65E+00	5.88E-02	1.00E-08	7.45E-11
Promethium (61)	Pm-149	1.14E+02	6.06E-03	1.36E+09	1.00E+00	1.94E+04	3.00E+08	1.93E+02	8.78E+01	6.02E+01	1.00E-08	4.11E-09
Promethium (61)	Pm-150	2.27E+03	3.06E-04	1.36E+09	1.00E+00	1.51E+06	3.19E+10	2.86E+01	6.83E+03	2.85E+01	1.00E-08	9.89E-11
Promethium (61)	Pm-151	2.14E+02	3.24E-03	1.36E+09	1.00E+00	4.98E+04	7.44E+08	1.44E+01	2.26E+02	1.35E+01	1.00E-08	5.01E-10
Promethium (61)	Pm-152	8.84E+04	7.84E-06	1.36E+09	1.00E+00	.	.	8.83E+14	.	8.83E+14	1.00E-08	7.96E+01
Promethium (61)	Pm-152m	4.84E+04	1.43E-05	1.36E+09	1.00E+00	.	.	1.05E+13	.	1.05E+13	1.00E-08	1.74E+00
Promethium (61)	Pm-153	6.94E+04	9.99E-06	1.36E+09	1.00E+00	1.59E+07	1.92E+11	5.29E+04	8.51E+05	4.97E+04	1.00E-08	5.75E-09
Promethium (61)	Pm-154	2.11E+05	3.29E-06	1.36E+09	1.00E+00	.	.	4.13E+16	.	4.13E+16	1.00E-08	1.58E+03
Promethium (61)	Pm-154m	1.36E+05	5.10E-06	1.36E+09	1.00E+00	.	.	2.30E+15	.	2.30E+15	1.00E-08	1.37E+02
Polonium (84)	Po-203	9.92E+03	6.98E-05	1.36E+09	1.00E+00	2.33E+06	3.33E+10	4.37E+01	3.11E+03	4.31E+01	1.00E-08	4.63E-11
Polonium (84)	Po-204	1.72E+03	4.03E-04	1.36E+09	1.00E+00	3.87E+05	4.46E+09	7.89E+00	5.05E+02	7.77E+00	1.00E-08	4.83E-11
Polonium (84)	Po-205	3.66E+03	1.89E-04	1.36E+09	1.00E+00	6.98E+05	6.25E+09	2.10E+01	6.76E+02	2.04E+01	1.00E-08	5.99E-11
Polonium (84)	Po-206	2.87E+01	2.41E-02	1.36E+09	1.00E+00	2.55E+02	8.65E+05	1.30E-01	2.14E+00	1.23E-01	1.00E-08	4.62E-11
Polonium (84)	Po-207	1.05E+03	6.62E-04	1.36E+09	1.00E+00	1.42E+06	2.39E+09	1.55E+01	5.96E+03	1.55E+01	1.00E-08	1.61E-10
Polonium (84)	Po-208	2.39E-01	2.90E+00	1.36E+09	1.00E+00	1.19E-01	3.32E+02	1.12E+03	4.93E-03	4.74E-03	1.00E-08	2.16E-10
Polonium (84)	Po-209	6.79E-03	1.02E+02	1.36E+09	1.00E+00	1.07E-01	2.16E+02	3.36E+00	4.42E-03	4.24E-03	1.00E-08	6.84E-09
Polonium (84)	Po-210	1.83E+00	3.79E-01	1.36E+09	1.00E+00	2.89E-01	1.02E+03	4.30E+03	1.20E-02	1.15E-02	1.00E-08	6.92E-11
Polonium (84)	Po-211	4.24E+07	1.64E-08	1.36E+09	1.00E+00	.	.	1.58E+33	.	1.58E+33	6.31E-06	4.12E+17
Polonium (84)	Po-212	7.31E+13	9.48E-15	.	.	.	.	.	.	.	.	.



Resident Soil DCCs July 2023												
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)						
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Produce Consumption DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Polonium (84)	Po-212m	4.85E+05	1.43E-06	1.36E+09	1.00E+00	.	.	2.76E+20	.	2.76E+20	1.00E-08	6.33E+06
Polonium (84)	Po-213	5.20E+12	1.33E-13	1.36E+09	1.00E+00	2.25E+16	2.28E+20	1.19E+15	1.19E+14	1.07E+14	1.00E-08	2.31E-07
Polonium (84)	Po-214	1.33E+11	5.21E-12	1.36E+09	1.00E+00	3.84E+11	9.23E+14	6.35E+13	4.41E+09	4.36E+09	9.25E-01	3.68E-10
Polonium (84)	Po-215	1.23E+10	5.65E-11	1.36E+09	1.00E+00	2.64E+16	4.81E+18	5.08E+12	1.39E+14	4.90E+12	1.00E-08	4.50E-06
Polonium (84)	Po-216	1.51E+08	4.60E-09	1.36E+09	1.00E+00	3.24E+09	2.65E+12	1.67E+06	1.46E+07	1.50E+06	1.00E-08	1.13E-10
Polonium (84)	Po-218	1.17E+05	5.90E-06	1.36E+09	9.00E-01	3.39E+05	8.15E+08	1.95E+07	3.90E+03	3.86E+03	9.25E-01	3.75E-10
Praseodymium (59)	Pr-134	3.31E+04	2.09E-05	1.36E+09	1.00E+00	2.11E+06	4.24E+10	9.19E+02	5.23E+04	9.03E+02	1.00E-08	1.92E-10
Praseodymium (59)	Pr-134m	2.14E+04	3.23E-05	1.36E+09	1.00E+00	1.37E+06	2.75E+10	5.97E+02	3.39E+04	5.86E+02	1.00E-08	1.92E-10
Praseodymium (59)	Pr-135	1.52E+04	4.57E-05	1.36E+09	1.00E+00	9.37E+06	1.79E+11	3.81E+02	2.29E+05	3.80E+02	1.00E-08	1.77E-10
Praseodymium (59)	Pr-136	2.78E+04	2.49E-05	1.36E+09	1.00E+00	5.65E+16	1.42E+21	9.68E+10	9.43E+14	9.68E+10	1.00E-08	2.48E-02
Praseodymium (59)	Pr-137	4.74E+03	1.46E-04	1.36E+09	1.00E+00	1.31E+07	2.84E+11	2.57E+02	2.53E+05	2.57E+02	1.00E-08	3.89E-10
Praseodymium (59)	Pr-138	2.51E+05	2.76E-06	1.36E+09	1.00E+00	.	.	4.06E+18	.	4.06E+18	1.00E-08	1.17E+05
Praseodymium (59)	Pr-138m	2.86E+03	2.42E-04	1.36E+09	1.00E+00	3.99E+06	6.92E+10	2.25E+01	6.65E+04	2.25E+01	1.00E-08	5.68E-11
Praseodymium (59)	Pr-139	1.38E+03	5.03E-04	1.36E+09	1.00E+00	9.47E+05	1.66E+09	1.41E+02	2.21E+04	1.40E+02	1.00E-08	7.42E-10
Praseodymium (59)	Pr-140	1.07E+05	6.45E-06	1.36E+09	1.00E+00	.	.	2.01E+15	.	2.01E+15	1.00E-08	1.37E+02
Praseodymium (59)	Pr-142	3.18E+02	2.18E-03	1.36E+09	1.00E+00	4.05E+04	1.04E+09	8.80E+01	6.77E+02	7.77E+01	1.00E-08	1.82E-09
Praseodymium (59)	Pr-142m	2.49E+04	2.78E-05	1.36E+09	1.00E+00	3.18E+06	8.21E+10	6.92E+03	5.32E+04	6.11E+03	1.00E-08	1.82E-09
Praseodymium (59)	Pr-143	1.86E+01	3.72E-02	1.36E+09	1.00E+00	2.67E+03	1.50E+07	7.08E+02	4.46E+01	4.13E+01	1.00E-08	1.66E-08
Praseodymium (59)	Pr-144	2.11E+04	3.29E-05	1.36E+09	1.00E+00	5.36E+15	1.55E+20	7.11E+11	8.95E+13	7.05E+11	1.00E-08	2.53E-01
Praseodymium (59)	Pr-144m	5.06E+04	1.37E-05	1.36E+09	1.00E+00	7.52E+15	2.19E+20	9.96E+11	1.25E+14	9.88E+11	1.00E-08	1.48E-01
Praseodymium (59)	Pr-145	1.01E+03	6.83E-04	1.36E+09	1.00E+00	4.33E+05	1.11E+10	8.91E+02	7.23E+03	7.92E+02	1.00E-08	5.93E-09
Praseodymium (59)	Pr-146	1.51E+04	4.59E-05	1.36E+09	1.00E+00	1.46E+13	4.01E+17	1.17E+08	2.44E+11	1.17E+08	1.00E-08	5.95E-05
Praseodymium (59)	Pr-147	2.72E+04	2.55E-05	1.36E+09	1.00E+00	4.04E+06	1.55E+10	4.89E+03	1.00E+05	4.66E+03	1.00E-08	1.32E-09
Praseodymium (59)	Pr-148	1.59E+05	4.36E-06	1.36E+09	1.00E+00	.	.	9.53E+16	.	9.53E+16	1.00E-08	4.65E+03
Praseodymium (59)	Pr-148m	1.81E+05	3.82E-06	1.36E+09	1.00E+00	.	.	2.59E+16	.	2.59E+16	1.00E-08	1.11E+03
Platinum (78)	Pt-184	2.11E+04	3.29E-05	1.36E+09	1.00E+00	2.00E+07	3.10E+11	2.10E+02	6.01E+04	2.09E+02	1.00E-08	9.60E-11
Platinum (78)	Pt-186	2.92E+03	2.37E-04	1.36E+09	1.00E+00	1.36E+06	2.17E+10	2.47E+01	2.49E+03	2.44E+01	1.00E-08	8.16E-11
Platinum (78)	Pt-187	2.58E+03	2.68E-04	1.36E+09	1.00E+00	2.27E+06	3.26E+10	6.15E+01	3.47E+03	6.04E+01	1.00E-08	2.29E-10
Platinum (78)	Pt-188	2.48E+01	2.79E-02	1.36E+09	1.00E+00	2.79E+03	1.91E+07	2.01E-01	3.79E+00	1.91E-01	1.00E-08	7.58E-11
Platinum (78)	Pt-189	5.58E+02	1.24E-03	1.36E+09	1.00E+00	2.21E+05	1.47E+09	2.43E+01	3.31E+02	2.26E+01	1.00E-08	4.01E-10
Platinum (78)	Pt-190	1.07E-12	6.50E+11	1.36E+09	9.00E-01	2.48E+01	3.93E+02	.	2.27E-02	2.27E-02	1.00E-08	2.12E+02
Platinum (78)	Pt-191	9.03E+01	7.68E-03	1.36E+09	1.00E+00	4.30E+04	4.71E+08	8.17E+00	3.94E+01	6.76E+00	1.00E-08	7.50E-10
Platinum (78)	Pt-193	1.39E-02	5.00E+01	1.36E+09	1.00E+00	4.74E+03	3.04E+06	2.56E+04	4.35E+00	4.34E+00	1.00E-08	3.17E-06

Resident Soil DCCs July 2023												
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)						
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Produce Consumption DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Platinum (78)	Pt-193m	5.84E+01	1.19E-02	1.36E+09	1.00E+00	2.15E+04	1.18E+08	2.98E+02	1.97E+01	1.85E+01	1.00E-08	3.20E-09
Platinum (78)	Pt-195m	6.29E+01	1.10E-02	1.36E+09	1.00E+00	1.66E+04	1.07E+08	4.21E+01	1.52E+01	1.11E+01	1.00E-08	1.81E-09
Platinum (78)	Pt-197	3.05E+02	2.27E-03	1.36E+09	1.00E+00	1.19E+05	1.55E+09	4.58E+02	1.09E+02	8.81E+01	1.00E-08	2.98E-09
Platinum (78)	Pt-197m	3.82E+03	1.82E-04	1.36E+09	1.00E+00	1.28E+06	1.65E+10	1.13E+03	1.18E+03	5.76E+02	1.00E-08	1.56E-09
Platinum (78)	Pt-199	1.18E+04	5.86E-05	1.36E+09	1.00E+00	4.52E+06	2.89E+10	3.44E+03	1.23E+05	3.34E+03	1.00E-08	2.95E-09
Platinum (78)	Pt-200	4.86E+02	1.43E-03	1.36E+09	1.00E+00	6.63E+04	1.41E+09	2.93E+01	6.41E+01	2.01E+01	1.00E-08	4.34E-10
Platinum (78)	Pt-202	1.38E+02	5.02E-03	1.36E+09	9.00E-01	5.28E+03	1.16E+08	1.43E+01	4.84E+00	3.61E+00	1.00E-08	2.77E-10
Plutonium (94)	Pu-232	1.08E+04	6.41E-05	1.36E+09	1.00E+00	5.42E+05	3.92E+07	1.89E+04	5.09E+03	3.99E+03	8.32E+00	4.49E-09
Plutonium (94)	Pu-234	6.90E+02	1.00E-03	1.36E+09	1.00E+00	1.87E+04	1.38E+06	1.18E+01	1.95E+02	1.12E+01	1.00E-08	1.99E-10
Plutonium (94)	Pu-235	1.44E+04	4.81E-05	1.36E+09	1.00E+00	8.90E+07	1.06E+11	1.79E+06	7.93E+05	5.46E+05	1.00E-08	4.67E-07
Plutonium (94)	Pu-236	2.42E-01	2.86E+00	1.36E+09	1.00E+00	2.33E+00	2.12E+02	3.43E-01	9.18E-02	7.20E-02	1.54E+01	3.67E-09
Plutonium (94)	Pu-237	5.60E+00	1.24E-01	1.36E+09	1.00E+00	8.64E+03	2.81E+07	4.24E+00	8.47E+02	4.22E+00	1.00E-08	9.37E-09
Plutonium (94)	Pu-238	7.90E-03	8.77E+01	1.36E+09	1.00E+00	8.87E-01	2.00E+01	5.04E+01	8.71E-02	7.90E-02	1.00E-08	1.25E-07
Plutonium (94)	Pu-239	2.87E-05	2.41E+04	1.36E+09	1.00E+00	8.07E-01	1.81E+01	4.03E+02	7.92E-02	7.18E-02	1.00E-08	3.13E-05
Plutonium (94)	Pu-240	1.06E-04	6.56E+03	1.36E+09	1.00E+00	8.07E-01	1.81E+01	9.85E+02	7.92E-02	7.18E-02	1.00E-08	8.56E-06
Plutonium (94)	Pu-241	4.83E-02	1.44E+01	1.36E+09	1.00E+00	3.19E+01	7.28E+02	1.01E+02	2.86E+00	2.55E+00	5.43E+01	6.67E-07
Plutonium (94)	Pu-242	1.85E-06	3.75E+05	1.36E+09	1.00E+00	8.48E-01	1.91E+01	1.25E+02	8.33E-02	7.55E-02	1.00E-08	5.18E-04
Plutonium (94)	Pu-243	1.22E+03	5.66E-04	1.36E+09	1.00E+00	2.04E+06	2.90E+08	1.90E+03	1.96E+05	1.88E+03	1.00E-08	1.96E-08
Plutonium (94)	Pu-244	8.66E-09	8.00E+07	1.36E+09	1.00E+00	4.13E-01	9.39E+00	5.63E-02	3.29E-02	2.13E-02	1.63E+07	3.15E-02
Plutonium (94)	Pu-245	5.78E+02	1.20E-03	1.36E+09	1.00E+00	1.29E+05	9.02E+07	2.80E+01	1.25E+04	2.79E+01	1.00E-08	6.21E-10
Plutonium (94)	Pu-246	2.33E+01	2.97E-02	1.36E+09	1.00E+00	1.40E+03	2.68E+06	4.12E-01	1.36E+02	4.10E-01	1.00E-08	2.27E-10
Radium (88)	Ra-219	2.19E+09	3.17E-10	1.36E+09	1.00E+00	.	.	7.99E+34	.	7.99E+34	7.94E-06	4.20E+17
Radium (88)	Ra-220	1.22E+09	5.68E-10	1.36E+09	1.00E+00	.	.	7.92E+39	.	7.92E+39	7.94E-06	7.49E+22
Radium (88)	Ra-221	7.81E+05	8.88E-07	1.36E+09	1.00E+00	2.42E+09	2.45E+13	1.28E+08	1.28E+07	1.16E+07	1.00E-08	1.72E-07
Radium (88)	Ra-222	5.75E+05	1.20E-06	1.36E+09	1.00E+00	1.66E+06	3.99E+09	2.75E+08	1.91E+04	1.89E+04	9.25E-01	3.82E-10
Radium (88)	Ra-223	2.21E+01	3.13E-02	1.36E+09	1.00E+00	2.37E+01	5.16E+03	1.63E+00	9.33E-02	8.80E-02	1.00E-08	4.65E-11
Radium (88)	Ra-224	6.91E+01	1.00E-02	1.36E+09	1.00E+00	1.18E+02	4.03E+04	8.46E-01	4.68E-01	3.01E-01	1.00E-08	5.11E-11
Radium (88)	Ra-225	1.70E+01	4.08E-02	1.36E+09	1.00E+00	1.36E+01	2.11E+03	1.64E+00	6.39E-02	6.12E-02	1.00E-08	4.26E-11
Radium (88)	Ra-226	4.33E-04	1.60E+03	1.36E+09	1.00E+00	7.65E-02	1.10E+02	1.07E-02	6.99E-04	6.52E-04	1.25E+02	1.79E-08
Radium (88)	Ra-227	8.63E+03	8.03E-05	1.36E+09	1.00E+00	1.03E+05	7.66E+06	1.50E+04	1.02E+03	9.50E+02	3.12E-01	1.31E-09
Radium (88)	Ra-228	1.21E-01	5.75E+00	1.36E+09	1.00E+00	1.50E-01	5.82E+01	1.32E-02	5.99E-04	5.78E-04	1.00E-08	5.73E-11
Radium (88)	Ra-230	3.92E+03	1.77E-04	1.36E+09	1.00E+00	3.74E+06	7.96E+09	1.17E+02	1.49E+04	1.16E+02	1.00E-08	3.58E-10
Rubidium (37)	Rb-77	9.66E+04	7.17E-06	1.36E+09	1.00E+00	1.87E+08	1.98E+12	1.50E+03	8.30E+05	1.50E+03	1.00E-08	6.26E-11

Resident Soil DCCs July 2023												
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)						
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Produce Consumption DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Rubidium (37)	Rb-78	2.06E+04	3.36E-05	1.36E+09	1.00E+00	3.53E+15	8.73E+19	6.06E+09	1.68E+12	6.04E+09	1.00E-08	1.20E-03
Rubidium (37)	Rb-78m	6.35E+04	1.09E-05	1.36E+09	1.00E+00	7.34E+16	1.81E+21	1.26E+11	3.49E+13	1.25E+11	1.00E-08	8.07E-03
Rubidium (37)	Rb-79	1.59E+04	4.36E-05	1.36E+09	1.00E+00	5.78E+13	1.05E+18	1.31E+03	2.75E+10	1.31E+03	1.00E-08	3.43E-10
Rubidium (37)	Rb-80	6.54E+05	1.06E-06	1.36E+09	1.00E+00	.	.	1.04E+20	.	1.04E+20	1.00E-08	6.66E+05
Rubidium (37)	Rb-81	1.33E+03	5.22E-04	1.36E+09	1.00E+00	4.88E+06	3.49E+10	4.44E+01	2.33E+03	4.36E+01	1.00E-08	1.40E-10
Rubidium (37)	Rb-81m	1.19E+04	5.80E-05	1.36E+09	1.00E+00	4.51E+07	3.22E+11	4.10E+02	2.15E+04	4.02E+02	1.00E-08	1.43E-10
Rubidium (37)	Rb-82	2.86E+05	2.42E-06	1.36E+09	1.00E+00	.	.	3.64E+17	.	3.64E+17	1.00E-08	5.47E+03
Rubidium (37)	Rb-82m	9.38E+02	7.39E-04	1.36E+09	1.00E+00	1.34E+06	1.16E+10	6.13E+00	6.37E+02	6.07E+00	1.00E-08	2.78E-11
Rubidium (37)	Rb-83	2.93E+00	2.36E-01	1.36E+09	1.00E+00	3.36E+02	4.36E+06	1.29E-01	1.60E-01	7.15E-02	1.00E-08	1.06E-10
Rubidium (37)	Rb-84	7.72E+00	8.98E-02	1.36E+09	1.00E+00	5.10E+02	5.23E+06	1.66E-01	2.43E-01	9.84E-02	1.00E-08	5.62E-11
Rubidium (37)	Rb-84m	1.80E+04	3.85E-05	1.36E+09	1.00E+00	1.19E+06	1.22E+10	3.85E+02	5.65E+02	2.29E+02	1.00E-08	5.61E-11
Rubidium (37)	Rb-86	1.36E+01	5.11E-02	1.36E+09	1.00E+00	8.27E+02	5.65E+06	2.60E+00	3.94E-01	3.42E-01	1.00E-08	1.14E-10
Rubidium (37)	Rb-86m	3.58E+05	1.93E-06	1.36E+09	1.00E+00	2.18E+07	1.49E+11	6.87E+04	1.04E+04	9.03E+03	1.00E-08	1.14E-10
Rubidium (37)	Rb-87	1.41E-11	4.92E+10	1.36E+09	9.00E-01	1.13E+02	1.31E+05	9.17E+02	5.40E-02	5.39E-02	1.00E-08	1.75E+01
Rubidium (37)	Rb-88	2.05E+04	3.38E-05	1.36E+09	1.00E+00	2.59E+15	8.98E+19	3.55E+10	1.24E+12	3.45E+10	1.00E-08	7.76E-03
Rubidium (37)	Rb-89	2.40E+04	2.88E-05	1.36E+09	1.00E+00	1.56E+06	6.01E+09	1.77E+05	4.29E+02	4.28E+02	1.00E-08	8.31E-11
Rubidium (37)	Rb-90	1.38E+05	5.01E-06	1.36E+09	1.00E+00	3.40E+07	7.70E+10	1.59E+07	1.03E+04	1.03E+04	1.00E-08	3.52E-10
Rubidium (37)	Rb-90m	8.47E+04	8.18E-06	1.36E+09	1.00E+00	2.09E+07	4.71E+10	9.74E+06	6.32E+03	6.31E+03	1.00E-08	3.52E-10
Rhenium (75)	Re-178	2.76E+04	2.51E-05	1.36E+09	1.00E+00	1.95E+07	6.52E+10	5.98E+03	2.25E+03	1.64E+03	1.00E-08	5.54E-10
Rhenium (75)	Re-179	1.87E+04	3.71E-05	1.36E+09	1.00E+00	1.45E+08	2.35E+11	2.28E+04	1.04E+05	1.87E+04	1.00E-08	9.39E-09
Rhenium (75)	Re-180	1.49E+05	4.64E-06	1.36E+09	1.00E+00	.	.	8.36E+15	.	8.36E+15	1.00E-08	5.29E+02
Rhenium (75)	Re-181	3.05E+02	2.27E-03	1.36E+09	1.00E+00	1.06E+05	1.12E+09	8.05E+00	3.39E+01	6.50E+00	1.00E-08	2.02E-10
Rhenium (75)	Re-182	9.49E+01	7.31E-03	1.36E+09	1.00E+00	1.18E+04	1.41E+08	1.08E+00	5.42E+00	9.00E-01	1.00E-08	9.05E-11
Rhenium (75)	Re-182m	4.78E+02	1.45E-03	1.36E+09	1.00E+00	2.95E+05	4.10E+09	7.66E+00	1.36E+02	7.25E+00	1.00E-08	1.45E-10
Rhenium (75)	Re-183	3.61E+00	1.92E-01	1.36E+09	1.00E+00	6.59E+02	2.07E+06	9.03E-01	3.03E-01	2.27E-01	1.00E-08	6.02E-10
Rhenium (75)	Re-184	6.66E+00	1.04E-01	1.36E+09	1.00E+00	1.20E+03	5.69E+06	1.51E-01	5.52E-01	1.19E-01	1.00E-08	1.72E-10
Rhenium (75)	Re-184m	1.50E+00	4.63E-01	1.36E+09	1.00E+00	1.56E+02	3.26E+05	4.08E-02	7.17E-02	2.60E-02	1.00E-08	1.68E-10
Rhenium (75)	Re-186	6.80E+01	1.02E-02	1.36E+09	1.00E+00	7.94E+03	1.14E+08	1.06E+02	3.65E+00	3.53E+00	1.00E-08	5.06E-10
Rhenium (75)	Re-186m	3.47E-06	2.00E+05	1.36E+09	1.00E+00	4.62E+01	3.34E+04	1.16E+00	2.12E-02	2.09E-02	1.69E-01	5.87E-05
Rhenium (75)	Re-187	1.68E-11	4.12E+10	1.36E+09	9.00E-01	3.52E+04	5.15E+07	.	1.62E+01	1.62E+01	1.00E-08	9.45E+03
Rhenium (75)	Re-188	3.57E+02	1.94E-03	1.36E+09	1.00E+00	4.32E+04	1.17E+09	1.21E+02	1.99E+01	1.71E+01	1.00E-08	4.71E-10
Rhenium (75)	Re-188m	1.96E+04	3.54E-05	1.36E+09	1.00E+00	2.37E+06	6.44E+10	6.64E+03	1.09E+03	9.36E+02	1.00E-08	4.71E-10
Rhenium (75)	Re-189	2.50E+02	2.77E-03	1.36E+09	1.00E+00	5.57E+04	1.08E+09	1.07E+02	2.57E+01	2.07E+01	1.00E-08	8.21E-10

Resident Soil DCCs July 2023												
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)						
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Produce Consumption DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Rhenium (75)	Re-190	1.17E+05	5.90E-06	1.36E+09	1.00E+00	.	.	1.56E+15	.	1.56E+15	1.00E-08	1.32E+02
Rhenium (75)	Re-190m	1.90E+03	3.65E-04	1.36E+09	1.00E+00	8.75E+05	1.71E+10	2.55E+01	4.02E+02	2.39E+01	1.00E-08	1.26E-10
Rhodium (45)	Rh-100	2.92E+02	2.37E-03	1.36E+09	1.00E+00	8.00E+04	1.54E+09	1.91E+00	2.40E+02	1.90E+00	1.00E-08	3.41E-11
Rhodium (45)	Rh-100m	7.92E+04	8.75E-06	1.36E+09	1.00E+00	2.20E+07	4.25E+11	5.27E+02	6.59E+04	5.22E+02	1.00E-08	3.46E-11
Rhodium (45)	Rh-101	2.10E-01	3.30E+00	1.36E+09	1.00E+00	3.73E+02	4.38E+05	1.02E-01	1.12E+00	9.34E-02	1.00E-08	2.36E-09
Rhodium (45)	Rh-101m	5.83E+01	1.19E-02	1.36E+09	1.00E+00	4.83E+04	4.20E+08	4.56E+00	1.45E+02	4.42E+00	1.00E-08	4.02E-10
Rhodium (45)	Rh-102	1.22E+00	5.67E-01	1.36E+09	1.00E+00	2.53E+02	4.75E+05	6.98E-02	7.59E-01	6.39E-02	1.00E-08	2.80E-10
Rhodium (45)	Rh-102m	1.85E-01	3.74E+00	1.36E+09	1.00E+00	7.66E+01	1.13E+05	9.95E-03	2.30E-01	9.54E-03	1.00E-08	2.75E-10
Rhodium (45)	Rh-103m	6.49E+03	1.07E-04	1.36E+09	1.00E+00	2.95E+08	4.60E+12	4.57E+06	8.85E+05	7.39E+05	1.00E-08	6.15E-07
Rhodium (45)	Rh-104	5.17E+05	1.34E-06	1.36E+09	1.00E+00	.	.	1.67E+21	.	1.67E+21	1.00E-08	1.76E+07
Rhodium (45)	Rh-104m	8.39E+04	8.26E-06	1.36E+09	1.00E+00	.	.	8.28E+15	.	8.28E+15	1.00E-08	5.38E+02
Rhodium (45)	Rh-105	1.72E+02	4.04E-03	1.36E+09	1.00E+00	7.95E+04	9.37E+08	4.83E+01	2.38E+02	4.01E+01	1.00E-08	1.29E-09
Rhodium (45)	Rh-106	7.33E+05	9.45E-07	1.36E+09	1.00E+00	.	.	6.87E+20	.	6.87E+20	1.00E-08	5.20E+06
Rhodium (45)	Rh-106m	2.78E+03	2.49E-04	1.36E+09	1.00E+00	2.96E+06	4.62E+10	1.86E+01	8.88E+03	1.85E+01	1.00E-08	3.70E-11
Rhodium (45)	Rh-107	1.68E+04	4.13E-05	1.36E+09	1.00E+00	2.22E+14	4.75E+17	3.08E+09	3.84E+11	3.06E+09	1.00E-08	1.02E-03
Rhodium (45)	Rh-108	1.30E+06	5.33E-07	1.36E+09	1.00E+00	.	.	2.84E+22	.	2.84E+22	1.00E-08	1.24E+08
Rhodium (45)	Rh-109	2.73E+05	2.54E-06	1.36E+09	1.00E+00	8.24E+07	1.36E+12	1.69E+06	7.55E+04	7.22E+04	1.00E-08	1.51E-09
Rhodium (45)	Rh-94	3.10E+05	2.24E-06	1.36E+09	1.00E+00	2.76E+08	5.42E+12	2.41E+03	2.05E+03	1.11E+03	1.00E-08	1.76E-11
Rhodium (45)	Rh-95	7.26E+04	9.55E-06	1.36E+09	1.00E+00	5.33E+07	7.32E+11	6.93E+02	2.73E+02	1.96E+02	1.00E-08	1.35E-11
Rhodium (45)	Rh-95m	1.86E+05	3.73E-06	1.36E+09	1.00E+00	1.36E+08	1.87E+12	1.78E+03	7.00E+02	5.02E+02	1.00E-08	1.35E-11
Rhodium (45)	Rh-96	3.68E+04	1.88E-05	1.36E+09	1.00E+00	.	.	3.45E+11	.	3.45E+11	1.00E-08	4.72E-02
Rhodium (45)	Rh-96m	2.41E+05	2.87E-06	1.36E+09	1.00E+00	.	.	3.19E+12	.	3.19E+12	1.00E-08	6.66E-02
Rhodium (45)	Rh-97	1.19E+04	5.84E-05	1.36E+09	1.00E+00	1.42E+07	1.86E+11	1.20E+03	2.41E+04	1.14E+03	1.00E-08	4.91E-10
Rhodium (45)	Rh-97m	7.88E+03	8.79E-05	1.36E+09	1.00E+00	7.11E+06	9.92E+10	5.77E+01	1.35E+04	5.75E+01	1.00E-08	3.71E-11
Rhodium (45)	Rh-98	4.19E+04	1.66E-05	1.36E+09	1.00E+00	.	.	2.15E+12	.	2.15E+12	1.00E-08	2.64E-01
Rhodium (45)	Rh-99	1.57E+01	4.41E-02	1.36E+09	1.00E+00	4.94E+03	2.45E+07	6.00E-01	1.48E+01	5.77E-01	1.00E-08	1.91E-10
Rhodium (45)	Rh-99m	1.29E+03	5.37E-04	1.36E+09	1.00E+00	3.55E+06	5.77E+10	4.05E+01	1.06E+04	4.04E+01	1.00E-08	1.62E-10
Radon (86)	Rn-207	3.94E+04	1.76E-05	1.36E+09	1.00E+00	1.47E+07	3.13E+10	2.29E+02	1.21E+04	2.25E+02	1.00E-08	6.21E-11
Radon (86)	Rn-209	1.28E+04	5.42E-05	1.36E+09	1.00E+00	2.39E+05	4.86E+08	9.99E+01	2.05E+03	9.52E+01	1.00E-08	8.16E-11
Radon (86)	Rn-210	2.53E+03	2.74E-04	1.36E+09	1.00E+00	7.01E+03	2.44E+07	1.15E+01	1.30E+02	1.05E+01	1.00E-08	4.58E-11
Radon (86)	Rn-211	4.16E+02	1.67E-03	1.36E+09	1.00E+00	8.94E+03	9.62E+06	3.54E+00	4.13E+00	1.91E+00	1.00E-08	5.07E-11
Radon (86)	Rn-212	1.52E+04	4.55E-05	1.36E+09	1.00E+00	7.60E+03	2.12E+07	7.12E+07	3.14E+02	3.02E+02	1.00E-08	2.20E-10
Radon (86)	Rn-215	9.50E+12	7.29E-14	.	.	.	.	.	.	.	.	.



Resident Soil DCCs July 2023												
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)						
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Produce Consumption DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Radon (86)	Rn-216	4.86E+11	1.43E-12									
Radon (86)	Rn-217	4.05E+10	1.71E-11									
Radon (86)	Rn-218	6.24E+08	1.11E-09	1.36E+09	1.00E+00	1.80E+09	4.33E+12	2.98E+11	2.07E+07	2.05E+07	9.25E-01	3.75E-10
Radon (86)	Rn-219	5.52E+06	1.26E-07	1.36E+09	1.00E+00	1.19E+13	2.16E+15	2.28E+09	6.26E+10	2.20E+09	1.00E-08	4.58E-06
Radon (86)	Rn-220	3.93E+05	1.76E-06	1.36E+09	1.00E+00	8.56E+06	7.09E+09	4.84E+03	3.90E+04	4.30E+03	1.00E-08	1.26E-10
Radon (86)	Rn-222	6.62E+01	1.05E-02	1.36E+09	1.00E+00	1.91E+02	4.59E+05	7.08E-01	2.20E+00	5.39E-01	6.97E-06	9.48E-11
Radon (86)	Rn-223	1.50E+04	4.62E-05	1.36E+09	1.00E+00	1.60E+04	3.49E+06	1.10E+03	6.31E+01	5.94E+01	1.00E-08	4.64E-11
Ruthenium (44)	Ru-103	6.44E+00	1.08E-01	1.36E+09	1.00E+00	1.58E+03	4.49E+06	2.65E-01	8.54E+00	2.57E-01	1.00E-08	2.16E-10
Ruthenium (44)	Ru-105	1.37E+03	5.07E-04	1.36E+09	1.00E+00	3.62E+05	4.73E+09	3.32E+01	1.34E+03	3.24E+01	1.00E-08	1.31E-10
Ruthenium (44)	Ru-106	6.77E-01	1.02E+00	1.36E+09	9.00E-01	3.33E+01	4.18E+04	1.22E-01	1.81E-01	7.28E-02	1.00E-08	5.98E-10
Ruthenium (44)	Ru-107	9.71E+04	7.13E-06	1.36E+09	1.00E+00	1.12E+15	2.70E+18	1.47E+10	2.06E+12	1.46E+10	1.00E-08	8.46E-04
Ruthenium (44)	Ru-108	8.01E+04	8.66E-06	1.36E+09	1.00E+00			2.31E+15		2.31E+15	1.00E-08	1.63E+02
Ruthenium (44)	Ru-92	9.98E+04	6.94E-06	1.36E+09	1.00E+00			1.03E+13		1.03E+13	1.00E-08	4.96E-01
Ruthenium (44)	Ru-94	7.03E+03	9.86E-05	1.36E+09	1.00E+00	6.26E+06	1.23E+11	5.48E+01	4.65E+01	2.51E+01	1.00E-08	1.76E-11
Ruthenium (44)	Ru-95	3.69E+03	1.88E-04	1.36E+09	1.00E+00	2.71E+06	3.73E+10	3.53E+01	1.39E+01	9.98E+00	1.00E-08	1.35E-11
Ruthenium (44)	Ru-97	8.72E+01	7.95E-03	1.36E+09	1.00E+00	1.04E+05	1.37E+09	8.84E+00	1.77E+02	8.42E+00	1.00E-08	4.91E-10
Sulfur (16)	S-35	2.89E+00	2.40E-01	1.36E+09	9.00E-01	4.09E+03	3.29E+06	3.10E+04	6.28E-01	6.28E-01	1.00E-08	3.99E-10
Sulphur (16)	S-37	7.21E+04	9.61E-06	1.36E+09	1.00E+00			2.28E+13		2.28E+13	1.00E-08	6.14E-01
Sulfur (16)	S-38	2.14E+03	3.24E-04	1.36E+09	1.00E+00	8.42E+05	1.14E+10	1.15E+01	3.06E+01	8.38E+00	1.00E-08	7.80E-12
Antimony (51)	Sb-111	2.91E+05	2.38E-06	1.36E+09	1.00E+00	1.79E+08	2.23E+12	1.79E+04	1.37E+07	1.79E+04	1.00E-08	3.57E-10
Antimony (51)	Sb-113	5.46E+04	1.27E-05	1.36E+09	1.00E+00	1.39E+07	3.08E+10	5.07E+03	4.43E+03	2.36E+03	1.00E-08	2.56E-10
Antimony (51)	Sb-114	1.04E+05	6.64E-06	1.36E+09	1.00E+00			4.47E+14		4.47E+14	1.00E-08	2.56E+01
Antimony (51)	Sb-115	1.13E+04	6.11E-05	1.36E+09	1.00E+00	8.37E+07	1.53E+12	2.61E+02	1.08E+06	2.61E+02	1.00E-08	1.39E-10
Antimony (51)	Sb-116	2.31E+04	3.01E-05	1.36E+09	1.00E+00	1.94E+16	4.13E+20	2.67E+10	2.50E+14	2.67E+10	1.00E-08	7.06E-03
Antimony (51)	Sb-116m	6.04E+03	1.15E-04	1.36E+09	1.00E+00	1.73E+07	2.35E+11	3.70E+01	2.22E+05	3.70E+01	1.00E-08	3.73E-11
Antimony (51)	Sb-117	2.17E+03	3.20E-04	1.36E+09	1.00E+00	2.13E+07	2.28E+11	3.25E+02	2.74E+05	3.24E+02	1.00E-08	9.18E-10
Antimony (51)	Sb-118	1.01E+05	6.85E-06	1.36E+09	1.00E+00			3.75E+15		3.75E+15	1.00E-08	2.30E+02
Antimony (51)	Sb-118m	1.21E+03	5.71E-04	1.36E+09	1.00E+00	1.06E+06	1.78E+10	8.84E+00	1.37E+04	8.83E+00	1.00E-08	4.50E-11
Antimony (51)	Sb-119	1.59E+02	4.36E-03	1.36E+09	1.00E+00	3.30E+05	7.31E+09	3.95E+03	4.25E+03	2.03E+03	1.00E-08	7.99E-08
Antimony (51)	Sb-120	2.29E+04	3.02E-05	1.36E+09	1.00E+00	3.71E+16	7.74E+20	1.40E+11	4.78E+14	1.39E+11	1.00E-08	3.83E-02
Antimony (51)	Sb-120m	4.39E+01	1.58E-02	1.36E+09	1.00E+00	6.54E+03	7.59E+07	3.43E-01	8.43E+01	3.41E-01	1.00E-08	4.89E-11
Antimony (51)	Sb-122	9.29E+01	7.46E-03	1.36E+09	1.00E+00	9.34E+03	1.54E+08	4.13E+00	1.20E+02	3.99E+00	1.00E-08	2.75E-10
Antimony (51)	Sb-122m	8.69E+04	7.97E-06	1.36E+09	1.00E+00	8.73E+06	1.44E+11	3.86E+03	1.13E+05	3.73E+03	1.00E-08	2.75E-10

Resident Soil DCCs July 2023												
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)						
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Produce Consumption DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Antimony (51)	Sb-124	4.20E+00	1.65E-01	1.36E+09	1.00E+00	2.94E+02	9.86E+05	4.20E-02	3.79E+00	4.16E-02	1.00E-08	6.43E-11
Antimony (51)	Sb-124m	2.35E+05	2.95E-06	1.36E+09	1.00E+00	2.19E+07	7.36E+10	3.13E+03	2.83E+05	3.10E+03	1.00E-08	8.58E-11
Antimony (51)	Sb-124n	1.80E+04	3.84E-05	1.36E+09	1.00E+00	1.68E+06	5.64E+09	2.40E+02	2.17E+04	2.38E+02	1.00E-08	8.57E-11
Antimony (51)	Sb-125	2.51E-01	2.76E+00	1.36E+09	1.00E+00	1.55E+02	1.79E+05	5.43E-02	4.36E-01	4.88E-02	1.00E-08	1.27E-09
Antimony (51)	Sb-126	2.05E+01	3.38E-02	1.36E+09	1.00E+00	1.37E+03	1.13E+07	1.46E-01	1.76E+01	1.45E-01	1.00E-08	4.67E-11
Antimony (51)	Sb-126m	1.90E+04	3.64E-05	1.36E+09	1.00E+00	9.06E+06	7.50E+10	9.68E+02	1.17E+05	9.60E+02	1.00E-08	3.33E-10
Antimony (51)	Sb-127	6.57E+01	1.05E-02	1.36E+09	1.00E+00	5.05E+03	3.60E+07	1.87E+00	9.24E+00	1.55E+00	1.00E-08	1.58E-10
Antimony (51)	Sb-128	6.74E+02	1.03E-03	1.36E+09	1.00E+00	1.48E+05	2.81E+09	4.25E+00	1.90E+03	4.24E+00	1.00E-08	4.23E-11
Antimony (51)	Sb-128m	3.50E+04	1.98E-05	1.36E+09	1.00E+00	2.09E+08	3.97E+12	6.03E+03	2.70E+06	6.01E+03	1.00E-08	1.15E-09
Antimony (51)	Sb-129	1.38E+03	5.02E-04	1.36E+09	1.00E+00	1.99E+05	1.31E+09	1.70E+01	1.56E+02	1.53E+01	1.00E-08	7.51E-11
Antimony (51)	Sb-130	9.22E+03	7.52E-05	1.36E+09	1.00E+00	1.76E+07	3.14E+11	5.44E+01	2.26E+05	5.44E+01	1.00E-08	4.02E-11
Antimony (51)	Sb-130m	5.78E+04	1.20E-05	1.36E+09	1.00E+00	.	.	7.69E+12	.	7.69E+12	1.00E-08	9.06E-01
Antimony (51)	Sb-131	1.58E+04	4.38E-05	1.36E+09	1.00E+00	1.16E+05	1.31E+09	3.66E+02	2.13E+02	1.34E+02	1.00E-08	5.84E-11
Antimony (51)	Sb-133	1.46E+05	4.76E-06	1.36E+09	1.00E+00	5.08E+06	5.78E+10	2.99E+03	9.32E+03	2.26E+03	1.00E-08	1.08E-10
Scandium (21)	Sc-42m	3.52E+05	1.97E-06	1.36E+09	1.00E+00	.	.	3.16E+17	.	3.16E+17	1.00E-08	1.97E+03
Scandium (21)	Sc-43	1.56E+03	4.44E-04	1.36E+09	1.00E+00	1.25E+06	2.30E+10	3.22E+01	4.08E+04	3.22E+01	1.00E-08	4.65E-11
Scandium (21)	Sc-44	1.53E+03	4.53E-04	1.36E+09	1.00E+00	7.53E+05	1.50E+10	1.37E+01	2.47E+04	1.37E+01	1.00E-08	2.06E-11
Scandium (21)	Sc-44m	1.04E+02	6.69E-03	1.36E+09	1.00E+00	6.46E+03	1.22E+08	8.42E-01	2.12E+02	8.38E-01	1.00E-08	1.87E-11
Scandium (21)	Sc-46	3.02E+00	2.30E-01	1.36E+09	1.00E+00	3.92E+02	9.34E+05	2.95E-02	1.29E+01	2.94E-02	1.00E-08	2.35E-11
Scandium (21)	Sc-47	7.55E+01	9.18E-03	1.36E+09	1.00E+00	2.35E+04	2.04E+08	1.82E+01	7.71E+02	1.77E+01	1.00E-08	5.78E-10
Scandium (21)	Sc-48	1.39E+02	4.99E-03	1.36E+09	1.00E+00	1.51E+04	2.35E+08	7.60E-01	4.95E+02	7.59E-01	1.00E-08	1.37E-11
Scandium (21)	Sc-49	6.37E+03	1.09E-04	1.36E+09	1.00E+00	1.35E+07	2.99E+11	1.97E+04	4.41E+05	1.88E+04	1.00E-08	7.59E-09
Scandium (21)	Sc-50	2.13E+05	3.25E-06	1.36E+09	1.00E+00	.	.	2.19E+16	.	2.19E+16	1.00E-08	2.70E+02
Selenium (34)	Se-70	8.86E+03	7.82E-05	1.36E+09	1.00E+00	6.84E+06	1.16E+11	3.38E+01	1.37E+03	3.30E+01	1.00E-08	1.37E-11
Selenium (34)	Se-71	7.68E+04	9.02E-06	1.36E+09	1.00E+00	2.96E+07	3.72E+11	2.82E+03	3.07E+04	2.59E+03	1.00E-08	1.25E-10
Selenium (34)	Se-72	3.01E+01	2.30E-02	1.36E+09	1.00E+00	6.57E+02	1.25E+07	3.27E-01	7.66E-02	6.21E-02	1.00E-08	7.78E-12
Selenium (34)	Se-73	8.49E+02	8.16E-04	1.36E+09	1.00E+00	3.21E+05	1.09E+09	1.64E+01	5.97E+01	1.29E+01	1.00E-08	5.80E-11
Selenium (34)	Se-73m	9.15E+03	7.57E-05	1.36E+09	1.00E+00	3.70E+06	1.21E+10	1.81E+02	7.39E+02	1.46E+02	1.00E-08	6.09E-11
Selenium (34)	Se-75	2.11E+00	3.28E-01	1.36E+09	1.00E+00	1.67E+02	3.61E+06	1.48E-01	1.54E-02	1.39E-02	1.00E-08	2.59E-11
Selenium (34)	Se-77m	1.26E+06	5.50E-07	1.36E+09	1.00E+00	.	.	1.09E+24	.	1.09E+24	1.00E-08	3.50E+09
Selenium (34)	Se-79	2.35E-06	2.95E+05	1.36E+09	9.00E-01	4.96E+01	3.24E+05	9.71E+03	4.58E-03	4.58E-03	1.00E-08	8.08E-06
Selenium (34)	Se-79m	9.29E+04	7.46E-06	1.36E+09	1.00E+00	1.96E+12	1.28E+16	3.83E+14	1.81E+08	1.81E+08	1.00E-08	8.08E-06
Selenium (34)	Se-81	1.97E+04	3.51E-05	1.36E+09	1.00E+00	6.55E+15	1.30E+20	1.92E+12	6.05E+11	4.60E+11	1.00E-08	9.90E-02

Resident Soil DCCs July 2023												
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)						
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Produce Consumption DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Selenium (34)	Se-81m	6.36E+03	1.09E-04	1.36E+09	1.00E+00	1.37E+07	1.82E+11	6.73E+03	1.27E+03	1.07E+03	1.00E-08	7.12E-10
Selenium (34)	Se-83	1.63E+04	4.24E-05	1.36E+09	1.00E+00	6.35E+07	5.93E+11	4.42E+04	2.82E+05	3.82E+04	1.00E-08	1.02E-08
Selenium (34)	Se-83m	3.12E+05	2.22E-06	1.36E+09	1.00E+00	1.20E+09	1.12E+13	8.38E+05	5.33E+06	7.24E+05	1.00E-08	1.01E-08
Selenium (34)	Se-84	1.17E+05	5.90E-06	1.36E+09	1.00E+00	2.12E+12	5.11E+16	1.05E+07	9.40E+09	1.04E+07	1.00E-08	3.92E-07
Silicon (14)	Si-31	2.32E+03	2.99E-04	1.36E+09	1.00E+00	2.53E+06	5.46E+10	1.30E+04	1.12E+04	6.01E+03	1.00E-08	4.22E-09
Silicon (14)	Si-32	5.25E-03	1.32E+02	1.36E+09	9.00E-01	5.57E+01	1.83E+04	6.09E+00	6.59E-03	6.58E-03	2.96E-01	2.10E-09
Samarium (62)	Sm-139	1.42E+05	4.89E-06	1.36E+09	1.00E+00	9.75E+07	1.71E+11	1.45E+04	2.27E+06	1.44E+04	1.00E-08	7.42E-10
Samarium (62)	Sm-140	2.46E+04	2.82E-05	1.36E+09	1.00E+00	2.11E+06	4.06E+10	9.16E+02	6.91E+04	9.04E+02	1.00E-08	2.70E-10
Samarium (62)	Sm-141	3.57E+04	1.94E-05	1.36E+09	1.00E+00	7.34E+08	1.23E+13	1.36E+04	2.41E+07	1.36E+04	1.00E-08	2.82E-09
Samarium (62)	Sm-141m	1.61E+04	4.30E-05	1.36E+09	1.00E+00	3.31E+08	5.54E+12	6.16E+03	1.09E+07	6.15E+03	1.00E-08	2.82E-09
Samarium (62)	Sm-142	5.02E+03	1.38E-04	1.36E+09	1.00E+00	4.80E+06	1.24E+11	1.06E+02	2.57E+05	1.06E+02	1.00E-08	1.57E-10
Samarium (62)	Sm-143	4.16E+04	1.66E-05	1.36E+09	1.00E+00	5.24E+07	4.54E+10	4.53E+03	2.37E+05	4.45E+03	1.00E-08	8.01E-10
Samarium (62)	Sm-143m	3.31E+05	2.09E-06	1.36E+09	1.00E+00	4.17E+08	3.61E+11	3.61E+04	1.89E+06	3.54E+04	1.00E-08	8.01E-10
Samarium (62)	Sm-145	7.44E-01	9.32E-01	1.36E+09	1.00E+00	1.14E+03	8.92E+05	2.94E+00	5.43E+01	2.78E+00	1.00E-08	2.84E-08
Samarium (62)	Sm-146	6.73E-09	1.03E+08	1.36E+09	9.00E-01	3.31E+00	8.22E+01	.	1.77E-01	1.68E-01	1.00E-08	1.91E-01
Samarium (62)	Sm-147	6.54E-12	1.06E+11	1.36E+09	9.00E-01	3.63E+00	8.99E+01	.	1.94E-01	1.84E-01	1.00E-08	2.17E+02
Samarium (62)	Sm-148	9.90E-17	7.00E+15	1.36E+09	9.00E-01	3.46E+00	8.52E+01	.	1.46E-01	1.40E-01	3.71E+15	1.10E+07
Samarium (62)	Sm-151	7.70E-03	9.00E+01	1.36E+09	1.00E+00	1.73E+03	2.24E+05	1.54E+05	9.23E+01	8.75E+01	1.00E-08	9.00E-05
Samarium (62)	Sm-153	1.31E+02	5.31E-03	1.36E+09	1.00E+00	3.00E+04	3.63E+08	9.98E+01	1.60E+03	9.36E+01	1.00E-08	5.75E-09
Samarium (62)	Sm-155	1.63E+04	4.24E-05	1.36E+09	1.00E+00	6.20E+07	4.06E+10	8.22E+04	1.50E+06	7.78E+04	1.00E-08	3.87E-08
Samarium (62)	Sm-156	6.46E+02	1.07E-03	1.36E+09	1.00E+00	4.39E+04	3.02E+08	8.88E+00	1.12E+03	8.80E+00	1.00E-08	1.12E-10
Samarium (62)	Sm-157	4.54E+04	1.53E-05	1.36E+09	1.00E+00	1.25E+07	2.60E+11	3.59E+03	3.02E+05	3.55E+03	1.00E-08	6.44E-10
Tin (50)	Sn-106	1.90E+05	3.65E-06	1.36E+09	1.00E+00	.	.	3.64E+13	.	3.64E+13	1.00E-08	1.07E+00
Tin (50)	Sn-108	3.54E+04	1.96E-05	1.36E+09	1.00E+00	7.75E+07	1.71E+12	2.28E+02	5.97E+06	2.28E+02	1.00E-08	3.65E-11
Tin (50)	Sn-109	2.02E+04	3.42E-05	1.36E+09	1.00E+00	4.13E+06	1.50E+10	6.44E+02	7.48E+02	3.46E+02	1.00E-08	9.77E-11
Tin (50)	Sn-110	1.48E+03	4.69E-04	1.36E+09	1.00E+00	5.49E+05	1.23E+10	1.57E+01	2.14E+02	1.46E+01	1.00E-08	5.71E-11
Tin (50)	Sn-111	1.03E+04	6.72E-05	1.36E+09	1.00E+00	5.89E+06	7.49E+10	2.51E+02	2.51E+04	2.49E+02	1.00E-08	1.40E-10
Tin (50)	Sn-113	2.20E+00	3.15E-01	1.36E+09	1.00E+00	5.47E+02	1.22E+06	2.00E-01	1.75E-01	9.32E-02	1.00E-08	2.51E-10
Tin (50)	Sn-113m	1.70E+04	4.07E-05	1.36E+09	1.00E+00	4.65E+06	1.03E+10	1.70E+03	1.48E+03	7.92E+02	1.00E-08	2.76E-10
Tin (50)	Sn-117m	1.84E+01	3.77E-02	1.36E+09	1.00E+00	4.40E+03	1.30E+07	3.41E+00	1.35E+00	9.68E-01	1.00E-08	3.23E-10
Tin (50)	Sn-119m	8.63E-01	8.03E-01	1.36E+09	1.00E+00	7.12E+02	8.64E+05	6.05E+01	2.19E-01	2.18E-01	1.00E-08	1.57E-09
Tin (50)	Sn-121	2.25E+02	3.09E-03	1.36E+09	9.00E-01	1.65E+05	1.74E+09	1.58E+05	5.05E+01	5.05E+01	1.00E-08	1.43E-09
Tin (50)	Sn-121m	1.58E-02	4.39E+01	1.36E+09	1.00E+00	3.02E+02	1.37E+05	7.15E+01	9.27E-02	9.25E-02	1.34E-02	3.72E-08

Resident Soil DCCs July 2023												
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)						
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Produce Consumption DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Tin (50)	Sn-123	1.96E+00	3.54E-01	1.36E+09	1.00E+00	1.81E+02	3.52E+05	4.78E+00	5.57E-02	5.50E-02	1.00E-08	1.81E-10
Tin (50)	Sn-123m	9.09E+03	7.62E-05	1.36E+09	1.00E+00	4.08E+07	5.99E+11	1.70E+03	1.25E+04	1.50E+03	1.00E-08	1.06E-09
Tin (50)	Sn-125	2.62E+01	2.64E-02	1.36E+09	1.00E+00	1.34E+03	8.30E+06	1.14E+00	4.43E-01	3.19E-01	1.00E-08	7.98E-11
Tin (50)	Sn-125m	3.83E+04	1.81E-05	1.36E+09	1.00E+00	2.36E+07	2.73E+10	8.27E+03	6.64E+04	7.43E+03	1.00E-08	1.27E-09
Tin (50)	Sn-126	3.01E-06	2.30E+05	1.36E+09	1.00E+00	3.35E+01	1.32E+04	1.01E-02	1.11E-02	5.29E-03	5.10E-01	1.16E-05
Tin (50)	Sn-127	2.89E+03	2.40E-04	1.36E+09	1.00E+00	2.04E+05	1.52E+09	2.09E+01	2.67E+02	1.94E+01	1.00E-08	4.46E-11
Tin (50)	Sn-127m	8.82E+04	7.86E-06	1.36E+09	1.00E+00	6.77E+06	4.83E+10	2.51E+03	1.24E+04	2.09E+03	1.00E-08	1.58E-10
Tin (50)	Sn-128	6.17E+03	1.12E-04	1.36E+09	1.00E+00	5.00E+06	8.98E+10	4.74E+01	2.14E+03	4.63E+01	1.00E-08	5.04E-11
Tin (50)	Sn-129	1.63E+05	4.24E-06	1.36E+09	1.00E+00	2.35E+07	1.55E+11	2.00E+03	1.85E+04	1.80E+03	1.00E-08	7.46E-11
Tin (50)	Sn-130	9.79E+04	7.08E-06	1.36E+09	1.00E+00	.	.	5.37E+12	.	5.37E+12	1.00E-08	3.74E-01
Tin (50)	Sn-130m	2.14E+05	3.23E-06	1.36E+09	1.00E+00	4.48E+11	8.02E+15	1.39E+06	5.77E+09	1.39E+06	1.00E-08	4.42E-08
Strontium (38)	Sr-79	1.62E+05	4.28E-06	1.36E+09	1.00E+00	5.31E+14	9.64E+18	1.34E+04	2.53E+11	1.34E+04	1.00E-08	3.43E-10
Strontium (38)	Sr-80	3.43E+03	2.02E-04	1.36E+09	1.00E+00	1.59E+06	3.94E+10	4.19E+01	4.38E+02	3.83E+01	1.00E-08	4.69E-11
Strontium (38)	Sr-81	1.63E+04	4.24E-05	1.36E+09	1.00E+00	6.01E+07	4.29E+11	5.47E+02	2.86E+04	5.37E+02	1.00E-08	1.40E-10
Strontium (38)	Sr-82	9.97E+00	6.95E-02	1.36E+09	1.00E+00	2.75E+02	1.79E+06	1.79E-01	7.58E-02	5.32E-02	1.00E-08	2.29E-11
Strontium (38)	Sr-83	1.87E+02	3.70E-03	1.36E+09	1.00E+00	1.63E+04	2.16E+08	2.91E+00	6.60E+00	2.02E+00	1.00E-08	4.70E-11
Strontium (38)	Sr-85	3.90E+00	1.78E-01	1.36E+09	1.00E+00	1.16E+03	9.48E+06	1.64E-01	3.21E-01	1.08E-01	1.00E-08	1.24E-10
Strontium (38)	Sr-85m	5.39E+03	1.29E-04	1.36E+09	1.00E+00	1.84E+06	1.50E+10	1.80E+02	5.06E+02	1.33E+02	1.00E-08	1.10E-10
Strontium (38)	Sr-87m	2.16E+03	3.21E-04	1.36E+09	1.00E+00	1.13E+02	1.31E+05	9.17E+02	5.40E-02	5.39E-02	1.00E-08	1.14E-13
Strontium (38)	Sr-89	5.01E+00	1.38E-01	1.36E+09	1.00E+00	3.24E+02	1.25E+06	3.69E+01	8.94E-02	8.91E-02	1.00E-08	8.31E-11
Strontium (38)	Sr-90	2.41E-02	2.88E+01	1.36E+09	9.00E-01	5.93E+00	1.34E+04	2.77E+00	1.80E-03	1.79E-03	1.00E-08	3.52E-10
Strontium (38)	Sr-91	6.30E+02	1.10E-03	1.36E+09	1.00E+00	3.59E+04	1.35E+08	1.18E+01	4.40E+01	9.33E+00	1.00E-08	7.06E-11
Strontium (38)	Sr-92	2.28E+03	3.04E-04	1.36E+09	1.00E+00	4.34E+05	1.03E+10	2.57E+01	2.62E+02	2.34E+01	1.00E-08	4.94E-11
Strontium (38)	Sr-93	4.91E+04	1.41E-05	1.36E+09	1.00E+00	7.13E+06	2.07E+11	8.53E+03	9.01E+04	7.78E+03	1.00E-08	7.73E-10
Strontium (38)	Sr-94	2.90E+05	2.39E-06	1.36E+09	1.00E+00	2.47E+16	8.01E+20	2.80E+11	3.12E+14	2.79E+11	1.00E-08	4.75E-03
Tantalum (73)	Ta-170	5.39E+04	1.29E-05	1.36E+09	1.00E+00	7.14E+06	1.07E+11	3.30E+02	2.79E+05	3.29E+02	1.00E-08	5.45E-11
Tantalum (73)	Ta-172	9.90E+03	7.00E-05	1.36E+09	1.00E+00	2.38E+06	2.41E+09	8.35E+01	8.13E+04	8.34E+01	1.00E-08	7.60E-11
Tantalum (73)	Ta-173	1.93E+03	3.58E-04	1.36E+09	1.00E+00	7.17E+05	2.29E+09	4.37E+01	2.25E+04	4.36E+01	1.00E-08	2.05E-10
Tantalum (73)	Ta-174	5.33E+03	1.30E-04	1.36E+09	1.00E+00	1.30E+07	2.05E+11	1.09E+02	4.26E+05	1.09E+02	1.00E-08	1.88E-10
Tantalum (73)	Ta-175	5.78E+02	1.20E-03	1.36E+09	1.00E+00	1.64E+05	7.52E+08	8.19E+00	4.40E+03	8.17E+00	1.00E-08	1.30E-10
Tantalum (73)	Ta-176	7.50E+02	9.24E-04	1.36E+09	1.00E+00	4.36E+05	6.83E+09	6.09E+00	1.43E+04	6.09E+00	1.00E-08	7.49E-11
Tantalum (73)	Ta-177	1.07E+02	6.46E-03	1.36E+09	1.00E+00	1.71E+05	1.93E+09	7.54E+01	5.60E+03	7.44E+01	1.00E-08	6.44E-09
Tantalum (73)	Ta-178	3.91E+04	1.77E-05	1.36E+09	1.00E+00	.	.	1.10E+14	.	1.10E+14	1.00E-08	2.62E+01



Resident Soil DCCs July 2023												
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)						
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Produce Consumption DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Tantalum (73)	Ta-178m	2.57E+03	2.69E-04	1.36E+09	1.00E+00	5.38E+06	6.30E+10	5.22E+01	1.76E+05	5.21E+01	1.00E-08	1.89E-10
Tantalum (73)	Ta-179	3.81E-01	1.82E+00	1.36E+09	1.00E+00	3.50E+03	4.83E+06	3.55E+00	1.15E+02	3.44E+00	1.00E-08	8.48E-08
Tantalum (73)	Ta-180	7.45E+02	9.31E-04	1.36E+09	1.00E+00	2.29E+06	3.24E+10	1.02E+03	7.50E+04	1.01E+03	1.00E-08	1.28E-08
Tantalum (73)	Ta-182	2.21E+00	3.14E-01	1.36E+09	1.00E+00	2.90E+02	4.78E+05	3.69E-02	9.50E+00	3.68E-02	1.00E-08	1.59E-10
Tantalum (73)	Ta-182m	2.30E+04	3.01E-05	1.36E+09	1.00E+00	3.01E+06	4.97E+09	3.84E+02	9.88E+04	3.82E+02	1.00E-08	1.59E-10
Tantalum (73)	Ta-183	4.96E+01	1.40E-02	1.36E+09	1.00E+00	6.26E+03	4.35E+07	4.60E+00	2.05E+02	4.49E+00	1.00E-08	8.70E-10
Tantalum (73)	Ta-184	6.98E+02	9.93E-04	1.36E+09	1.00E+00	1.81E+05	3.00E+09	9.04E+00	5.94E+03	9.03E+00	1.00E-08	1.25E-10
Tantalum (73)	Ta-185	7.37E+03	9.40E-05	1.36E+09	1.00E+00	2.53E+06	3.90E+09	1.29E+03	3.37E+02	2.67E+02	1.00E-08	3.52E-10
Tantalum (73)	Ta-186	3.47E+04	2.00E-05	1.36E+09	1.00E+00	2.17E+17	4.47E+21	6.28E+11	7.13E+15	6.28E+11	1.00E-08	1.77E-01
Terbium (65)	Tb-146	9.50E+05	7.29E-07	1.36E+09	1.00E+00	8.01E+07	2.40E+11	7.21E+03	2.20E+06	7.19E+03	1.00E-08	5.79E-11
Terbium (65)	Tb-147	3.70E+03	1.87E-04	1.36E+09	1.00E+00	5.55E+05	4.24E+09	1.79E+01	1.61E+04	1.79E+01	1.00E-08	3.73E-11
Terbium (65)	Tb-147m	1.95E+05	3.56E-06	1.36E+09	1.00E+00	3.26E+07	2.34E+11	2.14E+03	9.31E+05	2.13E+03	1.00E-08	8.44E-11
Terbium (65)	Tb-148	6.07E+03	1.14E-04	1.36E+09	1.00E+00	1.70E+06	2.17E+08	4.81E+01	5.58E+04	4.80E+01	1.00E-08	6.14E-11
Terbium (65)	Tb-148m	1.66E+05	4.19E-06	1.36E+09	1.00E+00	5.78E+07	5.93E+09	6.92E+15	1.90E+06	1.84E+06	1.00E-08	8.60E-08
Terbium (65)	Tb-149	1.47E+03	4.70E-04	1.36E+09	1.00E+00	2.94E+05	4.96E+08	1.44E+01	8.86E+03	1.43E+01	1.00E-08	7.60E-11
Terbium (65)	Tb-149m	8.76E+04	7.91E-06	1.36E+09	1.00E+00	2.22E+07	1.28E+11	3.54E+03	6.77E+05	3.52E+03	1.00E-08	3.14E-10
Terbium (65)	Tb-150	1.74E+03	3.97E-04	1.36E+09	1.00E+00	1.44E+06	2.92E+10	1.29E+01	4.73E+04	1.29E+01	1.00E-08	5.84E-11
Terbium (65)	Tb-150m	6.28E+04	1.10E-05	1.36E+09	1.00E+00	5.56E+11	6.27E+13	1.14E+15	1.82E+10	1.76E+10	1.00E-08	2.21E-03
Terbium (65)	Tb-151	3.45E+02	2.01E-03	1.36E+09	1.00E+00	1.09E+05	5.27E+08	7.17E+00	3.58E+03	7.16E+00	1.00E-08	1.64E-10
Terbium (65)	Tb-151m	8.74E+05	7.93E-07	1.36E+09	1.00E+00	2.89E+08	1.36E+12	1.94E+04	9.48E+06	1.94E+04	1.00E-08	1.76E-10
Terbium (65)	Tb-152	3.47E+02	2.00E-03	1.36E+09	1.00E+00	8.78E+04	1.99E+09	4.40E+00	2.88E+03	4.39E+00	1.00E-08	1.01E-10
Terbium (65)	Tb-152m	8.67E+04	7.99E-06	1.36E+09	1.00E+00	2.78E+07	6.30E+11	1.39E+03	9.10E+05	1.39E+03	1.00E-08	1.28E-10
Terbium (65)	Tb-153	1.08E+02	6.41E-03	1.36E+09	1.00E+00	4.05E+04	1.20E+08	7.34E+00	1.33E+03	7.30E+00	1.00E-08	5.42E-10
Terbium (65)	Tb-154	2.82E+02	2.45E-03	1.36E+09	1.00E+00	8.28E+04	1.44E+09	2.21E+00	2.71E+03	2.21E+00	1.00E-08	6.31E-11
Terbium (65)	Tb-155	4.75E+01	1.46E-02	1.36E+09	1.00E+00	3.15E+04	2.98E+08	9.54E+00	1.03E+03	9.45E+00	1.00E-08	1.62E-09
Terbium (65)	Tb-156	4.73E+01	1.47E-02	1.36E+09	1.00E+00	7.42E+03	7.21E+07	4.74E-01	2.43E+02	4.73E-01	1.00E-08	8.18E-11
Terbium (65)	Tb-156m	2.49E+02	2.79E-03	1.36E+09	1.00E+00	3.41E+04	3.26E+08	2.48E+00	1.12E+03	2.48E+00	1.00E-08	8.15E-11
Terbium (65)	Tb-156n	1.15E+03	6.05E-04	1.36E+09	1.00E+00	1.67E+05	1.60E+09	1.15E+01	5.46E+03	1.14E+01	1.00E-08	8.17E-11
Terbium (65)	Tb-157	9.76E-03	7.10E+01	1.36E+09	1.00E+00	4.43E+03	6.45E+05	2.63E+01	1.45E+02	2.21E+01	1.00E-08	1.87E-05
Terbium (65)	Tb-158	3.85E-03	1.80E+02	1.36E+09	1.00E+00	1.61E+02	2.00E+04	2.49E-02	5.26E+00	2.48E-02	1.00E-08	5.33E-08
Terbium (65)	Tb-160	3.50E+00	1.98E-01	1.36E+09	1.00E+00	3.90E+02	8.63E+05	6.14E-02	1.28E+01	6.11E-02	1.00E-08	1.47E-10
Terbium (65)	Tb-161	3.66E+01	1.89E-02	1.36E+09	1.00E+00	8.34E+03	5.06E+07	8.63E+01	2.73E+02	6.51E+01	1.00E-08	1.50E-08
Terbium (65)	Tb-162	4.79E+04	1.45E-05	1.36E+09	1.00E+00	.	.	1.06E+13	.	1.06E+13	1.00E-08	1.88E+00

Resident Soil DCCs July 2023												
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)						
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Produce Consumption DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Terbium (65)	Tb-163	1.87E+04	3.71E-05	1.36E+09	1.00E+00	3.47E+15	4.54E+19	1.11E+10	1.14E+14	1.11E+10	1.00E-08	5.09E-03
Terbium (65)	Tb-164	1.21E+05	5.71E-06	1.36E+09	1.00E+00	.	.	1.78E+15	.	1.78E+15	1.00E-08	1.26E+02
Terbium (65)	Tb-165	1.73E+05	4.01E-06	1.36E+09	1.00E+00	2.75E+08	5.14E+12	1.55E+05	9.00E+06	1.52E+05	1.00E-08	7.63E-09
Technetium (43)	Tc-101	2.57E+04	2.70E-05	1.36E+09	1.00E+00	1.92E+17	3.15E+21	1.32E+12	7.43E+11	4.75E+11	1.00E-08	9.81E-02
Technetium (43)	Tc-102	4.14E+06	1.67E-07	1.36E+09	1.00E+00	.	.	9.48E+25	.	9.48E+25	1.00E-08	1.23E+11
Technetium (43)	Tc-102m	8.37E+04	8.28E-06	1.36E+09	1.00E+00	.	.	1.04E+14	.	1.04E+14	1.00E-08	6.61E+00
Technetium (43)	Tc-104	1.99E+04	3.48E-05	1.36E+09	1.00E+00	2.36E+15	6.83E+19	8.82E+09	9.12E+09	4.48E+09	1.00E-08	1.23E-03
Technetium (43)	Tc-105	4.79E+04	1.45E-05	1.36E+09	1.00E+00	1.27E+07	1.66E+11	1.17E+03	4.70E+04	1.14E+03	1.00E-08	1.31E-10
Technetium (43)	Tc-91	1.16E+05	5.97E-06	1.36E+09	1.00E+00	1.23E+10	1.32E+13	2.23E+07	1.03E+08	1.83E+07	1.00E-08	7.53E-07
Technetium (43)	Tc-91m	1.10E+05	6.28E-06	1.36E+09	1.00E+00	9.41E+07	1.10E+11	1.69E+05	7.91E+05	1.39E+05	1.00E-08	6.00E-09
Technetium (43)	Tc-92	8.57E+04	8.09E-06	1.36E+09	1.00E+00	.	.	6.31E+13	.	6.31E+13	1.00E-08	3.55E+00
Technetium (43)	Tc-93	2.21E+03	3.14E-04	1.36E+09	1.00E+00	5.77E+06	8.60E+10	2.54E+01	2.25E+01	1.19E+01	1.00E-08	2.63E-11
Technetium (43)	Tc-93m	8.37E+03	8.28E-05	1.36E+09	1.00E+00	1.78E+07	2.69E+11	6.96E+01	6.92E+01	3.47E+01	1.00E-08	2.02E-11
Technetium (43)	Tc-94	1.24E+03	5.57E-04	1.36E+09	1.00E+00	1.14E+06	1.75E+10	9.00E+00	4.42E+00	2.96E+00	1.00E-08	1.18E-11
Technetium (43)	Tc-94m	7.00E+03	9.89E-05	1.36E+09	1.00E+00	1.20E+07	2.74E+11	6.79E+01	4.63E+01	2.75E+01	1.00E-08	1.94E-11
Technetium (43)	Tc-95	3.04E+02	2.28E-03	1.36E+09	1.00E+00	3.12E+05	5.01E+09	7.45E+00	1.21E+00	1.04E+00	1.00E-08	1.71E-11
Technetium (43)	Tc-95m	4.15E+00	1.67E-01	1.36E+09	1.00E+00	1.34E+03	6.77E+06	1.19E-01	5.21E-03	4.99E-03	1.00E-08	5.99E-12
Technetium (43)	Tc-96	5.91E+01	1.17E-02	1.36E+09	1.00E+00	9.95E+03	1.53E+08	4.53E-01	3.85E-02	3.55E-02	1.00E-08	3.02E-12
Technetium (43)	Tc-96m	7.07E+03	9.80E-05	1.36E+09	1.00E+00	1.20E+06	1.85E+10	5.44E+01	4.65E+00	4.28E+00	1.00E-08	3.05E-12
Technetium (43)	Tc-97	2.67E-07	2.60E+06	1.36E+09	1.00E+00	2.45E+03	1.15E+06	2.02E+02	9.50E-03	9.50E-03	1.00E-08	1.81E-04
Technetium (43)	Tc-97m	2.81E+00	2.47E-01	1.36E+09	1.00E+00	9.01E+02	1.44E+06	2.19E+02	3.49E-03	3.49E-03	1.00E-08	6.32E-12
Technetium (43)	Tc-98	1.65E-07	4.20E+06	1.36E+09	1.00E+00	9.56E+01	4.91E+04	1.38E-02	3.70E-04	3.60E-04	1.00E-08	1.12E-05
Technetium (43)	Tc-99	3.28E-06	2.11E+05	1.36E+09	1.00E+00	2.58E+02	1.55E+05	1.01E+03	9.99E-04	9.99E-04	1.00E-08	1.58E-06
Technetium (43)	Tc-99m	1.01E+03	6.87E-04	1.36E+09	1.00E+00	8.06E+06	9.49E+10	2.23E+02	3.12E+01	2.74E+01	1.00E-08	1.41E-10
Tellurium (52)	Te-113	2.14E+05	3.23E-06	1.36E+09	1.00E+00	5.44E+07	1.21E+11	1.99E+04	1.74E+04	9.27E+03	1.00E-08	2.56E-10
Tellurium (52)	Te-114	2.40E+04	2.89E-05	1.36E+09	1.00E+00	1.85E+16	3.99E+20	2.72E+10	9.60E+12	2.72E+10	1.00E-08	6.78E-03
Tellurium (52)	Te-115	6.28E+04	1.10E-05	1.36E+09	1.00E+00	3.44E+12	6.28E+16	1.07E+07	4.43E+10	1.07E+07	1.00E-08	1.03E-06
Tellurium (52)	Te-115m	5.44E+04	1.27E-05	1.36E+09	1.00E+00	2.88E+12	5.25E+16	8.98E+06	3.71E+10	8.97E+06	1.00E-08	9.96E-07
Tellurium (52)	Te-116	2.44E+03	2.84E-04	1.36E+09	1.00E+00	1.90E+06	3.19E+10	1.92E+01	1.13E+03	1.88E+01	1.00E-08	4.70E-11
Tellurium (52)	Te-117	5.87E+03	1.18E-04	1.36E+09	1.00E+00	1.49E+07	2.36E+11	6.55E+01	1.03E+04	6.51E+01	1.00E-08	6.80E-11
Tellurium (52)	Te-118	4.22E+01	1.64E-02	1.36E+09	1.00E+00	2.37E+03	3.14E+07	1.05E+00	1.23E+00	5.66E-01	1.00E-08	8.31E-11
Tellurium (52)	Te-119	3.78E+02	1.83E-03	1.36E+09	1.00E+00	2.62E+05	4.62E+09	9.75E+00	1.99E+02	9.29E+00	1.00E-08	1.53E-10
Tellurium (52)	Te-119m	5.38E+01	1.29E-02	1.36E+09	1.00E+00	1.24E+04	1.51E+08	6.81E-01	7.19E+00	6.22E-01	1.00E-08	7.21E-11

Resident Soil DCCs July 2023												
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)						
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Produce Consumption DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Tellurium (52)	Te-121	1.32E+01	5.25E-02	1.36E+09	1.00E+00	5.43E+03	4.44E+07	4.74E-01	2.81E+00	4.06E-01	1.00E-08	1.95E-10
Tellurium (52)	Te-121m	1.64E+00	4.22E-01	1.36E+09	1.00E+00	1.35E+02	6.47E+05	6.22E-02	6.97E-02	3.29E-02	1.00E-08	1.27E-10
Tellurium (52)	Te-123	1.16E-15	6.00E+14	1.36E+09	1.00E+00	1.56E+02	5.58E+05	1.39E+04	8.07E-02	8.07E-02	3.16E-03	4.51E+05
Tellurium (52)	Te-123m	2.12E+00	3.27E-01	1.36E+09	1.00E+00	2.99E+02	9.53E+05	4.69E-01	1.55E-01	1.16E-01	1.00E-08	3.54E-10
Tellurium (52)	Te-125m	4.41E+00	1.57E-01	1.36E+09	1.00E+00	8.49E+02	2.17E+06	4.47E+01	4.40E-01	4.35E-01	1.00E-08	6.48E-10
Tellurium (52)	Te-127	6.49E+02	1.07E-03	1.36E+09	1.00E+00	6.56E+05	8.58E+09	2.71E+03	3.40E+02	3.02E+02	1.00E-08	3.09E-09
Tellurium (52)	Te-127m	2.32E+00	2.99E-01	1.36E+09	1.00E+00	1.65E+02	5.15E+05	9.50E+00	8.54E-02	8.46E-02	1.00E-08	2.43E-10
Tellurium (52)	Te-129	5.23E+03	1.32E-04	1.36E+09	1.00E+00	1.43E+07	2.70E+11	1.77E+03	7.40E+03	1.43E+03	1.00E-08	1.85E-09
Tellurium (52)	Te-129m	7.53E+00	9.21E-02	1.36E+09	1.00E+00	4.07E+02	1.89E+06	2.19E+00	2.11E-01	1.92E-01	1.00E-08	1.73E-10
Tellurium (52)	Te-131	1.46E+04	4.76E-05	1.36E+09	1.00E+00	1.08E+05	1.23E+09	8.04E+02	2.03E+02	1.62E+02	1.00E-08	7.64E-11
Tellurium (52)	Te-131m	2.02E+02	3.42E-03	1.36E+09	1.00E+00	1.38E+03	1.52E+07	2.06E+00	2.15E+00	1.05E+00	1.00E-08	3.57E-11
Tellurium (52)	Te-132	7.89E+01	8.78E-03	1.36E+09	1.00E+00	3.18E+03	2.48E+07	6.21E-01	1.74E+00	4.57E-01	1.00E-08	4.01E-11
Tellurium (52)	Te-133	2.91E+04	2.38E-05	1.36E+09	1.00E+00	1.03E+06	1.17E+10	9.19E+02	1.93E+03	6.22E+02	1.00E-08	1.49E-10
Tellurium (52)	Te-133m	6.57E+03	1.05E-04	1.36E+09	1.00E+00	2.19E+05	2.50E+09	4.66E+01	3.60E+02	4.13E+01	1.00E-08	4.38E-11
Tellurium (52)	Te-134	8.71E+03	7.95E-05	1.36E+09	1.00E+00	7.50E+06	7.38E+10	4.85E+01	6.14E+03	4.81E+01	1.00E-08	3.88E-11
Thorium (90)	Th-223	3.64E+07	1.90E-08	1.36E+09	1.00E+00	.	.	1.61E+31	.	1.61E+31	7.94E-06	5.18E+15
Thorium (90)	Th-224	2.08E+07	3.33E-08	1.36E+09	1.00E+00	.	.	9.59E+30	.	9.59E+30	1.00E-08	5.41E+15
Thorium (90)	Th-226	1.19E+04	5.82E-05	1.36E+09	1.00E+00	3.44E+04	8.26E+07	5.69E+06	3.95E+02	3.91E+02	9.25E-01	3.89E-10
Thorium (90)	Th-227	1.35E+01	5.12E-02	1.36E+09	1.00E+00	1.36E+01	1.44E+03	7.27E-01	5.69E-02	5.25E-02	1.00E-08	4.62E-11
Thorium (90)	Th-228	3.63E-01	1.91E+00	1.36E+09	1.00E+00	1.10E+00	5.54E+01	1.47E-02	7.72E-03	5.03E-03	1.76E-02	1.66E-10
Thorium (90)	Th-229	9.44E-05	7.34E+03	1.36E+09	1.00E+00	2.58E-01	2.36E+01	7.73E-02	3.26E-03	3.09E-03	5.37E-01	3.93E-07
Thorium (90)	Th-230	9.19E-06	7.54E+04	1.36E+09	1.00E+00	7.26E-02	1.87E+01	1.16E-02	7.08E-04	6.61E-04	8.94E+03	8.67E-07
Thorium (90)	Th-231	2.38E+02	2.91E-03	1.36E+09	1.00E+00	1.17E+05	7.83E+07	8.15E+02	6.43E+03	7.19E+02	1.00E-08	3.66E-08
Thorium (90)	Th-232	4.93E-11	1.41E+10	1.36E+09	1.00E+00	1.09E-01	2.44E+01	7.87E-03	5.21E-04	4.86E-04	1.76E+02	1.20E-01
Thorium (90)	Th-233	1.63E+04	4.24E-05	1.36E+09	1.00E+00	2.87E+06	7.79E+09	1.79E+03	2.45E+04	1.66E+03	1.00E-08	1.24E-09
Thorium (90)	Th-234	1.05E+01	6.60E-02	1.36E+09	1.00E+00	5.21E+02	2.67E+06	7.21E+00	3.33E+01	5.86E+00	1.00E-08	6.85E-09
Thorium (90)	Th-235	5.13E+04	1.35E-05	1.36E+09	1.00E+00	9.78E+12	3.51E+14	1.49E+11	9.10E+10	8.61E+10	4.49E+05	2.07E-02
Thorium (90)	Th-236	9.71E+03	7.13E-05	1.36E+09	1.00E+00	1.93E+07	3.17E+11	1.90E+02	1.24E+06	1.90E+02	1.00E-08	2.42E-10
Titanium (22)	Ti-44	1.16E-02	6.00E+01	1.36E+09	1.00E+00	2.96E+01	1.66E+04	8.77E-03	1.46E+00	8.72E-03	2.90E-03	1.74E-09
Titanium (22)	Ti-45	1.97E+03	3.52E-04	1.36E+09	1.00E+00	2.28E+06	3.90E+10	4.59E+01	1.16E+05	4.59E+01	1.00E-08	5.49E-11
Titanium (22)	Ti-51	6.32E+04	1.10E-05	1.36E+09	1.00E+00	.	.	1.18E+15	.	1.18E+15	1.00E-08	4.98E+01
Titanium (22)	Ti-52	2.14E+05	3.23E-06	1.36E+09	1.00E+00	.	.	1.19E+15	.	1.19E+15	1.00E-08	1.51E+01
Thallium (81)	Tl-190	1.40E+05	4.95E-06	1.36E+09	1.00E+00	6.02E+08	1.06E+13	1.06E+03	1.64E+07	1.06E+03	1.00E-08	7.54E-11

Resident Soil DCCs July 2023												
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)						
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Produce Consumption DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Thallium (81)	Tl-190m	9.84E+04	7.04E-06	1.36E+09	1.00E+00	4.23E+08	7.45E+12	7.45E+02	1.15E+07	7.45E+02	1.00E-08	7.54E-11
Thallium (81)	Tl-194	1.10E+04	6.28E-05	1.36E+09	1.00E+00	4.02E+07	3.90E+11	2.48E+02	2.91E+05	2.48E+02	1.00E-08	2.28E-10
Thallium (81)	Tl-194m	1.11E+04	6.24E-05	1.36E+09	1.00E+00	4.89E+07	3.27E+11	8.88E+01	2.98E+05	8.88E+01	1.00E-08	8.13E-11
Thallium (81)	Tl-195	5.23E+03	1.32E-04	1.36E+09	1.00E+00	2.80E+06	3.62E+09	7.03E+01	2.62E+03	6.85E+01	1.00E-08	1.34E-10
Thallium (81)	Tl-196	3.30E+03	2.10E-04	1.36E+09	1.00E+00	1.19E+07	1.54E+11	3.30E+01	9.20E+05	3.30E+01	1.00E-08	1.03E-10
Thallium (81)	Tl-197	2.14E+03	3.24E-04	1.36E+09	1.00E+00	1.35E+06	9.19E+08	9.40E+01	4.50E+02	7.78E+01	1.00E-08	3.76E-10
Thallium (81)	Tl-198	1.15E+03	6.05E-04	1.36E+09	1.00E+00	2.95E+06	2.75E+10	1.06E+01	2.27E+05	1.06E+01	1.00E-08	9.58E-11
Thallium (81)	Tl-198m	3.25E+03	2.13E-04	1.36E+09	1.00E+00	6.76E+06	5.80E+10	3.01E+01	5.21E+05	3.01E+01	1.00E-08	9.62E-11
Thallium (81)	Tl-199	8.18E+02	8.47E-04	1.36E+09	1.00E+00	5.46E+06	3.09E+10	8.31E+01	4.21E+05	8.31E+01	1.00E-08	1.06E-09
Thallium (81)	Tl-200	2.33E+02	2.98E-03	1.36E+09	1.00E+00	2.19E+05	2.39E+09	3.49E+00	1.69E+04	3.49E+00	1.00E-08	1.57E-10
Thallium (81)	Tl-201	8.33E+01	8.32E-03	1.36E+09	1.00E+00	1.52E+05	8.31E+08	3.79E+01	1.17E+04	3.78E+01	1.00E-08	4.78E-09
Thallium (81)	Tl-202	2.07E+01	3.35E-02	1.36E+09	1.00E+00	8.58E+03	9.89E+07	9.94E-01	6.61E+02	9.93E-01	1.00E-08	5.08E-10
Thallium (81)	Tl-204	1.83E-01	3.78E+00	1.36E+09	1.00E+00	1.58E+02	1.17E+05	2.91E+01	1.22E+01	8.14E+00	1.00E-08	4.75E-07
Thallium (81)	Tl-206	8.67E+04	7.99E-06	1.36E+09	1.00E+00	.	.	1.12E+17	.	1.12E+17	1.00E-08	1.40E+04
Thallium (81)	Tl-206m	9.74E+04	7.12E-06	1.36E+09	1.00E+00	.	.	6.58E+14	.	6.58E+14	1.00E-08	7.30E+01
Thallium (81)	Tl-207	7.64E+04	9.08E-06	1.36E+09	1.00E+00	.	.	5.55E+16	.	5.55E+16	1.00E-08	7.88E+03
Thallium (81)	Tl-208	1.19E+05	5.81E-06	1.36E+09	1.00E+00	.	.	7.17E+14	.	7.17E+14	1.00E-08	6.56E+01
Thallium (81)	Tl-209	1.69E+05	4.11E-06	1.36E+09	1.00E+00	5.24E+08	5.30E+12	2.77E+07	2.77E+06	2.50E+06	1.00E-08	1.63E-07
Thallium (81)	Tl-210	2.80E+05	2.47E-06	1.36E+09	1.00E+00	8.08E+05	1.94E+09	1.34E+08	9.30E+03	9.19E+03	9.25E-01	3.61E-10
Thulium (69)	Tm-161	1.21E+04	5.75E-05	1.36E+09	1.00E+00	2.24E+07	3.61E+11	2.38E+02	1.10E+06	2.38E+02	1.00E-08	1.67E-10
Thulium (69)	Tm-162	1.68E+04	4.13E-05	1.36E+09	1.00E+00	2.02E+14	4.11E+18	4.32E+08	6.62E+12	4.32E+08	1.00E-08	2.18E-04
Thulium (69)	Tm-163	3.35E+03	2.07E-04	1.36E+09	1.00E+00	1.07E+07	1.57E+11	4.93E+01	3.56E+05	4.93E+01	1.00E-08	1.26E-10
Thulium (69)	Tm-164	1.82E+05	3.81E-06	1.36E+09	1.00E+00	.	.	3.28E+16	.	3.28E+16	1.00E-08	1.55E+03
Thulium (69)	Tm-165	2.02E+02	3.43E-03	1.36E+09	1.00E+00	9.56E+04	1.56E+09	7.96E+00	3.20E+03	7.94E+00	1.00E-08	3.40E-10
Thulium (69)	Tm-166	7.88E+02	8.79E-04	1.36E+09	1.00E+00	5.06E+05	7.94E+09	7.41E+00	1.66E+04	7.41E+00	1.00E-08	8.18E-11
Thulium (69)	Tm-167	2.73E+01	2.53E-02	1.36E+09	1.00E+00	8.03E+03	4.08E+07	5.91E+00	2.63E+02	5.77E+00	1.00E-08	1.85E-09
Thulium (69)	Tm-168	2.72E+00	2.55E-01	1.36E+09	1.00E+00	5.04E+02	1.14E+06	4.83E-02	1.65E+01	4.81E-02	1.00E-08	1.56E-10
Thulium (69)	Tm-170	1.97E+00	3.52E-01	1.36E+09	1.00E+00	2.93E+02	4.97E+05	2.24E+01	9.62E+00	6.58E+00	1.00E-08	2.98E-08
Thulium (69)	Tm-171	3.61E-01	1.92E+00	1.36E+09	1.00E+00	1.87E+03	1.88E+06	1.47E+02	6.13E+01	4.23E+01	1.00E-08	1.05E-06
Thulium (69)	Tm-172	9.55E+01	7.26E-03	1.36E+09	1.00E+00	9.56E+03	1.48E+08	3.65E+00	3.13E+02	3.60E+00	1.00E-08	3.41E-10
Thulium (69)	Tm-173	7.37E+02	9.41E-04	1.36E+09	1.00E+00	4.21E+05	7.19E+09	4.03E+01	1.38E+04	4.02E+01	1.00E-08	4.95E-10
Thulium (69)	Tm-174	6.75E+04	1.03E-05	1.36E+09	1.00E+00	.	.	3.58E+13	.	3.58E+13	1.00E-08	4.84E+00
Thulium (69)	Tm-175	2.40E+04	2.89E-05	1.36E+09	1.00E+00	9.21E+06	6.47E+10	1.38E+04	3.02E+05	1.32E+04	1.00E-08	5.06E-09



Resident Soil DCCs July 2023												
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)						
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Produce Consumption DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Thulium (69)	Tm-176	1.97E+05	3.52E-06	1.36E+09	1.00E+00	.	.	1.43E+17	.	1.43E+17	1.00E-08	6.68E+03
Uranium (92)	U-227	3.31E+05	2.09E-06	1.36E+09	1.00E+00	.	.	5.29E+18	.	5.29E+18	1.00E-08	1.90E+05
Uranium (92)	U-228	4.00E+04	1.73E-05	1.36E+09	1.00E+00	.	.	6.51E+14	.	6.51E+14	1.00E-08	1.95E+02
Uranium (92)	U-230	1.22E+01	5.70E-02	1.36E+09	1.00E+00	2.24E+01	1.49E+03	1.57E+01	2.32E-01	2.26E-01	1.00E-08	2.24E-10
Uranium (92)	U-231	6.02E+01	1.15E-02	1.36E+09	1.00E+00	2.89E+04	1.98E+07	3.12E+01	3.28E+02	2.85E+01	1.00E-08	5.73E-09
Uranium (92)	U-232	1.01E-02	6.89E+01	1.36E+09	1.00E+00	3.88E-01	2.81E+01	1.35E-02	3.65E-03	2.86E-03	8.32E+00	3.46E-09
Uranium (92)	U-233	4.35E-06	1.59E+05	1.36E+09	1.00E+00	2.81E-01	2.46E+01	8.96E-02	3.53E-03	3.36E-03	3.36E+04	9.42E-06
Uranium (92)	U-234	2.82E-06	2.46E+05	1.36E+09	1.00E+00	1.11E-01	2.73E+01	1.80E-02	1.08E-03	1.01E-03	1.86E+05	4.41E-06
Uranium (92)	U-235	9.84E-10	7.04E+08	1.36E+09	1.00E+00	1.88E-01	6.74E+00	3.76E-02	1.75E-03	1.65E-03	4.49E+05	2.07E-02
Uranium (92)	U-235m	1.40E+04	4.95E-05	1.36E+09	1.00E+00	2.67E+12	9.59E+13	5.35E+11	2.48E+10	2.35E+10	4.49E+05	2.07E-02
Uranium (92)	U-236	2.96E-08	2.34E+07	1.36E+09	1.00E+00	4.25E+00	2.34E+02	4.77E+00	5.04E-02	4.98E-02	1.00E-08	2.08E-02
Uranium (92)	U-237	3.75E+01	1.85E-02	1.36E+09	1.00E+00	8.21E+03	3.91E+07	8.73E+00	9.74E+01	8.00E+00	1.00E-08	2.65E-09
Uranium (92)	U-238	1.55E-10	4.47E+09	1.36E+09	1.00E+00	6.47E-02	1.52E+01	1.05E-02	6.35E-04	5.93E-04	3.52E+06	4.77E-02
Uranium (92)	U-239	1.55E+04	4.46E-05	1.36E+09	1.00E+00	3.23E+06	7.39E+09	2.39E+03	2.90E+04	2.20E+03	1.00E-08	1.78E-09
Uranium (92)	U-240	4.31E+02	1.61E-03	1.36E+09	1.00E+00	6.54E+04	7.05E+07	2.58E+01	7.89E+02	2.50E+01	1.00E-08	7.31E-10
Uranium (92)	U-242	2.17E+04	3.20E-05	1.36E+09	1.00E+00	9.95E+09	2.24E+11	9.31E+10	9.77E+08	8.78E+08	1.00E-08	5.14E-04
Vanadium (23)	V-47	1.12E+04	6.20E-05	1.36E+09	1.00E+00	3.10E+07	6.70E+11	2.27E+02	2.65E+05	2.26E+02	1.00E-08	4.99E-11
Vanadium (23)	V-48	1.58E+01	4.38E-02	1.36E+09	1.00E+00	1.45E+03	1.12E+07	1.01E-01	1.24E+01	1.00E-01	1.00E-08	1.60E-11
Vanadium (23)	V-49	7.67E-01	9.04E-01	1.36E+09	1.00E+00	1.31E+04	3.94E+07	.	1.12E+02	1.11E+02	1.00E-08	3.73E-07
Vanadium (23)	V-50	4.62E-18	1.50E+17	1.36E+09	1.00E+00	6.19E+01	3.28E+04	1.24E-02	5.29E-01	1.22E-02	2.25E-08	6.90E+06
Vanadium (23)	V-52	9.73E+04	7.12E-06	1.36E+09	1.00E+00	.	.	9.70E+14	.	9.70E+14	1.00E-08	2.72E+01
Vanadium (23)	V-53	2.26E+05	3.06E-06	1.36E+09	1.00E+00	.	.	8.35E+16	.	8.35E+16	1.00E-08	1.03E+03
Tungsten (74)	W-177	2.76E+03	2.51E-04	1.36E+09	1.00E+00	2.94E+06	3.48E+10	6.39E+01	1.02E+03	6.01E+01	1.00E-08	2.02E-10
Tungsten (74)	W-178	1.17E+01	5.92E-02	1.36E+09	1.00E+00	8.30E+03	2.77E+07	2.54E+00	9.57E-01	6.95E-01	1.00E-08	5.54E-10
Tungsten (74)	W-179	9.83E+03	7.05E-05	1.36E+09	1.00E+00	7.62E+07	1.24E+11	1.20E+04	5.48E+04	9.84E+03	1.00E-08	9.39E-09
Tungsten (74)	W-179m	5.69E+04	1.22E-05	1.36E+09	1.00E+00	4.41E+08	7.16E+11	6.95E+04	3.18E+05	5.71E+04	1.00E-08	9.41E-09
Tungsten (74)	W-181	2.09E+00	3.32E-01	1.36E+09	1.00E+00	4.90E+03	1.61E+07	4.14E+00	5.65E-01	4.97E-01	1.00E-08	2.26E-09
Tungsten (74)	W-185	3.37E+00	2.06E-01	1.36E+09	1.00E+00	1.34E+03	1.81E+06	1.05E+03	1.54E-01	1.54E-01	1.00E-08	4.44E-10
Tungsten (74)	W-185m	2.28E+05	3.04E-06	1.36E+09	1.00E+00	9.05E+07	1.22E+11	7.11E+07	1.04E+04	1.04E+04	1.00E-08	4.44E-10
Tungsten (74)	W-187	2.56E+02	2.71E-03	1.36E+09	1.00E+00	7.45E+04	1.16E+09	1.18E+01	8.59E+00	4.98E+00	1.00E-08	1.91E-10
Tungsten (74)	W-188	3.62E+00	1.91E-01	1.36E+09	1.00E+00	1.81E+02	4.57E+05	1.23E+00	3.00E-02	2.92E-02	1.00E-08	7.95E-11
Tungsten (74)	W-190	1.21E+04	5.71E-05	1.36E+09	1.00E+00	5.29E+11	6.50E+15	3.25E+06	6.10E+07	3.09E+06	1.00E-08	2.53E-06
Xenon (54)	Xe-120	9.11E+03	7.61E-05	1.36E+09	1.00E+00	5.16E+06	6.17E+10	5.57E+01	9.71E+03	5.54E+01	1.00E-08	3.83E-11

Resident Soil DCCs July 2023												
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)						
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Produce Consumption DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Xenon (54)	Xe-121	9.08E+03	7.63E-05	1.36E+09	1.00E+00	3.14E+06	2.61E+10	7.33E+01	1.82E+03	7.04E+01	1.00E-08	4.92E-11
Xenon (54)	Xe-122	3.02E+02	2.29E-03	1.36E+09	1.00E+00	.	.	6.01E+00	.	6.01E+00	1.00E-08	1.27E-10
Xenon (54)	Xe-123	2.92E+03	2.37E-04	1.36E+09	1.00E+00	2.09E+06	2.25E+10	7.91E+01	3.93E+03	7.75E+01	1.00E-08	1.71E-10
Xenon (54)	Xe-125	3.59E+02	1.93E-03	1.36E+09	1.00E+00	4.48E+03	4.85E+07	3.34E+01	8.43E+00	6.72E+00	1.00E-08	1.23E-10
Xenon (54)	Xe-127	6.95E+00	9.97E-02	1.36E+09	1.00E+00	.	.	6.40E-01	.	6.40E-01	1.00E-08	6.13E-10
Xenon (54)	Xe-127m	3.16E+05	2.19E-06	1.36E+09	1.00E+00	.	.	2.91E+04	.	2.91E+04	1.00E-08	6.13E-10
Xenon (54)	Xe-129m	2.85E+01	2.43E-02	1.36E+09	1.00E+00	.	.	5.55E+01	.	5.55E+01	1.00E-08	1.32E-08
Xenon (54)	Xe-131m	2.14E+01	3.24E-02	1.36E+09	1.00E+00	.	.	1.21E+02	.	1.21E+02	1.00E-08	3.90E-08
Xenon (54)	Xe-133	4.82E+01	1.44E-02	1.36E+09	1.00E+00	.	.	6.04E+01	.	6.04E+01	1.00E-08	8.73E-09
Xenon (54)	Xe-133m	1.16E+02	6.00E-03	1.36E+09	1.00E+00	.	.	6.20E+01	.	6.20E+01	1.00E-08	3.74E-09
Xenon (54)	Xe-135	6.64E+02	1.04E-03	1.36E+09	1.00E+00	1.94E+11	3.87E+14	6.03E+01	7.26E+08	6.03E+01	1.00E-08	6.42E-10
Xenon (54)	Xe-135m	2.38E+04	2.91E-05	1.36E+09	1.00E+00	6.96E+12	1.39E+16	2.17E+03	2.60E+10	2.17E+03	1.00E-08	6.46E-10
Xenon (54)	Xe-137	9.54E+04	7.26E-06	1.36E+09	1.00E+00	7.34E+07	2.21E+11	1.46E+05	2.75E+05	9.54E+04	1.00E-08	7.18E-09
Xenon (54)	Xe-138	2.59E+04	2.68E-05	1.36E+09	1.00E+00	4.70E+07	1.05E+12	1.95E+02	1.76E+05	1.94E+02	1.00E-08	5.44E-11
Yttrium (39)	Y-81	3.10E+05	2.23E-06	1.36E+09	1.00E+00	1.14E+09	8.16E+12	1.04E+04	5.44E+05	1.02E+04	1.00E-08	1.40E-10
Yttrium (39)	Y-83	5.14E+04	1.35E-05	1.36E+09	1.00E+00	4.47E+06	5.93E+10	7.98E+02	1.81E+03	5.54E+02	1.00E-08	4.69E-11
Yttrium (39)	Y-83m	1.28E+05	5.42E-06	1.36E+09	1.00E+00	1.11E+07	1.47E+11	1.98E+03	4.50E+03	1.38E+03	1.00E-08	4.69E-11
Yttrium (39)	Y-84m	9.22E+03	7.52E-05	1.36E+09	1.00E+00	1.20E+07	2.70E+11	4.40E+01	1.51E+05	4.40E+01	1.00E-08	2.10E-11
Yttrium (39)	Y-85	2.27E+03	3.06E-04	1.36E+09	1.00E+00	5.69E+05	5.50E+09	2.72E+01	2.11E+02	2.41E+01	1.00E-08	4.74E-11
Yttrium (39)	Y-85m	1.25E+03	5.55E-04	1.36E+09	1.00E+00	2.29E+05	2.49E+09	1.33E+01	1.02E+02	1.18E+01	1.00E-08	4.20E-11
Yttrium (39)	Y-86	4.12E+02	1.68E-03	1.36E+09	1.00E+00	7.84E+04	1.59E+09	2.13E+00	9.92E+02	2.13E+00	1.00E-08	2.33E-11
Yttrium (39)	Y-86m	7.59E+03	9.13E-05	1.36E+09	1.00E+00	1.37E+06	2.78E+10	3.77E+01	1.74E+04	3.77E+01	1.00E-08	2.24E-11
Yttrium (39)	Y-87	7.61E+01	9.11E-03	1.36E+09	1.00E+00	2.35E+04	3.41E+08	2.08E+00	9.00E+01	2.03E+00	1.00E-08	1.22E-10
Yttrium (39)	Y-87m	4.54E+02	1.53E-03	1.36E+09	1.00E+00	1.03E+05	1.54E+09	9.00E+00	4.88E+02	8.83E+00	1.00E-08	8.87E-11
Yttrium (39)	Y-88	2.37E+00	2.92E-01	1.36E+09	1.00E+00	3.77E+02	8.33E+05	1.72E-02	4.77E+00	1.71E-02	1.00E-08	3.34E-11
Yttrium (39)	Y-89m	1.40E+06	4.97E-07	1.36E+09	1.00E+00	.	.	7.50E+21	.	7.50E+21	1.00E-08	2.51E+07
Yttrium (39)	Y-90	9.47E+01	7.32E-03	1.36E+09	1.00E+00	5.95E+03	1.17E+08	2.63E+02	7.52E+01	5.79E+01	1.00E-08	2.88E-09
Yttrium (39)	Y-90m	1.90E+03	3.64E-04	1.36E+09	1.00E+00	1.12E+05	2.21E+09	6.37E+01	1.42E+03	6.09E+01	1.00E-08	1.51E-10
Yttrium (39)	Y-91	4.32E+00	1.60E-01	1.36E+09	1.00E+00	3.11E+02	9.70E+05	1.40E+01	3.94E+00	3.04E+00	1.00E-08	3.36E-09
Yttrium (39)	Y-91m	7.33E+03	9.46E-05	1.36E+09	1.00E+00	5.25E+05	1.64E+09	2.75E+02	6.64E+03	2.64E+02	1.00E-08	1.72E-10
Yttrium (39)	Y-92	1.71E+03	4.04E-04	1.36E+09	1.00E+00	5.87E+05	1.75E+10	1.19E+02	7.42E+03	1.17E+02	1.00E-08	3.30E-10
Yttrium (39)	Y-93	5.96E+02	1.16E-03	1.36E+09	1.00E+00	8.66E+04	2.52E+09	1.04E+02	1.10E+03	9.46E+01	1.00E-08	7.74E-10
Yttrium (39)	Y-94	1.95E+04	3.56E-05	1.36E+09	1.00E+00	1.78E+15	5.76E+19	2.01E+10	2.25E+13	2.01E+10	1.00E-08	5.09E-03

Resident Soil DCCs July 2023												
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)						
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Produce Consumption DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Yttrium (39)	Y-95	3.54E+04	1.96E-05	1.36E+09	1.00E+00	4.18E+06	9.45E+09	4.72E+02	6.90E+04	4.68E+02	1.00E-08	6.60E-11
Ytterbium (70)	Yb-162	1.93E+04	3.59E-05	1.36E+09	1.00E+00	3.20E+13	6.50E+17	6.88E+07	1.05E+12	6.87E+07	1.00E-08	3.03E-05
Ytterbium (70)	Yb-163	3.30E+04	2.10E-05	1.36E+09	1.00E+00	1.05E+08	1.54E+12	4.84E+02	3.50E+06	4.84E+02	1.00E-08	1.26E-10
Ytterbium (70)	Yb-164	4.81E+03	1.44E-04	1.36E+09	1.00E+00	9.15E+06	1.99E+11	1.19E+02	3.00E+05	1.19E+02	1.00E-08	2.12E-10
Ytterbium (70)	Yb-165	3.68E+04	1.88E-05	1.36E+09	1.00E+00	1.73E+07	2.83E+11	1.44E+03	5.80E+05	1.44E+03	1.00E-08	3.38E-10
Ytterbium (70)	Yb-166	1.07E+02	6.47E-03	1.36E+09	1.00E+00	1.56E+04	2.12E+08	9.96E-01	5.12E+02	9.94E-01	1.00E-08	8.08E-11
Ytterbium (70)	Yb-167	2.08E+04	3.33E-05	1.36E+09	1.00E+00	6.11E+06	3.11E+10	4.50E+03	2.00E+05	4.39E+03	1.00E-08	1.85E-09
Ytterbium (70)	Yb-169	7.90E+00	8.77E-02	1.36E+09	1.00E+00	1.67E+03	4.61E+06	8.50E-01	5.47E+01	8.37E-01	1.00E-08	9.39E-10
Ytterbium (70)	Yb-175	6.04E+01	1.15E-02	1.36E+09	1.00E+00	2.33E+04	1.64E+08	3.50E+01	7.63E+02	3.34E+01	1.00E-08	5.07E-09
Ytterbium (70)	Yb-177	3.18E+03	2.18E-04	1.36E+09	1.00E+00	8.61E+05	4.96E+09	2.90E+02	4.21E+04	2.88E+02	1.00E-08	8.40E-10
Ytterbium (70)	Yb-178	4.92E+03	1.41E-04	1.36E+09	1.00E+00	5.19E+06	9.33E+10	5.70E+02	1.91E+05	5.68E+02	1.00E-08	1.08E-09
Ytterbium (70)	Yb-179	4.55E+04	1.52E-05	1.36E+09	1.00E+00	3.56E+07	7.69E+11	3.38E+04	1.90E+06	3.31E+04	1.00E-08	6.83E-09
Zinc (30)	Zn-60	1.53E+05	4.53E-06	1.36E+09	1.00E+00	2.00E+14	4.19E+18	3.72E+08	3.64E+11	3.72E+08	1.00E-08	7.64E-06
Zinc (30)	Zn-61	2.45E+05	2.83E-06	1.36E+09	1.00E+00	3.80E+08	5.92E+12	5.97E+03	6.90E+05	5.92E+03	1.00E-08	7.72E-11
Zinc (30)	Zn-62	6.61E+02	1.05E-03	1.36E+09	1.00E+00	1.26E+05	2.20E+09	9.23E+00	1.27E+01	5.34E+00	1.00E-08	2.63E-11
Zinc (30)	Zn-63	9.47E+03	7.32E-05	1.36E+09	1.00E+00	2.08E+07	4.69E+11	1.72E+02	2.09E+03	1.59E+02	1.00E-08	5.55E-11
Zinc (30)	Zn-65	1.04E+00	6.69E-01	1.36E+09	1.00E+00	7.82E+01	1.38E+06	5.12E-02	7.88E-03	6.83E-03	1.00E-08	2.25E-11
Zinc (30)	Zn-69	6.46E+03	1.07E-04	1.36E+09	1.00E+00	3.62E+07	4.40E+11	2.44E+05	3.65E+03	3.60E+03	1.00E-08	2.01E-09
Zinc (30)	Zn-69m	4.41E+02	1.57E-03	1.36E+09	1.00E+00	2.16E+05	2.73E+09	2.19E+01	2.18E+01	1.09E+01	1.00E-08	8.95E-11
Zinc (30)	Zn-71	1.49E+05	4.66E-06	1.36E+09	1.00E+00	.	.	2.85E+16	.	2.85E+16	1.00E-08	7.14E+02
Zinc (30)	Zn-71m	1.53E+03	4.52E-04	1.36E+09	1.00E+00	1.15E+06	1.72E+10	1.97E+01	1.16E+02	1.69E+01	1.00E-08	4.10E-11
Zinc (30)	Zn-72	1.31E+02	5.31E-03	1.36E+09	1.00E+00	9.22E+03	1.29E+08	8.31E-01	1.68E+00	5.55E-01	1.00E-08	1.61E-11
Zirconium (40)	Zr-85	4.63E+04	1.50E-05	1.36E+09	1.00E+00	8.56E+06	9.27E+10	4.95E+02	3.80E+03	4.38E+02	1.00E-08	4.21E-11
Zirconium (40)	Zr-86	3.68E+02	1.88E-03	1.36E+09	1.00E+00	3.68E+04	7.37E+08	1.79E+00	6.82E+02	1.79E+00	1.00E-08	2.19E-11
Zirconium (40)	Zr-87	3.61E+03	1.92E-04	1.36E+09	1.00E+00	6.57E+05	1.05E+10	3.73E+01	3.77E+03	3.69E+01	1.00E-08	4.66E-11
Zirconium (40)	Zr-88	3.03E+00	2.28E-01	1.36E+09	1.00E+00	4.12E+02	7.45E+05	2.32E-02	6.49E+00	2.31E-02	2.24E-02	3.52E-11
Zirconium (40)	Zr-89	7.74E+01	8.95E-03	1.36E+09	1.00E+00	1.76E+04	2.63E+08	1.29E+00	6.71E+02	1.29E+00	1.00E-08	7.76E-11
Zirconium (40)	Zr-89m	8.75E+04	7.92E-06	1.36E+09	1.00E+00	2.13E+07	3.16E+11	1.55E+03	8.09E+05	1.55E+03	1.00E-08	8.27E-11
Zirconium (40)	Zr-93	4.53E-07	1.53E+06	1.36E+09	9.00E-01	1.98E+02	9.13E+04	1.56E+03	4.95E+00	4.82E+00	2.47E+02	5.18E-02
Zirconium (40)	Zr-95	3.95E+00	1.75E-01	1.36E+09	1.00E+00	4.67E+02	1.06E+06	5.27E-02	7.71E+00	5.23E-02	1.00E-08	6.60E-11
Zirconium (40)	Zr-97	3.63E+02	1.91E-03	1.36E+09	1.00E+00	2.91E+04	6.50E+08	4.54E+00	9.97E+02	4.52E+00	1.00E-08	6.34E-11

Resident Tap Water DCCs July 2023									
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Ingestion	Inhalation	Immersion	Produce	Total DCC DL=1 (Bq/L)	Total DCC DL=1 (mg/L)
				DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)		
Actinium (89)	Ac-223	1.73E+05	4.00E-06	.	.	1.67E+03	.	1.67E+03	1.13E-13
Actinium (89)	Ac-224	2.18E+03	3.17E-04	1.07E-01	1.02E-01	6.73E+01	3.79E-02	2.20E-02	1.18E-16
Actinium (89)	Ac-225	2.53E+01	2.74E-02	2.58E-01	.	5.53E+02	1.09E-01	7.68E-02	3.58E-14
Actinium (89)	Ac-226	2.07E+02	3.35E-03	4.74E-03	1.40E-01	2.65E+02	1.90E-03	1.34E-03	7.71E-17
Actinium (89)	Ac-227	3.18E-02	2.18E+01	2.18E-02	2.74E-01	2.84E+02	8.65E-03	6.05E-03	2.26E-12
Actinium (89)	Ac-228	9.87E+02	7.02E-04	5.36E-02	1.02E-01	4.86E+01	2.06E-02	1.30E-02	1.57E-16
Actinium (89)	Ac-230	1.79E+05	3.87E-06	3.90E-03	1.40E-01	5.00E+01	1.55E-03	1.10E-03	7.41E-20
Actinium (89)	Ac-231	4.86E+04	1.43E-05	1.15E-02	2.74E-01	1.38E+02	4.53E-03	3.21E-03	8.01E-19
Actinium (89)	Ac-232	1.84E+05	3.77E-06	6.37E-03	1.02E-01	3.24E+01	2.32E-03	1.67E-03	1.11E-19
Actinium (89)	Ac-233	1.51E+05	4.60E-06	1.41E-02	.	1.15E+02	5.72E-03	4.07E-03	3.30E-19
Silver (47)	Ag-100m	1.63E+05	4.26E-06	6.69E+00	.	2.04E+01	1.71E+00	1.27E+00	4.11E-17
Silver (47)	Ag-101	3.28E+04	2.11E-05	2.82E+01	.	5.46E+01	7.82E+00	5.50E+00	8.88E-16
Silver (47)	Ag-102	2.82E+04	2.45E-05	2.53E+02	.	3.40E+01	4.79E+01	1.85E+01	3.50E-15
Silver (47)	Ag-102m	4.73E+04	1.46E-05	5.17E+02	.	3.11E+01	9.78E+01	2.26E+01	2.55E-15
Silver (47)	Ag-103	5.54E+03	1.25E-04	4.27E+01	.	1.43E+02	9.15E+00	7.16E+00	6.98E-15
Silver (47)	Ag-104	5.26E+03	1.32E-04	1.78E+02	.	4.37E+01	3.37E+01	1.72E+01	1.78E-14
Silver (47)	Ag-104m	1.09E+04	6.37E-05	1.55E+02	.	6.45E+01	2.94E+01	1.79E+01	8.96E-15
Silver (47)	Ag-105	6.13E+00	1.13E-01	2.30E+01	.	2.46E+02	4.35E+00	3.60E+00	3.24E-12
Silver (47)	Ag-105m	5.04E+04	1.38E-05	2.30E+01	.	2.46E+02	4.36E+00	3.61E+00	3.95E-16
Silver (47)	Ag-106	1.52E+04	4.56E-05	3.22E+02	.	1.74E+02	6.10E+01	3.97E+01	1.45E-14
Silver (47)	Ag-106m	3.05E+01	2.27E-02	7.41E+00	.	4.23E+01	1.40E+00	1.15E+00	2.09E-13
Silver (47)	Ag-108	1.54E+05	4.51E-06	.	.	5.09E+03	.	5.09E+03	1.88E-13
Silver (47)	Ag-108m	1.66E-03	4.18E+02	4.60E+00	.	7.51E+01	8.71E-01	7.25E-01	2.48E-09
Silver (47)	Ag-109m	5.52E+05	1.26E-06	.	.	3.32E+04	.	3.32E+04	3.44E-13
Silver (47)	Ag-110	8.88E+05	7.80E-07	.	.	2.70E+03	.	2.70E+03	1.75E-14
Silver (47)	Ag-110m	1.01E+00	6.84E-01	3.82E+00	.	4.26E+01	7.24E-01	6.00E-01	3.42E-12
Silver (47)	Ag-111	3.40E+01	2.04E-02	7.84E+00	.	4.22E+03	1.49E+00	1.25E+00	2.14E-13
Silver (47)	Ag-111m	3.37E+05	2.05E-06	7.90E+00	.	3.75E+03	1.50E+00	1.26E+00	2.17E-17
Silver (47)	Ag-112	1.94E+03	3.57E-04	2.37E+01	.	1.63E+02	4.48E+00	3.69E+00	1.12E-14
Silver (47)	Ag-113	1.13E+03	6.13E-04	5.06E-01	.	1.52E+03	3.50E-02	3.27E-02	1.71E-16
Silver (47)	Ag-113m	3.18E+05	2.18E-06	5.09E-01	.	4.60E+02	3.51E-02	3.28E-02	6.11E-19
Silver (47)	Ag-114	4.75E+06	1.46E-07	.	.	3.98E+02	.	3.98E+02	5.00E-16



Resident Tap Water DCCs July 2023									
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Ingestion DCC DL=1 (Bq/L)	Inhalation DCC DL=1 (Bq/L)	Immersion DCC DL=1 (Bq/L)	Produce Consumption DCC DL=1 (Bq/L)	Total DCC DL=1 (Bq/L)	Total DCC DL=1 (mg/L)
Silver (47)	Ag-115	1.82E+04	3.81E-05	3.76E-01	.	1.42E+02	1.24E-01	9.32E-02	3.09E-17
Silver (47)	Ag-116	1.36E+05	5.10E-06	.	.	5.16E+01	.	5.16E+01	2.31E-15
Silver (47)	Ag-117	2.97E+05	2.33E-06	2.57E+01	.	3.79E+01	2.32E+00	2.02E+00	4.17E-17
Silver (47)	Ag-99	1.76E+05	3.93E-06	8.90E+01	.	2.79E+01	2.56E+01	1.16E+01	3.42E-16
Aluminum (13)	Al-26	9.67E-07	7.17E+05	2.96E+00	.	4.25E+01	1.23E+00	8.49E-01	1.20E-06
Aluminum (13)	Al-28	1.63E+05	4.26E-06	.	.	6.18E+01	.	6.18E+01	5.59E-16
Aluminum (13)	Al-29	5.55E+04	1.25E-05	.	.	8.20E+01	.	8.20E+01	2.25E-15
Americium (95)	Am-237	4.99E+03	1.39E-04	1.25E-02	.	1.32E+02	5.04E-03	3.59E-03	8.95E-18
Americium (95)	Am-238	3.72E+03	1.86E-04	3.57E-03	1.40E-01	4.41E+01	1.43E-03	1.01E-03	3.40E-18
Americium (95)	Am-239	5.10E+02	1.36E-03	8.89E-03	2.74E-01	1.45E+02	3.57E-03	2.52E-03	6.20E-17
Americium (95)	Am-240	1.20E+02	5.80E-03	5.48E-03	1.02E-01	3.42E+01	2.04E-03	1.47E-03	1.54E-16
Americium (95)	Am-241	1.60E-03	4.32E+02	1.02E-02	.	2.23E+02	4.18E-03	2.97E-03	2.34E-11
Americium (95)	Am-242	3.79E+02	1.83E-03	3.55E-03	1.40E-01	6.52E+01	1.42E-03	1.00E-03	3.37E-17
Americium (95)	Am-242m	4.91E-03	1.41E+02	3.36E-03	1.40E-01	6.51E+01	1.35E-03	9.54E-04	2.46E-12
Americium (95)	Am-243	9.40E-05	7.37E+03	7.70E-03	2.74E-01	1.45E+02	3.12E-03	2.20E-03	2.98E-10
Americium (95)	Am-244	6.01E+02	1.15E-03	5.17E-03	1.02E-01	3.68E+01	1.94E-03	1.39E-03	2.96E-17
Americium (95)	Am-244m	1.40E+04	4.95E-05	5.17E-03	1.02E-01	4.83E+01	1.94E-03	1.39E-03	1.27E-18
Americium (95)	Am-245	2.96E+03	2.34E-04	8.63E-03	.	1.82E+02	3.55E-03	2.52E-03	1.09E-17
Americium (95)	Am-246	9.34E+03	7.42E-05	3.30E-03	1.40E-01	4.65E+01	1.33E-03	9.39E-04	1.30E-18
Americium (95)	Am-246m	1.46E+04	4.76E-05	3.30E-03	1.40E-01	4.19E+01	1.33E-03	9.39E-04	8.32E-19
Americium (95)	Am-247	1.58E+04	4.38E-05	6.83E-03	2.74E-01	9.37E+01	2.79E-03	1.96E-03	1.61E-18
Argon (18)	Ar-37	7.22E+00	9.60E-02	.	.	.	.	.	.
Argon (18)	Ar-39	2.58E-03	2.69E+02	.	.	9.23E+04	.	9.23E+04	7.33E-05
Argon (18)	Ar-41	3.32E+03	2.09E-04	.	.	8.88E+01	.	8.88E+01	5.75E-14
Argon (18)	Ar-42	2.11E-02	3.29E+01	2.30E+01	.	3.78E+02	2.03E+00	1.86E+00	1.94E-10
Argon (18)	Ar-43	6.78E+04	1.02E-05	4.24E+01	.	4.62E+01	3.74E+00	3.20E+00	1.06E-16
Argon (18)	Ar-44	3.07E+04	2.26E-05	1.22E+02	.	2.56E+01	1.08E+01	7.15E+00	5.38E-16
Arsenic (33)	As-68	1.44E+05	4.81E-06	7.43E+00	.	2.50E+01	6.95E-01	6.20E-01	1.53E-17
Arsenic (33)	As-69	2.39E+04	2.90E-05	4.07E+01	.	5.68E+01	4.15E+00	3.54E+00	5.35E-16
Arsenic (33)	As-70	6.92E+03	1.00E-04	7.71E+01	.	2.73E+01	1.87E+01	9.70E+00	5.14E-15
Arsenic (33)	As-71	9.30E+01	7.45E-03	2.25E+01	.	2.12E+02	5.22E+00	4.16E+00	1.66E-13
Arsenic (33)	As-72	2.33E+02	2.97E-03	5.61E+00	.	6.67E+01	1.36E+00	1.08E+00	1.74E-14

Resident Tap Water DCCs July 2023									
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Ingestion	Inhalation	Immersion	Produce	Total DCC DL=1 (Bq/L)	Total DCC DL=1 (mg/L)
				DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)		
Arsenic (33)	As-73	3.15E+00	2.20E-01	3.87E+01	.	3.33E+04	9.36E+00	7.53E+00	9.16E-12
Arsenic (33)	As-74	1.42E+01	4.87E-02	8.08E+00	.	1.60E+02	1.96E+00	1.56E+00	4.25E-13
Arsenic (33)	As-76	2.35E+02	2.95E-03	6.43E+00	.	2.78E+02	1.56E+00	1.25E+00	2.12E-14
Arsenic (33)	As-77	1.56E+02	4.43E-03	2.57E+01	.	1.26E+04	6.23E+00	5.02E+00	1.30E-13
Arsenic (33)	As-78	4.02E+03	1.73E-04	5.20E+01	.	8.75E+01	1.26E+01	9.08E+00	9.25E-15
Arsenic (33)	As-79	4.04E+04	1.71E-05	2.90E+00	.	2.37E+03	1.16E-01	1.12E-01	1.15E-17
Astatine (85)	At-204	3.96E+04	1.75E-05	1.33E+01	.	1.82E+01	3.43E+00	2.37E+00	6.40E-16
Astatine (85)	At-205	1.39E+04	4.98E-05	8.82E+00	.	2.69E+01	2.11E+00	1.60E+00	1.24E-15
Astatine (85)	At-206	1.19E+04	5.82E-05	4.94E-01	.	1.76E+01	1.92E-01	1.37E-01	1.25E-16
Astatine (85)	At-207	3.37E+03	2.05E-04	6.73E+00	.	2.45E+01	1.42E+00	1.12E+00	3.59E-15
Astatine (85)	At-208	3.72E+03	1.86E-04	6.23E-03	.	3.88E+01	2.65E-03	1.86E-03	5.44E-18
Astatine (85)	At-209	1.12E+03	6.18E-04	6.49E-03	.	5.10E+01	2.75E-03	1.93E-03	1.89E-17
Astatine (85)	At-210	7.49E+02	9.25E-04	7.76E-03	.	3.89E+01	3.29E-03	2.31E-03	3.40E-17
Astatine (85)	At-211	8.42E+02	8.24E-04	8.76E-01	.	1.76E+02	1.30E-01	1.13E-01	1.49E-15
Astatine (85)	At-215	2.19E+11	3.17E-12	.	.	2.28E+03	.	2.28E+03	1.18E-19
Astatine (85)	At-216	7.28E+10	9.51E-12	3.85E+01	.	8.33E+01	8.41E+00	6.38E+00	9.92E-22
Astatine (85)	At-217	6.77E+08	1.02E-09	3.96E+01	.	6.81E+02	9.49E+00	7.57E+00	1.27E-19
Astatine (85)	At-218	1.46E+07	4.76E-08	4.89E-03	.	7.65E+01	1.97E-03	1.41E-03	1.10E-21
Astatine (85)	At-219	3.90E+05	1.78E-06	5.34E+01	.	3.29E+02	1.98E+01	1.38E+01	4.07E-16
Astatine (85)	At-220	9.82E+04	7.06E-06	1.27E+00	1.02E-01	5.75E+01	4.61E-01	7.83E-02	9.20E-18
Gold (79)	Au-186	3.40E+04	2.04E-05	3.12E-01	.	3.10E+01	1.04E-01	7.78E-02	2.23E-17
Gold (79)	Au-187	4.34E+04	1.60E-05	5.14E+01	.	6.00E+01	1.40E+01	9.30E+00	2.10E-15
Gold (79)	Au-190	8.51E+03	8.14E-05	2.59E-01	.	4.71E+01	7.90E-02	6.05E-02	7.08E-17
Gold (79)	Au-191	1.91E+03	3.63E-04	2.33E+01	.	1.44E+02	5.51E+00	4.32E+00	2.27E-14
Gold (79)	Au-192	1.23E+03	5.64E-04	6.20E+01	.	5.85E+01	2.60E+01	1.40E+01	1.14E-13
Gold (79)	Au-193	3.44E+02	2.01E-03	6.16E+01	.	8.32E+02	2.14E+01	1.56E+01	4.59E-13
Gold (79)	Au-193m	5.60E+06	1.24E-07	6.16E+01	.	3.63E+02	2.14E+01	1.52E+01	2.75E-17
Gold (79)	Au-194	1.60E+02	4.34E-03	2.63E+01	.	1.12E+02	1.10E+01	7.28E+00	4.64E-13
Gold (79)	Au-195	1.36E+00	5.10E-01	3.82E+01	.	1.94E+03	1.61E+01	1.12E+01	8.46E-11
Gold (79)	Au-195m	7.17E+05	9.67E-07	3.82E+01	.	4.76E+02	1.61E+01	1.10E+01	1.58E-16
Gold (79)	Au-196	4.09E+01	1.69E-02	2.99E+01	.	2.67E+02	1.26E+01	8.56E+00	2.15E-12
Gold (79)	Au-196m	6.32E+02	1.10E-03	1.38E+01	.	1.80E+02	5.81E+00	4.00E+00	6.50E-14

Resident Tap Water DCCs July 2023									
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Ingestion	Inhalation	Immersion	Produce	Total DCC DL=1 (Bq/L)	Total DCC DL=1 (mg/L)
				DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)		
Gold (79)	Au-198	9.39E+01	7.38E-03	9.76E+00	.	3.03E+02	4.10E+00	2.86E+00	3.17E-13
Gold (79)	Au-198m	1.11E+02	6.22E-03	4.52E+00	.	1.35E+02	1.90E+00	1.32E+00	1.23E-13
Gold (79)	Au-199	8.06E+01	8.60E-03	2.23E+01	.	1.35E+03	9.38E+00	6.57E+00	8.51E-13
Gold (79)	Au-200	7.53E+03	9.21E-05	1.49E+02	.	4.16E+02	6.28E+01	4.00E+01	5.57E-14
Gold (79)	Au-200m	3.25E+02	2.13E-03	1.02E+01	.	5.99E+01	4.27E+00	2.86E+00	9.24E-14
Gold (79)	Au-201	1.40E+04	4.95E-05	4.15E+02	.	3.26E+03	1.74E+02	1.18E+02	8.90E-14
Gold (79)	Au-202	7.59E+05	9.13E-07	.	.	6.38E+02	.	6.38E+02	8.91E-15
Barium (56)	Ba-124	3.31E+04	2.09E-05	1.47E+02	.	6.92E+01	5.83E+01	2.60E+01	5.11E-15
Barium (56)	Ba-126	3.64E+03	1.90E-04	4.04E+01	.	6.96E+01	1.60E+01	9.85E+00	1.79E-14
Barium (56)	Ba-127	2.87E+04	2.42E-05	2.13E+02	.	8.70E+01	7.93E+01	3.47E+01	8.06E-15
Barium (56)	Ba-128	1.04E+02	6.66E-03	3.81E+00	.	1.29E+02	1.51E+00	1.07E+00	6.92E-14
Barium (56)	Ba-129	2.72E+03	2.55E-04	9.86E+01	.	2.11E+02	3.64E+01	2.36E+01	5.87E-14
Barium (56)	Ba-129m	2.81E+03	2.47E-04	8.32E+01	.	6.54E+01	3.11E+01	1.68E+01	4.05E-14
Barium (56)	Ba-131	2.20E+01	3.15E-02	1.99E+01	.	2.67E+02	7.80E+00	5.49E+00	1.72E-12
Barium (56)	Ba-131m	2.49E+04	2.78E-05	1.98E+01	.	2.36E+02	7.72E+00	5.43E+00	1.49E-15
Barium (56)	Ba-133	6.59E-02	1.05E+01	5.56E+00	.	3.32E+02	2.21E+00	1.57E+00	1.66E-10
Barium (56)	Ba-133m	1.56E+02	4.44E-03	4.30E+00	.	2.88E+02	1.70E+00	1.21E+00	5.43E-14
Barium (56)	Ba-135m	2.12E+02	3.28E-03	2.40E+01	.	2.54E+03	9.51E+00	6.79E+00	2.27E-13
Barium (56)	Ba-137m	1.43E+05	4.86E-06	.	.	2.03E+02	.	2.03E+02	1.02E-14
Barium (56)	Ba-139	4.39E+03	1.58E-04	8.27E+01	.	2.28E+03	3.28E+01	2.33E+01	3.87E-14
Barium (56)	Ba-140	1.98E+01	3.49E-02	2.15E+00	.	4.61E+01	8.72E-01	6.13E-01	2.27E-13
Barium (56)	Ba-141	1.99E+04	3.48E-05	8.55E+00	.	1.14E+02	3.56E+00	2.46E+00	9.13E-16
Barium (56)	Ba-142	3.44E+04	2.02E-05	4.92E+01	.	3.27E+01	2.04E+01	1.00E+01	2.17E-15
Beryllium (4)	Be-10	4.59E-07	1.51E+06	8.70E+00	.	7.62E+04	3.61E+00	2.55E+00	2.91E-06
Beryllium (4)	Be-7	4.75E+00	1.46E-01	3.90E+02	.	2.46E+03	1.62E+02	1.09E+02	8.43E-12
Bismuth (83)	Bi-197	3.92E+04	1.77E-05	3.45E+01	.	3.20E+01	4.21E+00	3.36E+00	8.86E-16
Bismuth (83)	Bi-200	1.00E+04	6.93E-05	1.71E+01	.	3.05E+01	6.20E+00	3.96E+00	4.15E-15
Bismuth (83)	Bi-201	3.37E+03	2.05E-04	2.87E+01	.	4.34E+01	8.98E+00	5.91E+00	1.85E-14
Bismuth (83)	Bi-202	3.53E+03	1.96E-04	6.29E-01	.	3.72E+01	2.33E-01	1.69E-01	5.08E-16
Bismuth (83)	Bi-203	5.16E+02	1.34E-03	1.45E+01	.	4.33E+01	3.67E+00	2.74E+00	5.66E-14
Bismuth (83)	Bi-204	5.41E+02	1.28E-03	1.86E+01	.	3.78E+01	4.08E+00	3.08E+00	6.08E-14
Bismuth (83)	Bi-205	1.65E+01	4.19E-02	9.03E+00	.	6.83E+01	2.18E+00	1.71E+00	1.11E-12

Resident Tap Water DCCs July 2023									
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Ingestion	Inhalation	Immersion	Produce	Total DCC DL=1 (Bq/L)	Total DCC DL=1 (mg/L)
				DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)		
Bismuth (83)	Bi-206	4.05E+01	1.71E-02	5.49E+00	.	3.60E+01	1.20E+00	9.58E-01	2.55E-13
Bismuth (83)	Bi-207	2.11E-02	3.29E+01	8.22E+00	.	7.72E+01	1.79E+00	1.45E+00	7.45E-10
Bismuth (83)	Bi-208	1.88E-06	3.68E+05	9.42E+00	.	4.03E+01	2.06E+00	1.62E+00	9.38E-06
Bismuth (83)	Bi-210	5.05E+01	1.37E-02	7.75E-03	.	3.95E+04	3.29E-03	2.31E-03	5.04E-16
Bismuth (83)	Bi-210m	2.28E-07	3.04E+06	6.75E-01	.	4.66E+02	1.47E-01	1.21E-01	5.84E-06
Bismuth (83)	Bi-211	1.70E+05	4.07E-06	.	.	2.29E+03	.	2.29E+03	1.49E-13
Bismuth (83)	Bi-212	6.02E+03	1.15E-04	3.85E+01	.	8.34E+01	8.41E+00	6.38E+00	1.18E-14
Bismuth (83)	Bi-212n	5.20E+04	1.33E-05	.	.	1.30E+03	.	1.30E+03	2.77E-13
Bismuth (83)	Bi-213	7.99E+03	8.67E-05	3.96E+01	.	6.82E+02	9.49E+00	7.57E+00	1.06E-14
Bismuth (83)	Bi-214	1.83E+04	3.79E-05	4.89E-03	.	7.65E+01	1.97E-03	1.41E-03	8.62E-19
Bismuth (83)	Bi-215	4.79E+04	1.45E-05	5.18E+01	.	3.19E+02	1.92E+01	1.34E+01	3.16E-15
Bismuth (83)	Bi-216	1.68E+05	4.13E-06	1.27E+00	.	5.18E+01	4.61E-01	3.36E-01	2.27E-17
Berkelium (97)	Bk-245	5.12E+01	1.35E-02	8.63E-03	.	1.43E+02	3.55E-03	2.51E-03	6.31E-16
Berkelium (97)	Bk-246	1.41E+02	4.93E-03	3.30E-03	1.40E-01	4.44E+01	1.33E-03	9.39E-04	8.62E-17
Berkelium (97)	Bk-247	5.02E-04	1.38E+03	6.15E-03	2.74E-01	1.25E+02	2.52E-03	1.77E-03	4.58E-11
Berkelium (97)	Bk-248m	2.56E+02	2.71E-03	4.69E-03	1.46E+01	4.03E+01	1.78E-03	1.29E-03	6.56E-17
Berkelium (97)	Bk-249	7.67E-01	9.04E-01	6.72E-03	.	1.27E+02	2.79E-03	1.97E-03	3.36E-14
Berkelium (97)	Bk-250	1.89E+03	3.67E-04	3.14E-03	1.40E-01	4.31E+01	1.26E-03	8.94E-04	6.20E-18
Berkelium (97)	Bk-251	6.55E+03	1.06E-04	5.56E-03	2.74E-01	8.95E+01	2.29E-03	1.61E-03	3.24E-18
Bromine (35)	Br-72	2.78E+05	2.49E-06	1.27E+00	.	2.45E+01	6.31E-02	5.99E-02	8.14E-19
Bromine (35)	Br-73	1.07E+05	6.47E-06	2.30E+01	.	4.86E+01	1.83E+00	1.64E+00	5.87E-17
Bromine (35)	Br-74	1.43E+04	4.83E-05	1.27E+02	.	2.37E+01	4.57E+01	1.39E+01	3.76E-15
Bromine (35)	Br-74m	7.92E+03	8.75E-05	7.71E+01	.	2.73E+01	2.78E+01	1.17E+01	5.72E-15
Bromine (35)	Br-75	3.77E+03	1.84E-04	3.93E+00	.	7.75E+01	1.62E-01	1.55E-01	1.62E-16
Bromine (35)	Br-76	3.75E+02	1.85E-03	2.29E+01	.	4.06E+01	8.26E+00	5.28E+00	5.62E-14
Bromine (35)	Br-76m	1.67E+07	4.15E-08	2.30E+01	.	4.04E+01	8.29E+00	5.29E+00	1.26E-18
Bromine (35)	Br-77	1.06E+02	6.51E-03	1.13E+02	.	3.87E+02	4.08E+01	2.78E+01	1.06E-12
Bromine (35)	Br-77m	8.51E+04	8.14E-06	1.13E+02	.	3.71E+02	4.08E+01	2.77E+01	1.32E-15
Bromine (35)	Br-78	5.64E+04	1.23E-05	.	.	1.17E+02	.	1.17E+02	8.48E-15
Bromine (35)	Br-80	2.06E+04	3.36E-05	3.25E+02	.	1.46E+03	1.17E+02	8.12E+01	1.65E-14
Bromine (35)	Br-80m	1.37E+03	5.05E-04	6.89E+01	.	1.37E+03	2.49E+01	1.80E+01	5.51E-14
Bromine (35)	Br-82	1.72E+02	4.03E-03	2.01E+01	.	4.47E+01	7.25E+00	4.76E+00	1.19E-13



Resident Tap Water DCCs July 2023									
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Ingestion DCC DL=1 (Bq/L)	Inhalation DCC DL=1 (Bq/L)	Immersion DCC DL=1 (Bq/L)	Produce Consumption DCC DL=1 (Bq/L)	Total DCC DL=1 (Bq/L)	Total DCC DL=1 (mg/L)
Bromine (35)	Br-82m	5.94E+04	1.17E-05	2.06E+01	.	4.58E+01	7.42E+00	4.88E+00	3.53E-16
Bromine (35)	Br-83	2.53E+03	2.74E-04	2.27E+02	.	1.31E+04	8.18E+01	5.98E+01	1.03E-13
Bromine (35)	Br-84	1.15E+04	6.05E-05	1.15E+02	.	6.15E+01	4.15E+01	2.04E+01	7.84E-15
Bromine (35)	Br-84m	6.07E+04	1.14E-05	.	.	4.17E+01	.	4.17E+01	3.03E-15
Bromine (35)	Br-85	1.26E+05	5.52E-06	.	.	5.19E+02	.	5.19E+02	1.84E-14
Carbon (6)	C-10	1.14E+06	6.11E-07	.	.	6.91E+01	.	6.91E+01	3.19E-17
Carbon (6)	C-11	1.79E+04	3.88E-05	4.38E+02	.	1.19E+02	9.55E+01	4.73E+01	1.53E-15
Carbon (6)	C-14	1.22E-04	5.70E+03	2.14E+01	5.25E-01	4.09E+06	4.68E+00	4.62E-01	2.79E-09
Calcium (20)	Ca-41	6.79E-06	1.02E+05	4.58E+01	.	.	4.66E+00	4.23E+00	1.34E-06
Calcium (20)	Ca-45	1.55E+00	4.46E-01	1.30E+01	.	7.12E+05	1.33E+00	1.20E+00	1.83E-12
Calcium (20)	Ca-47	5.58E+01	1.24E-02	4.85E+00	.	9.98E+01	6.19E-01	5.46E-01	2.41E-14
Calcium (20)	Ca-49	4.18E+04	1.66E-05	1.23E+02	.	3.26E+01	5.21E+01	1.73E+01	1.06E-15
Cadmium (48)	Cd-101	2.68E+05	2.59E-06	2.82E+01	.	2.52E+01	7.82E+00	4.92E+00	9.73E-17
Cadmium (48)	Cd-102	6.62E+04	1.05E-05	4.89E+02	.	2.57E+01	9.27E+01	1.93E+01	1.56E-15
Cadmium (48)	Cd-103	4.99E+04	1.39E-05	4.27E+01	.	3.94E+01	9.15E+00	6.33E+00	6.85E-16
Cadmium (48)	Cd-104	6.31E+03	1.10E-04	6.13E+01	.	5.75E+01	5.60E+00	4.71E+00	4.07E-15
Cadmium (48)	Cd-105	6.56E+03	1.06E-04	2.11E+01	.	6.52E+01	3.47E+00	2.85E+00	2.39E-15
Cadmium (48)	Cd-107	9.34E+02	7.42E-04	1.58E+02	.	1.08E+04	1.08E+01	1.01E+01	6.06E-14
Cadmium (48)	Cd-109	5.48E-01	1.26E+00	5.38E+00	.	2.27E+04	3.68E-01	3.44E-01	3.59E-12
Cadmium (48)	Cd-111m	7.51E+03	9.23E-05	7.50E+02	.	4.47E+02	5.12E+01	4.33E+01	3.35E-14
Cadmium (48)	Cd-113	9.00E-17	7.70E+15	5.16E-01	.	4.34E+05	3.52E-02	3.30E-02	2.17E+03
Cadmium (48)	Cd-113m	4.91E-02	1.41E+01	5.27E-01	.	1.11E+05	3.60E-02	3.37E-02	4.06E-12
Cadmium (48)	Cd-115	1.14E+02	6.10E-03	3.80E-01	.	3.49E+02	1.27E-01	9.52E-02	5.06E-15
Cadmium (48)	Cd-115m	5.67E+00	1.22E-01	3.40E-01	.	2.99E+03	9.26E-02	7.28E-02	7.74E-14
Cadmium (48)	Cd-117	2.44E+03	2.84E-04	2.47E+01	.	7.75E+01	2.30E+00	2.05E+00	5.17E-15
Cadmium (48)	Cd-117m	1.81E+03	3.84E-04	3.26E+01	.	4.21E+01	2.44E+00	2.15E+00	7.31E-15
Cadmium (48)	Cd-118	7.24E+03	9.57E-05	5.43E+01	.	1.09E+03	3.70E+00	3.46E+00	2.95E-15
Cadmium (48)	Cd-119	1.35E+05	5.12E-06	2.40E+02	.	6.21E+01	9.94E+01	3.30E+01	1.52E-15
Cadmium (48)	Cd-119m	1.66E+05	4.19E-06	2.86E+03	.	3.72E+01	3.21E+02	3.30E+01	1.24E-15
Cerium (58)	Ce-130	1.59E+04	4.36E-05	1.45E+02	.	4.38E+01	6.06E+01	2.16E+01	9.27E-15
Cerium (58)	Ce-131	3.57E+04	1.94E-05	1.78E+01	.	4.41E+01	7.03E+00	4.52E+00	8.70E-16
Cerium (58)	Ce-132	1.73E+03	4.01E-04	1.38E+01	.	5.23E+01	5.77E+00	3.77E+00	1.51E-14

Resident Tap Water DCCs July 2023									
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Ingestion DCC DL=1 (Bq/L)	Inhalation DCC DL=1 (Bq/L)	Immersion DCC DL=1 (Bq/L)	Produce Consumption DCC DL=1 (Bq/L)	Total DCC DL=1 (Bq/L)	Total DCC DL=1 (mg/L)
Cerium (58)	Ce-133	3.76E+03	1.85E-04	5.21E+00	.	1.19E+02	2.07E+00	1.47E+00	2.72E-15
Cerium (58)	Ce-133m	1.24E+03	5.59E-04	4.93E+00	.	5.31E+01	1.97E+00	1.37E+00	7.71E-15
Cerium (58)	Ce-134	8.00E+01	8.66E-03	3.74E+00	.	1.66E+02	1.57E+00	1.10E+00	9.62E-14
Cerium (58)	Ce-135	3.43E+02	2.02E-03	3.61E+01	.	1.47E+02	1.51E+01	9.93E+00	2.05E-13
Cerium (58)	Ce-137	6.75E+02	1.03E-03	9.25E+01	.	4.51E+03	3.86E+01	2.71E+01	2.88E-13
Cerium (58)	Ce-137m	1.76E+02	3.93E-03	1.50E+01	.	1.74E+03	6.27E+00	4.41E+00	1.80E-13
Cerium (58)	Ce-139	1.84E+00	3.77E-01	3.88E+01	.	8.95E+02	1.62E+01	1.13E+01	4.48E-11
Cerium (58)	Ce-141	7.78E+00	8.91E-02	1.39E+01	.	1.72E+03	5.81E+00	4.09E+00	3.88E-12
Cerium (58)	Ce-143	1.84E+02	3.77E-03	4.29E+00	.	4.54E+02	1.78E+00	1.26E+00	5.13E-14
Cerium (58)	Ce-144	8.88E-01	7.81E-01	2.26E-01	.	1.95E+03	9.52E-02	6.70E-02	5.70E-13
Cerium (58)	Ce-145	1.21E+05	5.73E-06	2.49E+01	.	1.46E+02	1.03E+01	6.93E+00	4.35E-16
Californium (98)	Cf-244	1.88E+04	3.69E-05	1.75E-02	1.02E-01	7.58E+01	7.01E-03	4.77E-03	3.25E-18
Californium (98)	Cf-246	1.70E+02	4.08E-03	3.55E-03	1.40E-01	6.59E+01	1.42E-03	1.01E-03	7.63E-17
Californium (98)	Cf-247	1.95E+03	3.55E-04	6.15E-03	2.74E-01	1.15E+02	2.52E-03	1.77E-03	1.18E-17
Californium (98)	Cf-248	7.57E-01	9.15E-01	5.08E-03	1.02E-01	4.86E+01	1.91E-03	1.37E-03	2.35E-14
Californium (98)	Cf-249	1.97E-03	3.51E+02	6.73E-03	.	1.27E+02	2.79E-03	1.97E-03	1.30E-11
Californium (98)	Cf-250	5.30E-02	1.31E+01	3.14E-03	1.40E-01	6.42E+01	1.26E-03	8.94E-04	2.21E-13
Californium (98)	Cf-251	7.70E-04	9.00E+02	5.56E-03	2.74E-01	9.50E+01	2.29E-03	1.61E-03	2.75E-11
Californium (98)	Cf-252	2.62E-01	2.65E+00	3.92E-03	1.02E-01	2.75E+01	1.53E-03	1.09E-03	5.49E-14
Californium (98)	Cf-253	1.42E+01	4.88E-02	6.68E-03	.	1.27E+02	2.77E-03	1.96E-03	1.83E-15
Californium (98)	Cf-254	4.18E+00	1.66E-01	2.17E-02	1.40E-01	6.62E+00	9.26E-03	6.20E-03	1.98E-14
Californium (98)	Cf-255	4.29E+03	1.62E-04	5.53E-03	2.74E-01	9.42E+01	2.27E-03	1.60E-03	5.00E-18
Chlorine (17)	Cl-34	1.43E+07	4.84E-08	.	.	1.16E+02	.	1.16E+02	1.44E-17
Chlorine (17)	Cl-34m	1.14E+04	6.09E-05	9.90E+01	.	4.38E+01	5.45E-01	5.36E-01	8.39E-17
Chlorine (17)	Cl-36	2.30E-06	3.01E+05	1.09E+01	.	6.09E+04	6.02E-02	5.99E-02	4.91E-08
Chlorine (17)	Cl-38	9.78E+03	7.09E-05	8.70E+01	.	7.48E+01	4.79E-01	4.73E-01	9.64E-17
Chlorine (17)	Cl-39	6.55E+03	1.06E-04	1.20E+02	.	7.87E+01	6.61E-01	6.52E-01	2.04E-16
Chlorine (17)	Cl-40	2.70E+05	2.57E-06	.	.	2.61E+01	.	2.61E+01	2.03E-16
Curium (96)	Cm-238	2.53E+03	2.74E-04	3.58E-03	1.40E-01	4.29E+01	1.43E-03	1.01E-03	5.01E-18
Curium (96)	Cm-239	2.09E+03	3.31E-04	8.89E-03	2.74E-01	1.13E+02	3.57E-03	2.52E-03	1.51E-17
Curium (96)	Cm-240	9.37E+00	7.40E-02	1.75E-02	1.02E-01	7.58E+01	7.01E-03	4.77E-03	6.41E-15
Curium (96)	Cm-241	7.71E+00	8.99E-02	1.03E-02	.	1.19E+02	4.19E-03	2.97E-03	4.87E-15

Resident Tap Water DCCs July 2023									
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Ingestion	Inhalation	Immersion	Produce	Total DCC DL=1 (Bq/L)	Total DCC DL=1 (mg/L)
				DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)		
Curium (96)	Cm-242	1.55E+00	4.46E-01	3.55E-03	1.40E-01	6.59E+01	1.42E-03	1.01E-03	8.23E-15
Curium (96)	Cm-243	2.38E-02	2.91E+01	7.95E-03	2.74E-01	1.63E+02	3.21E-03	2.27E-03	1.21E-12
Curium (96)	Cm-244	3.83E-02	1.81E+01	5.17E-03	1.02E-01	4.86E+01	1.94E-03	1.39E-03	4.65E-13
Curium (96)	Cm-245	8.15E-05	8.50E+03	8.63E-03	.	1.91E+02	3.55E-03	2.52E-03	3.96E-10
Curium (96)	Cm-246	1.46E-04	4.76E+03	3.30E-03	1.40E-01	6.45E+01	1.33E-03	9.39E-04	8.32E-11
Curium (96)	Cm-247	4.44E-08	1.56E+07	6.83E-03	2.74E-01	1.04E+02	2.79E-03	1.96E-03	5.73E-07
Curium (96)	Cm-248	1.99E-06	3.48E+05	3.97E-03	1.02E-01	3.01E+01	1.55E-03	1.10E-03	7.19E-09
Curium (96)	Cm-249	5.68E+03	1.22E-04	6.72E-03	.	1.24E+02	2.79E-03	1.97E-03	4.53E-18
Curium (96)	Cm-250	8.35E-05	8.30E+03	1.87E-03	1.40E-01	7.96E+00	7.91E-04	5.54E-04	8.69E-11
Curium (96)	Cm-251	2.17E+04	3.20E-05	5.56E-03	2.74E-01	8.26E+01	2.29E-03	1.61E-03	9.78E-19
Cobalt (27)	Co-54m	2.46E+05	2.82E-06	.	.	2.96E+01	.	2.96E+01	3.41E-16
Cobalt (27)	Co-55	3.46E+02	2.00E-03	7.45E+00	.	5.94E+01	2.12E+00	1.60E+00	1.34E-14
Cobalt (27)	Co-56	3.28E+00	2.12E-01	3.94E+00	.	3.09E+01	1.06E+00	8.12E-01	7.28E-13
Cobalt (27)	Co-57	9.31E-01	7.44E-01	4.33E+01	.	1.06E+03	1.16E+01	9.09E+00	2.92E-11
Cobalt (27)	Co-58	3.57E+00	1.94E-01	1.34E+01	.	1.23E+02	3.60E+00	2.78E+00	2.37E-12
Cobalt (27)	Co-58m	6.72E+02	1.03E-03	1.30E+01	.	1.23E+02	3.50E+00	2.70E+00	1.22E-14
Cobalt (27)	Co-60	1.31E-01	5.27E+00	2.47E+00	.	4.58E+01	6.63E-01	5.17E-01	1.24E-11
Cobalt (27)	Co-60m	3.48E+04	1.99E-05	2.48E+00	.	4.58E+01	6.64E-01	5.18E-01	4.68E-17
Cobalt (27)	Co-61	3.68E+03	1.88E-04	1.36E+02	.	1.36E+03	3.64E+01	2.81E+01	2.44E-14
Cobalt (27)	Co-62	2.43E+05	2.85E-06	.	.	6.95E+01	.	6.95E+01	9.30E-16
Cobalt (27)	Co-62m	2.62E+04	2.65E-05	2.09E+02	.	4.20E+01	5.62E+01	2.16E+01	2.68E-15
Chromium (24)	Cr-48	2.82E+02	2.46E-03	4.87E+00	.	3.51E+01	1.93E+00	1.33E+00	1.19E-14
Chromium (24)	Cr-49	8.61E+03	8.05E-05	1.27E+02	.	1.16E+02	5.34E+01	2.84E+01	8.47E-15
Chromium (24)	Cr-51	9.13E+00	7.59E-02	2.70E+02	.	3.87E+03	1.16E+02	7.92E+01	2.32E-11
Chromium (24)	Cr-55	1.04E+05	6.65E-06	.	.	9.09E+03	.	9.09E+03	2.52E-13
Chromium (24)	Cr-56	6.13E+04	1.13E-05	3.98E+01	.	6.44E+01	5.95E+00	4.79E+00	2.29E-16
Cesium (55)	Cs-121	1.41E+05	4.92E-06	2.01E+01	.	3.30E+01	3.41E+00	2.68E+00	1.21E-16
Cesium (55)	Cs-121m	1.79E+05	3.87E-06	2.01E+01	.	3.13E+01	3.41E+00	2.67E+00	9.46E-17
Cesium (55)	Cs-123	6.19E+04	1.12E-05	7.48E+00	.	6.47E+01	1.29E+00	1.08E+00	1.12E-16
Cesium (55)	Cs-124	7.10E+05	9.77E-07	.	.	1.02E+02	.	1.02E+02	9.33E-16
Cesium (55)	Cs-125	8.09E+03	8.56E-05	7.16E-01	.	1.21E+02	2.10E-01	1.62E-01	1.31E-16
Cesium (55)	Cs-126	2.22E+05	3.12E-06	.	.	1.04E+02	.	1.04E+02	3.08E-15

Resident Tap Water DCCs July 2023									
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Ingestion	Inhalation	Immersion	Produce	Total DCC DL=1 (Bq/L)	Total DCC DL=1 (mg/L)
				DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)		
Cesium (55)	Cs-127	9.71E+02	7.13E-04	4.39E+02	.	1.82E+02	1.53E+02	7.00E+01	4.80E-13
Cesium (55)	Cs-128	1.00E+05	6.93E-06	.	.	1.36E+02	.	1.36E+02	9.10E-15
Cesium (55)	Cs-129	1.89E+02	3.66E-03	1.81E+02	.	4.80E+02	6.32E+01	4.27E+01	1.53E-12
Cesium (55)	Cs-130	1.25E+04	5.56E-05	3.81E+02	.	2.45E+02	1.33E+02	7.03E+01	3.84E-14
Cesium (55)	Cs-130m	1.05E+05	6.58E-06	3.82E+02	.	2.24E+02	1.33E+02	6.86E+01	4.44E-15
Cesium (55)	Cs-131	2.61E+01	2.65E-02	1.88E+02	.	2.10E+04	6.57E+01	4.86E+01	1.28E-11
Cesium (55)	Cs-132	3.90E+01	1.78E-02	2.26E+01	.	1.72E+02	7.90E+00	5.66E+00	1.00E-12
Cesium (55)	Cs-134	3.36E-01	2.06E+00	7.26E-01	.	7.72E+01	2.54E-01	1.87E-01	3.92E-12
Cesium (55)	Cs-134m	2.09E+03	3.31E-04	7.25E-01	.	7.63E+01	2.53E-01	1.87E-01	6.29E-16
Cesium (55)	Cs-135	3.01E-07	2.30E+06	5.14E+00	.	4.98E+05	1.80E+00	1.33E+00	3.13E-05
Cesium (55)	Cs-135m	6.87E+03	1.01E-04	5.09E+00	.	7.43E+01	1.78E+00	1.30E+00	1.34E-15
Cesium (55)	Cs-136	1.92E+01	3.61E-02	3.93E+00	.	5.55E+01	1.37E+00	1.00E+00	3.71E-13
Cesium (55)	Cs-137	2.30E-02	3.02E+01	1.02E+00	.	2.14E+02	3.57E-01	2.64E-01	8.25E-11
Cesium (55)	Cs-138	1.09E+04	6.36E-05	1.06E+02	.	4.76E+01	3.70E+01	1.74E+01	1.16E-14
Cesium (55)	Cs-138m	1.25E+05	5.54E-06	1.31E+02	.	4.88E+01	4.57E+01	2.00E+01	1.16E-15
Cesium (55)	Cs-139	3.93E+04	1.76E-05	8.27E+01	.	2.98E+02	3.28E+01	2.18E+01	4.04E-15
Cesium (55)	Cs-140	3.43E+05	2.02E-06	2.15E+00	.	2.64E+01	8.72E-01	6.07E-01	1.30E-17
Copper (29)	Cu-57	1.11E+08	6.22E-09	9.15E+00	.	3.59E+01	3.27E+00	2.26E+00	6.06E-20
Copper (29)	Cu-59	2.68E+05	2.58E-06	1.70E+02	.	8.20E+01	6.69E+01	3.03E+01	3.50E-16
Copper (29)	Cu-60	1.54E+04	4.51E-05	1.45E+02	.	2.91E+01	4.21E+01	1.54E+01	3.15E-15
Copper (29)	Cu-61	1.82E+03	3.80E-04	9.11E+01	.	1.47E+02	2.64E+01	1.80E+01	3.15E-14
Copper (29)	Cu-62	3.77E+04	1.84E-05	.	.	1.19E+02	.	1.19E+02	1.03E-14
Copper (29)	Cu-64	4.78E+02	1.45E-03	8.53E+01	.	6.56E+02	2.47E+01	1.86E+01	1.31E-13
Copper (29)	Cu-66	7.11E+04	9.74E-06	.	.	1.06E+03	.	1.06E+03	5.18E-14
Copper (29)	Cu-67	9.82E+01	7.06E-03	3.12E+01	.	1.09E+03	9.04E+00	6.96E+00	2.49E-13
Copper (29)	Cu-69	1.28E+05	5.42E-06	3.28E+02	.	2.17E+02	1.42E+01	1.28E+01	3.63E-16
Dysprosium (66)	Dy-148	1.10E+05	6.28E-06	1.88E-01	.	3.83E+01	7.95E-02	5.58E-02	3.93E-18
Dysprosium (66)	Dy-149	8.67E+04	7.99E-06	1.24E+01	.	3.29E+01	5.20E+00	3.29E+00	2.97E-16
Dysprosium (66)	Dy-150	5.08E+04	1.36E-05	1.18E-01	.	4.19E+01	5.03E-02	3.53E-02	5.46E-18
Dysprosium (66)	Dy-151	2.03E+04	3.41E-05	3.08E+00	.	4.91E+01	1.31E+00	9.02E-01	3.51E-16
Dysprosium (66)	Dy-152	2.55E+03	2.72E-04	8.38E-02	.	6.68E+01	3.55E-02	2.49E-02	7.79E-17
Dysprosium (66)	Dy-153	9.49E+02	7.31E-04	1.38E+01	.	9.83E+01	5.82E+00	3.93E+00	3.33E-14



Resident Tap Water DCCs July 2023									
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Ingestion	Inhalation	Immersion	Produce	Total DCC DL=1 (Bq/L)	Total DCC DL=1 (mg/L)
				DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)		
Dysprosium (66)	Dy-154	2.31E-07	3.00E+06	6.44E-02	.	.	2.73E-02	1.92E-02	6.71E-07
Dysprosium (66)	Dy-155	6.13E+02	1.13E-03	2.54E+01	.	1.50E+02	1.07E+01	7.17E+00	9.51E-14
Dysprosium (66)	Dy-157	7.46E+02	9.29E-04	1.04E+02	.	3.72E+02	4.40E+01	2.86E+01	3.15E-13
Dysprosium (66)	Dy-159	1.75E+00	3.96E-01	9.62E+01	.	5.09E+03	4.07E+01	2.84E+01	1.35E-10
Dysprosium (66)	Dy-165	2.60E+03	2.66E-04	9.11E+01	.	4.33E+03	3.85E+01	2.69E+01	8.94E-14
Dysprosium (66)	Dy-165m	2.90E+05	2.39E-06	9.32E+01	.	2.80E+03	3.94E+01	2.74E+01	8.18E-16
Dysprosium (66)	Dy-166	7.44E+01	9.32E-03	3.22E+00	.	1.89E+03	1.36E+00	9.54E-01	1.12E-13
Dysprosium (66)	Dy-167	5.87E+04	1.18E-05	1.16E+02	.	1.37E+02	4.90E+01	2.75E+01	4.10E-15
Dysprosium (66)	Dy-168	4.19E+04	1.66E-05	.	.	9.46E+01	.	9.46E+01	1.99E-14
Erbium (68)	Er-154	9.77E+04	7.10E-06	6.46E-02	.	6.14E+01	2.74E-02	1.92E-02	1.59E-18
Erbium (68)	Er-156	1.87E+04	3.71E-05	7.88E+01	.	5.47E+01	3.34E+01	1.64E+01	7.19E-15
Erbium (68)	Er-159	1.01E+04	6.85E-05	7.49E+01	.	9.04E+01	3.17E+01	1.79E+01	1.47E-14
Erbium (68)	Er-161	1.89E+03	3.66E-04	1.08E+02	.	1.18E+02	4.62E+01	2.54E+01	1.14E-13
Erbium (68)	Er-163	4.86E+03	1.43E-04	1.84E+03	.	5.23E+03	7.79E+02	4.95E+02	8.72E-13
Erbium (68)	Er-165	5.86E+02	1.18E-03	5.28E+02	.	5.68E+03	2.25E+02	1.54E+02	2.27E-12
Erbium (68)	Er-167m	9.63E+06	7.19E-08	.	.	1.34E+03	.	1.34E+03	1.22E-15
Erbium (68)	Er-169	2.69E+01	2.58E-02	2.63E+01	.	3.65E+05	1.12E+01	7.87E+00	2.59E-12
Erbium (68)	Er-171	8.08E+02	8.58E-04	2.14E+01	.	3.37E+02	9.13E+00	6.28E+00	6.98E-14
Erbium (68)	Er-172	1.23E+02	5.63E-03	3.65E+00	.	1.21E+02	1.55E+00	1.08E+00	7.89E-14
Erbium (68)	Er-173	2.54E+05	2.73E-06	3.33E+01	.	9.99E+01	1.41E+01	9.01E+00	3.22E-16
Einsteinium (99)	Es-249	3.56E+03	1.94E-04	6.73E-03	.	8.97E+01	2.79E-03	1.97E-03	7.23E-18
Einsteinium (99)	Es-250	7.06E+02	9.82E-04	3.18E-03	1.40E-01	4.00E+01	1.28E-03	9.08E-04	1.69E-17
Einsteinium (99)	Es-250m	2.73E+03	2.53E-04	3.14E-03	1.40E-01	4.96E+01	1.26E-03	8.94E-04	4.29E-18
Einsteinium (99)	Es-251	1.84E+02	3.77E-03	5.56E-03	2.74E-01	8.94E+01	2.29E-03	1.61E-03	1.15E-16
Einsteinium (99)	Es-253	1.24E+01	5.61E-02	6.69E-03	.	1.27E+02	2.77E-03	1.96E-03	2.11E-15
Einsteinium (99)	Es-254	9.17E-01	7.55E-01	3.10E-03	1.40E-01	4.30E+01	1.25E-03	8.85E-04	1.29E-14
Einsteinium (99)	Es-254m	1.54E+02	4.49E-03	3.19E-03	1.40E-01	5.15E+01	1.28E-03	9.08E-04	7.83E-17
Einsteinium (99)	Es-255	6.36E+00	1.09E-01	5.53E-03	2.74E-01	9.43E+01	2.27E-03	1.60E-03	3.37E-15
Einsteinium (99)	Es-256	1.43E+04	4.83E-05	4.39E-02	1.02E-01	8.78E+00	1.73E-02	1.10E-02	1.03E-17
Europium (63)	Eu-142	9.34E+06	7.42E-08	5.58E+01	.	5.45E+01	2.38E+01	1.28E+01	1.02E-17
Europium (63)	Eu-142m	2.98E+05	2.33E-06	5.58E+01	.	2.71E+01	2.38E+01	1.03E+01	2.58E-16
Europium (63)	Eu-143	1.41E+05	4.93E-06	4.52E+01	.	6.11E+01	1.64E+01	1.00E+01	5.35E-16

Resident Tap Water DCCs July 2023									
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Ingestion	Inhalation	Immersion	Produce	Total DCC DL=1 (Bq/L)	Total DCC DL=1 (mg/L)
				DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)		
Europium (63)	Eu-144	2.14E+06	3.23E-07	.	.	1.06E+02	.	1.06E+02	3.75E-16
Europium (63)	Eu-145	4.27E+01	1.62E-02	1.07E+01	.	8.87E+01	4.41E+00	3.02E+00	5.38E-13
Europium (63)	Eu-146	5.49E+01	1.26E-02	1.89E-01	.	4.92E+01	8.09E-02	5.66E-02	7.90E-15
Europium (63)	Eu-147	1.05E+01	6.60E-02	2.10E-01	.	2.67E+02	8.97E-02	6.28E-02	4.62E-14
Europium (63)	Eu-148	4.64E+00	1.49E-01	1.24E-01	.	5.39E+01	5.27E-02	3.69E-02	6.18E-14
Europium (63)	Eu-149	2.72E+00	2.55E-01	6.31E+01	.	2.61E+03	2.64E+01	1.85E+01	5.32E-11
Europium (63)	Eu-150	1.88E-02	3.69E+01	8.64E+00	.	7.82E+01	3.62E+00	2.47E+00	1.03E-09
Europium (63)	Eu-150m	4.74E+02	1.46E-03	1.10E-01	.	2.42E+03	4.68E-02	3.28E-02	5.44E-16
Europium (63)	Eu-152	5.12E-02	1.35E+01	2.91E-01	.	1.01E+02	1.23E-01	8.65E-02	1.35E-11
Europium (63)	Eu-152m	6.52E+02	1.06E-03	1.16E-01	.	4.02E+02	4.93E-02	3.46E-02	4.24E-16
Europium (63)	Eu-152n	3.79E+03	1.83E-04	2.91E-01	.	9.61E+01	1.23E-01	8.64E-02	1.82E-16
Europium (63)	Eu-154	8.06E-02	8.59E+00	5.20E+00	.	9.45E+01	2.18E+00	1.51E+00	1.51E-10
Europium (63)	Eu-154m	7.92E+03	8.75E-05	5.18E+00	.	9.10E+01	2.17E+00	1.50E+00	1.53E-15
Europium (63)	Eu-155	1.46E-01	4.76E+00	3.00E+01	.	2.43E+03	1.26E+01	8.82E+00	4.93E-10
Europium (63)	Eu-156	1.67E+01	4.16E-02	4.42E+00	.	9.23E+01	1.85E+00	1.29E+00	6.32E-13
Europium (63)	Eu-157	4.00E+02	1.73E-03	1.62E+01	.	4.42E+02	6.78E+00	4.73E+00	9.74E-14
Europium (63)	Eu-158	7.94E+03	8.73E-05	1.12E+02	.	8.95E+01	4.69E+01	2.42E+01	2.52E-14
Europium (63)	Eu-159	2.01E+04	3.44E-05	1.78E+01	.	3.55E+02	7.53E+00	5.22E+00	2.16E-15
Fluorine (9)	F-17	3.39E+05	2.04E-06	.	.	1.19E+02	.	1.19E+02	3.12E-16
Fluorine (9)	F-18	3.32E+03	2.09E-04	2.17E+02	.	1.23E+02	7.84E+01	3.93E+01	1.12E-14
Iron (26)	Fe-52	7.34E+02	9.45E-04	6.92E+00	.	3.66E+01	2.11E+00	1.55E+00	5.76E-15
Iron (26)	Fe-53	4.28E+04	1.62E-05	3.28E+02	.	1.03E+02	4.90E+01	3.01E+01	1.96E-15
Iron (26)	Fe-53m	1.44E+05	4.81E-06	3.28E+02	.	2.77E+01	4.90E+01	1.68E+01	3.23E-16
Iron (26)	Fe-55	2.53E-01	2.74E+00	2.46E+01	.	7.93E+11	8.12E+00	6.11E+00	6.96E-11
Iron (26)	Fe-59	5.68E+00	1.22E-01	4.95E+00	.	9.68E+01	1.63E+00	1.21E+00	6.60E-13
Iron (26)	Fe-60	4.62E-07	1.50E+06	8.84E-02	.	4.58E+01	2.89E-02	2.18E-02	1.48E-07
Iron (26)	Fe-61	6.09E+04	1.14E-05	1.36E+02	.	7.74E+01	3.64E+01	2.09E+01	1.10E-15
Iron (26)	Fe-62	3.21E+05	2.16E-06	.	.	5.37E+01	.	5.37E+01	5.44E-16
Fermium (100)	Fm-251	1.15E+03	6.05E-04	5.57E-03	2.74E-01	8.11E+01	2.29E-03	1.61E-03	1.85E-17
Fermium (100)	Fm-252	2.39E+02	2.90E-03	5.07E-03	1.02E-01	4.86E+01	1.91E-03	1.37E-03	7.56E-17
Fermium (100)	Fm-253	8.43E+01	8.22E-03	6.69E-03	.	1.20E+02	2.77E-03	1.96E-03	3.08E-16
Fermium (100)	Fm-254	1.87E+03	3.70E-04	3.14E-03	1.40E-01	6.40E+01	1.26E-03	8.95E-04	6.36E-18

Resident Tap Water DCCs July 2023									
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Ingestion	Inhalation	Immersion	Produce	Total DCC DL=1 (Bq/L)	Total DCC DL=1 (mg/L)
				DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)		
Fermium (100)	Fm-255	3.02E+02	2.29E-03	5.55E-03	2.74E-01	9.49E+01	2.28E-03	1.61E-03	7.11E-17
Fermium (100)	Fm-256	2.31E+03	3.00E-04	4.44E-02	1.02E-01	8.78E+00	1.75E-02	1.12E-02	6.48E-17
Fermium (100)	Fm-257	2.52E+00	2.75E-01	6.60E-03	.	1.11E+02	2.74E-03	1.93E-03	1.04E-14
Francium (87)	Fr-212	1.82E+04	3.81E-05	6.21E-03	.	4.82E+01	2.64E-03	1.85E-03	1.13E-18
Francium (87)	Fr-219	1.09E+09	6.34E-10	.	.	2.14E+03	.	2.14E+03	2.25E-17
Francium (87)	Fr-220	7.98E+05	8.69E-07	3.87E+01	.	8.31E+01	8.44E+00	6.40E+00	9.25E-17
Francium (87)	Fr-221	7.43E+04	9.32E-06	3.96E+01	.	5.88E+02	9.49E+00	7.56E+00	1.18E-15
Francium (87)	Fr-222	2.57E+04	2.70E-05	4.89E-03	.	6.29E+02	1.97E-03	1.41E-03	6.38E-19
Francium (87)	Fr-223	1.66E+04	4.19E-05	6.15E-02	2.74E-01	3.40E+02	2.17E-02	1.52E-02	1.07E-17
Francium (87)	Fr-224	1.09E+05	6.34E-06	9.93E-02	1.46E+01	5.56E+01	3.51E-02	2.59E-02	2.78E-18
Francium (87)	Fr-227	1.47E+05	4.70E-06	2.17E-02	2.74E-01	1.20E+02	8.65E-03	6.05E-03	4.89E-19
Gallium (31)	Ga-64	1.39E+05	5.00E-06	.	.	3.33E+01	.	3.33E+01	8.05E-16
Gallium (31)	Ga-65	2.40E+04	2.89E-05	2.82E+00	.	6.88E+01	1.23E-01	1.18E-01	1.68E-17
Gallium (31)	Ga-66	6.40E+02	1.08E-03	8.53E+00	.	4.39E+01	3.66E+00	2.42E+00	1.31E-14
Gallium (31)	Ga-67	7.76E+01	8.93E-03	5.22E+01	.	8.15E+02	2.24E+01	1.54E+01	6.96E-13
Gallium (31)	Ga-68	5.38E+03	1.29E-04	9.98E+01	.	1.27E+02	4.28E+01	2.43E+01	1.61E-14
Gallium (31)	Ga-70	1.72E+04	4.02E-05	3.22E+02	.	8.95E+03	1.38E+02	9.55E+01	2.04E-14
Gallium (31)	Ga-72	4.31E+02	1.61E-03	9.23E+00	.	4.17E+01	3.96E+00	2.60E+00	2.28E-14
Gallium (31)	Ga-73	1.25E+03	5.55E-04	3.78E+01	.	3.51E+02	1.62E+01	1.10E+01	3.37E-14
Gallium (31)	Ga-74	4.49E+04	1.54E-05	.	.	3.53E+01	.	3.53E+01	3.05E-15
Gadolinium (64)	Gd-142	3.11E+05	2.23E-06	5.58E+01	.	3.69E+01	2.38E+01	1.15E+01	2.75E-16
Gadolinium (64)	Gd-143m	1.99E+05	3.49E-06	4.52E+01	.	2.92E+01	1.64E+01	8.51E+00	3.21E-16
Gadolinium (64)	Gd-144	8.15E+04	8.50E-06	.	.	5.82E+01	.	5.82E+01	5.40E-15
Gadolinium (64)	Gd-145	1.58E+04	4.38E-05	1.03E+01	.	3.04E+01	4.27E+00	2.75E+00	1.32E-15
Gadolinium (64)	Gd-145m	2.57E+05	2.70E-06	1.03E+01	.	2.68E+01	4.27E+00	2.72E+00	8.04E-17
Gadolinium (64)	Gd-146	5.24E+00	1.32E-01	1.86E-01	.	4.55E+01	7.94E-02	5.56E-02	8.13E-14
Gadolinium (64)	Gd-147	1.59E+02	4.35E-03	2.08E-01	.	6.52E+01	8.86E-02	6.20E-02	3.00E-15
Gadolinium (64)	Gd-148	9.29E-03	7.46E+01	1.89E-01	.	.	7.97E-02	5.60E-02	4.68E-11
Gadolinium (64)	Gd-149	2.73E+01	2.54E-02	1.46E+01	.	2.21E+02	6.15E+00	4.24E+00	1.22E-12
Gadolinium (64)	Gd-150	3.87E-07	1.79E+06	9.84E-02	.	.	4.18E-02	2.93E-02	5.96E-07
Gadolinium (64)	Gd-151	2.04E+00	3.40E-01	4.42E+01	.	2.46E+03	1.87E+01	1.31E+01	5.07E-11
Gadolinium (64)	Gd-152	6.42E-15	1.08E+14	8.43E-02	.	.	3.57E-02	2.51E-02	3.12E+01

Resident Tap Water DCCs July 2023									
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Ingestion	Inhalation	Immersion	Produce	Total DCC DL=1 (Bq/L)	Total DCC DL=1 (mg/L)
				DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)		
Gadolinium (64)	Gd-153	1.05E+00	6.59E-01	3.63E+01	.	1.68E+03	1.53E+01	1.07E+01	8.16E-11
Gadolinium (64)	Gd-159	3.29E+02	2.11E-03	1.95E+01	.	2.39E+03	8.25E+00	5.78E+00	1.47E-13
Gadolinium (64)	Gd-162	4.34E+04	1.60E-05	.	.	7.92E+01	.	7.92E+01	1.55E-14
Germanium (32)	Ge-66	2.69E+03	2.58E-04	7.90E+00	.	3.54E+01	2.63E+00	1.87E+00	2.41E-15
Germanium (32)	Ge-67	1.93E+04	3.60E-05	4.00E+01	.	7.60E+01	9.02E+00	6.71E+00	1.22E-15
Germanium (32)	Ge-68	9.34E-01	7.42E-01	7.43E+00	.	1.27E+02	6.95E-01	6.32E-01	2.42E-12
Germanium (32)	Ge-69	1.55E+02	4.46E-03	5.20E+01	.	1.24E+02	4.57E+00	4.07E+00	9.47E-14
Germanium (32)	Ge-71	2.21E+01	3.13E-02	8.59E+02	.	5.68E+07	7.56E+01	6.95E+01	1.17E-11
Germanium (32)	Ge-75	4.40E+03	1.57E-04	2.19E+02	.	3.18E+03	1.93E+01	1.76E+01	1.58E-14
Germanium (32)	Ge-77	5.37E+02	1.29E-03	1.43E+01	.	1.09E+02	1.95E+00	1.69E+00	1.27E-14
Germanium (32)	Ge-78	4.14E+03	1.67E-04	3.33E+01	.	7.30E+01	4.94E+00	4.06E+00	4.01E-15
Hydrogen (1)	H-3	5.63E-02	1.23E+01	2.96E+02	1.12E+01	.	2.67E+00	2.14E+00	5.99E-12
Hafnium (72)	Hf-167	1.78E+05	3.90E-06	1.58E+01	.	4.46E+01	6.66E+00	4.24E+00	2.09E-16
Hafnium (72)	Hf-169	1.12E+05	6.16E-06	7.64E+00	.	5.39E+01	3.24E+00	2.18E+00	1.72E-16
Hafnium (72)	Hf-170	3.79E+02	1.83E-03	7.75E+00	.	3.80E+01	3.29E+00	2.18E+00	5.12E-14
Hafnium (72)	Hf-172	3.71E-01	1.87E+00	4.31E+00	.	5.88E+01	1.82E+00	1.25E+00	3.05E-11
Hafnium (72)	Hf-173	2.57E+02	2.69E-03	1.75E+01	.	2.36E+02	7.40E+00	5.09E+00	1.79E-13
Hafnium (72)	Hf-174	3.47E-16	2.00E+15	4.31E-02	.	.	1.80E-02	1.27E-02	3.35E+02
Hafnium (72)	Hf-175	3.61E+00	1.92E-01	2.57E+01	.	3.67E+02	1.08E+01	7.43E+00	1.89E-11
Hafnium (72)	Hf-177m	7.09E+03	9.78E-05	1.26E+02	.	5.49E+01	5.26E+01	2.21E+01	2.90E-14
Hafnium (72)	Hf-178m	2.24E-02	3.10E+01	2.73E+00	.	5.55E+01	1.14E+00	7.94E-01	3.32E-10
Hafnium (72)	Hf-179m	1.01E+01	6.86E-02	8.08E+00	.	1.38E+02	3.38E+00	2.34E+00	2.18E-12
Hafnium (72)	Hf-180m	1.10E+03	6.28E-04	6.14E+01	.	1.27E+02	2.57E+01	1.58E+01	1.36E-13
Hafnium (72)	Hf-181	5.97E+00	1.16E-01	9.05E+00	.	2.34E+02	3.79E+00	2.64E+00	4.20E-12
Hafnium (72)	Hf-182	7.70E-08	9.00E+06	2.50E+00	.	7.74E+01	1.05E+00	7.33E-01	9.09E-05
Hafnium (72)	Hf-182m	5.92E+03	1.17E-04	3.89E+00	.	5.17E+01	1.64E+00	1.13E+00	1.81E-15
Hafnium (72)	Hf-183	5.69E+03	1.22E-04	7.00E+00	.	1.16E+02	2.96E+00	2.04E+00	3.44E-15
Hafnium (72)	Hf-184	1.47E+03	4.70E-04	8.48E+00	.	6.73E+01	3.57E+00	2.42E+00	1.58E-14
Mercury (80)	Hg-190	1.82E+04	3.81E-05	2.59E-01	.	4.40E+01	7.89E-02	6.04E-02	3.30E-17
Mercury (80)	Hg-191m	7.17E+03	9.67E-05	2.08E+01	.	5.19E+01	4.39E+00	3.39E+00	4.74E-15
Mercury (80)	Hg-192	1.25E+03	5.54E-04	2.66E+01	.	5.22E+01	4.28E+00	3.44E+00	2.77E-14
Mercury (80)	Hg-193	1.60E+03	4.34E-04	3.78E+01	.	1.21E+02	7.15E+00	5.73E+00	3.63E-14



Resident Tap Water DCCs July 2023									
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Ingestion	Inhalation	Immersion	Produce	Total DCC DL=1 (Bq/L)	Total DCC DL=1 (mg/L)
				DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)		
Mercury (80)	Hg-193m	5.14E+02	1.35E-03	1.71E+01	.	8.59E+01	2.32E+00	2.00E+00	3.93E-14
Mercury (80)	Hg-194	1.58E-03	4.40E+02	6.54E+00	.	1.12E+02	8.79E-01	7.70E-01	4.97E-09
Mercury (80)	Hg-195	5.77E+02	1.20E-03	2.76E+01	.	4.88E+02	6.49E+00	5.19E+00	9.22E-14
Mercury (80)	Hg-195m	1.46E+02	4.75E-03	1.15E+01	.	3.45E+02	1.63E+00	1.42E+00	9.97E-14
Mercury (80)	Hg-197	9.35E+01	7.41E-03	4.00E+01	.	2.18E+03	4.40E+00	3.95E+00	4.37E-13
Mercury (80)	Hg-197m	2.55E+02	2.72E-03	1.40E+01	.	8.93E+02	1.54E+00	1.39E+00	5.61E-14
Mercury (80)	Hg-199m	8.54E+03	8.12E-05	3.30E+02	.	7.16E+02	3.63E+01	3.12E+01	3.82E-14
Mercury (80)	Hg-203	5.43E+00	1.28E-01	1.88E+01	.	5.20E+02	2.06E+00	1.85E+00	3.63E-12
Mercury (80)	Hg-205	7.00E+04	9.89E-06	.	.	1.23E+04	.	1.23E+04	1.88E-12
Mercury (80)	Hg-206	4.47E+04	1.55E-05	.	.	9.55E+02	.	9.55E+02	2.31E-13
Mercury (80)	Hg-207	1.26E+05	5.52E-06	.	.	4.25E+01	.	4.25E+01	3.68E-15
Holmium (67)	Ho-150	2.85E+05	2.44E-06	1.18E-01	.	2.51E+01	5.03E-02	3.53E-02	9.74E-19
Holmium (67)	Ho-153	1.81E+05	3.82E-06	1.38E+01	.	5.37E+01	5.83E+00	3.80E+00	1.68E-16
Holmium (67)	Ho-153m	3.92E+04	1.77E-05	1.38E+01	.	5.31E+01	5.82E+00	3.80E+00	7.79E-16
Holmium (67)	Ho-154	3.10E+04	2.24E-05	6.44E-02	.	6.32E+01	2.73E-02	1.92E-02	5.00E-18
Holmium (67)	Ho-154m	1.17E+05	5.90E-06	6.44E-02	.	4.98E+01	2.73E-02	1.92E-02	1.32E-18
Holmium (67)	Ho-155	7.59E+03	9.13E-05	2.31E+01	.	8.60E+01	9.78E+00	6.36E+00	6.82E-15
Holmium (67)	Ho-156	6.50E+03	1.07E-04	1.07E+02	.	5.57E+01	4.51E+01	2.02E+01	2.54E-14
Holmium (67)	Ho-157	2.89E+04	2.40E-05	9.72E+01	.	1.38E+02	4.11E+01	2.39E+01	6.80E-15
Holmium (67)	Ho-159	1.10E+04	6.29E-05	8.93E+01	.	3.29E+02	3.77E+01	2.45E+01	1.86E-14
Holmium (67)	Ho-160	1.42E+04	4.87E-05	6.37E+02	.	7.12E+01	2.69E+02	5.17E+01	3.05E-14
Holmium (67)	Ho-161	2.45E+03	2.83E-04	7.93E+02	.	3.86E+03	3.35E+02	2.22E+02	7.66E-13
Holmium (67)	Ho-162	2.43E+04	2.85E-05	3.20E+03	.	8.26E+02	1.35E+03	4.42E+02	1.55E-13
Holmium (67)	Ho-162m	5.44E+03	1.27E-04	3.84E+02	.	1.88E+02	1.62E+02	7.10E+01	1.11E-13
Holmium (67)	Ho-163	1.52E-04	4.57E+03	3.39E+03	.	.	1.43E+03	1.01E+03	5.68E-05
Holmium (67)	Ho-164	1.26E+04	5.52E-05	1.07E+03	.	6.71E+03	4.51E+02	3.03E+02	2.07E-13
Holmium (67)	Ho-164m	9.59E+03	7.23E-05	3.88E+02	.	2.81E+03	1.64E+02	1.11E+02	9.92E-14
Holmium (67)	Ho-166	2.27E+02	3.06E-03	7.03E+00	.	3.54E+03	2.97E+00	2.09E+00	8.02E-14
Holmium (67)	Ho-166m	5.78E-04	1.20E+03	5.32E+00	.	7.43E+01	2.25E+00	1.55E+00	2.33E-08
Holmium (67)	Ho-167	1.96E+03	3.54E-04	1.16E+02	.	3.39E+02	4.90E+01	3.13E+01	1.40E-13
Holmium (67)	Ho-168	1.22E+05	5.69E-06	.	.	1.35E+02	.	1.35E+02	9.77E-15
Holmium (67)	Ho-168m	1.66E+05	4.19E-06	.	.	1.35E+02	.	1.35E+02	7.16E-15

Resident Tap Water DCCs July 2023									
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Ingestion	Inhalation	Immersion	Produce	Total DCC DL=1 (Bq/L)	Total DCC DL=1 (mg/L)
				DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)		
Holmium (67)	Ho-170	1.32E+05	5.25E-06	.	.	6.99E+01	.	6.99E+01	4.72E-15
Iodine (53)	I-118	2.66E+04	2.61E-05	3.08E+00	.	4.20E+01	5.01E-01	4.26E-01	9.92E-17
Iodine (53)	I-118m	4.29E+04	1.62E-05	3.29E+00	.	2.63E+01	5.19E-01	4.40E-01	6.36E-17
Iodine (53)	I-119	1.91E+04	3.63E-05	3.39E+01	.	7.23E+01	7.02E+00	5.38E+00	1.76E-15
Iodine (53)	I-120	4.46E+03	1.55E-04	3.31E+01	.	4.28E+01	9.70E+00	6.38E+00	9.00E-15
Iodine (53)	I-120m	6.87E+03	1.01E-04	6.46E+01	.	3.35E+01	1.89E+01	1.02E+01	9.33E-15
Iodine (53)	I-121	2.86E+03	2.42E-04	2.01E+01	.	1.29E+02	3.41E+00	2.85E+00	6.33E-15
Iodine (53)	I-122	1.00E+05	6.91E-06	.	.	1.25E+02	.	1.25E+02	7.97E-15
Iodine (53)	I-123	4.57E+02	1.51E-03	7.48E+00	.	8.15E+02	1.29E+00	1.10E+00	1.55E-14
Iodine (53)	I-124	6.06E+01	1.14E-02	7.14E-01	.	1.06E+02	2.09E-01	1.62E-01	1.73E-14
Iodine (53)	I-125	4.26E+00	1.63E-01	7.18E-01	.	1.33E+04	2.10E-01	1.63E-01	2.50E-13
Iodine (53)	I-126	1.96E+01	3.54E-02	3.32E-01	.	2.83E+02	9.72E-02	7.52E-02	2.54E-14
Iodine (53)	I-128	1.46E+04	4.75E-05	2.18E+02	.	1.65E+03	6.38E+01	4.79E+01	2.21E-14
Iodine (53)	I-129	4.41E-08	1.57E+07	1.12E-01	.	1.77E+04	3.29E-02	2.54E-02	3.89E-06
Iodine (53)	I-130	4.91E+02	1.41E-03	4.92E+00	.	5.62E+01	1.44E+00	1.09E+00	1.52E-14
Iodine (53)	I-130m	4.12E+04	1.68E-05	5.85E+00	.	6.32E+01	1.71E+00	1.30E+00	2.15E-16
Iodine (53)	I-131	3.15E+01	2.20E-02	4.33E-01	.	3.20E+02	1.27E-01	9.82E-02	2.14E-14
Iodine (53)	I-132	2.65E+03	2.62E-04	3.35E+01	.	5.23E+01	9.82E+00	6.63E+00	1.73E-14
Iodine (53)	I-132m	4.38E+03	1.58E-04	2.13E+01	.	5.20E+01	6.24E+00	4.42E+00	6.98E-15
Iodine (53)	I-133	2.92E+02	2.37E-03	2.06E+00	.	1.86E+02	6.02E-01	4.65E-01	1.11E-14
Iodine (53)	I-134	6.94E+03	9.99E-05	9.90E+01	.	4.53E+01	2.90E+01	1.50E+01	1.52E-14
Iodine (53)	I-134m	1.01E+05	6.85E-06	1.01E+02	.	4.20E+01	2.97E+01	1.49E+01	1.03E-15
Iodine (53)	I-135	9.24E+02	7.50E-04	3.44E+00	.	6.07E+01	1.13E+00	8.38E-01	6.42E-15
Indium (49)	In-103	3.64E+05	1.90E-06	4.27E+01	.	2.03E+01	9.15E+00	5.50E+00	8.15E-17
Indium (49)	In-105	7.18E+04	9.65E-06	2.11E+01	.	3.15E+01	3.47E+00	2.72E+00	2.09E-16
Indium (49)	In-106	5.87E+04	1.18E-05	.	.	3.35E+01	.	3.35E+01	3.17E-15
Indium (49)	In-106m	7.00E+04	9.89E-06	.	.	4.05E+01	.	4.05E+01	3.21E-15
Indium (49)	In-107	1.12E+04	6.16E-05	9.78E+01	.	7.52E+01	9.82E+00	7.98E+00	3.98E-15
Indium (49)	In-108	6.28E+03	1.10E-04	1.40E+02	.	3.01E+01	5.99E+01	1.75E+01	1.58E-14
Indium (49)	In-108m	9.20E+03	7.53E-05	1.28E+02	.	4.05E+01	5.49E+01	1.97E+01	1.21E-14
Indium (49)	In-109	1.45E+03	4.79E-04	5.23E+00	.	1.88E+02	3.66E-01	3.41E-01	1.35E-15
Indium (49)	In-109m	2.72E+05	2.55E-06	5.23E+00	.	9.66E+01	3.66E-01	3.41E-01	7.16E-18

Resident Tap Water DCCs July 2023									
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Ingestion	Inhalation	Immersion	Produce	Total DCC DL=1 (Bq/L)	Total DCC DL=1 (mg/L)
				DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)		
Indium (49)	In-110	1.24E+03	5.59E-04	4.48E+01	.	3.86E+01	1.92E+01	9.97E+00	4.64E-14
Indium (49)	In-110m	5.27E+03	1.31E-04	1.01E+02	.	7.52E+01	4.35E+01	2.17E+01	2.37E-14
Indium (49)	In-111	9.02E+01	7.68E-03	3.58E+01	.	3.19E+02	1.54E+01	1.04E+01	6.71E-13
Indium (49)	In-111m	4.73E+04	1.46E-05	3.58E+01	.	1.43E+02	1.54E+01	1.00E+01	1.23E-15
Indium (49)	In-112	2.43E+04	2.85E-05	9.69E+02	.	4.61E+02	4.16E+02	1.78E+02	4.31E-14
Indium (49)	In-112m	1.77E+04	3.91E-05	3.69E+02	.	4.26E+02	1.58E+02	8.79E+01	2.91E-14
Indium (49)	In-113m	3.66E+03	1.89E-04	3.46E+02	.	4.80E+02	1.49E+02	8.54E+01	1.38E-13
Indium (49)	In-114	3.04E+05	2.28E-06	.	.	1.20E+04	.	1.20E+04	2.35E-13
Indium (49)	In-114m	5.11E+00	1.36E-01	2.34E+00	.	1.47E+03	1.00E+00	7.01E-01	8.20E-13
Indium (49)	In-115	1.57E-15	4.41E+14	3.82E-01	.	1.62E+05	1.64E-01	1.15E-01	4.40E+02
Indium (49)	In-115m	1.35E+03	5.12E-04	4.01E-01	.	7.84E+02	1.72E-01	1.20E-01	5.36E-16
Indium (49)	In-116m	6.69E+03	1.04E-04	1.65E+02	.	4.63E+01	7.07E+01	2.39E+01	2.17E-14
Indium (49)	In-117	8.43E+03	8.22E-05	3.12E+02	.	1.76E+02	1.09E+02	5.54E+01	4.03E-14
Indium (49)	In-117m	3.13E+03	2.21E-04	7.20E+01	.	2.94E+02	3.01E+01	1.98E+01	3.88E-14
Indium (49)	In-118	4.37E+06	1.59E-07	.	.	1.09E+03	.	1.09E+03	1.55E-15
Indium (49)	In-118m	8.35E+04	8.30E-06	.	.	4.17E+01	.	4.17E+01	3.09E-15
Indium (49)	In-119	1.52E+05	4.57E-06	2.94E+03	.	1.55E+02	3.23E+02	1.01E+02	4.16E-15
Indium (49)	In-119m	2.02E+04	3.42E-05	2.18E+02	.	9.92E+02	9.24E+01	6.09E+01	1.88E-14
Indium (49)	In-121	9.46E+05	7.32E-07	3.68E+01	.	1.26E+02	4.04E+00	3.54E+00	2.37E-17
Indium (49)	In-121m	9.39E+04	7.38E-06	4.27E+01	.	1.40E+03	4.69E+00	4.22E+00	2.85E-16
Iridium (77)	Ir-180	2.43E+05	2.85E-06	5.68E+02	.	4.15E+01	1.89E+02	3.21E+01	1.25E-15
Iridium (77)	Ir-182	2.43E+04	2.85E-05	1.13E+01	.	3.93E+01	2.70E+00	2.06E+00	8.11E-16
Iridium (77)	Ir-183	6.28E+03	1.10E-04	8.06E+00	.	5.24E+01	1.35E+00	1.13E+00	1.72E-15
Iridium (77)	Ir-184	1.96E+03	3.53E-04	5.56E+01	.	6.03E+01	1.85E+01	1.13E+01	5.55E-14
Iridium (77)	Ir-185	4.22E+02	1.64E-03	1.28E+01	.	7.75E+01	4.25E+00	3.06E+00	7.05E-14
Iridium (77)	Ir-186	3.65E+02	1.90E-03	3.11E-01	.	7.12E+01	1.04E-01	7.77E-02	2.08E-15
Iridium (77)	Ir-186m	3.16E+03	2.19E-04	3.14E-01	.	7.05E+01	1.05E-01	7.85E-02	2.42E-16
Iridium (77)	Ir-187	5.78E+02	1.20E-03	8.93E+01	.	3.85E+02	2.98E+01	2.11E+01	3.58E-13
Iridium (77)	Ir-188	1.46E+02	4.74E-03	1.41E+01	.	5.39E+01	4.70E+00	3.31E+00	2.23E-13
Iridium (77)	Ir-189	1.92E+01	3.62E-02	4.13E+01	.	1.97E+03	1.38E+01	1.03E+01	5.31E-12
Iridium (77)	Ir-190	2.15E+01	3.23E-02	9.98E+00	.	8.32E+01	3.33E+00	2.42E+00	1.12E-12
Iridium (77)	Ir-190m	5.42E+03	1.28E-04	9.91E+00	.	8.32E+01	3.30E+00	2.41E+00	4.42E-15

Resident Tap Water DCCs July 2023									
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Ingestion DCC DL=1 (Bq/L)	Inhalation DCC DL=1 (Bq/L)	Immersion DCC DL=1 (Bq/L)	Produce Consumption DCC DL=1 (Bq/L)	Total DCC DL=1 (Bq/L)	Total DCC DL=1 (mg/L)
Iridium (77)	Ir-190n	1.97E+03	3.52E-04	5.06E+01	.	7.56E+01	1.69E+01	1.08E+01	5.49E-14
Iridium (77)	Ir-191m	4.42E+06	1.57E-07	.	.	1.98E+03	.	1.98E+03	4.49E-15
Iridium (77)	Ir-192	3.43E+00	2.02E-01	7.46E+00	.	1.50E+02	2.49E+00	1.84E+00	5.41E-12
Iridium (77)	Ir-192m	2.51E+05	2.76E-06	7.46E+00	.	1.50E+02	2.49E+00	1.84E+00	7.38E-17
Iridium (77)	Ir-192n	2.88E-03	2.41E+02	4.43E+00	.	1.50E+02	1.48E+00	1.10E+00	3.85E-09
Iridium (77)	Ir-193m	2.40E+01	2.88E-02	3.39E+01	.	5.09E+05	1.13E+01	8.48E+00	3.57E-12
Iridium (77)	Ir-194	3.15E+02	2.20E-03	7.37E+00	.	1.21E+03	2.46E+00	1.84E+00	5.95E-14
Iridium (77)	Ir-194m	1.48E+00	4.68E-01	5.16E+00	.	5.23E+01	1.72E+00	1.26E+00	8.66E-12
Iridium (77)	Ir-195	2.43E+03	2.85E-04	9.83E+01	.	2.50E+03	3.28E+01	2.43E+01	1.03E-13
Iridium (77)	Ir-195m	1.60E+03	4.34E-04	2.36E+01	.	3.09E+02	5.80E+00	4.59E+00	2.94E-14
Iridium (77)	Ir-196	4.20E+05	1.65E-06	.	.	4.88E+02	.	4.88E+02	1.19E-14
Iridium (77)	Ir-196m	4.34E+03	1.60E-04	9.49E+01	.	4.94E+01	3.16E+01	1.60E+01	3.80E-14
Potassium (19)	K-38	4.77E+04	1.45E-05	.	.	3.52E+01	.	3.52E+01	1.47E-15
Potassium (19)	K-40	5.54E-10	1.25E+09	1.65E+00	.	7.03E+02	1.46E-01	1.34E-01	5.07E-04
Potassium (19)	K-42	4.91E+02	1.41E-03	2.30E+01	.	3.80E+02	2.03E+00	1.86E+00	8.34E-15
Potassium (19)	K-43	2.72E+02	2.55E-03	4.24E+01	.	1.26E+02	3.74E+00	3.35E+00	2.77E-14
Potassium (19)	K-44	1.65E+04	4.21E-05	1.22E+02	.	4.60E+01	1.08E+01	8.16E+00	1.14E-15
Potassium (19)	K-45	2.11E+04	3.29E-05	1.23E+01	.	6.06E+01	1.24E+00	1.10E+00	1.24E-16
Potassium (19)	K-46	2.08E+05	3.33E-06	.	.	3.73E+01	.	3.73E+01	4.32E-16
Krypton (36)	Kr-74	3.17E+04	2.19E-05	1.27E+02	.	1.97E+01	4.57E+01	1.24E+01	1.52E-15
Krypton (36)	Kr-75	8.49E+04	8.16E-06	3.93E+00	.	4.24E+01	1.62E-01	1.55E-01	7.18E-18
Krypton (36)	Kr-76	4.10E+02	1.69E-03	2.29E+01	.	3.57E+01	8.26E+00	5.19E+00	5.04E-14
Krypton (36)	Kr-77	4.90E+03	1.42E-04	1.13E+02	.	9.04E+01	4.08E+01	2.25E+01	1.86E-14
Krypton (36)	Kr-79	1.73E+02	4.00E-03	.	.	4.88E+02	.	4.88E+02	1.17E-11
Krypton (36)	Kr-81	3.03E-06	2.29E+05	.	.	1.41E+05	.	1.41E+05	1.98E-01
Krypton (36)	Kr-81m	1.67E+06	4.15E-07	.	.	9.62E+02	.	9.62E+02	2.45E-15
Krypton (36)	Kr-83m	3.32E+03	2.09E-04	.	.	4.60E+06	.	4.60E+06	6.03E-09
Krypton (36)	Kr-85	6.44E-02	1.08E+01	.	.	3.15E+04	.	3.15E+04	2.18E-06
Krypton (36)	Kr-85m	1.36E+03	5.11E-04	.	.	7.89E+02	.	7.89E+02	2.59E-12
Krypton (36)	Kr-87	4.77E+03	1.45E-04	6.62E+00	.	1.39E+02	9.90E-01	8.56E-01	8.18E-16
Krypton (36)	Kr-88	2.14E+03	3.24E-04	1.11E+02	.	4.20E+01	1.66E+01	1.08E+01	2.32E-14
Krypton (36)	Kr-89	1.16E+05	5.99E-06	3.70E+00	.	2.67E+01	3.76E-01	3.37E-01	1.36E-17



Resident Tap Water DCCs July 2023									
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Ingestion	Inhalation	Immersion	Produce	Total DCC DL=1 (Bq/L)	Total DCC DL=1 (mg/L)
				DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)		
Lanthanum (57)	La-128	7.03E+04	9.86E-06	3.81E+00	.	3.16E+01	1.51E+00	1.05E+00	9.99E-17
Lanthanum (57)	La-129	3.14E+04	2.21E-05	7.76E+01	.	7.65E+01	2.94E+01	1.67E+01	3.59E-15
Lanthanum (57)	La-130	4.19E+04	1.66E-05	.	.	5.30E+01	.	5.30E+01	8.63E-15
Lanthanum (57)	La-131	6.17E+03	1.12E-04	1.87E+01	.	1.11E+02	7.35E+00	5.04E+00	5.61E-15
Lanthanum (57)	La-132	1.26E+03	5.48E-04	2.51E+01	.	5.85E+01	1.05E+01	6.55E+00	3.59E-14
Lanthanum (57)	La-132m	1.50E+04	4.62E-05	2.95E+01	.	5.43E+01	1.23E+01	7.49E+00	3.46E-15
Lanthanum (57)	La-133	1.55E+03	4.47E-04	5.47E+00	.	2.39E+02	2.17E+00	1.54E+00	6.94E-15
Lanthanum (57)	La-134	5.65E+04	1.23E-05	.	.	1.68E+02	.	1.68E+02	2.09E-14
Lanthanum (57)	La-135	3.11E+02	2.23E-03	3.29E+02	.	6.83E+03	1.37E+02	9.56E+01	2.17E-12
Lanthanum (57)	La-136	3.69E+04	1.88E-05	.	.	3.06E+02	.	3.06E+02	5.91E-14
Lanthanum (57)	La-137	1.16E-05	6.00E+04	1.22E+02	.	1.64E+04	5.10E+01	3.59E+01	2.23E-05
Lanthanum (57)	La-138	6.79E-12	1.02E+11	9.90E+00	.	9.37E+01	4.13E+00	2.83E+00	3.01E+00
Lanthanum (57)	La-140	1.51E+02	4.60E-03	5.08E+00	.	4.94E+01	2.12E+00	1.45E+00	7.07E-14
Lanthanum (57)	La-141	1.55E+03	4.47E-04	9.12E+00	.	1.10E+03	3.81E+00	2.68E+00	1.28E-14
Lanthanum (57)	La-142	4.00E+03	1.73E-04	5.87E+01	.	4.61E+01	2.45E+01	1.26E+01	2.34E-14
Lanthanum (57)	La-143	2.57E+04	2.70E-05	4.19E+00	.	2.14E+02	1.74E+00	1.22E+00	3.58E-16
Lutetium (71)	Lu-165	3.39E+04	2.04E-05	2.61E+01	.	6.11E+01	1.11E+01	6.89E+00	1.76E-15
Lutetium (71)	Lu-167	7.07E+03	9.80E-05	1.58E+01	.	5.75E+01	6.66E+00	4.33E+00	5.36E-15
Lutetium (71)	Lu-169	1.78E+02	3.89E-03	7.64E+00	.	7.45E+01	3.24E+00	2.21E+00	1.10E-13
Lutetium (71)	Lu-169m	1.37E+05	5.07E-06	7.64E+00	.	7.45E+01	3.24E+00	2.21E+00	1.43E-16
Lutetium (71)	Lu-170	1.26E+02	5.51E-03	1.11E+01	.	4.36E+01	4.75E+00	3.09E+00	2.19E-13
Lutetium (71)	Lu-171	3.07E+01	2.26E-02	1.50E+01	.	1.94E+02	6.40E+00	4.38E+00	1.28E-12
Lutetium (71)	Lu-171m	2.77E+05	2.51E-06	1.50E+01	.	1.94E+02	6.40E+00	4.38E+00	1.42E-16
Lutetium (71)	Lu-172	3.78E+01	1.84E-02	8.03E+00	.	6.09E+01	3.43E+00	2.31E+00	5.52E-13
Lutetium (71)	Lu-172m	9.84E+04	7.04E-06	8.03E+00	.	6.09E+01	3.43E+00	2.31E+00	2.12E-16
Lutetium (71)	Lu-173	5.06E-01	1.37E+00	2.79E+01	.	8.20E+02	1.19E+01	8.25E+00	1.48E-10
Lutetium (71)	Lu-174	2.09E-01	3.31E+00	3.54E+01	.	1.20E+03	1.51E+01	1.05E+01	4.58E-10
Lutetium (71)	Lu-174m	1.78E+00	3.89E-01	1.20E+01	.	8.55E+02	5.14E+00	3.58E+00	1.84E-11
Lutetium (71)	Lu-176	1.80E-11	3.85E+10	5.61E+00	.	2.61E+02	2.39E+00	1.67E+00	8.55E-01
Lutetium (71)	Lu-176m	1.67E+03	4.15E-04	5.98E+01	.	8.38E+03	2.55E+01	1.78E+01	9.86E-14
Lutetium (71)	Lu-177	3.81E+01	1.82E-02	1.85E+01	.	3.63E+03	7.91E+00	5.54E+00	1.35E-12
Lutetium (71)	Lu-177m	1.58E+00	4.39E-01	5.59E+00	.	1.26E+02	2.38E+00	1.65E+00	9.71E-12

Resident Tap Water DCCs July 2023									
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Ingestion DCC DL=1 (Bq/L)	Inhalation DCC DL=1 (Bq/L)	Immersion DCC DL=1 (Bq/L)	Produce Consumption DCC DL=1 (Bq/L)	Total DCC DL=1 (Bq/L)	Total DCC DL=1 (mg/L)
Lutetium (71)	Lu-178	1.28E+04	5.40E-05	2.17E+02	.	8.82E+02	9.27E+01	6.05E+01	4.40E-14
Lutetium (71)	Lu-178m	1.58E+04	4.39E-05	3.09E+02	.	1.19E+02	1.32E+02	5.21E+01	3.09E-14
Lutetium (71)	Lu-179	1.32E+03	5.24E-04	4.57E+01	.	3.66E+03	1.95E+01	1.36E+01	9.67E-14
Lutetium (71)	Lu-180	6.39E+04	1.08E-05	.	.	7.72E+01	.	7.72E+01	1.14E-14
Lutetium (71)	Lu-181	1.04E+05	6.66E-06	9.05E+00	.	1.11E+02	3.79E+00	2.61E+00	2.38E-16
Magnesium (12)	Mg-27	3.85E+04	1.80E-05	.	.	1.32E+02	.	1.32E+02	4.84E-15
Magnesium (12)	Mg-28	2.90E+02	2.39E-03	4.81E+00	.	3.59E+01	1.60E+00	1.16E+00	5.89E-15
Manganese (25)	Mn-50m	2.08E+05	3.33E-06	.	.	2.51E+01	.	2.51E+01	3.16E-16
Manganese (25)	Mn-51	7.88E+03	8.79E-05	7.83E+01	.	1.17E+02	1.44E+01	1.10E+01	3.75E-15
Manganese (25)	Mn-52	4.52E+01	1.53E-02	6.00E+00	.	3.37E+01	8.98E-01	7.63E-01	4.60E-14
Manganese (25)	Mn-52m	1.73E+04	4.01E-05	1.03E+02	.	4.70E+01	1.55E+01	1.05E+01	1.65E-15
Manganese (25)	Mn-53	1.87E-07	3.70E+06	3.28E+02	.	.	4.90E+01	4.26E+01	6.33E-04
Manganese (25)	Mn-54	8.10E-01	8.55E-01	1.52E+01	.	1.42E+02	2.28E+00	1.96E+00	6.83E-12
Manganese (25)	Mn-56	2.35E+03	2.94E-04	3.98E+01	.	6.71E+01	5.95E+00	4.81E+00	6.00E-15
Manganese (25)	Mn-57	2.56E+05	2.71E-06	.	.	1.10E+03	.	1.10E+03	1.29E-14
Manganese (25)	Mn-58m	3.35E+05	2.07E-06	.	.	4.78E+01	.	4.78E+01	4.34E-16
Molybdenum (42)	Mo-101	2.49E+04	2.78E-05	1.73E+02	.	6.43E+01	9.80E-01	9.60E-01	2.04E-16
Molybdenum (42)	Mo-102	3.22E+04	2.15E-05	1.46E+02	.	9.08E+02	2.61E+01	2.16E+01	3.58E-15
Molybdenum (42)	Mo-89	1.73E+05	4.01E-06	9.77E+00	.	3.13E+01	4.06E+00	2.63E+00	7.10E-17
Molybdenum (42)	Mo-90	1.09E+03	6.35E-04	7.15E+00	.	2.26E+01	2.39E+00	1.66E+00	7.17E-15
Molybdenum (42)	Mo-91	2.35E+04	2.95E-05	9.51E+01	.	1.22E+02	2.23E+01	1.57E+01	3.20E-15
Molybdenum (42)	Mo-91m	3.38E+05	2.05E-06	3.53E+01	.	6.22E+01	1.23E+01	7.97E+00	1.12E-16
Molybdenum (42)	Mo-93	1.73E-04	4.00E+03	4.14E+00	.	2.56E+05	7.61E-01	6.43E-01	1.81E-08
Molybdenum (42)	Mo-93m	8.86E+02	7.82E-04	3.97E+00	.	5.00E+01	7.28E-01	6.08E-01	3.34E-15
Molybdenum (42)	Mo-99	9.21E+01	7.53E-03	7.99E+00	.	4.71E+02	2.68E-02	2.67E-02	1.51E-15
Nitrogen (7)	N-13	3.66E+04	1.90E-05	.	.	1.19E+02	.	1.19E+02	2.22E-15
Nitrogen (7)	N-16	3.07E+06	2.26E-07	.	.	2.10E+01	.	2.10E+01	5.74E-18
Sodium (11)	Na-22	2.66E-01	2.60E+00	3.50E+00	.	5.37E+01	1.03E+00	7.85E-01	3.40E-12
Sodium (11)	Na-24	4.06E+02	1.71E-03	2.49E+01	.	2.62E+01	7.34E+00	4.66E+00	1.44E-14
Niobium (41)	Nb-87	9.71E+04	7.13E-06	1.06E+01	.	3.80E+01	3.93E+00	2.67E+00	1.25E-16
Niobium (41)	Nb-88	2.51E+04	2.76E-05	6.05E+00	.	1.60E+01	2.48E+00	1.58E+00	2.91E-16
Niobium (41)	Nb-88m	4.68E+04	1.48E-05	6.32E+00	.	1.61E+01	2.59E+00	1.65E+00	1.63E-16

Resident Tap Water DCCs July 2023									
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Ingestion	Inhalation	Immersion	Produce	Total DCC DL=1 (Bq/L)	Total DCC DL=1 (mg/L)
				DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)		
Niobium (41)	Nb-89	2.99E+03	2.32E-04	9.77E+00	.	4.62E+01	4.06E+00	2.70E+00	4.21E-15
Niobium (41)	Nb-89m	5.52E+03	1.26E-04	1.19E+01	.	3.97E+01	5.00E+00	3.24E+00	2.74E-15
Niobium (41)	Nb-90	4.16E+02	1.67E-03	8.38E+00	.	2.66E+01	3.28E+00	2.17E+00	2.46E-14
Niobium (41)	Nb-91	1.02E-03	6.80E+02	2.18E+02	.	6.35E+04	8.55E+01	6.14E+01	2.87E-07
Niobium (41)	Nb-91m	4.16E+00	1.67E-01	2.17E+01	.	4.26E+03	8.51E+00	6.10E+00	7.01E-12
Niobium (41)	Nb-92	2.00E-08	3.47E+07	1.07E+01	.	7.98E+01	4.19E+00	2.90E+00	7.00E-04
Niobium (41)	Nb-92m	2.49E+01	2.78E-02	2.17E+01	.	1.23E+02	8.49E+00	5.81E+00	1.13E-12
Niobium (41)	Nb-93m	4.30E-02	1.61E+01	7.62E+01	.	1.66E+06	2.99E+01	2.15E+01	2.44E-09
Niobium (41)	Nb-94	3.41E-05	2.03E+04	6.08E+00	.	7.62E+01	2.38E+00	1.68E+00	2.42E-07
Niobium (41)	Nb-94m	5.82E+04	1.19E-05	6.12E+00	.	7.64E+01	2.40E+00	1.68E+00	1.43E-16
Niobium (41)	Nb-95	7.23E+00	9.59E-02	1.81E+01	.	1.56E+02	7.09E+00	4.93E+00	3.40E-12
Niobium (41)	Nb-95m	7.01E+01	9.89E-03	8.80E+00	.	1.52E+02	3.45E+00	2.44E+00	1.73E-13
Niobium (41)	Nb-96	2.60E+02	2.67E-03	9.56E+00	.	4.82E+01	3.74E+00	2.55E+00	4.93E-14
Niobium (41)	Nb-97	5.05E+03	1.37E-04	1.48E+02	.	1.80E+02	5.79E+01	3.38E+01	3.40E-14
Niobium (41)	Nb-98m	7.10E+03	9.76E-05	9.56E+01	.	4.13E+01	3.74E+01	1.63E+01	1.18E-14
Niobium (41)	Nb-99	1.46E+06	4.76E-07	7.99E+00	.	2.79E+02	2.68E-02	2.67E-02	9.53E-20
Niobium (41)	Nb-99m	1.40E+05	4.95E-06	7.99E+00	.	1.09E+02	2.68E-02	2.67E-02	9.91E-19
Neodymium (60)	Nd-134	4.29E+04	1.62E-05	3.63E+00	.	3.32E+01	1.52E+00	1.04E+00	1.70E-16
Neodymium (60)	Nd-135	2.94E+04	2.36E-05	2.65E+01	.	4.12E+01	1.11E+01	6.58E+00	1.59E-15
Neodymium (60)	Nd-136	7.19E+03	9.64E-05	7.77E+01	.	4.94E+01	3.26E+01	1.57E+01	1.55E-14
Neodymium (60)	Nd-137	9.46E+03	7.32E-05	5.11E+01	.	7.69E+01	2.13E+01	1.26E+01	9.56E-15
Neodymium (60)	Nd-138	1.20E+03	5.75E-04	1.56E+01	.	1.43E+02	6.58E+00	4.48E+00	2.69E-14
Neodymium (60)	Nd-139	1.23E+04	5.65E-05	3.23E+01	.	1.78E+02	1.35E+01	9.03E+00	5.37E-15
Neodymium (60)	Nd-139m	1.10E+03	6.28E-04	1.92E+01	.	6.38E+01	8.06E+00	5.21E+00	3.44E-14
Neodymium (60)	Nd-140	7.51E+01	9.23E-03	5.01E+00	.	2.20E+02	2.12E+00	1.48E+00	1.44E-13
Neodymium (60)	Nd-141	2.44E+03	2.84E-04	1.20E+03	.	2.04E+03	5.07E+02	3.04E+02	9.21E-13
Neodymium (60)	Nd-141m	3.52E+05	1.97E-06	1.20E+03	.	1.59E+02	5.07E+02	1.10E+02	2.31E-15
Neodymium (60)	Nd-144	3.03E-16	2.29E+15	2.57E-01	.	.	1.09E-01	7.63E-02	1.90E+03
Neodymium (60)	Nd-147	2.30E+01	3.01E-02	2.06E-01	.	9.44E+02	8.79E-02	6.16E-02	2.06E-14
Neodymium (60)	Nd-149	3.51E+03	1.97E-04	8.82E+00	.	3.22E+02	3.24E+00	2.35E+00	5.23E-15
Neodymium (60)	Nd-151	2.93E+04	2.37E-05	1.16E+01	.	1.02E+02	4.29E+00	3.04E+00	8.22E-16
Neodymium (60)	Nd-152	3.20E+04	2.17E-05	2.09E+02	.	2.56E+02	8.82E+01	4.99E+01	1.25E-14

Resident Tap Water DCCs July 2023									
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Ingestion DCC DL=1 (Bq/L)	Inhalation DCC DL=1 (Bq/L)	Immersion DCC DL=1 (Bq/L)	Produce Consumption DCC DL=1 (Bq/L)	Total DCC DL=1 (Bq/L)	Total DCC DL=1 (mg/L)
Neon (10)	Ne-19	1.27E+06	5.46E-07	.	.	1.18E+02	.	1.18E+02	9.29E-17
Neon (10)	Ne-24	1.08E+05	6.43E-06	2.49E+01	.	2.34E+01	7.34E+00	4.56E+00	5.33E-17
Nickel (28)	Ni-56	4.16E+01	1.66E-02	3.00E+00	.	2.14E+01	8.71E-01	6.54E-01	4.62E-14
Nickel (28)	Ni-57	1.71E+02	4.06E-03	9.15E+00	.	5.62E+01	3.27E+00	2.31E+00	4.05E-14
Nickel (28)	Ni-59	6.86E-06	1.01E+05	1.70E+02	.	7.87E+06	6.69E+01	4.80E+01	2.17E-05
Nickel (28)	Ni-63	6.92E-03	1.00E+02	6.85E+01	.	.	2.69E+01	1.93E+01	9.22E-09
Nickel (28)	Ni-65	2.41E+03	2.87E-04	5.52E+01	.	2.03E+02	2.16E+01	1.44E+01	2.04E-14
Nickel (28)	Ni-66	1.11E+02	6.23E-03	3.27E+00	.	1.06E+03	1.28E+00	9.21E-01	2.87E-14
Neptunium (93)	Np-232	2.48E+04	2.80E-05	2.07E-02	1.02E-01	4.34E+01	8.18E-03	5.54E-03	2.72E-18
Neptunium (93)	Np-233	1.01E+04	6.89E-05	1.41E-02	.	3.21E+02	5.72E-03	4.07E-03	4.95E-18
Neptunium (93)	Np-234	5.75E+01	1.21E-02	3.84E-03	1.40E-01	4.04E+01	1.52E-03	1.08E-03	2.31E-16
Neptunium (93)	Np-235	6.39E-01	1.09E+00	1.10E-02	2.74E-01	1.94E+02	4.33E-03	3.07E-03	5.93E-14
Neptunium (93)	Np-236	4.50E-06	1.54E+05	6.68E-03	1.02E-01	4.83E+01	2.45E-03	1.76E-03	4.85E-09
Neptunium (93)	Np-236m	2.70E+02	2.57E-03	9.02E-03	1.02E-01	5.75E+01	3.37E-03	2.39E-03	1.10E-16
Neptunium (93)	Np-237	3.23E-07	2.14E+06	1.25E-02	.	2.29E+02	5.04E-03	3.59E-03	1.38E-07
Neptunium (93)	Np-238	1.19E+02	5.80E-03	3.57E-03	1.40E-01	4.96E+01	1.43E-03	1.01E-03	1.06E-16
Neptunium (93)	Np-239	1.07E+02	6.46E-03	8.88E-03	2.74E-01	1.53E+02	3.57E-03	2.52E-03	2.95E-16
Neptunium (93)	Np-240	5.88E+03	1.18E-04	5.48E-03	1.02E-01	3.41E+01	2.04E-03	1.47E-03	3.14E-18
Neptunium (93)	Np-240m	5.04E+04	1.37E-05	5.48E-03	1.02E-01	4.29E+01	2.04E-03	1.47E-03	3.66E-19
Neptunium (93)	Np-241	2.62E+04	2.64E-05	1.02E-02	.	2.08E+02	4.17E-03	2.96E-03	1.43E-18
Neptunium (93)	Np-242	1.66E+05	4.19E-06	3.51E-03	1.40E-01	5.60E+01	1.40E-03	9.95E-04	7.62E-20
Neptunium (93)	Np-242m	6.62E+04	1.05E-05	3.51E-03	1.40E-01	4.33E+01	1.40E-03	9.95E-04	1.91E-19
Oxygen (8)	O-14	3.10E+05	2.24E-06	.	.	3.36E+01	.	3.36E+01	7.96E-17
Oxygen (8)	O-15	1.79E+05	3.88E-06	.	.	1.19E+02	.	1.19E+02	5.22E-16
Oxygen (8)	O-19	8.26E+05	8.39E-07	.	.	1.20E+02	.	1.20E+02	1.45E-16
Osmium (76)	Os-180	1.69E+04	4.09E-05	5.68E+02	.	9.21E+01	1.89E+02	5.58E+01	3.11E-14
Osmium (76)	Os-181	3.47E+03	2.00E-04	1.70E+01	.	5.46E+01	2.07E+00	1.79E+00	4.89E-15
Osmium (76)	Os-182	2.75E+02	2.52E-03	1.21E+01	.	7.30E+01	2.81E+00	2.21E+00	7.69E-14
Osmium (76)	Os-183	4.67E+02	1.48E-03	8.45E+00	.	1.67E+02	1.38E+00	1.18E+00	2.42E-14
Osmium (76)	Os-183m	6.13E+02	1.13E-03	8.38E+00	.	9.75E+01	1.37E+00	1.17E+00	1.82E-14
Osmium (76)	Os-185	2.70E+00	2.56E-01	2.14E+01	.	1.78E+02	7.12E+00	5.19E+00	1.86E-11
Osmium (76)	Os-186	3.47E-16	2.00E+15	3.16E-01	.	.	1.05E-01	7.91E-02	2.23E+03



Resident Tap Water DCCs July 2023									
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Ingestion DCC DL=1 (Bq/L)	Inhalation DCC DL=1 (Bq/L)	Immersion DCC DL=1 (Bq/L)	Produce Consumption DCC DL=1 (Bq/L)	Total DCC DL=1 (Bq/L)	Total DCC DL=1 (mg/L)
Osmium (76)	Os-189m	1.05E+03	6.62E-04	5.75E+02	.	4.96E+07	1.92E+02	1.44E+02	1.36E-12
Osmium (76)	Os-190m	3.68E+04	1.88E-05	.	.	7.72E+01	.	7.72E+01	2.09E-14
Osmium (76)	Os-191	1.64E+01	4.22E-02	1.71E+01	.	1.78E+03	5.70E+00	4.26E+00	2.60E-12
Osmium (76)	Os-191m	4.63E+02	1.50E-03	1.46E+01	.	1.68E+03	4.86E+00	3.64E+00	7.87E-14
Osmium (76)	Os-193	2.02E+02	3.44E-03	1.19E+01	.	1.84E+03	3.96E+00	2.97E+00	1.49E-13
Osmium (76)	Os-194	1.16E-01	6.00E+00	2.59E+00	.	1.20E+03	8.63E-01	6.47E-01	5.70E-11
Osmium (76)	Os-196	1.04E+04	6.64E-05	9.17E+01	.	3.70E+02	3.06E+01	2.16E+01	2.13E-14
Phosphorus (15)	P-30	1.46E+05	4.75E-06	.	.	1.17E+02	.	1.17E+02	1.26E-15
Phosphorus (15)	P-32	1.77E+01	3.91E-02	4.00E+00	.	1.83E+04	1.67E-01	1.60E-01	1.52E-14
Phosphorus (15)	P-33	9.98E+00	6.94E-02	4.03E+01	.	7.52E+05	1.68E+00	1.61E+00	2.79E-13
Protactinium (91)	Pa-227	9.51E+03	7.29E-05	3.83E-01	2.74E-01	8.52E+02	1.37E-01	7.38E-02	9.24E-17
Protactinium (91)	Pa-228	2.76E+02	2.51E-03	5.40E-02	1.02E-01	4.05E+01	2.07E-02	1.31E-02	5.66E-16
Protactinium (91)	Pa-229	1.69E+02	4.11E-03	1.51E-02	.	3.43E+02	6.14E-03	4.37E-03	3.11E-16
Protactinium (91)	Pa-230	1.45E+01	4.77E-02	3.96E-03	1.40E-01	5.15E+01	1.57E-03	1.12E-03	9.27E-16
Protactinium (91)	Pa-231	2.12E-05	3.28E+04	1.15E-02	2.74E-01	2.64E+02	4.53E-03	3.21E-03	1.84E-09
Protactinium (91)	Pa-232	1.93E+02	3.59E-03	2.06E-02	1.02E-01	4.75E+01	8.17E-03	5.53E-03	3.49E-16
Protactinium (91)	Pa-233	9.38E+00	7.39E-02	1.41E-02	.	2.38E+02	5.72E-03	4.07E-03	5.30E-15
Protactinium (91)	Pa-234	9.06E+02	7.65E-04	3.84E-03	1.40E-01	3.64E+01	1.52E-03	1.08E-03	1.47E-17
Protactinium (91)	Pa-234m	3.11E+05	2.23E-06	3.84E-03	1.40E-01	6.49E+01	1.52E-03	1.08E-03	4.27E-20
Protactinium (91)	Pa-235	1.49E+04	4.66E-05	1.10E-02	2.74E-01	1.93E+02	4.33E-03	3.07E-03	2.55E-18
Protactinium (91)	Pa-236	4.00E+04	1.73E-05	6.21E-03	1.02E-01	3.51E+01	2.27E-03	1.64E-03	5.06E-19
Protactinium (91)	Pa-237	4.19E+04	1.66E-05	1.25E-02	.	9.53E+01	5.04E-03	3.59E-03	1.07E-18
Lead (82)	Pb-194	3.04E+04	2.28E-05	6.27E+00	.	3.93E+01	8.67E-01	7.48E-01	2.51E-16
Lead (82)	Pb-195m	2.43E+04	2.85E-05	2.43E+01	.	3.81E+01	5.97E+00	4.26E+00	1.79E-15
Lead (82)	Pb-196	9.84E+03	7.04E-05	1.37E+02	.	4.98E+01	5.59E+01	2.21E+01	2.31E-14
Lead (82)	Pb-197	4.55E+04	1.52E-05	3.68E+01	.	5.78E+01	4.30E+00	3.61E+00	8.19E-16
Lead (82)	Pb-197m	8.47E+03	8.18E-05	3.19E+01	.	6.12E+01	4.10E+00	3.43E+00	4.18E-15
Lead (82)	Pb-198	2.53E+03	2.74E-04	7.24E+01	.	4.79E+01	2.87E+01	1.44E+01	5.90E-14
Lead (82)	Pb-199	4.05E+03	1.71E-04	1.62E+02	.	9.32E+01	6.37E+01	3.07E+01	7.91E-14
Lead (82)	Pb-200	2.82E+02	2.45E-03	1.88E+01	.	7.98E+01	7.29E+00	4.93E+00	1.83E-13
Lead (82)	Pb-201	6.51E+02	1.07E-03	4.19E+01	.	1.47E+02	1.64E+01	1.09E+01	1.77E-13
Lead (82)	Pb-201m	3.58E+05	1.93E-06	4.19E+01	.	1.02E+02	1.64E+01	1.06E+01	3.11E-16

Resident Tap Water DCCs July 2023									
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Ingestion DCC DL=1 (Bq/L)	Inhalation DCC DL=1 (Bq/L)	Immersion DCC DL=1 (Bq/L)	Produce Consumption DCC DL=1 (Bq/L)	Total DCC DL=1 (Bq/L)	Total DCC DL=1 (mg/L)
Lead (82)	Pb-202	1.32E-05	5.25E+04	6.32E-01	.	2.74E+02	2.35E-01	1.71E-01	1.37E-07
Lead (82)	Pb-202m	1.72E+03	4.03E-04	6.91E-01	.	4.92E+01	2.57E-01	1.86E-01	1.15E-15
Lead (82)	Pb-203	1.17E+02	5.92E-03	4.42E+01	.	4.10E+02	1.64E+01	1.16E+01	1.06E-12
Lead (82)	Pb-204m	5.42E+03	1.28E-04	2.26E+02	.	5.76E+01	8.36E+01	2.96E+01	5.85E-14
Lead (82)	Pb-205	4.53E-08	1.53E+07	3.85E+01	.	1.04E+07	1.43E+01	1.04E+01	2.47E-03
Lead (82)	Pb-209	1.87E+03	3.71E-04	1.82E+02	.	1.05E+05	6.73E+01	4.91E+01	2.88E-13
Lead (82)	Pb-210	3.12E-02	2.22E+01	4.90E-03	.	2.90E+04	1.97E-03	1.41E-03	4.96E-13
Lead (82)	Pb-211	1.01E+04	6.87E-05	5.18E+01	.	9.98E+02	1.92E+01	1.38E+01	1.51E-14
Lead (82)	Pb-212	5.71E+02	1.21E-03	1.27E+00	.	7.62E+01	4.61E-01	3.37E-01	6.57E-15
Lead (82)	Pb-214	1.36E+04	5.10E-05	4.89E-03	.	6.61E+01	1.97E-03	1.41E-03	1.16E-18
Palladium (46)	Pd-100	6.97E+01	9.95E-03	6.69E+00	.	4.03E+01	1.71E+00	1.32E+00	9.90E-14
Palladium (46)	Pd-101	7.17E+02	9.67E-04	3.09E+01	.	1.96E+02	8.98E+00	6.72E+00	4.97E-14
Palladium (46)	Pd-103	1.49E+01	4.66E-02	5.06E+01	.	8.61E+04	1.11E+01	9.11E+00	3.31E-12
Palladium (46)	Pd-107	1.07E-07	6.50E+06	2.56E+02	.	.	5.60E+01	4.59E+01	2.42E-03
Palladium (46)	Pd-109	4.43E+02	1.56E-03	1.76E+01	.	1.72E+04	3.85E+00	3.16E+00	4.08E-14
Palladium (46)	Pd-109m	7.77E+04	8.92E-06	1.76E+01	.	1.09E+03	3.85E+00	3.15E+00	2.32E-16
Palladium (46)	Pd-111	1.56E+04	4.45E-05	7.60E+00	.	1.35E+03	1.45E+00	1.21E+00	4.54E-16
Palladium (46)	Pd-112	2.89E+02	2.40E-03	3.30E+00	.	1.63E+02	7.05E-01	5.79E-01	1.18E-14
Palladium (46)	Pd-114	1.51E+05	4.60E-06	.	.	3.62E+02	.	3.62E+02	1.44E-14
Palladium (46)	Pd-96	1.79E+05	3.87E-06	.	.	2.33E+01	.	2.33E+01	6.55E-16
Palladium (46)	Pd-97	1.17E+05	5.90E-06	3.87E+01	.	2.89E+01	2.60E-01	2.56E-01	1.11E-17
Palladium (46)	Pd-98	2.06E+04	3.37E-05	1.64E+02	.	5.41E+01	3.59E+01	1.91E+01	4.76E-15
Palladium (46)	Pd-99	1.70E+04	4.07E-05	8.90E+01	.	6.20E+01	2.56E+01	1.51E+01	4.59E-15
Promethium (61)	Pm-136	2.04E+05	3.39E-06	7.77E+01	.	2.32E+01	3.26E+01	1.16E+01	4.03E-16
Promethium (61)	Pm-137m	1.52E+05	4.57E-06	5.11E+01	.	3.61E+01	2.13E+01	1.06E+01	5.03E-16
Promethium (61)	Pm-139	8.78E+04	7.90E-06	3.23E+01	.	7.43E+01	1.35E+01	8.43E+00	7.00E-16
Promethium (61)	Pm-140	2.38E+06	2.92E-07	5.01E+00	.	7.44E+01	2.12E+00	1.46E+00	4.51E-18
Promethium (61)	Pm-140m	6.12E+04	1.13E-05	5.01E+00	.	3.33E+01	2.12E+00	1.42E+00	1.71E-16
Promethium (61)	Pm-141	1.74E+04	3.98E-05	2.34E+02	.	1.51E+02	8.72E+01	4.47E+01	1.90E-14
Promethium (61)	Pm-142	5.40E+05	1.28E-06	.	.	1.39E+02	.	1.39E+02	1.92E-15
Promethium (61)	Pm-143	9.55E-01	7.26E-01	4.52E+01	.	4.03E+02	1.64E+01	1.17E+01	9.17E-11
Promethium (61)	Pm-144	6.97E-01	9.95E-01	2.51E-01	.	7.82E+01	1.06E-01	7.43E-02	8.05E-13

Resident Tap Water DCCs July 2023									
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Ingestion	Inhalation	Immersion	Produce	Total DCC DL=1 (Bq/L)	Total DCC DL=1 (mg/L)
				DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)		
Promethium (61)	Pm-145	3.92E-02	1.77E+01	9.17E+01	.	9.23E+03	3.32E+01	2.43E+01	4.72E-09
Promethium (61)	Pm-146	1.25E-01	5.53E+00	5.42E-01	.	1.63E+02	2.30E-01	1.61E-01	9.85E-12
Promethium (61)	Pm-147	2.64E-01	2.62E+00	2.11E-01	.	1.23E+06	8.99E-02	6.30E-02	1.84E-12
Promethium (61)	Pm-148	4.71E+01	1.47E-02	1.22E-01	.	1.99E+02	5.14E-02	3.61E-02	5.95E-15
Promethium (61)	Pm-148m	6.13E+00	1.13E-01	1.23E-01	.	5.98E+01	5.21E-02	3.66E-02	4.63E-14
Promethium (61)	Pm-149	1.14E+02	6.06E-03	9.90E+00	.	8.38E+03	3.58E+00	2.63E+00	1.80E-13
Promethium (61)	Pm-150	2.27E+03	3.06E-04	3.89E+01	.	7.87E+01	1.41E+01	9.13E+00	3.17E-14
Promethium (61)	Pm-151	2.14E+02	3.24E-03	1.20E+01	.	3.79E+02	4.42E+00	3.20E+00	1.19E-13
Promethium (61)	Pm-152	8.84E+04	7.84E-06	.	.	3.89E+02	.	3.89E+02	3.50E-14
Promethium (61)	Pm-152m	4.84E+04	1.43E-05	.	.	7.72E+01	.	7.72E+01	1.27E-14
Promethium (61)	Pm-153	6.94E+04	9.99E-06	1.34E+01	.	1.01E+03	5.74E+00	4.00E+00	4.63E-16
Promethium (61)	Pm-154	2.11E+05	3.29E-06	.	.	6.28E+01	.	6.28E+01	2.41E-15
Promethium (61)	Pm-154m	1.36E+05	5.10E-06	.	.	6.42E+01	.	6.42E+01	3.81E-15
Polonium (84)	Po-203	9.92E+03	6.98E-05	1.37E+01	.	2.71E+01	3.54E+00	2.55E+00	2.73E-15
Polonium (84)	Po-204	1.72E+03	4.03E-04	1.31E+01	.	2.79E+01	3.37E+00	2.45E+00	1.52E-14
Polonium (84)	Po-205	3.66E+03	1.89E-04	8.65E+00	.	3.56E+01	2.13E+00	1.63E+00	4.79E-15
Polonium (84)	Po-206	2.87E+01	2.41E-02	4.95E-01	.	2.76E+01	1.94E-01	1.38E-01	5.20E-14
Polonium (84)	Po-207	1.05E+03	6.62E-04	7.59E+00	.	4.22E+01	1.72E+00	1.36E+00	1.41E-14
Polonium (84)	Po-208	2.39E-01	2.90E+00	6.20E-03	.	1.38E+06	2.63E-03	1.85E-03	8.43E-14
Polonium (84)	Po-209	6.79E-03	1.02E+02	6.22E-03	.	1.96E+04	2.64E-03	1.86E-03	2.99E-12
Polonium (84)	Po-210	1.83E+00	3.79E-01	7.75E-03	.	1.22E+07	3.29E-03	2.31E-03	1.39E-14
Polonium (84)	Po-211	4.24E+07	1.64E-08	.	.	1.46E+04	.	1.46E+04	3.82E-15
Polonium (84)	Po-212	7.31E+13	9.48E-15	.	.	.	.	.	.
Polonium (84)	Po-212m	4.85E+05	1.43E-06	.	.	1.37E+03	.	1.37E+03	3.13E-14
Polonium (84)	Po-213	5.20E+12	1.33E-13	1.82E+02	.	1.02E+05	6.73E+01	4.91E+01	1.05E-22
Polonium (84)	Po-214	1.33E+11	5.21E-12	4.90E-03	.	2.84E+04	1.97E-03	1.41E-03	1.19E-25
Polonium (84)	Po-215	1.23E+10	5.65E-11	5.18E+01	.	9.96E+02	1.92E+01	1.38E+01	1.27E-20
Polonium (84)	Po-216	1.51E+08	4.60E-09	1.27E+00	.	7.62E+01	4.61E-01	3.37E-01	2.53E-20
Polonium (84)	Po-218	1.17E+05	5.90E-06	4.89E-03	.	6.61E+01	1.97E-03	1.41E-03	1.37E-19
Praseodymium (59)	Pr-134	3.31E+04	2.09E-05	3.67E+00	.	3.08E+01	1.54E+00	1.05E+00	2.22E-16
Praseodymium (59)	Pr-134m	2.14E+04	3.23E-05	3.63E+00	.	3.87E+01	1.52E+00	1.04E+00	3.41E-16
Praseodymium (59)	Pr-135	1.52E+04	4.57E-05	3.13E+01	.	7.18E+01	1.31E+01	8.17E+00	3.81E-15

Resident Tap Water DCCs July 2023									
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Ingestion	Inhalation	Immersion	Produce	Total DCC DL=1 (Bq/L)	Total DCC DL=1 (mg/L)
				DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)		
Praseodymium (59)	Pr-136	2.78E+04	2.49E-05	3.04E+02	.	5.49E+01	1.25E+02	3.39E+01	8.70E-15
Praseodymium (59)	Pr-137	4.74E+03	1.46E-04	6.94E+01	.	3.14E+02	2.89E+01	1.92E+01	2.90E-14
Praseodymium (59)	Pr-138	2.51E+05	2.76E-06	.	.	1.47E+02	.	1.47E+02	4.24E-15
Praseodymium (59)	Pr-138m	2.86E+03	2.42E-04	8.12E+01	.	4.82E+01	3.35E+01	1.59E+01	4.02E-14
Praseodymium (59)	Pr-139	1.38E+03	5.03E-04	3.45E+01	.	4.86E+02	1.44E+01	9.96E+00	5.27E-14
Praseodymium (59)	Pr-140	1.07E+05	6.45E-06	.	.	2.24E+02	.	2.24E+02	1.53E-14
Praseodymium (59)	Pr-142	3.18E+02	2.18E-03	7.46E+00	.	1.70E+03	3.07E+00	2.17E+00	5.09E-14
Praseodymium (59)	Pr-142m	2.49E+04	2.78E-05	7.36E+00	.	1.70E+03	3.03E+00	2.14E+00	6.40E-16
Praseodymium (59)	Pr-143	1.86E+01	3.72E-02	8.38E+00	.	5.32E+04	3.45E+00	2.44E+00	9.83E-13
Praseodymium (59)	Pr-144	2.11E+04	3.29E-05	2.57E-01	.	2.65E+03	1.08E-01	7.62E-02	2.73E-17
Praseodymium (59)	Pr-144m	5.06E+04	1.37E-05	2.57E-01	.	2.35E+03	1.08E-01	7.62E-02	1.14E-17
Praseodymium (59)	Pr-145	1.01E+03	6.83E-04	2.49E+01	.	4.80E+03	1.03E+01	7.26E+00	5.44E-14
Praseodymium (59)	Pr-146	1.51E+04	4.59E-05	1.30E+02	.	1.11E+02	5.37E+01	2.84E+01	1.44E-14
Praseodymium (59)	Pr-147	2.72E+04	2.55E-05	2.06E-01	.	1.99E+02	8.78E-02	6.15E-02	1.75E-17
Praseodymium (59)	Pr-148	1.59E+05	4.36E-06	.	.	1.15E+02	.	1.15E+02	5.60E-15
Praseodymium (59)	Pr-148m	1.81E+05	3.82E-06	.	.	1.26E+02	.	1.26E+02	5.41E-15
Platinum (78)	Pt-184	2.11E+04	3.29E-05	4.80E+01	.	4.50E+01	1.49E+01	9.08E+00	4.16E-15
Platinum (78)	Pt-186	2.92E+03	2.37E-04	3.13E-01	.	5.08E+01	1.04E-01	7.79E-02	2.61E-16
Platinum (78)	Pt-187	2.58E+03	2.68E-04	5.14E+01	.	1.33E+02	1.40E+01	1.02E+01	3.86E-14
Platinum (78)	Pt-188	2.48E+01	2.79E-02	6.58E+00	.	4.99E+01	1.71E+00	1.32E+00	5.26E-13
Platinum (78)	Pt-189	5.58E+02	1.24E-03	2.31E+01	.	2.31E+02	6.24E+00	4.81E+00	8.54E-14
Platinum (78)	Pt-190	1.07E-12	6.50E+11	2.60E-01	.	.	7.90E-02	6.06E-02	5.66E-01
Platinum (78)	Pt-191	9.03E+01	7.68E-03	2.78E+01	.	4.54E+02	6.07E+00	4.93E+00	5.47E-13
Platinum (78)	Pt-193	1.39E-02	5.00E+01	2.75E+02	.	1.80E+07	6.01E+01	4.93E+01	3.60E-08
Platinum (78)	Pt-193m	5.84E+01	1.19E-02	2.00E+01	.	1.47E+04	4.36E+00	3.58E+00	6.20E-13
Platinum (78)	Pt-195m	6.29E+01	1.10E-02	1.54E+01	.	2.14E+03	3.35E+00	2.75E+00	4.47E-13
Platinum (78)	Pt-197	3.05E+02	2.27E-03	2.28E+01	.	5.62E+03	4.98E+00	4.08E+00	1.38E-13
Platinum (78)	Pt-197m	3.82E+03	1.82E-04	1.96E+01	.	1.30E+03	4.28E+00	3.51E+00	9.49E-15
Platinum (78)	Pt-199	1.18E+04	5.86E-05	2.05E+01	.	4.15E+02	8.02E+00	5.69E+00	5.02E-15
Platinum (78)	Pt-200	4.86E+02	1.43E-03	7.98E+00	.	3.53E+02	1.79E+00	1.45E+00	3.14E-14
Platinum (78)	Pt-202	1.38E+02	5.02E-03	2.24E+00	.	6.18E+02	4.88E-01	4.00E-01	3.07E-14
Plutonium (94)	Pu-232	1.08E+04	6.41E-05	2.68E-02	1.02E-01	5.48E+01	1.06E-02	7.08E-03	7.97E-18



Resident Tap Water DCCs July 2023									
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Ingestion	Inhalation	Immersion	Produce	Total DCC DL=1 (Bq/L)	Total DCC DL=1 (mg/L)
				DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)		
Plutonium (94)	Pu-234	6.90E+02	1.00E-03	3.88E-03	1.40E-01	4.21E+01	1.54E-03	1.10E-03	1.95E-17
Plutonium (94)	Pu-235	1.44E+04	4.81E-05	1.10E-02	2.74E-01	1.72E+02	4.33E-03	3.07E-03	2.63E-18
Plutonium (94)	Pu-236	2.42E-01	2.86E+00	1.77E-02	1.02E-01	7.56E+01	7.09E-03	4.82E-03	2.46E-13
Plutonium (94)	Pu-237	5.60E+00	1.24E-01	1.25E-02	.	2.13E+02	5.04E-03	3.59E-03	7.98E-15
Plutonium (94)	Pu-238	7.90E-03	8.77E+01	3.57E-03	1.40E-01	6.59E+01	1.43E-03	1.01E-03	1.60E-12
Plutonium (94)	Pu-239	2.87E-05	2.41E+04	8.89E-03	2.74E-01	1.94E+02	3.57E-03	2.52E-03	1.10E-09
Plutonium (94)	Pu-240	1.06E-04	6.56E+03	5.48E-03	1.02E-01	4.86E+01	2.04E-03	1.47E-03	1.75E-10
Plutonium (94)	Pu-241	4.83E-02	1.44E+01	1.02E-02	.	2.23E+02	4.17E-03	2.96E-03	7.74E-13
Plutonium (94)	Pu-242	1.85E-06	3.75E+05	3.51E-03	1.40E-01	6.46E+01	1.40E-03	9.95E-04	6.83E-09
Plutonium (94)	Pu-243	1.22E+03	5.66E-04	7.69E-03	2.74E-01	1.41E+02	3.12E-03	2.20E-03	2.29E-17
Plutonium (94)	Pu-244	8.66E-09	8.00E+07	4.94E-03	1.02E-01	4.26E+01	1.86E-03	1.34E-03	1.97E-06
Plutonium (94)	Pu-245	5.78E+02	1.20E-03	8.63E-03	.	1.13E+02	3.55E-03	2.51E-03	5.59E-17
Plutonium (94)	Pu-246	2.33E+01	2.97E-02	3.30E-03	1.40E-01	4.02E+01	1.32E-03	9.39E-04	5.19E-16
Radium (88)	Ra-219	2.19E+09	3.17E-10	.	.	6.99E+02	.	6.99E+02	3.67E-18
Radium (88)	Ra-220	1.22E+09	5.68E-10	.	.	2.62E+04	.	2.62E+04	2.48E-16
Radium (88)	Ra-221	7.81E+05	8.88E-07	1.82E+02	.	3.52E+03	6.73E+01	4.84E+01	7.19E-16
Radium (88)	Ra-222	5.75E+05	1.20E-06	4.90E-03	.	8.62E+03	1.97E-03	1.41E-03	2.85E-20
Radium (88)	Ra-223	2.21E+01	3.13E-02	6.25E-02	2.74E-01	3.92E+02	2.20E-02	1.54E-02	8.13E-15
Radium (88)	Ra-224	6.91E+01	1.00E-02	9.93E-02	1.46E+01	7.57E+01	3.51E-02	2.59E-02	4.40E-15
Radium (88)	Ra-225	1.70E+01	4.08E-02	4.67E-02	.	5.40E+02	1.70E-02	1.25E-02	8.66E-15
Radium (88)	Ra-226	4.33E-04	1.60E+03	4.21E-03	1.40E-01	6.59E+01	1.66E-03	1.18E-03	3.23E-11
Radium (88)	Ra-227	8.63E+03	8.03E-05	2.17E-02	2.74E-01	2.14E+02	8.65E-03	6.05E-03	8.35E-18
Radium (88)	Ra-228	1.21E-01	5.75E+00	7.32E-03	1.02E-01	4.86E+01	2.61E-03	1.89E-03	1.88E-13
Radium (88)	Ra-230	3.92E+03	1.77E-04	3.90E-03	1.40E-01	4.85E+01	1.55E-03	1.10E-03	3.39E-18
Rubidium (37)	Rb-77	9.66E+04	7.17E-06	1.13E+02	.	4.16E+01	4.08E+01	1.74E+01	7.28E-16
Rubidium (37)	Rb-78	2.06E+04	3.36E-05	1.46E+02	.	2.68E+01	2.18E+01	1.11E+01	2.20E-15
Rubidium (37)	Rb-78m	6.35E+04	1.09E-05	1.46E+03	.	3.17E+01	2.18E+02	2.72E+01	1.75E-15
Rubidium (37)	Rb-79	1.59E+04	4.36E-05	2.06E+02	.	7.15E+01	3.08E+01	1.95E+01	5.08E-15
Rubidium (37)	Rb-80	6.54E+05	1.06E-06	.	.	9.93E+01	.	9.93E+01	6.36E-16
Rubidium (37)	Rb-81	1.33E+03	5.22E-04	2.15E+02	.	1.95E+02	3.22E+01	2.45E+01	7.83E-14
Rubidium (37)	Rb-81m	1.19E+04	5.80E-05	1.83E+02	.	1.92E+02	2.74E+01	2.12E+01	7.54E-15
Rubidium (37)	Rb-82	2.86E+05	2.42E-06	.	.	1.08E+02	.	1.08E+02	1.63E-15

Resident Tap Water DCCs July 2023									
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Ingestion	Inhalation	Immersion	Produce	Total DCC DL=1 (Bq/L)	Total DCC DL=1 (mg/L)
				DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)		
Rubidium (37)	Rb-82m	9.38E+02	7.39E-04	8.32E+01	.	4.06E+01	1.24E+01	8.55E+00	3.92E-14
Rubidium (37)	Rb-83	2.93E+00	2.36E-01	6.34E+00	.	2.52E+02	9.48E-01	8.22E-01	1.22E-12
Rubidium (37)	Rb-84	7.72E+00	8.98E-02	3.85E+00	.	1.32E+02	5.76E-01	4.99E-01	2.85E-13
Rubidium (37)	Rb-84m	1.80E+04	3.85E-05	3.84E+00	.	9.37E+01	5.75E-01	4.97E-01	1.22E-16
Rubidium (37)	Rb-86	1.36E+01	5.11E-02	3.56E+00	.	1.17E+03	5.32E-01	4.63E-01	1.54E-13
Rubidium (37)	Rb-86m	3.58E+05	1.93E-06	3.56E+00	.	1.87E+02	5.32E-01	4.62E-01	5.82E-18
Rubidium (37)	Rb-87	1.41E-11	4.92E+10	6.62E+00	.	3.03E+05	9.90E-01	8.61E-01	2.79E-01
Rubidium (37)	Rb-88	2.05E+04	3.38E-05	1.11E+02	.	1.66E+02	1.66E+01	1.33E+01	3.00E-15
Rubidium (37)	Rb-89	2.40E+04	2.88E-05	3.70E+00	.	4.99E+01	3.76E-01	3.39E-01	6.58E-17
Rubidium (37)	Rb-90	1.38E+05	5.01E-06	3.42E-01	.	5.05E+01	3.72E-02	3.35E-02	1.14E-18
Rubidium (37)	Rb-90m	8.47E+04	8.18E-06	3.42E-01	.	3.30E+01	3.72E-02	3.35E-02	1.87E-18
Rhenium (75)	Re-178	2.76E+04	2.51E-05	3.72E+01	.	6.27E+01	1.95E+00	1.80E+00	6.10E-16
Rhenium (75)	Re-179	1.87E+04	3.71E-05	1.34E+02	.	1.05E+02	3.39E+01	2.15E+01	1.08E-14
Rhenium (75)	Re-180	1.49E+05	4.64E-06	.	.	1.00E+02	.	1.00E+02	6.33E-15
Rhenium (75)	Re-181	3.05E+02	2.27E-03	1.99E+01	.	1.49E+02	2.19E+00	1.95E+00	6.06E-14
Rhenium (75)	Re-182	9.49E+01	7.31E-03	7.26E+00	.	6.71E+01	1.06E+00	9.13E-01	9.18E-14
Rhenium (75)	Re-182m	4.78E+02	1.45E-03	3.61E+01	.	9.68E+01	5.27E+00	4.39E+00	8.77E-14
Rhenium (75)	Re-183	3.61E+00	1.92E-01	1.04E+01	.	9.53E+02	1.51E+00	1.32E+00	3.50E-12
Rhenium (75)	Re-184	6.66E+00	1.04E-01	1.05E+01	.	1.36E+02	1.54E+00	1.33E+00	1.93E-12
Rhenium (75)	Re-184m	1.50E+00	4.63E-01	4.60E+00	.	1.17E+02	6.72E-01	5.83E-01	3.76E-12
Rhenium (75)	Re-186	6.80E+01	1.02E-02	3.25E-01	.	5.94E+03	1.02E-01	7.78E-02	1.12E-14
Rhenium (75)	Re-186m	3.47E-06	2.00E+05	3.03E-01	.	3.99E+03	8.84E-02	6.84E-02	1.93E-07
Rhenium (75)	Re-187	1.68E-11	4.12E+10	2.06E+03	.	.	3.01E+02	2.63E+02	1.53E+02
Rhenium (75)	Re-188	3.57E+02	1.94E-03	7.07E+00	.	1.79E+03	1.03E+00	9.01E-01	2.49E-14
Rhenium (75)	Re-188m	1.96E+04	3.54E-05	6.92E+00	.	1.01E+03	1.01E+00	8.81E-01	4.43E-16
Rhenium (75)	Re-189	2.50E+02	2.77E-03	1.30E+01	.	2.19E+03	1.90E+00	1.66E+00	6.59E-14
Rhenium (75)	Re-190	1.17E+05	5.90E-06	.	.	9.02E+01	.	9.02E+01	7.65E-15
Rhenium (75)	Re-190m	1.90E+03	3.65E-04	2.69E+01	.	7.91E+01	3.93E+00	3.29E+00	1.73E-14
Rhodium (45)	Rh-100	2.92E+02	2.37E-03	1.60E+01	.	4.14E+01	5.33E+00	3.65E+00	6.56E-14
Rhodium (45)	Rh-100m	7.92E+04	8.75E-06	1.63E+01	.	4.15E+01	5.43E+00	3.71E+00	2.45E-16
Rhodium (45)	Rh-101	2.10E-01	3.30E+00	1.97E+01	.	4.58E+02	6.55E+00	4.86E+00	1.23E-10
Rhodium (45)	Rh-101m	5.83E+01	1.19E-02	4.29E+01	.	4.21E+02	1.43E+01	1.05E+01	9.51E-13

Resident Tap Water DCCs July 2023									
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Ingestion DCC DL=1 (Bq/L)	Inhalation DCC DL=1 (Bq/L)	Immersion DCC DL=1 (Bq/L)	Produce Consumption DCC DL=1 (Bq/L)	Total DCC DL=1 (Bq/L)	Total DCC DL=1 (mg/L)
Rhodium (45)	Rh-102	1.22E+00	5.67E-01	8.53E+00	.	2.43E+02	2.84E+00	2.11E+00	9.26E-12
Rhodium (45)	Rh-102m	1.85E-01	3.74E+00	4.08E+00	.	5.60E+01	1.36E+00	1.00E+00	2.90E-11
Rhodium (45)	Rh-103m	6.49E+03	1.07E-04	2.66E+03	.	8.95E+05	8.85E+02	6.63E+02	5.52E-13
Rhodium (45)	Rh-104	5.17E+05	1.34E-06	.	.	5.23E+03	.	5.23E+03	5.52E-14
Rhodium (45)	Rh-104m	8.39E+04	8.26E-06	.	.	2.72E+03	.	2.72E+03	1.77E-13
Rhodium (45)	Rh-105	1.72E+02	4.04E-03	2.70E+01	.	1.58E+03	9.01E+00	6.73E+00	2.16E-13
Rhodium (45)	Rh-106	7.33E+05	9.45E-07	.	.	5.37E+02	.	5.37E+02	4.07E-15
Rhodium (45)	Rh-106m	2.78E+03	2.49E-04	6.22E+01	.	4.13E+01	2.07E+01	1.13E+01	2.26E-14
Rhodium (45)	Rh-107	1.68E+04	4.13E-05	1.60E+02	.	3.87E+02	4.01E+01	2.96E+01	9.90E-15
Rhodium (45)	Rh-108	1.30E+06	5.33E-07	.	.	3.54E+02	.	3.54E+02	1.54E-15
Rhodium (45)	Rh-109	2.73E+05	2.54E-06	1.76E+01	.	3.91E+02	3.85E+00	3.14E+00	6.56E-17
Rhodium (45)	Rh-94	3.10E+05	2.24E-06	5.20E+01	.	1.86E+01	1.83E-01	1.81E-01	2.88E-18
Rhodium (45)	Rh-95	7.26E+04	9.55E-06	4.29E+01	.	2.55E+01	1.05E-01	1.04E-01	7.13E-18
Rhodium (45)	Rh-95m	1.86E+05	3.73E-06	4.29E+01	.	2.25E+01	1.05E-01	1.04E-01	2.78E-18
Rhodium (45)	Rh-96	3.68E+04	1.88E-05	.	.	3.01E+01	.	3.01E+01	4.11E-15
Rhodium (45)	Rh-96m	2.41E+05	2.87E-06	.	.	3.23E+01	.	3.23E+01	6.74E-16
Rhodium (45)	Rh-97	1.19E+04	5.84E-05	3.87E+01	.	7.17E+01	2.60E-01	2.57E-01	1.10E-16
Rhodium (45)	Rh-97m	7.88E+03	8.79E-05	3.85E+01	.	4.53E+01	2.60E-01	2.57E-01	1.66E-16
Rhodium (45)	Rh-98	4.19E+04	1.66E-05	.	.	6.56E+01	.	6.56E+01	8.06E-15
Rhodium (45)	Rh-99	1.57E+01	4.41E-02	1.84E+01	.	2.24E+02	6.12E+00	4.50E+00	1.49E-12
Rhodium (45)	Rh-99m	1.29E+03	5.37E-04	1.60E+02	.	1.88E+02	5.35E+01	3.31E+01	1.33E-13
Radon (86)	Rn-207	3.94E+04	1.76E-05	7.54E+00	.	2.08E+01	1.62E+00	1.25E+00	3.45E-16
Radon (86)	Rn-209	1.28E+04	5.42E-05	7.81E-03	.	3.21E+01	3.32E-03	2.33E-03	2.00E-18
Radon (86)	Rn-210	2.53E+03	2.74E-04	1.41E-01	.	2.75E+01	5.85E-02	4.13E-02	1.80E-16
Radon (86)	Rn-211	4.16E+02	1.67E-03	1.16E+00	.	3.78E+01	1.74E-01	1.51E-01	4.01E-15
Radon (86)	Rn-212	1.52E+04	4.55E-05	6.20E-03	.	2.83E+05	2.63E-03	1.85E-03	1.35E-18
Radon (86)	Rn-215	9.50E+12	7.29E-14	.	.	1.46E+04	.	1.46E+04	1.73E-20
Radon (86)	Rn-216	4.86E+11	1.43E-12	.	.	.	.	.	.
Radon (86)	Rn-217	4.05E+10	1.71E-11	1.82E+02	.	1.02E+05	6.73E+01	4.91E+01	1.38E-20
Radon (86)	Rn-218	6.24E+08	1.11E-09	4.90E-03	.	2.41E+04	1.97E-03	1.41E-03	2.57E-23
Radon (86)	Rn-219	5.52E+06	1.26E-07	5.18E+01	2.74E-01	6.77E+02	1.92E+01	2.69E-01	5.60E-19
Radon (86)	Rn-220	3.93E+05	1.76E-06	1.27E+00	1.02E-01	7.62E+01	4.61E-01	7.83E-02	2.30E-18

Resident Tap Water DCCs July 2023									
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Ingestion DCC DL=1 (Bq/L)	Inhalation DCC DL=1 (Bq/L)	Immersion DCC DL=1 (Bq/L)	Produce Consumption DCC DL=1 (Bq/L)	Total DCC DL=1 (Bq/L)	Total DCC DL=1 (mg/L)
Radon (86)	Rn-222	6.62E+01	1.05E-02	4.89E-03	1.40E-01	6.61E+01	1.97E-03	1.39E-03	2.45E-16
Radon (86)	Rn-223	1.50E+04	4.62E-05	6.15E-02	2.74E-01	1.73E+02	2.17E-02	1.52E-02	1.18E-17
Ruthenium (44)	Ru-103	6.44E+00	1.08E-01	1.43E+01	.	2.46E+02	5.33E+00	3.83E+00	3.21E-12
Ruthenium (44)	Ru-105	1.37E+03	5.07E-04	1.55E+01	.	1.46E+02	5.39E+00	3.89E+00	1.57E-14
Ruthenium (44)	Ru-106	6.77E-01	1.02E+00	1.41E+00	.	5.37E+02	5.26E-01	3.83E-01	3.15E-12
Ruthenium (44)	Ru-107	9.71E+04	7.13E-06	1.60E+02	.	1.78E+02	4.01E+01	2.72E+01	1.57E-15
Ruthenium (44)	Ru-108	8.01E+04	8.66E-06	.	.	2.99E+02	.	2.99E+02	2.12E-14
Ruthenium (44)	Ru-92	9.98E+04	6.94E-06	.	.	1.99E+01	.	1.99E+01	9.63E-16
Ruthenium (44)	Ru-94	7.03E+03	9.86E-05	5.20E+01	.	4.79E+01	1.83E-01	1.82E-01	1.28E-16
Ruthenium (44)	Ru-95	3.69E+03	1.88E-04	4.29E+01	.	5.89E+01	1.05E-01	1.04E-01	1.40E-16
Ruthenium (44)	Ru-97	8.72E+01	7.95E-03	4.69E+01	.	5.41E+02	2.61E-01	2.59E-01	1.51E-14
Sulfur (16)	S-35	2.89E+00	2.40E-01	7.80E+01	.	3.47E+06	4.91E+00	4.62E+00	2.93E-12
Sulphur (16)	S-37	7.21E+04	9.61E-06	.	.	3.54E+01	.	3.54E+01	9.51E-16
Sulfur (16)	S-38	2.14E+03	3.24E-04	2.30E+01	.	3.46E+01	3.85E-01	3.75E-01	3.49E-16
Antimony (51)	Sb-111	2.91E+05	2.38E-06	3.34E+01	.	5.11E+01	1.19E+01	7.50E+00	1.50E-16
Antimony (51)	Sb-113	5.46E+04	1.27E-05	1.32E+01	.	7.93E+01	1.49E+00	1.32E+00	1.43E-16
Antimony (51)	Sb-114	1.04E+05	6.64E-06	.	.	4.31E+01	.	4.31E+01	2.47E-15
Antimony (51)	Sb-115	1.13E+04	6.11E-05	4.31E+02	.	1.38E+02	1.75E+02	6.54E+01	3.48E-14
Antimony (51)	Sb-116	2.31E+04	3.01E-05	3.43E+02	.	5.07E+01	1.39E+02	3.35E+01	8.84E-15
Antimony (51)	Sb-116m	6.04E+03	1.15E-04	1.67E+02	.	3.80E+01	6.77E+01	2.12E+01	2.14E-14
Antimony (51)	Sb-117	2.17E+03	3.20E-04	5.73E+02	.	7.43E+02	2.32E+02	1.35E+02	3.82E-13
Antimony (51)	Sb-118	1.01E+05	6.85E-06	.	.	1.50E+02	.	1.50E+02	9.19E-15
Antimony (51)	Sb-118m	1.21E+03	5.71E-04	5.12E+01	.	4.53E+01	2.08E+01	1.11E+01	5.68E-14
Antimony (51)	Sb-119	1.59E+02	4.36E-03	1.21E+02	.	3.33E+04	4.91E+01	3.49E+01	1.37E-12
Antimony (51)	Sb-120	2.29E+04	3.02E-05	7.07E+02	.	2.73E+02	2.87E+02	1.17E+02	3.21E-14
Antimony (51)	Sb-120m	4.39E+01	1.58E-02	8.70E+00	.	4.80E+01	3.53E+00	2.39E+00	3.42E-13
Antimony (51)	Sb-122	9.29E+01	7.46E-03	5.87E+00	.	2.69E+02	2.38E+00	1.68E+00	1.16E-13
Antimony (51)	Sb-122m	8.69E+04	7.97E-06	5.87E+00	.	2.46E+02	2.38E+00	1.68E+00	1.24E-16
Antimony (51)	Sb-124	4.20E+00	1.65E-01	4.03E+00	.	6.22E+01	1.63E+00	1.14E+00	1.77E-12
Antimony (51)	Sb-124m	2.35E+05	2.95E-06	5.37E+00	.	6.37E+01	2.18E+00	1.51E+00	4.19E-17
Antimony (51)	Sb-124n	1.80E+04	3.84E-05	5.34E+00	.	6.37E+01	2.17E+00	1.50E+00	5.43E-16
Antimony (51)	Sb-125	2.51E-01	2.76E+00	7.74E+00	.	2.85E+02	2.51E+00	1.88E+00	4.91E-11



Resident Tap Water DCCs July 2023									
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Ingestion DCC DL=1 (Bq/L)	Inhalation DCC DL=1 (Bq/L)	Immersion DCC DL=1 (Bq/L)	Produce Consumption DCC DL=1 (Bq/L)	Total DCC DL=1 (Bq/L)	Total DCC DL=1 (mg/L)
Antimony (51)	Sb-126	2.05E+01	3.38E-02	3.90E+00	.	4.36E+01	1.58E+00	1.10E+00	3.54E-13
Antimony (51)	Sb-126m	1.90E+04	3.64E-05	2.53E+01	.	6.22E+01	1.02E+01	6.52E+00	2.27E-15
Antimony (51)	Sb-127	6.57E+01	1.05E-02	4.39E+00	.	1.72E+02	1.25E+00	9.69E-01	9.82E-14
Antimony (51)	Sb-128	6.74E+02	1.03E-03	1.28E+01	.	3.87E+01	5.19E+00	3.37E+00	3.36E-14
Antimony (51)	Sb-128m	3.50E+04	1.98E-05	1.64E+02	.	5.91E+01	6.67E+01	2.63E+01	5.04E-15
Antimony (51)	Sb-129	1.38E+03	5.02E-04	1.11E-01	.	7.62E+01	3.22E-02	2.50E-02	1.22E-16
Antimony (51)	Sb-130	9.22E+03	7.52E-05	1.11E+02	.	3.62E+01	4.51E+01	1.70E+01	1.26E-14
Antimony (51)	Sb-130m	5.78E+04	1.20E-05	.	.	4.34E+01	.	4.34E+01	5.12E-15
Antimony (51)	Sb-131	1.58E+04	4.38E-05	4.27E-01	.	3.93E+01	1.24E-01	9.59E-02	4.17E-17
Antimony (51)	Sb-133	1.46E+05	4.76E-06	2.01E+00	.	2.42E+01	5.78E-01	4.41E-01	2.11E-17
Scandium (21)	Sc-42m	3.52E+05	1.97E-06	.	.	2.76E+01	.	2.76E+01	1.72E-16
Scandium (21)	Sc-43	1.56E+03	4.44E-04	4.66E+01	.	1.24E+02	1.97E+01	1.25E+01	1.80E-14
Scandium (21)	Sc-44	1.53E+03	4.53E-04	2.87E+01	.	5.52E+01	1.21E+01	7.39E+00	1.12E-14
Scandium (21)	Sc-44m	1.04E+02	6.69E-03	3.64E+00	.	4.96E+01	1.54E+00	1.06E+00	2.36E-14
Scandium (21)	Sc-46	3.02E+00	2.30E-01	7.22E+00	.	5.82E+01	3.05E+00	2.07E+00	1.65E-12
Scandium (21)	Sc-47	7.55E+01	9.18E-03	1.82E+01	.	1.15E+03	7.68E+00	5.38E+00	1.75E-13
Scandium (21)	Sc-48	1.39E+02	4.99E-03	6.34E+00	.	3.45E+01	2.68E+00	1.79E+00	3.23E-14
Scandium (21)	Sc-49	6.37E+03	1.09E-04	1.23E+02	.	1.28E+04	5.21E+01	3.65E+01	1.47E-14
Scandium (21)	Sc-50	2.13E+05	3.25E-06	.	.	3.56E+01	.	3.56E+01	4.38E-16
Selenium (34)	Se-70	8.86E+03	7.82E-05	4.51E+01	.	2.36E+01	3.53E+00	2.88E+00	1.19E-15
Selenium (34)	Se-71	7.68E+04	9.02E-06	2.25E+01	.	5.48E+01	5.22E+00	3.93E+00	1.91E-16
Selenium (34)	Se-72	3.01E+01	2.30E-02	1.27E+00	.	6.62E+01	6.31E-02	6.00E-02	7.53E-15
Selenium (34)	Se-73	8.49E+02	8.16E-04	2.16E+01	.	1.12E+02	1.62E+00	1.49E+00	6.70E-15
Selenium (34)	Se-73m	9.15E+03	7.57E-05	2.30E+01	.	1.16E+02	1.83E+00	1.67E+00	7.01E-16
Selenium (34)	Se-75	2.11E+00	3.28E-01	4.05E+00	.	3.25E+02	1.62E-01	1.56E-01	2.91E-13
Selenium (34)	Se-77m	1.26E+06	5.50E-07	.	.	1.45E+03	.	1.45E+03	4.66E-15
Selenium (34)	Se-79	2.35E-06	2.95E+05	2.90E+00	.	3.49E+06	1.16E-01	1.12E-01	1.97E-07
Selenium (34)	Se-79m	9.29E+04	7.46E-06	2.90E+00	.	1.47E+04	1.16E-01	1.12E-01	4.99E-18
Selenium (34)	Se-81	1.97E+04	3.51E-05	3.76E+02	.	8.88E+03	1.51E+01	1.45E+01	3.11E-15
Selenium (34)	Se-81m	6.36E+03	1.09E-04	1.26E+02	.	4.62E+03	5.06E+00	4.86E+00	3.24E-15
Selenium (34)	Se-83	1.63E+04	4.24E-05	1.15E+02	.	4.39E+01	8.33E+00	6.60E+00	1.76E-15
Selenium (34)	Se-83m	3.12E+05	2.22E-06	2.27E+02	.	1.15E+02	8.18E+01	3.95E+01	5.51E-16

Resident Tap Water DCCs July 2023									
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Ingestion DCC DL=1 (Bq/L)	Inhalation DCC DL=1 (Bq/L)	Immersion DCC DL=1 (Bq/L)	Produce Consumption DCC DL=1 (Bq/L)	Total DCC DL=1 (Bq/L)	Total DCC DL=1 (mg/L)
Selenium (34)	Se-84	1.17E+05	5.90E-06	1.15E+02	.	5.07E+01	4.15E+01	1.90E+01	7.14E-16
Silicon (14)	Si-31	2.32E+03	2.99E-04	6.37E+01	.	1.92E+04	2.30E+01	1.69E+01	1.18E-14
Silicon (14)	Si-32	5.25E-03	1.32E+02	3.24E+00	.	1.80E+04	1.62E-01	1.55E-01	4.94E-11
Samarium (62)	Sm-139	1.42E+05	4.89E-06	3.23E+01	.	3.90E+01	1.35E+01	7.65E+00	3.93E-16
Samarium (62)	Sm-140	2.46E+04	2.82E-05	4.78E+00	.	5.53E+01	2.02E+00	1.38E+00	4.14E-16
Samarium (62)	Sm-141	3.57E+04	1.94E-05	1.24E+02	.	5.41E+01	4.92E+01	2.13E+01	4.42E-15
Samarium (62)	Sm-141m	1.61E+04	4.30E-05	9.70E+01	.	4.35E+01	3.90E+01	1.70E+01	7.79E-15
Samarium (62)	Sm-142	5.02E+03	1.38E-04	5.58E+01	.	1.26E+02	2.38E+01	1.47E+01	2.19E-14
Samarium (62)	Sm-143	4.16E+04	1.66E-05	4.52E+01	.	1.47E+02	1.64E+01	1.11E+01	2.00E-15
Samarium (62)	Sm-143m	3.31E+05	2.09E-06	4.52E+01	.	7.99E+01	1.64E+01	1.04E+01	2.37E-16
Samarium (62)	Sm-145	7.44E-01	9.32E-01	3.13E+01	.	2.85E+03	1.26E+01	8.94E+00	9.14E-11
Samarium (62)	Sm-146	6.73E-09	1.03E+08	1.94E-01	.	.	8.26E-02	5.79E-02	6.59E-05
Samarium (62)	Sm-147	6.54E-12	1.06E+11	2.12E-01	.	.	9.05E-02	6.34E-02	7.48E-02
Samarium (62)	Sm-148	9.90E-17	7.00E+15	1.26E-01	.	.	5.35E-02	3.75E-02	2.94E+03
Samarium (62)	Sm-151	7.70E-03	9.00E+01	1.01E+02	.	1.91E+08	4.29E+01	3.01E+01	3.09E-08
Samarium (62)	Sm-153	1.31E+02	5.31E-03	1.34E+01	.	2.54E+03	5.74E+00	4.01E+00	2.47E-13
Samarium (62)	Sm-155	1.63E+04	4.24E-05	2.76E+01	.	8.25E+02	1.16E+01	8.07E+00	4.02E-15
Samarium (62)	Sm-156	6.46E+02	1.07E-03	3.97E+00	.	8.53E+01	1.66E+00	1.16E+00	1.47E-14
Samarium (62)	Sm-157	4.54E+04	1.53E-05	1.62E+01	.	1.75E+02	6.78E+00	4.66E+00	8.45E-16
Tin (50)	Sn-106	1.90E+05	3.65E-06	.	.	2.89E+01	.	2.89E+01	8.46E-16
Tin (50)	Sn-108	3.54E+04	1.96E-05	1.01E+02	.	3.31E+01	2.68E+01	1.29E+01	2.07E-15
Tin (50)	Sn-109	2.02E+04	3.42E-05	5.18E+00	.	3.84E+01	3.64E-01	3.37E-01	9.52E-17
Tin (50)	Sn-110	1.48E+03	4.69E-04	2.17E+01	.	6.44E+01	2.84E+00	2.42E+00	9.43E-15
Tin (50)	Sn-111	1.03E+04	6.72E-05	3.34E+01	.	1.39E+02	1.19E+01	8.27E+00	4.67E-15
Tin (50)	Sn-113	2.20E+00	3.15E-01	1.29E+01	.	4.66E+02	1.46E+00	1.31E+00	3.53E-12
Tin (50)	Sn-113m	1.70E+04	4.07E-05	1.41E+01	.	5.06E+02	1.60E+00	1.43E+00	4.98E-16
Tin (50)	Sn-117m	1.84E+01	3.77E-02	1.40E+01	.	8.75E+02	1.54E+00	1.38E+00	4.61E-13
Tin (50)	Sn-119m	8.63E-01	8.03E-01	2.79E+01	.	5.44E+04	3.06E+00	2.76E+00	1.99E-11
Tin (50)	Sn-121	2.25E+02	3.09E-03	4.28E+01	.	2.71E+05	4.70E+00	4.24E+00	1.20E-13
Tin (50)	Sn-121m	1.58E-02	4.39E+01	1.75E+01	.	8.10E+04	1.92E+00	1.73E+00	6.96E-10
Tin (50)	Sn-123	1.96E+00	3.54E-01	4.65E+00	.	1.03E+04	5.10E-01	4.60E-01	1.52E-12
Tin (50)	Sn-123m	9.09E+03	7.62E-05	2.62E+02	.	8.82E+02	2.88E+01	2.52E+01	1.79E-14

Resident Tap Water DCCs July 2023									
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Ingestion	Inhalation	Immersion	Produce	Total DCC DL=1 (Bq/L)	Total DCC DL=1 (mg/L)
				DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)		
Tin (50)	Sn-125	2.62E+01	2.64E-02	2.28E+00	.	1.55E+02	3.12E-01	2.74E-01	6.84E-14
Tin (50)	Sn-125m	3.83E+04	1.81E-05	7.74E+00	.	1.56E+02	2.51E+00	1.87E+00	3.21E-16
Tin (50)	Sn-126	3.01E-06	2.30E+05	1.96E+00	.	6.09E+01	2.28E-01	2.04E-01	4.47E-07
Tin (50)	Sn-127	2.89E+03	2.40E-04	4.05E+00	.	4.48E+01	1.03E+00	8.03E-01	1.85E-15
Tin (50)	Sn-127m	8.82E+04	7.86E-06	4.39E+00	.	9.39E+01	1.25E+00	9.65E-01	7.28E-17
Tin (50)	Sn-128	6.17E+03	1.12E-04	4.73E+01	.	4.63E+01	6.58E+00	5.14E+00	5.60E-15
Tin (50)	Sn-129	1.63E+05	4.24E-06	1.11E-01	.	4.60E+01	3.22E-02	2.49E-02	1.03E-18
Tin (50)	Sn-130	9.79E+04	7.08E-06	.	.	3.26E+01	.	3.26E+01	2.27E-15
Tin (50)	Sn-130m	2.14E+05	3.23E-06	1.29E+02	.	2.89E+01	5.25E+01	1.63E+01	5.19E-16
Strontium (38)	Sr-79	1.62E+05	4.28E-06	2.06E+02	.	4.20E+01	3.08E+01	1.64E+01	4.19E-16
Strontium (38)	Sr-80	3.43E+03	2.02E-04	2.71E+01	.	7.35E+01	2.74E+00	2.41E+00	2.95E-15
Strontium (38)	Sr-81	1.63E+04	4.24E-05	8.96E+01	.	6.04E+01	1.05E+01	8.12E+00	2.11E-15
Strontium (38)	Sr-82	9.97E+00	6.95E-02	1.61E+00	.	1.08E+02	1.63E-01	1.48E-01	6.37E-14
Strontium (38)	Sr-83	1.87E+02	3.70E-03	4.87E+00	.	9.29E+01	6.56E-01	5.74E-01	1.33E-14
Strontium (38)	Sr-85	3.90E+00	1.78E-01	1.71E+01	.	2.48E+02	1.73E+00	1.56E+00	1.78E-12
Strontium (38)	Sr-85m	5.39E+03	1.29E-04	1.95E+01	.	1.90E+02	1.98E+00	1.78E+00	1.47E-15
Strontium (38)	Sr-87m	2.16E+03	3.21E-04	3.03E+02	.	3.85E+02	3.21E+01	2.70E+01	5.71E-14
Strontium (38)	Sr-89	5.01E+00	1.38E-01	3.76E+00	.	2.25E+04	3.80E-01	3.45E-01	3.22E-13
Strontium (38)	Sr-90	2.41E-02	2.88E+01	3.42E-01	.	1.08E+04	3.72E-02	3.35E-02	6.58E-12
Strontium (38)	Sr-91	6.30E+02	1.10E-03	3.29E+00	.	1.16E+02	8.24E-01	6.55E-01	4.96E-15
Strontium (38)	Sr-92	2.28E+03	3.04E-04	1.11E+01	.	7.10E+01	1.92E+00	1.60E+00	3.39E-15
Strontium (38)	Sr-93	4.91E+04	1.41E-05	4.89E+00	.	4.87E+01	2.01E+00	1.38E+00	1.38E-16
Strontium (38)	Sr-94	2.90E+05	2.39E-06	1.20E+02	.	5.13E+01	4.86E+01	2.07E+01	3.51E-16
Tantalum (73)	Ta-170	5.39E+04	1.29E-05	7.75E+00	.	2.84E+01	3.29E+00	2.14E+00	3.53E-16
Tantalum (73)	Ta-172	9.90E+03	7.00E-05	4.21E+00	.	3.19E+01	1.78E+00	1.20E+00	1.10E-15
Tantalum (73)	Ta-173	1.93E+03	3.58E-04	1.47E+01	.	1.12E+02	6.24E+00	4.22E+00	1.98E-14
Tantalum (73)	Ta-174	5.33E+03	1.30E-04	4.31E-02	.	1.22E+02	1.80E-02	1.27E-02	2.18E-17
Tantalum (73)	Ta-175	5.78E+02	1.20E-03	1.63E+01	.	8.25E+01	6.85E+00	4.56E+00	7.23E-14
Tantalum (73)	Ta-176	7.50E+02	9.24E-04	3.39E+01	.	5.09E+01	1.43E+01	8.41E+00	1.03E-13
Tantalum (73)	Ta-177	1.07E+02	6.46E-03	9.29E+01	.	2.41E+03	3.93E+01	2.73E+01	2.36E-12
Tantalum (73)	Ta-178	3.91E+04	1.77E-05	.	.	1.14E+03	.	1.14E+03	2.71E-13
Tantalum (73)	Ta-178m	2.57E+03	2.69E-04	1.22E+02	.	1.09E+02	5.16E+01	2.73E+01	9.89E-14

Resident Tap Water DCCs July 2023									
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Ingestion	Inhalation	Immersion	Produce	Total DCC DL=1 (Bq/L)	Total DCC DL=1 (mg/L)
				DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)		
Tantalum (73)	Ta-179	3.81E-01	1.82E+00	1.70E+02	.	7.43E+03	7.19E+01	5.02E+01	1.24E-09
Tantalum (73)	Ta-180	7.45E+02	9.31E-04	1.79E+02	.	3.67E+03	7.58E+01	5.25E+01	6.66E-13
Tantalum (73)	Ta-182	2.21E+00	3.14E-01	6.82E+00	.	9.09E+01	2.88E+00	1.98E+00	8.55E-12
Tantalum (73)	Ta-182m	2.30E+04	3.01E-05	6.76E+00	.	7.72E+01	2.86E+00	1.96E+00	8.13E-16
Tantalum (73)	Ta-183	4.96E+01	1.40E-02	7.37E+00	.	4.49E+02	3.12E+00	2.18E+00	4.22E-13
Tantalum (73)	Ta-184	6.98E+02	9.93E-04	1.52E+01	.	7.67E+01	6.40E+00	4.25E+00	5.88E-14
Tantalum (73)	Ta-185	7.37E+03	9.40E-05	1.94E+01	.	8.23E+02	1.08E+00	1.02E+00	1.34E-15
Tantalum (73)	Ta-186	3.47E+04	2.00E-05	2.91E+02	.	8.50E+01	1.23E+02	4.29E+01	1.21E-14
Terbium (65)	Tb-146	9.50E+05	7.29E-07	1.86E-01	.	1.86E+01	7.94E-02	5.55E-02	4.47E-19
Terbium (65)	Tb-147	3.70E+03	1.87E-04	2.07E-01	.	2.94E+01	8.83E-02	6.18E-02	1.29E-16
Terbium (65)	Tb-147m	1.95E+05	3.56E-06	2.08E-01	.	3.12E+01	8.86E-02	6.19E-02	2.45E-18
Terbium (65)	Tb-148	6.07E+03	1.14E-04	1.88E-01	.	4.92E+01	7.95E-02	5.59E-02	7.14E-17
Terbium (65)	Tb-148m	1.66E+05	4.19E-06	1.89E-01	.	3.82E+01	7.97E-02	5.60E-02	2.62E-18
Terbium (65)	Tb-149	1.47E+03	4.70E-04	1.11E+01	.	5.83E+01	4.65E+00	3.10E+00	1.64E-14
Terbium (65)	Tb-149m	8.76E+04	7.91E-06	1.46E+01	.	6.30E+01	6.15E+00	4.05E+00	3.61E-16
Terbium (65)	Tb-150	1.74E+03	3.97E-04	9.82E-02	.	4.65E+01	4.17E-02	2.93E-02	1.32E-16
Terbium (65)	Tb-150m	6.28E+04	1.10E-05	9.84E-02	.	4.84E+01	4.18E-02	2.93E-02	3.67E-18
Terbium (65)	Tb-151	3.45E+02	2.01E-03	1.74E+01	.	1.19E+02	7.36E+00	4.96E+00	1.14E-13
Terbium (65)	Tb-151m	8.74E+05	7.93E-07	1.81E+01	.	1.18E+02	7.66E+00	5.15E+00	4.67E-17
Terbium (65)	Tb-152	3.47E+02	2.00E-03	8.38E-02	.	7.82E+01	3.55E-02	2.49E-02	5.73E-16
Terbium (65)	Tb-152m	8.67E+04	7.99E-06	8.39E-02	.	6.20E+01	3.56E-02	2.50E-02	2.30E-18
Terbium (65)	Tb-153	1.08E+02	6.41E-03	1.80E+01	.	3.21E+02	7.62E+00	5.27E+00	3.91E-13
Terbium (65)	Tb-154	2.82E+02	2.45E-03	1.71E+01	.	4.92E+01	7.24E+00	4.61E+00	1.32E-13
Terbium (65)	Tb-155	4.75E+01	1.46E-02	3.87E+01	.	8.44E+02	1.63E+01	1.13E+01	1.94E-12
Terbium (65)	Tb-156	4.73E+01	1.47E-02	9.17E+00	.	6.12E+01	3.87E+00	2.61E+00	4.51E-13
Terbium (65)	Tb-156m	2.49E+02	2.79E-03	8.01E+00	.	6.05E+01	3.39E+00	2.29E+00	7.53E-14
Terbium (65)	Tb-156n	1.15E+03	6.05E-04	8.50E+00	.	6.11E+01	3.59E+00	2.42E+00	1.73E-14
Terbium (65)	Tb-157	9.76E-03	7.10E+01	2.57E+02	.	5.18E+04	1.09E+02	7.64E+01	6.44E-08
Terbium (65)	Tb-158	3.85E-03	1.80E+02	9.36E+00	.	1.51E+02	3.95E+00	2.73E+00	5.87E-09
Terbium (65)	Tb-160	3.50E+00	1.98E-01	6.31E+00	.	1.05E+02	2.67E+00	1.84E+00	4.42E-12
Terbium (65)	Tb-161	3.66E+01	1.89E-02	1.33E+01	.	5.88E+03	5.62E+00	3.95E+00	9.10E-13
Terbium (65)	Tb-162	4.79E+04	1.45E-05	.	.	1.08E+02	.	1.08E+02	1.92E-14



Resident Tap Water DCCs July 2023									
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Ingestion	Inhalation	Immersion	Produce	Total DCC DL=1 (Bq/L)	Total DCC DL=1 (mg/L)
				DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)		
Terbium (65)	Tb-163	1.87E+04	3.71E-05	4.83E+02	.	1.55E+02	2.04E+02	7.45E+01	3.41E-14
Terbium (65)	Tb-164	1.21E+05	5.71E-06	.	.	4.78E+01	.	4.78E+01	3.39E-15
Terbium (65)	Tb-165	1.73E+05	4.01E-06	9.29E+01	.	1.30E+02	3.93E+01	2.28E+01	1.14E-15
Technetium (43)	Tc-101	2.57E+04	2.70E-05	5.43E+02	.	3.60E+02	1.00E+00	9.97E-01	2.06E-16
Technetium (43)	Tc-102	4.14E+06	1.67E-07	.	.	1.07E+03	.	1.07E+03	1.39E-15
Technetium (43)	Tc-102m	8.37E+04	8.28E-06	.	.	4.61E+01	.	4.61E+01	2.95E-15
Technetium (43)	Tc-104	1.99E+04	3.48E-05	1.24E+02	.	4.98E+01	2.30E-01	2.28E-01	6.26E-17
Technetium (43)	Tc-105	4.79E+04	1.45E-05	1.55E+01	.	7.30E+01	5.39E+00	3.79E+00	4.35E-16
Technetium (43)	Tc-91	1.16E+05	5.97E-06	9.40E+01	.	3.30E+01	2.22E+01	1.16E+01	4.79E-16
Technetium (43)	Tc-91m	1.10E+05	6.28E-06	3.58E+01	.	3.58E+01	1.24E+01	7.34E+00	3.17E-16
Technetium (43)	Tc-92	8.57E+04	8.09E-06	.	.	3.04E+01	.	3.04E+01	1.71E-15
Technetium (43)	Tc-93	2.21E+03	3.14E-04	4.03E+00	.	7.29E+01	2.06E-01	1.96E-01	4.33E-16
Technetium (43)	Tc-93m	8.37E+03	8.28E-05	4.01E+00	.	5.25E+01	1.77E-01	1.69E-01	9.83E-17
Technetium (43)	Tc-94	1.24E+03	5.57E-04	5.36E+01	.	4.49E+01	9.90E-02	9.86E-02	3.91E-16
Technetium (43)	Tc-94m	7.00E+03	9.89E-05	9.98E+01	.	6.00E+01	1.84E-01	1.83E-01	1.29E-16
Technetium (43)	Tc-95	3.04E+02	2.28E-03	6.00E+01	.	1.52E+02	1.11E-01	1.11E-01	1.81E-15
Technetium (43)	Tc-95m	4.15E+00	1.67E-01	1.86E+01	.	1.70E+02	3.44E-02	3.43E-02	4.13E-14
Technetium (43)	Tc-96	5.91E+01	1.17E-02	9.83E+00	.	4.76E+01	1.82E-02	1.81E-02	1.54E-15
Technetium (43)	Tc-96m	7.07E+03	9.80E-05	9.92E+00	.	4.78E+01	1.83E-02	1.83E-02	1.30E-17
Technetium (43)	Tc-97	2.67E-07	2.60E+06	1.43E+02	.	2.27E+05	2.65E-01	2.64E-01	5.04E-06
Technetium (43)	Tc-97m	2.81E+00	2.47E-01	1.57E+01	.	8.88E+04	2.90E-02	2.89E-02	5.24E-14
Technetium (43)	Tc-98	1.65E-07	4.20E+06	5.58E+00	.	8.50E+01	1.03E-02	1.03E-02	3.20E-07
Technetium (43)	Tc-99	3.28E-06	2.11E+05	1.51E+01	.	3.76E+05	2.78E-02	2.78E-02	4.39E-08
Technetium (43)	Tc-99m	1.01E+03	6.87E-04	1.46E+01	.	1.01E+03	2.70E-02	2.69E-02	1.38E-16
Tellurium (52)	Te-113	2.14E+05	3.23E-06	1.32E+01	.	3.14E+01	1.49E+00	1.28E+00	3.55E-17
Tellurium (52)	Te-114	2.40E+04	2.89E-05	1.56E+02	.	2.94E+01	2.46E+01	1.23E+01	3.08E-15
Tellurium (52)	Te-115	6.28E+04	1.10E-05	4.31E+02	.	3.79E+01	1.75E+02	2.91E+01	2.79E-15
Tellurium (52)	Te-115m	5.44E+04	1.27E-05	4.31E+02	.	3.37E+01	1.75E+02	2.65E+01	2.94E-15
Tellurium (52)	Te-116	2.44E+03	2.84E-04	4.56E+01	.	4.90E+01	7.83E+00	5.88E+00	1.47E-14
Tellurium (52)	Te-117	5.87E+03	1.18E-04	1.48E+02	.	6.83E+01	2.78E+01	1.75E+01	1.82E-14
Tellurium (52)	Te-118	4.22E+01	1.64E-02	3.29E+00	.	1.50E+02	5.19E-01	4.47E-01	6.55E-14
Tellurium (52)	Te-119	3.78E+02	1.83E-03	4.04E+01	.	1.58E+02	8.00E+00	6.41E+00	1.06E-13

Resident Tap Water DCCs July 2023									
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Ingestion	Inhalation	Immersion	Produce	Total	Total
				DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (mg/L)
Tellurium (52)	Te-119m	5.38E+01	1.29E-02	1.35E+01	.	7.80E+01	2.28E+00	1.90E+00	2.21E-13
Tellurium (52)	Te-121	1.32E+01	5.25E-02	2.40E+01	.	2.17E+02	3.79E+00	3.23E+00	1.55E-12
Tellurium (52)	Te-121m	1.64E+00	4.22E-01	3.84E+00	.	1.73E+02	6.07E-01	5.22E-01	2.02E-12
Tellurium (52)	Te-123	1.16E-15	6.00E+14	9.11E+00	.	1.91E+07	1.44E+00	1.24E+00	6.93E+03
Tellurium (52)	Te-123m	2.12E+00	3.27E-01	4.04E+00	.	9.23E+02	6.37E-01	5.50E-01	1.67E-12
Tellurium (52)	Te-125m	4.41E+00	1.57E-01	1.11E+01	.	1.52E+04	1.76E+00	1.52E+00	2.26E-12
Tellurium (52)	Te-127	6.49E+02	1.07E-03	5.90E+01	.	1.96E+04	9.31E+00	8.04E+00	8.25E-14
Tellurium (52)	Te-127m	2.32E+00	2.99E-01	3.74E+00	.	1.40E+04	5.91E-01	5.10E-01	1.46E-12
Tellurium (52)	Te-129	5.23E+03	1.32E-04	1.12E-01	.	1.74E+03	3.28E-02	2.54E-02	3.28E-17
Tellurium (52)	Te-129m	7.53E+00	9.21E-02	1.08E-01	.	1.52E+03	3.08E-02	2.40E-02	2.16E-14
Tellurium (52)	Te-131	1.46E+04	4.76E-05	4.32E-01	.	1.51E+02	1.26E-01	9.75E-02	4.60E-17
Tellurium (52)	Te-131m	2.02E+02	3.42E-03	3.99E-01	.	6.18E+01	1.09E-01	8.57E-02	2.91E-15
Tellurium (52)	Te-132	7.89E+01	8.78E-03	2.35E+00	.	4.79E+01	3.84E-01	3.28E-01	2.87E-14
Tellurium (52)	Te-133	2.91E+04	2.38E-05	2.02E+00	.	6.34E+01	5.86E-01	4.51E-01	1.08E-16
Tellurium (52)	Te-133m	6.57E+03	1.05E-04	1.94E+00	.	4.34E+01	5.44E-01	4.21E-01	4.46E-16
Tellurium (52)	Te-134	8.71E+03	7.95E-05	5.03E+01	.	3.42E+01	1.04E+01	6.86E+00	5.54E-15
Thorium (90)	Th-223	3.64E+07	1.90E-08	.	.	5.12E+02	.	5.12E+02	1.64E-16
Thorium (90)	Th-224	2.08E+07	3.33E-08	.	.	4.56E+03	.	4.56E+03	2.57E-15
Thorium (90)	Th-226	1.19E+04	5.82E-05	4.89E-03	.	5.68E+03	1.97E-03	1.41E-03	1.40E-18
Thorium (90)	Th-227	1.35E+01	5.12E-02	5.85E-02	2.74E-01	2.84E+02	2.09E-02	1.46E-02	1.28E-14
Thorium (90)	Th-228	3.63E-01	1.91E+00	5.37E-02	1.02E-01	7.56E+01	2.06E-02	1.30E-02	4.29E-13
Thorium (90)	Th-229	9.44E-05	7.34E+03	1.51E-02	.	4.03E+02	6.11E-03	4.35E-03	5.53E-10
Thorium (90)	Th-230	9.19E-06	7.54E+04	3.90E-03	1.40E-01	6.59E+01	1.55E-03	1.10E-03	1.44E-09
Thorium (90)	Th-231	2.38E+02	2.91E-03	1.15E-02	2.74E-01	2.58E+02	4.53E-03	3.21E-03	1.63E-16
Thorium (90)	Th-232	4.93E-11	1.41E+10	6.37E-03	1.02E-01	4.86E+01	2.32E-03	1.67E-03	4.13E-04
Thorium (90)	Th-233	1.63E+04	4.24E-05	1.41E-02	.	2.22E+02	5.72E-03	4.07E-03	3.04E-18
Thorium (90)	Th-234	1.05E+01	6.60E-02	3.83E-03	1.40E-01	6.46E+01	1.52E-03	1.08E-03	1.26E-15
Thorium (90)	Th-235	5.13E+04	1.35E-05	1.10E-02	2.74E-01	1.76E+02	4.33E-03	3.07E-03	7.38E-19
Thorium (90)	Th-236	9.71E+03	7.13E-05	6.21E-03	1.02E-01	3.47E+01	2.27E-03	1.64E-03	2.08E-18
Titanium (22)	Ti-44	1.16E-02	6.00E+01	1.72E+00	.	5.25E+01	7.34E-01	5.10E-01	1.02E-10
Titanium (22)	Ti-45	1.97E+03	3.52E-04	6.75E+01	.	1.40E+02	2.88E+01	1.76E+01	2.11E-14
Titanium (22)	Ti-51	6.32E+04	1.10E-05	.	.	3.23E+02	.	3.23E+02	1.37E-14

Resident Tap Water DCCs July 2023									
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Ingestion	Inhalation	Immersion	Produce	Total	Total
				DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (mg/L)
Titanium (22)	Ti-52	2.14E+05	3.23E-06	.	.	7.19E+01	.	7.19E+01	9.16E-16
Thallium (81)	TI-190	1.40E+05	4.95E-06	2.59E-01	.	2.98E+01	7.89E-02	6.03E-02	4.29E-18
Thallium (81)	TI-190m	9.84E+04	7.04E-06	2.59E-01	.	2.32E+01	7.89E-02	6.03E-02	6.10E-18
Thallium (81)	TI-194	1.10E+04	6.28E-05	6.35E+00	.	6.10E+01	8.71E-01	7.57E-01	6.98E-16
Thallium (81)	TI-194m	1.11E+04	6.24E-05	6.38E+00	.	3.37E+01	8.73E-01	7.51E-01	6.88E-16
Thallium (81)	TI-195	5.23E+03	1.32E-04	2.58E+01	.	7.92E+01	6.21E+00	4.71E+00	9.20E-15
Thallium (81)	TI-196	3.30E+03	2.10E-04	2.11E+02	.	6.18E+01	9.07E+01	3.13E+01	9.76E-14
Thallium (81)	TI-197	2.14E+03	3.24E-04	3.68E+01	.	2.39E+02	4.30E+00	3.79E+00	1.83E-14
Thallium (81)	TI-198	1.15E+03	6.05E-04	1.50E+02	.	5.73E+01	6.45E+01	2.53E+01	2.29E-13
Thallium (81)	TI-198m	3.25E+03	2.13E-04	1.22E+02	.	5.58E+01	5.22E+01	2.21E+01	7.06E-14
Thallium (81)	TI-199	8.18E+02	8.47E-04	3.90E+02	.	5.20E+02	1.67E+02	9.56E+01	1.22E-12
Thallium (81)	TI-200	2.33E+02	2.98E-03	5.49E+01	.	9.09E+01	2.36E+01	1.40E+01	6.30E-13
Thallium (81)	TI-201	8.33E+01	8.32E-03	1.07E+02	.	1.61E+03	4.58E+01	3.15E+01	3.98E-12
Thallium (81)	TI-202	2.07E+01	3.35E-02	2.42E+01	.	2.71E+02	1.04E+01	7.08E+00	3.63E-12
Thallium (81)	TI-204	1.83E-01	3.78E+00	8.43E+00	.	4.84E+04	3.62E+00	2.53E+00	1.48E-10
Thallium (81)	TI-206	8.67E+04	7.99E-06	.	.	2.49E+04	.	2.49E+04	3.10E-12
Thallium (81)	TI-206m	9.74E+04	7.12E-06	.	.	4.97E+01	.	4.97E+01	5.52E-15
Thallium (81)	TI-207	7.64E+04	9.08E-06	.	.	1.82E+04	.	1.82E+04	2.58E-12
Thallium (81)	TI-208	1.19E+05	5.81E-06	.	.	3.25E+01	.	3.25E+01	2.97E-15
Thallium (81)	TI-209	1.69E+05	4.11E-06	1.82E+02	.	5.37E+01	6.73E+01	2.56E+01	1.67E-15
Thallium (81)	TI-210	2.80E+05	2.47E-06	4.90E-03	.	4.14E+01	1.97E-03	1.41E-03	5.53E-20
Thulium (69)	Tm-161	1.21E+04	5.75E-05	7.73E+01	.	5.18E+01	3.29E+01	1.60E+01	1.12E-14
Thulium (69)	Tm-162	1.68E+04	4.13E-05	2.62E+02	.	5.97E+01	1.11E+02	3.38E+01	1.71E-14
Thulium (69)	Tm-163	3.35E+03	2.07E-04	1.76E+02	.	8.86E+01	7.44E+01	3.29E+01	8.38E-14
Thulium (69)	Tm-164	1.82E+05	3.81E-06	.	.	1.53E+02	.	1.53E+02	7.24E-15
Thulium (69)	Tm-165	2.02E+02	3.43E-03	2.77E+01	.	2.17E+02	1.17E+01	7.92E+00	3.39E-13
Thulium (69)	Tm-166	7.88E+02	8.79E-04	3.75E+01	.	5.85E+01	1.58E+01	9.35E+00	1.03E-13
Thulium (69)	Tm-167	2.73E+01	2.53E-02	1.72E+01	.	9.76E+02	7.25E+00	5.07E+00	1.62E-12
Thulium (69)	Tm-168	2.72E+00	2.55E-01	1.01E+01	.	9.84E+01	4.28E+00	2.92E+00	9.46E-12
Thulium (69)	Tm-170	1.97E+00	3.52E-01	7.50E+00	.	2.30E+04	3.17E+00	2.23E+00	1.01E-11
Thulium (69)	Tm-171	3.61E-01	1.92E+00	9.17E+01	.	3.04E+05	3.87E+01	2.72E+01	6.76E-10
Thulium (69)	Tm-172	9.55E+01	7.26E-03	5.85E+00	.	2.40E+02	2.47E+00	1.72E+00	1.63E-13

Resident Tap Water DCCs July 2023									
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Ingestion DCC DL=1 (Bq/L)	Inhalation DCC DL=1 (Bq/L)	Immersion DCC DL=1 (Bq/L)	Produce Consumption DCC DL=1 (Bq/L)	Total DCC DL=1 (Bq/L)	Total DCC DL=1 (mg/L)
Thulium (69)	Tm-173	7.37E+02	9.41E-04	3.33E+01	.	3.16E+02	1.41E+01	9.60E+00	1.18E-13
Thulium (69)	Tm-174	6.75E+04	1.03E-05	.	.	6.75E+01	.	6.75E+01	9.13E-15
Thulium (69)	Tm-175	2.40E+04	2.89E-05	2.13E+01	.	1.07E+02	9.00E+00	5.97E+00	2.29E-15
Thulium (69)	Tm-176	1.97E+05	3.52E-06	.	.	5.82E+01	.	5.82E+01	2.73E-15
Uranium (92)	U-227	3.31E+05	2.09E-06	.	.	3.50E+02	.	3.50E+02	1.26E-14
Uranium (92)	U-228	4.00E+04	1.73E-05	.	.	4.10E+03	.	4.10E+03	1.23E-12
Uranium (92)	U-230	1.22E+01	5.70E-02	4.77E-03	.	5.42E+03	1.92E-03	1.37E-03	1.36E-15
Uranium (92)	U-231	6.02E+01	1.15E-02	1.15E-02	2.74E-01	2.33E+02	4.53E-03	3.21E-03	6.46E-16
Uranium (92)	U-232	1.01E-02	6.89E+01	2.07E-02	1.02E-01	7.56E+01	8.18E-03	5.54E-03	6.70E-12
Uranium (92)	U-233	4.35E-06	1.59E+05	1.41E-02	.	4.03E+02	5.72E-03	4.07E-03	1.14E-08
Uranium (92)	U-234	2.82E-06	2.46E+05	3.84E-03	1.40E-01	6.59E+01	1.52E-03	1.08E-03	4.71E-09
Uranium (92)	U-235	9.84E-10	7.04E+08	1.10E-02	2.74E-01	1.94E+02	4.34E-03	3.07E-03	3.85E-05
Uranium (92)	U-235m	1.40E+04	4.95E-05	1.10E-02	2.74E-01	1.94E+02	4.34E-03	3.07E-03	2.70E-18
Uranium (92)	U-236	2.96E-08	2.34E+07	6.21E-03	1.02E-01	4.86E+01	2.27E-03	1.64E-03	6.84E-07
Uranium (92)	U-237	3.75E+01	1.85E-02	1.25E-02	.	1.87E+02	5.04E-03	3.59E-03	1.19E-15
Uranium (92)	U-238	1.55E-10	4.47E+09	3.78E-03	1.40E-01	6.46E+01	1.50E-03	1.07E-03	8.58E-05
Uranium (92)	U-239	1.55E+04	4.46E-05	8.88E-03	2.74E-01	1.45E+02	3.57E-03	2.52E-03	2.04E-18
Uranium (92)	U-240	4.31E+02	1.61E-03	5.48E-03	1.02E-01	4.29E+01	2.04E-03	1.47E-03	4.28E-17
Uranium (92)	U-242	2.17E+04	3.20E-05	3.51E-03	1.40E-01	5.49E+01	1.40E-03	9.95E-04	5.82E-19
Vanadium (23)	V-47	1.12E+04	6.20E-05	1.62E+02	.	1.22E+02	6.36E+01	3.32E+01	7.33E-15
Vanadium (23)	V-48	1.58E+01	4.38E-02	5.34E+00	.	4.00E+01	2.10E+00	1.45E+00	2.31E-13
Vanadium (23)	V-49	7.67E-01	9.04E-01	5.36E+02	.	.	2.10E+02	1.51E+02	5.07E-10
Vanadium (23)	V-50	4.62E-18	1.50E+17	3.62E+00	.	7.93E+01	1.42E+00	1.01E+00	5.71E+05
Vanadium (23)	V-52	9.73E+04	7.12E-06	.	.	7.77E+01	.	7.77E+01	2.18E-15
Vanadium (23)	V-53	2.26E+05	3.06E-06	.	.	1.11E+02	.	1.11E+02	1.37E-15
Tungsten (74)	W-177	2.76E+03	2.51E-04	6.23E+01	.	1.29E+02	7.49E+00	6.35E+00	2.14E-14
Tungsten (74)	W-178	1.17E+01	5.92E-02	4.14E+01	.	1.04E+03	2.03E+00	1.93E+00	1.54E-12
Tungsten (74)	W-179	9.83E+03	7.05E-05	1.61E+02	.	2.41E+03	4.76E+01	3.62E+01	3.45E-14
Tungsten (74)	W-179m	5.69E+04	1.22E-05	1.61E+02	.	1.27E+03	4.77E+01	3.57E+01	5.89E-15
Tungsten (74)	W-181	2.09E+00	3.32E-01	1.20E+02	.	4.49E+03	5.88E+00	5.60E+00	2.55E-11
Tungsten (74)	W-185	3.37E+00	2.06E-01	2.24E+01	.	2.08E+05	1.10E+00	1.05E+00	3.01E-12
Tungsten (74)	W-185m	2.28E+05	3.04E-06	2.24E+01	.	5.61E+03	1.10E+00	1.05E+00	4.45E-17



Resident Tap Water DCCs July 2023									
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Ingestion	Inhalation	Immersion	Produce	Total	Total
				DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (mg/L)
Tungsten (74)	W-187	2.56E+02	2.71E-03	1.69E+01	.	2.73E+02	8.31E-01	7.90E-01	3.03E-14
Tungsten (74)	W-188	3.62E+00	1.91E-01	2.84E+00	.	1.74E+03	1.90E-01	1.78E-01	4.85E-13
Tungsten (74)	W-190	1.21E+04	5.71E-05	1.22E+02	.	8.23E+01	5.99E+00	5.34E+00	4.38E-15
Xenon (54)	Xe-120	9.11E+03	7.61E-05	3.31E+01	.	3.79E+01	9.70E+00	6.26E+00	4.33E-15
Xenon (54)	Xe-121	9.08E+03	7.63E-05	2.01E+01	.	4.89E+01	3.41E+00	2.75E+00	1.92E-15
Xenon (54)	Xe-122	3.02E+02	2.29E-03	.	.	1.19E+02	.	1.19E+02	2.52E-12
Xenon (54)	Xe-123	2.92E+03	2.37E-04	7.48E+00	.	1.54E+02	1.29E+00	1.09E+00	2.41E-15
Xenon (54)	Xe-125	3.59E+02	1.93E-03	7.18E-01	.	4.80E+02	2.10E-01	1.63E-01	2.97E-15
Xenon (54)	Xe-127	6.95E+00	9.97E-02	.	.	4.76E+02	.	4.76E+02	4.57E-10
Xenon (54)	Xe-127m	3.16E+05	2.19E-06	.	.	3.01E+02	.	3.01E+02	6.34E-15
Xenon (54)	Xe-129m	2.85E+01	2.43E-02	.	.	5.88E+03	.	5.88E+03	1.40E-09
Xenon (54)	Xe-131m	2.14E+01	3.24E-02	.	.	1.55E+04	.	1.55E+04	4.97E-09
Xenon (54)	Xe-133	4.82E+01	1.44E-02	.	.	3.86E+03	.	3.86E+03	5.58E-10
Xenon (54)	Xe-133m	1.16E+02	6.00E-03	.	.	2.03E+03	.	2.03E+03	1.23E-10
Xenon (54)	Xe-135	6.64E+02	1.04E-03	5.14E+00	.	4.94E+02	1.80E+00	1.33E+00	1.41E-14
Xenon (54)	Xe-135m	2.38E+04	2.91E-05	5.14E+00	.	1.83E+02	1.80E+00	1.32E+00	3.93E-16
Xenon (54)	Xe-137	9.54E+04	7.26E-06	1.02E+00	.	1.55E+02	3.57E-01	2.64E-01	1.99E-17
Xenon (54)	Xe-138	2.59E+04	2.68E-05	1.06E+02	.	3.23E+01	3.70E+01	1.48E+01	4.15E-15
Yttrium (39)	Y-81	3.10E+05	2.23E-06	8.96E+01	.	3.80E+01	1.05E+01	7.52E+00	1.03E-16
Yttrium (39)	Y-83	5.14E+04	1.35E-05	4.87E+00	.	4.54E+01	6.56E-01	5.71E-01	4.83E-17
Yttrium (39)	Y-83m	1.28E+05	5.42E-06	4.87E+00	.	4.51E+01	6.56E-01	5.71E-01	1.94E-17
Yttrium (39)	Y-84m	9.22E+03	7.52E-05	7.58E+01	.	2.97E+01	3.07E+01	1.26E+01	6.01E-15
Yttrium (39)	Y-85	2.27E+03	3.06E-04	1.45E+01	.	7.07E+01	1.82E+00	1.58E+00	3.11E-15
Yttrium (39)	Y-85m	1.25E+03	5.55E-04	1.06E+01	.	6.48E+01	1.50E+00	1.29E+00	4.60E-15
Yttrium (39)	Y-86	4.12E+02	1.68E-03	1.11E+01	.	3.25E+01	4.51E+00	2.92E+00	3.20E-14
Yttrium (39)	Y-86m	7.59E+03	9.13E-05	1.06E+01	.	3.09E+01	4.28E+00	2.77E+00	1.65E-15
Yttrium (39)	Y-87	7.61E+01	9.11E-03	1.79E+01	.	1.62E+02	6.22E+00	4.49E+00	2.69E-13
Yttrium (39)	Y-87m	4.54E+02	1.53E-03	1.31E+01	.	1.17E+02	4.75E+00	3.38E+00	3.40E-14
Yttrium (39)	Y-88	2.37E+00	2.92E-01	8.43E+00	.	4.19E+01	3.41E+00	2.30E+00	4.47E-12
Yttrium (39)	Y-89m	1.40E+06	4.97E-07	.	.	1.31E+02	.	1.31E+02	4.38E-16
Yttrium (39)	Y-90	9.47E+01	7.32E-03	3.67E+00	.	1.20E+04	1.49E+00	1.06E+00	5.27E-14
Yttrium (39)	Y-90m	1.90E+03	3.64E-04	3.45E+00	.	1.91E+02	1.40E+00	9.89E-01	2.45E-15

Resident Tap Water DCCs July 2023									
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Ingestion	Inhalation	Immersion	Produce	Total DCC DL=1 (Bq/L)	Total DCC DL=1 (mg/L)
				DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)		
Yttrium (39)	Y-91	4.32E+00	1.60E-01	4.15E+00	.	1.37E+04	1.68E+00	1.20E+00	1.32E-12
Yttrium (39)	Y-91m	7.33E+03	9.46E-05	4.13E+00	.	2.26E+02	1.67E+00	1.18E+00	7.72E-16
Yttrium (39)	Y-92	1.71E+03	4.04E-04	2.00E+01	.	4.31E+02	8.10E+00	5.69E+00	1.60E-14
Yttrium (39)	Y-93	5.96E+02	1.16E-03	4.89E+00	.	1.04E+03	2.01E+00	1.42E+00	1.16E-14
Yttrium (39)	Y-94	1.95E+04	3.56E-05	1.20E+02	.	1.45E+02	4.86E+01	2.80E+01	7.08E-15
Yttrium (39)	Y-95	3.54E+04	1.96E-05	6.54E+00	.	4.36E+01	2.69E+00	1.83E+00	2.57E-16
Ytterbium (70)	Yb-162	1.93E+04	3.59E-05	1.47E+02	.	5.37E+01	6.22E+01	2.41E+01	1.06E-14
Ytterbium (70)	Yb-163	3.30E+04	2.10E-05	1.39E+02	.	5.77E+01	5.86E+01	2.41E+01	6.24E-15
Ytterbium (70)	Yb-164	4.81E+03	1.44E-04	1.11E+02	.	1.46E+02	4.70E+01	2.70E+01	4.82E-14
Ytterbium (70)	Yb-165	3.68E+04	1.88E-05	2.77E+01	.	1.40E+02	1.17E+01	7.76E+00	1.82E-15
Ytterbium (70)	Yb-166	1.07E+02	6.47E-03	8.52E+00	.	5.69E+01	3.60E+00	2.42E+00	1.97E-13
Ytterbium (70)	Yb-167	2.08E+04	3.33E-05	1.70E+01	.	3.53E+02	7.17E+00	4.97E+00	2.09E-15
Ytterbium (70)	Yb-169	7.90E+00	8.77E-02	1.23E+01	.	4.46E+02	5.21E+00	3.63E+00	4.08E-12
Ytterbium (70)	Yb-175	6.04E+01	1.15E-02	2.25E+01	.	3.17E+03	9.51E+00	6.67E+00	1.01E-12
Ytterbium (70)	Yb-177	3.18E+03	2.18E-04	1.58E+01	.	5.19E+02	6.75E+00	4.69E+00	1.37E-14
Ytterbium (70)	Yb-178	4.92E+03	1.41E-04	6.15E+01	.	6.89E+02	2.61E+01	1.78E+01	3.38E-14
Ytterbium (70)	Yb-179	4.55E+04	1.52E-05	4.57E+01	.	1.20E+02	1.95E+01	1.23E+01	2.53E-15
Zinc (30)	Zn-60	1.53E+05	4.53E-06	1.45E+02	.	2.13E+01	4.21E+01	1.29E+01	2.65E-16
Zinc (30)	Zn-61	2.45E+05	2.83E-06	9.11E+01	.	5.02E+01	2.64E+01	1.45E+01	1.90E-16
Zinc (30)	Zn-62	6.61E+02	1.05E-03	1.11E+01	.	8.37E+01	4.83E-01	4.60E-01	2.26E-15
Zinc (30)	Zn-63	9.47E+03	7.32E-05	1.28E+02	.	1.09E+02	5.56E+00	5.08E+00	1.77E-15
Zinc (30)	Zn-65	1.04E+00	6.69E-01	2.84E+00	.	2.01E+02	1.23E-01	1.18E-01	3.89E-13
Zinc (30)	Zn-69	6.46E+03	1.07E-04	3.28E+02	.	5.18E+04	1.42E+01	1.36E+01	7.64E-15
Zinc (30)	Zn-69m	4.41E+02	1.57E-03	2.86E+01	.	2.93E+02	1.24E+00	1.19E+00	9.72E-15
Zinc (30)	Zn-71	1.49E+05	4.66E-06	.	.	3.67E+02	.	3.67E+02	9.19E-15
Zinc (30)	Zn-71m	1.53E+03	4.52E-04	4.38E+01	.	7.72E+01	1.90E+00	1.78E+00	4.32E-15
Zinc (30)	Zn-72	1.31E+02	5.31E-03	4.12E+00	.	3.98E+01	2.99E-01	2.77E-01	8.01E-15
Zirconium (40)	Zr-85	4.63E+04	1.50E-05	1.07E+01	.	3.61E+01	1.51E+00	1.28E+00	1.23E-16
Zirconium (40)	Zr-86	3.68E+02	1.88E-03	5.85E+00	.	3.03E+01	2.42E+00	1.62E+00	1.99E-14
Zirconium (40)	Zr-87	3.61E+03	1.92E-04	1.06E+01	.	6.15E+01	3.93E+00	2.74E+00	3.46E-15
Zirconium (40)	Zr-88	3.03E+00	2.28E-01	6.32E+00	.	3.71E+01	2.59E+00	1.75E+00	2.66E-12
Zirconium (40)	Zr-89	7.74E+01	8.95E-03	1.33E+01	.	1.03E+02	5.64E+00	3.81E+00	2.30E-13

Resident Tap Water DCCs July 2023									
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Half-life (years)	Ingestion DCC DL=1 (Bq/L)	Inhalation DCC DL=1 (Bq/L)	Immersion DCC DL=1 (Bq/L)	Produce Consumption DCC DL=1 (Bq/L)	Total DCC DL=1 (Bq/L)	Total DCC DL=1 (mg/L)
Zirconium (40)	Zr-89m	8.75E+04	7.92E-06	1.42E+01	.	6.94E+01	6.02E+00	3.98E+00	2.12E-16
Zirconium (40)	Zr-93	4.53E-07	1.53E+06	1.16E+01	.	1.70E+06	4.84E+00	3.41E+00	3.68E-05
Zirconium (40)	Zr-95	3.95E+00	1.75E-01	6.72E+00	.	7.99E+01	2.77E+00	1.91E+00	2.41E-12
Zirconium (40)	Zr-97	3.63E+02	1.91E-03	4.69E+00	.	7.70E+01	1.98E+00	1.37E+00	1.92E-14

Resident Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Actinium (89)	Ac-223	1.73E+05	4.00E-06	9.73E+01	.	9.73E+01	6.56E-15
Actinium (89)	Ac-224	2.18E+03	3.17E-04	4.09E+00	4.55E-04	4.55E-04	2.45E-18
Actinium (89)	Ac-225	2.53E+01	2.74E-02	3.30E+01	1.75E-04	1.75E-04	8.17E-17
Actinium (89)	Ac-226	2.07E+02	3.35E-03	1.60E+01	1.15E-04	1.15E-04	6.57E-18
Actinium (89)	Ac-227	3.18E-02	2.18E+01	1.72E+01	2.03E-05	2.03E-05	7.59E-15
Actinium (89)	Ac-228	9.87E+02	7.02E-04	2.94E+00	3.41E-05	3.41E-05	4.14E-19
Actinium (89)	Ac-230	1.79E+05	3.87E-06	3.02E+00	1.29E-05	1.29E-05	8.68E-22
Actinium (89)	Ac-231	4.86E+04	1.43E-05	8.35E+00	5.10E-06	5.10E-06	1.27E-21
Actinium (89)	Ac-232	1.84E+05	3.77E-06	1.96E+00	1.79E-05	1.79E-05	1.19E-21
Actinium (89)	Ac-233	1.51E+05	4.60E-06	6.95E+00	1.56E-05	1.56E-05	1.27E-21
Silver (47)	Ag-100m	1.63E+05	4.26E-06	1.23E+00	1.19E+00	6.06E-01	1.95E-17
Silver (47)	Ag-101	3.28E+04	2.11E-05	3.32E+00	2.31E+00	1.36E+00	2.20E-16
Silver (47)	Ag-102	2.82E+04	2.45E-05	2.07E+00	7.30E+01	2.01E+00	3.81E-16
Silver (47)	Ag-102m	4.73E+04	1.46E-05	1.88E+00	1.49E+02	1.86E+00	2.10E-16
Silver (47)	Ag-103	5.54E+03	1.25E-04	8.71E+00	3.02E+00	2.24E+00	2.19E-15
Silver (47)	Ag-104	5.26E+03	1.32E-04	2.67E+00	3.53E+01	2.48E+00	2.57E-15
Silver (47)	Ag-104m	1.09E+04	6.37E-05	3.91E+00	4.49E+01	3.59E+00	1.80E-15
Silver (47)	Ag-105	6.13E+00	1.13E-01	1.50E+01	1.74E+00	1.56E+00	1.40E-12
Silver (47)	Ag-105m	5.04E+04	1.38E-05	1.50E+01	1.74E+00	1.56E+00	1.71E-16
Silver (47)	Ag-106	1.52E+04	4.56E-05	1.06E+01	8.87E+01	9.43E+00	3.45E-15
Silver (47)	Ag-106m	3.05E+01	2.27E-02	2.56E+00	1.24E+00	8.36E-01	1.52E-13
Silver (47)	Ag-108	1.54E+05	4.51E-06	2.60E+02	.	2.60E+02	9.59E-15
Silver (47)	Ag-108m	1.66E-03	4.18E+02	4.56E+00	4.01E-02	3.97E-02	1.36E-10
Silver (47)	Ag-109m	5.52E+05	1.26E-06	2.09E+03	.	2.09E+03	2.17E-14
Silver (47)	Ag-110	8.88E+05	7.80E-07	1.34E+02	.	1.34E+02	8.72E-16
Silver (47)	Ag-110m	1.01E+00	6.84E-01	2.58E+00	1.17E-01	1.12E-01	6.37E-13
Silver (47)	Ag-111	3.40E+01	2.04E-02	2.38E+02	8.32E-01	8.29E-01	1.42E-13
Silver (47)	Ag-111m	3.37E+05	2.05E-06	2.13E+02	8.38E-01	8.35E-01	1.44E-17
Silver (47)	Ag-112	1.94E+03	3.57E-04	9.75E+00	7.69E+00	4.30E+00	1.30E-14
Silver (47)	Ag-113	1.13E+03	6.13E-04	8.57E+01	1.30E-02	1.30E-02	6.82E-17
Silver (47)	Ag-113m	3.18E+05	2.18E-06	2.75E+01	1.30E-02	1.30E-02	2.42E-19
Silver (47)	Ag-114	4.75E+06	1.46E-07	2.26E+01	.	2.26E+01	2.85E-17
Silver (47)	Ag-115	1.82E+04	3.81E-05	8.49E+00	4.12E-03	4.12E-03	1.36E-18
Silver (47)	Ag-116	1.36E+05	5.10E-06	3.09E+00	.	3.09E+00	1.38E-16
Silver (47)	Ag-117	2.97E+05	2.33E-06	2.28E+00	5.29E+00	1.60E+00	3.30E-17
Silver (47)	Ag-99	1.76E+05	3.93E-06	1.69E+00	1.37E+01	1.50E+00	4.43E-17
Aluminum (13)	Al-26	9.67E-07	7.17E+05	2.58E+00	1.42E-02	1.41E-02	1.99E-08
Aluminum (13)	Al-28	1.63E+05	4.26E-06	3.72E+00	.	3.72E+00	3.36E-17
Aluminum (13)	Al-29	5.55E+04	1.25E-05	4.92E+00	.	4.92E+00	1.35E-16
Americium (95)	Am-237	4.99E+03	1.39E-04	8.06E+00	1.39E-05	1.39E-05	3.47E-20



Resident Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Americium (95)	Am-238	3.72E+03	1.86E-04	2.67E+00	6.58E-06	6.58E-06	2.21E-20
Americium (95)	Am-239	5.10E+02	1.36E-03	8.84E+00	3.61E-06	3.61E-06	8.88E-20
Americium (95)	Am-240	1.20E+02	5.80E-03	2.08E+00	7.33E-06	7.33E-06	7.72E-19
Americium (95)	Am-241	1.60E-03	4.32E+02	1.36E+01	7.54E-06	7.54E-06	5.94E-14
Americium (95)	Am-242	3.79E+02	1.83E-03	3.94E+00	6.38E-06	6.38E-06	2.14E-19
Americium (95)	Am-242m	4.91E-03	1.41E+02	3.94E+00	4.67E-06	4.67E-06	1.21E-14
Americium (95)	Am-243	9.40E-05	7.37E+03	8.86E+00	2.97E-06	2.97E-06	4.02E-13
Americium (95)	Am-244	6.01E+02	1.15E-03	2.23E+00	6.88E-06	6.88E-06	1.46E-19
Americium (95)	Am-244m	1.40E+04	4.95E-05	2.92E+00	6.88E-06	6.88E-06	6.28E-21
Americium (95)	Am-245	2.96E+03	2.34E-04	1.11E+01	5.10E-06	5.10E-06	2.21E-20
Americium (95)	Am-246	9.34E+03	7.42E-05	2.81E+00	4.50E-06	4.50E-06	6.21E-21
Americium (95)	Am-246m	1.46E+04	4.76E-05	2.53E+00	4.50E-06	4.50E-06	3.98E-21
Americium (95)	Am-247	1.58E+04	4.38E-05	5.71E+00	2.54E-06	2.54E-06	2.08E-21
Argon (18)	Ar-37	7.22E+00	9.60E-02	.	.	.	.
Argon (18)	Ar-39	2.58E-03	2.69E+02	2.87E+03	.	2.87E+03	2.28E-06
Argon (18)	Ar-41	3.32E+03	2.09E-04	5.37E+00	.	5.37E+00	3.48E-15
Argon (18)	Ar-42	2.11E-02	3.29E+01	2.20E+01	3.96E+00	3.35E+00	3.51E-10
Argon (18)	Ar-43	6.78E+04	1.02E-05	2.78E+00	3.74E+00	1.59E+00	5.30E-17
Argon (18)	Ar-44	3.07E+04	2.26E-05	1.55E+00	4.05E+01	1.49E+00	1.12E-16
Arsenic (33)	As-68	1.44E+05	4.81E-06	1.51E+00	4.81E-02	4.66E-02	1.15E-18
Arsenic (33)	As-69	2.39E+04	2.90E-05	3.43E+00	5.06E+00	2.05E+00	3.10E-16
Arsenic (33)	As-70	6.92E+03	1.00E-04	1.65E+00	1.87E+01	1.52E+00	8.05E-16
Arsenic (33)	As-71	9.30E+01	7.45E-03	1.30E+01	3.56E+00	2.79E+00	1.12E-13
Arsenic (33)	As-72	2.33E+02	2.97E-03	4.03E+00	1.42E+00	1.05E+00	1.69E-14
Arsenic (33)	As-73	3.15E+00	2.20E-01	2.15E+03	1.06E+00	1.06E+00	1.29E-12
Arsenic (33)	As-74	1.42E+01	4.87E-02	9.72E+00	5.81E-01	5.48E-01	1.49E-13
Arsenic (33)	As-76	2.35E+02	2.95E-03	1.65E+01	1.77E+00	1.60E+00	2.72E-14
Arsenic (33)	As-77	1.56E+02	4.43E-03	6.80E+02	3.34E+00	3.33E+00	8.59E-14
Arsenic (33)	As-78	4.02E+03	1.73E-04	5.27E+00	1.49E+01	3.90E+00	3.97E-15
Arsenic (33)	As-79	4.04E+04	1.71E-05	1.27E+02	2.38E-01	2.38E-01	2.44E-17
Astatine (85)	At-204	3.96E+04	1.75E-05	1.11E+00	1.92E+00	7.02E-01	1.90E-16
Astatine (85)	At-205	1.39E+04	4.98E-05	1.63E+00	5.80E-01	4.28E-01	3.31E-16
Astatine (85)	At-206	1.19E+04	5.82E-05	1.07E+00	2.13E-02	2.09E-02	1.89E-17
Astatine (85)	At-207	3.37E+03	2.05E-04	1.49E+00	4.05E-02	3.94E-02	1.27E-16
Astatine (85)	At-208	3.72E+03	1.86E-04	2.35E+00	2.19E-04	2.19E-04	6.41E-19
Astatine (85)	At-209	1.12E+03	6.18E-04	3.10E+00	1.65E-04	1.65E-04	1.61E-18
Astatine (85)	At-210	7.49E+02	9.25E-04	2.36E+00	3.45E-04	3.45E-04	5.06E-18
Astatine (85)	At-211	8.42E+02	8.24E-04	1.07E+01	1.10E-02	1.10E-02	1.44E-16
Astatine (85)	At-215	2.19E+11	3.17E-12	1.30E+02	.	1.30E+02	6.72E-21
Astatine (85)	At-216	7.28E+10	9.51E-12	5.03E+00	9.78E-02	9.59E-02	1.49E-23

Resident Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Astatine (85)	At-217	6.77E+08	1.02E-09	4.04E+01	4.54E-02	4.53E-02	7.63E-22
Astatine (85)	At-218	1.46E+07	4.76E-08	4.63E+00	1.49E-04	1.49E-04	1.17E-22
Astatine (85)	At-219	3.90E+05	1.78E-06	1.94E+01	1.22E-01	1.22E-01	3.58E-18
Astatine (85)	At-220	9.82E+04	7.06E-06	3.47E+00	1.32E-02	1.32E-02	1.55E-18
Gold (79)	Au-186	3.40E+04	2.04E-05	1.88E+00	3.58E-04	3.58E-04	1.03E-19
Gold (79)	Au-187	4.34E+04	1.60E-05	3.66E+00	9.28E+00	2.63E+00	5.94E-16
Gold (79)	Au-190	8.51E+03	8.14E-05	2.85E+00	1.60E-04	1.60E-04	1.87E-19
Gold (79)	Au-191	1.91E+03	3.63E-04	8.86E+00	3.25E+00	2.38E+00	1.25E-14
Gold (79)	Au-192	1.23E+03	5.64E-04	3.56E+00	1.40E+01	2.84E+00	2.33E-14
Gold (79)	Au-193	3.44E+02	2.01E-03	5.16E+01	1.90E+00	1.83E+00	5.39E-14
Gold (79)	Au-193m	5.60E+06	1.24E-07	2.24E+01	1.90E+00	1.75E+00	3.16E-18
Gold (79)	Au-194	1.60E+02	4.34E-03	6.87E+00	5.79E+00	3.14E+00	2.00E-13
Gold (79)	Au-195	1.36E+00	5.10E-01	1.22E+02	8.07E-01	8.02E-01	6.03E-12
Gold (79)	Au-195m	7.17E+05	9.67E-07	2.95E+01	8.07E-01	7.86E-01	1.12E-17
Gold (79)	Au-196	4.09E+01	1.69E-02	1.64E+01	4.30E+00	3.41E+00	8.56E-13
Gold (79)	Au-196m	6.32E+02	1.10E-03	1.11E+01	1.84E+00	1.58E+00	2.57E-14
Gold (79)	Au-198	9.39E+01	7.38E-03	1.84E+01	1.64E+00	1.51E+00	1.67E-13
Gold (79)	Au-198m	1.11E+02	6.22E-03	8.24E+00	5.32E-01	5.00E-01	4.66E-14
Gold (79)	Au-199	8.06E+01	8.60E-03	8.32E+01	1.80E+00	1.76E+00	2.28E-13
Gold (79)	Au-200	7.53E+03	9.21E-05	2.48E+01	3.90E+01	1.52E+01	2.12E-14
Gold (79)	Au-200m	3.25E+02	2.13E-03	3.64E+00	2.01E+00	1.30E+00	4.19E-14
Gold (79)	Au-201	1.40E+04	4.95E-05	1.85E+02	7.95E+01	5.56E+01	4.18E-14
Gold (79)	Au-202	7.59E+05	9.13E-07	3.71E+01	.	3.71E+01	5.18E-16
Barium (56)	Ba-124	3.31E+04	2.09E-05	4.16E+00	5.96E+01	3.89E+00	7.64E-16
Barium (56)	Ba-126	3.64E+03	1.90E-04	4.21E+00	1.21E+01	3.13E+00	5.67E-15
Barium (56)	Ba-127	2.87E+04	2.42E-05	5.29E+00	2.66E+01	4.41E+00	1.02E-15
Barium (56)	Ba-128	1.04E+02	6.66E-03	7.77E+00	9.78E-01	8.69E-01	5.60E-14
Barium (56)	Ba-129	2.72E+03	2.55E-04	1.29E+01	1.26E+01	6.38E+00	1.59E-14
Barium (56)	Ba-129m	2.81E+03	2.47E-04	3.97E+00	1.08E+01	2.90E+00	6.99E-15
Barium (56)	Ba-131	2.20E+01	3.15E-02	1.63E+01	1.60E+00	1.46E+00	4.55E-13
Barium (56)	Ba-131m	2.49E+04	2.78E-05	1.44E+01	1.59E+00	1.43E+00	3.93E-16
Barium (56)	Ba-133	6.59E-02	1.05E+01	2.04E+01	1.44E-01	1.43E-01	1.52E-11
Barium (56)	Ba-133m	1.56E+02	4.44E-03	1.77E+01	1.37E-01	1.36E-01	6.10E-15
Barium (56)	Ba-135m	2.12E+02	3.28E-03	1.53E+02	3.88E+00	3.78E+00	1.27E-13
Barium (56)	Ba-137m	1.43E+05	4.86E-06	1.23E+01	.	1.23E+01	6.18E-16
Barium (56)	Ba-139	4.39E+03	1.58E-04	1.24E+02	2.31E+01	1.94E+01	3.23E-14
Barium (56)	Ba-140	1.98E+01	3.49E-02	2.78E+00	2.05E-01	1.91E-01	7.07E-14
Barium (56)	Ba-141	1.99E+04	3.48E-05	6.82E+00	3.71E-01	3.52E-01	1.30E-16
Barium (56)	Ba-142	3.44E+04	2.02E-05	1.97E+00	1.22E+01	1.70E+00	3.68E-16
Beryllium (4)	Be-10	4.59E-07	1.51E+06	2.38E+03	4.41E-02	4.41E-02	5.04E-08

Resident Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Beryllium (4)	Be-7	4.75E+00	1.46E-01	1.50E+02	2.52E+01	2.16E+01	1.67E-12
Bismuth (83)	Bi-197	3.92E+04	1.77E-05	1.94E+00	3.15E-01	2.71E-01	7.14E-17
Bismuth (83)	Bi-200	1.00E+04	6.93E-05	1.86E+00	2.44E+00	1.05E+00	1.10E-15
Bismuth (83)	Bi-201	3.37E+03	2.05E-04	2.64E+00	3.57E+00	1.52E+00	4.75E-15
Bismuth (83)	Bi-202	3.53E+03	1.96E-04	2.27E+00	3.02E-02	2.98E-02	8.95E-17
Bismuth (83)	Bi-203	5.16E+02	1.34E-03	2.62E+00	2.69E+00	1.33E+00	2.74E-14
Bismuth (83)	Bi-204	5.41E+02	1.28E-03	2.29E+00	4.20E+00	1.48E+00	2.93E-14
Bismuth (83)	Bi-205	1.65E+01	4.19E-02	4.14E+00	7.62E-01	6.44E-01	4.19E-13
Bismuth (83)	Bi-206	4.05E+01	1.71E-02	2.19E+00	7.51E-01	5.59E-01	1.49E-13
Bismuth (83)	Bi-207	2.11E-02	3.29E+01	4.70E+00	3.96E-02	3.92E-02	2.02E-11
Bismuth (83)	Bi-208	1.88E-06	3.68E+05	2.45E+00	4.21E-02	4.14E-02	2.40E-07
Bismuth (83)	Bi-210	5.05E+01	1.37E-02	1.28E+03	3.34E-04	3.34E-04	7.30E-17
Bismuth (83)	Bi-210m	2.28E-07	3.04E+06	2.80E+01	1.51E-04	1.51E-04	7.29E-09
Bismuth (83)	Bi-211	1.70E+05	4.07E-06	1.31E+02	.	1.31E+02	8.49E-15
Bismuth (83)	Bi-212	6.02E+03	1.15E-04	5.04E+00	9.78E-02	9.59E-02	1.77E-16
Bismuth (83)	Bi-212n	5.20E+04	1.33E-05	7.55E+01	.	7.55E+01	1.61E-14
Bismuth (83)	Bi-213	7.99E+03	8.67E-05	4.04E+01	4.54E-02	4.53E-02	6.34E-17
Bismuth (83)	Bi-214	1.83E+04	3.79E-05	4.63E+00	1.49E-04	1.49E-04	9.11E-20
Bismuth (83)	Bi-215	4.79E+04	1.45E-05	1.88E+01	1.19E-01	1.18E-01	2.77E-17
Bismuth (83)	Bi-216	1.68E+05	4.13E-06	3.12E+00	1.33E-02	1.32E-02	8.92E-19
Berkelium (97)	Bk-245	5.12E+01	1.35E-02	8.77E+00	5.10E-06	5.10E-06	1.28E-18
Berkelium (97)	Bk-246	1.41E+02	4.93E-03	2.68E+00	4.50E-06	4.50E-06	4.13E-19
Berkelium (97)	Bk-247	5.02E-04	1.38E+03	7.63E+00	2.24E-06	2.24E-06	5.77E-14
Berkelium (97)	Bk-248m	2.56E+02	2.71E-03	2.44E+00	4.34E-06	4.34E-06	2.20E-19
Berkelium (97)	Bk-249	7.67E-01	9.04E-01	7.74E+00	3.26E-06	3.26E-06	5.56E-17
Berkelium (97)	Bk-250	1.89E+03	3.67E-04	2.60E+00	4.31E-06	4.31E-06	2.99E-20
Berkelium (97)	Bk-251	6.55E+03	1.06E-04	5.47E+00	1.98E-06	1.98E-06	3.97E-21
Bromine (35)	Br-72	2.78E+05	2.49E-06	1.48E+00	3.05E-01	2.53E-01	3.43E-18
Bromine (35)	Br-73	1.07E+05	6.47E-06	2.95E+00	9.33E-01	7.09E-01	2.53E-17
Bromine (35)	Br-74	1.43E+04	4.83E-05	1.44E+00	3.40E+01	1.38E+00	3.73E-16
Bromine (35)	Br-74m	7.92E+03	8.75E-05	1.65E+00	2.00E+01	1.53E+00	7.48E-16
Bromine (35)	Br-75	3.77E+03	1.84E-04	4.71E+00	1.06E+00	8.64E-01	9.02E-16
Bromine (35)	Br-76	3.75E+02	1.85E-03	2.47E+00	3.17E+00	1.39E+00	1.48E-14
Bromine (35)	Br-76m	1.67E+07	4.15E-08	2.46E+00	3.18E+00	1.39E+00	3.31E-19
Bromine (35)	Br-77	1.06E+02	6.51E-03	2.36E+01	1.51E+01	9.20E+00	3.49E-13
Bromine (35)	Br-77m	8.51E+04	8.14E-06	2.26E+01	1.51E+01	9.05E+00	4.30E-16
Bromine (35)	Br-78	5.64E+04	1.23E-05	7.05E+00	.	7.05E+00	5.11E-16
Bromine (35)	Br-80	2.06E+04	3.36E-05	8.30E+01	9.33E+01	4.39E+01	8.95E-15
Bromine (35)	Br-80m	1.37E+03	5.05E-04	7.83E+01	1.13E+01	9.91E+00	3.03E-14
Bromine (35)	Br-82	1.72E+02	4.03E-03	2.71E+00	2.09E+00	1.18E+00	2.95E-14



Resident Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Bromine (35)	Br-82m	5.94E+04	1.17E-05	2.77E+00	2.14E+00	1.21E+00	8.75E-17
Bromine (35)	Br-83	2.53E+03	2.74E-04	6.47E+02	2.67E+01	2.57E+01	4.42E-14
Bromine (35)	Br-84	1.15E+04	6.05E-05	3.72E+00	3.49E+01	3.36E+00	1.29E-15
Bromine (35)	Br-84m	6.07E+04	1.14E-05	2.52E+00	.	2.52E+00	1.83E-16
Bromine (35)	Br-85	1.26E+05	5.52E-06	3.04E+01	.	3.04E+01	1.08E-15
Carbon (6)	C-10	1.14E+06	6.11E-07	4.18E+00	.	4.18E+00	1.93E-18
Carbon (6)	C-11	1.79E+04	3.88E-05	7.25E+00	7.40E+01	6.60E+00	2.13E-16
Carbon (6)	C-14	1.22E-04	5.70E+03	1.27E+05	2.62E-01	2.62E-01	1.59E-09
Calcium (20)	Ca-41	6.79E-06	1.02E+05	.	7.02E+00	7.02E+00	2.22E-06
Calcium (20)	Ca-45	1.55E+00	4.46E-01	2.17E+04	4.05E-01	4.05E-01	6.14E-13
Calcium (20)	Ca-47	5.58E+01	1.24E-02	6.02E+00	5.06E-01	4.67E-01	2.06E-14
Calcium (20)	Ca-49	4.18E+04	1.66E-05	1.97E+00	3.46E+01	1.86E+00	1.15E-16
Cadmium (48)	Cd-101	2.68E+05	2.59E-06	1.53E+00	2.31E+00	9.20E-01	1.82E-17
Cadmium (48)	Cd-102	6.62E+04	1.05E-05	1.56E+00	1.41E+02	1.54E+00	1.24E-16
Cadmium (48)	Cd-103	4.99E+04	1.39E-05	2.40E+00	3.02E+00	1.34E+00	1.45E-16
Cadmium (48)	Cd-104	6.31E+03	1.10E-04	3.49E+00	1.71E+01	2.90E+00	2.50E-15
Cadmium (48)	Cd-105	6.56E+03	1.06E-04	3.96E+00	1.69E+00	1.18E+00	9.94E-16
Cadmium (48)	Cd-107	9.34E+02	7.42E-04	6.74E+02	1.77E+01	1.72E+01	1.03E-13
Cadmium (48)	Cd-109	5.48E-01	1.26E+00	1.46E+03	2.34E-01	2.34E-01	2.44E-12
Cadmium (48)	Cd-111m	7.51E+03	9.23E-05	2.75E+01	6.07E+01	1.89E+01	1.47E-14
Cadmium (48)	Cd-113	9.00E-17	7.70E+15	1.33E+04	1.30E-02	1.30E-02	8.57E+02
Cadmium (48)	Cd-113m	4.91E-02	1.41E+01	3.56E+03	1.38E-02	1.38E-02	1.66E-12
Cadmium (48)	Cd-115	1.14E+02	6.10E-03	2.10E+01	4.14E-03	4.14E-03	2.20E-16
Cadmium (48)	Cd-115m	5.67E+00	1.22E-01	1.61E+02	3.87E-03	3.87E-03	4.11E-15
Cadmium (48)	Cd-117	2.44E+03	2.84E-04	4.67E+00	5.25E+00	2.47E+00	6.22E-15
Cadmium (48)	Cd-117m	1.81E+03	3.84E-04	2.55E+00	5.55E+00	1.75E+00	5.94E-15
Cadmium (48)	Cd-118	7.24E+03	9.57E-05	5.70E+01	1.68E+01	1.30E+01	1.11E-14
Cadmium (48)	Cd-119	1.35E+05	5.12E-06	3.74E+00	6.43E+01	3.53E+00	1.63E-16
Cadmium (48)	Cd-119m	1.66E+05	4.19E-06	2.26E+00	4.50E+01	2.15E+00	8.11E-17
Cerium (58)	Ce-130	1.59E+04	4.36E-05	2.66E+00	3.78E+01	2.48E+00	1.06E-15
Cerium (58)	Ce-131	3.57E+04	1.94E-05	2.68E+00	1.53E+00	9.75E-01	1.87E-16
Cerium (58)	Ce-132	1.73E+03	4.01E-04	3.17E+00	4.13E+00	1.79E+00	7.17E-15
Cerium (58)	Ce-133	3.76E+03	1.85E-04	7.28E+00	1.43E-01	1.40E-01	2.61E-16
Cerium (58)	Ce-133m	1.24E+03	5.59E-04	3.24E+00	1.42E-01	1.36E-01	7.66E-16
Cerium (58)	Ce-134	8.00E+01	8.66E-03	1.00E+01	9.44E-01	8.63E-01	7.57E-14
Cerium (58)	Ce-135	3.43E+02	2.02E-03	8.96E+00	8.66E+00	4.40E+00	9.09E-14
Cerium (58)	Ce-137	6.75E+02	1.03E-03	2.86E+02	1.71E-01	1.71E-01	1.82E-15
Cerium (58)	Ce-137m	1.76E+02	3.93E-03	1.07E+02	1.62E-01	1.62E-01	6.59E-15
Cerium (58)	Ce-139	1.84E+00	3.77E-01	5.53E+01	7.58E-01	7.48E-01	2.97E-12
Cerium (58)	Ce-141	7.78E+00	8.91E-02	1.06E+02	3.92E-01	3.90E-01	3.71E-13



Resident Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Cerium (58)	Ce-143	1.84E+02	3.77E-03	2.73E+01	4.38E-01	4.31E-01	1.76E-14
Cerium (58)	Ce-144	8.88E-01	7.81E-01	1.02E+02	8.01E-05	8.01E-05	6.81E-16
Cerium (58)	Ce-145	1.21E+05	5.73E-06	8.75E+00	8.03E+00	4.19E+00	2.63E-16
Californium (98)	Cf-244	1.88E+04	3.69E-05	4.59E+00	1.60E-05	1.60E-05	1.09E-20
Californium (98)	Cf-246	1.70E+02	4.08E-03	3.99E+00	6.40E-06	6.40E-06	4.85E-19
Californium (98)	Cf-247	1.95E+03	3.55E-04	7.05E+00	2.24E-06	2.24E-06	1.49E-20
Californium (98)	Cf-248	7.57E-01	9.15E-01	2.94E+00	6.63E-06	6.63E-06	1.14E-16
Californium (98)	Cf-249	1.97E-03	3.51E+02	7.74E+00	3.26E-06	3.26E-06	2.16E-14
Californium (98)	Cf-250	5.30E-02	1.31E+01	3.87E+00	4.31E-06	4.31E-06	1.07E-15
Californium (98)	Cf-251	7.70E-04	9.00E+02	5.81E+00	1.98E-06	1.98E-06	3.38E-14
Californium (98)	Cf-252	2.62E-01	2.65E+00	1.67E+00	2.42E-06	2.42E-06	1.22E-16
Californium (98)	Cf-253	1.42E+01	4.88E-02	7.73E+00	3.23E-06	3.23E-06	3.02E-18
Californium (98)	Cf-254	4.18E+00	1.66E-01	4.00E-01	2.87E-05	2.87E-05	9.15E-17
Californium (98)	Cf-255	4.29E+03	1.62E-04	5.75E+00	1.96E-06	1.96E-06	6.13E-21
Chlorine (17)	Cl-34	1.43E+07	4.84E-08	6.93E+00	.	6.93E+00	8.63E-19
Chlorine (17)	Cl-34m	1.14E+04	6.09E-05	2.66E+00	2.93E+01	2.44E+00	3.82E-16
Chlorine (17)	Cl-36	2.30E-06	3.01E+05	1.99E+03	4.05E-02	4.05E-02	3.32E-08
Chlorine (17)	Cl-38	9.78E+03	7.09E-05	4.49E+00	2.83E+01	3.88E+00	7.90E-16
Chlorine (17)	Cl-39	6.55E+03	1.06E-04	4.73E+00	2.79E+01	4.05E+00	1.26E-15
Chlorine (17)	Cl-40	2.70E+05	2.57E-06	1.58E+00	.	1.58E+00	1.23E-17
Curium (96)	Cm-238	2.53E+03	2.74E-04	2.60E+00	6.70E-06	6.70E-06	3.31E-20
Curium (96)	Cm-239	2.09E+03	3.31E-04	6.90E+00	3.61E-06	3.61E-06	2.16E-20
Curium (96)	Cm-240	9.37E+00	7.40E-02	4.59E+00	1.60E-05	1.60E-05	2.15E-17
Curium (96)	Cm-241	7.71E+00	8.99E-02	7.25E+00	7.57E-06	7.57E-06	1.24E-17
Curium (96)	Cm-242	1.55E+00	4.46E-01	3.99E+00	6.41E-06	6.41E-06	5.24E-17
Curium (96)	Cm-243	2.38E-02	2.91E+01	9.90E+00	3.49E-06	3.49E-06	1.87E-15
Curium (96)	Cm-244	3.83E-02	1.81E+01	2.94E+00	6.88E-06	6.88E-06	2.30E-15
Curium (96)	Cm-245	8.15E-05	8.50E+03	1.16E+01	5.10E-06	5.10E-06	8.04E-13
Curium (96)	Cm-246	1.46E-04	4.76E+03	3.89E+00	4.50E-06	4.50E-06	3.99E-13
Curium (96)	Cm-247	4.44E-08	1.56E+07	6.35E+00	2.54E-06	2.54E-06	7.40E-10
Curium (96)	Cm-248	1.99E-06	3.48E+05	1.82E+00	2.40E-06	2.40E-06	1.57E-11
Curium (96)	Cm-249	5.68E+03	1.22E-04	7.56E+00	3.26E-06	3.26E-06	7.50E-21
Curium (96)	Cm-250	8.35E-05	8.30E+03	4.81E-01	6.20E-07	6.20E-07	9.73E-14
Curium (96)	Cm-251	2.17E+04	3.20E-05	5.03E+00	1.98E-06	1.98E-06	1.20E-21
Cobalt (27)	Co-54m	2.46E+05	2.82E-06	1.79E+00	.	1.79E+00	2.06E-17
Cobalt (27)	Co-55	3.46E+02	2.00E-03	3.60E+00	1.04E+00	8.09E-01	6.73E-15
Cobalt (27)	Co-56	3.28E+00	2.12E-01	1.88E+00	2.19E-01	1.96E-01	1.76E-13
Cobalt (27)	Co-57	9.31E-01	7.44E-01	6.64E+01	1.44E+00	1.41E+00	4.53E-12
Cobalt (27)	Co-58	3.57E+00	1.94E-01	7.44E+00	6.90E-01	6.31E-01	5.38E-13
Cobalt (27)	Co-58m	6.72E+02	1.03E-03	7.44E+00	6.84E-01	6.27E-01	2.84E-15

Resident Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Cobalt (27)	Co-60	1.31E-01	5.27E+00	2.78E+00	4.89E-02	4.81E-02	1.15E-12
Cobalt (27)	Co-60m	3.48E+04	1.99E-05	2.78E+00	4.90E-02	4.82E-02	4.36E-18
Cobalt (27)	Co-61	3.68E+03	1.88E-04	8.14E+01	2.71E+01	2.03E+01	1.77E-14
Cobalt (27)	Co-62	2.43E+05	2.85E-06	4.17E+00	.	4.17E+00	5.59E-17
Cobalt (27)	Co-62m	2.62E+04	2.65E-05	2.54E+00	6.41E+01	2.44E+00	3.04E-16
Chromium (24)	Cr-48	2.82E+02	2.46E-03	2.13E+00	4.84E-01	3.95E-01	3.53E-15
Chromium (24)	Cr-49	8.61E+03	8.05E-05	7.06E+00	1.33E+01	4.61E+00	1.38E-15
Chromium (24)	Cr-51	9.13E+00	7.59E-02	2.36E+02	3.72E+01	3.21E+01	9.41E-12
Chromium (24)	Cr-55	1.04E+05	6.65E-06	3.30E+02	.	3.30E+02	9.15E-15
Chromium (24)	Cr-56	6.13E+04	1.13E-05	3.88E+00	1.05E+01	2.83E+00	1.36E-16
Cesium (55)	Cs-121	1.41E+05	4.92E-06	2.00E+00	2.10E+00	1.02E+00	4.61E-17
Cesium (55)	Cs-121m	1.79E+05	3.87E-06	1.89E+00	2.10E+00	9.97E-01	3.53E-17
Cesium (55)	Cs-123	6.19E+04	1.12E-05	3.94E+00	3.83E-01	3.49E-01	3.63E-17
Cesium (55)	Cs-124	7.10E+05	9.77E-07	6.09E+00	.	6.09E+00	5.58E-17
Cesium (55)	Cs-125	8.09E+03	8.56E-05	7.36E+00	9.77E-02	9.64E-02	7.81E-17
Cesium (55)	Cs-126	2.22E+05	3.12E-06	6.25E+00	.	6.25E+00	1.86E-16
Cesium (55)	Cs-127	9.71E+02	7.13E-04	1.11E+01	3.42E+01	8.40E+00	5.76E-14
Cesium (55)	Cs-128	1.00E+05	6.93E-06	8.18E+00	.	8.18E+00	5.49E-16
Cesium (55)	Cs-129	1.89E+02	3.66E-03	2.95E+01	1.72E+01	1.09E+01	3.89E-13
Cesium (55)	Cs-130	1.25E+04	5.56E-05	1.48E+01	9.96E+01	1.29E+01	7.05E-15
Cesium (55)	Cs-130m	1.05E+05	6.58E-06	1.36E+01	9.98E+01	1.20E+01	7.76E-16
Cesium (55)	Cs-131	2.61E+01	2.65E-02	1.38E+03	2.83E+01	2.77E+01	7.29E-12
Cesium (55)	Cs-132	3.90E+01	1.78E-02	1.05E+01	4.41E+00	3.11E+00	5.51E-13
Cesium (55)	Cs-134	3.36E-01	2.06E+00	4.67E+00	7.27E-02	7.16E-02	1.50E-12
Cesium (55)	Cs-134m	2.09E+03	3.31E-04	4.62E+00	7.25E-02	7.14E-02	2.40E-16
Cesium (55)	Cs-135	3.01E-07	2.30E+06	1.52E+04	1.29E-01	1.29E-01	3.03E-06
Cesium (55)	Cs-135m	6.87E+03	1.01E-04	4.52E+00	1.29E-01	1.25E-01	1.29E-16
Cesium (55)	Cs-136	1.92E+01	3.61E-02	3.37E+00	5.31E-01	4.59E-01	1.70E-13
Cesium (55)	Cs-137	2.30E-02	3.02E+01	1.30E+01	3.87E-02	3.86E-02	1.21E-11
Cesium (55)	Cs-138	1.09E+04	6.36E-05	2.87E+00	2.99E+01	2.62E+00	1.74E-15
Cesium (55)	Cs-138m	1.25E+05	5.54E-06	2.94E+00	3.69E+01	2.72E+00	1.58E-16
Cesium (55)	Cs-139	3.93E+04	1.76E-05	1.71E+01	2.31E+01	9.84E+00	1.82E-15
Cesium (55)	Cs-140	3.43E+05	2.02E-06	1.59E+00	2.05E-01	1.82E-01	3.89E-18
Copper (29)	Cu-57	1.11E+08	6.22E-09	2.15E+00	9.08E-01	6.39E-01	1.72E-20
Copper (29)	Cu-59	2.68E+05	2.58E-06	4.95E+00	1.77E+00	1.30E+00	1.50E-17
Copper (29)	Cu-60	1.54E+04	4.51E-05	1.76E+00	3.83E+01	1.68E+00	3.44E-16
Copper (29)	Cu-61	1.82E+03	3.80E-04	8.93E+00	1.79E+01	5.96E+00	1.05E-14
Copper (29)	Cu-62	3.77E+04	1.84E-05	7.18E+00	.	7.18E+00	6.20E-16
Copper (29)	Cu-64	4.78E+02	1.45E-03	3.99E+01	1.19E+01	9.15E+00	6.42E-14
Copper (29)	Cu-66	7.11E+04	9.74E-06	6.01E+01	.	6.01E+01	2.92E-15

Resident Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Half-life (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Copper (29)	Cu-67	9.82E+01	7.06E-03	6.73E+01	2.44E+00	2.36E+00	8.43E-14
Copper (29)	Cu-69	1.28E+05	5.42E-06	1.30E+01	5.01E+01	1.03E+01	2.92E-16
Dysprosium (66)	Dy-148	1.10E+05	6.28E-06	2.32E+00	2.43E-04	2.43E-04	1.71E-20
Dysprosium (66)	Dy-149	8.67E+04	7.99E-06	2.00E+00	3.02E-01	2.63E-01	2.37E-17
Dysprosium (66)	Dy-150	5.08E+04	1.36E-05	2.55E+00	5.32E-05	5.32E-05	8.24E-21
Dysprosium (66)	Dy-151	2.03E+04	3.41E-05	2.99E+00	1.18E-03	1.18E-03	4.58E-19
Dysprosium (66)	Dy-152	2.55E+03	2.72E-04	4.05E+00	2.64E-05	2.64E-05	8.25E-20
Dysprosium (66)	Dy-153	9.49E+02	7.31E-04	6.03E+00	5.27E-01	4.84E-01	4.10E-15
Dysprosium (66)	Dy-154	2.31E-07	3.00E+06	.	4.19E-05	4.19E-05	1.47E-09
Dysprosium (66)	Dy-155	6.13E+02	1.13E-03	9.21E+00	3.52E+00	2.54E+00	3.37E-14
Dysprosium (66)	Dy-157	7.46E+02	9.29E-04	2.28E+01	4.67E-01	4.57E-01	5.05E-15
Dysprosium (66)	Dy-159	1.75E+00	3.96E-01	3.30E+02	3.15E+00	3.12E+00	1.48E-11
Dysprosium (66)	Dy-165	2.60E+03	2.66E-04	2.38E+02	2.15E+01	1.97E+01	6.55E-14
Dysprosium (66)	Dy-165m	2.90E+05	2.39E-06	1.60E+02	2.20E+01	1.93E+01	5.77E-16
Dysprosium (66)	Dy-166	7.44E+01	9.32E-03	1.08E+02	4.98E-01	4.96E-01	5.80E-14
Dysprosium (66)	Dy-167	5.87E+04	1.18E-05	8.26E+00	1.77E+01	5.63E+00	8.40E-16
Dysprosium (66)	Dy-168	4.19E+04	1.66E-05	5.71E+00	.	5.71E+00	1.20E-15
Erbium (68)	Er-154	9.77E+04	7.10E-06	3.72E+00	4.20E-05	4.20E-05	3.47E-21
Erbium (68)	Er-156	1.87E+04	3.71E-05	3.32E+00	1.81E+01	2.80E+00	1.23E-15
Erbium (68)	Er-159	1.01E+04	6.85E-05	5.53E+00	2.98E+00	1.94E+00	1.60E-15
Erbium (68)	Er-161	1.89E+03	3.66E-04	7.19E+00	2.20E+01	5.42E+00	2.42E-14
Erbium (68)	Er-163	4.86E+03	1.43E-04	3.37E+02	5.69E+00	5.60E+00	9.85E-15
Erbium (68)	Er-165	5.86E+02	1.18E-03	3.67E+02	1.55E+02	1.09E+02	1.61E-12
Erbium (68)	Er-167m	9.63E+06	7.19E-08	8.20E+01	.	8.20E+01	7.46E-17
Erbium (68)	Er-169	2.69E+01	2.58E-02	1.12E+04	1.26E+00	1.26E+00	4.15E-13
Erbium (68)	Er-171	8.08E+02	8.58E-04	2.05E+01	9.72E-01	9.28E-01	1.03E-14
Erbium (68)	Er-172	1.23E+02	5.63E-03	7.29E+00	5.74E-01	5.33E-01	3.90E-14
Erbium (68)	Er-173	2.54E+05	2.73E-06	6.06E+00	7.17E+00	3.29E+00	1.17E-16
Einsteinium (99)	Es-249	3.56E+03	1.94E-04	5.48E+00	3.27E-06	3.27E-06	1.20E-20
Einsteinium (99)	Es-250	7.06E+02	9.82E-04	2.42E+00	4.38E-06	4.38E-06	8.14E-20
Einsteinium (99)	Es-250m	2.73E+03	2.53E-04	3.00E+00	4.31E-06	4.31E-06	2.07E-20
Einsteinium (99)	Es-251	1.84E+02	3.77E-03	5.47E+00	1.98E-06	1.98E-06	1.41E-19
Einsteinium (99)	Es-253	1.24E+01	5.61E-02	7.74E+00	3.24E-06	3.24E-06	3.48E-18
Einsteinium (99)	Es-254	9.17E-01	7.55E-01	2.60E+00	4.22E-06	4.22E-06	6.12E-17
Einsteinium (99)	Es-254m	1.54E+02	4.49E-03	3.11E+00	4.38E-06	4.38E-06	3.78E-19
Einsteinium (99)	Es-255	6.36E+00	1.09E-01	5.76E+00	1.96E-06	1.96E-06	4.13E-18
Einsteinium (99)	Es-256	1.43E+04	4.83E-05	5.30E-01	2.97E-05	2.97E-05	2.78E-20
Europium (63)	Eu-142	9.34E+06	7.42E-08	3.26E+00	1.82E+01	2.76E+00	2.20E-18
Europium (63)	Eu-142m	2.98E+05	2.33E-06	1.64E+00	1.82E+01	1.50E+00	3.76E-17
Europium (63)	Eu-143	1.41E+05	4.93E-06	3.68E+00	4.94E-01	4.35E-01	2.32E-17



Resident Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Europium (63)	Eu-144	2.14E+06	3.23E-07	6.38E+00	.	6.38E+00	2.25E-17
Europium (63)	Eu-145	4.27E+01	1.62E-02	5.39E+00	1.29E-01	1.26E-01	2.24E-14
Europium (63)	Eu-146	5.49E+01	1.26E-02	2.98E+00	6.05E-05	6.05E-05	8.44E-18
Europium (63)	Eu-147	1.05E+01	6.60E-02	1.63E+01	6.62E-05	6.62E-05	4.86E-17
Europium (63)	Eu-148	4.64E+00	1.49E-01	3.27E+00	3.93E-05	3.93E-05	6.57E-17
Europium (63)	Eu-149	2.72E+00	2.55E-01	1.63E+02	3.31E+00	3.24E+00	9.32E-12
Europium (63)	Eu-150	1.88E-02	3.69E+01	4.78E+00	1.20E-02	1.20E-02	5.03E-12
Europium (63)	Eu-150m	4.74E+02	1.46E-03	1.42E+02	5.60E-05	5.60E-05	9.29E-19
Europium (63)	Eu-152	5.12E-02	1.35E+01	6.14E+00	9.40E-05	9.40E-05	1.46E-14
Europium (63)	Eu-152m	6.52E+02	1.06E-03	2.41E+01	3.66E-05	3.66E-05	4.48E-19
Europium (63)	Eu-152n	3.79E+03	1.83E-04	5.86E+00	9.40E-05	9.40E-05	1.97E-19
Europium (63)	Eu-154	8.06E-02	8.59E+00	5.72E+00	1.40E-02	1.40E-02	1.40E-12
Europium (63)	Eu-154m	7.92E+03	8.75E-05	5.51E+00	1.40E-02	1.40E-02	1.43E-17
Europium (63)	Eu-155	1.46E-01	4.76E+00	1.52E+02	2.48E-01	2.48E-01	1.38E-11
Europium (63)	Eu-156	1.67E+01	4.16E-02	5.56E+00	3.66E-01	3.43E-01	1.69E-13
Europium (63)	Eu-157	4.00E+02	1.73E-03	2.69E+01	4.25E+00	3.67E+00	7.55E-14
Europium (63)	Eu-158	7.94E+03	8.73E-05	5.38E+00	2.76E+01	4.50E+00	4.70E-15
Europium (63)	Eu-159	2.01E+04	3.44E-05	2.13E+01	4.25E+00	3.54E+00	1.47E-15
Fluorine (9)	F-17	3.39E+05	2.04E-06	7.18E+00	.	7.18E+00	1.89E-17
Fluorine (9)	F-18	3.32E+03	2.09E-04	7.49E+00	2.43E+01	5.73E+00	1.63E-15
Iron (26)	Fe-52	7.34E+02	9.45E-04	2.22E+00	1.93E+00	1.03E+00	3.84E-15
Iron (26)	Fe-53	4.28E+04	1.62E-05	6.18E+00	4.42E+00	2.58E+00	1.67E-16
Iron (26)	Fe-53m	1.44E+05	4.81E-06	1.67E+00	4.42E+00	1.21E+00	2.34E-17
Iron (26)	Fe-55	2.53E-01	2.74E+00	4.94E+10	1.79E+00	1.79E+00	2.04E-11
Iron (26)	Fe-59	5.68E+00	1.22E-01	5.88E+00	3.63E-01	3.42E-01	1.86E-13
Iron (26)	Fe-60	4.62E-07	1.50E+06	2.78E+00	4.89E-03	4.88E-03	3.33E-08
Iron (26)	Fe-61	6.09E+04	1.14E-05	4.66E+00	2.71E+01	3.98E+00	2.09E-16
Iron (26)	Fe-62	3.21E+05	2.16E-06	3.23E+00	.	3.23E+00	3.26E-17
Fermium (100)	Fm-251	1.15E+03	6.05E-04	4.97E+00	1.98E-06	1.98E-06	2.28E-20
Fermium (100)	Fm-252	2.39E+02	2.90E-03	2.94E+00	6.62E-06	6.62E-06	3.66E-19
Fermium (100)	Fm-253	8.43E+01	8.22E-03	7.34E+00	3.24E-06	3.24E-06	5.10E-19
Fermium (100)	Fm-254	1.87E+03	3.70E-04	3.86E+00	4.32E-06	4.32E-06	3.07E-20
Fermium (100)	Fm-255	3.02E+02	2.29E-03	5.80E+00	1.98E-06	1.98E-06	8.73E-20
Fermium (100)	Fm-256	2.31E+03	3.00E-04	5.30E-01	2.97E-05	2.97E-05	1.72E-19
Fermium (100)	Fm-257	2.52E+00	2.75E-01	6.79E+00	3.18E-06	3.18E-06	1.70E-17
Francium (87)	Fr-212	1.82E+04	3.81E-05	2.92E+00	2.18E-04	2.18E-04	1.33E-19
Francium (87)	Fr-219	1.09E+09	6.34E-10	1.23E+02	.	1.23E+02	1.29E-18
Francium (87)	Fr-220	7.98E+05	8.69E-07	5.02E+00	9.81E-02	9.62E-02	1.39E-18
Francium (87)	Fr-221	7.43E+04	9.32E-06	3.50E+01	4.54E-02	4.53E-02	7.07E-18
Francium (87)	Fr-222	2.57E+04	2.70E-05	3.71E+01	1.48E-04	1.48E-04	6.73E-20



Resident Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Francium (87)	Fr-223	1.66E+04	4.19E-05	2.04E+01	1.71E-04	1.71E-04	1.21E-19
Francium (87)	Fr-224	1.09E+05	6.34E-06	3.36E+00	4.29E-04	4.29E-04	4.61E-20
Francium (87)	Fr-227	1.47E+05	4.70E-06	7.25E+00	2.03E-05	2.03E-05	1.64E-21
Gallium (31)	Ga-64	1.39E+05	5.00E-06	2.02E+00	.	2.02E+00	4.88E-17
Gallium (31)	Ga-65	2.40E+04	2.89E-05	4.16E+00	6.26E-01	5.44E-01	7.73E-17
Gallium (31)	Ga-66	6.40E+02	1.08E-03	2.67E+00	2.83E+00	1.37E+00	7.43E-15
Gallium (31)	Ga-67	7.76E+01	8.93E-03	5.03E+01	5.36E+00	4.85E+00	2.20E-13
Gallium (31)	Ga-68	5.38E+03	1.29E-04	7.70E+00	2.63E+01	5.96E+00	3.95E-15
Gallium (31)	Ga-70	1.72E+04	4.02E-05	4.00E+02	8.28E+01	6.86E+01	1.46E-14
Gallium (31)	Ga-72	4.31E+02	1.61E-03	2.52E+00	2.40E+00	1.23E+00	1.08E-14
Gallium (31)	Ga-73	1.25E+03	5.55E-04	2.12E+01	8.82E+00	6.23E+00	1.91E-14
Gallium (31)	Ga-74	4.49E+04	1.54E-05	2.13E+00	.	2.13E+00	1.84E-16
Gadolinium (64)	Gd-142	3.11E+05	2.23E-06	2.21E+00	1.82E+01	1.97E+00	4.72E-17
Gadolinium (64)	Gd-143m	1.99E+05	3.49E-06	1.76E+00	4.94E-01	3.86E-01	1.46E-17
Gadolinium (64)	Gd-144	8.15E+04	8.50E-06	3.50E+00	.	3.50E+00	3.25E-16
Gadolinium (64)	Gd-145	1.58E+04	4.38E-05	1.84E+00	1.29E-01	1.20E-01	5.77E-17
Gadolinium (64)	Gd-145m	2.57E+05	2.70E-06	1.63E+00	1.29E-01	1.19E-01	3.53E-18
Gadolinium (64)	Gd-146	5.24E+00	1.32E-01	2.76E+00	6.04E-05	6.04E-05	8.83E-17
Gadolinium (64)	Gd-147	1.59E+02	4.35E-03	3.97E+00	6.62E-05	6.62E-05	3.20E-18
Gadolinium (64)	Gd-148	9.29E-03	7.46E+01	.	2.43E-04	2.43E-04	2.03E-13
Gadolinium (64)	Gd-149	2.73E+01	2.54E-02	1.35E+01	1.05E+00	9.74E-01	2.79E-13
Gadolinium (64)	Gd-150	3.87E-07	1.79E+06	.	4.99E-05	4.99E-05	1.01E-09
Gadolinium (64)	Gd-151	2.04E+00	3.40E-01	1.54E+02	1.23E+00	1.22E+00	4.74E-12
Gadolinium (64)	Gd-152	6.42E-15	1.08E+14	.	2.64E-05	2.64E-05	3.28E-02
Gadolinium (64)	Gd-153	1.05E+00	6.59E-01	1.06E+02	6.09E-01	6.06E-01	4.62E-12
Gadolinium (64)	Gd-159	3.29E+02	2.11E-03	1.41E+02	4.60E+00	4.45E+00	1.13E-13
Gadolinium (64)	Gd-162	4.34E+04	1.60E-05	4.79E+00	.	4.79E+00	9.38E-16
Germanium (32)	Ge-66	2.69E+03	2.58E-04	2.15E+00	2.37E+00	1.13E+00	1.45E-15
Germanium (32)	Ge-67	1.93E+04	3.60E-05	4.59E+00	4.88E+00	2.37E+00	4.31E-16
Germanium (32)	Ge-68	9.34E-01	7.42E-01	7.70E+00	4.81E-02	4.78E-02	1.83E-13
Germanium (32)	Ge-69	1.55E+02	4.46E-03	7.54E+00	5.51E+00	3.18E+00	7.41E-14
Germanium (32)	Ge-71	2.21E+01	3.13E-02	3.67E+06	1.12E+02	1.12E+02	1.89E-11
Germanium (32)	Ge-75	4.40E+03	1.57E-04	1.81E+02	3.60E+01	3.00E+01	2.69E-14
Germanium (32)	Ge-77	5.37E+02	1.29E-03	6.61E+00	1.73E+00	1.37E+00	1.03E-14
Germanium (32)	Ge-78	4.14E+03	1.67E-04	4.41E+00	7.24E+00	2.74E+00	2.71E-15
Hydrogen (1)	H-3	5.63E-02	1.23E+01	.	5.59E+00	5.59E+00	1.56E-11
Hafnium (72)	Hf-167	1.78E+05	3.90E-06	2.71E+00	1.06E+00	7.62E-01	3.76E-17
Hafnium (72)	Hf-169	1.12E+05	6.16E-06	3.29E+00	3.78E-01	3.39E-01	2.67E-17
Hafnium (72)	Hf-170	3.79E+02	1.83E-03	2.31E+00	1.47E+00	8.98E-01	2.11E-14
Hafnium (72)	Hf-172	3.71E-01	1.87E+00	3.57E+00	5.57E-02	5.48E-02	1.33E-12

Resident Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Hafnium (72)	Hf-173	2.57E+02	2.69E-03	1.46E+01	3.91E-01	3.80E-01	1.34E-14
Hafnium (72)	Hf-174	3.47E-16	2.00E+15	.	3.05E-04	3.05E-04	8.02E+00
Hafnium (72)	Hf-175	3.61E+00	1.92E-01	2.25E+01	1.04E+00	9.95E-01	2.53E-12
Hafnium (72)	Hf-177m	7.09E+03	9.78E-05	3.36E+00	1.45E+01	2.73E+00	3.57E-15
Hafnium (72)	Hf-178m	2.24E-02	3.10E+01	3.38E+00	7.02E-03	7.00E-03	2.92E-12
Hafnium (72)	Hf-179m	1.01E+01	6.86E-02	8.43E+00	3.29E-01	3.17E-01	2.95E-13
Hafnium (72)	Hf-180m	1.10E+03	6.28E-04	7.74E+00	9.67E+00	4.30E+00	3.68E-14
Hafnium (72)	Hf-181	5.97E+00	1.16E-01	1.42E+01	2.48E-01	2.43E-01	3.87E-13
Hafnium (72)	Hf-182	7.70E-08	9.00E+06	4.71E+00	5.12E-03	5.11E-03	6.34E-07
Hafnium (72)	Hf-182m	5.92E+03	1.17E-04	3.15E+00	1.16E-02	1.16E-02	1.86E-17
Hafnium (72)	Hf-183	5.69E+03	1.22E-04	7.03E+00	6.27E-01	5.76E-01	9.72E-16
Hafnium (72)	Hf-184	1.47E+03	4.70E-04	4.10E+00	1.76E+00	1.23E+00	8.06E-15
Mercury (80)	Hg-190	1.82E+04	3.81E-05	2.67E+00	1.60E-04	1.60E-04	8.75E-20
Mercury (80)	Hg-191m	7.17E+03	9.67E-05	3.16E+00	1.91E+00	1.19E+00	1.66E-15
Mercury (80)	Hg-192	1.25E+03	5.54E-04	3.18E+00	1.35E+00	9.48E-01	7.63E-15
Mercury (80)	Hg-193	1.60E+03	4.34E-04	7.38E+00	9.00E-01	8.02E-01	5.08E-15
Mercury (80)	Hg-193m	5.14E+02	1.35E-03	5.22E+00	3.87E-01	3.61E-01	7.09E-15
Mercury (80)	Hg-194	1.58E-03	4.40E+02	6.87E+00	6.49E-02	6.43E-02	4.15E-10
Mercury (80)	Hg-195	5.77E+02	1.20E-03	3.02E+01	4.45E-01	4.38E-01	7.77E-15
Mercury (80)	Hg-195m	1.46E+02	4.75E-03	2.13E+01	1.38E-01	1.37E-01	9.62E-15
Mercury (80)	Hg-197	9.35E+01	7.41E-03	1.38E+02	3.19E-01	3.18E-01	3.52E-14
Mercury (80)	Hg-197m	2.55E+02	2.72E-03	5.57E+01	1.47E-01	1.46E-01	5.93E-15
Mercury (80)	Hg-199m	8.54E+03	8.12E-05	4.39E+01	8.45E+00	7.09E+00	8.66E-15
Mercury (80)	Hg-203	5.43E+00	1.28E-01	3.18E+01	2.09E-01	2.08E-01	4.08E-13
Mercury (80)	Hg-205	7.00E+04	9.89E-06	5.34E+02	.	5.34E+02	8.19E-14
Mercury (80)	Hg-206	4.47E+04	1.55E-05	5.55E+01	.	5.55E+01	1.34E-14
Mercury (80)	Hg-207	1.26E+05	5.52E-06	2.57E+00	.	2.57E+00	2.22E-16
Holmium (67)	Ho-150	2.85E+05	2.44E-06	1.52E+00	5.32E-05	5.32E-05	1.47E-21
Holmium (67)	Ho-153	1.81E+05	3.82E-06	3.27E+00	5.27E-01	4.54E-01	2.01E-17
Holmium (67)	Ho-153m	3.92E+04	1.77E-05	3.24E+00	5.25E-01	4.52E-01	9.26E-17
Holmium (67)	Ho-154	3.10E+04	2.24E-05	3.83E+00	4.20E-05	4.19E-05	1.09E-20
Holmium (67)	Ho-154m	1.17E+05	5.90E-06	3.03E+00	4.19E-05	4.19E-05	2.88E-21
Holmium (67)	Ho-155	7.59E+03	9.13E-05	5.25E+00	3.31E+00	2.03E+00	2.17E-15
Holmium (67)	Ho-156	6.50E+03	1.07E-04	3.38E+00	2.46E+01	2.97E+00	3.74E-15
Holmium (67)	Ho-157	2.89E+04	2.40E-05	8.45E+00	4.66E-01	4.42E-01	1.26E-16
Holmium (67)	Ho-159	1.10E+04	6.29E-05	2.04E+01	3.10E+00	2.69E+00	2.04E-15
Holmium (67)	Ho-160	1.42E+04	4.87E-05	4.33E+00	9.90E+01	4.14E+00	2.44E-15
Holmium (67)	Ho-161	2.45E+03	2.83E-04	2.48E+02	1.80E+02	1.04E+02	3.60E-13
Holmium (67)	Ho-162	2.43E+04	2.85E-05	5.05E+01	4.71E+02	4.56E+01	1.60E-14
Holmium (67)	Ho-162m	5.44E+03	1.27E-04	1.15E+01	5.93E+01	9.60E+00	1.50E-14

Resident Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Holmium (67)	Ho-163	1.52E-04	4.57E+03	.	5.72E+00	5.72E+00	3.23E-07
Holmium (67)	Ho-164	1.26E+04	5.52E-05	4.11E+02	1.58E+02	1.14E+02	7.82E-14
Holmium (67)	Ho-164m	9.59E+03	7.23E-05	1.77E+02	6.81E+01	4.92E+01	4.42E-14
Holmium (67)	Ho-166	2.27E+02	3.06E-03	1.89E+02	1.92E+00	1.90E+00	7.29E-14
Holmium (67)	Ho-166m	5.78E-04	1.20E+03	4.53E+00	5.45E-03	5.45E-03	8.21E-11
Holmium (67)	Ho-167	1.96E+03	3.54E-04	2.07E+01	1.77E+01	9.53E+00	4.26E-14
Holmium (67)	Ho-168	1.22E+05	5.69E-06	8.14E+00	.	8.14E+00	5.89E-16
Holmium (67)	Ho-168m	1.66E+05	4.19E-06	8.11E+00	.	8.11E+00	4.32E-16
Holmium (67)	Ho-170	1.32E+05	5.25E-06	4.22E+00	.	4.22E+00	2.85E-16
Iodine (53)	I-118	2.66E+04	2.61E-05	2.53E+00	5.12E-01	4.26E-01	9.91E-17
Iodine (53)	I-118m	4.29E+04	1.62E-05	1.59E+00	5.47E-01	4.07E-01	5.88E-17
Iodine (53)	I-119	1.91E+04	3.63E-05	4.38E+00	6.67E+00	2.65E+00	8.66E-16
Iodine (53)	I-120	4.46E+03	1.55E-04	2.58E+00	4.98E+00	1.70E+00	2.40E-15
Iodine (53)	I-120m	6.87E+03	1.01E-04	2.03E+00	9.96E+00	1.68E+00	1.54E-15
Iodine (53)	I-121	2.86E+03	2.42E-04	7.86E+00	2.10E+00	1.66E+00	3.68E-15
Iodine (53)	I-122	1.00E+05	6.91E-06	7.53E+00	.	7.53E+00	4.80E-16
Iodine (53)	I-123	4.57E+02	1.51E-03	5.04E+01	3.83E-01	3.80E-01	5.36E-15
Iodine (53)	I-124	6.06E+01	1.14E-02	6.47E+00	1.03E-01	1.01E-01	1.09E-14
Iodine (53)	I-125	4.26E+00	1.63E-01	8.74E+02	9.78E-02	9.78E-02	1.51E-13
Iodine (53)	I-126	1.96E+01	3.54E-02	1.72E+01	4.69E-02	4.68E-02	1.58E-14
Iodine (53)	I-128	1.46E+04	4.75E-05	9.31E+01	2.22E+01	1.79E+01	8.27E-15
Iodine (53)	I-129	4.41E-08	1.57E+07	1.16E+03	1.49E-02	1.49E-02	2.29E-06
Iodine (53)	I-130	4.91E+02	1.41E-03	3.41E+00	6.84E-01	5.70E-01	7.91E-15
Iodine (53)	I-130m	4.12E+04	1.68E-05	3.83E+00	8.14E-01	6.72E-01	1.11E-16
Iodine (53)	I-131	3.15E+01	2.20E-02	1.94E+01	6.18E-02	6.17E-02	1.34E-14
Iodine (53)	I-132	2.65E+03	2.62E-04	3.18E+00	4.17E+00	1.80E+00	4.72E-15
Iodine (53)	I-132m	4.38E+03	1.58E-04	3.16E+00	2.57E+00	1.42E+00	2.24E-15
Iodine (53)	I-133	2.92E+02	2.37E-03	1.13E+01	2.95E-01	2.87E-01	6.86E-15
Iodine (53)	I-134	6.94E+03	9.99E-05	2.73E+00	9.96E+00	2.14E+00	2.17E-15
Iodine (53)	I-134m	1.01E+05	6.85E-06	2.54E+00	1.02E+01	2.03E+00	1.41E-16
Iodine (53)	I-135	9.24E+02	7.50E-04	3.68E+00	1.18E-01	1.14E-01	8.77E-16
Indium (49)	In-103	3.64E+05	1.90E-06	1.23E+00	3.02E+00	8.76E-01	1.30E-17
Indium (49)	In-105	7.18E+04	9.65E-06	1.91E+00	1.69E+00	8.97E-01	6.87E-17
Indium (49)	In-106	5.87E+04	1.18E-05	2.03E+00	.	2.03E+00	1.92E-16
Indium (49)	In-106m	7.00E+04	9.89E-06	2.45E+00	.	2.45E+00	1.94E-16
Indium (49)	In-107	1.12E+04	6.16E-05	4.57E+00	1.32E+01	3.40E+00	1.70E-15
Indium (49)	In-108	6.28E+03	1.10E-04	1.83E+00	2.83E+01	1.71E+00	1.55E-15
Indium (49)	In-108m	9.20E+03	7.53E-05	2.45E+00	3.56E+01	2.29E+00	1.41E-15
Indium (49)	In-109	1.45E+03	4.79E-04	1.15E+01	2.32E-01	2.28E-01	9.01E-16
Indium (49)	In-109m	2.72E+05	2.55E-06	5.88E+00	2.32E-01	2.24E-01	4.70E-18

Resident Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Half-life (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Indium (49)	In-110	1.24E+03	5.59E-04	2.34E+00	9.84E+00	1.89E+00	8.81E-15
Indium (49)	In-110m	5.27E+03	1.31E-04	4.55E+00	2.69E+01	3.89E+00	4.26E-15
Indium (49)	In-111	9.02E+01	7.68E-03	1.96E+01	5.62E+00	4.37E+00	2.82E-13
Indium (49)	In-111m	4.73E+04	1.46E-05	8.72E+00	5.62E+00	3.42E+00	4.21E-16
Indium (49)	In-112	2.43E+04	2.85E-05	2.78E+01	1.71E+02	2.39E+01	5.77E-15
Indium (49)	In-112m	1.77E+04	3.91E-05	2.56E+01	4.56E+01	1.64E+01	5.44E-15
Indium (49)	In-113m	3.66E+03	1.89E-04	2.92E+01	6.46E+01	2.01E+01	3.26E-14
Indium (49)	In-114	3.04E+05	2.28E-06	4.55E+02	.	4.55E+02	8.94E-15
Indium (49)	In-114m	5.11E+00	1.36E-01	8.34E+01	1.08E-01	1.07E-01	1.26E-13
Indium (49)	In-115	1.57E-15	4.41E+14	5.01E+03	3.95E-03	3.95E-03	1.51E+01
Indium (49)	In-115m	1.35E+03	5.12E-04	4.72E+01	4.15E-03	4.15E-03	1.85E-17
Indium (49)	In-116m	6.69E+03	1.04E-04	2.80E+00	2.86E+01	2.55E+00	2.32E-15
Indium (49)	In-117	8.43E+03	8.22E-05	1.07E+01	3.49E+01	8.20E+00	5.97E-15
Indium (49)	In-117m	3.13E+03	2.21E-04	1.78E+01	1.45E+01	7.99E+00	1.56E-14
Indium (49)	In-118	4.37E+06	1.59E-07	5.78E+01	.	5.78E+01	8.18E-17
Indium (49)	In-118m	8.35E+04	8.30E-06	2.52E+00	.	2.52E+00	1.87E-16
Indium (49)	In-119	1.52E+05	4.57E-06	9.33E+00	4.49E+01	7.73E+00	3.18E-16
Indium (49)	In-119m	2.02E+04	3.42E-05	5.63E+01	6.75E+01	3.07E+01	9.47E-15
Indium (49)	In-121	9.46E+05	7.32E-07	7.57E+00	7.76E-01	7.03E-01	4.72E-18
Indium (49)	In-121m	9.39E+04	7.38E-06	7.37E+01	5.28E+00	4.93E+00	3.33E-16
Iridium (77)	Ir-180	2.43E+05	2.85E-06	2.51E+00	9.12E+01	2.45E+00	9.51E-17
Iridium (77)	Ir-182	2.43E+04	2.85E-05	2.39E+00	2.14E+00	1.13E+00	4.43E-16
Iridium (77)	Ir-183	6.28E+03	1.10E-04	3.19E+00	3.85E-01	3.43E-01	5.24E-16
Iridium (77)	Ir-184	1.96E+03	3.53E-04	3.67E+00	1.08E+01	2.74E+00	1.35E-14
Iridium (77)	Ir-185	4.22E+02	1.64E-03	4.71E+00	8.05E-01	6.87E-01	1.58E-14
Iridium (77)	Ir-186	3.65E+02	1.90E-03	4.33E+00	3.58E-04	3.58E-04	9.57E-18
Iridium (77)	Ir-186m	3.16E+03	2.19E-04	4.28E+00	3.58E-04	3.58E-04	1.10E-18
Iridium (77)	Ir-187	5.78E+02	1.20E-03	2.36E+01	1.77E+01	1.01E+01	1.72E-13
Iridium (77)	Ir-188	1.46E+02	4.74E-03	3.27E+00	2.83E+00	1.52E+00	1.02E-13
Iridium (77)	Ir-189	1.92E+01	3.62E-02	1.24E+02	2.58E+00	2.52E+00	1.31E-12
Iridium (77)	Ir-190	2.15E+01	3.23E-02	5.08E+00	1.03E+00	8.60E-01	3.99E-13
Iridium (77)	Ir-190m	5.42E+03	1.28E-04	5.08E+00	1.03E+00	8.56E-01	1.57E-15
Iridium (77)	Ir-190n	1.97E+03	3.52E-04	4.60E+00	6.91E+00	2.76E+00	1.40E-14
Iridium (77)	Ir-191m	4.42E+06	1.57E-07	1.24E+02	.	1.24E+02	2.81E-16
Iridium (77)	Ir-192	3.43E+00	2.02E-01	9.15E+00	2.21E-01	2.16E-01	6.35E-13
Iridium (77)	Ir-192m	2.51E+05	2.76E-06	9.15E+00	2.21E-01	2.16E-01	8.66E-18
Iridium (77)	Ir-192n	2.88E-03	2.41E+02	9.14E+00	2.36E-02	2.35E-02	8.23E-11
Iridium (77)	Ir-193m	2.40E+01	2.88E-02	3.18E+04	1.20E+00	1.20E+00	5.04E-13
Iridium (77)	Ir-194	3.15E+02	2.20E-03	6.93E+01	2.39E+00	2.31E+00	7.47E-14
Iridium (77)	Ir-194m	1.48E+00	4.68E-01	3.18E+00	1.21E-01	1.17E-01	8.04E-13



Resident Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Iridium (77)	Ir-195	2.43E+03	2.85E-04	1.50E+02	1.94E+01	1.72E+01	7.24E-14
Iridium (77)	Ir-195m	1.60E+03	4.34E-04	1.89E+01	2.26E+00	2.02E+00	1.29E-14
Iridium (77)	Ir-196	4.20E+05	1.65E-06	2.85E+01	.	2.85E+01	6.97E-16
Iridium (77)	Ir-196m	4.34E+03	1.60E-04	3.00E+00	1.49E+01	2.50E+00	5.93E-15
Potassium (19)	K-38	4.77E+04	1.45E-05	2.12E+00	.	2.12E+00	8.85E-17
Potassium (19)	K-40	5.54E-10	1.25E+09	4.16E+01	1.82E-02	1.82E-02	6.89E-05
Potassium (19)	K-42	4.91E+02	1.41E-03	2.22E+01	3.96E+00	3.36E+00	1.51E-14
Potassium (19)	K-43	2.72E+02	2.55E-03	7.63E+00	3.74E+00	2.51E+00	2.08E-14
Potassium (19)	K-44	1.65E+04	4.21E-05	2.78E+00	4.05E+01	2.60E+00	3.64E-16
Potassium (19)	K-45	2.11E+04	3.29E-05	3.65E+00	4.02E-01	3.62E-01	4.06E-17
Potassium (19)	K-46	2.08E+05	3.33E-06	2.25E+00	.	2.25E+00	2.61E-17
Krypton (36)	Kr-74	3.17E+04	2.19E-05	1.19E+00	3.40E+01	1.15E+00	1.41E-16
Krypton (36)	Kr-75	8.49E+04	8.16E-06	2.57E+00	1.06E+00	7.49E-01	3.47E-17
Krypton (36)	Kr-76	4.10E+02	1.69E-03	2.17E+00	3.17E+00	1.29E+00	1.25E-14
Krypton (36)	Kr-77	4.90E+03	1.42E-04	5.48E+00	1.51E+01	4.02E+00	3.31E-15
Krypton (36)	Kr-79	1.73E+02	4.00E-03	2.98E+01	.	2.98E+01	7.12E-13
Krypton (36)	Kr-81	3.03E-06	2.29E+05	8.65E+03	.	8.65E+03	1.21E-02
Krypton (36)	Kr-81m	1.67E+06	4.15E-07	5.89E+01	.	5.89E+01	1.50E-16
Krypton (36)	Kr-83m	3.32E+03	2.09E-04	3.00E+05	.	3.00E+05	3.94E-10
Krypton (36)	Kr-85	6.44E-02	1.08E+01	1.37E+03	.	1.37E+03	9.49E-08
Krypton (36)	Kr-85m	1.36E+03	5.11E-04	4.79E+01	.	4.79E+01	1.58E-13
Krypton (36)	Kr-87	4.77E+03	1.45E-04	8.32E+00	9.61E-02	9.50E-02	9.08E-17
Krypton (36)	Kr-88	2.14E+03	3.24E-04	2.53E+00	4.85E+01	2.40E+00	5.18E-15
Krypton (36)	Kr-89	1.16E+05	5.99E-06	1.61E+00	1.82E-01	1.64E-01	6.61E-18
Lanthanum (57)	La-128	7.03E+04	9.86E-06	1.92E+00	9.78E-01	6.48E-01	6.18E-17
Lanthanum (57)	La-129	3.14E+04	2.21E-05	4.65E+00	1.12E+01	3.28E+00	7.07E-16
Lanthanum (57)	La-130	4.19E+04	1.66E-05	3.21E+00	.	3.21E+00	5.22E-16
Lanthanum (57)	La-131	6.17E+03	1.12E-04	6.74E+00	1.56E+00	1.26E+00	1.41E-15
Lanthanum (57)	La-132	1.26E+03	5.48E-04	3.54E+00	7.37E+00	2.39E+00	1.31E-14
Lanthanum (57)	La-132m	1.50E+04	4.62E-05	3.29E+00	8.43E+00	2.37E+00	1.09E-15
Lanthanum (57)	La-133	1.55E+03	4.47E-04	1.46E+01	1.44E-01	1.42E-01	6.40E-16
Lanthanum (57)	La-134	5.65E+04	1.23E-05	1.01E+01	.	1.01E+01	1.26E-15
Lanthanum (57)	La-135	3.11E+02	2.23E-03	4.28E+02	8.77E+01	7.28E+01	1.66E-12
Lanthanum (57)	La-136	3.69E+04	1.88E-05	1.85E+01	.	1.85E+01	3.57E-15
Lanthanum (57)	La-137	1.16E-05	6.00E+04	1.08E+03	1.71E-01	1.71E-01	1.06E-07
Lanthanum (57)	La-138	6.79E-12	1.02E+11	5.68E+00	9.96E-03	9.95E-03	1.06E-02
Lanthanum (57)	La-140	1.51E+02	4.60E-03	2.98E+00	1.20E+00	8.53E-01	4.16E-14
Lanthanum (57)	La-141	1.55E+03	4.47E-04	6.27E+01	3.74E-01	3.72E-01	1.78E-15
Lanthanum (57)	La-142	4.00E+03	1.73E-04	2.78E+00	1.51E+01	2.35E+00	4.37E-15
Lanthanum (57)	La-143	2.57E+04	2.70E-05	1.27E+01	4.35E-01	4.21E-01	1.23E-16

Resident Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Lutetium (71)	Lu-165	3.39E+04	2.04E-05	3.72E+00	5.37E+00	2.20E+00	5.61E-16
Lutetium (71)	Lu-167	7.07E+03	9.80E-05	3.50E+00	1.06E+00	8.13E-01	1.01E-15
Lutetium (71)	Lu-169	1.78E+02	3.89E-03	4.55E+00	3.78E-01	3.49E-01	1.73E-14
Lutetium (71)	Lu-169m	1.37E+05	5.07E-06	4.55E+00	3.78E-01	3.49E-01	2.26E-17
Lutetium (71)	Lu-170	1.26E+02	5.51E-03	2.64E+00	2.13E+00	1.18E+00	8.37E-14
Lutetium (71)	Lu-171	3.07E+01	2.26E-02	1.18E+01	1.45E+00	1.30E+00	3.78E-13
Lutetium (71)	Lu-171m	2.77E+05	2.51E-06	1.18E+01	1.45E+00	1.30E+00	4.20E-17
Lutetium (71)	Lu-172	3.78E+01	1.84E-02	3.69E+00	8.97E-01	7.21E-01	1.72E-13
Lutetium (71)	Lu-172m	9.84E+04	7.04E-06	3.69E+00	8.97E-01	7.21E-01	6.61E-17
Lutetium (71)	Lu-173	5.06E-01	1.37E+00	5.11E+01	4.11E-01	4.07E-01	7.31E-12
Lutetium (71)	Lu-174	2.09E-01	3.31E+00	7.41E+01	3.27E-01	3.25E-01	1.42E-11
Lutetium (71)	Lu-174m	1.78E+00	3.89E-01	5.32E+01	1.65E-01	1.65E-01	8.44E-13
Lutetium (71)	Lu-176	1.80E-11	3.85E+10	1.60E+01	1.00E-02	1.00E-02	5.14E-03
Lutetium (71)	Lu-176m	1.67E+03	4.15E-04	4.29E+02	1.22E+01	1.19E+01	6.57E-14
Lutetium (71)	Lu-177	3.81E+01	1.82E-02	2.20E+02	1.22E+00	1.22E+00	2.97E-13
Lutetium (71)	Lu-177m	1.58E+00	4.39E-01	7.75E+00	9.02E-02	8.92E-02	5.25E-13
Lutetium (71)	Lu-178	1.28E+04	5.40E-05	5.13E+01	5.47E+01	2.65E+01	1.93E-14
Lutetium (71)	Lu-178m	1.58E+04	4.39E-05	7.29E+00	4.35E+01	6.25E+00	3.70E-15
Lutetium (71)	Lu-179	1.32E+03	5.24E-04	2.03E+02	1.24E+01	1.17E+01	8.30E-14
Lutetium (71)	Lu-180	6.39E+04	1.08E-05	4.66E+00	.	4.66E+00	6.89E-16
Lutetium (71)	Lu-181	1.04E+05	6.66E-06	6.74E+00	2.48E-01	2.39E-01	2.18E-17
Magnesium (12)	Mg-27	3.85E+04	1.80E-05	7.94E+00	.	7.94E+00	2.92E-16
Magnesium (12)	Mg-28	2.90E+02	2.39E-03	2.17E+00	1.08E+00	7.19E-01	3.64E-15
Manganese (25)	Mn-50m	2.08E+05	3.33E-06	1.52E+00	.	1.52E+00	1.91E-17
Manganese (25)	Mn-51	7.88E+03	8.79E-05	7.09E+00	1.70E+01	5.00E+00	1.70E-15
Manganese (25)	Mn-52	4.52E+01	1.53E-02	2.04E+00	9.72E-01	6.59E-01	3.97E-14
Manganese (25)	Mn-52m	1.73E+04	4.01E-05	2.85E+00	2.50E+01	2.56E+00	4.05E-16
Manganese (25)	Mn-53	1.87E-07	3.70E+06	.	4.42E+00	4.42E+00	6.56E-05
Manganese (25)	Mn-54	8.10E-01	8.55E-01	8.63E+00	4.48E-01	4.26E-01	1.49E-12
Manganese (25)	Mn-56	2.35E+03	2.94E-04	4.04E+00	1.05E+01	2.92E+00	3.64E-15
Manganese (25)	Mn-57	2.56E+05	2.71E-06	6.24E+01	.	6.24E+01	7.28E-16
Manganese (25)	Mn-58m	3.35E+05	2.07E-06	2.87E+00	.	2.87E+00	2.61E-17
Molybdenum (42)	Mo-101	2.49E+04	2.78E-05	3.89E+00	3.56E+01	3.51E+00	7.46E-16
Molybdenum (42)	Mo-102	3.22E+04	2.15E-05	4.81E+01	5.38E+01	2.54E+01	4.21E-15
Molybdenum (42)	Mo-89	1.73E+05	4.01E-06	1.88E+00	2.04E+00	9.80E-01	2.65E-17
Molybdenum (42)	Mo-90	1.09E+03	6.35E-04	1.37E+00	1.32E+00	6.72E-01	2.90E-15
Molybdenum (42)	Mo-91	2.35E+04	2.95E-05	7.33E+00	8.09E-01	7.28E-01	1.48E-16
Molybdenum (42)	Mo-91m	3.38E+05	2.05E-06	3.77E+00	3.81E-01	3.46E-01	4.88E-18
Molybdenum (42)	Mo-93	1.73E-04	4.00E+03	1.68E+04	3.84E-01	3.84E-01	1.08E-08
Molybdenum (42)	Mo-93m	8.86E+02	7.82E-04	3.03E+00	3.66E-01	3.27E-01	1.80E-15

Resident Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Molybdenum (42)	Mo-99	9.21E+01	7.53E-03	2.86E+01	1.05E-01	1.05E-01	5.90E-15
Nitrogen (7)	N-13	3.66E+04	1.90E-05	7.23E+00	.	7.23E+00	1.35E-16
Nitrogen (7)	N-16	3.07E+06	2.26E-07	1.28E+00	.	1.28E+00	3.49E-19
Sodium (11)	Na-22	2.66E-01	2.60E+00	3.24E+00	5.12E-02	5.04E-02	2.19E-13
Sodium (11)	Na-24	4.06E+02	1.71E-03	1.59E+00	2.77E+00	1.01E+00	3.13E-15
Niobium (41)	Nb-87	9.71E+04	7.13E-06	2.29E+00	2.01E+00	1.07E+00	5.03E-17
Niobium (41)	Nb-88	2.51E+04	2.76E-05	9.69E-01	1.48E-01	1.28E-01	2.36E-17
Niobium (41)	Nb-88m	4.68E+04	1.48E-05	9.78E-01	1.48E-01	1.29E-01	1.27E-17
Niobium (41)	Nb-89	2.99E+03	2.32E-04	2.79E+00	2.04E+00	1.18E+00	1.84E-15
Niobium (41)	Nb-89m	5.52E+03	1.26E-04	2.41E+00	2.34E+00	1.19E+00	1.00E-15
Niobium (41)	Nb-90	4.16E+02	1.67E-03	1.61E+00	2.03E+00	8.99E-01	1.02E-14
Niobium (41)	Nb-91	1.02E-03	6.80E+02	3.91E+03	8.19E-01	8.19E-01	3.84E-09
Niobium (41)	Nb-91m	4.16E+00	1.67E-01	2.58E+02	2.49E-01	2.49E-01	2.86E-13
Niobium (41)	Nb-92	2.00E-08	3.47E+07	4.84E+00	5.68E-02	5.62E-02	1.36E-05
Niobium (41)	Nb-92m	2.49E+01	2.78E-02	7.44E+00	3.11E+00	2.19E+00	4.25E-13
Niobium (41)	Nb-93m	4.30E-02	1.61E+01	1.09E+05	7.72E-01	7.72E-01	8.77E-11
Niobium (41)	Nb-94	3.41E-05	2.03E+04	4.63E+00	3.16E-02	3.14E-02	4.53E-09
Niobium (41)	Nb-94m	5.82E+04	1.19E-05	4.64E+00	3.17E-02	3.15E-02	2.67E-18
Niobium (41)	Nb-95	7.23E+00	9.59E-02	9.47E+00	8.36E-01	7.68E-01	5.30E-13
Niobium (41)	Nb-95m	7.01E+01	9.89E-03	9.24E+00	5.72E-01	5.39E-01	3.83E-14
Niobium (41)	Nb-96	2.60E+02	2.67E-03	2.92E+00	2.05E+00	1.21E+00	2.34E-14
Niobium (41)	Nb-97	5.05E+03	1.37E-04	1.09E+01	3.03E+01	8.00E+00	8.05E-15
Niobium (41)	Nb-98m	7.10E+03	9.76E-05	2.50E+00	2.29E+01	2.26E+00	1.63E-15
Niobium (41)	Nb-99	1.46E+06	4.76E-07	1.66E+01	1.05E-01	1.04E-01	3.72E-19
Niobium (41)	Nb-99m	1.40E+05	4.95E-06	6.56E+00	1.05E-01	1.03E-01	3.83E-18
Neodymium (60)	Nd-134	4.29E+04	1.62E-05	2.01E+00	9.23E-01	6.33E-01	1.04E-16
Neodymium (60)	Nd-135	2.94E+04	2.36E-05	2.50E+00	6.65E+00	1.82E+00	4.38E-16
Neodymium (60)	Nd-136	7.19E+03	9.64E-05	2.99E+00	2.00E+01	2.60E+00	2.58E-15
Neodymium (60)	Nd-137	9.46E+03	7.32E-05	4.68E+00	1.70E-01	1.64E-01	1.25E-16
Neodymium (60)	Nd-138	1.20E+03	5.75E-04	8.61E+00	5.33E+00	3.29E+00	1.98E-14
Neodymium (60)	Nd-139	1.23E+04	5.65E-05	1.08E+01	7.45E-01	6.97E-01	4.14E-16
Neodymium (60)	Nd-139m	1.10E+03	6.28E-04	3.87E+00	6.91E-01	5.86E-01	3.87E-15
Neodymium (60)	Nd-140	7.51E+01	9.23E-03	1.33E+01	1.21E+00	1.11E+00	1.09E-13
Neodymium (60)	Nd-141	2.44E+03	2.84E-04	1.25E+02	2.53E+02	8.37E+01	2.54E-13
Neodymium (60)	Nd-141m	3.52E+05	1.97E-06	9.65E+00	2.53E+02	9.30E+00	1.95E-16
Neodymium (60)	Nd-144	3.03E-16	2.29E+15	.	8.03E-05	8.03E-05	2.00E+00
Neodymium (60)	Nd-147	2.30E+01	3.01E-02	5.75E+01	6.61E-05	6.61E-05	2.21E-17
Neodymium (60)	Nd-149	3.51E+03	1.97E-04	1.94E+01	1.71E+00	1.57E+00	3.49E-15
Neodymium (60)	Nd-151	2.93E+04	2.37E-05	6.15E+00	1.55E-01	1.51E-01	4.09E-17
Neodymium (60)	Nd-152	3.20E+04	2.17E-05	1.52E+01	5.77E+01	1.20E+01	3.00E-15



Resident Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Half-life (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Neon (10)	Ne-19	1.27E+06	5.46E-07	7.14E+00	.	7.14E+00	5.60E-18
Neon (10)	Ne-24	1.08E+05	6.43E-06	1.42E+00	2.77E+00	9.38E-01	1.10E-17
Nickel (28)	Ni-56	4.16E+01	1.66E-02	1.30E+00	1.83E-01	1.60E-01	1.13E-14
Nickel (28)	Ni-57	1.71E+02	4.06E-03	3.41E+00	9.08E-01	7.17E-01	1.26E-14
Nickel (28)	Ni-59	6.86E-06	1.01E+05	4.78E+05	1.77E+00	1.77E+00	7.97E-07
Nickel (28)	Ni-63	6.92E-03	1.00E+02	.	7.24E-01	7.24E-01	3.45E-10
Nickel (28)	Ni-65	2.41E+03	2.87E-04	1.21E+01	3.99E+00	3.00E+00	4.24E-15
Nickel (28)	Ni-66	1.11E+02	6.23E-03	5.99E+01	7.54E-01	7.45E-01	2.32E-14
Neptunium (93)	Np-232	2.48E+04	2.80E-05	2.63E+00	1.87E-05	1.87E-05	9.20E-21
Neptunium (93)	Np-233	1.01E+04	6.89E-05	1.95E+01	1.56E-05	1.56E-05	1.90E-20
Neptunium (93)	Np-234	5.75E+01	1.21E-02	2.44E+00	1.19E-05	1.19E-05	2.55E-18
Neptunium (93)	Np-235	6.39E-01	1.09E+00	1.18E+01	4.96E-06	4.96E-06	9.57E-17
Neptunium (93)	Np-236	4.50E-06	1.54E+05	2.93E+00	1.46E-05	1.46E-05	4.02E-11
Neptunium (93)	Np-236m	2.70E+02	2.57E-03	3.48E+00	1.64E-05	1.64E-05	7.52E-19
Neptunium (93)	Np-237	3.23E-07	2.14E+06	1.39E+01	1.39E-05	1.39E-05	5.35E-10
Neptunium (93)	Np-238	1.19E+02	5.80E-03	3.00E+00	6.58E-06	6.58E-06	6.87E-19
Neptunium (93)	Np-239	1.07E+02	6.46E-03	9.34E+00	3.61E-06	3.61E-06	4.22E-19
Neptunium (93)	Np-240	5.88E+03	1.18E-04	2.07E+00	7.33E-06	7.33E-06	1.57E-20
Neptunium (93)	Np-240m	5.04E+04	1.37E-05	2.60E+00	7.33E-06	7.33E-06	1.83E-21
Neptunium (93)	Np-241	2.62E+04	2.64E-05	1.26E+01	7.46E-06	7.46E-06	3.60E-21
Neptunium (93)	Np-242	1.66E+05	4.19E-06	3.37E+00	6.23E-06	6.23E-06	4.78E-22
Neptunium (93)	Np-242m	6.62E+04	1.05E-05	2.62E+00	6.23E-06	6.23E-06	1.19E-21
Oxygen (8)	O-14	3.10E+05	2.24E-06	2.03E+00	.	2.03E+00	4.81E-18
Oxygen (8)	O-15	1.79E+05	3.88E-06	7.18E+00	.	7.18E+00	3.16E-17
Oxygen (8)	O-19	8.26E+05	8.39E-07	7.18E+00	.	7.18E+00	8.67E-18
Osmium (76)	Os-180	1.69E+04	4.09E-05	5.59E+00	9.12E+01	5.27E+00	2.94E-15
Osmium (76)	Os-181	3.47E+03	2.00E-04	3.32E+00	2.26E+00	1.34E+00	3.68E-15
Osmium (76)	Os-182	2.75E+02	2.52E-03	4.46E+00	2.23E+00	1.49E+00	5.16E-14
Osmium (76)	Os-183	4.67E+02	1.48E-03	1.03E+01	3.88E-01	3.74E-01	7.68E-15
Osmium (76)	Os-183m	6.13E+02	1.13E-03	5.92E+00	3.89E-01	3.65E-01	5.72E-15
Osmium (76)	Os-185	2.70E+00	2.56E-01	1.08E+01	9.33E-01	8.59E-01	3.08E-12
Osmium (76)	Os-186	3.47E-16	2.00E+15	.	3.58E-04	3.58E-04	1.01E+01
Osmium (76)	Os-189m	1.05E+03	6.62E-04	3.21E+06	2.51E+02	2.51E+02	2.38E-12
Osmium (76)	Os-190m	3.68E+04	1.88E-05	4.69E+00	.	4.69E+00	1.27E-15
Osmium (76)	Os-191	1.64E+01	4.22E-02	1.12E+02	7.30E-01	7.26E-01	4.43E-13
Osmium (76)	Os-191m	4.63E+02	1.50E-03	1.06E+02	6.74E-01	6.70E-01	1.45E-14
Osmium (76)	Os-193	2.02E+02	3.44E-03	1.09E+02	2.54E+00	2.48E+00	1.24E-13
Osmium (76)	Os-194	1.16E-01	6.00E+00	6.85E+01	1.76E-02	1.76E-02	1.55E-12
Osmium (76)	Os-196	1.04E+04	6.64E-05	2.17E+01	2.43E+01	1.15E+01	1.13E-14
Phosphorus (15)	P-30	1.46E+05	4.75E-06	7.05E+00	.	7.05E+00	7.60E-17



Resident Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Phosphorus (15)	P-32	1.77E+01	3.91E-02	6.17E+02	3.69E-01	3.68E-01	3.49E-14
Phosphorus (15)	P-33	9.98E+00	6.94E-02	2.29E+04	8.24E-01	8.24E-01	1.43E-13
Protactinium (91)	Pa-227	9.51E+03	7.29E-05	5.09E+01	5.08E-04	5.08E-04	6.36E-19
Protactinium (91)	Pa-228	2.76E+02	2.51E-03	2.46E+00	3.47E-05	3.47E-05	1.51E-18
Protactinium (91)	Pa-229	1.69E+02	4.11E-03	2.08E+01	1.74E-05	1.74E-05	1.24E-18
Protactinium (91)	Pa-230	1.45E+01	4.77E-02	3.12E+00	1.37E-05	1.37E-05	1.14E-17
Protactinium (91)	Pa-231	2.12E-05	3.28E+04	1.60E+01	5.10E-06	5.10E-06	2.92E-12
Protactinium (91)	Pa-232	1.93E+02	3.59E-03	2.88E+00	1.87E-05	1.87E-05	1.18E-18
Protactinium (91)	Pa-233	9.38E+00	7.39E-02	1.45E+01	1.56E-05	1.56E-05	2.03E-17
Protactinium (91)	Pa-234	9.06E+02	7.65E-04	2.21E+00	1.19E-05	1.19E-05	1.62E-19
Protactinium (91)	Pa-234m	3.11E+05	2.23E-06	3.91E+00	1.19E-05	1.19E-05	4.70E-22
Protactinium (91)	Pa-235	1.49E+04	4.66E-05	1.17E+01	4.96E-06	4.96E-06	4.11E-21
Protactinium (91)	Pa-236	4.00E+04	1.73E-05	2.12E+00	1.62E-05	1.62E-05	5.02E-21
Protactinium (91)	Pa-237	4.19E+04	1.66E-05	5.78E+00	1.39E-05	1.39E-05	4.13E-21
Lead (82)	Pb-194	3.04E+04	2.28E-05	2.39E+00	6.48E-02	6.31E-02	2.11E-17
Lead (82)	Pb-195m	2.43E+04	2.85E-05	2.32E+00	4.35E-01	3.66E-01	1.54E-16
Lead (82)	Pb-196	9.84E+03	7.04E-05	3.03E+00	2.10E+01	2.65E+00	2.77E-15
Lead (82)	Pb-197	4.55E+04	1.52E-05	3.52E+00	3.16E-01	2.90E-01	6.58E-17
Lead (82)	Pb-197m	8.47E+03	8.18E-05	3.74E+00	3.13E-01	2.89E-01	3.52E-16
Lead (82)	Pb-198	2.53E+03	2.74E-04	2.91E+00	9.61E+00	2.23E+00	9.17E-15
Lead (82)	Pb-199	4.05E+03	1.71E-04	5.68E+00	1.71E+01	4.26E+00	1.10E-14
Lead (82)	Pb-200	2.82E+02	2.45E-03	4.86E+00	2.61E+00	1.70E+00	6.31E-14
Lead (82)	Pb-201	6.51E+02	1.07E-03	9.01E+00	4.46E+00	2.98E+00	4.83E-14
Lead (82)	Pb-201m	3.58E+05	1.93E-06	6.24E+00	4.46E+00	2.60E+00	7.65E-17
Lead (82)	Pb-202	1.32E-05	5.25E+04	1.68E+01	3.03E-02	3.02E-02	2.42E-08
Lead (82)	Pb-202m	1.72E+03	4.03E-04	3.00E+00	3.33E-02	3.29E-02	2.03E-16
Lead (82)	Pb-203	1.17E+02	5.92E-03	2.52E+01	6.26E+00	5.01E+00	4.56E-13
Lead (82)	Pb-204m	5.42E+03	1.28E-04	3.50E+00	4.56E+01	3.25E+00	6.41E-15
Lead (82)	Pb-205	4.53E-08	1.53E+07	6.72E+05	1.82E+00	1.82E+00	4.31E-04
Lead (82)	Pb-209	1.87E+03	3.71E-04	3.30E+03	2.31E+01	2.30E+01	1.35E-13
Lead (82)	Pb-210	3.12E-02	2.22E+01	1.08E+03	1.49E-04	1.49E-04	5.25E-14
Lead (82)	Pb-211	1.01E+04	6.87E-05	5.75E+01	1.19E-01	1.18E-01	1.30E-16
Lead (82)	Pb-212	5.71E+02	1.21E-03	4.61E+00	1.33E-02	1.32E-02	2.58E-16
Lead (82)	Pb-214	1.36E+04	5.10E-05	4.00E+00	1.48E-04	1.48E-04	1.23E-19
Palladium (46)	Pd-100	6.97E+01	9.95E-03	2.44E+00	1.19E+00	8.01E-01	6.03E-14
Palladium (46)	Pd-101	7.17E+02	9.67E-04	1.20E+01	2.37E+00	1.98E+00	1.46E-14
Palladium (46)	Pd-103	1.49E+01	4.66E-02	5.65E+03	3.21E+00	3.21E+00	1.16E-12
Palladium (46)	Pd-107	1.07E-07	6.50E+06	.	2.45E+00	2.45E+00	1.29E-04
Palladium (46)	Pd-109	4.43E+02	1.56E-03	7.87E+02	3.67E+00	3.65E+00	4.71E-14
Palladium (46)	Pd-109m	7.77E+04	8.92E-06	6.60E+01	3.67E+00	3.48E+00	2.56E-16

Resident Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Half-life (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Palladium (46)	Pd-111	1.56E+04	4.45E-05	7.45E+01	8.24E-01	8.15E-01	3.05E-16
Palladium (46)	Pd-112	2.89E+02	2.40E-03	9.74E+00	1.06E+00	9.52E-01	1.94E-14
Palladium (46)	Pd-114	1.51E+05	4.60E-06	2.05E+01	.	2.05E+01	8.16E-16
Palladium (46)	Pd-96	1.79E+05	3.87E-06	1.41E+00	.	1.41E+00	3.97E-17
Palladium (46)	Pd-97	1.17E+05	5.90E-06	1.75E+00	7.80E-01	5.40E-01	2.34E-17
Palladium (46)	Pd-98	2.06E+04	3.37E-05	3.27E+00	4.82E+01	3.06E+00	7.65E-16
Palladium (46)	Pd-99	1.70E+04	4.07E-05	3.77E+00	1.37E+01	2.96E+00	9.03E-16
Promethium (61)	Pm-136	2.04E+05	3.39E-06	1.40E+00	2.00E+01	1.31E+00	4.58E-17
Promethium (61)	Pm-137m	1.52E+05	4.57E-06	2.19E+00	1.70E-01	1.58E-01	7.46E-18
Promethium (61)	Pm-139	8.78E+04	7.90E-06	4.50E+00	7.45E-01	6.39E-01	5.31E-17
Promethium (61)	Pm-140	2.38E+06	2.92E-07	4.46E+00	1.21E+00	9.54E-01	2.95E-18
Promethium (61)	Pm-140m	6.12E+04	1.13E-05	2.02E+00	1.21E+00	7.58E-01	9.09E-17
Promethium (61)	Pm-141	1.74E+04	3.98E-05	9.13E+00	6.82E+01	8.05E+00	3.42E-15
Promethium (61)	Pm-142	5.40E+05	1.28E-06	8.37E+00	.	8.37E+00	1.15E-16
Promethium (61)	Pm-143	9.55E-01	7.26E-01	2.45E+01	4.94E-01	4.84E-01	3.80E-12
Promethium (61)	Pm-144	6.97E-01	9.95E-01	4.75E+00	8.02E-05	8.02E-05	8.70E-16
Promethium (61)	Pm-145	3.92E-02	1.77E+01	6.01E+02	1.87E-01	1.87E-01	3.64E-11
Promethium (61)	Pm-146	1.25E-01	5.53E+00	9.92E+00	1.77E-04	1.77E-04	1.08E-14
Promethium (61)	Pm-147	2.64E-01	2.62E+00	3.82E+04	6.61E-05	6.61E-05	1.93E-15
Promethium (61)	Pm-148	4.71E+01	1.47E-02	1.20E+01	3.93E-05	3.93E-05	6.47E-18
Promethium (61)	Pm-148m	6.13E+00	1.13E-01	3.63E+00	3.93E-05	3.93E-05	4.98E-17
Promethium (61)	Pm-149	1.14E+02	6.06E-03	4.35E+02	1.93E+00	1.92E+00	1.31E-13
Promethium (61)	Pm-150	2.27E+03	3.06E-04	4.74E+00	1.03E+01	3.25E+00	1.13E-14
Promethium (61)	Pm-151	2.14E+02	3.24E-03	2.29E+01	1.55E-01	1.54E-01	5.71E-15
Promethium (61)	Pm-152	8.84E+04	7.84E-06	2.28E+01	.	2.28E+01	2.05E-15
Promethium (61)	Pm-152m	4.84E+04	1.43E-05	4.67E+00	.	4.67E+00	7.69E-16
Promethium (61)	Pm-153	6.94E+04	9.99E-06	5.99E+01	2.04E+00	1.98E+00	2.29E-16
Promethium (61)	Pm-154	2.11E+05	3.29E-06	3.79E+00	.	3.79E+00	1.45E-16
Promethium (61)	Pm-154m	1.36E+05	5.10E-06	3.89E+00	.	3.89E+00	2.31E-16
Polonium (84)	Po-203	9.92E+03	6.98E-05	1.64E+00	2.47E+00	9.85E-01	1.06E-15
Polonium (84)	Po-204	1.72E+03	4.03E-04	1.69E+00	1.91E+00	8.96E-01	5.57E-15
Polonium (84)	Po-205	3.66E+03	1.89E-04	2.16E+00	7.44E-01	5.53E-01	1.63E-15
Polonium (84)	Po-206	2.87E+01	2.41E-02	1.68E+00	2.13E-02	2.10E-02	7.90E-15
Polonium (84)	Po-207	1.05E+03	6.62E-04	2.56E+00	3.95E-02	3.89E-02	4.03E-16
Polonium (84)	Po-208	2.39E-01	2.90E+00	8.37E+04	2.18E-04	2.18E-04	9.92E-15
Polonium (84)	Po-209	6.79E-03	1.02E+02	1.20E+03	1.58E-04	1.58E-04	2.55E-13
Polonium (84)	Po-210	1.83E+00	3.79E-01	7.43E+05	3.45E-04	3.45E-04	2.08E-15
Polonium (84)	Po-211	4.24E+07	1.64E-08	8.86E+02	.	8.86E+02	2.31E-16
Polonium (84)	Po-212	7.31E+13	9.48E-15	.	.	.	.
Polonium (84)	Po-212m	4.85E+05	1.43E-06	8.28E+01	.	8.28E+01	1.90E-15

Resident Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Polonium (84)	Po-213	5.20E+12	1.33E-13	3.25E+03	2.31E+01	2.30E+01	4.93E-23
Polonium (84)	Po-214	1.33E+11	5.21E-12	1.07E+03	1.49E-04	1.49E-04	1.25E-26
Polonium (84)	Po-215	1.23E+10	5.65E-11	5.74E+01	1.19E-01	1.18E-01	1.09E-22
Polonium (84)	Po-216	1.51E+08	4.60E-09	4.61E+00	1.33E-02	1.32E-02	9.94E-22
Polonium (84)	Po-218	1.17E+05	5.90E-06	4.00E+00	1.48E-04	1.48E-04	1.44E-20
Praseodymium (59)	Pr-134	3.31E+04	2.09E-05	1.87E+00	9.30E-01	6.21E-01	1.32E-16
Praseodymium (59)	Pr-134m	2.14E+04	3.23E-05	2.34E+00	9.23E-01	6.62E-01	2.17E-16
Praseodymium (59)	Pr-135	1.52E+04	4.57E-05	4.36E+00	7.65E+00	2.78E+00	1.30E-15
Praseodymium (59)	Pr-136	2.78E+04	2.49E-05	3.32E+00	9.61E+01	3.21E+00	8.23E-16
Praseodymium (59)	Pr-137	4.74E+03	1.46E-04	1.90E+01	1.71E-01	1.69E-01	2.56E-16
Praseodymium (59)	Pr-138	2.51E+05	2.76E-06	8.86E+00	.	8.86E+00	2.55E-16
Praseodymium (59)	Pr-138m	2.86E+03	2.42E-04	2.92E+00	1.78E+01	2.51E+00	6.35E-15
Praseodymium (59)	Pr-139	1.38E+03	5.03E-04	2.98E+01	7.49E-01	7.31E-01	3.87E-15
Praseodymium (59)	Pr-140	1.07E+05	6.45E-06	1.35E+01	.	1.35E+01	9.25E-16
Praseodymium (59)	Pr-142	3.18E+02	2.18E-03	9.47E+01	2.42E+00	2.36E+00	5.53E-14
Praseodymium (59)	Pr-142m	2.49E+04	2.78E-05	9.47E+01	2.39E+00	2.33E+00	6.96E-16
Praseodymium (59)	Pr-143	1.86E+01	3.72E-02	1.69E+03	5.93E-01	5.93E-01	2.39E-13
Praseodymium (59)	Pr-144	2.11E+04	3.29E-05	1.32E+02	8.03E-05	8.03E-05	2.88E-20
Praseodymium (59)	Pr-144m	5.06E+04	1.37E-05	1.20E+02	8.03E-05	8.03E-05	1.20E-20
Praseodymium (59)	Pr-145	1.01E+03	6.83E-04	2.41E+02	8.03E+00	7.77E+00	5.83E-14
Praseodymium (59)	Pr-146	1.51E+04	4.59E-05	6.72E+00	4.51E+01	5.85E+00	2.97E-15
Praseodymium (59)	Pr-147	2.72E+04	2.55E-05	1.20E+01	6.61E-05	6.61E-05	1.88E-20
Praseodymium (59)	Pr-148	1.59E+05	4.36E-06	6.84E+00	.	6.84E+00	3.34E-16
Praseodymium (59)	Pr-148m	1.81E+05	3.82E-06	7.56E+00	.	7.56E+00	3.24E-16
Platinum (78)	Pt-184	2.11E+04	3.29E-05	2.75E+00	8.99E+00	2.10E+00	9.64E-16
Platinum (78)	Pt-186	2.92E+03	2.37E-04	3.09E+00	3.58E-04	3.58E-04	1.20E-18
Platinum (78)	Pt-187	2.58E+03	2.68E-04	8.14E+00	9.28E+00	4.34E+00	1.65E-14
Platinum (78)	Pt-188	2.48E+01	2.79E-02	3.03E+00	5.66E-01	4.77E-01	1.90E-13
Platinum (78)	Pt-189	5.58E+02	1.24E-03	1.42E+01	1.94E+00	1.71E+00	3.03E-14
Platinum (78)	Pt-190	1.07E-12	6.50E+11	.	1.60E-04	1.60E-04	1.50E-03
Platinum (78)	Pt-191	9.03E+01	7.68E-03	2.80E+01	3.83E+00	3.37E+00	3.74E-13
Platinum (78)	Pt-193	1.39E-02	5.00E+01	1.17E+06	2.22E+00	2.22E+00	1.62E-09
Platinum (78)	Pt-193m	5.84E+01	1.19E-02	8.97E+02	8.93E-01	8.92E-01	1.55E-13
Platinum (78)	Pt-195m	6.29E+01	1.10E-02	1.35E+02	1.25E+00	1.24E+00	2.02E-13
Platinum (78)	Pt-197	3.05E+02	2.27E-03	3.33E+02	3.75E+00	3.70E+00	1.25E-13
Platinum (78)	Pt-197m	3.82E+03	1.82E-04	7.83E+01	3.17E+00	3.05E+00	8.25E-15
Platinum (78)	Pt-199	1.18E+04	5.86E-05	2.50E+01	1.73E+00	1.62E+00	1.43E-15
Platinum (78)	Pt-200	4.86E+02	1.43E-03	2.11E+01	2.14E+00	1.94E+00	4.19E-14
Platinum (78)	Pt-202	1.38E+02	5.02E-03	3.51E+01	6.18E-01	6.08E-01	4.67E-14
Plutonium (94)	Pu-232	1.08E+04	6.41E-05	3.32E+00	2.43E-05	2.43E-05	2.74E-20



Resident Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Plutonium (94)	Pu-234	6.90E+02	1.00E-03	2.55E+00	1.25E-05	1.25E-05	2.23E-19
Plutonium (94)	Pu-235	1.44E+04	4.81E-05	1.05E+01	4.96E-06	4.96E-06	4.24E-21
Plutonium (94)	Pu-236	2.42E-01	2.86E+00	4.57E+00	1.65E-05	1.65E-05	8.45E-16
Plutonium (94)	Pu-237	5.60E+00	1.24E-01	1.30E+01	1.39E-05	1.39E-05	3.09E-17
Plutonium (94)	Pu-238	7.90E-03	8.77E+01	3.99E+00	6.58E-06	6.58E-06	1.04E-14
Plutonium (94)	Pu-239	2.87E-05	2.41E+04	1.18E+01	3.61E-06	3.61E-06	1.58E-12
Plutonium (94)	Pu-240	1.06E-04	6.56E+03	2.94E+00	7.33E-06	7.33E-06	8.73E-13
Plutonium (94)	Pu-241	4.83E-02	1.44E+01	1.36E+01	7.46E-06	7.46E-06	1.95E-15
Plutonium (94)	Pu-242	1.85E-06	3.75E+05	3.90E+00	6.23E-06	6.23E-06	4.28E-11
Plutonium (94)	Pu-243	1.22E+03	5.66E-04	8.64E+00	2.97E-06	2.97E-06	3.09E-20
Plutonium (94)	Pu-244	8.66E-09	8.00E+07	2.58E+00	4.85E-06	4.85E-06	7.16E-09
Plutonium (94)	Pu-245	5.78E+02	1.20E-03	6.89E+00	5.10E-06	5.10E-06	1.13E-19
Plutonium (94)	Pu-246	2.33E+01	2.97E-02	2.43E+00	4.50E-06	4.50E-06	2.49E-18
Radium (88)	Ra-219	2.19E+09	3.17E-10	4.27E+01	.	4.27E+01	2.24E-19
Radium (88)	Ra-220	1.22E+09	5.68E-10	1.60E+03	.	1.60E+03	1.51E-17
Radium (88)	Ra-221	7.81E+05	8.88E-07	2.10E+02	2.31E+01	2.08E+01	3.09E-16
Radium (88)	Ra-222	5.75E+05	1.20E-06	4.42E+02	1.49E-04	1.49E-04	3.01E-21
Radium (88)	Ra-223	2.21E+01	3.13E-02	2.35E+01	1.72E-04	1.72E-04	9.07E-17
Radium (88)	Ra-224	6.91E+01	1.00E-02	4.58E+00	4.29E-04	4.29E-04	7.29E-17
Radium (88)	Ra-225	1.70E+01	4.08E-02	3.23E+01	9.16E-05	9.16E-05	6.37E-17
Radium (88)	Ra-226	4.33E-04	1.60E+03	3.99E+00	7.62E-05	7.62E-05	2.09E-12
Radium (88)	Ra-227	8.63E+03	8.03E-05	1.29E+01	2.03E-05	2.03E-05	2.80E-20
Radium (88)	Ra-228	1.21E-01	5.75E+00	2.94E+00	2.51E-05	2.51E-05	2.49E-15
Radium (88)	Ra-230	3.92E+03	1.77E-04	2.93E+00	1.29E-05	1.29E-05	3.97E-20
Rubidium (37)	Rb-77	9.66E+04	7.17E-06	2.52E+00	1.51E+01	2.16E+00	9.02E-17
Rubidium (37)	Rb-78	2.06E+04	3.36E-05	1.62E+00	4.55E+01	1.56E+00	3.10E-16
Rubidium (37)	Rb-78m	6.35E+04	1.09E-05	1.92E+00	4.55E+02	1.91E+00	1.23E-16
Rubidium (37)	Rb-79	1.59E+04	4.36E-05	4.33E+00	4.72E+01	3.97E+00	1.03E-15
Rubidium (37)	Rb-80	6.54E+05	1.06E-06	5.97E+00	.	5.97E+00	3.82E-17
Rubidium (37)	Rb-81	1.33E+03	5.22E-04	1.19E+01	1.93E+01	7.35E+00	2.35E-14
Rubidium (37)	Rb-81m	1.19E+04	5.80E-05	1.17E+01	1.60E+01	6.76E+00	2.40E-15
Rubidium (37)	Rb-82	2.86E+05	2.42E-06	6.49E+00	.	6.49E+00	9.76E-17
Rubidium (37)	Rb-82m	9.38E+02	7.39E-04	2.47E+00	9.07E+00	1.94E+00	8.89E-15
Rubidium (37)	Rb-83	2.93E+00	2.36E-01	1.53E+01	1.03E+00	9.69E-01	1.44E-12
Rubidium (37)	Rb-84	7.72E+00	8.98E-02	8.00E+00	4.98E-01	4.69E-01	2.68E-13
Rubidium (37)	Rb-84m	1.80E+04	3.85E-05	5.69E+00	4.97E-01	4.57E-01	1.12E-16
Rubidium (37)	Rb-86	1.36E+01	5.11E-02	6.77E+01	3.06E-01	3.05E-01	1.01E-13
Rubidium (37)	Rb-86m	3.58E+05	1.93E-06	1.13E+01	3.06E-01	2.98E-01	3.76E-18
Rubidium (37)	Rb-87	1.41E-11	4.92E+10	9.26E+03	9.61E-02	9.61E-02	3.11E-02
Rubidium (37)	Rb-88	2.05E+04	3.38E-05	9.81E+00	4.85E+01	8.16E+00	1.84E-15



Resident Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Rubidium (37)	Rb-89	2.40E+04	2.88E-05	3.02E+00	1.82E-01	1.72E-01	3.34E-17
Rubidium (37)	Rb-90	1.38E+05	5.01E-06	3.03E+00	9.74E-03	9.71E-03	3.31E-19
Rubidium (37)	Rb-90m	8.47E+04	8.18E-06	1.98E+00	9.74E-03	9.69E-03	5.40E-19
Rhenium (75)	Re-178	2.76E+04	2.51E-05	3.80E+00	1.70E+00	1.18E+00	3.98E-16
Rhenium (75)	Re-179	1.87E+04	3.71E-05	6.40E+00	2.88E+00	1.99E+00	9.98E-16
Rhenium (75)	Re-180	1.49E+05	4.64E-06	6.07E+00	.	6.07E+00	3.84E-16
Rhenium (75)	Re-181	3.05E+02	2.27E-03	9.09E+00	2.53E+00	1.98E+00	6.15E-14
Rhenium (75)	Re-182	9.49E+01	7.31E-03	4.08E+00	1.09E+00	8.61E-01	8.66E-14
Rhenium (75)	Re-182m	4.78E+02	1.45E-03	5.91E+00	6.31E+00	3.05E+00	6.09E-14
Rhenium (75)	Re-183	3.61E+00	1.92E-01	5.98E+01	4.10E-01	4.07E-01	1.08E-12
Rhenium (75)	Re-184	6.66E+00	1.04E-01	8.28E+00	6.28E-01	5.84E-01	8.46E-13
Rhenium (75)	Re-184m	1.50E+00	4.63E-01	7.11E+00	1.23E-01	1.21E-01	7.79E-13
Rhenium (75)	Re-186	6.80E+01	1.02E-02	3.32E+02	3.87E-04	3.87E-04	5.54E-17
Rhenium (75)	Re-186m	3.47E-06	2.00E+05	2.33E+02	3.81E-04	3.81E-04	1.07E-09
Rhenium (75)	Re-187	1.68E-11	4.12E+10	.	3.79E+01	3.79E+01	2.21E+01
Rhenium (75)	Re-188	3.57E+02	1.94E-03	1.00E+02	2.42E+00	2.36E+00	6.52E-14
Rhenium (75)	Re-188m	1.96E+04	3.54E-05	5.95E+01	2.36E+00	2.27E+00	1.14E-15
Rhenium (75)	Re-189	2.50E+02	2.77E-03	1.30E+02	3.19E+00	3.11E+00	1.23E-13
Rhenium (75)	Re-190	1.17E+05	5.90E-06	5.47E+00	.	5.47E+00	4.64E-16
Rhenium (75)	Re-190m	1.90E+03	3.65E-04	4.80E+00	6.62E+00	2.78E+00	1.46E-14
Rhodium (45)	Rh-100	2.92E+02	2.37E-03	2.50E+00	3.89E+00	1.52E+00	2.74E-14
Rhodium (45)	Rh-100m	7.92E+04	8.75E-06	2.51E+00	3.96E+00	1.53E+00	1.02E-16
Rhodium (45)	Rh-101	2.10E-01	3.30E+00	2.82E+01	2.90E-01	2.87E-01	7.25E-12
Rhodium (45)	Rh-101m	5.83E+01	1.19E-02	2.57E+01	2.72E+00	2.46E+00	2.23E-13
Rhodium (45)	Rh-102	1.22E+00	5.67E-01	1.48E+01	2.02E-01	1.99E-01	8.70E-13
Rhodium (45)	Rh-102m	1.85E-01	3.74E+00	3.39E+00	7.57E-02	7.41E-02	2.14E-12
Rhodium (45)	Rh-103m	6.49E+03	1.07E-04	5.89E+04	5.21E+02	5.16E+02	4.30E-13
Rhodium (45)	Rh-104	5.17E+05	1.34E-06	2.36E+02	.	2.36E+02	2.49E-15
Rhodium (45)	Rh-104m	8.39E+04	8.26E-06	1.43E+02	.	1.43E+02	9.29E-15
Rhodium (45)	Rh-105	1.72E+02	4.04E-03	9.52E+01	4.02E+00	3.85E+00	1.24E-13
Rhodium (45)	Rh-106	7.33E+05	9.45E-07	3.09E+01	.	3.09E+01	2.34E-16
Rhodium (45)	Rh-106m	2.78E+03	2.49E-04	2.50E+00	1.22E+01	2.08E+00	4.15E-15
Rhodium (45)	Rh-107	1.68E+04	4.13E-05	2.34E+01	2.38E+00	2.16E+00	7.22E-16
Rhodium (45)	Rh-108	1.30E+06	5.33E-07	2.05E+01	.	2.05E+01	8.94E-17
Rhodium (45)	Rh-109	2.73E+05	2.54E-06	2.32E+01	3.67E+00	3.17E+00	6.63E-17
Rhodium (45)	Rh-94	3.10E+05	2.24E-06	1.12E+00	1.29E+01	1.03E+00	1.64E-17
Rhodium (45)	Rh-95	7.26E+04	9.55E-06	1.55E+00	7.40E+00	1.28E+00	8.79E-17
Rhodium (45)	Rh-95m	1.86E+05	3.73E-06	1.37E+00	7.40E+00	1.15E+00	3.09E-17
Rhodium (45)	Rh-96	3.68E+04	1.88E-05	1.83E+00	.	1.83E+00	2.50E-16
Rhodium (45)	Rh-96m	2.41E+05	2.87E-06	1.96E+00	.	1.96E+00	4.08E-17

Resident Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Rhodium (45)	Rh-97	1.19E+04	5.84E-05	4.35E+00	7.80E-01	6.62E-01	2.84E-16
Rhodium (45)	Rh-97m	7.88E+03	8.79E-05	2.76E+00	7.78E-01	6.07E-01	3.92E-16
Rhodium (45)	Rh-98	4.19E+04	1.66E-05	3.96E+00	.	3.96E+00	4.86E-16
Rhodium (45)	Rh-99	1.57E+01	4.41E-02	1.37E+01	1.14E+00	1.06E+00	3.49E-13
Rhodium (45)	Rh-99m	1.29E+03	5.37E-04	1.14E+01	3.29E+01	8.48E+00	3.41E-14
Radon (86)	Rn-207	3.94E+04	1.76E-05	1.26E+00	5.11E-02	4.91E-02	1.35E-17
Radon (86)	Rn-209	1.28E+04	5.42E-05	1.95E+00	1.99E-04	1.99E-04	1.70E-19
Radon (86)	Rn-210	2.53E+03	2.74E-04	1.67E+00	6.20E-03	6.18E-03	2.69E-17
Radon (86)	Rn-211	4.16E+02	1.67E-03	2.30E+00	1.37E-02	1.36E-02	3.62E-16
Radon (86)	Rn-212	1.52E+04	4.55E-05	1.72E+04	2.18E-04	2.18E-04	1.59E-19
Radon (86)	Rn-215	9.50E+12	7.29E-14	8.86E+02	.	8.86E+02	1.05E-21
Radon (86)	Rn-216	4.86E+11	1.43E-12	.	.	.	.
Radon (86)	Rn-217	4.05E+10	1.71E-11	3.25E+03	2.31E+01	2.30E+01	6.46E-21
Radon (86)	Rn-218	6.24E+08	1.11E-09	9.62E+02	1.49E-04	1.49E-04	2.72E-24
Radon (86)	Rn-219	5.52E+06	1.26E-07	3.97E+01	1.19E-01	1.18E-01	2.46E-19
Radon (86)	Rn-220	3.93E+05	1.76E-06	4.61E+00	1.32E-02	1.32E-02	3.88E-19
Radon (86)	Rn-222	6.62E+01	1.05E-02	4.00E+00	1.48E-04	1.48E-04	2.61E-17
Radon (86)	Rn-223	1.50E+04	4.62E-05	1.04E+01	1.71E-04	1.71E-04	1.34E-19
Ruthenium (44)	Ru-103	6.44E+00	1.08E-01	1.49E+01	5.12E-01	4.95E-01	4.15E-13
Ruthenium (44)	Ru-105	1.37E+03	5.07E-04	8.84E+00	2.55E+00	1.98E+00	7.96E-15
Ruthenium (44)	Ru-106	6.77E-01	1.02E+00	3.09E+01	2.23E-02	2.23E-02	1.83E-13
Ruthenium (44)	Ru-107	9.71E+04	7.13E-06	1.07E+01	2.38E+00	1.94E+00	1.12E-16
Ruthenium (44)	Ru-108	8.01E+04	8.66E-06	1.74E+01	.	1.74E+01	1.23E-15
Ruthenium (44)	Ru-92	9.98E+04	6.94E-06	1.21E+00	.	1.21E+00	5.84E-17
Ruthenium (44)	Ru-94	7.03E+03	9.86E-05	2.90E+00	1.29E+01	2.37E+00	1.66E-15
Ruthenium (44)	Ru-95	3.69E+03	1.88E-04	3.57E+00	7.40E+00	2.41E+00	3.25E-15
Ruthenium (44)	Ru-97	8.72E+01	7.95E-03	3.31E+01	7.91E-01	7.73E-01	4.51E-14
Sulfur (16)	S-35	2.89E+00	2.40E-01	1.08E+05	7.91E-01	7.91E-01	5.02E-13
Sulphur (16)	S-37	7.21E+04	9.61E-06	2.15E+00	.	2.15E+00	5.77E-17
Sulfur (16)	S-38	2.14E+03	3.24E-04	2.09E+00	3.94E+00	1.36E+00	1.27E-15
Antimony (51)	Sb-111	2.91E+05	2.38E-06	3.10E+00	5.34E+00	1.96E+00	3.92E-17
Antimony (51)	Sb-113	5.46E+04	1.27E-05	4.82E+00	3.69E-01	3.43E-01	3.72E-17
Antimony (51)	Sb-114	1.04E+05	6.64E-06	2.60E+00	.	2.60E+00	1.49E-16
Antimony (51)	Sb-115	1.13E+04	6.11E-05	8.39E+00	9.90E+01	7.73E+00	4.11E-15
Antimony (51)	Sb-116	2.31E+04	3.01E-05	3.06E+00	9.17E+01	2.96E+00	7.81E-16
Antimony (51)	Sb-116m	6.04E+03	1.15E-04	2.31E+00	2.86E+01	2.14E+00	2.15E-15
Antimony (51)	Sb-117	2.17E+03	3.20E-04	4.57E+01	7.72E+01	2.87E+01	8.13E-14
Antimony (51)	Sb-118	1.01E+05	6.85E-06	9.05E+00	.	9.05E+00	5.54E-16
Antimony (51)	Sb-118m	1.21E+03	5.71E-04	2.73E+00	1.08E+01	2.18E+00	1.11E-14
Antimony (51)	Sb-119	1.59E+02	4.36E-03	2.19E+03	3.38E+01	3.33E+01	1.31E-12

Resident Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Antimony (51)	Sb-120	2.29E+04	3.02E-05	1.65E+01	1.86E+02	1.52E+01	4.17E-15
Antimony (51)	Sb-120m	4.39E+01	1.58E-02	2.92E+00	1.27E+00	8.86E-01	1.27E-13
Antimony (51)	Sb-122	9.29E+01	7.46E-03	1.62E+01	1.22E+00	1.14E+00	7.83E-14
Antimony (51)	Sb-122m	8.69E+04	7.97E-06	1.49E+01	1.22E+00	1.13E+00	8.32E-17
Antimony (51)	Sb-124	4.20E+00	1.65E-01	3.76E+00	1.70E-01	1.63E-01	2.52E-13
Antimony (51)	Sb-124m	2.35E+05	2.95E-06	3.85E+00	2.27E-01	2.14E-01	5.93E-18
Antimony (51)	Sb-124n	1.80E+04	3.84E-05	3.85E+00	2.27E-01	2.14E-01	7.72E-17
Antimony (51)	Sb-125	2.51E-01	2.76E+00	1.73E+01	1.15E-01	1.14E-01	2.98E-12
Antimony (51)	Sb-126	2.05E+01	3.38E-02	2.64E+00	4.07E-01	3.52E-01	1.14E-13
Antimony (51)	Sb-126m	1.90E+04	3.64E-05	3.77E+00	2.78E+00	1.60E+00	5.56E-16
Antimony (51)	Sb-127	6.57E+01	1.05E-02	1.04E+01	3.84E-01	3.70E-01	3.75E-14
Antimony (51)	Sb-128	6.74E+02	1.03E-03	2.34E+00	3.06E+00	1.33E+00	1.32E-14
Antimony (51)	Sb-128m	3.50E+04	1.98E-05	3.58E+00	4.40E+01	3.31E+00	6.34E-16
Antimony (51)	Sb-129	1.38E+03	5.02E-04	4.61E+00	1.46E-02	1.46E-02	7.15E-17
Antimony (51)	Sb-130	9.22E+03	7.52E-05	2.19E+00	2.51E+01	2.01E+00	1.49E-15
Antimony (51)	Sb-130m	5.78E+04	1.20E-05	2.62E+00	.	2.62E+00	3.09E-16
Antimony (51)	Sb-131	1.58E+04	4.38E-05	2.38E+00	6.09E-02	5.94E-02	2.58E-17
Antimony (51)	Sb-133	1.46E+05	4.76E-06	1.46E+00	2.89E-01	2.41E-01	1.15E-17
Scandium (21)	Sc-42m	3.52E+05	1.97E-06	1.67E+00	.	1.67E+00	1.04E-17
Scandium (21)	Sc-43	1.56E+03	4.44E-04	7.49E+00	1.08E+01	4.43E+00	6.40E-15
Scandium (21)	Sc-44	1.53E+03	4.53E-04	3.35E+00	7.24E+00	2.29E+00	3.45E-15
Scandium (21)	Sc-44m	1.04E+02	6.69E-03	3.01E+00	8.63E-01	6.71E-01	1.49E-14
Scandium (21)	Sc-46	3.02E+00	2.30E-01	3.53E+00	2.16E-01	2.04E-01	1.63E-13
Scandium (21)	Sc-47	7.55E+01	9.18E-03	7.03E+01	1.99E+00	1.93E+00	6.31E-14
Scandium (21)	Sc-48	1.39E+02	4.99E-03	2.09E+00	1.24E+00	7.79E-01	1.41E-14
Scandium (21)	Sc-49	6.37E+03	1.09E-04	4.63E+02	3.46E+01	3.22E+01	1.30E-14
Scandium (21)	Sc-50	2.13E+05	3.25E-06	2.15E+00	.	2.15E+00	2.64E-17
Selenium (34)	Se-70	8.86E+03	7.82E-05	1.43E+00	9.63E+00	1.24E+00	5.15E-16
Selenium (34)	Se-71	7.68E+04	9.02E-06	3.32E+00	3.56E+00	1.72E+00	8.33E-17
Selenium (34)	Se-72	3.01E+01	2.30E-02	4.00E+00	3.05E-01	2.83E-01	3.55E-14
Selenium (34)	Se-73	8.49E+02	8.16E-04	6.85E+00	9.11E-01	8.04E-01	3.63E-15
Selenium (34)	Se-73m	9.15E+03	7.57E-05	7.05E+00	9.33E-01	8.24E-01	3.45E-16
Selenium (34)	Se-75	2.11E+00	3.28E-01	1.99E+01	1.11E+00	1.05E+00	1.95E-12
Selenium (34)	Se-77m	1.26E+06	5.50E-07	8.93E+01	.	8.93E+01	2.86E-16
Selenium (34)	Se-79	2.35E-06	2.95E+05	1.08E+05	2.38E-01	2.38E-01	4.20E-07
Selenium (34)	Se-79m	9.29E+04	7.46E-06	9.10E+02	2.38E-01	2.38E-01	1.06E-17
Selenium (34)	Se-81	1.97E+04	3.51E-05	4.05E+02	9.38E+01	7.62E+01	1.64E-14
Selenium (34)	Se-81m	6.36E+03	1.09E-04	2.41E+02	2.11E+01	1.94E+01	1.29E-14
Selenium (34)	Se-83	1.63E+04	4.24E-05	2.65E+00	1.61E+01	2.28E+00	6.07E-16
Selenium (34)	Se-83m	3.12E+05	2.22E-06	6.84E+00	2.67E+01	5.45E+00	7.60E-17



Resident Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Selenium (34)	Se-84	1.17E+05	5.90E-06	3.07E+00	3.49E+01	2.82E+00	1.06E-16
Silicon (14)	Si-31	2.32E+03	2.99E-04	6.84E+02	1.74E+01	1.69E+01	1.19E-14
Silicon (14)	Si-32	5.25E-03	1.32E+02	6.05E+02	1.34E-02	1.34E-02	4.29E-12
Samarium (62)	Sm-139	1.42E+05	4.89E-06	2.36E+00	7.45E-01	5.66E-01	2.91E-17
Samarium (62)	Sm-140	2.46E+04	2.82E-05	3.32E+00	1.18E+00	8.70E-01	2.60E-16
Samarium (62)	Sm-141	3.57E+04	1.94E-05	3.28E+00	3.78E+01	3.01E+00	6.24E-16
Samarium (62)	Sm-141m	1.61E+04	4.30E-05	2.63E+00	2.58E+01	2.39E+00	1.10E-15
Samarium (62)	Sm-142	5.02E+03	1.38E-04	7.57E+00	1.82E+01	5.34E+00	7.92E-15
Samarium (62)	Sm-143	4.16E+04	1.66E-05	8.91E+00	4.94E-01	4.68E-01	8.43E-17
Samarium (62)	Sm-143m	3.31E+05	2.09E-06	4.85E+00	4.94E-01	4.48E-01	1.01E-17
Samarium (62)	Sm-145	7.44E-01	9.32E-01	1.86E+02	1.35E-01	1.35E-01	1.38E-12
Samarium (62)	Sm-146	6.73E-09	1.03E+08	.	6.05E-05	6.05E-05	6.88E-08
Samarium (62)	Sm-147	6.54E-12	1.06E+11	.	6.62E-05	6.62E-05	7.80E-05
Samarium (62)	Sm-148	9.90E-17	7.00E+15	.	3.93E-05	3.93E-05	3.08E+00
Samarium (62)	Sm-151	7.70E-03	9.00E+01	1.25E+07	1.64E-01	1.64E-01	1.69E-10
Samarium (62)	Sm-153	1.31E+02	5.31E-03	1.56E+02	2.04E+00	2.02E+00	1.24E-13
Samarium (62)	Sm-155	1.63E+04	4.24E-05	5.01E+01	2.47E-01	2.46E-01	1.22E-16
Samarium (62)	Sm-156	6.46E+02	1.07E-03	5.15E+00	3.44E-01	3.23E-01	4.09E-15
Samarium (62)	Sm-157	4.54E+04	1.53E-05	1.05E+01	4.25E+00	3.03E+00	5.49E-16
Tin (50)	Sn-106	1.90E+05	3.65E-06	1.75E+00	.	1.75E+00	5.12E-17
Tin (50)	Sn-108	3.54E+04	1.96E-05	2.01E+00	2.72E+01	1.87E+00	2.99E-16
Tin (50)	Sn-109	2.02E+04	3.42E-05	2.33E+00	2.32E-01	2.11E-01	5.96E-17
Tin (50)	Sn-110	1.48E+03	4.69E-04	3.90E+00	6.11E+00	2.38E+00	9.30E-15
Tin (50)	Sn-111	1.03E+04	6.72E-05	8.46E+00	5.34E+00	3.27E+00	1.85E-15
Tin (50)	Sn-113	2.20E+00	3.15E-01	2.84E+01	3.62E-01	3.57E-01	9.63E-13
Tin (50)	Sn-113m	1.70E+04	4.07E-05	3.09E+01	3.96E-01	3.91E-01	1.36E-16
Tin (50)	Sn-117m	1.84E+01	3.77E-02	5.39E+01	5.21E-01	5.16E-01	1.72E-13
Tin (50)	Sn-119m	8.63E-01	8.03E-01	3.58E+03	4.26E-01	4.26E-01	3.08E-12
Tin (50)	Sn-121	2.25E+02	3.09E-03	8.30E+03	5.68E+00	5.68E+00	1.60E-13
Tin (50)	Sn-121m	1.58E-02	4.39E+01	3.93E+03	1.00E-01	1.00E-01	4.03E-11
Tin (50)	Sn-123	1.96E+00	3.54E-01	4.71E+02	1.14E-01	1.14E-01	3.74E-13
Tin (50)	Sn-123m	9.09E+03	7.62E-05	5.32E+01	4.85E+01	2.54E+01	1.80E-14
Tin (50)	Sn-125	2.62E+01	2.64E-02	9.31E+00	8.96E-02	8.88E-02	2.22E-14
Tin (50)	Sn-125m	3.83E+04	1.81E-05	9.42E+00	1.15E-01	1.14E-01	1.95E-17
Tin (50)	Sn-126	3.01E-06	2.30E+05	3.69E+00	9.69E-03	9.66E-03	2.12E-08
Tin (50)	Sn-127	2.89E+03	2.40E-04	2.71E+00	3.69E-01	3.25E-01	7.49E-16
Tin (50)	Sn-127m	8.82E+04	7.86E-06	5.65E+00	3.84E-01	3.59E-01	2.71E-17
Tin (50)	Sn-128	6.17E+03	1.12E-04	2.81E+00	1.07E+01	2.23E+00	2.42E-15
Tin (50)	Sn-129	1.63E+05	4.24E-06	2.77E+00	1.46E-02	1.46E-02	6.03E-19
Tin (50)	Sn-130	9.79E+04	7.08E-06	1.97E+00	.	1.97E+00	1.37E-16



Resident Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Tin (50)	Sn-130m	2.14E+05	3.23E-06	1.74E+00	2.91E+01	1.65E+00	5.24E-17
Strontium (38)	Sr-79	1.62E+05	4.28E-06	2.54E+00	4.72E+01	2.41E+00	6.16E-17
Strontium (38)	Sr-80	3.43E+03	2.02E-04	4.43E+00	8.45E+00	2.91E+00	3.56E-15
Strontium (38)	Sr-81	1.63E+04	4.24E-05	3.65E+00	1.32E+01	2.86E+00	7.44E-16
Strontium (38)	Sr-82	9.97E+00	6.95E-02	6.49E+00	1.32E-01	1.30E-01	5.59E-14
Strontium (38)	Sr-83	1.87E+02	3.70E-03	5.64E+00	8.12E-01	7.10E-01	1.65E-14
Strontium (38)	Sr-85	3.90E+00	1.78E-01	1.51E+01	1.75E+00	1.57E+00	1.79E-12
Strontium (38)	Sr-85m	5.39E+03	1.29E-04	1.16E+01	2.01E+00	1.71E+00	1.42E-15
Strontium (38)	Sr-87m	2.16E+03	3.21E-04	2.34E+01	2.13E+01	1.12E+01	2.36E-14
Strontium (38)	Sr-89	5.01E+00	1.38E-01	7.53E+02	1.83E-01	1.83E-01	1.70E-13
Strontium (38)	Sr-90	2.41E-02	2.88E+01	3.72E+02	9.74E-03	9.74E-03	1.91E-12
Strontium (38)	Sr-91	6.30E+02	1.10E-03	6.95E+00	1.55E-01	1.52E-01	1.15E-15
Strontium (38)	Sr-92	2.28E+03	3.04E-04	4.28E+00	3.33E+00	1.87E+00	3.96E-15
Strontium (38)	Sr-93	4.91E+04	1.41E-05	2.93E+00	6.57E-02	6.43E-02	6.39E-18
Strontium (38)	Sr-94	2.90E+05	2.39E-06	3.08E+00	4.91E+01	2.90E+00	4.92E-17
Tantalum (73)	Ta-170	5.39E+04	1.29E-05	1.72E+00	1.47E+00	7.93E-01	1.31E-16
Tantalum (73)	Ta-172	9.90E+03	7.00E-05	1.93E+00	5.56E-02	5.40E-02	4.92E-17
Tantalum (73)	Ta-173	1.93E+03	3.58E-04	6.85E+00	3.82E-01	3.62E-01	1.70E-15
Tantalum (73)	Ta-174	5.33E+03	1.30E-04	7.41E+00	3.05E-04	3.05E-04	5.22E-19
Tantalum (73)	Ta-175	5.78E+02	1.20E-03	5.04E+00	9.34E-01	7.88E-01	1.25E-14
Tantalum (73)	Ta-176	7.50E+02	9.24E-04	3.09E+00	6.70E+00	2.11E+00	2.60E-14
Tantalum (73)	Ta-177	1.07E+02	6.46E-03	1.52E+02	1.32E+01	1.22E+01	1.05E-12
Tantalum (73)	Ta-178	3.91E+04	1.77E-05	7.00E+01	.	7.00E+01	1.67E-14
Tantalum (73)	Ta-178m	2.57E+03	2.69E-04	6.73E+00	1.80E+01	4.90E+00	1.78E-14
Tantalum (73)	Ta-179	3.81E-01	1.82E+00	4.75E+02	2.96E+00	2.94E+00	7.24E-11
Tantalum (73)	Ta-180	7.45E+02	9.31E-04	2.33E+02	3.20E+01	2.81E+01	3.56E-13
Tantalum (73)	Ta-182	2.21E+00	3.14E-01	5.53E+00	1.42E-01	1.38E-01	5.96E-13
Tantalum (73)	Ta-182m	2.30E+04	3.01E-05	4.70E+00	1.41E-01	1.37E-01	5.69E-17
Tantalum (73)	Ta-183	4.96E+01	1.40E-02	2.75E+01	6.46E-01	6.31E-01	1.22E-13
Tantalum (73)	Ta-184	6.98E+02	9.93E-04	4.67E+00	3.17E+00	1.89E+00	2.61E-14
Tantalum (73)	Ta-185	7.37E+03	9.40E-05	4.90E+01	3.76E-01	3.73E-01	4.90E-16
Tantalum (73)	Ta-186	3.47E+04	2.00E-05	5.14E+00	7.54E+01	4.81E+00	1.35E-15
Terbium (65)	Tb-146	9.50E+05	7.29E-07	1.13E+00	6.04E-05	6.04E-05	4.87E-22
Terbium (65)	Tb-147	3.70E+03	1.87E-04	1.78E+00	6.62E-05	6.61E-05	1.38E-19
Terbium (65)	Tb-147m	1.95E+05	3.56E-06	1.90E+00	6.62E-05	6.61E-05	2.62E-21
Terbium (65)	Tb-148	6.07E+03	1.14E-04	2.98E+00	2.43E-04	2.43E-04	3.11E-19
Terbium (65)	Tb-148m	1.66E+05	4.19E-06	2.33E+00	2.43E-04	2.43E-04	1.14E-20
Terbium (65)	Tb-149	1.47E+03	4.70E-04	3.54E+00	1.96E-01	1.86E-01	9.84E-16
Terbium (65)	Tb-149m	8.76E+04	7.91E-06	3.82E+00	1.05E+00	8.22E-01	7.34E-17
Terbium (65)	Tb-150	1.74E+03	3.97E-04	2.82E+00	4.99E-05	4.99E-05	2.25E-19

Resident Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Half-life (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Terbium (65)	Tb-150m	6.28E+04	1.10E-05	2.95E+00	4.99E-05	4.99E-05	6.24E-21
Terbium (65)	Tb-151	3.45E+02	2.01E-03	7.25E+00	4.11E-01	3.89E-01	8.94E-15
Terbium (65)	Tb-151m	8.74E+05	7.93E-07	7.20E+00	4.30E-01	4.06E-01	3.68E-18
Terbium (65)	Tb-152	3.47E+02	2.00E-03	4.73E+00	2.64E-05	2.64E-05	6.06E-19
Terbium (65)	Tb-152m	8.67E+04	7.99E-06	3.76E+00	2.64E-05	2.64E-05	2.42E-21
Terbium (65)	Tb-153	1.08E+02	6.41E-03	1.99E+01	5.54E-01	5.39E-01	4.00E-14
Terbium (65)	Tb-154	2.82E+02	2.45E-03	2.98E+00	3.75E+00	1.66E+00	4.75E-14
Terbium (65)	Tb-155	4.75E+01	1.46E-02	5.25E+01	4.61E+00	4.24E+00	7.25E-13
Terbium (65)	Tb-156	4.73E+01	1.47E-02	3.73E+00	1.12E+00	8.62E-01	1.49E-13
Terbium (65)	Tb-156m	2.49E+02	2.79E-03	3.69E+00	9.65E-01	7.65E-01	2.51E-14
Terbium (65)	Tb-156n	1.15E+03	6.05E-04	3.72E+00	1.03E+00	8.06E-01	5.76E-15
Terbium (65)	Tb-157	9.76E-03	7.10E+01	3.36E+03	4.72E-01	4.72E-01	3.98E-10
Terbium (65)	Tb-158	3.85E-03	1.80E+02	9.15E+00	1.47E-02	1.47E-02	3.15E-11
Terbium (65)	Tb-160	3.50E+00	1.98E-01	6.36E+00	1.76E-01	1.71E-01	4.11E-13
Terbium (65)	Tb-161	3.66E+01	1.89E-02	3.62E+02	1.02E+00	1.01E+00	2.33E-13
Terbium (65)	Tb-162	4.79E+04	1.45E-05	6.56E+00	.	6.56E+00	1.16E-15
Terbium (65)	Tb-163	1.87E+04	3.71E-05	9.41E+00	7.95E+01	8.42E+00	3.85E-15
Terbium (65)	Tb-164	1.21E+05	5.71E-06	2.90E+00	.	2.90E+00	2.05E-16
Terbium (65)	Tb-165	1.73E+05	4.01E-06	7.80E+00	2.19E+01	5.75E+00	2.88E-16
Technetium (43)	Tc-101	2.57E+04	2.70E-05	2.17E+01	1.12E+02	1.82E+01	3.76E-15
Technetium (43)	Tc-102	4.14E+06	1.67E-07	5.65E+01	.	5.65E+01	7.30E-17
Technetium (43)	Tc-102m	8.37E+04	8.28E-06	2.80E+00	.	2.80E+00	1.79E-16
Technetium (43)	Tc-104	1.99E+04	3.48E-05	3.00E+00	4.55E+01	2.82E+00	7.72E-16
Technetium (43)	Tc-105	4.79E+04	1.45E-05	4.40E+00	2.55E+00	1.61E+00	1.85E-16
Technetium (43)	Tc-91	1.16E+05	5.97E-06	2.00E+00	8.02E-01	5.72E-01	2.36E-17
Technetium (43)	Tc-91m	1.10E+05	6.28E-06	2.16E+00	3.85E-01	3.27E-01	1.41E-17
Technetium (43)	Tc-92	8.57E+04	8.09E-06	1.85E+00	.	1.85E+00	1.04E-16
Technetium (43)	Tc-93	2.21E+03	3.14E-04	4.43E+00	3.79E-01	3.49E-01	7.72E-16
Technetium (43)	Tc-93m	8.37E+03	8.28E-05	3.18E+00	3.78E-01	3.38E-01	1.97E-16
Technetium (43)	Tc-94	1.24E+03	5.57E-04	2.73E+00	1.03E+01	2.16E+00	8.57E-15
Technetium (43)	Tc-94m	7.00E+03	9.89E-05	3.63E+00	2.88E+01	3.22E+00	2.27E-15
Technetium (43)	Tc-95	3.04E+02	2.28E-03	9.21E+00	1.21E+01	5.23E+00	8.59E-14
Technetium (43)	Tc-95m	4.15E+00	1.67E-01	1.03E+01	1.18E+00	1.06E+00	1.27E-12
Technetium (43)	Tc-96	5.91E+01	1.17E-02	2.90E+00	1.90E+00	1.15E+00	9.78E-14
Technetium (43)	Tc-96m	7.07E+03	9.80E-05	2.91E+00	1.92E+00	1.16E+00	8.23E-16
Technetium (43)	Tc-97	2.67E-07	2.60E+06	1.50E+04	8.50E-01	8.50E-01	1.62E-05
Technetium (43)	Tc-97m	2.81E+00	2.47E-01	5.61E+03	2.50E-01	2.50E-01	4.53E-13
Technetium (43)	Tc-98	1.65E-07	4.20E+06	5.16E+00	3.61E-02	3.59E-02	1.12E-06
Technetium (43)	Tc-99	3.28E-06	2.11E+05	1.15E+04	1.14E-01	1.14E-01	1.80E-07
Technetium (43)	Tc-99m	1.01E+03	6.87E-04	6.24E+01	1.13E-01	1.13E-01	5.83E-16

Resident Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Tellurium (52)	Te-113	2.14E+05	3.23E-06	1.90E+00	3.69E-01	3.09E-01	8.55E-18
Tellurium (52)	Te-114	2.40E+04	2.89E-05	1.77E+00	4.23E+01	1.70E+00	4.25E-16
Tellurium (52)	Te-115	6.28E+04	1.10E-05	2.29E+00	9.90E+01	2.24E+00	2.15E-16
Tellurium (52)	Te-115m	5.44E+04	1.27E-05	2.05E+00	9.90E+01	2.01E+00	2.23E-16
Tellurium (52)	Te-116	2.44E+03	2.84E-04	2.96E+00	9.63E+00	2.26E+00	5.65E-15
Tellurium (52)	Te-117	5.87E+03	1.18E-04	4.14E+00	2.96E+01	3.64E+00	3.80E-15
Tellurium (52)	Te-118	4.22E+01	1.64E-02	9.02E+00	5.47E-01	5.16E-01	7.57E-14
Tellurium (52)	Te-119	3.78E+02	1.83E-03	9.59E+00	8.98E+00	4.64E+00	7.65E-14
Tellurium (52)	Te-119m	5.38E+01	1.29E-02	4.73E+00	2.07E+00	1.44E+00	1.67E-13
Tellurium (52)	Te-121	1.32E+01	5.25E-02	1.32E+01	2.47E+00	2.08E+00	1.00E-12
Tellurium (52)	Te-121m	1.64E+00	4.22E-01	1.06E+01	2.33E-01	2.28E-01	8.81E-13
Tellurium (52)	Te-123	1.16E-15	6.00E+14	1.26E+06	4.11E-01	4.11E-01	2.29E+03
Tellurium (52)	Te-123m	2.12E+00	3.27E-01	5.69E+01	1.70E-01	1.70E-01	5.16E-13
Tellurium (52)	Te-125m	4.41E+00	1.57E-01	9.84E+02	3.58E-01	3.58E-01	5.32E-13
Tellurium (52)	Te-127	6.49E+02	1.07E-03	9.86E+02	9.72E+00	9.63E+00	9.88E-14
Tellurium (52)	Te-127m	2.32E+00	2.99E-01	7.53E+02	1.47E-01	1.47E-01	4.23E-13
Tellurium (52)	Te-129	5.23E+03	1.32E-04	1.01E+02	1.49E-02	1.49E-02	1.93E-17
Tellurium (52)	Te-129m	7.53E+00	9.21E-02	8.84E+01	1.38E-02	1.38E-02	1.24E-14
Tellurium (52)	Te-131	1.46E+04	4.76E-05	9.13E+00	6.16E-02	6.12E-02	2.89E-17
Tellurium (52)	Te-131m	2.02E+02	3.42E-03	3.75E+00	5.52E-02	5.44E-02	1.85E-15
Tellurium (52)	Te-132	7.89E+01	8.78E-03	2.92E+00	2.31E-01	2.14E-01	1.87E-14
Tellurium (52)	Te-133	2.91E+04	2.38E-05	3.85E+00	2.91E-01	2.70E-01	6.47E-17
Tellurium (52)	Te-133m	6.57E+03	1.05E-04	2.63E+00	2.80E-01	2.53E-01	2.68E-16
Tellurium (52)	Te-134	8.71E+03	7.95E-05	2.07E+00	6.23E+00	1.55E+00	1.25E-15
Thorium (90)	Th-223	3.64E+07	1.90E-08	3.14E+01	.	3.14E+01	1.01E-17
Thorium (90)	Th-224	2.08E+07	3.33E-08	2.80E+02	.	2.80E+02	1.58E-16
Thorium (90)	Th-226	1.19E+04	5.82E-05	3.09E+02	1.48E-04	1.48E-04	1.47E-19
Thorium (90)	Th-227	1.35E+01	5.12E-02	1.71E+01	7.83E-05	7.83E-05	6.89E-17
Thorium (90)	Th-228	3.63E-01	1.91E+00	4.58E+00	3.42E-05	3.42E-05	1.13E-15
Thorium (90)	Th-229	9.44E-05	7.34E+03	2.44E+01	1.73E-05	1.73E-05	2.20E-12
Thorium (90)	Th-230	9.19E-06	7.54E+04	3.99E+00	1.29E-05	1.29E-05	1.69E-11
Thorium (90)	Th-231	2.38E+02	2.91E-03	1.56E+01	5.10E-06	5.10E-06	2.60E-19
Thorium (90)	Th-232	4.93E-11	1.41E+10	2.94E+00	1.79E-05	1.79E-05	4.43E-06
Thorium (90)	Th-233	1.63E+04	4.24E-05	1.34E+01	1.56E-05	1.56E-05	1.17E-20
Thorium (90)	Th-234	1.05E+01	6.60E-02	3.90E+00	1.19E-05	1.19E-05	1.40E-17
Thorium (90)	Th-235	5.13E+04	1.35E-05	1.06E+01	4.96E-06	4.96E-06	1.19E-21
Thorium (90)	Th-236	9.71E+03	7.13E-05	2.10E+00	1.62E-05	1.62E-05	2.07E-20
Titanium (22)	Ti-44	1.16E-02	6.00E+01	3.19E+00	1.21E-02	1.21E-02	2.41E-12
Titanium (22)	Ti-45	1.97E+03	3.52E-04	8.47E+00	1.45E+01	5.35E+00	6.41E-15
Titanium (22)	Ti-51	6.32E+04	1.10E-05	1.93E+01	.	1.93E+01	8.17E-16

Resident Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Titanium (22)	Ti-52	2.14E+05	3.23E-06	4.33E+00	.	4.33E+00	5.52E-17
Thallium (81)	Tl-190	1.40E+05	4.95E-06	1.80E+00	1.60E-04	1.60E-04	1.14E-20
Thallium (81)	Tl-190m	9.84E+04	7.04E-06	1.41E+00	1.60E-04	1.60E-04	1.62E-20
Thallium (81)	Tl-194	1.10E+04	6.28E-05	3.71E+00	6.48E-02	6.37E-02	5.87E-17
Thallium (81)	Tl-194m	1.11E+04	6.24E-05	2.05E+00	6.48E-02	6.28E-02	5.75E-17
Thallium (81)	Tl-195	5.23E+03	1.32E-04	4.84E+00	4.38E-01	4.01E-01	7.84E-16
Thallium (81)	Tl-196	3.30E+03	2.10E-04	3.76E+00	3.43E+01	3.39E+00	1.05E-14
Thallium (81)	Tl-197	2.14E+03	3.24E-04	1.46E+01	3.16E-01	3.10E-01	1.50E-15
Thallium (81)	Tl-198	1.15E+03	6.05E-04	3.48E+00	1.77E+01	2.91E+00	2.64E-14
Thallium (81)	Tl-198m	3.25E+03	2.13E-04	3.40E+00	1.31E+01	2.70E+00	8.63E-15
Thallium (81)	Tl-199	8.18E+02	8.47E-04	3.21E+01	2.78E+01	1.49E+01	1.90E-13
Thallium (81)	Tl-200	2.33E+02	2.98E-03	5.53E+00	7.54E+00	3.19E+00	1.44E-13
Thallium (81)	Tl-201	8.33E+01	8.32E-03	1.01E+02	7.34E+00	6.84E+00	8.66E-13
Thallium (81)	Tl-202	2.07E+01	3.35E-02	1.66E+01	3.52E+00	2.90E+00	1.49E-12
Thallium (81)	Tl-204	1.83E-01	3.78E+00	1.89E+03	7.87E-02	7.87E-02	4.59E-12
Thallium (81)	Tl-206	8.67E+04	7.99E-06	8.32E+02	.	8.32E+02	1.04E-13
Thallium (81)	Tl-206m	9.74E+04	7.12E-06	3.02E+00	.	3.02E+00	3.35E-16
Thallium (81)	Tl-207	7.64E+04	9.08E-06	7.17E+02	.	7.17E+02	1.02E-13
Thallium (81)	Tl-208	1.19E+05	5.81E-06	1.97E+00	.	1.97E+00	1.80E-16
Thallium (81)	Tl-209	1.69E+05	4.11E-06	3.24E+00	2.31E+01	2.84E+00	1.85E-16
Thallium (81)	Tl-210	2.80E+05	2.47E-06	2.50E+00	1.49E-04	1.49E-04	5.84E-21
Thulium (69)	Tm-161	1.21E+04	5.75E-05	3.15E+00	1.55E+01	2.62E+00	1.83E-15
Thulium (69)	Tm-162	1.68E+04	4.13E-05	3.62E+00	6.73E+01	3.43E+00	1.74E-15
Thulium (69)	Tm-163	3.35E+03	2.07E-04	5.39E+00	4.91E+00	2.57E+00	6.55E-15
Thulium (69)	Tm-164	1.82E+05	3.81E-06	9.26E+00	.	9.26E+00	4.37E-16
Thulium (69)	Tm-165	2.02E+02	3.43E-03	1.33E+01	5.68E+00	3.98E+00	1.70E-13
Thulium (69)	Tm-166	7.88E+02	8.79E-04	3.55E+00	7.40E+00	2.40E+00	2.65E-14
Thulium (69)	Tm-167	2.73E+01	2.53E-02	6.02E+01	1.10E+00	1.08E+00	3.45E-13
Thulium (69)	Tm-168	2.72E+00	2.55E-01	6.00E+00	2.88E-01	2.75E-01	8.92E-13
Thulium (69)	Tm-170	1.97E+00	3.52E-01	1.02E+03	1.60E-01	1.60E-01	7.24E-13
Thulium (69)	Tm-171	3.61E-01	1.92E+00	1.94E+04	1.16E+00	1.16E+00	2.89E-11
Thulium (69)	Tm-172	9.55E+01	7.26E-03	1.44E+01	1.14E+00	1.05E+00	9.96E-14
Thulium (69)	Tm-173	7.37E+02	9.41E-04	1.92E+01	7.17E+00	5.22E+00	6.43E-14
Thulium (69)	Tm-174	6.75E+04	1.03E-05	4.11E+00	.	4.11E+00	5.55E-16
Thulium (69)	Tm-175	2.40E+04	2.89E-05	6.44E+00	1.94E+00	1.49E+00	5.70E-16
Thulium (69)	Tm-176	1.97E+05	3.52E-06	3.52E+00	.	3.52E+00	1.65E-16
Uranium (92)	U-227	3.31E+05	2.09E-06	2.15E+01	.	2.15E+01	7.73E-16
Uranium (92)	U-228	4.00E+04	1.73E-05	2.52E+02	.	2.52E+02	7.53E-14
Uranium (92)	U-230	1.22E+01	5.70E-02	2.97E+02	5.66E-05	5.66E-05	5.61E-17
Uranium (92)	U-231	6.02E+01	1.15E-02	1.42E+01	5.10E-06	5.10E-06	1.03E-18



Resident Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Uranium (92)	U-232	1.01E-02	6.89E+01	4.57E+00	1.87E-05	1.87E-05	2.27E-14
Uranium (92)	U-233	4.35E-06	1.59E+05	2.43E+01	1.56E-05	1.56E-05	4.38E-11
Uranium (92)	U-234	2.82E-06	2.46E+05	3.99E+00	1.19E-05	1.19E-05	5.19E-11
Uranium (92)	U-235	9.84E-10	7.04E+08	1.18E+01	4.96E-06	4.96E-06	6.21E-08
Uranium (92)	U-235m	1.40E+04	4.95E-05	1.18E+01	4.96E-06	4.96E-06	4.36E-21
Uranium (92)	U-236	2.96E-08	2.34E+07	2.94E+00	1.62E-05	1.62E-05	6.80E-09
Uranium (92)	U-237	3.75E+01	1.85E-02	1.14E+01	1.39E-05	1.39E-05	4.61E-18
Uranium (92)	U-238	1.55E-10	4.47E+09	3.90E+00	1.12E-05	1.12E-05	9.02E-07
Uranium (92)	U-239	1.55E+04	4.46E-05	8.82E+00	3.61E-06	3.61E-06	2.92E-21
Uranium (92)	U-240	4.31E+02	1.61E-03	2.59E+00	7.33E-06	7.33E-06	2.14E-19
Uranium (92)	U-242	2.17E+04	3.20E-05	3.30E+00	6.23E-06	6.23E-06	3.65E-21
Vanadium (23)	V-47	1.12E+04	6.20E-05	7.34E+00	4.41E+01	6.30E+00	1.39E-15
Vanadium (23)	V-48	1.58E+01	4.38E-02	2.43E+00	5.22E-01	4.30E-01	6.83E-14
Vanadium (23)	V-49	7.67E-01	9.04E-01	.	2.03E+01	2.03E+01	6.79E-11
Vanadium (23)	V-50	4.62E-18	1.50E+17	4.81E+00	2.41E-02	2.40E-02	1.36E+04
Vanadium (23)	V-52	9.73E+04	7.12E-06	4.69E+00	.	4.69E+00	1.31E-16
Vanadium (23)	V-53	2.26E+05	3.06E-06	6.70E+00	.	6.70E+00	8.24E-17
Tungsten (74)	W-177	2.76E+03	2.51E-04	7.86E+00	9.27E+00	4.25E+00	1.43E-14
Tungsten (74)	W-178	1.17E+01	5.92E-02	6.41E+01	1.74E+00	1.69E+00	1.35E-12
Tungsten (74)	W-179	9.83E+03	7.05E-05	1.54E+02	2.95E+00	2.89E+00	2.76E-15
Tungsten (74)	W-179m	5.69E+04	1.22E-05	8.00E+01	2.95E+00	2.84E+00	4.69E-16
Tungsten (74)	W-181	2.09E+00	3.32E-01	2.87E+02	4.97E+00	4.88E+00	2.22E-11
Tungsten (74)	W-185	3.37E+00	2.06E-01	6.66E+03	3.81E-01	3.81E-01	1.10E-12
Tungsten (74)	W-185m	2.28E+05	3.04E-06	3.36E+02	3.81E-01	3.80E-01	1.62E-17
Tungsten (74)	W-187	2.56E+02	2.71E-03	1.65E+01	3.07E+00	2.59E+00	9.92E-14
Tungsten (74)	W-188	3.62E+00	1.91E-01	9.72E+01	9.03E-02	9.03E-02	2.45E-13
Tungsten (74)	W-190	1.21E+04	5.71E-05	5.00E+00	1.89E+01	3.95E+00	3.24E-15
Xenon (54)	Xe-120	9.11E+03	7.61E-05	2.29E+00	4.98E+00	1.57E+00	1.08E-15
Xenon (54)	Xe-121	9.08E+03	7.63E-05	2.96E+00	2.10E+00	1.23E+00	8.60E-16
Xenon (54)	Xe-122	3.02E+02	2.29E-03	7.17E+00	.	7.17E+00	1.52E-13
Xenon (54)	Xe-123	2.92E+03	2.37E-04	9.43E+00	3.83E-01	3.68E-01	8.13E-16
Xenon (54)	Xe-125	3.59E+02	1.93E-03	2.96E+01	9.78E-02	9.75E-02	1.78E-15
Xenon (54)	Xe-127	6.95E+00	9.97E-02	2.92E+01	.	2.92E+01	2.80E-11
Xenon (54)	Xe-127m	3.16E+05	2.19E-06	1.85E+01	.	1.85E+01	3.90E-16
Xenon (54)	Xe-129m	2.85E+01	2.43E-02	3.60E+02	.	3.60E+02	8.55E-11
Xenon (54)	Xe-131m	2.14E+01	3.24E-02	9.26E+02	.	9.26E+02	2.98E-10
Xenon (54)	Xe-133	4.82E+01	1.44E-02	2.41E+02	.	2.41E+02	3.49E-11
Xenon (54)	Xe-133m	1.16E+02	6.00E-03	1.24E+02	.	1.24E+02	7.50E-12
Xenon (54)	Xe-135	6.64E+02	1.04E-03	3.00E+01	1.29E-01	1.29E-01	1.37E-15
Xenon (54)	Xe-135m	2.38E+04	2.91E-05	1.11E+01	1.29E-01	1.28E-01	3.79E-17

Resident Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Xenon (54)	Xe-137	9.54E+04	7.26E-06	9.21E+00	3.87E-02	3.85E-02	2.90E-18
Xenon (54)	Xe-138	2.59E+04	2.68E-05	1.95E+00	2.99E+01	1.83E+00	5.11E-16
Yttrium (39)	Y-81	3.10E+05	2.23E-06	2.30E+00	1.32E+01	1.96E+00	2.68E-17
Yttrium (39)	Y-83	5.14E+04	1.35E-05	2.75E+00	8.12E-01	6.27E-01	5.31E-17
Yttrium (39)	Y-83m	1.28E+05	5.42E-06	2.73E+00	8.12E-01	6.26E-01	2.13E-17
Yttrium (39)	Y-84m	9.22E+03	7.52E-05	1.80E+00	2.15E+01	1.66E+00	7.92E-16
Yttrium (39)	Y-85	2.27E+03	3.06E-04	4.30E+00	1.76E+00	1.25E+00	2.45E-15
Yttrium (39)	Y-85m	1.25E+03	5.55E-04	3.94E+00	1.44E+00	1.05E+00	3.76E-15
Yttrium (39)	Y-86	4.12E+02	1.68E-03	1.97E+00	2.84E+00	1.16E+00	1.27E-14
Yttrium (39)	Y-86m	7.59E+03	9.13E-05	1.87E+00	2.69E+00	1.10E+00	6.57E-16
Yttrium (39)	Y-87	7.61E+01	9.11E-03	9.86E+00	2.99E+00	2.30E+00	1.38E-13
Yttrium (39)	Y-87m	4.54E+02	1.53E-03	7.11E+00	2.32E+00	1.75E+00	1.76E-14
Yttrium (39)	Y-88	2.37E+00	2.92E-01	2.54E+00	2.34E-01	2.15E-01	4.17E-13
Yttrium (39)	Y-89m	1.40E+06	4.97E-07	7.94E+00	.	7.94E+00	2.66E-17
Yttrium (39)	Y-90	9.47E+01	7.32E-03	4.18E+02	9.12E-01	9.10E-01	4.54E-14
Yttrium (39)	Y-90m	1.90E+03	3.64E-04	1.15E+01	8.54E-01	7.95E-01	1.97E-15
Yttrium (39)	Y-91	4.32E+00	1.60E-01	5.50E+02	1.63E-01	1.63E-01	1.80E-13
Yttrium (39)	Y-91m	7.33E+03	9.46E-05	1.37E+01	1.63E-01	1.61E-01	1.05E-16
Yttrium (39)	Y-92	1.71E+03	4.04E-04	2.50E+01	7.51E+00	5.78E+00	1.63E-14
Yttrium (39)	Y-93	5.96E+02	1.16E-03	5.87E+01	6.57E-02	6.57E-02	5.37E-16
Yttrium (39)	Y-94	1.95E+04	3.56E-05	8.65E+00	4.91E+01	7.35E+00	1.86E-15
Yttrium (39)	Y-95	3.54E+04	1.96E-05	2.64E+00	1.91E-01	1.78E-01	2.51E-17
Ytterbium (70)	Yb-162	1.93E+04	3.59E-05	3.26E+00	3.60E+01	2.99E+00	1.32E-15
Ytterbium (70)	Yb-163	3.30E+04	2.10E-05	3.51E+00	4.76E+00	2.02E+00	5.24E-16
Ytterbium (70)	Yb-164	4.81E+03	1.44E-04	8.86E+00	3.04E+01	6.86E+00	1.23E-14
Ytterbium (70)	Yb-165	3.68E+04	1.88E-05	8.56E+00	5.68E+00	3.41E+00	8.03E-16
Ytterbium (70)	Yb-166	1.07E+02	6.47E-03	3.47E+00	1.46E+00	1.03E+00	8.34E-14
Ytterbium (70)	Yb-167	2.08E+04	3.33E-05	2.20E+01	1.09E+00	1.04E+00	4.38E-16
Ytterbium (70)	Yb-169	7.90E+00	8.77E-02	2.78E+01	4.29E-01	4.23E-01	4.74E-13
Ytterbium (70)	Yb-175	6.04E+01	1.15E-02	1.91E+02	1.99E+00	1.97E+00	2.99E-13
Ytterbium (70)	Yb-177	3.18E+03	2.18E-04	3.11E+01	1.15E+00	1.11E+00	3.24E-15
Ytterbium (70)	Yb-178	4.92E+03	1.41E-04	4.03E+01	1.39E+01	1.04E+01	1.96E-14
Ytterbium (70)	Yb-179	4.55E+04	1.52E-05	7.24E+00	1.24E+01	4.57E+00	9.43E-16
Zinc (30)	Zn-60	1.53E+05	4.53E-06	1.29E+00	3.83E+01	1.24E+00	2.56E-17
Zinc (30)	Zn-61	2.45E+05	2.83E-06	3.02E+00	1.79E+01	2.59E+00	3.37E-17
Zinc (30)	Zn-62	6.61E+02	1.05E-03	5.05E+00	2.45E+00	1.65E+00	8.13E-15
Zinc (30)	Zn-63	9.47E+03	7.32E-05	6.62E+00	3.64E+01	5.60E+00	1.96E-15
Zinc (30)	Zn-65	1.04E+00	6.69E-01	1.21E+01	6.31E-01	5.99E-01	1.97E-12
Zinc (30)	Zn-69	6.46E+03	1.07E-04	1.65E+03	5.01E+01	4.87E+01	2.73E-14
Zinc (30)	Zn-69m	4.41E+02	1.57E-03	1.78E+01	4.54E+00	3.62E+00	2.97E-14

Resident Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Zinc (30)	Zn-71	1.49E+05	4.66E-06	2.17E+01	.	2.17E+01	5.45E-16
Zinc (30)	Zn-71m	1.53E+03	4.52E-04	4.69E+00	8.24E+00	2.99E+00	7.26E-15
Zinc (30)	Zn-72	1.31E+02	5.31E-03	2.41E+00	7.26E-01	5.58E-01	1.61E-14
Zirconium (40)	Zr-85	4.63E+04	1.50E-05	2.19E+00	1.45E+00	8.71E-01	8.38E-17
Zirconium (40)	Zr-86	3.68E+02	1.88E-03	1.84E+00	1.47E+00	8.18E-01	1.00E-14
Zirconium (40)	Zr-87	3.61E+03	1.92E-04	3.73E+00	2.01E+00	1.30E+00	1.65E-15
Zirconium (40)	Zr-88	3.03E+00	2.28E-01	2.25E+00	1.48E-01	1.39E-01	2.12E-13
Zirconium (40)	Zr-89	7.74E+01	8.95E-03	6.25E+00	2.49E+00	1.78E+00	1.07E-13
Zirconium (40)	Zr-89m	8.75E+04	7.92E-06	4.21E+00	2.66E+00	1.63E+00	8.70E-17
Zirconium (40)	Zr-93	4.53E-07	1.53E+06	1.11E+05	6.72E-02	6.72E-02	7.23E-07
Zirconium (40)	Zr-95	3.95E+00	1.75E-01	4.84E+00	1.92E-01	1.84E-01	2.33E-13
Zirconium (40)	Zr-97	3.63E+02	1.91E-03	4.65E+00	1.32E+00	1.03E+00	1.44E-14

Resident 2D External Exposure DCCs July 2023															
Radionuclides		Isotope-specific Information			Dose Compliance Concentrations (DCCs)										
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Soil Volume Area Correction Factor	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	
					DCC DL=1 (Bq/g)	@ 1cm DCC DL=1 (Bq/g)	@ 5cm DCC DL=1 (Bq/g)	@ 15cm DCC DL=1 (Bq/g)	Plane DCC DL=1 (Bq/cm <sup>2</sup> )	DCC DL=1 (mg/kg)	@ 1cm DCC DL=1 (mg/kg)	@ 5cm DCC DL=1 (mg/kg)	@ 15cm DCC DL=1 (mg/kg)	Plane DCC DL=1 (mg/cm <sup>2</sup> )	
Actinium (89)	Ac-223	1.73E+05	4.00E-06	1.00E+00	3.81E+16	1.06E+17	5.71E+16	4.16E+16	1.45E+16	2.57E+03	7.18E+03	3.85E+03	2.81E+03	9.77E+02	
Actinium (89)	Ac-224	2.18E+03	3.17E-04	1.00E+00	2.45E+01	1.36E+02	4.74E+01	2.96E+01	1.34E+02	1.32E-10	7.30E-10	2.55E-10	1.59E-10	7.21E-10	
Actinium (89)	Ac-225	2.53E+01	2.74E-02	1.00E+00	2.46E+00	1.15E+01	4.11E+00	2.72E+00	9.66E+00	1.15E-09	5.37E-09	1.92E-09	1.27E-09	4.51E-09	
Actinium (89)	Ac-226	2.07E+02	3.35E-03	1.00E+00	3.55E+01	1.45E+02	5.24E+01	3.69E+01	1.30E+02	2.04E-09	8.29E-09	3.00E-09	2.11E-09	7.43E-09	
Actinium (89)	Ac-227	3.18E-02	2.18E+01	1.00E+00	5.52E-02	2.35E-01	8.58E-02	5.88E-02	1.93E-01	2.06E-08	8.79E-08	3.21E-08	2.20E-08	7.22E-08	
Actinium (89)	Ac-228	9.87E+02	7.02E-04	1.00E+00	1.41E+01	7.67E+01	2.67E+01	1.67E+01	7.54E+01	1.71E-10	9.29E-10	3.23E-10	2.03E-10	9.13E-10	
Actinium (89)	Ac-230	1.79E+05	3.87E-06	1.00E+00	2.26E+08	1.23E+09	4.26E+08	2.67E+08	1.18E+09	1.52E-05	8.26E-05	2.87E-05	1.80E-05	7.95E-05	
Actinium (89)	Ac-231	4.86E+04	1.43E-05	1.00E+00	1.66E+05	4.60E+05	2.02E+05	1.66E+05	3.03E+05	4.13E-08	1.15E-07	5.03E-08	4.13E-08	7.56E-08	
Actinium (89)	Ac-232	1.84E+05	3.77E-06	1.00E+00	2.93E+13	1.64E+14	5.68E+13	3.53E+13	1.61E+14	1.94E+00	1.08E+01	3.76E+00	2.34E+00	1.07E+01	
Actinium (89)	Ac-233	1.51E+05	4.60E-06	1.00E+00	1.65E+04	7.07E+04	2.54E+04	1.74E+04	7.10E+04	1.34E-09	5.73E-09	2.06E-09	1.41E-09	5.76E-09	
Silver (47)	Ag-100m	1.63E+05	4.26E-06	1.00E+00	1.05E+03	5.91E+03	2.05E+03	1.27E+03	6.05E+03	3.39E-11	1.91E-10	6.61E-11	4.09E-11	1.95E-10	
Silver (47)	Ag-101	3.28E+04	2.11E-05	1.00E+00	1.13E+03	5.37E+03	1.89E+03	1.24E+03	5.31E+03	1.82E-10	8.66E-10	3.04E-10	2.00E-10	8.57E-10	
Silver (47)	Ag-102	2.82E+04	2.45E-05	1.00E+00	6.49E+10	3.49E+11	1.21E+11	7.62E+10	3.49E+11	1.23E-02	6.60E-02	2.30E-02	1.44E-02	6.61E-02	
Silver (47)	Ag-102m	4.73E+04	1.46E-05	1.00E+00	8.99E+10	4.83E+11	1.68E+11	1.06E+11	4.84E+11	1.02E-02	5.47E-02	1.90E-02	1.19E-02	5.47E-02	
Silver (47)	Ag-103	5.54E+03	1.25E-04	1.00E+00	1.33E+02	6.63E+02	2.33E+02	1.51E+02	6.49E+02	1.30E-10	6.46E-10	2.27E-10	1.47E-10	6.33E-10	
Silver (47)	Ag-104	5.26E+03	1.32E-04	1.00E+00	3.71E+01	1.95E+02	6.78E+01	4.28E+01	1.97E+02	3.84E-11	2.02E-10	7.02E-11	4.44E-11	2.05E-10	
Silver (47)	Ag-104m	1.09E+04	6.37E-05	1.00E+00	1.14E+02	6.00E+02	2.10E+02	1.33E+02	5.95E+02	5.70E-11	3.01E-10	1.06E-10	6.65E-11	2.99E-10	
Silver (47)	Ag-105	6.13E+00	1.13E-01	1.00E+00	2.58E-01	1.22E+00	4.30E-01	2.84E-01	1.22E+00	2.32E-10	1.10E-09	3.87E-10	2.55E-10	1.10E-09	
Silver (47)	Ag-105m	5.04E+04	1.38E-05	1.00E+00	2.13E+03	1.01E+04	3.55E+03	2.34E+03	1.01E+04	2.32E-10	1.10E-09	3.88E-10	2.56E-10	1.10E-09	
Silver (47)	Ag-106	1.52E+04	4.56E-05	1.00E+00	2.17E+08	1.04E+09	3.68E+08	2.39E+08	9.78E+08	7.94E-05	3.81E-04	1.35E-04	8.76E-05	3.57E-04	
Silver (47)	Ag-106m	3.05E+01	2.27E-02	1.00E+00	2.09E-01	1.09E+00	3.79E-01	2.40E-01	1.11E+00	3.80E-11	1.98E-10	6.90E-11	4.37E-11	2.01E-10	
Silver (47)	Ag-108	1.54E+05	4.51E-06	1.00E+00	1.11E+18	4.29E+18	1.81E+18	1.22E+18	1.24E+18	4.08E+04	1.58E+05	6.65E+04	4.49E+04	4.58E+04	
Silver (47)	Ag-108m	1.66E-03	4.18E+02	1.00E+00	1.24E-02	6.11E-02	2.14E-02	1.38E-02	6.16E-02	4.23E-08	2.09E-07	7.32E-08	4.72E-08	2.10E-07	
Silver (47)	Ag-109m	5.52E+05	1.26E-06	1.00E+00	1.28E+22	3.15E+22	1.52E+22	1.28E+22	1.50E+22	1.32E+08	3.26E+08	1.58E+08	1.32E+08	1.56E+08	
Silver (47)	Ag-110	8.88E+05	7.80E-07	1.00E+00	1.02E+22	3.46E+22	1.63E+22	1.13E+22	1.27E+22	6.63E+07	2.25E+08	1.06E+08	7.32E+07	8.26E+07	
Silver (47)	Ag-110m	1.01E+00	6.84E-01	1.00E+00	1.09E-02	5.74E-02	1.99E-02	1.26E-02	5.84E-02	6.20E-11	3.27E-10	1.14E-10	7.17E-11	3.33E-10	
Silver (47)	Ag-111	3.40E+01	2.04E-02	1.00E+00	2.69E+01	1.18E+02	4.28E+01	2.87E+01	6.11E+01	4.62E-09	2.02E-08	7.34E-09	4.93E-09	1.05E-08	
Silver (47)	Ag-111m	3.37E+05	2.05E-06	1.00E+00	2.70E+05	1.18E+06	4.28E+05	2.88E+05	6.12E+05	4.65E-09	2.03E-08	7.39E-09	4.97E-09	1.06E-08	
Silver (47)	Ag-112	1.94E+03	3.57E-04	1.00E+00	5.07E+01	2.68E+02	9.55E+01	5.99E+01	2.39E+02	1.54E-10	8.10E-10	2.89E-10	1.81E-10	7.25E-10	
Silver (47)	Ag-113	1.13E+03	6.13E-04	1.00E+00	3.05E+02	1.31E+03	4.99E+02	3.34E+02	6.77E+02	1.60E-09	6.85E-09	2.62E-09	1.75E-09	3.55E-09	
Silver (47)	Ag-113m	3.18E+05	2.18E-06	1.00E+00	1.34E+05	5.72E+05	2.19E+05	1.46E+05	2.97E+05	2.49E-09	1.07E-08	4.08E-09	2.72E-09	5.53E-09	
Silver (47)	Ag-114	4.75E+06	1.46E-07	1.00E+00	7.09E+25	3.31E+26	1.28E+26	8.27E+25	2.45E+26	8.92E+10	4.16E+11	1.62E+11	1.04E+11	3.09E+11	
Silver (47)	Ag-115	1.82E+04	3.81E-05	1.00E+00	1.15E+03	5.39E+03	1.91E+03	1.25E+03	5.04E+03	3.82E-10	1.79E-09	6.32E-10	4.15E-10	1.67E-09	
Silver (47)	Ag-116	1.36E+05	5.10E-06	1.00E+00	1.80E+15	1.04E+16	3.61E+15	2.21E+15	1.02E+16	8.07E+01	4.64E+02	1.62E+02	9.90E+01	4.55E+02	
Silver (47)	Ag-117	2.97E+05	2.33E-06	1.00E+00	3.31E+03	1.74E+04	6.07E+03	3.85E+03	1.71E+04	6.84E-11	3.60E-10	1.26E-10	7.95E-11	3.54E-10	
Silver (47)	Ag-99	1.76E+05	3.93E-06	1.00E+00	5.56E+03	2.75E+04	9.60E+03	6.22E+03	2.77E+04	1.64E-10	8.10E-10	2.83E-10	1.83E-10	8.17E-10	
Aluminum (13)	Al-26	9.67E-07	7.17E+05	1.00E+00	6.74E-03	3.82E-02	1.32E-02	8.11E-03	3.86E-02	9.51E-06	5.39E-05	1.86E-05	1.14E-05	5.44E-05	
Aluminum (13)	Al-28	1.63E+05	4.26E-06	1.00E+00	1.49E+16	8.87E+16	3.07E+16	1.85E+16	8.62E+16	1.35E+02	8.02E+02	2.77E+02	1.67E+02	7.79E+02	
Aluminum (13)	Al-29	5.55E+04	1.25E-05	1.00E+00	1.00E+13	5.68E+13	1.97E+13	1.21E+13	5.42E+13	2.75E-01	1.56E+00	5.40E-01	3.33E-01	1.49E+00	
Americium (95)	Am-237	4.99E+03	1.39E-04	1.00E+00	2.99E+02	1.26E+03	4.57E+02	3.17E+02	1.25E+03	7.44E-10	3.13E-09	1.14E-09	7.89E-10	3.11E-09	
Americium (95)	Am-238	3.72E+03	1.86E-04	1.00E+00	8.15E+01	4.20E+02	1.47E+02	9.39E+01	4.25E+02	2.74E-10	1.41E-09	4.93E-10	3.15E-10	1.43E-09	
Americium (95)	Am-239	5.10E+02	1.36E-03	1.00E+00	6.36E+01	2.36E+02	8.87E+01	6.51E+01	2.32E+02	1.56E-09	5.79E-09	2.18E-09	1.60E-09	5.71E-09	



Resident 2D External Exposure DCCs July 2023															
Radionuclides		Isotope-specific Information			Dose Compliance Concentrations (DCCs)										
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Soil Volume Area Correction Factor	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	
					DCC DL=1 (Bq/g)	@ 1cm DCC DL=1 (Bq/g)	@ 5cm DCC DL=1 (Bq/g)	@ 15cm DCC DL=1 (Bq/g)	Plane DCC DL=1 (Bq/cm <sup>2</sup> )	DCC DL=1 (mg/kg)	@ 1cm DCC DL=1 (mg/kg)	@ 5cm DCC DL=1 (mg/kg)	@ 15cm DCC DL=1 (mg/kg)	Plane DCC DL=1 (mg/cm <sup>2</sup> )	
Americium (95)	Am-240	1.20E+02	5.80E-03	1.00E+00	2.27E+00	1.17E+01	4.12E+00	2.61E+00	1.19E+01	2.39E-10	1.24E-09	4.34E-10	2.75E-10	1.25E-09	
Americium (95)	Am-241	1.60E-03	4.32E+02	1.00E+00	3.00E+00	6.09E+00	3.22E+00	3.00E+00	4.37E+00	2.36E-05	4.80E-05	2.54E-05	2.36E-05	3.45E-05	
Americium (95)	Am-242	3.79E+02	1.83E-03	1.00E+00	9.36E+02	3.01E+03	1.20E+03	9.39E+02	2.18E+03	3.13E-08	1.01E-07	4.02E-08	3.15E-08	7.31E-08	
Americium (95)	Am-242m	4.91E-03	1.41E+02	1.00E+00	1.82E+00	6.43E+00	2.52E+00	1.89E+00	4.54E+00	4.69E-06	1.66E-05	6.51E-06	4.88E-06	1.17E-05	
Americium (95)	Am-243	9.40E-05	7.37E+03	1.00E+00	1.30E-01	4.69E-01	1.80E-01	1.34E-01	4.50E-01	1.77E-05	6.35E-05	2.44E-05	1.82E-05	6.10E-05	
Americium (95)	Am-244	6.01E+02	1.15E-03	1.00E+00	1.49E+01	7.59E+01	2.65E+01	1.70E+01	7.58E+01	3.18E-10	1.62E-09	5.65E-10	3.61E-10	1.61E-09	
Americium (95)	Am-244m	1.40E+04	4.95E-05	1.00E+00	1.91E+08	4.00E+08	2.69E+08	2.11E+08	5.94E+07	1.74E-04	3.66E-04	2.46E-04	1.93E-04	5.43E-05	
Americium (95)	Am-245	2.96E+03	2.34E-04	1.00E+00	2.48E+03	9.64E+03	3.58E+03	2.56E+03	6.88E+03	1.08E-08	4.18E-08	1.55E-08	1.11E-08	2.98E-08	
Americium (95)	Am-246	9.34E+03	7.42E-05	1.00E+00	2.64E+02	1.28E+03	4.53E+02	2.93E+02	1.22E+03	3.64E-10	1.76E-09	6.25E-10	4.05E-10	1.69E-09	
Americium (95)	Am-246m	1.46E+04	4.76E-05	1.00E+00	6.26E+07	3.35E+08	1.16E+08	7.31E+07	3.22E+08	5.54E-05	2.97E-04	1.03E-04	6.47E-05	2.85E-04	
Americium (95)	Am-247	1.58E+04	4.38E-05	1.00E+00	2.59E+09	1.04E+10	3.84E+09	2.70E+09	7.90E+09	2.11E-03	8.49E-03	3.14E-03	2.21E-03	6.46E-03	
Argon (18)	Ar-37	7.22E+00	9.60E-02												
Argon (18)	Ar-39	2.58E-03	2.69E+02	9.00E-01	1.54E+02	4.20E+02	1.96E+02	1.56E+02	4.20E+01	1.22E-04	3.33E-04	1.56E-04	1.24E-04	3.34E-05	
Argon (18)	Ar-41	3.32E+03	2.09E-04	1.00E+00	4.66E+01	2.62E+02	9.05E+01	5.58E+01	2.59E+02	3.02E-11	1.70E-10	5.85E-11	3.61E-11	1.68E-10	
Argon (18)	Ar-42	2.11E-02	3.29E+01	9.00E-01	6.06E-02	3.20E-01	1.18E-01	7.33E-02	2.38E-01	6.33E-09	3.35E-08	1.23E-08	7.67E-09	2.49E-08	
Argon (18)	Ar-43	6.78E+04	1.02E-05	1.00E+00	1.42E+03	6.89E+03	2.41E+03	1.57E+03	6.89E+03	4.73E-11	2.29E-10	8.02E-11	5.21E-11	2.29E-10	
Argon (18)	Ar-44	3.07E+04	2.26E-05	1.00E+00	1.92E+08	1.14E+09	3.94E+08	2.39E+08	1.13E+09	1.44E-05	8.57E-05	2.96E-05	1.80E-05	8.53E-05	
Arsenic (33)	As-68	1.44E+05	4.81E-06	1.00E+00	5.04E+03	2.42E+04	8.58E+03	5.55E+03	2.27E+04	1.25E-10	6.00E-10	2.12E-10	1.37E-10	5.61E-10	
Arsenic (33)	As-69	2.39E+04	2.90E-05	1.00E+00	4.77E+02	2.50E+03	8.69E+02	5.49E+02	2.52E+03	7.22E-11	3.78E-10	1.32E-10	8.31E-11	3.81E-10	
Arsenic (33)	As-70	6.92E+03	1.00E-04	1.00E+00	3.04E+01	1.63E+02	5.67E+01	3.56E+01	1.63E+02	1.61E-11	8.65E-11	3.01E-11	1.89E-11	8.66E-11	
Arsenic (33)	As-71	9.30E+01	7.45E-03	1.00E+00	3.42E+00	1.61E+01	5.69E+00	3.75E+00	1.63E+01	1.37E-10	6.45E-10	2.28E-10	1.50E-10	6.52E-10	
Arsenic (33)	As-72	2.33E+02	2.97E-03	1.00E+00	2.54E+00	1.28E+01	4.50E+00	2.88E+00	1.24E+01	4.11E-11	2.06E-10	7.28E-11	4.65E-11	2.00E-10	
Arsenic (33)	As-73	3.15E+00	2.20E-01	1.00E+00	4.69E+01	8.53E+01	4.89E+01	4.69E+01	6.10E+01	5.70E-08	1.04E-07	5.94E-08	5.70E-08	7.41E-08	
Arsenic (33)	As-74	1.42E+01	4.87E-02	1.00E+00	3.75E-01	1.84E+00	6.48E-01	4.18E-01	1.82E+00	1.02E-10	5.03E-10	1.77E-10	1.14E-10	4.96E-10	
Arsenic (33)	As-76	2.35E+02	2.95E-03	1.00E+00	1.07E+01	5.24E+01	1.89E+01	1.21E+01	4.36E+01	1.81E-10	8.90E-10	3.21E-10	2.05E-10	7.40E-10	
Arsenic (33)	As-77	1.56E+02	4.43E-03	1.00E+00	4.05E+02	1.79E+03	6.38E+02	4.33E+02	1.12E+03	1.05E-08	4.62E-08	1.65E-08	1.12E-08	2.89E-08	
Arsenic (33)	As-78	4.02E+03	1.73E-04	1.00E+00	5.62E+01	3.02E+02	1.06E+02	6.61E+01	2.88E+02	5.72E-11	3.07E-10	1.08E-10	6.74E-11	2.93E-10	
Arsenic (33)	As-79	4.04E+04	1.71E-05	1.00E+00	8.47E+13	1.96E+14	1.06E+14	8.79E+13	8.49E+13	8.68E+00	2.01E+01	1.09E+01	9.01E+00	8.70E+00	
Astatine (85)	At-204	3.96E+04	1.75E-05	1.00E+00	1.86E+02	9.58E+02	3.37E+02	2.14E+02	9.73E+02	5.04E-11	2.59E-10	9.09E-11	5.79E-11	2.63E-10	
Astatine (85)	At-205	1.39E+04	4.98E-05	1.00E+00	8.15E+01	4.40E+02	1.53E+02	9.62E+01	4.48E+02	6.30E-11	3.40E-10	1.19E-10	7.44E-11	3.47E-10	
Astatine (85)	At-206	1.19E+04	5.82E-05	1.00E+00	5.42E+01	2.80E+02	9.79E+01	6.24E+01	2.85E+02	4.92E-11	2.54E-10	8.88E-11	5.66E-11	2.58E-10	
Astatine (85)	At-207	3.37E+03	2.05E-04	1.00E+00	1.88E+01	9.92E+01	3.47E+01	2.19E+01	1.01E+02	6.05E-11	3.19E-10	1.12E-10	7.05E-11	3.25E-10	
Astatine (85)	At-208	3.72E+03	1.86E-04	1.00E+00	2.35E+01	1.23E+02	4.28E+01	2.72E+01	1.25E+02	6.89E-11	3.59E-10	1.25E-10	7.95E-11	3.65E-10	
Astatine (85)	At-209	1.12E+03	6.18E-04	1.00E+00	9.47E+00	4.78E+01	1.68E+01	1.08E+01	4.83E+01	9.25E-11	4.67E-10	1.64E-10	1.05E-10	4.72E-10	
Astatine (85)	At-210	7.49E+02	9.25E-04	1.00E+00	4.67E+00	2.58E+01	8.94E+00	5.56E+00	2.64E+01	6.87E-11	3.79E-10	1.31E-10	8.17E-11	3.88E-10	
Astatine (85)	At-211	8.42E+02	8.24E-04	1.00E+00	4.68E+02	1.75E+03	6.91E+02	5.05E+02	1.68E+03	6.16E-09	2.31E-08	9.08E-09	6.64E-09	2.21E-08	
Astatine (85)	At-215	2.19E+11	3.17E-12	1.00E+00	7.65E+22	2.22E+23	1.16E+23	8.35E+22	3.20E+22	3.95E+03	1.15E+04	5.96E+03	4.31E+03	1.65E+03	
Astatine (85)	At-216	7.28E+10	9.51E-12	1.00E+00	3.76E+10	2.26E+11	7.77E+10	4.69E+10	2.23E+11	5.84E-09	3.51E-08	1.21E-08	7.30E-09	3.46E-08	
Astatine (85)	At-217	6.77E+08	1.02E-09	1.00E+00	1.84E+10	7.84E+10	3.01E+10	2.03E+10	1.88E+10	3.10E-07	1.32E-06	5.06E-07	3.42E-07	3.16E-07	
Astatine (85)	At-218	1.46E+07	4.76E-08	9.00E-01	6.96E+09	1.18E+10	8.00E+09	7.07E+09	1.21E+09	5.46E-06	9.27E-06	6.28E-06	5.55E-06	9.52E-07	
Astatine (85)	At-219	3.90E+05	1.78E-06												
Astatine (85)	At-220	9.82E+04	7.06E-06	1.00E+00	1.21E+03	7.02E+03	2.43E+03	1.49E+03	6.92E+03	1.42E-10	8.25E-10	2.86E-10	1.75E-10	8.14E-10	

Resident 2D External Exposure DCCs July 2023															
Radionuclides		Isotope-specific Information			Dose Compliance Concentrations (DCCs)										
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Soil Volume Area Correction Factor	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	
					DCC DL=1 (Bq/g)	@ 1cm DCC DL=1 (Bq/g)	@ 5cm DCC DL=1 (Bq/g)	@ 15cm DCC DL=1 (Bq/g)	Plane DCC DL=1 (Bq/cm <sup>2</sup> )	DCC DL=1 (mg/kg)	@ 1cm DCC DL=1 (mg/kg)	@ 5cm DCC DL=1 (mg/kg)	@ 15cm DCC DL=1 (mg/kg)	Plane DCC DL=1 (mg/cm <sup>2</sup> )	
Gold (79)	Au-186	3.40E+04	2.04E-05	1.00E+00	2.88E+02	1.47E+03	5.18E+02	3.32E+02	1.49E+03	8.24E-11	4.22E-10	1.49E-10	9.51E-11	4.27E-10	
Gold (79)	Au-187	4.34E+04	1.60E-05	1.00E+00	1.03E+03	4.75E+03	1.73E+03	1.15E+03	4.68E+03	2.33E-10	1.07E-09	3.91E-10	2.59E-10	1.06E-09	
Gold (79)	Au-190	8.51E+03	8.14E-05	1.00E+00	6.44E+01	3.73E+02	1.29E+02	7.91E+01	3.84E+02	7.54E-11	4.37E-10	1.51E-10	9.27E-11	4.50E-10	
Gold (79)	Au-191	1.91E+03	3.63E-04	1.00E+00	5.08E+01	2.23E+02	8.16E+01	5.54E+01	2.21E+02	2.67E-10	1.17E-09	4.28E-10	2.91E-10	1.16E-09	
Gold (79)	Au-192	1.23E+03	5.64E-04	1.00E+00	1.16E+01	6.60E+01	2.27E+01	1.41E+01	6.77E+01	9.50E-11	5.41E-10	1.86E-10	1.15E-10	5.54E-10	
Gold (79)	Au-193	3.44E+02	2.01E-03	1.00E+00	6.41E+01	2.30E+02	9.07E+01	6.68E+01	2.20E+02	1.89E-09	6.78E-09	2.67E-09	1.97E-09	6.47E-09	
Gold (79)	Au-193m	5.60E+06	1.24E-07	1.00E+00	1.04E+06	3.76E+06	1.48E+06	1.09E+06	3.58E+06	1.89E-09	6.78E-09	2.67E-09	1.97E-09	6.47E-09	
Gold (79)	Au-194	1.60E+02	4.34E-03	1.00E+00	2.97E+00	1.58E+01	5.53E+00	3.49E+00	1.61E+01	1.90E-10	1.01E-09	3.53E-10	2.22E-10	1.03E-09	
Gold (79)	Au-195	1.36E+00	5.10E-01	1.00E+00	1.14E+00	2.85E+00	1.31E+00	1.14E+00	2.51E+00	8.54E-09	2.14E-08	9.83E-09	8.54E-09	1.89E-08	
Gold (79)	Au-195m	7.17E+05	9.67E-07	1.00E+00	5.99E+05	1.50E+06	6.89E+05	5.99E+05	1.33E+06	8.54E-09	2.14E-08	9.83E-09	8.54E-09	1.89E-08	
Gold (79)	Au-196	4.09E+01	1.69E-02	1.00E+00	1.98E+00	8.74E+00	3.14E+00	2.12E+00	8.80E+00	4.98E-10	2.20E-09	7.90E-10	5.33E-10	2.21E-09	
Gold (79)	Au-196m	6.32E+02	1.10E-03	1.00E+00	2.20E+01	9.15E+01	3.35E+01	2.32E+01	9.14E+01	3.57E-10	1.49E-09	5.45E-10	3.77E-10	1.49E-09	
Gold (79)	Au-198	9.39E+01	7.38E-03	1.00E+00	4.86E+00	2.28E+01	8.03E+00	5.28E+00	2.21E+01	5.38E-10	2.53E-09	8.88E-10	5.84E-10	2.44E-09	
Gold (79)	Au-198m	1.11E+02	6.22E-03	1.00E+00	2.84E+00	1.21E+01	4.37E+00	3.01E+00	1.20E+01	2.65E-10	1.13E-09	4.07E-10	2.80E-10	1.12E-09	
Gold (79)	Au-199	8.06E+01	8.60E-03	1.00E+00	2.34E+01	8.88E+01	3.29E+01	2.39E+01	8.91E+01	3.03E-09	1.15E-08	4.26E-09	3.09E-09	1.15E-08	
Gold (79)	Au-200	7.53E+03	9.21E-05	1.00E+00	5.10E+02	2.62E+03	9.37E+02	5.93E+02	2.13E+03	7.11E-10	3.66E-09	1.31E-09	8.26E-10	2.96E-09	
Gold (79)	Au-200m	3.25E+02	2.13E-03	1.00E+00	3.29E+00	1.59E+01	5.55E+00	3.62E+00	1.59E+01	1.06E-10	5.12E-10	1.79E-10	1.17E-10	5.15E-10	
Gold (79)	Au-201	1.40E+04	4.95E-05	1.00E+00	1.19E+09	5.31E+09	1.97E+09	1.30E+09	2.63E+09	8.95E-04	4.00E-03	1.48E-03	9.80E-04	1.98E-03	
Gold (79)	Au-202	7.59E+05	9.13E-07	1.00E+00	1.60E+21	7.60E+21	2.85E+21	1.83E+21	5.14E+21	2.23E+07	1.06E+08	3.97E+07	2.56E+07	7.18E+07	
Barium (56)	Ba-124	3.31E+04	2.09E-05	1.00E+00	5.60E+11	2.69E+12	9.62E+11	6.25E+11	2.53E+12	1.10E-01	5.28E-01	1.89E-01	1.23E-01	4.96E-01	
Barium (56)	Ba-126	3.64E+03	1.90E-04	1.00E+00	4.22E+01	2.05E+02	7.27E+01	4.71E+01	1.96E+02	7.66E-11	3.72E-10	1.32E-10	8.54E-11	3.56E-10	
Barium (56)	Ba-127	2.87E+04	2.42E-05	1.00E+00	9.36E+02	4.21E+03	1.51E+03	1.01E+03	4.12E+03	2.17E-10	9.78E-10	3.50E-10	2.34E-10	9.56E-10	
Barium (56)	Ba-128	1.04E+02	6.66E-03	1.00E+00	2.25E+00	1.07E+01	3.81E+00	2.49E+00	9.86E+00	1.45E-10	6.89E-10	2.46E-10	1.61E-10	6.36E-10	
Barium (56)	Ba-129	2.72E+03	2.55E-04	1.00E+00	9.91E+01	4.69E+02	1.67E+02	1.09E+02	4.45E+02	2.46E-10	1.17E-09	4.15E-10	2.72E-10	1.11E-09	
Barium (56)	Ba-129m	2.81E+03	2.47E-04	1.00E+00	3.03E+01	1.54E+02	5.42E+01	3.46E+01	1.55E+02	7.30E-11	3.72E-10	1.30E-10	8.33E-11	3.72E-10	
Barium (56)	Ba-131	2.20E+01	3.15E-02	1.00E+00	1.05E+00	4.74E+00	1.71E+00	1.14E+00	4.53E+00	3.27E-10	1.48E-09	5.33E-10	3.55E-10	1.41E-09	
Barium (56)	Ba-131m	2.49E+04	2.78E-05	1.00E+00	1.18E+03	5.37E+03	1.93E+03	1.29E+03	5.13E+03	3.26E-10	1.48E-09	5.33E-10	3.55E-10	1.41E-09	
Barium (56)	Ba-133	6.59E-02	1.05E+01	1.00E+00	6.32E-02	2.75E-01	9.96E-02	6.74E-02	2.64E-01	6.69E-09	2.91E-08	1.06E-08	7.13E-09	2.79E-08	
Barium (56)	Ba-133m	1.56E+02	4.44E-03	1.00E+00	4.70E+01	1.97E+02	7.29E+01	4.98E+01	1.76E+02	2.10E-09	8.79E-09	3.26E-09	2.22E-09	7.87E-09	
Barium (56)	Ba-135m	2.12E+02	3.28E-03	1.00E+00	1.09E+02	4.39E+02	1.66E+02	1.15E+02	3.74E+02	3.64E-09	1.47E-08	5.57E-09	3.84E-09	1.25E-08	
Barium (56)	Ba-137m	1.43E+05	4.86E-06	1.00E+00	8.94E+15	4.49E+16	1.57E+16	1.00E+16	4.48E+16	4.50E+02	2.26E+03	7.91E+02	5.06E+02	2.26E+03	
Barium (56)	Ba-139	4.39E+03	1.58E-04	1.00E+00	2.07E+03	6.97E+03	2.98E+03	2.16E+03	2.80E+03	3.45E-09	1.16E-08	4.96E-09	3.59E-09	4.66E-09	
Barium (56)	Ba-140	1.98E+01	3.49E-02	1.00E+00	1.45E-01	8.10E-01	2.80E-01	1.73E-01	8.07E-01	5.37E-11	3.00E-10	1.04E-10	6.42E-11	2.99E-10	
Barium (56)	Ba-141	1.99E+04	3.48E-05	1.00E+00	4.40E+03	1.66E+04	6.69E+03	4.73E+03	9.06E+03	1.63E-09	6.14E-09	2.48E-09	1.76E-09	3.36E-09	
Barium (56)	Ba-142	3.44E+04	2.02E-05	1.00E+00	2.49E+02	1.51E+03	5.17E+02	3.12E+02	1.52E+03	5.40E-11	3.26E-10	1.12E-10	6.77E-11	3.28E-10	
Beryllium (4)	Be-10	4.59E-07	1.51E+06	9.00E-01	1.22E+02	3.34E+02	1.56E+02	1.24E+02	3.08E+01	1.39E-01	3.82E-01	1.78E-01	1.41E-01	3.51E-02	
Beryllium (4)	Be-7	4.75E+00	1.46E-01	1.00E+00	1.97E+00	9.43E+00	3.31E+00	2.16E+00	9.59E+00	1.52E-10	7.28E-10	2.56E-10	1.67E-10	7.41E-10	
Bismuth (83)	Bi-197	3.92E+04	1.77E-05	1.00E+00	8.24E+02	3.87E+03	1.40E+03	9.22E+02	3.86E+03	2.17E-10	1.02E-09	3.68E-10	2.43E-10	1.02E-09	
Bismuth (83)	Bi-200	1.00E+04	6.93E-05	1.00E+00	5.14E+01	2.54E+02	8.99E+01	5.81E+01	2.57E+02	5.39E-11	2.67E-10	9.43E-11	6.09E-11	2.69E-10	
Bismuth (83)	Bi-201	3.37E+03	2.05E-04	1.00E+00	2.44E+01	1.26E+02	4.43E+01	2.82E+01	1.27E+02	7.62E-11	3.93E-10	1.39E-10	8.83E-11	3.96E-10	
Bismuth (83)	Bi-202	3.53E+03	1.96E-04	1.00E+00	2.49E+01	1.28E+02	4.49E+01	2.85E+01	1.30E+02	7.47E-11	3.85E-10	1.35E-10	8.57E-11	3.91E-10	
Bismuth (83)	Bi-203	5.16E+02	1.34E-03	1.00E+00	3.64E+00	1.96E+01	6.83E+00	4.30E+00	2.00E+01	7.50E-11	4.04E-10	1.41E-10	8.87E-11	4.13E-10	

Resident 2D External Exposure DCCs July 2023															
Radionuclides		Isotope-specific Information			Dose Compliance Concentrations (DCCs)										
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Soil Volume Area Correction Factor	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	
					DCC DL=1 (Bq/g)	@ 1cm DCC DL=1 (Bq/g)	@ 5cm DCC DL=1 (Bq/g)	@ 15cm DCC DL=1 (Bq/g)	Plane DCC DL=1 (Bq/cm <sup>2</sup> )	DCC DL=1 (mg/kg)	@ 1cm DCC DL=1 (mg/kg)	@ 5cm DCC DL=1 (mg/kg)	@ 15cm DCC DL=1 (mg/kg)	Plane DCC DL=1 (mg/cm <sup>2</sup> )	
Bismuth (83)	Bi-204	5.41E+02	1.28E-03	1.00E+00	3.32E+00	1.74E+01	6.09E+00	3.85E+00	1.78E+01	6.57E-11	3.44E-10	1.20E-10	7.61E-11	3.51E-10	
Bismuth (83)	Bi-205	1.65E+01	4.19E-02	1.00E+00	1.80E-01	1.00E+00	3.48E-01	2.16E-01	1.03E+00	1.17E-10	6.52E-10	2.26E-10	1.41E-10	6.69E-10	
Bismuth (83)	Bi-206	4.05E+01	1.71E-02	1.00E+00	2.37E-01	1.24E+00	4.34E-01	2.75E-01	1.27E+00	6.31E-11	3.32E-10	1.16E-10	7.33E-11	3.37E-10	
Bismuth (83)	Bi-207	2.11E-02	3.29E+01	1.00E+00	1.28E-02	6.60E-02	2.32E-02	1.47E-02	6.64E-02	6.58E-09	3.40E-08	1.19E-08	7.57E-09	3.42E-08	
Bismuth (83)	Bi-208	1.88E-06	3.68E+05	1.00E+00	6.31E-03	4.08E-02	1.39E-02	8.21E-03	4.31E-02	3.65E-05	2.36E-04	8.05E-05	4.76E-05	2.50E-04	
Bismuth (83)	Bi-210	5.05E+01	1.37E-02	1.00E+00	1.02E+03	1.79E+03	1.23E+03	1.04E+03	1.37E+02	2.22E-07	3.90E-07	2.69E-07	2.27E-07	2.99E-08	
Bismuth (83)	Bi-210m	2.28E-07	3.04E+06	1.00E+00	8.49E-02	3.72E-01	1.34E-01	9.03E-02	3.12E-01	4.10E-03	1.80E-02	6.46E-03	4.36E-03	1.51E-02	
Bismuth (83)	Bi-211	1.70E+05	4.07E-06	1.00E+00	5.96E+16	1.73E+17	9.00E+16	6.50E+16	2.49E+16	3.87E+03	1.13E+04	5.85E+03	4.23E+03	1.62E+03	
Bismuth (83)	Bi-212	6.02E+03	1.15E-04	1.00E+00	7.96E+01	4.78E+02	1.65E+02	9.94E+01	4.70E+02	1.47E-10	8.84E-10	3.04E-10	1.84E-10	8.70E-10	
Bismuth (83)	Bi-212n	5.20E+04	1.33E-05	9.00E-01	1.81E+14	1.09E+15	3.84E+14	2.31E+14	7.10E+14	3.88E+01	2.32E+02	8.20E+01	4.94E+01	1.52E+02	
Bismuth (83)	Bi-213	7.99E+03	8.67E-05	1.00E+00	9.29E+02	4.49E+03	1.60E+03	1.04E+03	3.64E+03	1.30E-09	6.28E-09	2.23E-09	1.45E-09	5.09E-09	
Bismuth (83)	Bi-214	1.83E+04	3.79E-05	1.00E+00	8.74E+06	1.48E+07	1.00E+07	8.88E+06	1.52E+06	5.36E-06	9.10E-06	6.16E-06	5.44E-06	9.35E-07	
Bismuth (83)	Bi-215	4.79E+04	1.45E-05	1.00E+00	8.43E+03	3.83E+04	1.41E+04	9.29E+03	2.19E+04	1.98E-09	9.02E-09	3.32E-09	2.18E-09	5.15E-09	
Bismuth (83)	Bi-216	1.68E+05	4.13E-06	1.00E+00	2.07E+03	1.20E+04	4.16E+03	2.55E+03	1.18E+04	1.39E-10	8.10E-10	2.80E-10	1.72E-10	7.99E-10	
Berkelium (97)	Bk-245	5.12E+01	1.35E-02	1.00E+00	6.31E+00	2.40E+01	8.90E+00	6.48E+00	2.37E+01	1.58E-09	6.03E-09	2.23E-09	1.63E-09	5.94E-09	
Berkelium (97)	Bk-246	1.41E+02	4.93E-03	1.00E+00	3.30E+00	1.68E+01	5.90E+00	3.77E+00	1.69E+01	3.03E-10	1.54E-09	5.42E-10	3.46E-10	1.55E-09	
Berkelium (97)	Bk-247	5.02E-04	1.38E+03	1.00E+00	1.88E-01	7.24E-01	2.70E-01	1.95E-01	7.22E-01	4.85E-06	1.87E-05	6.96E-06	5.02E-06	1.86E-05	
Berkelium (97)	Bk-248m	2.56E+02	2.71E-03	1.00E+00	1.21E+02	5.04E+02	1.86E+02	1.29E+02	4.22E+02	6.13E-09	2.56E-08	9.43E-09	6.55E-09	2.14E-08	
Berkelium (97)	Bk-249	7.67E-01	9.04E-01	1.00E+00	2.60E+01	1.20E+02	4.22E+01	2.80E+01	1.22E+02	4.43E-07	2.04E-06	7.19E-07	4.77E-07	2.08E-06	
Berkelium (97)	Bk-250	1.89E+03	3.67E-04	1.00E+00	3.95E+01	2.11E+02	7.31E+01	4.60E+01	2.11E+02	2.74E-10	1.46E-09	5.07E-10	3.19E-10	1.46E-09	
Berkelium (97)	Bk-251	6.55E+03	1.06E-04	1.00E+00	2.35E+03	8.28E+03	3.17E+03	2.38E+03	6.64E+03	4.72E-09	1.66E-08	6.37E-09	4.78E-09	1.33E-08	
Bromine (35)	Br-72	2.78E+05	2.49E-06	1.00E+00	3.02E+03	1.51E+04	5.34E+03	3.41E+03	1.45E+04	4.10E-11	2.05E-10	7.25E-11	4.64E-11	1.97E-10	
Bromine (35)	Br-73	1.07E+05	6.47E-06	1.00E+00	2.12E+03	9.99E+03	3.55E+03	2.33E+03	9.66E+03	7.59E-11	3.57E-10	1.27E-10	8.31E-11	3.45E-10	
Bromine (35)	Br-74	1.43E+04	4.83E-05	1.00E+00	1.09E+07	6.59E+07	2.27E+07	1.37E+07	6.73E+07	2.96E-06	1.78E-05	6.13E-06	3.71E-06	1.82E-05	
Bromine (35)	Br-74m	7.92E+03	8.75E-05	1.00E+00	3.47E+01	1.94E+02	6.73E+01	4.18E+01	1.96E+02	1.70E-11	9.52E-11	3.30E-11	2.05E-11	9.60E-11	
Bromine (35)	Br-75	3.77E+03	1.84E-04	1.00E+00	5.20E+01	2.42E+02	8.54E+01	5.64E+01	2.37E+02	5.43E-11	2.52E-10	8.91E-11	5.89E-11	2.48E-10	
Bromine (35)	Br-76	3.75E+02	1.85E-03	1.00E+00	2.43E+00	1.37E+01	4.73E+00	2.93E+00	1.38E+01	2.59E-11	1.46E-10	5.03E-11	3.11E-11	1.47E-10	
Bromine (35)	Br-76m	1.67E+07	4.15E-08	1.00E+00	1.09E+05	6.12E+05	2.11E+05	1.31E+05	6.18E+05	2.60E-11	1.46E-10	5.05E-11	3.12E-11	1.48E-10	
Bromine (35)	Br-77	1.06E+02	6.51E-03	1.00E+00	7.02E+00	3.34E+01	1.17E+01	7.68E+00	3.39E+01	2.66E-10	1.27E-09	4.44E-10	2.91E-10	1.29E-09	
Bromine (35)	Br-77m	8.51E+04	8.14E-06	1.00E+00	5.61E+03	2.67E+04	9.35E+03	6.13E+03	2.71E+04	2.66E-10	1.27E-09	4.44E-10	2.91E-10	1.28E-09	
Bromine (35)	Br-78	5.64E+04	1.23E-05	1.00E+00	1.66E+13	7.93E+13	2.82E+13	1.83E+13	7.34E+13	1.20E+00	5.75E+00	2.04E+00	1.33E+00	5.32E+00	
Bromine (35)	Br-80	2.06E+04	3.36E-05	1.00E+00	3.49E+11	1.55E+12	5.90E+11	3.86E+11	8.36E+11	7.10E-02	3.16E-01	1.20E-01	7.86E-02	1.70E-01	
Bromine (35)	Br-80m	1.37E+03	5.05E-04	1.00E+00	3.34E+02	1.42E+03	5.58E+02	3.69E+02	7.53E+02	1.02E-09	4.33E-09	1.70E-09	1.13E-09	2.30E-09	
Bromine (35)	Br-82	1.72E+02	4.03E-03	1.00E+00	1.24E+00	6.49E+00	2.26E+00	1.43E+00	6.61E+00	3.10E-11	1.62E-10	5.65E-11	3.57E-11	1.65E-10	
Bromine (35)	Br-82m	5.94E+04	1.17E-05	1.00E+00	4.38E+02	2.29E+03	7.97E+02	5.03E+02	2.33E+03	3.17E-11	1.66E-10	5.77E-11	3.64E-11	1.69E-10	
Bromine (35)	Br-83	2.53E+03	2.74E-04	1.00E+00	6.85E+03	2.97E+04	1.13E+04	7.53E+03	8.27E+03	1.18E-08	5.12E-08	1.95E-08	1.30E-08	1.42E-08	
Bromine (35)	Br-84	1.15E+04	6.05E-05	1.00E+00	1.11E+02	6.70E+02	2.32E+02	1.40E+02	6.62E+02	4.29E-11	2.58E-10	8.91E-11	5.38E-11	2.54E-10	
Bromine (35)	Br-84m	6.07E+04	1.14E-05	1.00E+00	1.97E+13	1.06E+14	3.70E+13	2.31E+13	1.05E+14	1.43E+00	7.72E+00	2.68E+00	1.68E+00	7.65E+00	
Bromine (35)	Br-85	1.26E+05	5.52E-06	1.00E+00	2.00E+04	8.04E+04	2.91E+04	2.06E+04	7.60E+04	7.10E-10	2.85E-09	1.03E-09	7.32E-10	2.70E-09	
Carbon (6)	C-10	1.14E+06	6.11E-07	1.00E+00	1.15E+21	5.64E+21	1.99E+21	1.28E+21	5.48E+21	5.32E+05	2.61E+06	9.20E+05	5.93E+05	2.53E+06	
Carbon (6)	C-11	1.79E+04	3.88E-05	9.00E-01	3.60E+09	1.74E+10	6.11E+09	3.98E+09	1.73E+10	1.16E-04	5.62E-04	1.97E-04	1.28E-04	5.58E-04	
Carbon (6)	C-14	1.22E-04	5.70E+03	9.00E-01	1.12E+04	1.91E+04	1.20E+04	1.12E+04	8.27E+03	6.76E-02	1.15E-01	7.22E-02	6.76E-02	4.99E-02	

Resident 2D External Exposure DCCs July 2023														
Radionuclides		Isotope-specific Information			Dose Compliance Concentrations (DCCs)									
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Soil Volume Area Correction Factor	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground
					DCC DL=1 (Bq/g)	@ 1cm DCC DL=1 (Bq/g)	@ 5cm DCC DL=1 (Bq/g)	@ 15cm DCC DL=1 (Bq/g)	Plane DCC DL=1 (Bq/cm <sup>2</sup> )	DCC DL=1 (mg/kg)	@ 1cm DCC DL=1 (mg/kg)	@ 5cm DCC DL=1 (mg/kg)	@ 15cm DCC DL=1 (mg/kg)	Plane DCC DL=1 (mg/cm <sup>2</sup> )
Calcium (20)	Ca-41	6.79E-06	1.02E+05		4.11E+03	8.83E+03	4.68E+03	4.11E+03	4.97E+03	6.23E-06	1.34E-05	7.10E-06	6.23E-06	7.54E-06
Calcium (20)	Ca-45	1.55E+00	4.46E-01	1.00E+00	8.96E-01	4.86E+00	1.68E+00	1.06E+00	4.87E+00	3.96E-11	2.15E-10	7.44E-11	4.67E-11	2.15E-10
Calcium (20)	Ca-47	5.58E+01	1.24E-02	1.00E+00	1.29E+05	2.49E+05	1.71E+05	1.38E+05	3.94E+04	7.94E-09	1.53E-08	1.05E-08	8.46E-09	2.42E-09
Calcium (20)	Ca-49	4.18E+04	1.66E-05	1.00E+00	9.08E+03	4.32E+04	1.52E+04	9.95E+03	4.28E+04	1.80E-10	8.54E-10	3.00E-10	1.97E-10	8.46E-10
Cadmium (48)	Cd-101	2.68E+05	2.59E-06	1.00E+00	7.33E+10	3.95E+11	1.37E+11	8.61E+10	3.95E+11	5.92E-03	3.19E-02	1.11E-02	6.95E-03	3.19E-02
Cadmium (48)	Cd-102	4.99E+04	1.39E-05	1.00E+00	1.20E+03	5.96E+03	2.09E+03	1.36E+03	5.84E+03	1.30E-10	6.45E-10	2.27E-10	1.47E-10	6.32E-10
Cadmium (48)	Cd-103	6.31E+03	1.10E-04	1.00E+00	5.94E+01	3.09E+02	1.09E+02	6.89E+01	3.05E+02	5.13E-11	2.67E-10	9.40E-11	5.95E-11	2.64E-10
Cadmium (48)	Cd-104	6.56E+03	1.06E-04	1.00E+00	6.97E+01	3.70E+02	1.29E+02	8.12E+01	3.73E+02	5.85E-11	3.11E-10	1.08E-10	6.82E-11	3.13E-10
Cadmium (48)	Cd-105	9.34E+02	7.42E-04	1.00E+00	2.45E+03	8.20E+03	3.62E+03	2.63E+03	3.90E+03	1.47E-08	4.93E-08	2.17E-08	1.58E-08	2.34E-08
Cadmium (48)	Cd-107	5.48E-01	1.26E+00	1.00E+00	1.19E+01	2.38E+01	1.37E+01	1.19E+01	7.50E+00	1.24E-07	2.48E-07	1.43E-07	1.24E-07	7.82E-08
Cadmium (48)	Cd-109	7.51E+03	9.23E-05	1.00E+00	6.38E+02	2.73E+03	9.67E+02	6.65E+02	2.75E+03	4.94E-10	2.12E-09	7.50E-10	5.16E-10	2.13E-09
Cadmium (48)	Cd-111m	9.00E-17	7.70E+15	9.00E-01	1.28E+03	3.01E+03	1.51E+03	1.29E+03	1.84E+03	8.45E+10	1.98E+11	9.95E+10	8.48E+10	1.21E+11
Cadmium (48)	Cd-113m	4.91E-02	1.41E+01	1.00E+00	1.27E+02	3.91E+02	1.72E+02	1.30E+02	5.48E+01	1.53E-05	4.72E-05	2.07E-05	1.57E-05	6.61E-06
Cadmium (48)	Cd-115	1.14E+02	6.10E-03	1.00E+00	6.82E+00	3.19E+01	1.13E+01	7.41E+00	3.01E+01	3.62E-10	1.69E-09	5.99E-10	3.94E-10	1.60E-09
Cadmium (48)	Cd-115m	5.67E+00	1.22E-01	1.00E+00	2.97E+00	1.37E+01	5.34E+00	3.45E+00	5.31E+00	3.16E-09	1.46E-08	5.68E-09	3.66E-09	5.65E-09
Cadmium (48)	Cd-117	2.44E+03	2.84E-04	1.00E+00	3.10E+01	1.61E+02	5.62E+01	3.58E+01	1.56E+02	7.79E-11	4.04E-10	1.41E-10	9.00E-11	3.93E-10
Cadmium (48)	Cd-117m	1.81E+03	3.84E-04	1.00E+00	1.22E+01	6.71E+01	2.33E+01	1.45E+01	6.88E+01	4.15E-11	2.28E-10	7.91E-11	4.93E-11	2.33E-10
Cadmium (48)	Cd-118	7.24E+03	9.57E-05	9.00E-01	1.28E+03	5.03E+03	2.23E+03	1.48E+03	2.73E+03	1.10E-09	4.30E-09	1.91E-09	1.27E-09	2.33E-09
Cadmium (48)	Cd-119	1.35E+05	5.12E-06	1.00E+00	6.66E+09	6.93E+09	6.68E+09	6.67E+09	1.60E+09	3.07E-04	3.19E-04	3.08E-04	3.07E-04	7.39E-05
Cadmium (48)	Cd-119m	1.66E+05	4.19E-06	1.00E+00	1.23E+09	1.27E+09	1.23E+09	1.23E+09	2.94E+08	4.63E-05	4.79E-05	4.63E-05	4.63E-05	1.11E-05
Cerium (58)	Ce-130	1.59E+04	4.36E-05	1.00E+00	7.84E+07	3.96E+08	1.39E+08	8.92E+07	3.89E+08	3.36E-05	1.70E-04	5.97E-05	3.83E-05	1.67E-04
Cerium (58)	Ce-131	3.57E+04	1.94E-05	1.00E+00	6.88E+02	3.19E+03	1.14E+03	7.54E+02	3.07E+03	1.32E-10	6.14E-10	2.19E-10	1.45E-10	5.91E-10
Cerium (58)	Ce-132	1.73E+03	4.01E-04	1.00E+00	1.49E+01	7.75E+01	2.71E+01	1.72E+01	7.70E+01	5.96E-11	3.10E-10	1.09E-10	6.90E-11	3.08E-10
Cerium (58)	Ce-133	3.76E+03	1.85E-04	1.00E+00	1.19E+02	5.41E+02	1.96E+02	1.31E+02	4.94E+02	2.20E-10	1.00E-09	3.65E-10	2.42E-10	9.18E-10
Cerium (58)	Ce-133m	1.24E+03	5.59E-04	1.00E+00	1.27E+01	6.65E+01	2.32E+01	1.47E+01	6.61E+01	7.15E-11	3.74E-10	1.31E-10	8.27E-11	3.72E-10
Cerium (58)	Ce-134	8.00E+01	8.66E-03	1.00E+00	2.23E+00	1.06E+01	3.79E+00	2.47E+00	9.58E+00	1.96E-10	9.30E-10	3.33E-10	2.17E-10	8.41E-10
Cerium (58)	Ce-135	3.43E+02	2.02E-03	1.00E+00	8.60E+00	4.12E+01	1.47E+01	9.54E+00	4.06E+01	1.78E-10	8.51E-10	3.03E-10	1.97E-10	8.37E-10
Cerium (58)	Ce-137	6.75E+02	1.03E-03	1.00E+00	1.04E+03	3.27E+03	1.56E+03	1.12E+03	1.98E+03	1.10E-08	3.48E-08	1.66E-08	1.19E-08	2.11E-08
Cerium (58)	Ce-137m	1.76E+02	3.93E-03	1.00E+00	7.54E+01	2.78E+02	1.15E+02	8.03E+01	2.05E+02	3.07E-09	1.13E-08	4.69E-09	3.27E-09	8.35E-09
Cerium (58)	Ce-139	1.84E+00	3.77E-01	1.00E+00	4.20E-01	1.58E+00	5.95E-01	4.30E-01	1.46E+00	1.67E-09	6.26E-09	2.36E-09	1.71E-09	5.77E-09
Cerium (58)	Ce-141	7.78E+00	8.91E-02	1.00E+00	2.97E+00	1.10E+01	4.11E+00	3.01E+00	1.06E+01	2.83E-09	1.04E-08	3.90E-09	2.86E-09	1.01E-08
Cerium (58)	Ce-143	1.84E+02	3.77E-03	1.00E+00	1.50E+01	6.77E+01	2.45E+01	1.63E+01	5.47E+01	6.12E-10	2.76E-09	1.00E-09	6.67E-10	2.23E-09
Cerium (58)	Ce-144	8.88E-01	7.81E-01	1.00E+00	5.42E-01	1.93E+00	8.82E-01	6.13E-01	8.05E-01	4.61E-09	1.65E-08	7.50E-09	5.22E-09	6.85E-09
Cerium (58)	Ce-145	1.21E+05	5.73E-06	1.00E+00	1.06E+05	4.10E+05	1.78E+05	1.20E+05	1.17E+05	6.68E-09	2.58E-08	1.12E-08	7.53E-09	7.34E-09
Californium (98)	Cf-244	1.88E+04	3.69E-05	1.00E+00	2.66E+04	1.54E+05	5.34E+04	3.27E+04	1.52E+05	1.81E-08	1.05E-07	3.64E-08	2.23E-08	1.04E-07
Californium (98)	Cf-246	1.70E+02	4.08E-03	1.00E+00	4.86E+04	9.37E+04	6.43E+04	5.23E+04	1.48E+04	3.69E-06	7.11E-06	4.88E-06	3.97E-06	1.12E-06
Californium (98)	Cf-247	1.95E+03	3.55E-04	1.00E+00	6.72E+02	2.36E+03	9.01E+02	6.80E+02	2.20E+03	4.46E-09	1.56E-08	5.98E-09	4.51E-09	1.46E-08
Californium (98)	Cf-248	7.57E-01	9.15E-01	1.00E+00	7.38E+01	3.40E+02	1.37E+02	8.83E+01	1.41E+02	1.27E-06	5.83E-06	2.36E-06	1.52E-06	2.43E-06
Californium (98)	Cf-249	1.97E-03	3.51E+02	1.00E+00	6.61E-02	3.04E-01	1.07E-01	7.11E-02	3.09E-01	4.37E-07	2.01E-06	7.08E-07	4.70E-07	2.05E-06
Californium (98)	Cf-250	5.30E-02	1.31E+01	1.00E+00	1.87E+00	1.06E+01	3.69E+00	2.27E+00	1.00E+01	4.63E-07	2.62E-06	9.12E-07	5.63E-07	2.48E-06
Californium (98)	Cf-251	7.70E-04	9.00E+02	1.00E+00	2.41E-01	9.05E-01	3.37E-01	2.46E-01	8.90E-01	4.13E-06	1.55E-05	5.76E-06	4.21E-06	1.52E-05



Resident 2D External Exposure DCCs July 2023															
Radionuclides		Isotope-specific Information			Dose Compliance Concentrations (DCCs)										
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Soil Volume Area Correction Factor	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	
					DCC DL=1 (Bq/g)	@ 1cm DCC DL=1 (Bq/g)	@ 5cm DCC DL=1 (Bq/g)	@ 15cm DCC DL=1 (Bq/g)	Plane DCC DL=1 (Bq/cm <sup>2</sup> )	DCC DL=1 (mg/kg)	@ 1cm DCC DL=1 (mg/kg)	@ 5cm DCC DL=1 (mg/kg)	@ 15cm DCC DL=1 (mg/kg)	Plane DCC DL=1 (mg/cm <sup>2</sup> )	
Californium (98)	Cf-252	2.62E-01	2.65E+00	1.00E+00	4.46E-02	2.54E-01	8.81E-02	5.42E-02	2.51E-01	2.25E-09	1.28E-08	4.44E-09	2.73E-09	1.26E-08	
Californium (98)	Cf-253	1.42E+01	4.88E-02	1.00E+00	4.79E+02	1.40E+03	6.90E+02	5.08E+02	4.73E+02	4.47E-07	1.31E-06	6.44E-07	4.75E-07	4.42E-07	
Californium (98)	Cf-254	4.18E+00	1.66E-01	1.00E+00	4.51E-03	2.56E-02	8.91E-03	5.49E-03	2.53E-02	1.44E-11	8.15E-11	2.84E-11	1.75E-11	8.05E-11	
Californium (98)	Cf-255	4.29E+03	1.62E-04	9.00E-01	1.35E+04	4.51E+04	1.85E+04	1.40E+04	2.04E+04	4.22E-08	1.41E-07	5.79E-08	4.36E-08	6.35E-08	
Chlorine (17)	Cl-34	1.43E+07	4.84E-08	1.00E+00	1.26E+28	5.86E+28	2.12E+28	1.39E+28	5.35E+28	1.57E+12	7.29E+12	2.64E+12	1.73E+12	6.66E+12	
Chlorine (17)	Cl-34m	1.14E+04	6.09E-05	1.00E+00	9.59E+01	5.61E+02	1.92E+02	1.18E+02	5.68E+02	1.50E-11	8.79E-11	3.01E-11	1.85E-11	8.90E-11	
Chlorine (17)	Cl-36	2.30E-06	3.01E+05	1.00E+00	4.58E+01	1.24E+02	6.25E+01	4.77E+01	8.58E+00	3.76E-02	1.02E-01	5.12E-02	3.91E-02	7.04E-03	
Chlorine (17)	Cl-38	9.78E+03	7.09E-05	1.00E+00	1.14E+02	6.85E+02	2.38E+02	1.43E+02	6.66E+02	2.32E-11	1.39E-10	4.85E-11	2.92E-11	1.36E-10	
Chlorine (17)	Cl-39	6.55E+03	1.06E-04	1.00E+00	8.19E+01	4.54E+02	1.57E+02	9.76E+01	4.39E+02	2.56E-11	1.42E-10	4.92E-11	3.05E-11	1.37E-10	
Chlorine (17)	Cl-40	2.70E+05	2.57E-06	1.00E+00	6.57E+16	4.14E+17	1.42E+17	8.43E+16	4.23E+17	5.11E+02	3.22E+03	1.10E+03	6.55E+02	3.29E+03	
Curium (96)	Cm-238	2.53E+03	2.74E-04	1.00E+00	5.22E+01	2.63E+02	9.25E+01	5.98E+01	2.65E+02	2.58E-10	1.30E-09	4.56E-10	2.95E-10	1.31E-09	
Curium (96)	Cm-239	2.09E+03	3.31E-04	1.00E+00	1.22E+02	4.57E+02	1.70E+02	1.25E+02	4.54E+02	7.30E-10	2.74E-09	1.02E-09	7.46E-10	2.72E-09	
Curium (96)	Cm-240	9.37E+00	7.40E-02	1.00E+00	1.33E+01	7.69E+01	2.66E+01	1.63E+01	7.58E+01	1.78E-08	1.03E-07	3.58E-08	2.19E-08	1.02E-07	
Curium (96)	Cm-241	7.71E+00	8.99E-02	1.00E+00	3.51E-01	1.58E+00	5.66E-01	3.80E-01	1.58E+00	5.75E-10	2.60E-09	9.27E-10	6.22E-10	2.59E-09	
Curium (96)	Cm-242	1.55E+00	4.46E-01	1.00E+00	1.70E+03	2.20E+03	1.86E+03	1.72E+03	2.80E+02	1.39E-05	1.80E-05	1.52E-05	1.41E-05	2.28E-06	
Curium (96)	Cm-243	2.38E-02	2.91E+01	1.00E+00	2.10E-01	8.27E-01	3.05E-01	2.17E-01	8.17E-01	1.12E-07	4.43E-07	1.63E-07	1.16E-07	4.37E-07	
Curium (96)	Cm-244	3.83E-02	1.81E+01	1.00E+00	5.68E+02	1.14E+03	7.87E+02	6.26E+02	1.66E+02	1.90E-04	3.81E-04	2.63E-04	2.09E-04	5.55E-05	
Curium (96)	Cm-245	8.15E-05	8.50E+03	1.00E+00	3.11E-01	1.02E+00	4.05E-01	3.14E-01	9.48E-01	4.89E-05	1.61E-04	6.39E-05	4.94E-05	1.49E-04	
Curium (96)	Cm-246	1.46E-04	4.76E+03	1.00E+00	4.93E+00	2.77E+01	9.72E+00	6.01E+00	2.46E+01	4.36E-04	2.46E-03	8.62E-04	5.32E-04	2.18E-03	
Curium (96)	Cm-247	4.44E-08	1.56E+07	1.00E+00	4.34E-02	1.81E+01	6.63E-02	4.60E-02	1.79E-01	1.26E-02	5.29E-02	1.93E-02	1.34E-02	5.23E-02	
Curium (96)	Cm-248	1.99E-06	3.48E+05	1.00E+00	1.36E-02	7.75E-02	2.70E-02	1.66E-02	7.62E-02	8.91E-05	5.06E-04	1.76E-04	1.08E-04	4.98E-04	
Curium (96)	Cm-249	5.68E+03	1.22E-04	1.00E+00	5.82E+03	2.77E+04	9.92E+03	6.46E+03	1.63E+04	1.34E-08	6.37E-08	2.28E-08	1.49E-08	3.75E-08	
Curium (96)	Cm-250	8.35E-05	8.30E+03	1.00E+00	1.32E-03	7.46E-03	2.60E-03	1.60E-03	7.35E-03	2.07E-07	1.17E-06	4.08E-07	2.51E-07	1.15E-06	
Curium (96)	Cm-251	2.17E+04	3.20E-05	1.00E+00	7.78E+03	2.74E+04	1.05E+04	7.87E+03	2.20E+04	4.72E-09	1.66E-08	6.37E-09	4.78E-09	1.33E-08	
Cobalt (27)	Co-54m	2.46E+05	2.82E-06	1.00E+00	1.65E+17	8.65E+17	3.03E+17	1.91E+17	8.54E+17	1.89E+03	9.95E+03	3.48E+03	2.19E+03	9.83E+03	
Cobalt (27)	Co-55	3.46E+02	2.00E-03	1.00E+00	3.34E+00	1.72E+01	6.00E+00	3.82E+00	1.72E+01	2.78E-11	1.43E-10	5.00E-11	3.18E-11	1.43E-10	
Cobalt (27)	Co-56	3.28E+00	2.12E-01	1.00E+00	1.66E-02	9.61E-02	3.31E-02	2.03E-02	9.91E-02	1.49E-11	8.62E-11	2.97E-11	1.82E-11	8.89E-11	
Cobalt (27)	Co-57	9.31E-01	7.44E-01	1.00E+00	3.75E-01	1.33E+00	5.03E-01	3.80E-01	1.34E+00	1.21E-09	4.29E-09	1.62E-09	1.22E-09	4.31E-09	
Cobalt (27)	Co-58	3.57E+00	1.94E-01	1.00E+00	7.30E-02	3.74E-01	1.30E-01	8.29E-02	3.79E-01	6.22E-11	3.18E-10	1.11E-10	7.07E-11	3.23E-10	
Cobalt (27)	Co-58m	6.72E+02	1.03E-03	1.00E+00	1.37E+01	7.03E+01	2.45E+01	1.56E+01	7.14E+01	6.22E-11	3.18E-10	1.11E-10	7.07E-11	3.23E-10	
Cobalt (27)	Co-60	1.31E-01	5.27E+00	1.00E+00	7.72E-03	4.33E-02	1.49E-02	9.20E-03	4.42E-02	1.85E-10	1.04E-09	3.56E-10	2.20E-10	1.06E-09	
Cobalt (27)	Co-60m	3.48E+04	1.99E-05	1.00E+00	2.05E+03	1.15E+04	3.95E+03	2.44E+03	1.17E+04	1.85E-10	1.04E-09	3.57E-10	2.21E-10	1.06E-09	
Cobalt (27)	Co-61	3.68E+03	1.88E-04	1.00E+00	1.14E+03	4.09E+03	1.70E+03	1.25E+03	2.58E+03	9.93E-10	3.56E-09	1.48E-09	1.08E-09	2.24E-09	
Cobalt (27)	Co-62	2.43E+05	2.85E-06	1.00E+00	1.96E+17	1.11E+18	3.87E+17	2.38E+17	1.06E+18	2.62E+03	1.48E+04	5.18E+03	3.18E+03	1.42E+04	
Cobalt (27)	Co-62m	2.62E+04	2.65E-05	1.00E+00	8.63E+10	4.87E+11	1.69E+11	1.04E+11	4.82E+11	1.07E-02	6.05E-02	2.10E-02	1.29E-02	5.98E-02	
Chromium (24)	Cr-48	2.82E+02	2.46E-03	1.00E+00	1.61E+00	8.44E+00	2.94E+00	1.86E+00	8.61E+00	1.44E-11	7.55E-11	2.63E-11	1.66E-11	7.70E-11	
Chromium (24)	Cr-49	8.61E+03	8.05E-05	1.00E+00	1.72E+02	8.03E+02	2.85E+02	1.88E+02	7.67E+02	5.12E-11	2.40E-10	8.51E-11	5.61E-11	2.29E-10	
Chromium (24)	Cr-51	9.13E+00	7.59E-02	1.00E+00	6.23E+00	2.84E+01	9.95E+00	6.64E+00	2.91E+01	1.82E-09	8.30E-09	2.91E-09	1.94E-09	8.52E-09	
Chromium (24)	Cr-55	1.04E+05	6.65E-06	1.00E+00	1.28E+17	2.34E+17	1.64E+17	1.34E+17	4.90E+16	3.53E+03	6.48E+03	4.55E+03	3.71E+03	1.36E+03	
Chromium (24)	Cr-56	6.13E+04	1.13E-05	1.00E+00	6.49E+02	3.66E+03	1.27E+03	7.83E+02	3.61E+03	3.11E-11	1.75E-10	6.08E-11	3.75E-11	1.73E-10	
Cesium (55)	Cs-121	1.41E+05	4.92E-06	1.00E+00	1.14E+03	5.87E+03	2.06E+03	1.31E+03	5.78E+03	5.12E-11	2.64E-10	9.26E-11	5.89E-11	2.60E-10	
Cesium (55)	Cs-121m	1.79E+05	3.87E-06	1.00E+00	3.93E+03	1.87E+04	6.60E+03	4.31E+03	1.85E+04	1.39E-10	6.61E-10	2.34E-10	1.53E-10	6.54E-10	

Resident 2D External Exposure DCCs July 2023															
Radionuclides		Isotope-specific Information			Dose Compliance Concentrations (DCCs)										
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Soil Volume Area Correction Factor	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	
					DCC DL=1 (Bq/g)	@ 1cm DCC DL=1 (Bq/g)	@ 5cm DCC DL=1 (Bq/g)	@ 15cm DCC DL=1 (Bq/g)	Plane DCC DL=1 (Bq/cm <sup>2</sup> )	DCC DL=1 (mg/kg)	@ 1cm DCC DL=1 (mg/kg)	@ 5cm DCC DL=1 (mg/kg)	@ 15cm DCC DL=1 (mg/kg)	Plane DCC DL=1 (mg/cm <sup>2</sup> )	
Cesium (55)	Cs-123	6.19E+04	1.12E-05	1.00E+00	1.68E+03	7.99E+03	2.86E+03	1.87E+03	7.73E+03	1.75E-10	8.32E-10	2.97E-10	1.95E-10	8.05E-10	
Cesium (55)	Cs-124	7.10E+05	9.77E-07	1.00E+00	9.15E+19	4.35E+20	1.57E+20	1.02E+20	4.05E+20	8.39E+05	3.99E+06	1.43E+06	9.34E+05	3.71E+06	
Cesium (55)	Cs-125	8.09E+03	8.56E-05	1.00E+00	1.69E+02	7.98E+02	2.85E+02	1.87E+02	7.47E+02	1.37E-10	6.46E-10	2.31E-10	1.51E-10	6.05E-10	
Cesium (55)	Cs-126	2.22E+05	3.12E-06	1.00E+00	7.08E+16	3.39E+17	1.21E+17	7.85E+16	3.18E+17	2.11E+03	1.01E+04	3.59E+03	2.34E+03	9.47E+03	
Cesium (55)	Cs-127	9.71E+02	7.13E-04	1.00E+00	3.17E+01	1.43E+02	5.10E+01	3.41E+01	1.39E+02	2.17E-10	9.78E-10	3.50E-10	2.34E-10	9.56E-10	
Cesium (55)	Cs-128	1.00E+05	6.93E-06	1.00E+00	1.09E+16	5.21E+16	1.85E+16	1.21E+16	4.84E+16	7.30E+02	3.50E+03	1.24E+03	8.09E+02	3.25E+03	
Cesium (55)	Cs-129	1.89E+02	3.66E-03	1.00E+00	1.60E+01	7.28E+01	2.61E+01	1.73E+01	6.94E+01	5.72E-10	2.60E-09	9.33E-10	6.19E-10	2.48E-09	
Cesium (55)	Cs-130	1.25E+04	5.56E-05	1.00E+00	1.49E+07	7.17E+07	2.55E+07	1.65E+07	6.63E+07	8.16E-06	3.92E-05	1.39E-05	9.03E-06	3.63E-05	
Cesium (55)	Cs-130m	1.05E+05	6.58E-06	1.00E+00	1.11E+08	5.34E+08	1.90E+08	1.23E+08	4.94E+08	7.21E-06	3.46E-05	1.23E-05	7.97E-06	3.20E-05	
Cesium (55)	Cs-131	2.61E+01	2.65E-02	1.00E+00	3.69E+02	4.11E+02	3.69E+02	3.69E+02	1.38E+02	9.70E-08	1.08E-07	9.70E-08	9.70E-08	3.64E-08	
Cesium (55)	Cs-132	3.90E+01	1.78E-02	1.00E+00	1.10E+00	5.50E+00	1.94E+00	1.24E+00	5.49E+00	1.96E-10	9.76E-10	3.44E-10	2.19E-10	9.74E-10	
Cesium (55)	Cs-134	3.36E-01	2.06E+00	1.00E+00	1.47E-02	7.47E-02	2.61E-02	1.67E-02	7.57E-02	3.09E-10	1.56E-09	5.46E-10	3.49E-10	1.59E-09	
Cesium (55)	Cs-134m	2.09E+03	3.31E-04	1.00E+00	8.96E+01	4.47E+02	1.57E+02	1.01E+02	4.48E+02	3.01E-10	1.50E-09	5.28E-10	3.39E-10	1.51E-09	
Cesium (55)	Cs-135	3.01E-07	2.30E+06	9.00E-01	1.58E+03	3.54E+03	1.83E+03	1.58E+03	2.09E+03	3.71E+01	8.32E+01	4.30E+01	3.72E+01	4.91E+01	
Cesium (55)	Cs-135m	6.87E+03	1.01E-04	1.00E+00	8.24E+01	4.26E+02	1.48E+02	9.44E+01	4.31E+02	8.49E-11	4.39E-10	1.53E-10	9.72E-11	4.44E-10	
Cesium (55)	Cs-136	1.92E+01	3.61E-02	1.00E+00	1.73E-01	9.02E-01	3.14E-01	1.99E-01	9.20E-01	6.41E-11	3.35E-10	1.16E-10	7.38E-11	3.41E-10	
Cesium (55)	Cs-137	2.30E-02	3.02E+01	1.00E+00	3.53E-02	1.77E-01	6.20E-02	3.97E-02	1.76E-01	1.10E-08	5.54E-08	1.94E-08	1.24E-08	5.50E-08	
Cesium (55)	Cs-138	1.09E+04	6.36E-05	1.00E+00	8.21E+01	4.68E+02	1.62E+02	9.95E+01	4.60E+02	5.45E-11	3.10E-10	1.07E-10	6.61E-11	3.05E-10	
Cesium (55)	Cs-138m	1.25E+05	5.54E-06	1.00E+00	6.04E+06	3.44E+07	1.19E+07	7.32E+06	3.38E+07	3.49E-07	1.99E-06	6.88E-07	4.23E-07	1.95E-06	
Cesium (55)	Cs-139	3.93E+04	1.76E-05	1.00E+00	1.86E+04	6.25E+04	2.67E+04	1.94E+04	2.51E+04	3.45E-09	1.16E-08	4.96E-09	3.59E-09	4.66E-09	
Cesium (55)	Cs-140	3.43E+05	2.02E-06	1.00E+00	2.51E+03	1.40E+04	4.84E+03	3.00E+03	1.40E+04	5.37E-11	3.00E-10	1.04E-10	6.42E-11	2.99E-10	
Copper (29)	Cu-57	1.11E+08	6.22E-09	1.00E+00	1.03E+06	5.62E+06	1.95E+06	1.22E+06	5.75E+06	2.76E-11	1.51E-10	5.24E-11	3.27E-11	1.54E-10	
Copper (29)	Cu-59	2.68E+05	2.58E-06	1.00E+00	5.10E+13	2.47E+14	8.66E+13	5.62E+13	2.51E+14	5.88E-01	2.85E+00	9.99E-01	6.49E-01	2.90E+00	
Copper (29)	Cu-60	1.54E+04	4.51E-05	1.00E+00	4.15E+07	2.33E+08	8.07E+07	5.01E+07	2.35E+08	8.50E-06	4.77E-05	1.65E-05	1.02E-05	4.80E-05	
Copper (29)	Cu-61	1.82E+03	3.80E-04	1.00E+00	4.47E+01	2.17E+02	7.65E+01	4.94E+01	2.13E+02	7.85E-11	3.81E-10	1.34E-10	8.67E-11	3.74E-10	
Copper (29)	Cu-62	3.77E+04	1.84E-05	1.00E+00	2.14E+12	1.02E+13	3.63E+12	2.36E+12	9.26E+12	1.85E-01	8.77E-01	3.14E-01	2.04E-01	8.00E-01	
Copper (29)	Cu-64	4.78E+02	1.45E-03	1.00E+00	5.24E+01	2.54E+02	8.93E+01	5.79E+01	2.56E+02	3.68E-10	1.79E-09	6.27E-10	4.07E-10	1.80E-09	
Copper (29)	Cu-66	7.11E+04	9.74E-06	1.00E+00	6.32E+14	2.91E+15	1.13E+15	7.33E+14	1.60E+15	3.07E+01	1.42E+02	5.51E+01	3.56E+01	7.79E+01	
Copper (29)	Cu-67	9.82E+01	7.06E-03	1.00E+00	2.24E+01	8.79E+01	3.22E+01	2.30E+01	8.91E+01	8.02E-10	3.14E-09	1.15E-09	8.25E-10	3.19E-09	
Copper (29)	Cu-69	1.28E+05	5.42E-06	1.00E+00	4.82E+06	9.36E+06	5.91E+06	4.91E+06	5.82E+05	1.37E-07	2.65E-07	1.67E-07	1.39E-07	1.65E-08	
Dysprosium (66)	Dy-148	1.10E+05	6.28E-06	1.00E+00	8.74E+02	4.70E+03	1.64E+03	1.03E+03	4.65E+03	6.14E-11	3.30E-10	1.15E-10	7.22E-11	3.27E-10	
Dysprosium (66)	Dy-149	8.67E+04	7.99E-06	1.00E+00	1.26E+03	6.29E+03	2.23E+03	1.44E+03	6.23E+03	1.13E-10	5.67E-10	2.01E-10	1.30E-10	5.62E-10	
Dysprosium (66)	Dy-150	5.08E+04	1.36E-05	1.00E+00	3.80E+02	2.08E+03	7.26E+02	4.53E+02	2.11E+03	5.89E-11	3.22E-10	1.12E-10	7.01E-11	3.26E-10	
Dysprosium (66)	Dy-151	2.03E+04	3.41E-05	1.00E+00	4.13E+02	1.96E+03	6.98E+02	4.59E+02	1.93E+03	1.61E-10	7.62E-10	2.72E-10	1.79E-10	7.52E-10	
Dysprosium (66)	Dy-152	2.55E+03	2.72E-04	1.00E+00	2.83E+01	1.47E+02	5.17E+01	3.28E+01	1.47E+02	8.84E-11	4.60E-10	1.61E-10	1.03E-10	4.59E-10	
Dysprosium (66)	Dy-153	9.49E+02	7.31E-04	1.00E+00	1.69E+01	7.97E+01	2.90E+01	1.91E+01	7.72E+01	1.43E-10	6.75E-10	2.45E-10	1.62E-10	6.53E-10	
Dysprosium (66)	Dy-154	2.31E-07	3.00E+06												
Dysprosium (66)	Dy-155	6.13E+02	1.13E-03	1.00E+00	1.66E+01	7.70E+01	2.80E+01	1.86E+01	7.52E+01	2.20E-10	1.02E-09	3.71E-10	2.46E-10	9.96E-10	
Dysprosium (66)	Dy-157	7.46E+02	9.29E-04	1.00E+00	5.12E+01	2.23E+02	8.08E+01	5.46E+01	2.19E+02	5.65E-10	2.47E-09	8.92E-10	6.03E-10	2.42E-09	
Dysprosium (66)	Dy-159	1.75E+00	3.96E-01	1.00E+00	5.22E+00	8.26E+00	5.33E+00	5.22E+00	5.16E+00	2.48E-08	3.93E-08	2.54E-08	2.48E-08	2.46E-08	
Dysprosium (66)	Dy-165	2.60E+03	2.66E-04	1.00E+00	2.29E+03	9.01E+03	3.62E+03	2.50E+03	3.57E+03	7.61E-09	3.00E-08	1.21E-08	8.31E-09	1.19E-08	
Dysprosium (66)	Dy-165m	2.90E+05	2.39E-06	1.00E+00	2.58E+05	1.02E+06	4.09E+05	2.82E+05	4.03E+05	7.72E-09	3.04E-08	1.22E-08	8.42E-09	1.20E-08	

Resident 2D External Exposure DCCs July 2023															
Radionuclides		Isotope-specific Information			Dose Compliance Concentrations (DCCs)										
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Soil Volume Area Correction Factor	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	
					DCC DL=1 (Bq/g)	@ 1cm DCC DL=1 (Bq/g)	@ 5cm DCC DL=1 (Bq/g)	@ 15cm DCC DL=1 (Bq/g)	Plane DCC DL=1 (Bq/cm <sup>2</sup> )	DCC DL=1 (mg/kg)	@ 1cm DCC DL=1 (mg/kg)	@ 5cm DCC DL=1 (mg/kg)	@ 15cm DCC DL=1 (mg/kg)	Plane DCC DL=1 (mg/cm <sup>2</sup> )	
Dysprosium (66)	Dy-166	7.44E+01	9.32E-03	1.00E+00	3.39E+01	1.09E+02	5.03E+01	3.74E+01	4.93E+01	3.97E-09	1.27E-08	5.88E-09	4.38E-09	5.77E-09	
Dysprosium (66)	Dy-167	5.87E+04	1.18E-05	1.00E+00	3.56E+03	1.61E+04	5.68E+03	3.81E+03	1.59E+04	5.31E-10	2.39E-09	8.47E-10	5.67E-10	2.37E-09	
Dysprosium (66)	Dy-168	4.19E+04	1.66E-05	1.00E+00	2.30E+12	1.14E+13	4.04E+12	2.60E+12	1.06E+13	4.84E-01	2.41E+00	8.51E-01	5.47E-01	2.24E+00	
Erbium (68)	Er-154	9.77E+04	7.10E-06	1.00E+00	1.44E+05	7.88E+05	2.75E+05	1.71E+05	7.99E+05	1.19E-08	6.52E-08	2.27E-08	1.42E-08	6.60E-08	
Erbium (68)	Er-156	1.87E+04	3.71E-05	1.00E+00	1.71E+02	8.91E+02	3.14E+02	1.98E+02	8.90E+02	7.49E-11	3.90E-10	1.37E-10	8.69E-11	3.90E-10	
Erbium (68)	Er-159	1.01E+04	6.85E-05	1.00E+00	1.60E+02	7.68E+02	2.78E+02	1.81E+02	7.52E+02	1.32E-10	6.33E-10	2.29E-10	1.49E-10	6.20E-10	
Erbium (68)	Er-161	1.89E+03	3.66E-04	1.00E+00	3.73E+01	1.88E+02	6.69E+01	4.29E+01	1.85E+02	1.67E-10	8.38E-10	2.99E-10	1.91E-10	8.26E-10	
Erbium (68)	Er-163	4.86E+03	1.43E-04	1.00E+00	1.08E+04	1.96E+04	1.17E+04	1.10E+04	1.33E+04	1.91E-08	3.44E-08	2.06E-08	1.94E-08	2.35E-08	
Erbium (68)	Er-165	5.86E+02	1.18E-03	1.00E+00	1.54E+03	2.57E+03	1.58E+03	1.54E+03	1.72E+03	2.27E-08	3.79E-08	2.33E-08	2.27E-08	2.54E-08	
Erbium (68)	Er-167m	9.63E+06	7.19E-08	1.00E+00	3.32E+28	1.34E+29	4.91E+28	3.44E+28	1.34E+29	3.02E+13	1.22E+14	4.46E+13	3.13E+13	1.21E+14	
Erbium (68)	Er-169	2.69E+01	2.58E-02	1.00E+00	2.36E+04	5.75E+04	2.82E+04	2.37E+04	3.67E+04	7.78E-06	1.89E-05	9.28E-06	7.82E-06	1.21E-05	
Erbium (68)	Er-171	8.08E+02	8.58E-04	1.00E+00	5.08E+01	2.20E+02	7.92E+01	5.40E+01	2.04E+02	5.64E-10	2.44E-09	8.79E-10	5.99E-10	2.26E-09	
Erbium (68)	Er-172	1.23E+02	5.63E-03	1.00E+00	2.45E+00	1.25E+01	4.43E+00	2.82E+00	1.20E+01	1.80E-10	9.19E-10	3.25E-10	2.07E-10	8.82E-10	
Erbium (68)	Er-173	2.54E+05	2.73E-06	1.00E+00	1.39E+04	6.43E+04	2.27E+04	1.50E+04	6.25E+04	4.95E-10	2.30E-09	8.10E-10	5.34E-10	2.23E-09	
Einsteinium (99)	Es-249	3.56E+03	1.94E-04	1.00E+00	1.94E+02	8.85E+02	3.17E+02	2.12E+02	8.89E+02	7.11E-10	3.24E-09	1.16E-09	7.77E-10	3.26E-09	
Einsteinium (99)	Es-250	7.06E+02	9.82E-04	1.00E+00	1.26E+01	6.02E+01	2.14E+01	1.40E+01	6.00E+01	2.33E-10	1.12E-09	3.97E-10	2.60E-10	1.11E-09	
Einsteinium (99)	Es-250m	2.73E+03	2.53E-04	1.00E+00	9.93E+01	5.09E+02	1.79E+02	1.15E+02	5.12E+02	4.76E-10	2.44E-09	8.58E-10	5.50E-10	2.46E-09	
Einsteinium (99)	Es-251	1.84E+02	3.77E-03	1.00E+00	6.41E+01	2.22E+02	8.49E+01	6.44E+01	2.11E+02	4.58E-09	1.59E-08	6.08E-09	4.61E-09	1.51E-08	
Einsteinium (99)	Es-253	1.24E+01	5.61E-02	1.00E+00	4.19E+02	1.93E+03	6.80E+02	4.51E+02	1.78E+03	4.50E-07	2.07E-06	7.30E-07	4.85E-07	1.91E-06	
Einsteinium (99)	Es-254	9.17E-01	7.55E-01	1.00E+00	3.19E-02	1.70E-01	5.90E-02	3.71E-02	1.69E-01	4.63E-10	2.47E-09	8.56E-10	5.38E-10	2.45E-09	
Einsteinium (99)	Es-254m	1.54E+02	4.49E-03	1.00E+00	6.16E+00	3.10E+01	1.08E+01	6.91E+00	3.06E+01	5.31E-10	2.67E-09	9.35E-10	5.96E-10	2.64E-09	
Einsteinium (99)	Es-255	6.36E+00	1.09E-01	1.00E+00	2.06E+01	6.95E+01	2.84E+01	2.13E+01	4.08E+01	4.34E-08	1.46E-07	5.97E-08	4.49E-08	8.59E-08	
Einsteinium (99)	Es-256	1.43E+04	4.83E-05	1.00E+00	2.07E+01	1.17E+02	4.07E+01	2.51E+01	1.17E+02	1.94E-11	1.10E-10	3.81E-11	2.35E-11	1.09E-10	
Europium (63)	Eu-142	9.34E+06	7.42E-08	1.00E+00	3.18E+06	1.50E+07	5.42E+06	3.54E+06	1.37E+07	2.54E-09	1.20E-08	4.32E-09	2.82E-09	1.09E-08	
Europium (63)	Eu-142m	2.98E+05	2.33E-06	1.00E+00	6.11E+03	2.89E+04	1.04E+04	6.79E+03	2.63E+04	1.53E-10	7.22E-10	2.60E-10	1.70E-10	6.57E-10	
Europium (63)	Eu-143	1.41E+05	4.93E-06	1.00E+00	1.53E+04	7.57E+04	2.70E+04	1.73E+04	7.33E+04	8.17E-10	4.04E-09	1.44E-09	9.25E-10	3.91E-09	
Europium (63)	Eu-144	2.14E+06	3.23E-07	1.00E+00	1.03E+23	5.00E+23	1.80E+23	1.17E+23	4.65E+23	3.65E+08	1.76E+09	6.36E+08	4.11E+08	1.64E+09	
Europium (63)	Eu-145	4.27E+01	1.62E-02	1.00E+00	6.24E-01	3.37E+00	1.18E+00	7.38E-01	3.36E+00	1.11E-10	6.00E-10	2.10E-10	1.32E-10	5.99E-10	
Europium (63)	Eu-146	5.49E+01	1.26E-02	1.00E+00	4.36E-01	2.30E+00	8.02E-01	5.06E-01	2.33E+00	6.08E-11	3.21E-10	1.12E-10	7.05E-11	3.26E-10	
Europium (63)	Eu-147	1.05E+01	6.60E-02	1.00E+00	4.85E-01	2.33E+00	8.39E-01	5.44E-01	2.28E+00	3.56E-10	1.71E-09	6.16E-10	4.00E-10	1.68E-09	
Europium (63)	Eu-148	4.64E+00	1.49E-01	1.00E+00	4.13E-02	2.10E-01	7.35E-02	4.69E-02	2.13E-01	6.91E-11	3.51E-10	1.23E-10	7.85E-11	3.55E-10	
Europium (63)	Eu-149	2.72E+00	2.55E-01	1.00E+00	1.68E+00	6.00E+00	2.52E+00	1.79E+00	4.74E+00	4.84E-09	1.73E-08	7.25E-09	5.16E-09	1.36E-08	
Europium (63)	Eu-150	1.88E-02	3.69E+01	1.00E+00	1.32E-02	6.49E-02	2.28E-02	1.47E-02	6.54E-02	5.54E-09	2.72E-08	9.54E-09	6.18E-09	2.74E-08	
Europium (63)	Eu-150m	4.74E+02	1.46E-03	1.00E+00	2.03E+02	9.55E+02	3.45E+02	2.26E+02	6.44E+02	3.37E-09	1.58E-08	5.73E-09	3.75E-09	1.07E-08	
Europium (63)	Eu-152	5.12E-02	1.35E+01	1.00E+00	1.69E-02	8.89E-02	3.10E-02	1.97E-02	8.96E-02	2.64E-09	1.38E-08	4.83E-09	3.06E-09	1.40E-08	
Europium (63)	Eu-152m	6.52E+02	1.06E-03	1.00E+00	4.31E+01	2.17E+02	7.77E+01	4.96E+01	1.85E+02	5.27E-10	2.65E-09	9.50E-10	6.06E-10	2.26E-09	
Europium (63)	Eu-152n	3.79E+03	1.83E-04	1.00E+00	7.93E+02	3.17E+03	1.22E+03	8.69E+02	3.03E+03	1.67E-09	6.66E-09	2.57E-09	1.83E-09	6.36E-09	
Europium (63)	Eu-154	8.06E-02	8.59E+00	1.00E+00	1.59E-02	8.39E-02	2.93E-02	1.85E-02	8.47E-02	1.59E-09	8.41E-09	2.93E-09	1.85E-09	8.48E-09	
Europium (63)	Eu-154m	7.92E+03	8.75E-05	1.00E+00	1.24E+03	5.37E+03	2.04E+03	1.39E+03	5.01E+03	1.26E-09	5.47E-09	2.08E-09	1.42E-09	5.11E-09	
Europium (63)	Eu-155	1.46E-01	4.76E+00	1.00E+00	7.33E-01	2.10E+00	8.97E-01	7.33E-01	1.90E+00	4.09E-08	1.17E-07	5.01E-08	4.09E-08	1.06E-07	
Europium (63)	Eu-156	1.67E+01	4.16E-02	1.00E+00	2.43E-01	1.37E+00	4.75E-01	2.93E-01	1.37E+00	1.19E-10	6.75E-10	2.33E-10	1.44E-10	6.72E-10	
Europium (63)	Eu-157	4.00E+02	1.73E-03	1.00E+00	3.19E+01	1.42E+02	5.20E+01	3.48E+01	1.25E+02	6.57E-10	2.92E-09	1.07E-09	7.16E-10	2.57E-09	

Resident 2D External Exposure DCCs July 2023															
Radionuclides		Isotope-specific Information			Dose Compliance Concentrations (DCCs)										
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Soil Volume Area Correction Factor	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	
					DCC DL=1 (Bq/g)	@ 1cm DCC DL=1 (Bq/g)	@ 5cm DCC DL=1 (Bq/g)	@ 15cm DCC DL=1 (Bq/g)	Plane DCC DL=1 (Bq/cm <sup>2</sup> )	DCC DL=1 (mg/kg)	@ 1cm DCC DL=1 (mg/kg)	@ 5cm DCC DL=1 (mg/kg)	@ 15cm DCC DL=1 (mg/kg)	Plane DCC DL=1 (mg/cm <sup>2</sup> )	
Europium (63)	Eu-158	7.94E+03	8.73E-05	1.00E+00	1.13E+02	6.10E+02	2.13E+02	1.34E+02	5.81E+02	1.18E-10	6.37E-10	2.23E-10	1.40E-10	6.07E-10	
Europium (63)	Eu-159	2.01E+04	3.44E-05	1.00E+00	9.23E+03	3.89E+04	1.46E+04	9.91E+03	2.75E+04	3.82E-09	1.61E-08	6.03E-09	4.11E-09	1.14E-08	
Fluorine (9)	F-17	3.39E+05	2.04E-06	1.00E+00	1.32E+18	6.33E+18	2.23E+18	1.46E+18	5.94E+18	3.48E+03	1.67E+04	5.88E+03	3.83E+03	1.56E+04	
Fluorine (9)	F-18	3.32E+03	2.09E-04	9.00E-01	7.55E+01	3.66E+02	1.29E+02	8.32E+01	3.70E+02	2.15E-11	1.04E-10	3.66E-11	2.37E-11	1.05E-10	
Iron (26)	Fe-52	7.34E+02	9.45E-04	1.00E+00	4.38E+00	2.26E+01	7.93E+00	5.04E+00	2.24E+01	1.63E-11	8.41E-11	2.95E-11	1.87E-11	8.31E-11	
Iron (26)	Fe-53	4.28E+04	1.62E-05	1.00E+00	3.06E+12	1.46E+13	5.19E+12	3.38E+12	1.37E+13	1.99E-01	9.50E-01	3.37E-01	2.20E-01	8.88E-01	
Iron (26)	Fe-53m	1.44E+05	4.81E-06	1.00E+00	7.23E+12	3.45E+13	1.22E+13	7.98E+12	3.23E+13	1.39E-01	6.65E-01	2.36E-01	1.54E-01	6.22E-01	
Iron (26)	Fe-55	2.53E+01	2.74E+00	1.00E+00	2.05E+08	7.32E+08	2.75E+08	2.07E+08	7.43E+08	2.34E+00	8.33E+00	3.14E+00	2.36E+00	8.47E+00	
Iron (26)	Fe-59	5.68E+00	1.22E-01	1.00E+00	8.79E-02	4.84E-01	1.67E-01	1.04E-01	4.94E-01	4.78E-11	2.64E-10	9.12E-11	5.66E-11	2.69E-10	
Iron (26)	Fe-60	4.62E-07	1.50E+06	9.00E-01	7.24E-03	4.06E-02	1.40E-02	8.63E-03	4.14E-02	4.93E-05	2.76E-04	9.51E-05	5.88E-05	2.82E-04	
Iron (26)	Fe-61	6.09E+04	1.14E-05	1.00E+00	1.89E+04	6.77E+04	2.81E+04	2.06E+04	4.27E+04	9.93E-10	3.56E-09	1.48E-09	1.08E-09	2.24E-09	
Iron (26)	Fe-62	3.21E+05	2.16E-06	1.00E+00	7.11E+16	4.01E+17	1.40E+17	8.62E+16	3.83E+17	7.20E+02	4.06E+03	1.42E+03	8.72E+02	3.88E+03	
Fermium (100)	Fm-251	1.15E+03	6.05E-04	1.00E+00	1.29E+02	5.04E+02	1.88E+02	1.35E+02	4.89E+02	1.49E-09	5.79E-09	2.16E-09	1.55E-09	5.62E-09	
Fermium (100)	Fm-252	2.39E+02	2.90E-03	1.00E+00	9.38E+03	4.08E+04	1.70E+04	1.11E+04	1.62E+04	5.18E-07	2.25E-06	9.42E-07	6.16E-07	8.95E-07	
Fermium (100)	Fm-253	8.43E+01	8.22E-03	1.00E+00	4.36E+01	1.56E+02	5.94E+01	4.44E+01	1.42E+02	6.86E-09	2.46E-08	9.34E-09	6.98E-09	2.23E-08	
Fermium (100)	Fm-254	1.87E+03	3.70E-04	1.00E+00	4.45E+03	2.51E+04	8.76E+03	5.43E+03	2.30E+04	3.17E-08	1.78E-07	6.22E-08	3.86E-08	1.64E-07	
Fermium (100)	Fm-255	3.02E+02	2.29E-03	1.00E+00	5.87E+03	1.30E+04	7.00E+03	5.92E+03	3.98E+03	2.60E-07	5.73E-07	3.09E-07	2.62E-07	1.76E-07	
Fermium (100)	Fm-256	2.31E+03	3.00E-04	1.00E+00	3.33E+00	1.89E+01	6.56E+00	4.05E+00	1.88E+01	1.94E-11	1.10E-10	3.81E-11	2.35E-11	1.09E-10	
Fermium (100)	Fm-257	2.52E+00	2.75E-01	1.00E+00	4.88E-01	2.03E+00	7.45E-01	5.22E-01	1.94E+00	2.61E-09	1.09E-08	3.99E-09	2.80E-09	1.04E-08	
Francium (87)	Fr-212	1.82E+04	3.81E-05	1.00E+00	2.68E+02	1.39E+03	4.86E+02	3.09E+02	1.42E+03	1.63E-10	8.51E-10	2.97E-10	1.88E-10	8.65E-10	
Francium (87)	Fr-219	1.09E+09	6.34E-10	1.00E+00	3.83E+20	1.11E+21	5.78E+20	4.17E+20	1.60E+20	4.02E+03	1.17E+04	6.07E+03	4.39E+03	1.68E+03	
Francium (87)	Fr-220	7.98E+05	8.69E-07	1.00E+00	1.06E+04	6.36E+04	2.19E+04	1.32E+04	6.25E+04	1.53E-10	9.20E-10	3.17E-10	1.91E-10	9.05E-10	
Francium (87)	Fr-221	7.43E+04	9.32E-06	1.00E+00	1.20E+04	5.55E+04	1.99E+04	1.31E+04	4.24E+04	1.87E-09	8.66E-09	3.10E-09	2.04E-09	6.61E-09	
Francium (87)	Fr-222	2.57E+04	2.70E-05	1.00E+00	1.23E+07	2.08E+07	1.41E+07	1.24E+07	2.14E+06	5.56E-06	9.44E-06	6.39E-06	5.65E-06	9.70E-07	
Francium (87)	Fr-223	1.66E+04	4.19E-05	1.00E+00	1.22E+03	5.22E+03	1.91E+03	1.31E+03	4.03E+03	8.61E-10	3.68E-09	1.35E-09	9.23E-10	2.85E-09	
Francium (87)	Fr-224	1.09E+05	6.34E-06	1.00E+00	1.34E+03	7.77E+03	2.69E+03	1.65E+03	7.66E+03	1.44E-10	8.34E-10	2.89E-10	1.77E-10	8.23E-10	
Francium (87)	Fr-227	1.47E+05	4.70E-06	1.00E+00	2.56E+05	1.09E+06	3.97E+05	2.72E+05	8.95E+05	2.06E-08	8.79E-08	3.21E-08	2.20E-08	7.22E-08	
Gallium (31)	Ga-64	1.39E+05	5.00E-06	1.00E+00	1.21E+15	6.81E+15	2.37E+15	1.46E+15	6.80E+15	2.93E+01	1.65E+02	5.73E+01	3.54E+01	1.65E+02	
Gallium (31)	Ga-65	2.40E+04	2.89E-05	1.00E+00	1.18E+03	6.45E+03	2.23E+03	1.39E+03	6.59E+03	1.68E-10	9.18E-10	3.18E-10	1.98E-10	9.37E-10	
Gallium (31)	Ga-66	6.40E+02	1.08E-03	1.00E+00	4.48E+00	2.67E+01	9.19E+00	5.58E+00	2.70E+01	2.42E-11	1.44E-10	4.97E-11	3.02E-11	1.46E-10	
Gallium (31)	Ga-67	7.76E+01	8.93E-03	1.00E+00	1.26E+01	5.12E+01	1.87E+01	1.31E+01	5.17E+01	5.69E-10	2.32E-09	8.48E-10	5.95E-10	2.34E-09	
Gallium (31)	Ga-68	5.38E+03	1.29E-04	1.00E+00	1.14E+02	5.49E+02	1.94E+02	1.26E+02	5.14E+02	7.57E-11	3.64E-10	1.29E-10	8.34E-11	3.41E-10	
Gallium (31)	Ga-70	1.72E+04	4.02E-05	1.00E+00	1.40E+11	4.49E+11	2.24E+11	1.56E+11	8.58E+10	2.98E-02	9.57E-02	4.76E-02	3.33E-02	1.83E-02	
Gallium (31)	Ga-72	4.31E+02	1.61E-03	1.00E+00	2.84E+00	1.62E+01	5.62E+00	3.44E+00	1.65E+01	2.49E-11	1.42E-10	4.93E-11	3.02E-11	1.45E-10	
Gallium (31)	Ga-73	1.25E+03	5.55E-04	1.00E+00	7.75E+01	3.55E+02	1.25E+02	8.35E+01	3.21E+02	2.37E-10	1.09E-09	3.84E-10	2.56E-10	9.83E-10	
Gallium (31)	Ga-74	4.49E+04	1.54E-05	1.00E+00	1.16E+12	6.78E+12	2.34E+12	1.43E+12	6.84E+12	1.00E-01	5.87E-01	2.03E-01	1.23E-01	5.92E-01	
Gadolinium (64)	Gd-142	3.11E+05	2.23E-06	1.00E+00	6.39E+03	3.02E+04	1.09E+04	7.10E+03	2.75E+04	1.53E-10	7.22E-10	2.60E-10	1.70E-10	6.58E-10	
Gadolinium (64)	Gd-143m	1.99E+05	3.49E-06	1.00E+00	2.16E+04	1.07E+05	3.82E+04	2.45E+04	1.04E+05	8.17E-10	4.04E-09	1.44E-09	9.25E-10	3.91E-09	
Gadolinium (64)	Gd-144	8.15E+04	8.50E-06	1.00E+00	1.99E+14	9.99E+14	3.57E+14	2.28E+14	9.41E+14	1.85E+01	9.25E+01	3.31E+01	2.11E+01	8.72E+01	
Gadolinium (64)	Gd-145	1.58E+04	4.38E-05	1.00E+00	2.31E+02	1.25E+03	4.37E+02	2.73E+02	1.25E+03	1.11E-10	5.99E-10	2.10E-10	1.31E-10	5.98E-10	
Gadolinium (64)	Gd-145m	2.57E+05	2.70E-06	1.00E+00	3.75E+03	2.03E+04	7.10E+03	4.44E+03	2.02E+04	1.11E-10	5.99E-10	2.10E-10	1.31E-10	5.98E-10	
Gadolinium (64)	Gd-146	5.24E+00	1.32E-01	1.00E+00	3.98E-02	2.04E-01	7.18E-02	4.58E-02	2.04E-01	5.81E-11	2.97E-10	1.05E-10	6.69E-11	2.98E-10	



Resident 2D External Exposure DCCs July 2023															
Radionuclides		Isotope-specific Information			Dose Compliance Concentrations (DCCs)										
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Soil Volume Area Correction Factor	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	
					DCC DL=1 (Bq/g)	@ 1cm DCC DL=1 (Bq/g)	@ 5cm DCC DL=1 (Bq/g)	@ 15cm DCC DL=1 (Bq/g)	Plane DCC DL=1 (Bq/cm <sup>2</sup> )	DCC DL=1 (mg/kg)	@ 1cm DCC DL=1 (mg/kg)	@ 5cm DCC DL=1 (mg/kg)	@ 15cm DCC DL=1 (mg/kg)	Plane DCC DL=1 (mg/cm <sup>2</sup> )	
Gadolinium (64)	Gd-147	1.59E+02	4.35E-03	1.00E+00	1.75E+00	8.66E+00	3.06E+00	1.97E+00	8.68E+00	8.46E-11	4.19E-10	1.48E-10	9.55E-11	4.20E-10	
Gadolinium (64)	Gd-148	9.29E-03	7.46E+01	1.00E+00	1.10E+00	4.91E+00	1.79E+00	1.20E+00	4.74E+00	3.16E-10	1.41E-09	5.14E-10	3.45E-10	1.36E-09	
Gadolinium (64)	Gd-149	2.73E+01	2.54E-02	1.00E+00	1.10E+00	4.91E+00	1.79E+00	1.20E+00	4.74E+00	3.16E-10	1.41E-09	5.14E-10	3.45E-10	1.36E-09	
Gadolinium (64)	Gd-150	3.87E-07	1.79E+06	1.00E+00	1.10E+00	4.91E+00	1.79E+00	1.20E+00	4.74E+00	3.16E-10	1.41E-09	5.14E-10	3.45E-10	1.36E-09	
Gadolinium (64)	Gd-151	2.04E+00	3.40E-01	1.00E+00	1.42E+00	4.57E+00	1.97E+00	1.47E+00	3.62E+00	5.52E-09	1.77E-08	7.65E-09	5.70E-09	1.40E-08	
Gadolinium (64)	Gd-152	6.42E-15	1.08E+14	1.00E+00	1.42E+00	4.57E+00	1.97E+00	1.47E+00	3.62E+00	5.52E-09	1.77E-08	7.65E-09	5.70E-09	1.40E-08	
Gadolinium (64)	Gd-153	1.05E+00	6.59E-01	1.00E+00	8.45E-01	2.15E+00	1.01E+00	8.45E-01	1.67E+00	6.45E-09	1.64E-08	7.73E-09	6.45E-09	1.27E-08	
Gadolinium (64)	Gd-159	3.29E+02	2.11E-03	1.00E+00	1.51E+02	6.36E+02	2.38E+02	1.62E+02	4.49E+02	3.82E-09	1.61E-08	6.03E-09	4.11E-09	1.14E-08	
Gadolinium (64)	Gd-162	4.34E+04	1.60E-05	1.00E+00	4.20E+11	2.09E+12	7.33E+11	4.72E+11	2.03E+12	8.22E-02	4.09E-01	1.44E-01	9.24E-02	3.98E-01	
Germanium (32)	Ge-66	2.69E+03	2.58E-04	1.00E+00	1.54E+01	8.74E+01	3.03E+01	1.87E+01	8.82E+01	1.98E-11	1.13E-10	3.90E-11	2.41E-11	1.14E-10	
Germanium (32)	Ge-67	1.93E+04	3.60E-05	1.00E+00	3.12E+03	1.27E+04	4.65E+03	3.26E+03	1.28E+04	5.69E-10	2.32E-09	8.48E-10	5.95E-10	2.34E-09	
Germanium (32)	Ge-68	9.34E-01	7.42E-01	1.00E+00	3.26E-02	1.57E-01	5.56E-02	3.60E-02	1.47E-01	1.25E-10	6.00E-10	2.12E-10	1.37E-10	5.61E-10	
Germanium (32)	Ge-69	1.55E+02	4.46E-03	1.00E+00	3.12E+00	1.63E+01	5.69E+00	3.59E+00	1.65E+01	7.26E-11	3.80E-10	1.32E-10	8.36E-11	3.83E-10	
Germanium (32)	Ge-71	2.21E+01	3.13E-02	1.00E+00	2.15E+06	2.15E+06	2.15E+06	2.15E+06	5.76E+04	3.61E-04	3.61E-04	3.61E-04	3.61E-04	9.69E-06	
Germanium (32)	Ge-75	4.40E+03	1.57E-04	1.00E+00	2.70E+03	1.14E+04	4.17E+03	2.84E+03	5.74E+03	2.41E-09	1.02E-08	3.73E-09	2.54E-09	5.13E-09	
Germanium (32)	Ge-77	5.37E+02	1.29E-03	1.00E+00	9.87E+00	4.88E+01	1.72E+01	1.11E+01	4.68E+01	7.42E-11	3.67E-10	1.29E-10	8.32E-11	3.52E-10	
Germanium (32)	Ge-78	4.14E+03	1.67E-04	1.00E+00	4.93E+01	2.57E+02	9.01E+01	5.70E+01	2.47E+02	4.87E-11	2.54E-10	8.91E-11	5.63E-11	2.44E-10	
Hydrogen (1)	H-3	5.63E-02	1.23E+01	1.00E+00	1.74E+03	8.95E+03	3.20E+03	2.04E+03	8.90E+03	8.56E-11	4.41E-10	1.58E-10	1.01E-10	4.39E-10	
Hafnium (72)	Hf-167	1.78E+05	3.90E-06	1.00E+00	1.44E+03	7.21E+03	2.60E+03	1.67E+03	7.16E+03	1.14E-10	5.68E-10	2.05E-10	1.32E-10	5.64E-10	
Hafnium (72)	Hf-169	1.12E+05	6.16E-06	1.00E+00	1.44E+03	7.21E+03	2.60E+03	1.67E+03	7.16E+03	1.14E-10	5.68E-10	2.05E-10	1.32E-10	5.64E-10	
Hafnium (72)	Hf-170	3.79E+02	1.83E-03	1.00E+00	2.32E+00	1.32E+01	4.60E+00	2.84E+00	1.35E+01	5.46E-11	3.11E-10	1.08E-10	6.67E-11	3.18E-10	
Hafnium (72)	Hf-172	3.71E-01	1.87E+00	1.00E+00	1.18E-02	6.04E-02	2.14E-02	1.36E-02	6.04E-02	2.87E-10	1.47E-09	5.21E-10	3.32E-10	1.47E-09	
Hafnium (72)	Hf-173	2.57E+02	2.69E-03	1.00E+00	1.52E+01	5.92E+01	2.26E+01	1.60E+01	5.73E+01	5.38E-10	2.09E-09	7.96E-10	5.66E-10	2.02E-09	
Hafnium (72)	Hf-174	3.47E-16	2.00E+15	1.00E+00	1.52E+01	5.92E+01	2.26E+01	1.60E+01	5.73E+01	5.38E-10	2.09E-09	7.96E-10	5.66E-10	2.02E-09	
Hafnium (72)	Hf-175	3.61E+00	1.92E-01	1.00E+00	2.54E-01	1.09E+00	3.98E-01	2.71E-01	1.07E+00	6.44E-10	2.77E-09	1.01E-09	6.87E-10	2.73E-09	
Hafnium (72)	Hf-177m	7.09E+03	9.78E-05	1.00E+00	7.15E+01	3.13E+02	1.12E+02	7.60E+01	3.17E+02	9.36E-11	4.10E-10	1.47E-10	9.95E-11	4.15E-10	
Hafnium (72)	Hf-178m	2.24E-02	3.10E+01	1.00E+00	9.80E-03	4.50E-02	1.60E-02	1.06E-02	4.56E-02	4.09E-09	1.88E-08	6.68E-09	4.43E-09	1.91E-08	
Hafnium (72)	Hf-179m	1.01E+01	6.86E-02	1.00E+00	2.54E-01	1.11E+00	4.01E-01	2.72E-01	1.12E+00	2.36E-10	1.04E-09	3.73E-10	2.53E-10	1.04E-09	
Hafnium (72)	Hf-180m	1.10E+03	6.28E-04	1.00E+00	2.50E+01	1.12E+02	4.01E+01	2.69E+01	1.13E+02	2.14E-10	9.60E-10	3.43E-10	2.30E-10	9.68E-10	
Hafnium (72)	Hf-181	5.97E+00	1.16E-01	1.00E+00	2.46E-01	1.12E+00	4.01E-01	2.66E-01	1.14E+00	3.91E-10	1.79E-09	6.37E-10	4.23E-10	1.81E-09	
Hafnium (72)	Hf-182	7.70E-08	9.00E+06	1.00E+00	1.29E-02	6.64E-02	2.34E-02	1.49E-02	6.74E-02	1.60E-03	8.24E-03	2.90E-03	1.84E-03	8.35E-03	
Hafnium (72)	Hf-182m	5.92E+03	1.17E-04	1.00E+00	7.63E+01	3.75E+02	1.33E+02	8.63E+01	3.77E+02	1.23E-10	6.05E-10	2.14E-10	1.39E-10	6.08E-10	
Hafnium (72)	Hf-183	5.69E+03	1.22E-04	1.00E+00	1.16E+02	5.41E+02	1.94E+02	1.28E+02	5.20E+02	1.95E-10	9.13E-10	3.28E-10	2.16E-10	8.77E-10	
Hafnium (72)	Hf-184	1.47E+03	4.70E-04	1.00E+00	1.71E+01	8.17E+01	2.88E+01	1.89E+01	8.04E+01	1.12E-10	5.35E-10	1.89E-10	1.24E-10	5.26E-10	
Mercury (80)	Hg-190	1.82E+04	3.81E-05	1.00E+00	1.38E+02	7.98E+02	2.76E+02	1.69E+02	8.22E+02	7.54E-11	4.37E-10	1.51E-10	9.27E-11	4.50E-10	
Mercury (80)	Hg-191m	7.17E+03	9.67E-05	1.00E+00	6.44E+01	3.08E+02	1.10E+02	7.22E+01	3.10E+02	8.99E-11	4.31E-10	1.54E-10	1.01E-10	4.33E-10	
Mercury (80)	Hg-192	1.25E+03	5.54E-04	1.00E+00	1.08E+01	5.91E+01	2.06E+01	1.29E+01	6.03E+01	8.68E-11	4.76E-10	1.65E-10	1.04E-10	4.85E-10	
Mercury (80)	Hg-193	1.60E+03	4.34E-04	1.00E+00	3.34E+01	1.65E+02	5.92E+01	3.83E+01	1.65E+02	2.12E-10	1.04E-09	3.75E-10	2.43E-10	1.05E-09	
Mercury (80)	Hg-193m	5.14E+02	1.35E-03	1.00E+00	7.60E+00	3.70E+01	1.32E+01	8.59E+00	3.73E+01	1.50E-10	7.28E-10	2.60E-10	1.69E-10	7.35E-10	
Mercury (80)	Hg-194	1.58E-03	4.40E+02	1.00E+00	1.86E-02	9.89E-02	3.47E-02	2.18E-02	1.01E-01	1.20E-07	6.39E-07	2.24E-07	1.41E-07	6.51E-07	
Mercury (80)	Hg-195	5.77E+02	1.20E-03	1.00E+00	6.18E+01	2.48E+02	9.63E+01	6.80E+01	2.36E+02	1.10E-09	4.40E-09	1.71E-09	1.21E-09	4.19E-09	
Mercury (80)	Hg-195m	1.46E+02	4.75E-03	1.00E+00	1.05E+01	4.31E+01	1.63E+01	1.14E+01	4.18E+01	7.37E-10	3.02E-09	1.14E-09	7.98E-10	2.93E-09	

Resident 2D External Exposure DCCs July 2023															
Radionuclides		Isotope-specific Information			Dose Compliance Concentrations (DCCs)										
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Soil Volume Area Correction Factor	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	
					DCC DL=1 (Bq/g)	@ 1cm DCC DL=1 (Bq/g)	@ 5cm DCC DL=1 (Bq/g)	@ 15cm DCC DL=1 (Bq/g)	Plane DCC DL=1 (Bq/cm <sup>2</sup> )	DCC DL=1 (mg/kg)	@ 1cm DCC DL=1 (mg/kg)	@ 5cm DCC DL=1 (mg/kg)	@ 15cm DCC DL=1 (mg/kg)	Plane DCC DL=1 (mg/cm <sup>2</sup> )	
Mercury (80)	Hg-197	9.35E+01	7.41E-03	1.00E+00	6.55E+01	1.64E+02	7.52E+01	6.56E+01	1.46E+02	7.24E-09	1.82E-08	8.31E-09	7.25E-09	1.62E-08	
Mercury (80)	Hg-197m	2.55E+02	2.72E-03	1.00E+00	5.92E+01	1.85E+02	7.61E+01	6.02E+01	1.74E+02	2.40E-09	7.49E-09	3.08E-09	2.44E-09	7.06E-09	
Mercury (80)	Hg-199m	8.54E+03	8.12E-05	1.00E+00	1.31E+03	4.99E+03	1.89E+03	1.36E+03	4.96E+03	1.60E-09	6.10E-09	2.30E-09	1.66E-09	6.06E-09	
Mercury (80)	Hg-203	5.43E+00	1.28E-01	1.00E+00	5.21E-01	2.29E+00	8.10E-01	5.50E-01	2.34E+00	1.02E-09	4.49E-09	1.59E-09	1.08E-09	4.59E-09	
Mercury (80)	Hg-205	7.00E+04	9.89E-06	1.00E+00	1.01E+16	2.76E+16	1.39E+16	1.04E+16	4.75E+15	1.54E+03	4.24E+03	2.14E+03	1.60E+03	7.29E+02	
Mercury (80)	Hg-206	4.47E+04	1.55E-05	1.00E+00	3.53E+13	1.46E+14	5.52E+13	3.76E+13	6.96E+13	8.53E+00	3.53E+01	1.33E+01	9.10E+00	1.68E+01	
Mercury (80)	Hg-207	1.26E+05	5.52E-06	1.00E+00	1.87E+16	6.80E+16	3.15E+16	2.14E+16	1.23E+16	1.62E+03	5.88E+03	2.72E+03	1.85E+03	1.06E+03	
Holmium (67)	Ho-150	2.85E+05	2.44E-06	1.00E+00	2.13E+03	1.17E+04	4.07E+03	2.54E+03	1.18E+04	5.89E-11	3.22E-10	1.12E-10	7.01E-11	3.26E-10	
Holmium (67)	Ho-153	1.81E+05	3.82E-06	1.00E+00	3.23E+03	1.52E+04	5.53E+03	3.64E+03	1.47E+04	1.43E-10	6.72E-10	2.45E-10	1.61E-10	6.51E-10	
Holmium (67)	Ho-153m	3.92E+04	1.77E-05	1.00E+00	6.98E+02	3.29E+03	1.20E+03	7.88E+02	3.19E+03	1.43E-10	6.74E-10	2.45E-10	1.61E-10	6.53E-10	
Holmium (67)	Ho-154	3.10E+04	2.24E-05	1.00E+00	1.49E+06	8.48E+06	2.94E+06	1.81E+06	8.64E+06	3.88E-07	2.21E-06	7.66E-07	4.72E-07	2.25E-06	
Holmium (67)	Ho-154m	1.17E+05	5.90E-06	1.00E+00	8.57E+14	4.17E+15	1.46E+15	9.51E+14	4.14E+15	5.89E+01	2.87E+02	1.01E+02	6.54E+01	2.84E+02	
Holmium (67)	Ho-155	7.59E+03	9.13E-05	1.00E+00	1.15E+02	5.44E+02	1.96E+02	1.29E+02	5.29E+02	1.23E-10	5.83E-10	2.10E-10	1.38E-10	5.67E-10	
Holmium (67)	Ho-156	6.50E+03	1.07E-04	1.00E+00	5.96E+01	3.10E+02	1.09E+02	6.91E+01	3.10E+02	7.49E-11	3.90E-10	1.37E-10	8.69E-11	3.90E-10	
Holmium (67)	Ho-157	2.89E+04	2.40E-05	1.00E+00	1.99E+03	8.66E+03	3.13E+03	2.12E+03	8.50E+03	5.65E-10	2.47E-09	8.92E-10	6.03E-10	2.42E-09	
Holmium (67)	Ho-159	1.10E+04	6.29E-05	1.00E+00	7.58E+02	2.96E+03	1.15E+03	8.10E+02	2.73E+03	5.73E-10	2.24E-09	8.71E-10	6.13E-10	2.07E-09	
Holmium (67)	Ho-160	1.42E+04	4.87E-05	1.00E+00	2.98E+07	1.53E+08	5.34E+07	3.41E+07	1.53E+08	1.76E-05	9.01E-05	3.15E-05	2.01E-05	9.05E-05	
Holmium (67)	Ho-161	2.45E+03	2.83E-04	1.00E+00	3.72E+03	7.37E+03	4.15E+03	3.74E+03	4.82E+03	1.28E-08	2.54E-08	1.43E-08	1.29E-08	1.66E-08	
Holmium (67)	Ho-162	2.43E+04	2.85E-05	1.00E+00	1.58E+12	7.23E+12	2.74E+12	1.81E+12	6.59E+12	5.52E-01	2.53E+00	9.60E-01	6.33E-01	2.31E+00	
Holmium (67)	Ho-162m	5.44E+03	1.27E-04	1.00E+00	1.75E+02	8.68E+02	3.13E+02	2.01E+02	8.51E+02	2.73E-10	1.36E-09	4.89E-10	3.14E-10	1.33E-09	
Holmium (67)	Ho-163	1.52E+04	4.57E+03												
Holmium (67)	Ho-164	1.26E+04	5.52E-05	1.00E+00	1.18E+09	2.15E+09	1.26E+09	1.18E+09	1.15E+09	8.09E-04	1.47E-03	8.60E-04	8.09E-04	7.85E-04	
Holmium (67)	Ho-164m	9.59E+03	7.23E-05	1.00E+00	1.21E+04	2.10E+04	1.26E+04	1.21E+04	1.26E+04	1.09E-08	1.88E-08	1.13E-08	1.09E-08	1.13E-08	
Holmium (67)	Ho-166	2.27E+02	3.06E-03	1.00E+00	1.59E+02	6.03E+02	2.66E+02	1.83E+02	2.04E+02	6.10E-09	2.32E-08	1.02E-08	7.04E-09	7.82E-09	
Holmium (67)	Ho-166m	5.78E-04	1.20E+03	1.00E+00	1.24E-02	6.13E-02	2.15E-02	1.39E-02	6.23E-02	1.87E-07	9.25E-07	3.24E-07	2.10E-07	9.39E-07	
Holmium (67)	Ho-167	1.96E+03	3.54E-04	1.00E+00	1.19E+02	5.35E+02	1.90E+02	1.27E+02	5.30E+02	5.31E-10	2.39E-09	8.48E-10	5.67E-10	2.37E-09	
Holmium (67)	Ho-168	1.22E+05	5.69E-06	1.00E+00	5.70E+15	2.90E+16	1.02E+16	6.51E+15	2.69E+16	4.12E+02	2.10E+03	7.39E+02	4.71E+02	1.95E+03	
Holmium (67)	Ho-168m	1.66E+05	4.19E-06	1.00E+00	2.67E+15	1.36E+16	4.79E+15	3.06E+15	1.26E+16	1.42E+02	7.24E+02	2.55E+02	1.63E+02	6.71E+02	
Holmium (67)	Ho-170	1.32E+05	5.25E-06	1.00E+00	2.93E+15	1.50E+16	5.26E+15	3.36E+15	1.45E+16	1.98E+02	1.01E+03	3.55E+02	2.27E+02	9.80E+02	
Iodine (53)	I-118	2.66E+04	2.61E-05	1.00E+00	6.61E+02	3.16E+03	1.13E+03	7.32E+02	2.87E+03	1.54E-10	7.34E-10	2.63E-10	1.70E-10	6.68E-10	
Iodine (53)	I-118m	4.29E+04	1.62E-05	1.00E+00	1.07E+03	5.09E+03	1.82E+03	1.18E+03	4.63E+03	1.54E-10	7.35E-10	2.63E-10	1.70E-10	6.68E-10	
Iodine (53)	I-119	1.91E+04	3.63E-05	1.00E+00	4.87E+02	2.47E+03	8.72E+02	5.54E+02	2.45E+03	1.59E-10	8.10E-10	2.85E-10	1.81E-10	8.00E-10	
Iodine (53)	I-120	4.46E+03	1.55E-04	1.00E+00	3.06E+01	1.69E+02	5.89E+01	3.66E+01	1.69E+02	4.31E-11	2.39E-10	8.30E-11	5.16E-11	2.38E-10	
Iodine (53)	I-120m	6.87E+03	1.01E-04	1.00E+00	3.72E+01	1.94E+02	6.76E+01	4.29E+01	1.93E+02	3.41E-11	1.78E-10	6.19E-11	3.92E-11	1.77E-10	
Iodine (53)	I-121	2.86E+03	2.42E-04	1.00E+00	6.30E+01	2.99E+02	1.06E+02	6.91E+01	2.96E+02	1.40E-10	6.63E-10	2.34E-10	1.53E-10	6.56E-10	
Iodine (53)	I-122	1.00E+05	6.91E-06	1.00E+00	6.33E+15	3.03E+16	1.08E+16	7.01E+15	2.79E+16	4.03E+02	1.93E+03	6.89E+02	4.47E+02	1.78E+03	
Iodine (53)	I-123	4.57E+02	1.51E-03	1.00E+00	7.77E+01	3.03E+02	1.12E+02	8.02E+01	2.83E+02	1.10E-09	4.27E-09	1.58E-09	1.13E-09	3.99E-09	
Iodine (53)	I-124	6.06E+01	1.14E-02	1.00E+00	1.04E+00	5.50E+00	1.92E+00	1.21E+00	5.49E+00	1.12E-10	5.90E-10	2.06E-10	1.30E-10	5.90E-10	
Iodine (53)	I-125	4.26E+00	1.63E-01	1.00E+00	4.01E+01	4.33E+01	4.00E+01	4.01E+01	1.29E+01	6.17E-08	6.67E-08	6.16E-08	6.17E-08	1.99E-08	
Iodine (53)	I-126	1.96E+01	3.54E-02	1.00E+00	9.25E-01	4.50E+00	1.58E+00	1.02E+00	4.41E+00	3.13E-10	1.52E-09	5.35E-10	3.46E-10	1.49E-09	
Iodine (53)	I-128	1.46E+04	4.75E-05	1.00E+00	1.08E+09	4.56E+09	1.77E+09	1.18E+09	2.32E+09	4.97E-04	2.10E-03	8.17E-04	5.45E-04	1.07E-03	
Iodine (53)	I-129	4.41E-08	1.57E+07	1.00E+00	1.15E+01	1.33E+01	1.15E+01	1.15E+01	4.79E+00	1.76E+00	2.04E+00	1.76E+00	1.76E+00	7.33E-01	

Resident 2D External Exposure DCCs July 2023															
Radionuclides		Isotope-specific Information			Dose Compliance Concentrations (DCCs)										
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Soil Volume Area Correction Factor	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	
					DCC DL=1 (Bq/g)	@ 1cm DCC DL=1 (Bq/g)	@ 5cm DCC DL=1 (Bq/g)	@ 15cm DCC DL=1 (Bq/g)	Plane DCC DL=1 (Bq/cm <sup>2</sup> )	DCC DL=1 (mg/kg)	@ 1cm DCC DL=1 (mg/kg)	@ 5cm DCC DL=1 (mg/kg)	@ 15cm DCC DL=1 (mg/kg)	Plane DCC DL=1 (mg/cm <sup>2</sup> )	
Iodine (53)	I-130	4.91E+02	1.41E-03	1.00E+00	4.51E+00	2.27E+01	7.91E+00	5.07E+00	2.28E+01	6.26E-11	3.15E-10	1.10E-10	7.04E-11	3.17E-10	
Iodine (53)	I-130m	4.12E+04	1.68E-05	1.00E+00	4.51E+02	2.27E+03	7.90E+02	5.07E+02	2.28E+03	7.45E-11	3.75E-10	1.31E-10	8.38E-11	3.77E-10	
Iodine (53)	I-131	3.15E+01	2.20E-02	1.00E+00	1.74E+00	8.14E+00	2.86E+00	1.89E+00	8.23E+00	3.79E-10	1.77E-09	6.22E-10	4.11E-10	1.79E-09	
Iodine (53)	I-132	2.65E+03	2.62E-04	1.00E+00	2.24E+01	1.16E+02	4.03E+01	2.56E+01	1.16E+02	5.85E-11	3.03E-10	1.06E-10	6.70E-11	3.02E-10	
Iodine (53)	I-132m	4.38E+03	1.58E-04	1.00E+00	3.70E+01	1.90E+02	6.63E+01	4.22E+01	1.89E+02	5.85E-11	3.01E-10	1.05E-10	6.67E-11	2.99E-10	
Iodine (53)	I-133	2.92E+02	2.37E-03	1.00E+00	9.21E+00	4.44E+01	1.58E+01	1.02E+01	4.19E+01	2.20E-10	1.06E-09	3.77E-10	2.45E-10	1.00E-09	
Iodine (53)	I-134	6.94E+03	9.99E-05	1.00E+00	5.04E+01	2.67E+02	9.27E+01	5.84E+01	2.65E+02	5.10E-11	2.70E-10	9.39E-11	5.92E-11	2.69E-10	
Iodine (53)	I-134m	1.01E+05	6.85E-06	1.00E+00	7.52E+02	3.98E+03	1.38E+03	8.72E+02	3.96E+03	5.22E-11	2.77E-10	9.61E-11	6.06E-11	2.75E-10	
Iodine (53)	I-135	9.24E+02	7.50E-04	1.00E+00	9.04E+00	4.92E+01	1.70E+01	1.07E+01	4.92E+01	6.93E-11	3.77E-10	1.31E-10	8.16E-11	3.77E-10	
Indium (49)	In-103	3.64E+05	1.90E-06	1.00E+00	8.75E+03	4.35E+04	1.53E+04	9.91E+03	4.26E+04	1.30E-10	6.45E-10	2.27E-10	1.47E-10	6.32E-10	
Indium (49)	In-105	7.18E+04	9.65E-06	1.00E+00	7.62E+02	4.05E+03	1.41E+03	8.89E+02	4.08E+03	5.84E-11	3.11E-10	1.08E-10	6.81E-11	3.13E-10	
Indium (49)	In-106	5.87E+04	1.18E-05	1.00E+00	7.47E+12	3.80E+13	1.34E+13	8.51E+12	3.78E+13	7.07E-01	3.60E+00	1.26E+00	8.06E-01	3.58E+00	
Indium (49)	In-106m	7.00E+04	9.89E-06	1.00E+00	2.13E+13	1.15E+14	4.04E+13	2.52E+13	1.14E+14	1.69E+00	9.16E+00	3.21E+00	2.00E+00	9.06E+00	
Indium (49)	In-107	1.12E+04	6.16E-05	1.00E+00	1.38E+02	7.43E+02	2.58E+02	1.62E+02	7.37E+02	6.87E-11	3.71E-10	1.29E-10	8.08E-11	3.68E-10	
Indium (49)	In-108	6.28E+03	1.10E-04	1.00E+00	3.04E+01	1.61E+02	5.60E+01	3.53E+01	1.63E+02	2.75E-11	1.45E-10	5.05E-11	3.19E-11	1.47E-10	
Indium (49)	In-108m	9.20E+03	7.53E-05	1.00E+00	5.93E+01	3.45E+02	1.19E+02	7.27E+01	3.48E+02	3.65E-11	2.12E-10	7.31E-11	4.48E-11	2.14E-10	
Indium (49)	In-109	1.45E+03	4.79E-04	1.00E+00	4.60E+01	2.30E+02	8.04E+01	5.21E+01	2.29E+02	1.82E-10	9.08E-10	3.18E-10	2.06E-10	9.06E-10	
Indium (49)	In-109m	2.72E+05	2.55E-06	1.00E+00	8.61E+03	4.30E+04	1.50E+04	9.76E+03	4.29E+04	1.81E-10	9.03E-10	3.16E-10	2.05E-10	9.02E-10	
Indium (49)	In-110	1.24E+03	5.59E-04	1.00E+00	7.70E+00	3.99E+01	1.39E+01	8.81E+00	4.04E+01	3.59E-11	1.86E-10	6.48E-11	4.10E-11	1.88E-10	
Indium (49)	In-110m	5.27E+03	1.31E-04	1.00E+00	6.45E+01	3.31E+02	1.16E+02	7.38E+01	3.24E+02	7.06E-11	3.62E-10	1.27E-10	8.07E-11	3.55E-10	
Indium (49)	In-111	9.02E+01	7.68E-03	1.00E+00	5.55E+00	2.33E+01	8.32E+00	5.77E+00	2.33E+01	3.58E-10	1.50E-09	5.37E-10	3.72E-10	1.50E-09	
Indium (49)	In-111m	4.73E+04	1.46E-05	1.00E+00	2.91E+03	1.22E+04	4.36E+03	3.02E+03	1.22E+04	3.58E-10	1.50E-09	5.36E-10	3.72E-10	1.50E-09	
Indium (49)	In-112	2.43E+04	2.85E-05	1.00E+00	8.65E+11	4.17E+12	1.47E+12	9.56E+11	3.91E+12	2.09E-01	1.01E+00	3.56E-01	2.31E-01	9.45E-01	
Indium (49)	In-112m	1.77E+04	3.91E-05	1.00E+00	2.84E+09	1.36E+10	4.83E+09	3.14E+09	1.27E+10	9.42E-04	4.51E-03	1.60E-03	1.04E-03	4.22E-03	
Indium (49)	In-113m	3.66E+03	1.89E-04	1.00E+00	3.03E+02	1.41E+03	4.96E+02	3.27E+02	1.42E+03	4.90E-10	2.28E-09	8.03E-10	5.30E-10	2.29E-09	
Indium (49)	In-114	3.04E+05	2.28E-06	1.00E+00	1.68E+20	3.64E+20	2.32E+20	1.81E+20	6.03E+19	3.30E+06	7.16E+06	4.56E+06	3.56E+06	1.19E+06	
Indium (49)	In-114m	5.11E+00	1.36E-01	1.00E+00	1.39E+00	5.76E+00	2.23E+00	1.51E+00	2.95E+00	1.63E-09	6.74E-09	2.61E-09	1.77E-09	3.45E-09	
Indium (49)	In-115	1.57E-15	4.41E+14	9.00E-01	3.43E+02	9.35E+02	4.30E+02	3.47E+02	2.83E+02	1.32E+09	3.59E+09	1.65E+09	1.33E+09	1.09E+09	
Indium (49)	In-115m	1.35E+03	5.12E-04	1.00E+00	1.88E+02	8.57E+02	3.02E+02	2.01E+02	8.48E+02	8.40E-10	3.82E-09	1.35E-09	8.97E-10	3.78E-09	
Indium (49)	In-116m	6.69E+03	1.04E-04	1.00E+00	4.91E+01	2.75E+02	9.50E+01	5.88E+01	2.81E+02	4.46E-11	2.50E-10	8.63E-11	5.34E-11	2.55E-10	
Indium (49)	In-117	8.43E+03	8.22E-05	1.00E+00	2.56E+02	1.20E+03	4.26E+02	2.81E+02	1.21E+03	1.87E-10	8.77E-10	3.10E-10	2.04E-10	8.78E-10	
Indium (49)	In-117m	3.13E+03	2.21E-04	1.00E+00	1.62E+02	7.43E+02	2.65E+02	1.76E+02	6.81E+02	3.17E-10	1.45E-09	5.18E-10	3.45E-10	1.33E-09	
Indium (49)	In-118	4.37E+06	1.59E-07	1.00E+00	7.59E+25	2.97E+26	1.32E+26	8.76E+25	1.62E+26	1.07E+11	4.21E+11	1.87E+11	1.24E+11	2.29E+11	
Indium (49)	In-118m	8.35E+04	8.30E-06	1.00E+00	9.63E+13	5.23E+14	1.81E+14	1.13E+14	5.21E+14	7.14E+00	3.88E+01	1.34E+01	8.40E+00	3.86E+01	
Indium (49)	In-119	1.52E+05	4.57E-06	1.00E+00	1.12E+09	1.16E+09	1.12E+09	1.12E+09	2.69E+08	4.62E-05	4.78E-05	4.62E-05	4.62E-05	1.11E-05	
Indium (49)	In-119m	2.02E+04	3.42E-05	1.00E+00	2.64E+09	2.76E+09	2.65E+09	2.64E+09	6.39E+08	8.14E-04	8.51E-04	8.18E-04	8.15E-04	1.97E-04	
Indium (49)	In-121	9.46E+05	7.32E-07	1.00E+00	7.34E+08	1.81E+09	8.85E+08	7.39E+08	1.14E+09	4.93E-06	1.22E-05	5.94E-06	4.96E-06	7.67E-06	
Indium (49)	In-121m	9.39E+04	7.38E-06	1.00E+00	6.58E+07	1.66E+08	7.96E+07	6.62E+07	1.10E+08	4.45E-06	1.12E-05	5.38E-06	4.48E-06	7.41E-06	
Iridium (77)	Ir-180	2.43E+05	2.85E-06	1.00E+00	9.91E+09	4.96E+10	1.77E+10	1.14E+10	4.95E+10	3.85E-04	1.93E-03	6.87E-04	4.41E-04	1.92E-03	
Iridium (77)	Ir-182	2.43E+04	2.85E-05	1.00E+00	3.00E+02	1.52E+03	5.38E+02	3.46E+02	1.52E+03	1.18E-10	5.96E-10	2.12E-10	1.36E-10	5.97E-10	
Iridium (77)	Ir-183	6.28E+03	1.10E-04	1.00E+00	5.56E+01	2.82E+02	1.00E+02	6.45E+01	2.83E+02	8.50E-11	4.32E-10	1.53E-10	9.86E-11	4.32E-10	
Iridium (77)	Ir-184	1.96E+03	3.53E-04	1.00E+00	1.96E+01	1.01E+02	3.55E+01	2.26E+01	1.02E+02	9.63E-11	4.96E-10	1.74E-10	1.11E-10	5.00E-10	

Resident 2D External Exposure DCCs July 2023															
Radionuclides		Isotope-specific Information			Dose Compliance Concentrations (DCCs)										
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Soil Volume Area Correction Factor	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	
					DCC DL=1 (Bq/g)	@ 1cm DCC DL=1 (Bq/g)	@ 5cm DCC DL=1 (Bq/g)	@ 15cm DCC DL=1 (Bq/g)	Plane DCC DL=1 (Bq/cm <sup>2</sup> )	DCC DL=1 (mg/kg)	@ 1cm DCC DL=1 (mg/kg)	@ 5cm DCC DL=1 (mg/kg)	@ 15cm DCC DL=1 (mg/kg)	Plane DCC DL=1 (mg/cm <sup>2</sup> )	
Iridium (77)	Ir-185	4.22E+02	1.64E-03	1.00E+00	5.59E+00	2.89E+01	1.02E+01	6.51E+00	2.92E+01	1.29E-10	6.66E-10	2.35E-10	1.50E-10	6.71E-10	
Iridium (77)	Ir-186	3.65E+02	1.90E-03	1.00E+00	4.32E+00	2.23E+01	7.82E+00	5.00E+00	2.27E+01	1.16E-10	5.96E-10	2.09E-10	1.34E-10	6.07E-10	
Iridium (77)	Ir-186m	3.16E+03	2.19E-04	1.00E+00	3.65E+01	1.93E+02	6.77E+01	4.28E+01	1.97E+02	1.13E-10	5.96E-10	2.09E-10	1.32E-10	6.06E-10	
Iridium (77)	Ir-187	5.78E+02	1.20E-03	1.00E+00	3.98E+01	1.83E+02	6.70E+01	4.46E+01	1.80E+02	6.76E-10	3.11E-09	1.14E-09	7.56E-10	3.05E-09	
Iridium (77)	Ir-188	1.46E+02	4.74E-03	1.00E+00	1.26E+00	7.27E+00	2.51E+00	1.54E+00	7.49E+00	8.47E-11	4.90E-10	1.69E-10	1.04E-10	5.05E-10	
Iridium (77)	Ir-189	1.92E+01	3.62E-02	1.00E+00	1.03E+01	3.03E+01	1.32E+01	1.05E+01	2.71E+01	5.32E-09	1.57E-08	6.81E-09	5.42E-09	1.40E-08	
Iridium (77)	Ir-190	2.15E+01	3.23E-02	1.00E+00	3.05E-01	1.45E+00	5.12E-01	3.36E-01	1.46E+00	1.42E-10	6.73E-10	2.38E-10	1.56E-10	6.78E-10	
Iridium (77)	Ir-190m	5.42E+03	1.28E-04	1.00E+00	7.71E+01	3.66E+02	1.29E+02	8.48E+01	3.69E+02	1.42E-10	6.73E-10	2.38E-10	1.56E-10	6.78E-10	
Iridium (77)	Ir-190n	1.97E+03	3.52E-04	1.00E+00	2.55E+01	1.20E+02	4.25E+01	2.80E+01	1.21E+02	1.29E-10	6.08E-10	2.15E-10	1.42E-10	6.13E-10	
Iridium (77)	Ir-191m	4.42E+06	1.57E-07	1.00E+00	2.41E+26	7.19E+26	3.02E+26	2.43E+26	6.68E+26	5.45E+11	1.63E+12	6.83E+11	5.50E+11	1.51E+12	
Iridium (77)	Ir-192	3.43E+00	2.02E-01	1.00E+00	9.22E-02	4.28E-01	1.51E-01	9.96E-02	4.35E-01	2.71E-10	1.26E-09	4.43E-10	2.93E-10	1.28E-09	
Iridium (77)	Ir-192m	2.51E+05	2.76E-06	1.00E+00	6.76E+03	3.14E+04	1.11E+04	7.30E+03	3.19E+04	2.71E-10	1.26E-09	4.43E-10	2.93E-10	1.28E-09	
Iridium (77)	Ir-192n	2.88E-03	2.41E+02	1.00E+00	2.62E-02	1.22E-01	4.28E-02	2.83E-02	1.24E-01	9.17E-08	4.26E-07	1.50E-07	9.90E-08	4.33E-07	
Iridium (77)	Ir-193m	2.40E+01	2.88E-02	1.00E+00	4.35E+03	1.00E+04	4.84E+03	4.35E+03	7.20E+03	1.83E-06	4.22E-06	2.04E-06	1.83E-06	3.03E-06	
Iridium (77)	Ir-194	3.15E+02	2.20E-03	1.00E+00	6.63E+01	2.92E+02	1.11E+02	7.33E+01	1.66E+02	2.14E-09	9.43E-09	3.59E-09	2.37E-09	5.35E-09	
Iridium (77)	Ir-194m	1.48E+00	4.68E-01	1.00E+00	1.68E-02	8.10E-02	2.83E-02	1.85E-02	8.22E-02	1.15E-10	5.57E-10	1.95E-10	1.27E-10	5.65E-10	
Iridium (77)	Ir-195	2.43E+03	2.85E-04	1.00E+00	1.83E+03	4.97E+03	2.21E+03	1.84E+03	3.13E+03	7.72E-09	2.09E-08	9.32E-09	7.77E-09	1.32E-08	
Iridium (77)	Ir-195m	1.60E+03	4.34E-04	1.00E+00	9.13E+01	3.99E+02	1.45E+02	9.82E+01	3.89E+02	5.85E-10	2.56E-09	9.28E-10	6.29E-10	2.49E-09	
Iridium (77)	Ir-196	4.20E+05	1.65E-06	1.00E+00	2.43E+19	1.12E+20	4.17E+19	2.73E+19	8.16E+19	5.95E+05	2.75E+06	1.02E+06	6.67E+05	2.00E+06	
Iridium (77)	Ir-196m	4.34E+03	1.60E-04	1.00E+00	3.60E+01	1.73E+02	6.08E+01	3.96E+01	1.75E+02	8.52E-11	4.11E-10	1.44E-10	9.40E-11	4.15E-10	
Potassium (19)	K-38	4.77E+04	1.45E-05	1.00E+00	2.89E+12	1.66E+13	5.75E+12	3.53E+12	1.67E+13	1.21E-01	6.95E-01	2.40E-01	1.47E-01	6.96E-01	
Potassium (19)	K-40	5.54E-10	1.25E+09	1.00E+00	1.12E-01	6.26E-01	2.20E-01	1.35E-01	4.67E-01	4.23E-01	2.37E+00	8.33E-01	5.13E-01	1.77E+00	
Potassium (19)	K-42	4.91E+02	1.41E-03	1.00E+00	2.95E+01	1.56E+02	5.74E+01	3.57E+01	1.17E+02	1.32E-10	6.98E-10	2.57E-10	1.60E-10	5.25E-10	
Potassium (19)	K-43	2.72E+02	2.55E-03	1.00E+00	5.73E+00	2.77E+01	9.72E+00	6.31E+00	2.77E+01	4.75E-11	2.30E-10	8.05E-11	5.23E-11	2.30E-10	
Potassium (19)	K-44	1.65E+04	4.21E-05	1.00E+00	2.22E+08	1.32E+09	4.56E+08	2.77E+08	1.31E+09	3.12E-05	1.85E-04	6.40E-05	3.88E-05	1.84E-04	
Potassium (19)	K-45	2.11E+04	3.29E-05	1.00E+00	5.54E+07	1.19E+08	6.32E+07	5.54E+07	6.72E+07	6.21E-06	1.34E-05	7.09E-06	6.22E-06	7.53E-06	
Potassium (19)	K-46	2.08E+05	3.33E-06	1.00E+00	2.73E+16	1.68E+17	5.79E+16	3.47E+16	1.67E+17	3.16E+02	1.94E+03	6.71E+02	4.03E+02	1.94E+03	
Krypton (36)	Kr-74	3.17E+04	2.19E-05	1.00E+00	1.32E+07	7.97E+07	2.74E+07	1.66E+07	8.14E+07	1.62E-06	9.76E-06	3.36E-06	2.03E-06	9.97E-06	
Krypton (36)	Kr-75	8.49E+04	8.16E-06	1.00E+00	1.17E+03	5.45E+03	1.92E+03	1.27E+03	5.34E+03	5.43E-11	2.52E-10	8.91E-11	5.89E-11	2.48E-10	
Krypton (36)	Kr-76	4.10E+02	1.69E-03	1.00E+00	2.37E+00	1.30E+01	4.50E+00	2.81E+00	1.31E+01	2.30E-11	1.26E-10	4.38E-11	2.73E-11	1.28E-10	
Krypton (36)	Kr-77	4.90E+03	1.42E-04	1.00E+00	7.61E+01	3.55E+02	1.26E+02	8.32E+01	3.43E+02	6.27E-11	2.93E-10	1.04E-10	6.86E-11	2.83E-10	
Krypton (36)	Kr-79	1.73E+02	4.00E-03	1.00E+00	1.43E+01	6.88E+01	2.41E+01	1.57E+01	6.96E+01	3.43E-10	1.65E-09	5.76E-10	3.76E-10	1.67E-09	
Krypton (36)	Kr-81	3.03E-06	2.29E+05	1.00E+00	2.68E+01	1.16E+02	4.17E+01	2.84E+01	6.07E+01	3.77E-02	1.63E-01	5.85E-02	3.98E-02	8.51E-02	
Krypton (36)	Kr-81m	1.67E+06	4.15E-07	1.00E+00	1.48E+13	6.40E+13	2.30E+13	1.56E+13	3.34E+13	3.77E-02	1.63E-01	5.85E-02	3.98E-02	8.51E-02	
Krypton (36)	Kr-83m	3.32E+03	2.09E-04	1.00E+00	1.58E+07	1.65E+07	1.58E+07	1.58E+07	9.69E+05	2.08E-05	2.16E-05	2.08E-05	2.08E-05	1.27E-06	
Krypton (36)	Kr-85	6.44E-02	1.08E+01	1.00E+00	8.44E+00	3.68E+01	1.39E+01	9.23E+00	9.37E+00	5.84E-07	2.55E-06	9.59E-07	6.38E-07	6.48E-07	
Krypton (36)	Kr-85m	1.36E+03	5.11E-04	1.00E+00	2.18E+02	8.74E+02	3.17E+02	2.24E+02	8.27E+02	7.16E-10	2.88E-09	1.04E-09	7.38E-10	2.72E-09	
Krypton (36)	Kr-87	4.77E+03	1.45E-04	1.00E+00	1.06E+02	5.94E+02	2.09E+02	1.29E+02	5.43E+02	1.01E-10	5.68E-10	2.00E-10	1.24E-10	5.19E-10	
Krypton (36)	Kr-88	2.14E+03	3.24E-04	1.00E+00	1.41E+01	8.37E+01	2.90E+01	1.76E+01	8.25E+01	3.04E-11	1.81E-10	6.27E-11	3.79E-11	1.78E-10	
Krypton (36)	Kr-89	1.16E+05	5.99E-06	1.00E+00	8.51E+05	1.43E+06	1.03E+06	8.76E+05	1.61E+05	3.44E-08	5.79E-08	4.17E-08	3.54E-08	6.50E-09	
Lanthanum (57)	La-128	7.03E+04	9.86E-06	1.00E+00	1.52E+03	7.20E+03	2.57E+03	1.68E+03	6.65E+03	1.45E-10	6.88E-10	2.45E-10	1.60E-10	6.34E-10	
Lanthanum (57)	La-129	3.14E+04	2.21E-05	1.00E+00	9.68E+02	4.65E+03	1.65E+03	1.08E+03	4.46E+03	2.08E-10	1.00E-09	3.56E-10	2.32E-10	9.61E-10	



Resident 2D External Exposure DCCs July 2023															
Radionuclides		Isotope-specific Information			Dose Compliance Concentrations (DCCs)										
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Soil Volume Area Correction Factor	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	
					DCC DL=1 (Bq/g)	@ 1cm DCC DL=1 (Bq/g)	@ 5cm DCC DL=1 (Bq/g)	@ 15cm DCC DL=1 (Bq/g)	Plane DCC DL=1 (Bq/cm <sup>2</sup> )	DCC DL=1 (mg/kg)	@ 1cm DCC DL=1 (mg/kg)	@ 5cm DCC DL=1 (mg/kg)	@ 15cm DCC DL=1 (mg/kg)	Plane DCC DL=1 (mg/cm <sup>2</sup> )	
Lanthanum (57)	La-130	4.19E+04	1.66E-05	1.00E+00	1.74E+12	8.85E+12	3.10E+12	1.98E+12	8.68E+12	2.83E-01	1.44E+00	5.05E-01	3.23E-01	1.41E+00	
Lanthanum (57)	La-131	6.17E+03	1.12E-04	1.00E+00	1.19E+02	5.52E+02	1.97E+02	1.30E+02	5.31E+02	1.32E-10	6.14E-10	2.19E-10	1.45E-10	5.91E-10	
Lanthanum (57)	La-132	1.26E+03	5.48E-04	1.00E+00	1.19E+01	6.39E+01	2.22E+01	1.40E+01	6.37E+01	6.54E-11	3.50E-10	1.22E-10	7.66E-11	3.49E-10	
Lanthanum (57)	La-132m	1.50E+04	4.62E-05	1.00E+00	1.86E+02	9.96E+02	3.47E+02	2.18E+02	9.94E+02	8.60E-11	4.60E-10	1.60E-10	1.01E-10	4.59E-10	
Lanthanum (57)	La-133	1.55E+03	4.47E-04	1.00E+00	1.98E+02	9.16E+02	3.31E+02	2.18E+02	8.46E+02	8.88E-10	4.12E-09	1.49E-09	9.78E-10	3.80E-09	
Lanthanum (57)	La-134	5.65E+04	1.23E-05	1.00E+00	2.42E+13	1.16E+14	4.12E+13	2.69E+13	1.07E+14	3.01E+00	1.45E+01	5.13E+00	3.34E+00	1.33E+01	
Lanthanum (57)	La-135	3.11E+02	2.23E-03	1.00E+00	5.17E+02	1.66E+03	7.90E+02	5.62E+02	9.72E+02	1.18E-08	3.77E-08	1.80E-08	1.28E-08	2.21E-08	
Lanthanum (57)	La-136	3.69E+04	1.88E-05	1.00E+00	3.82E+12	1.83E+13	6.48E+12	4.22E+12	1.68E+13	7.39E-01	3.53E+00	1.25E+00	8.16E-01	3.25E+00	
Lanthanum (57)	La-137	1.16E+05	6.00E+04	1.00E+00	1.04E+01	1.23E+01	1.04E+01	1.04E+01	4.74E+00	6.47E-03	7.66E-03	6.48E-03	6.47E-03	2.95E-03	
Lanthanum (57)	La-138	6.79E-12	1.02E+11	1.00E+00	1.48E-02	8.30E-02	2.87E-02	1.77E-02	8.50E-02	1.58E+01	8.84E+01	3.05E+01	1.89E+01	9.06E+01	
Lanthanum (57)	La-140	1.51E+02	4.60E-03	1.00E+00	1.18E+00	6.66E+00	2.29E+00	1.41E+00	6.68E+00	5.74E-11	3.24E-10	1.12E-10	6.89E-11	3.25E-10	
Lanthanum (57)	La-141	1.55E+03	4.47E-04	1.00E+00	3.42E+02	1.29E+03	5.20E+02	3.68E+02	7.04E+02	1.63E-09	6.14E-09	2.48E-09	1.76E-09	3.36E-09	
Lanthanum (57)	La-142	4.00E+03	1.73E-04	1.00E+00	2.90E+01	1.75E+02	6.02E+01	3.63E+01	1.76E+02	5.40E-11	3.26E-10	1.12E-10	6.77E-11	3.28E-10	
Lanthanum (57)	La-143	2.57E+04	2.70E-05	1.00E+00	2.08E+03	9.39E+03	3.40E+03	2.27E+03	7.59E+03	6.08E-10	2.74E-09	9.95E-10	6.62E-10	2.22E-09	
Lutetium (71)	Lu-165	3.39E+04	2.04E-05	1.00E+00	1.32E+03	5.94E+03	2.19E+03	1.46E+03	5.76E+03	3.37E-10	1.52E-09	5.58E-10	3.72E-10	1.47E-09	
Lutetium (71)	Lu-167	7.07E+03	9.80E-05	1.00E+00	6.92E+01	3.56E+02	1.27E+02	8.14E+01	3.54E+02	8.56E-11	4.41E-10	1.58E-10	1.01E-10	4.39E-10	
Lutetium (71)	Lu-169	1.78E+02	3.89E-03	1.00E+00	2.29E+00	1.14E+01	4.12E+00	2.66E+00	1.14E+01	1.14E-10	5.69E-10	2.05E-10	1.32E-10	5.65E-10	
Lutetium (71)	Lu-169m	1.37E+05	5.07E-06	1.00E+00	1.76E+03	8.76E+03	3.16E+03	2.03E+03	8.70E+03	1.14E-10	5.68E-10	2.05E-10	1.32E-10	5.64E-10	
Lutetium (71)	Lu-170	1.26E+02	5.51E-03	1.00E+00	8.67E-01	5.13E+00	1.77E+00	1.08E+00	5.30E+00	6.15E-11	3.64E-10	1.26E-10	7.64E-11	3.76E-10	
Lutetium (71)	Lu-171	3.07E+01	2.26E-02	1.00E+00	1.02E+00	4.89E+00	1.76E+00	1.14E+00	4.82E+00	2.97E-10	1.43E-09	5.14E-10	3.34E-10	1.41E-09	
Lutetium (71)	Lu-171m	2.77E+05	2.51E-06	1.00E+00	9.16E+03	4.41E+04	1.59E+04	1.03E+04	4.34E+04	2.97E-10	1.43E-09	5.14E-10	3.34E-10	1.41E-09	
Lutetium (71)	Lu-172	3.78E+01	1.84E-02	1.00E+00	3.74E-01	1.96E+00	6.86E-01	4.34E-01	1.98E+00	8.93E-11	4.68E-10	1.64E-10	1.04E-10	4.72E-10	
Lutetium (71)	Lu-172m	9.84E+04	7.04E-06	1.00E+00	9.75E+02	5.10E+03	1.79E+03	1.13E+03	5.15E+03	8.93E-11	4.68E-10	1.64E-10	1.04E-10	4.72E-10	
Lutetium (71)	Lu-173	5.06E-01	1.37E+00	1.00E+00	2.47E-01	8.31E-01	3.47E-01	2.57E-01	7.40E-01	4.42E-09	1.49E-08	6.22E-09	4.62E-09	1.33E-08	
Lutetium (71)	Lu-174	2.09E-01	3.31E+00	1.00E+00	2.62E-01	1.13E+00	4.46E-01	3.03E-01	1.02E+00	1.14E-08	4.90E-08	1.95E-08	1.32E-08	4.47E-08	
Lutetium (71)	Lu-174m	1.78E+00	3.89E-01	1.00E+00	1.33E+00	3.87E+00	1.82E+00	1.44E+00	3.15E+00	6.83E-09	1.98E-08	9.35E-09	7.38E-09	1.61E-08	
Lutetium (71)	Lu-176	1.80E-11	3.85E+10	1.00E+00	4.88E-02	2.11E-01	7.53E-02	5.14E-02	2.13E-01	2.50E+01	1.08E+02	3.86E+01	2.63E+01	1.09E+02	
Lutetium (71)	Lu-176m	1.67E+03	4.15E-04	1.00E+00	4.70E+03	1.10E+04	5.53E+03	4.72E+03	2.83E+03	2.60E-08	6.11E-08	3.06E-08	2.61E-08	1.56E-08	
Lutetium (71)	Lu-177	3.81E+01	1.82E-02	1.00E+00	2.92E+01	1.14E+02	4.21E+01	3.01E+01	1.13E+02	7.12E-09	2.78E-08	1.03E-08	7.34E-09	2.75E-08	
Lutetium (71)	Lu-177m	1.58E+00	4.39E-01	1.00E+00	4.76E-02	2.02E-01	7.30E-02	5.03E-02	2.03E-01	2.80E-10	1.19E-09	4.30E-10	2.96E-10	1.19E-09	
Lutetium (71)	Lu-178	1.28E+04	5.40E-05	1.00E+00	7.93E+07	4.02E+08	1.49E+08	9.40E+07	2.59E+08	5.77E-05	2.93E-04	1.08E-04	6.84E-05	1.89E-04	
Lutetium (71)	Lu-178m	1.58E+04	4.39E-05	1.00E+00	3.05E+08	1.35E+09	4.83E+08	3.27E+08	1.32E+09	1.81E-04	7.97E-04	2.86E-04	1.93E-04	7.83E-04	
Lutetium (71)	Lu-179	1.32E+03	5.24E-04	1.00E+00	9.81E+02	3.83E+03	1.47E+03	1.03E+03	1.58E+03	6.96E-09	2.72E-08	1.04E-08	7.29E-09	1.12E-08	
Lutetium (71)	Lu-180	6.39E+04	1.08E-05	1.00E+00	1.03E+14	5.48E+14	1.91E+14	1.20E+14	5.38E+14	1.52E+01	8.09E+01	2.83E+01	1.78E+01	7.95E+01	
Lutetium (71)	Lu-181	1.04E+05	6.66E-06	1.00E+00	4.29E+03	1.96E+04	6.99E+03	4.64E+03	1.98E+04	3.91E-10	1.79E-09	6.37E-10	4.23E-10	1.81E-09	
Magnesium (12)	Mg-27	3.85E+04	1.80E-05	1.00E+00	4.39E+12	2.28E+13	8.00E+12	5.05E+12	2.13E+13	1.61E-01	8.37E-01	2.94E-01	1.86E-01	7.83E-01	
Magnesium (12)	Mg-28	2.90E+02	2.39E-03	1.00E+00	1.64E+00	9.40E+00	3.25E+00	1.99E+00	9.31E+00	8.29E-12	4.75E-11	1.65E-11	1.01E-11	4.71E-11	
Manganese (25)	Mn-50m	2.08E+05	3.33E-06	1.00E+00	1.88E+16	9.98E+16	3.48E+16	2.19E+16	9.95E+16	2.37E+02	1.26E+03	4.39E+02	2.76E+02	1.25E+03	
Manganese (25)	Mn-51	7.88E+03	8.79E-05	1.00E+00	1.55E+02	7.38E+02	2.61E+02	1.70E+02	6.83E+02	5.25E-11	2.50E-10	8.84E-11	5.77E-11	2.32E-10	
Manganese (25)	Mn-52	4.52E+01	1.53E-02	1.00E+00	2.43E-01	1.32E+00	4.56E-01	2.85E-01	1.34E+00	1.46E-11	7.93E-11	2.75E-11	1.72E-11	8.09E-11	
Manganese (25)	Mn-52m	1.73E+04	4.01E-05	1.00E+00	5.29E+03	2.86E+04	9.91E+03	6.20E+03	2.92E+04	8.35E-10	4.52E-09	1.57E-09	9.79E-10	4.61E-09	
Manganese (25)	Mn-53	1.87E-07	3.70E+06												

Resident 2D External Exposure DCCs July 2023															
Radionuclides		Isotope-specific Information			Dose Compliance Concentrations (DCCs)										
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Soil Volume Area Correction Factor	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	
					DCC DL=1 (Bq/g)	@ 1cm DCC DL=1 (Bq/g)	@ 5cm DCC DL=1 (Bq/g)	@ 15cm DCC DL=1 (Bq/g)	Plane DCC DL=1 (Bq/cm <sup>2</sup> )	DCC DL=1 (mg/kg)	@ 1cm DCC DL=1 (mg/kg)	@ 5cm DCC DL=1 (mg/kg)	@ 15cm DCC DL=1 (mg/kg)	Plane DCC DL=1 (mg/cm <sup>2</sup> )	
Manganese (25)	Mn-54	8.10E-01	8.55E-01	1.00E+00	3.35E-02	1.73E-01	6.04E-02	3.83E-02	1.76E-01	1.17E-10	6.05E-10	2.11E-10	1.34E-10	6.16E-10	
Manganese (25)	Mn-56	2.35E+03	2.94E-04	1.00E+00	2.49E+01	1.40E+02	4.87E+01	3.00E+01	1.38E+02	3.11E-11	1.75E-10	6.08E-11	3.75E-11	1.73E-10	
Manganese (25)	Mn-57	2.56E+05	2.71E-06	1.00E+00	6.35E+18	2.65E+19	1.06E+19	7.09E+18	1.44E+19	7.42E+04	3.10E+05	1.24E+05	8.28E+04	1.68E+05	
Manganese (25)	Mn-58m	3.35E+05	2.07E-06	1.00E+00	5.31E+17	2.89E+18	1.01E+18	6.30E+17	2.82E+18	4.82E+03	2.62E+04	9.17E+03	5.72E+03	2.56E+04	
Molybdenum (42)	Mo-101	2.49E+04	2.78E-05	1.00E+00	2.76E+10	1.26E+11	4.45E+10	2.97E+10	1.14E+11	5.87E-03	2.68E-02	9.46E-03	6.30E-03	2.41E-02	
Molybdenum (42)	Mo-102	3.22E+04	2.15E-05	1.00E+00	1.34E+13	5.03E+13	2.20E+13	1.49E+13	2.71E+13	2.22E+00	8.36E+00	3.64E+00	2.48E+00	4.50E+00	
Molybdenum (42)	Mo-89	1.73E+05	4.01E-06	1.00E+00	1.29E+03	6.78E+03	2.37E+03	1.50E+03	6.64E+03	3.49E-11	1.83E-10	6.42E-11	4.04E-11	1.79E-10	
Molybdenum (42)	Mo-90	1.09E+03	6.35E-04	1.00E+00	3.96E+00	2.24E+01	7.72E+00	4.79E+00	2.28E+01	1.71E-11	9.67E-11	3.34E-11	2.07E-11	9.85E-11	
Molybdenum (42)	Mo-91	2.35E+04	2.95E-05	1.00E+00	4.35E+07	2.27E+08	8.07E+07	5.09E+07	1.64E+08	8.82E-06	4.60E-05	1.64E-05	1.03E-05	3.33E-05	
Molybdenum (42)	Mo-91m	3.38E+05	2.05E-06	1.00E+00	5.06E+05	2.75E+06	9.61E+05	6.00E+05	2.50E+06	7.14E-09	3.88E-08	1.36E-08	8.46E-09	3.52E-08	
Molybdenum (42)	Mo-93	1.73E-04	4.00E+03	1.00E+00	2.39E+02	2.38E+02	2.39E+02	2.39E+02	2.19E+01	6.74E-03	6.71E-03	6.74E-03	6.74E-03	6.16E-04	
Molybdenum (42)	Mo-93m	8.86E+02	7.82E-04	1.00E+00	7.06E+00	3.86E+01	1.34E+01	8.35E+00	3.96E+01	3.89E-11	2.12E-10	7.36E-11	4.59E-11	2.18E-10	
Molybdenum (42)	Mo-99	9.21E+01	7.53E-03	1.00E+00	8.07E+00	3.56E+01	1.28E+01	8.73E+00	3.17E+01	4.55E-10	2.01E-09	7.25E-10	4.93E-10	1.79E-09	
Nitrogen (7)	N-13	3.66E+04	1.90E-05	9.00E-01	1.44E+12	6.91E+12	2.43E+12	1.58E+12	6.68E+12	2.68E-02	1.29E-01	4.54E-02	2.95E-02	1.25E-01	
Nitrogen (7)	N-16	3.07E+06	2.26E-07	1.00E+00	4.37E+23	3.31E+24	1.12E+24	6.35E+23	3.51E+24	1.20E+08	9.07E+08	3.07E+08	1.74E+08	9.61E+08	
Sodium (11)	Na-22	2.66E-01	2.60E+00	1.00E+00	9.84E-03	5.18E-02	1.81E-02	1.14E-02	5.29E-02	4.26E-11	2.24E-10	7.82E-11	4.93E-11	2.29E-10	
Sodium (11)	Na-24	4.06E+02	1.71E-03	1.00E+00	1.66E+00	1.05E+01	3.56E+00	2.12E+00	1.08E+01	5.14E-12	3.25E-11	1.10E-11	6.58E-12	3.34E-11	
Niobium (41)	Nb-87	9.71E+04	7.13E-06	1.00E+00	1.00E+03	4.80E+03	1.69E+03	1.10E+03	4.67E+03	4.71E-11	2.25E-10	7.92E-11	5.18E-11	2.19E-10	
Niobium (41)	Nb-88	2.51E+04	2.76E-05	1.00E+00	1.92E+02	1.08E+03	3.73E+02	2.31E+02	1.12E+03	3.53E-11	1.99E-10	6.86E-11	4.24E-11	2.05E-10	
Niobium (41)	Nb-88m	4.68E+04	1.48E-05	1.00E+00	2.58E+02	2.02E+03	6.95E+02	4.30E+02	2.08E+03	3.53E-11	1.99E-10	6.86E-11	4.24E-11	2.05E-10	
Niobium (41)	Nb-89	2.99E+03	2.32E-04	1.00E+00	3.23E+01	1.17E+02	4.12E+01	2.59E+01	1.15E+02	3.49E-11	1.83E-10	6.42E-11	4.04E-11	1.80E-10	
Niobium (41)	Nb-89m	5.52E+03	1.26E-04	1.00E+00	3.60E+01	1.80E+02	6.31E+01	4.04E+01	1.77E+02	3.04E-11	1.52E-10	5.33E-11	3.42E-11	1.49E-10	
Niobium (41)	Nb-90	4.16E+02	1.67E-03	1.00E+00	1.76E+00	1.02E+01	3.52E+00	2.16E+00	1.05E+01	2.00E-11	1.16E-10	4.00E-11	2.45E-11	1.19E-10	
Niobium (41)	Nb-91	1.02E-03	6.80E+02	1.00E+00	1.22E+01	5.23E+01	2.03E+01	1.34E+01	2.01E+01	5.72E-05	2.45E-04	9.50E-05	6.29E-05	9.41E-05	
Niobium (41)	Nb-91m	4.16E+00	1.67E-01	1.00E+00	3.11E+00	1.69E+01	5.91E+00	3.68E+00	1.53E+01	3.57E-09	1.94E-08	6.78E-09	4.23E-09	1.76E-08	
Niobium (41)	Nb-92	2.00E-08	3.47E+07	1.00E+00	1.29E-02	6.62E-02	2.31E-02	1.47E-02	6.71E-02	3.12E-03	1.60E-02	5.58E-03	3.55E-03	1.62E-02	
Niobium (41)	Nb-92m	2.49E+01	2.78E-02	1.00E+00	4.90E-01	2.59E+00	9.00E-01	5.67E-01	2.63E+00	9.49E-11	5.02E-10	1.74E-10	1.10E-10	5.09E-10	
Niobium (41)	Nb-93m	4.30E-02	1.61E+01	1.00E+00	1.56E+03	1.55E+03	1.56E+03	1.56E+03	1.42E+02	1.77E-04	1.76E-04	1.77E-04	1.77E-04	1.62E-05	
Niobium (41)	Nb-94	3.41E-05	2.03E+04	1.00E+00	1.23E-02	6.35E-02	2.22E-02	1.41E-02	6.43E-02	1.78E-06	9.17E-06	3.20E-06	2.03E-06	9.29E-06	
Niobium (41)	Nb-94m	5.82E+04	1.19E-05	1.00E+00	2.11E+07	1.09E+08	3.79E+07	2.41E+07	1.10E+08	1.79E-06	9.22E-06	3.22E-06	2.04E-06	9.34E-06	
Niobium (41)	Nb-95	7.23E+00	9.59E-02	1.00E+00	1.83E-01	9.35E-01	3.27E-01	2.07E-01	9.49E-01	1.26E-10	6.45E-10	2.25E-10	1.43E-10	6.54E-10	
Niobium (41)	Nb-95m	7.01E+01	9.89E-03	1.00E+00	1.75E+00	8.84E+00	3.09E+00	1.97E+00	8.93E+00	1.24E-10	6.29E-10	2.20E-10	1.40E-10	6.35E-10	
Niobium (41)	Nb-96	2.60E+02	2.67E-03	1.00E+00	2.02E+00	1.05E+01	3.66E+00	2.32E+00	1.06E+01	3.91E-11	2.03E-10	7.08E-11	4.49E-11	2.06E-10	
Niobium (41)	Nb-97	5.05E+03	1.37E-04	1.00E+00	1.48E+02	7.44E+02	2.60E+02	1.67E+02	7.06E+02	1.49E-10	7.49E-10	2.61E-10	1.68E-10	7.11E-10	
Niobium (41)	Nb-98m	7.10E+03	9.76E-05	1.00E+00	4.70E+01	2.52E+02	8.75E+01	5.48E+01	2.50E+02	3.40E-11	1.82E-10	6.33E-11	3.97E-11	1.81E-10	
Niobium (41)	Nb-99	1.46E+06	4.76E-07	1.00E+00	1.28E+05	5.64E+05	2.03E+05	1.38E+05	5.01E+05	4.55E-10	2.01E-09	7.25E-10	4.93E-10	1.79E-09	
Niobium (41)	Nb-99m	1.40E+05	4.95E-06	1.00E+00	1.23E+04	5.42E+04	1.95E+04	1.33E+04	4.82E+04	4.55E-10	2.01E-09	7.24E-10	4.92E-10	1.78E-09	
Neodymium (60)	Nd-134	4.29E+04	1.62E-05	1.00E+00	1.19E+03	5.67E+03	2.03E+03	1.32E+03	5.13E+03	1.96E-10	9.30E-10	3.33E-10	2.17E-10	8.41E-10	
Neodymium (60)	Nd-135	2.94E+04	2.36E-05	1.00E+00	7.37E+02	3.53E+03	1.26E+03	8.17E+02	3.47E+03	1.78E-10	8.50E-10	3.03E-10	1.97E-10	8.37E-10	
Neodymium (60)	Nd-136	7.19E+03	9.64E-05	1.00E+00	5.83E+01	3.00E+02	1.05E+02	6.70E+01	2.93E+02	5.78E-11	2.97E-10	1.04E-10	6.64E-11	2.90E-10	
Neodymium (60)	Nd-137	9.46E+03	7.32E-05	1.00E+00	1.22E+02	6.11E+02	2.17E+02	1.39E+02	5.88E+02	9.23E-11	4.64E-10	1.64E-10	1.05E-10	4.46E-10	
Neodymium (60)	Nd-138	1.20E+03	5.75E-04	1.00E+00	2.90E+01	1.36E+02	4.91E+01	3.20E+01	1.22E+02	1.74E-10	8.14E-10	2.95E-10	1.92E-10	7.35E-10	

Resident 2D External Exposure DCCs July 2023															
Radionuclides		Isotope-specific Information			Dose Compliance Concentrations (DCCs)										
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Soil Volume Area Correction Factor	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	
					DCC DL=1 (Bq/g)	@ 1cm DCC DL=1 (Bq/g)	@ 5cm DCC DL=1 (Bq/g)	@ 15cm DCC DL=1 (Bq/g)	Plane DCC DL=1 (Bq/cm <sup>2</sup> )	DCC DL=1 (mg/kg)	@ 1cm DCC DL=1 (mg/kg)	@ 5cm DCC DL=1 (mg/kg)	@ 15cm DCC DL=1 (mg/kg)	Plane DCC DL=1 (mg/cm <sup>2</sup> )	
Neodymium (60)	Nd-139	1.23E+04	5.65E-05	1.00E+00	1.26E+03	5.29E+03	1.97E+03	1.35E+03	4.78E+03	7.47E-10	3.15E-09	1.17E-09	8.02E-10	2.84E-09	
Neodymium (60)	Nd-139m	1.10E+03	6.28E-04	1.00E+00	1.18E+01	5.98E+01	2.11E+01	1.35E+01	5.92E+01	7.83E-11	3.95E-10	1.39E-10	8.93E-11	3.91E-10	
Neodymium (60)	Nd-140	7.51E+01	9.23E-03	1.00E+00	2.80E+00	1.31E+01	4.73E+00	3.09E+00	1.17E+01	2.74E-10	1.28E-09	4.63E-10	3.02E-10	1.15E-09	
Neodymium (60)	Nd-141	2.44E+03	2.84E-04	1.00E+00	9.32E+02	4.08E+03	1.59E+03	1.05E+03	3.35E+03	2.83E-09	1.24E-08	4.83E-09	3.19E-09	1.01E-08	
Neodymium (60)	Nd-141m	3.52E+05	1.97E-06	1.00E+00	1.34E+05	5.87E+05	2.29E+05	1.51E+05	4.81E+05	2.81E-09	1.23E-08	4.80E-09	3.17E-09	1.01E-08	
Neodymium (60)	Nd-144	3.03E-16	2.29E+15												
Neodymium (60)	Nd-147	2.30E+01	3.01E-02	1.00E+00	4.15E+00	1.77E+01	6.60E+00	4.50E+00	1.57E+01	1.39E-09	5.91E-09	2.21E-09	1.51E-09	5.24E-09	
Neodymium (60)	Nd-149	3.51E+03	1.97E-04	1.00E+00	2.07E+02	9.17E+02	3.30E+02	2.22E+02	7.69E+02	4.60E-10	2.04E-09	7.33E-10	4.94E-10	1.71E-09	
Neodymium (60)	Nd-151	2.93E+04	2.37E-05	1.00E+00	1.96E+03	8.94E+03	3.19E+03	2.12E+03	8.52E+03	5.30E-10	2.42E-09	8.62E-10	5.75E-10	2.31E-09	
Neodymium (60)	Nd-152	3.20E+04	2.17E-05	1.00E+00	4.19E+12	1.99E+13	7.33E+12	4.76E+12	1.57E+13	1.04E+00	4.98E+00	1.83E+00	1.19E+00	3.91E+00	
Neon (10)	Ne-19	1.27E+06	5.46E-07	1.00E+00	2.41E+22	1.15E+23	4.06E+22	2.65E+22	1.07E+23	1.89E+07	9.02E+07	3.19E+07	2.08E+07	8.37E+07	
Neon (10)	Ne-24	1.08E+05	6.43E-06	1.00E+00	4.38E+02	2.77E+03	9.43E+02	5.62E+02	2.85E+03	5.12E-12	3.24E-11	1.10E-11	6.56E-12	3.33E-11	
Nickel (28)	Ni-56	4.16E+01	1.66E-02	1.00E+00	1.47E-01	8.13E-01	2.82E-01	1.75E-01	8.36E-01	1.04E-11	5.73E-11	1.99E-11	1.24E-11	5.89E-11	
Nickel (28)	Ni-57	1.71E+02	4.06E-03	1.00E+00	1.57E+00	8.60E+00	2.99E+00	1.87E+00	8.80E+00	2.76E-11	1.51E-10	5.24E-11	3.27E-11	1.54E-10	
Nickel (28)	Ni-59	6.86E-06	1.01E+05	1.00E+00	1.30E+03	6.31E+03	2.22E+03	1.44E+03	6.43E+03	5.88E-01	2.85E+00	9.99E-01	6.49E-01	2.90E+00	
Nickel (28)	Ni-63	6.92E-03	1.00E+02												
Nickel (28)	Ni-65	2.41E+03	2.87E-04	1.00E+00	7.73E+01	4.31E+02	1.50E+02	9.28E+01	3.98E+02	1.09E-10	6.09E-10	2.12E-10	1.31E-10	5.63E-10	
Nickel (28)	Ni-66	1.11E+02	6.23E-03	9.00E-01	1.94E+01	8.95E+01	3.49E+01	2.25E+01	4.93E+01	6.05E-10	2.79E-09	1.09E-09	7.02E-10	1.53E-09	
Neptunium (93)	Np-232	2.48E+04	2.80E-05	1.00E+00	3.34E+04	1.93E+05	6.70E+04	4.11E+04	1.91E+05	1.64E-08	9.50E-08	3.29E-08	2.02E-08	9.36E-08	
Neptunium (93)	Np-233	1.01E+04	6.89E-05	1.00E+00	3.82E+03	1.28E+04	5.04E+03	3.87E+03	1.24E+04	4.64E-09	1.56E-08	6.12E-09	4.70E-09	1.51E-08	
Neptunium (93)	Np-234	5.75E+01	1.21E-02	1.00E+00	9.60E-01	5.36E+00	1.86E+00	1.15E+00	5.48E+00	2.05E-10	1.14E-09	3.98E-10	2.46E-10	1.17E-09	
Neptunium (93)	Np-235	6.39E-01	1.09E+00	1.00E+00	7.98E+01	2.08E+02	9.82E+01	7.98E+01	5.97E+01	1.54E-06	4.01E-06	1.90E-06	1.54E-06	1.15E-06	
Neptunium (93)	Np-236	4.50E-06	1.54E+05	1.00E+00	6.72E-02	3.25E-01	1.17E-01	7.76E-02	3.16E-01	1.85E-04	8.95E-04	3.22E-04	2.13E-04	8.70E-04	
Neptunium (93)	Np-236m	2.70E+02	2.57E-03	1.00E+00	1.77E+02	6.22E+02	2.42E+02	1.83E+02	5.93E+02	8.13E-09	2.85E-08	1.11E-08	8.38E-09	2.72E-08	
Neptunium (93)	Np-237	3.23E-07	2.14E+06	1.00E+00	5.38E-02	2.28E-01	8.36E-02	5.76E-02	2.06E-01	2.07E-03	8.76E-03	3.21E-03	2.21E-03	7.93E-03	
Neptunium (93)	Np-238	1.19E+02	5.80E-03	1.00E+00	3.85E+00	2.05E+01	7.12E+00	4.48E+00	2.02E+01	4.02E-10	2.14E-09	7.44E-10	4.68E-10	2.11E-09	
Neptunium (93)	Np-239	1.07E+02	6.46E-03	1.00E+00	1.65E+01	6.40E+01	2.36E+01	1.70E+01	6.31E+01	1.93E-09	7.47E-09	2.76E-09	1.99E-09	7.37E-09	
Neptunium (93)	Np-240	5.88E+03	1.18E-04	1.00E+00	1.12E+02	5.64E+02	1.98E+02	1.27E+02	5.61E+02	2.40E-10	1.21E-09	4.24E-10	2.72E-10	1.20E-09	
Neptunium (93)	Np-240m	5.04E+04	1.37E-05	1.00E+00	2.79E+07	1.40E+08	4.93E+07	3.16E+07	1.39E+08	6.95E-06	3.50E-05	1.23E-05	7.88E-06	3.47E-05	
Neptunium (93)	Np-241	2.62E+04	2.64E-05	1.00E+00	5.50E+07	1.12E+08	5.91E+07	5.50E+07	8.02E+07	2.65E-05	5.39E-05	2.85E-05	2.65E-05	3.87E-05	
Neptunium (93)	Np-242	1.66E+05	4.19E-06	1.00E+00	1.12E+13	6.04E+13	2.11E+13	1.32E+13	1.53E+13	8.60E-01	4.63E+00	1.62E+00	1.01E+00	1.18E+00	
Neptunium (93)	Np-242m	6.62E+04	1.05E-05	1.00E+00	4.49E+12	2.41E+13	8.44E+12	5.29E+12	6.04E+12	8.60E-01	4.63E+00	1.62E+00	1.01E+00	1.16E+00	
Oxygen (8)	O-14	3.10E+05	2.24E-06	1.00E+00	7.17E+17	4.20E+18	1.44E+18	8.81E+17	4.24E+18	1.70E+03	9.97E+03	3.43E+03	2.09E+03	1.00E+04	
Oxygen (8)	O-15	1.79E+05	3.88E-06	9.00E-01	2.38E+16	1.14E+17	4.02E+16	2.62E+16	1.07E+17	1.05E+02	5.02E+02	1.77E+02	1.15E+02	4.71E+02	
Oxygen (8)	O-19	8.26E+05	8.39E-07	1.00E+00	4.93E+20	2.55E+21	9.14E+20	5.79E+20	2.33E+21	5.95E+05	3.08E+06	1.10E+06	6.99E+05	2.81E+06	
Osmium (76)	Os-180	1.69E+04	4.09E-05	1.00E+00	7.44E+08	3.72E+09	1.33E+09	8.51E+08	3.71E+09	4.14E-04	2.07E-03	7.38E-04	4.74E-04	2.07E-03	
Osmium (76)	Os-181	3.47E+03	2.00E-04	1.00E+00	3.22E+01	1.60E+02	5.70E+01	3.67E+01	1.61E+02	8.80E-11	4.38E-10	1.56E-10	1.01E-10	4.41E-10	
Osmium (76)	Os-182	2.75E+02	2.52E-03	1.00E+00	3.40E+00	1.71E+01	6.09E+00	3.92E+00	1.72E+01	1.18E-10	5.96E-10	2.12E-10	1.36E-10	5.97E-10	
Osmium (76)	Os-183	4.67E+02	1.48E-03	1.00E+00	1.51E+01	6.36E+01	2.37E+01	1.63E+01	6.21E+01	3.09E-10	1.31E-09	4.87E-10	3.36E-10	1.28E-09	
Osmium (76)	Os-183m	6.13E+02	1.13E-03	1.00E+00	1.02E+01	5.08E+01	1.82E+01	1.17E+01	5.07E+01	1.59E-10	7.96E-10	2.85E-10	1.83E-10	7.94E-10	
Osmium (76)	Os-185	2.70E+00	2.56E-01	1.00E+00	8.59E-02	4.21E-01	1.49E-01	9.64E-02	4.22E-01	3.08E-10	1.51E-09	5.34E-10	3.46E-10	1.51E-09	
Osmium (76)	Os-186	3.47E-16	2.00E+15												

Resident 2D External Exposure DCCs July 2023															
Radionuclides		Isotope-specific Information			Dose Compliance Concentrations (DCCs)										
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Soil Volume Area Correction Factor	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	
					DCC DL=1 (Bq/g)	@ 1cm DCC DL=1 (Bq/g)	@ 5cm DCC DL=1 (Bq/g)	@ 15cm DCC DL=1 (Bq/g)	Plane DCC DL=1 (Bq/cm <sup>2</sup> )	DCC DL=1 (mg/kg)	@ 1cm DCC DL=1 (mg/kg)	@ 5cm DCC DL=1 (mg/kg)	@ 15cm DCC DL=1 (mg/kg)	Plane DCC DL=1 (mg/cm <sup>2</sup> )	
Osmium (76)	Os-189m	1.05E+03	6.62E-04	1.00E+00	7.98E+07	8.00E+07	7.98E+07	7.98E+07	2.47E+06	7.56E-04	7.57E-04	7.56E-04	7.56E-04	2.34E-05	
Osmium (76)	Os-190m	3.68E+04	1.88E-05	1.00E+00	9.30E+11	4.42E+12	1.56E+12	1.02E+12	4.49E+12	2.52E-01	1.20E+00	4.22E-01	2.76E-01	1.21E+00	
Osmium (76)	Os-191	1.64E+01	4.22E-02	1.00E+00	7.96E+00	2.36E+01	9.95E+00	8.03E+00	2.20E+01	4.85E-09	1.44E-08	6.07E-09	4.89E-09	1.34E-08	
Osmium (76)	Os-191m	4.63E+02	1.50E-03	1.00E+00	2.14E+02	6.27E+02	2.66E+02	2.16E+02	5.80E+02	4.63E-09	1.36E-08	5.76E-09	4.67E-09	1.25E-08	
Osmium (76)	Os-193	2.02E+02	3.44E-03	1.00E+00	7.15E+01	3.01E+02	1.12E+02	7.70E+01	2.13E+02	3.59E-09	1.51E-08	5.64E-09	3.87E-09	1.07E-08	
Osmium (76)	Os-194	1.16E-01	6.00E+00	1.00E+00	2.22E-01	9.70E-01	3.71E-01	2.46E-01	5.51E-01	1.96E-08	8.55E-08	3.27E-08	2.16E-08	4.85E-08	
Osmium (76)	Os-196	1.04E+04	6.64E-05	1.00E+00	6.65E+02	3.02E+03	1.12E+03	7.38E+02	2.19E+03	6.55E-10	2.97E-09	1.10E-09	7.27E-10	2.16E-09	
Phosphorus (15)	P-30	1.46E+05	4.75E-06	1.00E+00	6.72E+15	3.17E+16	1.13E+16	7.40E+15	2.90E+16	7.25E+01	3.42E+02	1.22E+02	7.98E+01	3.13E+02	
Phosphorus (15)	P-32	1.77E+01	3.91E-02	9.00E-01	1.08E+02	1.77E+02	1.30E+02	1.11E+02	2.20E+01	1.02E-08	1.67E-08	1.23E-08	1.05E-08	2.08E-09	
Phosphorus (15)	P-33	9.98E+00	6.94E-02	9.00E-01	2.46E+04	5.21E+04	2.80E+04	2.47E+04	2.90E+04	4.26E-06	9.03E-06	4.86E-06	4.28E-06	5.03E-06	
Protactinium (91)	Pa-227	9.51E+03	7.29E-05	1.00E+00	1.58E+03	6.49E+03	2.42E+03	1.68E+03	4.64E+03	1.98E-09	8.12E-09	3.03E-09	2.10E-09	5.81E-09	
Protactinium (91)	Pa-228	2.76E+02	2.51E-03	1.00E+00	2.90E+00	1.54E+01	5.38E+00	3.40E+00	1.55E+01	1.26E-10	6.68E-10	2.33E-10	1.47E-10	6.74E-10	
Protactinium (91)	Pa-229	1.69E+02	4.11E-03	1.00E+00	9.76E+01	3.04E+02	1.23E+02	9.79E+01	2.88E+02	6.95E-09	2.17E-08	8.73E-09	6.97E-09	2.05E-08	
Protactinium (91)	Pa-230	1.45E+01	4.77E-02	1.00E+00	4.39E-01	2.20E+00	7.79E-01	5.00E-01	2.22E+00	3.64E-10	1.83E-09	6.46E-10	4.15E-10	1.84E-09	
Protactinium (91)	Pa-231	2.12E-05	3.28E+04	1.00E+00	5.02E-02	2.14E-01	7.80E-02	5.34E-02	1.77E-01	2.87E-05	1.22E-04	4.47E-05	3.06E-05	1.01E-04	
Protactinium (91)	Pa-232	1.93E+02	3.59E-03	1.00E+00	4.00E+00	2.06E+01	7.18E+00	4.57E+00	2.08E+01	2.52E-10	1.30E-09	4.52E-10	2.88E-10	1.31E-09	
Protactinium (91)	Pa-233	9.38E+00	7.39E-02	1.00E+00	1.03E+00	4.40E+00	1.58E+00	1.08E+00	4.42E+00	1.34E-09	5.74E-09	2.06E-09	1.41E-09	5.76E-09	
Protactinium (91)	Pa-234	9.06E+02	7.65E-04	1.00E+00	1.22E+01	6.23E+01	2.18E+01	1.39E+01	6.25E+01	1.65E-10	8.44E-10	2.95E-10	1.89E-10	8.47E-10	
Protactinium (91)	Pa-234m	3.11E+05	2.23E-06	1.00E+00	2.58E+06	1.32E+07	4.62E+06	2.95E+06	1.33E+07	1.02E-07	5.20E-07	1.82E-07	1.16E-07	5.22E-07	
Protactinium (91)	Pa-235	1.49E+04	4.66E-05	1.00E+00	6.02E+10	1.02E+11	7.26E+10	6.16E+10	9.73E+09	4.99E-02	8.47E-02	6.01E-02	5.10E-02	8.07E-03	
Protactinium (91)	Pa-236	4.00E+04	1.73E-05	1.00E+00	6.45E+12	3.61E+13	1.25E+13	7.77E+12	3.55E+13	2.00E+00	1.11E+01	3.87E+00	2.40E+00	1.10E+01	
Protactinium (91)	Pa-237	4.19E+04	1.66E-05	1.00E+00	9.74E+03	3.43E+04	1.33E+04	9.94E+03	3.24E+04	2.89E-09	1.02E-08	3.96E-09	2.95E-09	9.62E-09	
Lead (82)	Pb-194	3.04E+04	2.28E-05	1.00E+00	6.81E+02	3.23E+03	1.15E+03	7.52E+02	3.12E+03	2.28E-10	1.08E-09	3.86E-10	2.52E-10	1.05E-09	
Lead (82)	Pb-195m	2.43E+04	2.85E-05	1.00E+00	3.26E+02	1.71E+03	6.06E+02	3.85E+02	1.72E+03	1.37E-10	7.22E-10	2.55E-10	1.62E-10	7.25E-10	
Lead (82)	Pb-196	9.84E+03	7.04E-05	1.00E+00	8.12E+01	4.23E+02	1.49E+02	9.47E+01	4.31E+02	8.48E-11	4.42E-10	1.55E-10	9.88E-11	4.50E-10	
Lead (82)	Pb-197	4.55E+04	1.52E-05	1.00E+00	2.00E+03	9.11E+03	3.36E+03	2.25E+03	8.98E+03	4.54E-10	2.07E-09	7.62E-10	5.11E-10	2.04E-09	
Lead (82)	Pb-197m	8.47E+03	8.18E-05	1.00E+00	8.95E+01	4.34E+02	1.55E+02	1.01E+02	4.36E+02	1.09E-10	5.30E-10	1.89E-10	1.23E-10	5.32E-10	
Lead (82)	Pb-198	2.53E+03	2.74E-04	1.00E+00	1.99E+01	1.06E+02	3.71E+01	2.34E+01	1.08E+02	8.19E-11	4.35E-10	1.52E-10	9.61E-11	4.45E-10	
Lead (82)	Pb-199	4.05E+03	1.71E-04	1.00E+00	6.39E+01	3.23E+02	1.14E+02	7.36E+01	3.26E+02	1.65E-10	8.32E-10	2.95E-10	1.90E-10	8.40E-10	
Lead (82)	Pb-200	2.82E+02	2.45E-03	1.00E+00	3.84E+00	1.90E+01	6.75E+00	4.37E+00	1.91E+01	1.43E-10	7.06E-10	2.51E-10	1.62E-10	7.11E-10	
Lead (82)	Pb-201	6.51E+02	1.07E-03	1.00E+00	1.72E+01	7.89E+01	2.86E+01	1.90E+01	7.90E+01	2.78E-10	1.28E-09	4.63E-10	3.08E-10	1.28E-09	
Lead (82)	Pb-201m	3.58E+05	1.93E-06	1.00E+00	9.43E+03	4.34E+04	1.57E+04	1.05E+04	4.34E+04	2.77E-10	1.28E-09	4.62E-10	3.08E-10	1.28E-09	
Lead (82)	Pb-202	1.32E-05	5.25E+04	1.00E+00	4.85E-02	2.19E-01	7.89E-02	5.28E-02	2.20E-01	3.90E-05	1.76E-04	6.33E-05	4.24E-05	1.77E-04	
Lead (82)	Pb-202m	1.72E+03	4.03E-04	1.00E+00	1.65E+01	8.36E+01	2.93E+01	1.87E+01	8.48E+01	1.02E-10	5.15E-10	1.80E-10	1.15E-10	5.22E-10	
Lead (82)	Pb-203	1.17E+02	5.92E-03	1.00E+00	9.36E+00	3.88E+01	1.42E+01	9.87E+00	3.88E+01	8.52E-10	3.53E-09	1.29E-09	8.98E-10	3.53E-09	
Lead (82)	Pb-204m	5.42E+03	1.28E-04	1.00E+00	5.07E+01	2.61E+02	9.10E+01	5.79E+01	2.63E+02	1.00E-10	5.14E-10	1.80E-10	1.14E-10	5.20E-10	
Lead (82)	Pb-205	4.53E-08	1.53E+07	1.00E+00	1.54E+04	1.54E+04	1.54E+04	1.54E+04	5.01E+02	3.66E+03	3.66E+03	3.66E+03	3.66E+03	1.19E+02	
Lead (82)	Pb-209	1.87E+03	3.71E-04	9.00E-01	3.07E+05	7.82E+05	3.87E+05	3.11E+05	6.19E+04	1.80E-06	4.59E-06	2.28E-06	1.83E-06	3.64E-07	
Lead (82)	Pb-210	3.12E-02	2.22E+01	1.00E+00	1.49E+01	2.53E+01	1.71E+01	1.51E+01	2.60E+00	5.26E-06	8.93E-06	6.05E-06	5.34E-06	9.17E-07	
Lead (82)	Pb-211	1.01E+04	6.87E-05	1.00E+00	1.78E+03	8.07E+03	2.97E+03	1.96E+03	4.61E+03	1.95E-09	8.85E-09	3.25E-09	2.14E-09	5.06E-09	
Lead (82)	Pb-212	5.71E+02	1.21E-03	1.00E+00	7.02E+00	4.08E+01	1.41E+01	8.65E+00	4.03E+01	1.37E-10	7.96E-10	2.75E-10	1.69E-10	7.85E-10	
Lead (82)	Pb-214	1.36E+04	5.10E-05	1.00E+00	2.44E+06	7.35E+06	3.75E+06	2.73E+06	1.13E+06	2.01E-06	6.07E-06	3.10E-06	2.25E-06	9.35E-07	



Resident 2D External Exposure DCCs July 2023															
Radionuclides		Isotope-specific Information			Dose Compliance Concentrations (DCCs)										
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Soil Volume Area Correction Factor	Soil Volume DCC DL=1 (Bq/g)	Soil Volume @ 1cm DCC DL=1 (Bq/g)	Soil Volume @ 5cm DCC DL=1 (Bq/g)	Soil Volume @ 15cm DCC DL=1 (Bq/g)	Ground Plane DCC DL=1 (Bq/cm <sup>2</sup> )	Soil Volume DCC DL=1 (mg/kg)	Soil Volume @ 1cm DCC DL=1 (mg/kg)	Soil Volume @ 5cm DCC DL=1 (mg/kg)	Soil Volume @ 15cm DCC DL=1 (mg/kg)	Ground Plane DCC DL=1 (mg/cm <sup>2</sup> )	
Palladium (46)	Pd-100	6.97E+01	9.95E-03	1.00E+00	4.50E-01	2.53E+00	8.79E-01	5.44E-01	2.59E+00	3.39E-11	1.90E-10	6.61E-11	4.09E-11	1.95E-10	
Palladium (46)	Pd-101	7.17E+02	9.67E-04	1.00E+00	2.47E+01	1.17E+02	4.12E+01	2.70E+01	1.16E+02	1.82E-10	8.66E-10	3.04E-10	2.00E-10	8.57E-10	
Palladium (46)	Pd-103	1.49E+01	4.66E-02	1.00E+00	8.18E+02	1.05E+03	9.16E+02	8.35E+02	1.67E+02	2.97E-07	3.83E-07	3.32E-07	3.03E-07	6.06E-08	
Palladium (46)	Pd-107	1.07E-07	6.50E+06												
Palladium (46)	Pd-109	4.43E+02	1.56E-03	1.00E+00	2.74E+03	6.84E+03	3.48E+03	2.80E+03	1.13E+03	3.53E-08	8.83E-08	4.50E-08	3.62E-08	1.46E-08	
Palladium (46)	Pd-109m	7.77E+04	8.92E-06	1.00E+00	4.78E+05	1.19E+06	6.07E+05	4.89E+05	1.98E+05	3.52E-08	8.78E-08	4.47E-08	3.60E-08	1.46E-08	
Palladium (46)	Pd-111	1.56E+04	4.45E-05	1.00E+00	1.24E+04	5.43E+04	1.98E+04	1.33E+04	2.82E+04	4.65E-09	2.03E-08	7.39E-09	4.96E-09	1.06E-08	
Palladium (46)	Pd-112	2.89E+02	2.40E-03	1.00E+00	7.55E+00	3.98E+01	1.42E+01	8.91E+00	3.55E+01	1.54E-10	8.10E-10	2.89E-10	1.81E-10	7.23E-10	
Palladium (46)	Pd-114	1.51E+05	4.60E-06	1.00E+00	3.52E+16	1.61E+17	6.27E+16	4.07E+16	1.10E+17	1.40E+03	6.40E+03	2.49E+03	1.62E+03	4.36E+03	
Palladium (46)	Pd-96	1.79E+05	3.87E-06	1.00E+00	1.88E+12	9.81E+12	3.42E+12	2.16E+12	9.81E+12	5.29E-02	2.76E-01	9.62E-02	6.08E-02	2.76E-01	
Palladium (46)	Pd-97	1.17E+05	5.90E-06	1.00E+00	1.19E+04	5.14E+04	1.82E+04	1.25E+04	5.15E+04	5.15E-10	2.23E-09	7.89E-10	5.40E-10	2.23E-09	
Palladium (46)	Pd-98	2.06E+04	3.37E-05	1.00E+00	6.88E+09	3.42E+10	1.20E+10	7.75E+09	3.29E+10	1.72E-03	8.54E-03	3.00E-03	1.94E-03	8.21E-03	
Palladium (46)	Pd-99	1.70E+04	4.07E-05	1.00E+00	5.37E+02	2.66E+03	9.27E+02	6.00E+02	2.68E+03	1.64E-10	8.10E-10	2.83E-10	1.83E-10	8.17E-10	
Promethium (61)	Pm-136	2.04E+05	3.39E-06	1.00E+00	1.66E+03	8.51E+03	2.99E+03	1.90E+03	8.32E+03	5.78E-11	2.97E-10	1.04E-10	6.64E-11	2.90E-10	
Promethium (61)	Pm-137m	1.52E+05	4.57E-06	1.00E+00	8.21E+03	3.93E+04	1.42E+04	9.22E+03	3.57E+04	3.89E-10	1.86E-09	6.73E-10	4.37E-10	1.69E-09	
Promethium (61)	Pm-139	8.78E+04	7.90E-06	1.00E+00	8.99E+03	3.79E+04	1.41E+04	9.66E+03	3.42E+04	7.47E-10	3.15E-09	1.17E-09	8.02E-10	2.84E-09	
Promethium (61)	Pm-140	2.38E+06	2.92E-07	1.00E+00	8.85E+04	4.15E+05	1.50E+05	9.77E+04	3.71E+05	2.74E-10	1.28E-09	4.63E-10	3.02E-10	1.15E-09	
Promethium (61)	Pm-140m	6.12E+04	1.13E-05	1.00E+00	2.28E+03	1.07E+04	3.85E+03	2.51E+03	9.55E+03	2.73E-10	1.28E-09	4.62E-10	3.02E-10	1.14E-09	
Promethium (61)	Pm-141	1.74E+04	3.98E-05	1.00E+00	6.66E+03	2.92E+04	1.14E+04	7.53E+03	2.39E+04	2.83E-09	1.24E-08	4.83E-09	3.19E-09	1.01E-08	
Promethium (61)	Pm-142	5.40E+05	1.28E-06	1.00E+00	2.64E+19	1.26E+20	4.51E+19	2.93E+19	1.15E+20	3.64E+05	1.73E+06	6.22E+05	4.05E+05	1.59E+06	
Promethium (61)	Pm-143	9.55E-01	7.26E-01	1.00E+00	1.04E-01	5.14E-01	1.84E-01	1.18E-01	4.98E-01	8.17E-10	4.04E-09	1.44E-09	9.25E-10	3.91E-09	
Promethium (61)	Pm-144	6.97E-01	9.95E-01	1.00E+00	1.78E-02	8.84E-02	3.10E-02	2.00E-02	8.87E-02	1.93E-10	9.58E-10	3.36E-10	2.17E-10	9.62E-10	
Promethium (61)	Pm-145	3.92E-02	1.77E+01	1.00E+00	4.98E+00	7.17E+00	5.06E+00	4.98E+00	3.68E+00	9.67E-07	1.39E-06	9.84E-07	9.67E-07	7.14E-07	
Promethium (61)	Pm-146	1.25E-01	5.53E+00	1.00E+00	2.88E-02	1.42E-01	4.99E-02	3.22E-02	1.41E-01	1.76E-09	8.65E-09	3.05E-09	1.97E-09	8.63E-09	
Promethium (61)	Pm-147	2.64E-01	2.62E+00	1.00E+00	2.94E+03	6.71E+03	3.44E+03	2.95E+03	3.86E+03	8.57E-05	1.96E-04	1.00E-04	8.60E-05	1.13E-04	
Promethium (61)	Pm-148	4.71E+01	1.47E-02	1.00E+00	1.50E+00	8.07E+00	2.83E+00	1.77E+00	7.35E+00	2.47E-10	1.33E-09	4.66E-10	2.91E-10	1.21E-09	
Promethium (61)	Pm-148m	6.13E+00	1.13E-01	1.00E+00	6.01E-02	3.01E-01	1.05E-01	6.76E-02	3.04E-01	7.62E-11	3.82E-10	1.33E-10	8.56E-11	3.85E-10	
Promethium (61)	Pm-149	1.14E+02	6.06E-03	1.00E+00	1.93E+02	8.06E+02	3.06E+02	2.07E+02	2.63E+02	1.32E-08	5.51E-08	2.09E-08	1.42E-08	1.80E-08	
Promethium (61)	Pm-150	2.27E+03	3.06E-04	1.00E+00	2.86E+01	1.54E+02	5.36E+01	3.36E+01	1.50E+02	9.93E-11	5.34E-10	1.86E-10	1.17E-10	5.20E-10	
Promethium (61)	Pm-151	2.14E+02	3.24E-03	1.00E+00	1.44E+01	6.57E+01	2.34E+01	1.56E+01	6.26E+01	5.33E-10	2.43E-09	8.68E-10	5.78E-10	2.32E-09	
Promethium (61)	Pm-152	8.84E+04	7.84E-06	1.00E+00	8.83E+14	4.30E+15	1.60E+15	1.03E+15	3.25E+15	7.96E+01	3.88E+02	1.44E+02	9.26E+01	2.93E+02	
Promethium (61)	Pm-152m	4.84E+04	1.43E-05	1.00E+00	1.05E+13	5.46E+13	1.91E+13	1.22E+13	5.26E+13	1.74E+00	8.99E+00	3.15E+00	2.01E+00	8.65E+00	
Promethium (61)	Pm-153	6.94E+04	9.99E-06	1.00E+00	5.29E+04	1.43E+05	6.51E+04	5.32E+04	1.06E+05	6.12E-09	1.66E-08	7.53E-09	6.15E-09	1.22E-08	
Promethium (61)	Pm-154	2.11E+05	3.29E-06	1.00E+00	4.13E+16	2.39E+17	8.23E+16	5.04E+16	2.34E+17	1.58E+03	9.17E+03	3.16E+03	1.93E+03	8.96E+03	
Promethium (61)	Pm-154m	1.36E+05	5.10E-06	1.00E+00	2.30E+15	1.24E+16	4.33E+15	2.72E+15	1.20E+16	1.37E+02	7.39E+02	2.58E+02	1.61E+02	7.15E+02	
Polonium (84)	Po-203	9.92E+03	6.98E-05	1.00E+00	4.37E+01	2.34E+02	8.16E+01	5.14E+01	2.38E+02	4.69E-11	2.51E-10	8.75E-11	5.52E-11	2.55E-10	
Polonium (84)	Po-204	1.72E+03	4.03E-04	1.00E+00	7.89E+00	4.06E+01	1.43E+01	9.08E+00	4.12E+01	4.91E-11	2.52E-10	8.87E-11	5.65E-11	2.56E-10	
Polonium (84)	Po-205	3.66E+03	1.89E-04	1.00E+00	2.10E+01	1.14E+02	3.96E+01	2.48E+01	1.16E+02	6.17E-11	3.35E-10	1.17E-10	7.30E-11	3.41E-10	
Polonium (84)	Po-206	2.87E+01	2.41E-02	1.00E+00	1.30E-01	6.75E-01	2.36E-01	1.50E-01	6.86E-01	4.90E-11	2.54E-10	8.86E-11	5.65E-11	2.58E-10	
Polonium (84)	Po-207	1.05E+03	6.62E-04	1.00E+00	1.55E+01	8.02E+01	2.82E+01	1.79E+01	8.10E+01	1.61E-10	8.32E-10	2.92E-10	1.86E-10	8.41E-10	
Polonium (84)	Po-208	2.39E-01	2.90E+00	1.00E+00	1.12E+03	5.32E+03	1.89E+03	1.24E+03	5.35E+03	5.09E-05	2.43E-04	8.61E-05	5.65E-05	2.44E-04	
Polonium (84)	Po-209	6.79E-03	1.02E+02	1.00E+00	3.36E+00	1.64E+01	5.81E+00	3.78E+00	1.66E+01	5.42E-06	2.64E-05	9.37E-06	6.11E-06	2.67E-05	

Resident 2D External Exposure DCCs July 2023															
Radionuclides		Isotope-specific Information			Dose Compliance Concentrations (DCCs)										
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Soil Volume Area Correction Factor	Soil Volume DCC DL=1 (Bq/g)	Soil Volume @ 1cm DCC DL=1 (Bq/g)	Soil Volume @ 5cm DCC DL=1 (Bq/g)	Soil Volume @ 15cm DCC DL=1 (Bq/g)	Ground Plane DCC DL=1 (Bq/cm <sup>2</sup> )	Soil Volume DCC DL=1 (mg/kg)	Soil Volume @ 1cm DCC DL=1 (mg/kg)	Soil Volume @ 5cm DCC DL=1 (mg/kg)	Soil Volume @ 15cm DCC DL=1 (mg/kg)	Ground Plane DCC DL=1 (mg/cm <sup>2</sup> )	
Polonium (84)	Po-210	1.83E+00	3.79E-01	1.00E+00	4.30E+03	2.22E+04	7.73E+03	4.92E+03	2.25E+04	2.59E-05	1.33E-04	4.66E-05	2.96E-05	1.36E-04	
Polonium (84)	Po-211	4.24E+07	1.64E-08	1.00E+00	1.58E+33	8.09E+33	2.82E+33	1.80E+33	8.19E+33	4.12E+17	2.11E+18	7.37E+17	4.70E+17	2.14E+18	
Polonium (84)	Po-212	7.31E+13	9.48E-15												
Polonium (84)	Po-212m	4.85E+05	1.43E-06	1.00E+00	2.76E+20	1.74E+21	5.92E+20	3.53E+20	1.82E+21	6.33E+06	3.99E+07	1.36E+07	8.11E+06	4.18E+07	
Polonium (84)	Po-213	5.20E+12	1.33E-13	1.00E+00	1.19E+15	3.03E+15	1.50E+15	1.21E+15	2.40E+14	2.55E-06	6.51E-06	3.23E-06	2.59E-06	5.16E-07	
Polonium (84)	Po-214	1.33E+11	5.21E-12	1.00E+00	6.35E+13	1.08E+14	7.30E+13	6.45E+13	1.11E+13	5.36E-06	9.10E-06	6.16E-06	5.44E-06	9.35E-07	
Polonium (84)	Po-215	1.23E+10	5.65E-11	1.00E+00	5.08E+12	2.30E+13	8.47E+12	5.59E+12	1.27E+13	4.67E-06	2.11E-05	7.79E-06	5.14E-06	1.17E-05	
Polonium (84)	Po-216	1.51E+08	4.60E-09	1.00E+00	1.67E+06	9.74E+06	3.37E+06	2.06E+06	9.60E+06	1.26E-10	7.32E-10	2.53E-10	1.55E-10	7.22E-10	
Polonium (84)	Po-218	1.17E+05	5.90E-06	9.00E-01	1.95E+07	6.08E+07	3.04E+07	2.19E+07	9.79E+06	1.89E-06	5.92E-06	2.96E-06	2.13E-06	9.52E-07	
Praseodymium (59)	Pr-134	3.31E+04	2.09E-05	1.00E+00	9.19E+02	4.37E+03	1.56E+03	1.02E+03	3.95E+03	1.95E-10	9.27E-10	3.31E-10	2.16E-10	8.38E-10	
Praseodymium (59)	Pr-134m	2.14E+04	3.23E-05	1.00E+00	5.97E+02	2.84E+03	1.01E+03	6.62E+02	2.56E+03	1.96E-10	9.30E-10	3.33E-10	2.17E-10	8.41E-10	
Praseodymium (59)	Pr-135	1.52E+04	4.57E-05	1.00E+00	3.81E+02	1.82E+03	6.49E+02	4.22E+02	1.79E+03	1.78E-10	8.50E-10	3.03E-10	1.97E-10	8.37E-10	
Praseodymium (59)	Pr-136	2.78E+04	2.49E-05	1.00E+00	9.68E+10	5.06E+11	1.76E+11	1.12E+11	4.98E+11	2.48E-02	1.30E-01	4.53E-02	2.86E-02	1.28E-01	
Praseodymium (59)	Pr-137	4.74E+03	1.46E-04	1.00E+00	2.57E+02	1.23E+03	4.45E+02	2.89E+02	1.12E+03	3.90E-10	1.87E-09	6.75E-10	4.38E-10	1.70E-09	
Praseodymium (59)	Pr-138	2.51E+05	2.76E-06	1.00E+00	4.06E+18	1.92E+19	6.90E+18	4.49E+18	1.75E+19	1.17E+05	5.53E+05	1.99E+05	1.29E+05	5.05E+05	
Praseodymium (59)	Pr-138m	2.86E+03	2.42E-04	1.00E+00	2.25E+01	1.15E+02	4.04E+01	2.57E+01	1.16E+02	5.68E-11	2.92E-10	1.02E-10	6.49E-11	2.93E-10	
Praseodymium (59)	Pr-139	1.38E+03	5.03E-04	1.00E+00	1.41E+02	5.94E+02	2.21E+02	1.51E+02	5.37E+02	7.47E-10	3.15E-09	1.17E-09	8.02E-10	2.84E-09	
Praseodymium (59)	Pr-140	1.07E+05	6.45E-06	1.00E+00	2.01E+15	9.56E+15	3.41E+15	2.22E+15	8.70E+15	1.37E+02	6.53E+02	2.33E+02	1.51E+02	5.95E+02	
Praseodymium (59)	Pr-142	3.18E+02	2.18E-03	1.00E+00	8.80E+01	4.33E+02	1.69E+02	1.06E+02	2.06E+02	2.06E-09	1.02E-08	3.96E-09	2.49E-09	4.83E-09	
Praseodymium (59)	Pr-142m	2.49E+04	2.78E-05												
Praseodymium (59)	Pr-143	1.86E+01	3.72E-02	1.00E+00	7.08E+02	1.35E+03	8.68E+02	7.21E+02	8.54E+01	2.85E-07	5.43E-07	3.49E-07	2.90E-07	3.43E-08	
Praseodymium (59)	Pr-144	2.11E+04	3.29E-05	1.00E+00	7.11E+11	2.57E+12	1.22E+12	8.30E+11	9.31E+11	2.55E-01	9.21E-01	4.39E-01	2.97E-01	3.34E-01	
Praseodymium (59)	Pr-144m	5.06E+04	1.37E-05	1.00E+00	9.96E+11	3.60E+12	1.72E+12	1.16E+12	1.31E+12	1.49E-01	5.38E-01	2.56E-01	1.74E-01	1.95E-01	
Praseodymium (59)	Pr-145	1.01E+03	6.83E-04	1.00E+00	8.91E+02	3.44E+03	1.49E+03	1.00E+03	9.79E+02	6.68E-09	2.58E-08	1.12E-08	7.53E-09	7.34E-09	
Praseodymium (59)	Pr-146	1.51E+04	4.59E-05	1.00E+00	1.17E+08	6.33E+08	2.23E+08	1.39E+08	5.88E+08	5.95E-05	3.21E-04	1.13E-04	7.05E-05	2.99E-04	
Praseodymium (59)	Pr-147	2.72E+04	2.55E-05	1.00E+00	4.89E+03	2.08E+04	7.79E+03	5.31E+03	1.85E+04	1.39E-09	5.91E-09	2.21E-09	1.51E-09	5.24E-09	
Praseodymium (59)	Pr-148	1.59E+05	4.36E-06	1.00E+00	9.53E+16	4.98E+17	1.77E+17	1.12E+17	4.58E+17	4.65E+03	2.43E+04	8.66E+03	5.45E+03	2.24E+04	
Praseodymium (59)	Pr-148m	1.81E+05	3.82E-06	1.00E+00	2.59E+16	1.23E+17	4.40E+16	2.87E+16	1.11E+17	1.11E+03	5.25E+03	1.88E+03	1.23E+03	4.76E+03	
Platinum (78)	Pt-184	2.11E+04	3.29E-05	1.00E+00	2.10E+02	1.08E+03	3.80E+02	2.42E+02	1.09E+03	9.63E-11	4.96E-10	1.74E-10	1.11E-10	5.00E-10	
Platinum (78)	Pt-186	2.92E+03	2.37E-04	1.00E+00	2.47E+01	1.26E+02	4.45E+01	2.84E+01	1.28E+02	8.24E-11	4.22E-10	1.49E-10	9.51E-11	4.27E-10	
Platinum (78)	Pt-187	2.58E+03	2.68E-04	1.00E+00	6.15E+01	2.83E+02	1.03E+02	6.83E+01	2.79E+02	2.33E-10	1.07E-09	3.91E-10	2.59E-10	1.06E-09	
Platinum (78)	Pt-188	2.48E+01	2.79E-02	1.00E+00	2.01E-01	1.13E+00	3.93E-01	2.44E-01	1.16E+00	7.99E-11	4.48E-10	1.56E-10	9.69E-11	4.59E-10	
Platinum (78)	Pt-189	5.58E+02	1.24E-03	1.00E+00	2.43E+01	1.06E+02	3.95E+01	2.69E+01	1.03E+02	4.31E-10	1.88E-09	7.00E-10	4.77E-10	1.83E-09	
Platinum (78)	Pt-190	1.07E-12	6.50E+11												
Platinum (78)	Pt-191	9.03E+01	7.68E-03	1.00E+00	8.17E+00	3.30E+01	1.25E+01	8.76E+00	3.18E+01	9.06E-10	3.66E-09	1.39E-09	9.72E-10	3.53E-09	
Platinum (78)	Pt-193	1.39E-02	5.00E+01	1.00E+00	2.56E+04	2.56E+04	2.56E+04	2.56E+04	8.96E+02	1.87E-02	1.87E-02	1.87E-02	1.87E-02	6.54E-04	
Platinum (78)	Pt-193m	5.84E+01	1.19E-02	1.00E+00	2.98E+02	7.12E+02	3.35E+02	2.98E+02	6.14E+02	5.16E-08	1.23E-07	5.80E-08	5.16E-08	1.06E-07	
Platinum (78)	Pt-195m	6.29E+01	1.10E-02	1.00E+00	4.21E+01	1.09E+02	4.92E+01	4.21E+01	9.67E+01	6.84E-09	1.77E-08	8.00E-09	6.85E-09	1.57E-08	
Platinum (78)	Pt-197	3.05E+02	2.27E-03	1.00E+00	4.58E+02	1.44E+03	5.93E+02	4.66E+02	1.20E+03	1.55E-08	4.89E-08	2.01E-08	1.58E-08	4.07E-08	
Platinum (78)	Pt-197m	3.82E+03	1.82E-04	1.00E+00	1.13E+03	4.09E+03	1.61E+03	1.18E+03	3.78E+03	3.06E-09	1.11E-08	4.35E-09	3.20E-09	1.02E-08	
Platinum (78)	Pt-199	1.18E+04	5.86E-05	1.00E+00	3.44E+03	1.30E+04	4.83E+03	3.51E+03	1.31E+04	3.03E-09	1.15E-08	4.26E-09	3.09E-09	1.15E-08	
Platinum (78)	Pt-200	4.86E+02	1.43E-03	1.00E+00	2.93E+01	1.43E+02	5.19E+01	3.36E+01	1.18E+02	6.33E-10	3.09E-09	1.12E-09	7.25E-10	2.56E-09	

Resident 2D External Exposure DCCs July 2023															
Radionuclides		Isotope-specific Information			Dose Compliance Concentrations (DCCs)										
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Soil Volume Area Correction Factor	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	
					DCC DL=1 (Bq/g)	@ 1cm DCC DL=1 (Bq/g)	@ 5cm DCC DL=1 (Bq/g)	@ 15cm DCC DL=1 (Bq/g)	Plane DCC DL=1 (Bq/cm <sup>2</sup> )	DCC DL=1 (mg/kg)	@ 1cm DCC DL=1 (mg/kg)	@ 5cm DCC DL=1 (mg/kg)	@ 15cm DCC DL=1 (mg/kg)	Plane DCC DL=1 (mg/cm <sup>2</sup> )	
Platinum (78)	Pt-202	1.38E+02	5.02E-03	9.00E-01	1.43E+01	6.60E+01	2.53E+01	1.64E+01	3.74E+01	1.10E-09	5.07E-09	1.94E-09	1.26E-09	2.87E-09	
Plutonium (94)	Pu-232	1.08E+04	6.41E-05	1.00E+00	1.89E+04	1.10E+05	3.79E+04	2.33E+04	1.08E+05	2.13E-08	1.23E-07	4.27E-08	2.62E-08	1.22E-07	
Plutonium (94)	Pu-234	6.90E+02	1.00E-03	1.00E+00	1.18E+01	6.47E+01	2.26E+01	1.41E+01	6.58E+01	2.11E-10	1.15E-09	4.02E-10	2.52E-10	1.17E-09	
Plutonium (94)	Pu-235	1.44E+04	4.81E-05	1.00E+00	1.79E+06	4.65E+06	2.20E+06	1.79E+06	1.34E+06	1.53E-06	3.98E-06	1.88E-06	1.53E-06	1.15E-06	
Plutonium (94)	Pu-236	2.42E-01	2.86E+00	1.00E+00	3.43E-01	1.99E+00	6.89E-01	4.22E-01	1.96E+00	1.75E-08	1.02E-07	3.52E-08	2.16E-08	1.00E-07	
Plutonium (94)	Pu-237	5.60E+00	1.24E-01	1.00E+00	4.24E+00	1.35E+01	5.39E+00	4.25E+00	1.25E+01	9.42E-09	3.00E-08	1.20E-08	9.44E-09	2.78E-08	
Plutonium (94)	Pu-238	7.90E-03	8.77E+01	1.00E+00	5.04E+01	2.74E+02	9.51E+01	5.95E+01	1.60E+02	7.96E-05	4.32E-04	1.50E-04	9.40E-05	2.52E-04	
Plutonium (94)	Pu-239	2.87E-05	2.41E+04	1.00E+00	4.03E+02	1.15E+03	5.52E+02	4.17E+02	3.11E+02	1.76E-01	5.03E-01	2.41E-01	1.82E-01	1.36E-01	
Plutonium (94)	Pu-240	1.06E-04	6.56E+03	1.00E+00	9.85E+02	1.35E+03	1.07E+03	9.93E+02	1.68E+02	1.17E-01	1.61E-01	1.28E-01	1.18E-01	2.00E-02	
Plutonium (94)	Pu-241	4.83E-02	1.44E+01	1.00E+00	1.01E+02	2.06E+02	1.09E+02	1.01E+02	1.48E+02	2.65E-05	5.39E-05	2.85E-05	2.65E-05	3.87E-05	
Plutonium (94)	Pu-242	1.85E-06	3.75E+05	1.00E+00	1.25E+02	6.74E+02	2.36E+02	1.48E+02	1.71E+02	8.60E-01	4.63E+00	1.62E+00	1.01E+00	1.18E+00	
Plutonium (94)	Pu-243	1.22E+03	5.66E-04	1.00E+00	1.90E+03	5.79E+03	2.42E+03	1.93E+03	5.14E+03	1.98E-08	6.02E-08	2.51E-08	2.01E-08	5.34E-08	
Plutonium (94)	Pu-244	8.66E-09	8.00E+07	1.00E+00	5.63E-02	2.82E-01	1.00E-01	6.41E-02	2.38E-01	8.32E-02	4.16E-01	1.48E-01	9.47E-02	3.51E-01	
Plutonium (94)	Pu-245	5.78E+02	1.20E-03	1.00E+00	2.80E+01	1.33E+02	4.72E+01	3.11E+01	1.27E+02	6.22E-10	2.97E-09	1.05E-09	6.91E-10	2.83E-09	
Plutonium (94)	Pu-246	2.33E+01	2.97E-02	1.00E+00	4.12E-01	2.11E+00	7.41E-01	4.73E-01	2.05E+00	2.28E-10	1.17E-09	4.09E-10	2.61E-10	1.13E-09	
Radium (88)	Ra-219	2.19E+09	3.17E-10	1.00E+00	7.99E+34	4.10E+35	1.43E+35	9.12E+34	4.15E+35	4.20E+17	2.15E+18	7.54E+17	4.79E+17	2.18E+18	
Radium (88)	Ra-220	1.22E+09	5.68E-10	1.00E+00	7.92E+39	3.77E+40	1.32E+40	8.63E+39	3.83E+40	7.49E+22	3.56E+23	1.25E+23	8.15E+22	3.62E+23	
Radium (88)	Ra-221	7.81E+05	8.88E-07	1.00E+00	1.28E+08	3.27E+08	1.62E+08	1.30E+08	2.58E+07	1.90E-06	4.85E-06	2.40E-06	1.93E-06	3.84E-07	
Radium (88)	Ra-222	5.75E+05	1.20E-06	1.00E+00	2.75E+08	4.67E+08	3.16E+08	2.79E+08	4.79E+07	5.56E-06	9.44E-06	6.39E-06	5.65E-06	9.70E-07	
Radium (88)	Ra-223	2.21E+01	3.13E-02	1.00E+00	1.63E+00	6.98E+00	2.56E+00	1.75E+00	5.40E+00	8.62E-10	3.69E-09	1.35E-09	9.24E-10	2.85E-09	
Radium (88)	Ra-224	6.91E+01	1.00E-02	1.00E+00	8.46E-01	4.91E+00	1.70E+00	1.04E+00	4.84E+00	1.44E-10	8.34E-10	2.89E-10	1.77E-10	8.23E-10	
Radium (88)	Ra-225	1.70E+01	4.08E-02	1.00E+00	1.64E+00	7.52E+00	2.73E+00	1.81E+00	6.21E+00	1.14E-09	5.23E-09	1.89E-09	1.26E-09	4.32E-09	
Radium (88)	Ra-226	4.33E-04	1.60E+03	1.00E+00	1.07E-02	5.81E-02	2.02E-02	1.26E-02	5.69E-02	2.92E-07	1.59E-06	5.52E-07	3.45E-07	1.56E-06	
Radium (88)	Ra-227	8.63E+03	8.03E-05	1.00E+00	1.50E+04	6.37E+04	2.33E+04	1.59E+04	5.24E+04	2.06E-08	8.79E-08	3.21E-08	2.20E-08	7.22E-08	
Radium (88)	Ra-228	1.21E-01	5.75E+00	1.00E+00	1.32E-02	7.36E-02	2.55E-02	1.59E-02	7.24E-02	1.31E-09	7.30E-09	2.53E-09	1.58E-09	7.18E-09	
Radium (88)	Ra-230	3.92E+03	1.77E-04	1.00E+00	1.17E+02	6.26E+02	2.22E+02	1.39E+02	5.60E+02	3.61E-10	1.93E-09	6.82E-10	4.27E-10	1.72E-09	
Rubidium (37)	Rb-77	9.66E+04	7.17E-06	1.00E+00	1.50E+03	7.00E+03	2.48E+03	1.64E+03	6.77E+03	6.27E-11	2.93E-10	1.04E-10	6.86E-11	2.83E-10	
Rubidium (37)	Rb-78	2.06E+04	3.36E-05	1.00E+00	6.06E+09	3.60E+10	1.24E+10	7.52E+09	3.67E+10	1.20E-03	7.14E-03	2.46E-03	1.49E-03	7.27E-03	
Rubidium (37)	Rb-78m	6.35E+04	1.09E-05	1.00E+00	1.26E+11	7.46E+11	2.57E+11	1.56E+11	7.60E+11	8.10E-03	4.81E-02	1.66E-02	1.00E-02	4.90E-02	
Rubidium (37)	Rb-79	1.59E+04	4.36E-05	1.00E+00	1.31E+03	6.32E+03	2.21E+03	1.45E+03	6.39E+03	3.43E-10	1.65E-09	5.76E-10	3.76E-10	1.67E-09	
Rubidium (37)	Rb-80	6.54E+05	1.06E-06	1.00E+00	1.04E+20	4.88E+20	1.76E+20	1.15E+20	4.51E+20	6.66E+05	3.13E+06	1.13E+06	7.35E+05	2.89E+06	
Rubidium (37)	Rb-81	1.33E+03	5.22E-04	1.00E+00	4.44E+01	2.09E+02	7.36E+01	4.85E+01	2.10E+02	1.42E-10	6.71E-10	2.36E-10	1.55E-10	6.71E-10	
Rubidium (37)	Rb-81m	1.19E+04	5.80E-05	1.00E+00	4.10E+02	1.93E+03	6.79E+02	4.47E+02	1.93E+03	1.46E-10	6.87E-10	2.42E-10	1.59E-10	6.88E-10	
Rubidium (37)	Rb-82	2.86E+05	2.42E-06	1.00E+00	3.64E+17	1.74E+18	6.19E+17	4.03E+17	1.60E+18	5.47E+03	2.61E+04	9.30E+03	6.06E+03	2.41E+04	
Rubidium (37)	Rb-82m	9.38E+02	7.39E-04	1.00E+00	6.13E+00	3.20E+01	1.11E+01	7.05E+00	3.26E+01	2.81E-11	1.46E-10	5.11E-11	3.23E-11	1.49E-10	
Rubidium (37)	Rb-83	2.93E+00	2.36E-01	1.00E+00	1.29E-01	6.28E-01	2.20E-01	1.43E-01	6.36E-01	1.92E-10	9.32E-10	3.27E-10	2.12E-10	9.43E-10	
Rubidium (37)	Rb-84	7.72E+00	8.98E-02	1.00E+00	1.66E-01	8.46E-01	2.95E-01	1.88E-01	8.45E-01	9.45E-11	4.83E-10	1.68E-10	1.07E-10	4.83E-10	
Rubidium (37)	Rb-84m	1.80E+04	3.85E-05	1.00E+00	3.85E+02	1.97E+03	6.87E+02	4.37E+02	1.97E+03	9.45E-11	4.83E-10	1.68E-10	1.07E-10	4.82E-10	
Rubidium (37)	Rb-86	1.36E+01	5.11E-02	1.00E+00	2.60E+00	1.30E+01	4.79E+00	3.04E+00	7.83E+00	8.64E-10	4.34E-09	1.59E-09	1.01E-09	2.60E-09	
Rubidium (37)	Rb-86m	3.58E+05	1.93E-06	1.00E+00	6.87E+04	3.44E+05	1.26E+05	8.03E+04	2.07E+05	8.65E-10	4.34E-09	1.59E-09	1.01E-09	2.60E-09	
Rubidium (37)	Rb-87	1.41E-11	4.92E+10	9.00E-01	9.17E+02	2.16E+03	1.08E+03	9.20E+02	1.34E+03	2.97E+05	6.99E+05	3.50E+05	2.98E+05	4.35E+05	
Rubidium (37)	Rb-88	2.05E+04	3.38E-05	1.00E+00	3.55E+10	1.97E+11	7.12E+10	4.36E+10	1.73E+11	7.99E-03	4.44E-02	1.60E-02	9.83E-03	3.91E-02	

Resident 2D External Exposure DCCs July 2023															
Radionuclides		Isotope-specific Information			Dose Compliance Concentrations (DCCs)										
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Soil Volume Area Correction Factor	Soil Volume DCC DL=1 (Bq/g)	Soil Volume @ 1cm DCC DL=1 (Bq/g)	Soil Volume @ 5cm DCC DL=1 (Bq/g)	Soil Volume @ 15cm DCC DL=1 (Bq/g)	Ground Plane DCC DL=1 (Bq/cm <sup>2</sup> )	Soil Volume DCC DL=1 (mg/kg)	Soil Volume @ 1cm DCC DL=1 (mg/kg)	Soil Volume @ 5cm DCC DL=1 (mg/kg)	Soil Volume @ 15cm DCC DL=1 (mg/kg)	Ground Plane DCC DL=1 (mg/cm <sup>2</sup> )	
Rubidium (37)	Rb-89	2.40E+04	2.88E-05	1.00E+00	1.77E+05	2.98E+05	2.15E+05	1.82E+05	3.35E+04	3.44E-08	5.79E-08	4.17E-08	3.54E-08	6.50E-09	
Rubidium (37)	Rb-90	1.38E+05	5.01E-06	1.00E+00	1.59E+07	2.73E+07	1.97E+07	1.65E+07	4.97E+06	5.43E-07	9.31E-07	6.71E-07	5.64E-07	1.70E-07	
Rubidium (37)	Rb-90m	8.47E+04	8.18E-06	1.00E+00	9.74E+06	1.67E+07	1.20E+07	1.01E+07	3.05E+06	5.43E-07	9.31E-07	6.71E-07	5.64E-07	1.70E-07	
Rhenium (75)	Re-178	2.76E+04	2.51E-05	1.00E+00	5.98E+03	2.39E+04	9.67E+03	6.80E+03	2.16E+04	2.02E-09	8.08E-09	3.27E-09	2.30E-09	7.30E-09	
Rhenium (75)	Re-179	1.87E+04	3.71E-05	1.00E+00	2.28E+04	4.54E+04	2.44E+04	2.28E+04	3.42E+04	1.15E-08	2.28E-08	1.22E-08	1.15E-08	1.72E-08	
Rhenium (75)	Re-180	1.49E+05	4.64E-06	1.00E+00	8.36E+15	4.26E+16	1.51E+16	9.61E+15	4.28E+16	5.29E+02	2.70E+03	9.52E+02	6.08E+02	2.71E+03	
Rhenium (75)	Re-181	3.05E+02	2.27E-03	1.00E+00	8.05E+00	3.75E+01	1.36E+01	8.96E+00	3.73E+01	2.50E-10	1.17E-09	4.23E-10	2.79E-10	1.16E-09	
Rhenium (75)	Re-182	9.49E+01	7.31E-03	1.00E+00	1.08E+00	5.44E+00	1.93E+00	1.24E+00	5.48E+00	1.09E-10	5.47E-10	1.94E-10	1.25E-10	5.51E-10	
Rhenium (75)	Re-182m	4.78E+02	1.45E-03	1.00E+00	7.66E+00	4.04E+01	1.42E+01	9.02E+00	4.07E+01	1.53E-10	8.07E-10	2.84E-10	1.80E-10	8.12E-10	
Rhenium (75)	Re-183	3.61E+00	1.92E-01	1.00E+00	9.03E-01	2.84E+00	1.19E+00	9.22E-01	2.58E+00	2.40E-09	7.56E-09	3.16E-09	2.45E-09	6.86E-09	
Rhenium (75)	Re-184	6.66E+00	1.04E-01	1.00E+00	1.51E-01	7.57E-01	2.68E-01	1.72E-01	7.60E-01	2.19E-10	1.10E-09	3.89E-10	2.49E-10	1.10E-09	
Rhenium (75)	Re-184m	1.50E+00	4.63E-01	1.00E+00	4.08E-02	1.97E-01	7.07E-02	4.60E-02	1.98E-01	2.63E-10	1.27E-09	4.56E-10	2.97E-10	1.27E-09	
Rhenium (75)	Re-186	6.80E+01	1.02E-02	1.00E+00	1.06E+02	3.38E+02	1.39E+02	1.07E+02	1.49E+02	1.51E-08	4.85E-08	2.00E-08	1.54E-08	2.14E-08	
Rhenium (75)	Re-186m	3.47E-06	2.00E+05	1.00E+00	1.16E+00	3.27E+00	1.45E+00	1.17E+00	1.69E+00	3.26E-03	9.21E-03	4.09E-03	3.30E-03	4.74E-03	
Rhenium (75)	Re-187	1.68E-11	4.12E+10												
Rhenium (75)	Re-188	3.57E+02	1.94E-03	1.00E+00	1.21E+02	4.80E+02	1.92E+02	1.31E+02	2.30E+02	3.34E-09	1.33E-08	5.29E-09	3.63E-09	6.35E-09	
Rhenium (75)	Re-188m	1.96E+04	3.54E-05	1.00E+00	6.64E+03	2.64E+04	1.05E+04	7.21E+03	1.26E+04	3.34E-09	1.33E-08	5.29E-09	3.63E-09	6.35E-09	
Rhenium (75)	Re-189	2.50E+02	2.77E-03	1.00E+00	1.07E+02	4.49E+02	1.63E+02	1.13E+02	3.33E+02	4.25E-09	1.78E-08	6.48E-09	4.48E-09	1.32E-08	
Rhenium (75)	Re-190	1.17E+05	5.90E-06	1.00E+00	1.56E+15	7.58E+15	2.67E+15	1.73E+15	7.32E+15	1.32E+02	6.42E+02	2.26E+02	1.47E+02	6.21E+02	
Rhenium (75)	Re-190m	1.90E+03	3.65E-04	1.00E+00	2.55E+01	1.22E+02	4.32E+01	2.82E+01	1.19E+02	1.34E-10	6.42E-10	2.27E-10	1.48E-10	6.23E-10	
Rhodium (45)	Rh-100	2.92E+02	2.37E-03	1.00E+00	1.91E+00	1.09E+01	3.77E+00	2.32E+00	1.13E+01	3.44E-11	1.97E-10	6.78E-11	4.17E-11	2.03E-10	
Rhodium (45)	Rh-100m	7.92E+04	8.75E-06	1.00E+00	5.27E+02	3.01E+03	1.04E+03	6.38E+02	3.11E+03	3.49E-11	1.99E-10	6.88E-11	4.23E-11	2.06E-10	
Rhodium (45)	Rh-101	2.10E-01	3.30E+00	1.00E+00	1.02E-01	4.13E-01	1.49E-01	1.05E-01	4.11E-01	2.57E-09	1.04E-08	3.76E-09	2.66E-09	1.04E-08	
Rhodium (45)	Rh-101m	5.83E+01	1.19E-02	1.00E+00	4.56E+00	2.07E+01	7.28E+00	4.86E+00	2.07E+01	4.14E-10	1.88E-09	6.62E-10	4.42E-10	1.88E-09	
Rhodium (45)	Rh-102	1.22E+00	5.67E-01	1.00E+00	6.98E-02	3.42E-01	1.20E-01	7.76E-02	3.34E-01	3.05E-10	1.50E-09	5.24E-10	3.40E-10	1.46E-09	
Rhodium (45)	Rh-102m	1.85E-01	3.74E+00	1.00E+00	9.95E-03	5.06E-02	1.77E-02	1.13E-02	5.14E-02	2.87E-10	1.46E-09	5.11E-10	3.26E-10	1.48E-09	
Rhodium (45)	Rh-103m	6.49E+03	1.07E-04	1.00E+00	4.57E+06	4.75E+06	4.57E+06	4.57E+06	7.49E+05	3.81E-06	3.95E-06	3.81E-06	3.81E-06	6.23E-07	
Rhodium (45)	Rh-104	5.17E+05	1.34E-06	1.00E+00	1.67E+21	4.77E+21	2.50E+21	1.81E+21	1.26E+21	1.76E+07	5.04E+07	2.64E+07	1.91E+07	1.33E+07	
Rhodium (45)	Rh-104m	8.39E+04	8.26E-06	1.00E+00	8.28E+15	2.14E+16	1.14E+16	8.81E+15	7.06E+15	5.38E+02	1.39E+03	7.38E+02	5.72E+02	4.59E+02	
Rhodium (45)	Rh-105	1.72E+02	4.04E-03	1.00E+00	4.83E+01	2.19E+02	7.69E+01	5.14E+01	2.22E+02	1.55E-09	7.03E-09	2.47E-09	1.65E-09	7.11E-09	
Rhodium (45)	Rh-106	7.33E+05	9.45E-07	1.00E+00	6.87E+20	3.07E+21	1.17E+21	7.67E+20	2.12E+21	5.20E+06	2.32E+07	8.87E+06	5.81E+06	1.61E+07	
Rhodium (45)	Rh-106m	2.78E+03	2.49E-04	1.00E+00	1.86E+01	9.69E+01	3.38E+01	2.14E+01	9.85E+01	3.71E-11	1.94E-10	6.76E-11	4.28E-11	1.97E-10	
Rhodium (45)	Rh-107	1.68E+04	4.13E-05	1.00E+00	3.08E+09	1.40E+10	4.94E+09	3.30E+09	1.27E+10	1.03E-03	4.69E-03	1.65E-03	1.10E-03	4.24E-03	
Rhodium (45)	Rh-108	1.30E+06	5.33E-07	1.00E+00	2.84E+22	1.25E+23	4.73E+22	3.13E+22	9.56E+22	1.24E+08	5.42E+08	2.06E+08	1.36E+08	4.16E+08	
Rhodium (45)	Rh-109	2.73E+05	2.54E-06	1.00E+00	1.69E+06	4.21E+06	2.15E+06	1.73E+06	6.99E+05	3.53E-08	8.82E-08	4.49E-08	3.61E-08	1.46E-08	
Rhodium (45)	Rh-94	3.10E+05	2.24E-06	1.00E+00	2.41E+03	1.25E+04	4.36E+03	2.77E+03	1.23E+04	3.84E-11	1.99E-10	6.94E-11	4.41E-11	1.96E-10	
Rhodium (45)	Rh-95	7.26E+04	9.55E-06	1.00E+00	6.93E+02	3.58E+03	1.25E+03	7.93E+02	3.63E+03	4.76E-11	2.46E-10	8.57E-11	5.45E-11	2.49E-10	
Rhodium (45)	Rh-95m	1.86E+05	3.73E-06	1.00E+00	1.78E+03	9.18E+03	3.20E+03	2.03E+03	9.29E+03	4.76E-11	2.46E-10	8.57E-11	5.45E-11	2.49E-10	
Rhodium (45)	Rh-96	3.68E+04	1.88E-05	1.00E+00	3.45E+11	1.80E+12	6.27E+11	3.96E+11	1.80E+12	4.72E-02	2.46E-01	8.58E-02	5.42E-02	2.46E-01	
Rhodium (45)	Rh-96m	2.41E+05	2.87E-06	1.00E+00	3.19E+12	1.66E+13	5.81E+12	3.67E+12	1.66E+13	6.66E-02	3.47E-01	1.21E-01	7.66E-02	3.47E-01	
Rhodium (45)	Rh-97	1.19E+04	5.84E-05	1.00E+00	1.20E+03	5.20E+03	1.84E+03	1.26E+03	5.21E+03	5.15E-10	2.23E-09	7.89E-10	5.40E-10	2.23E-09	
Rhodium (45)	Rh-97m	7.88E+03	8.79E-05	1.00E+00	5.77E+01	3.25E+02	1.12E+02	6.95E+01	3.31E+02	3.72E-11	2.10E-10	7.23E-11	4.48E-11	2.14E-10	



Resident 2D External Exposure DCCs July 2023															
Radionuclides		Isotope-specific Information			Dose Compliance Concentrations (DCCs)										
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Soil Volume Area Correction Factor	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	
					DCC DL=1 (Bq/g)	@ 1cm DCC DL=1 (Bq/g)	@ 5cm DCC DL=1 (Bq/g)	@ 15cm DCC DL=1 (Bq/g)	Plane DCC DL=1 (Bq/cm <sup>2</sup> )	DCC DL=1 (mg/kg)	@ 1cm DCC DL=1 (mg/kg)	@ 5cm DCC DL=1 (mg/kg)	@ 15cm DCC DL=1 (mg/kg)	Plane DCC DL=1 (mg/cm <sup>2</sup> )	
Rhodium (45)	Rh-98	4.19E+04	1.66E-05	1.00E+00	2.15E+12	1.08E+13	3.78E+12	2.43E+12	1.03E+13	2.64E-01	1.32E+00	4.64E-01	2.98E-01	1.27E+00	
Rhodium (45)	Rh-99	1.57E+01	4.41E-02	1.00E+00	6.00E-01	2.86E+00	1.01E+00	6.64E-01	2.86E+00	1.98E-10	9.46E-10	3.34E-10	2.19E-10	9.46E-10	
Rhodium (45)	Rh-99m	1.29E+03	5.37E-04	1.00E+00	4.05E+01	2.01E+02	7.00E+01	4.53E+01	2.02E+02	1.63E-10	8.06E-10	2.81E-10	1.82E-10	8.13E-10	
Radon (86)	Rn-207	3.94E+04	1.76E-05	1.00E+00	2.29E+02	1.22E+03	4.25E+02	2.68E+02	1.24E+03	6.32E-11	3.35E-10	1.17E-10	7.39E-11	3.41E-10	
Radon (86)	Rn-209	1.28E+04	5.42E-05	1.00E+00	9.99E+01	5.12E+02	1.80E+02	1.15E+02	5.19E+02	8.57E-11	4.39E-10	1.54E-10	9.82E-11	4.45E-10	
Radon (86)	Rn-210	2.53E+03	2.74E-04	1.00E+00	1.15E+01	5.93E+01	2.07E+01	1.32E+01	6.02E+01	4.99E-11	2.58E-10	9.02E-11	5.75E-11	2.62E-10	
Radon (86)	Rn-211	4.16E+02	1.67E-03	1.00E+00	3.54E+00	1.84E+01	6.46E+00	4.09E+00	1.88E+01	9.42E-11	4.91E-10	1.72E-10	1.09E-10	4.99E-10	
Radon (86)	Rn-212	1.52E+04	4.55E-05	1.00E+00	7.12E+07	3.39E+08	1.20E+08	7.89E+07	3.41E+08	5.19E-05	2.47E-04	8.77E-05	5.76E-05	2.49E-04	
Radon (86)	Rn-215	9.50E+12	7.29E-14												
Radon (86)	Rn-216	4.86E+11	1.43E-12												
Radon (86)	Rn-217	4.05E+10	1.71E-11												
Radon (86)	Rn-218	6.24E+08	1.11E-09	1.00E+00	2.98E+11	5.07E+11	3.43E+11	3.03E+11	5.20E+10	5.46E-06	9.27E-06	6.28E-06	5.55E-06	9.52E-07	
Radon (86)	Rn-219	5.52E+06	1.26E-07	1.00E+00	2.28E+09	1.03E+10	3.80E+09	2.51E+09	5.70E+09	4.75E-06	2.15E-05	7.92E-06	5.22E-06	1.19E-05	
Radon (86)	Rn-220	3.93E+05	1.76E-06	1.00E+00	4.84E+03	2.81E+04	9.74E+03	5.96E+03	2.77E+04	1.42E-10	8.26E-10	2.86E-10	1.75E-10	8.14E-10	
Radon (86)	Rn-222	6.62E+01	1.05E-02	1.00E+00	7.08E-01	3.86E+00	1.34E+00	8.37E-01	3.78E+00	1.25E-10	6.79E-10	2.36E-10	1.47E-10	6.66E-10	
Radon (86)	Rn-223	1.50E+04	4.62E-05	1.00E+00	1.10E+03	4.71E+03	1.73E+03	1.18E+03	3.64E+03	8.59E-10	3.68E-09	1.35E-09	9.21E-10	2.84E-09	
Ruthenium (44)	Ru-103	6.44E+00	1.08E-01	1.00E+00	2.65E-01	1.28E+00	4.48E-01	2.91E-01	1.29E+00	2.22E-10	1.07E-09	3.75E-10	2.44E-10	1.09E-09	
Ruthenium (44)	Ru-105	1.37E+03	5.07E-04	1.00E+00	3.32E+01	1.63E+02	5.73E+01	3.71E+01	1.58E+02	1.34E-10	6.58E-10	2.31E-10	1.49E-10	6.38E-10	
Ruthenium (44)	Ru-106	6.77E-01	1.02E+00												
Ruthenium (44)	Ru-107	9.71E+04	7.13E-06	1.00E+00	1.47E+10	6.72E+10	2.37E+10	1.58E+10	6.07E+10	8.52E-04	3.88E-03	1.37E-03	9.12E-04	3.50E-03	
Ruthenium (44)	Ru-108	8.01E+04	8.66E-06	1.00E+00	2.31E+15	9.92E+15	3.76E+15	2.52E+15	7.30E+15	1.63E+02	7.02E+02	2.66E+02	1.78E+02	5.16E+02	
Ruthenium (44)	Ru-92	9.98E+04	6.94E-06	1.00E+00	1.03E+13	5.40E+13	1.89E+13	1.19E+13	5.34E+13	4.96E-01	2.61E+00	9.12E-01	5.77E-01	2.58E+00	
Ruthenium (44)	Ru-94	7.03E+03	9.86E-05	1.00E+00	5.48E+01	2.84E+02	9.90E+01	6.28E+01	2.80E+02	3.84E-11	1.99E-10	6.94E-11	4.41E-11	1.96E-10	
Ruthenium (44)	Ru-95	3.69E+03	1.88E-04	1.00E+00	3.53E+01	1.83E+02	6.36E+01	4.04E+01	1.85E+02	4.76E-11	2.46E-10	8.57E-11	5.45E-11	2.49E-10	
Ruthenium (44)	Ru-97	8.72E+01	7.95E-03	1.00E+00	8.84E+00	3.82E+01	1.35E+01	9.27E+00	3.83E+01	5.16E-10	2.23E-09	7.90E-10	5.41E-10	2.23E-09	
Sulfur (16)	S-35	2.89E+00	2.40E-01	9.00E-01	3.10E+04	5.43E+04	3.34E+04	3.10E+04	2.43E+04	1.97E-05	3.45E-05	2.12E-05	1.97E-05	1.55E-05	
Sulphur (16)	S-37	7.21E+04	9.61E-06	1.00E+00	2.28E+13	1.54E+14	5.19E+13	3.03E+13	1.57E+14	6.14E-01	4.13E+00	1.40E+00	8.14E-01	4.23E+00	
Sulfur (16)	S-38	2.14E+03	3.24E-04	1.00E+00	1.15E+01	7.01E+01	2.41E+01	1.45E+01	6.98E+01	1.07E-11	6.53E-11	2.25E-11	1.35E-11	6.50E-11	
Antimony (51)	Sb-111	2.91E+05	2.38E-06	1.00E+00	1.79E+04	7.52E+04	2.69E+04	1.86E+04	7.52E+04	3.58E-10	1.50E-09	5.37E-10	3.72E-10	1.50E-09	
Antimony (51)	Sb-113	5.46E+04	1.27E-05	1.00E+00	5.07E+03	2.33E+04	8.28E+03	5.47E+03	2.27E+04	5.50E-10	2.53E-09	8.99E-10	5.94E-10	2.46E-09	
Antimony (51)	Sb-114	1.04E+05	6.64E-06	1.00E+00	4.47E+14	2.38E+15	8.33E+14	5.23E+14	2.36E+15	2.56E+01	1.36E+02	4.77E+01	3.00E+01	1.35E+02	
Antimony (51)	Sb-115	1.13E+04	6.11E-05	1.00E+00	2.61E+02	1.26E+03	4.45E+02	2.89E+02	1.24E+03	1.39E-10	6.72E-10	2.37E-10	1.54E-10	6.59E-10	
Antimony (51)	Sb-116	2.31E+04	3.01E-05	1.00E+00	2.67E+10	1.47E+11	5.10E+10	3.17E+10	1.47E+11	7.06E-03	3.89E-02	1.35E-02	8.36E-03	3.87E-02	
Antimony (51)	Sb-116m	6.04E+03	1.15E-04	1.00E+00	3.70E+01	1.97E+02	6.85E+01	4.31E+01	1.99E+02	3.73E-11	1.98E-10	6.89E-11	4.34E-11	2.01E-10	
Antimony (51)	Sb-117	2.17E+03	3.20E-04	1.00E+00	3.25E+02	1.31E+03	4.79E+02	3.38E+02	1.24E+03	9.19E-10	3.70E-09	1.35E-09	9.57E-10	3.52E-09	
Antimony (51)	Sb-118	1.01E+05	6.85E-06	1.00E+00	3.75E+15	1.80E+16	6.41E+15	4.15E+15	1.65E+16	2.30E+02	1.10E+03	3.92E+02	2.54E+02	1.01E+03	
Antimony (51)	Sb-118m	1.21E+03	5.71E-04	1.00E+00	8.84E+00	4.73E+01	1.64E+01	1.03E+01	4.80E+01	4.50E-11	2.41E-10	8.38E-11	5.26E-11	2.45E-10	
Antimony (51)	Sb-119	1.59E+02	4.36E-03	1.00E+00	3.95E+03	4.07E+03	3.93E+03	3.95E+03	9.71E+02	1.55E-07	1.60E-07	1.54E-07	1.55E-07	3.81E-08	
Antimony (51)	Sb-120	2.29E+04	3.02E-05	1.00E+00	1.40E+11	6.72E+11	2.38E+11	1.55E+11	6.25E+11	3.83E-02	1.84E-01	6.53E-02	4.25E-02	1.72E-01	
Antimony (51)	Sb-120m	4.39E+01	1.58E-02	1.00E+00	3.43E-01	1.81E+00	6.32E-01	3.99E-01	1.83E+00	4.91E-11	2.59E-10	9.06E-11	5.72E-11	2.63E-10	
Antimony (51)	Sb-122	9.29E+01	7.46E-03	1.00E+00	4.13E+00	2.02E+01	7.12E+00	4.61E+00	1.81E+01	2.85E-10	1.39E-09	4.91E-10	3.18E-10	1.25E-09	
Antimony (51)	Sb-122m	8.69E+04	7.97E-06	1.00E+00	3.86E+03	1.89E+04	6.66E+03	4.31E+03	1.70E+04	2.84E-10	1.39E-09	4.90E-10	3.18E-10	1.25E-09	

Resident 2D External Exposure DCCs July 2023															
Radionuclides		Isotope-specific Information			Dose Compliance Concentrations (DCCs)										
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Soil Volume Area Correction Factor	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	
					DCC DL=1 (Bq/g)	@ 1cm DCC DL=1 (Bq/g)	@ 5cm DCC DL=1 (Bq/g)	@ 15cm DCC DL=1 (Bq/g)	Plane DCC DL=1 (Bq/cm <sup>2</sup> )	DCC DL=1 (mg/kg)	@ 1cm DCC DL=1 (mg/kg)	@ 5cm DCC DL=1 (mg/kg)	@ 15cm DCC DL=1 (mg/kg)	Plane DCC DL=1 (mg/cm <sup>2</sup> )	
Antimony (51)	Sb-124	4.20E+00	1.65E-01	1.00E+00	4.20E-02	2.33E-01	8.05E-02	4.99E-02	2.35E-01	6.50E-11	3.61E-10	1.25E-10	7.73E-11	3.63E-10	
Antimony (51)	Sb-124m	2.35E+05	2.95E-06	1.00E+00	3.13E+03	1.74E+04	6.00E+03	3.72E+03	1.75E+04	8.67E-11	4.81E-10	1.66E-10	1.03E-10	4.85E-10	
Antimony (51)	Sb-124n	1.80E+04	3.84E-05	1.00E+00	2.40E+02	1.33E+03	4.60E+02	2.86E+02	1.34E+03	8.67E-11	4.81E-10	1.66E-10	1.03E-10	4.84E-10	
Antimony (51)	Sb-125	2.51E-01	2.76E+00	1.00E+00	5.43E-02	2.60E-01	9.21E-02	6.01E-02	2.57E-01	1.42E-09	6.79E-09	2.40E-09	1.57E-09	6.71E-09	
Antimony (51)	Sb-126	2.05E+01	3.38E-02	1.00E+00	1.46E-01	7.31E-01	2.56E-01	1.64E-01	7.36E-01	4.71E-11	2.36E-10	8.26E-11	5.29E-11	2.38E-10	
Antimony (51)	Sb-126m	1.90E+04	3.64E-05	1.00E+00	9.68E+02	4.85E+03	1.70E+03	1.09E+03	4.88E+03	3.36E-10	1.68E-09	5.89E-10	3.78E-10	1.70E-09	
Antimony (51)	Sb-127	6.57E+01	1.05E-02	1.00E+00	1.87E+00	9.25E+00	3.24E+00	2.09E+00	9.05E+00	1.90E-10	9.38E-10	3.28E-10	2.12E-10	9.17E-10	
Antimony (51)	Sb-128	6.74E+02	1.03E-03	1.00E+00	4.25E+00	2.15E+01	7.51E+00	4.80E+00	2.15E+01	4.24E-11	2.14E-10	7.48E-11	4.79E-11	2.15E-10	
Antimony (51)	Sb-128m	3.50E+04	1.98E-05	1.00E+00	6.03E+03	3.04E+04	1.06E+04	6.80E+03	3.05E+04	1.15E-09	5.83E-09	2.04E-09	1.30E-09	5.85E-09	
Antimony (51)	Sb-129	1.38E+03	5.02E-04	1.00E+00	1.70E+01	9.02E+01	3.14E+01	1.98E+01	8.71E+01	8.33E-11	4.42E-10	1.54E-10	9.70E-11	4.27E-10	
Antimony (51)	Sb-130	9.22E+03	7.52E-05	1.00E+00	5.44E+01	2.79E+02	9.76E+01	6.22E+01	2.79E+02	4.02E-11	2.06E-10	7.22E-11	4.60E-11	2.06E-10	
Antimony (51)	Sb-130m	5.78E+04	1.20E-05	1.00E+00	7.69E+12	4.00E+13	1.40E+13	8.85E+12	3.92E+13	9.06E-01	4.72E+00	1.65E+00	1.04E+00	4.62E+00	
Antimony (51)	Sb-131	1.58E+04	4.38E-05	1.00E+00	3.66E+02	1.74E+03	6.17E+02	4.05E+02	1.64E+03	1.59E-10	7.56E-10	2.68E-10	1.76E-10	7.12E-10	
Antimony (51)	Sb-133	1.46E+05	4.76E-06	1.00E+00	2.99E+03	1.49E+04	5.25E+03	3.37E+03	1.43E+04	1.43E-10	7.11E-10	2.51E-10	1.61E-10	6.85E-10	
Scandium (21)	Sc-42m	3.52E+05	1.97E-06	1.00E+00	3.16E+17	1.70E+18	5.91E+17	3.71E+17	1.69E+18	1.97E+03	1.06E+04	3.69E+03	2.32E+03	1.06E+04	
Scandium (21)	Sc-43	1.56E+03	4.44E-04	1.00E+00	3.22E+01	1.55E+02	5.44E+01	3.55E+01	1.51E+02	4.65E-11	2.24E-10	7.86E-11	5.13E-11	2.19E-10	
Scandium (21)	Sc-44	1.53E+03	4.53E-04	1.00E+00	1.37E+01	7.12E+01	2.48E+01	1.57E+01	7.00E+01	2.07E-11	1.07E-10	3.74E-11	2.37E-11	1.06E-10	
Scandium (21)	Sc-44m	1.04E+02	6.69E-03	1.00E+00	8.42E-01	4.32E+00	1.50E+00	9.58E-01	4.27E+00	1.88E-11	9.62E-11	3.35E-11	2.13E-11	9.51E-11	
Scandium (21)	Sc-46	3.02E+00	2.30E-01	1.00E+00	2.95E-02	1.58E-01	5.48E-02	3.44E-02	1.61E-01	2.35E-11	1.26E-10	4.38E-11	2.75E-11	1.28E-10	
Scandium (21)	Sc-47	7.55E+01	9.18E-03	1.00E+00	1.82E+01	7.09E+01	2.57E+01	1.85E+01	7.19E+01	5.92E-10	2.31E-09	8.40E-10	6.05E-10	2.35E-09	
Scandium (21)	Sc-48	1.39E+02	4.99E-03	1.00E+00	7.60E-01	4.16E+00	1.44E+00	9.00E-01	4.26E+00	1.38E-11	7.54E-11	2.61E-11	1.63E-11	7.71E-11	
Scandium (21)	Sc-49	6.37E+03	1.09E-04	1.00E+00	1.97E+04	3.80E+04	2.60E+04	2.10E+04	6.01E+03	7.94E-09	1.53E-08	1.05E-08	8.46E-09	2.42E-09	
Scandium (21)	Sc-50	2.13E+05	3.25E-06	1.00E+00	2.19E+16	1.22E+17	4.23E+16	2.62E+16	1.20E+17	2.70E+02	1.50E+03	5.20E+02	3.22E+02	1.47E+03	
Selenium (34)	Se-70	8.86E+03	7.82E-05	1.00E+00	3.38E+01	1.79E+02	6.22E+01	3.93E+01	1.78E+02	1.40E-11	7.40E-11	2.58E-11	1.63E-11	7.38E-11	
Selenium (34)	Se-71	7.68E+04	9.02E-06	1.00E+00	2.82E+03	1.33E+04	4.69E+03	3.09E+03	1.34E+04	1.37E-10	6.45E-10	2.27E-10	1.50E-10	6.51E-10	
Selenium (34)	Se-72	3.01E+01	2.30E-02	1.00E+00	3.27E-01	1.63E+00	5.78E-01	3.70E-01	1.57E+00	4.10E-11	2.05E-10	7.25E-11	4.64E-11	1.97E-10	
Selenium (34)	Se-73	8.49E+02	8.16E-04	1.00E+00	1.64E+01	7.68E+01	2.73E+01	1.79E+01	7.45E+01	7.40E-11	3.46E-10	1.23E-10	8.08E-11	3.36E-10	
Selenium (34)	Se-73m	9.15E+03	7.57E-05	1.00E+00	1.81E+02	8.53E+02	3.03E+02	1.99E+02	8.25E+02	7.59E-11	3.57E-10	1.27E-10	8.31E-11	3.45E-10	
Selenium (34)	Se-75	2.11E+00	3.28E-01	1.00E+00	1.48E-01	6.31E-01	2.25E-01	1.55E-01	6.43E-01	2.75E-10	1.17E-09	4.19E-10	2.89E-10	1.20E-09	
Selenium (34)	Se-77m	1.26E+06	5.50E-07	1.00E+00	1.09E+24	4.27E+24	1.55E+24	1.11E+24	4.36E+24	3.50E+09	1.37E+10	4.96E+09	3.57E+09	1.40E+10	
Selenium (34)	Se-79	2.35E-06	2.95E+05	9.00E-01	9.71E+03	1.66E+04	1.04E+04	9.70E+03	7.30E+03	1.71E+01	2.93E+01	1.83E+01	1.71E+01	1.29E+01	
Selenium (34)	Se-79m	9.29E+04	7.46E-06	1.00E+00	3.83E+14	6.55E+14	4.09E+14	3.82E+14	2.88E+14	1.71E+01	2.92E+01	1.82E+01	1.70E+01	1.29E+01	
Selenium (34)	Se-81	1.97E+04	3.51E-05	1.00E+00	1.92E+12	6.11E+12	2.92E+12	2.07E+12	1.21E+12	4.13E-01	1.31E+00	6.28E-01	4.46E-01	2.60E-01	
Selenium (34)	Se-81m	6.36E+03	1.09E-04	1.00E+00	6.73E+03	2.16E+04	9.46E+03	7.03E+03	6.52E+03	4.50E-09	1.44E-08	6.32E-09	4.70E-09	4.36E-09	
Selenium (34)	Se-83	1.63E+04	4.24E-05	1.00E+00	4.42E+04	1.92E+05	7.31E+04	4.86E+04	5.34E+04	1.18E-08	5.11E-08	1.95E-08	1.30E-08	1.42E-08	
Selenium (34)	Se-83m	3.12E+05	2.22E-06	1.00E+00	8.38E+05	3.64E+06	1.39E+06	9.21E+05	1.01E+06	1.17E-08	5.08E-08	1.93E-08	1.29E-08	1.41E-08	
Selenium (34)	Se-84	1.17E+05	5.90E-06	1.00E+00	1.05E+07	6.29E+07	2.17E+07	1.31E+07	6.21E+07	3.92E-07	2.36E-06	8.15E-07	4.93E-07	2.33E-06	
Silicon (14)	Si-31	2.32E+03	2.99E-04	1.00E+00	1.30E+04	2.68E+04	1.75E+04	1.39E+04	3.09E+03	9.14E-09	1.88E-08	1.23E-08	9.79E-09	2.17E-09	
Silicon (14)	Si-32	5.25E-03	1.32E+02	9.00E-01	6.09E+00	1.00E+01	7.33E+00	6.26E+00	1.25E+00	1.95E-06	3.20E-06	2.34E-06	2.00E-06	3.99E-07	
Samarium (62)	Sm-139	1.42E+05	4.89E-06	1.00E+00	1.45E+04	6.11E+04	2.28E+04	1.56E+04	5.53E+04	7.47E-10	3.14E-09	1.17E-09	8.02E-10	2.84E-09	
Samarium (62)	Sm-140	2.46E+04	2.82E-05	1.00E+00	9.16E+02	4.30E+03	1.55E+03	1.01E+03	3.84E+03	2.74E-10	1.28E-09	4.63E-10	3.02E-10	1.15E-09	
Samarium (62)	Sm-141	3.57E+04	1.94E-05	1.00E+00	1.36E+04	5.98E+04	2.33E+04	1.54E+04	4.90E+04	2.83E-09	1.24E-08	4.83E-09	3.19E-09	1.01E-08	

Resident 2D External Exposure DCCs July 2023															
Radionuclides		Isotope-specific Information			Dose Compliance Concentrations (DCCs)										
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Soil Volume Area Correction Factor	Soil Volume DCC DL=1 (Bq/g)	Soil Volume @ 1cm DCC DL=1 (Bq/g)	Soil Volume @ 5cm DCC DL=1 (Bq/g)	Soil Volume @ 15cm DCC DL=1 (Bq/g)	Ground Plane DCC DL=1 (Bq/cm <sup>2</sup> )	Soil Volume DCC DL=1 (mg/kg)	Soil Volume @ 1cm DCC DL=1 (mg/kg)	Soil Volume @ 5cm DCC DL=1 (mg/kg)	Soil Volume @ 15cm DCC DL=1 (mg/kg)	Ground Plane DCC DL=1 (mg/cm <sup>2</sup> )	
Samarium (62)	Sm-141m	1.61E+04	4.30E-05	1.00E+00	6.16E+03	2.70E+04	1.05E+04	6.96E+03	2.21E+04	2.83E-09	1.24E-08	4.83E-09	3.19E-09	1.01E-08	
Samarium (62)	Sm-142	5.02E+03	1.38E-04	1.00E+00	1.06E+02	5.00E+02	1.80E+02	1.18E+02	4.55E+02	1.57E-10	7.41E-10	2.67E-10	1.74E-10	6.74E-10	
Samarium (62)	Sm-143	4.16E+04	1.66E-05	1.00E+00	4.53E+03	2.24E+04	8.00E+03	5.13E+03	2.17E+04	8.17E-10	4.04E-09	1.44E-09	9.25E-10	3.91E-09	
Samarium (62)	Sm-143m	3.31E+05	2.09E-06	1.00E+00	3.61E+04	1.78E+05	6.37E+04	4.08E+04	1.73E+05	8.17E-10	4.04E-09	1.44E-09	9.25E-10	3.91E-09	
Samarium (62)	Sm-145	7.44E-01	9.32E-01	1.00E+00	2.94E+00	4.43E+00	3.01E+00	2.94E+00	2.45E+00	3.00E-08	4.53E-08	3.08E-08	3.00E-08	2.50E-08	
Samarium (62)	Sm-146	6.73E-09	1.03E+08												
Samarium (62)	Sm-147	6.54E-12	1.06E+11												
Samarium (62)	Sm-148	9.90E-17	7.00E+15												
Samarium (62)	Sm-151	7.70E-03	9.00E+01	1.00E+00	1.54E+05	1.55E+05	1.54E+05	1.54E+05	2.51E+04	1.59E-01	1.60E-01	1.59E-01	1.59E-01	2.58E-02	
Samarium (62)	Sm-153	1.31E+02	5.31E-03	1.00E+00	9.98E+01	2.70E+02	1.23E+02	1.00E+02	1.99E+02	6.13E-09	1.66E-08	7.54E-09	6.16E-09	1.22E-08	
Samarium (62)	Sm-155	1.63E+04	4.24E-05	1.00E+00	8.22E+04	2.36E+05	1.01E+05	8.22E+04	2.13E+05	4.09E-08	1.17E-07	5.01E-08	4.09E-08	1.06E-07	
Samarium (62)	Sm-156	6.46E+02	1.07E-03	1.00E+00	8.88E+00	4.90E+01	1.70E+01	1.06E+01	4.86E+01	1.12E-10	6.20E-10	2.16E-10	1.34E-10	6.15E-10	
Samarium (62)	Sm-157	4.54E+04	1.53E-05	1.00E+00	3.59E+03	1.60E+04	5.85E+03	3.91E+03	1.40E+04	6.52E-10	2.90E-09	1.06E-09	7.11E-10	2.55E-09	
Tin (50)	Sn-106	1.90E+05	3.65E-06	1.00E+00	3.64E+13	1.97E+14	6.90E+13	4.31E+13	1.95E+14	1.07E+00	5.78E+00	2.02E+00	1.26E+00	5.72E+00	
Tin (50)	Sn-108	3.54E+04	1.96E-05	1.00E+00	2.28E+02	1.33E+03	4.56E+02	2.80E+02	1.34E+03	3.65E-11	2.12E-10	7.31E-11	4.48E-11	2.14E-10	
Tin (50)	Sn-109	2.02E+04	3.42E-05	1.00E+00	6.44E+02	3.21E+03	1.12E+03	7.30E+02	3.21E+03	1.82E-10	9.08E-10	3.18E-10	2.06E-10	9.06E-10	
Tin (50)	Sn-110	1.48E+03	4.69E-04	1.00E+00	1.57E+01	7.90E+01	2.77E+01	1.78E+01	7.74E+01	6.13E-11	3.08E-10	1.08E-10	6.94E-11	3.02E-10	
Tin (50)	Sn-111	1.03E+04	6.72E-05	1.00E+00	2.51E+02	1.19E+03	4.19E+02	2.77E+02	1.16E+03	1.42E-10	6.69E-10	2.36E-10	1.56E-10	6.55E-10	
Tin (50)	Sn-113	2.20E+00	3.15E-01	1.00E+00	2.00E-01	9.22E-01	3.27E-01	2.16E-01	8.95E-01	5.39E-10	2.48E-09	8.81E-10	5.82E-10	2.41E-09	
Tin (50)	Sn-113m	1.70E+04	4.07E-05	1.00E+00	1.70E+03	7.83E+03	2.78E+03	1.83E+03	7.61E+03	5.91E-10	2.73E-09	9.67E-10	6.39E-10	2.65E-09	
Tin (50)	Sn-117m	1.84E+01	3.77E-02	1.00E+00	3.41E+00	1.31E+01	4.85E+00	3.49E+00	1.25E+01	1.14E-09	4.38E-09	1.62E-09	1.16E-09	4.17E-09	
Tin (50)	Sn-119m	8.63E-01	8.03E-01	1.00E+00	6.05E+01	6.27E+01	6.05E+01	6.05E+01	1.45E+01	4.38E-07	4.53E-07	4.38E-07	4.38E-07	1.05E-07	
Tin (50)	Sn-121	2.25E+02	3.09E-03	9.00E-01	1.58E+05	3.98E+05	1.91E+05	1.59E+05	2.63E+05	4.45E-06	1.12E-05	5.39E-06	4.48E-06	7.42E-06	
Tin (50)	Sn-121m	1.58E-02	4.39E+01	1.00E+00	7.15E+01	8.42E+01	7.28E+01	7.16E+01	2.59E+01	2.88E-05	3.39E-05	2.93E-05	2.88E-05	1.04E-05	
Tin (50)	Sn-123	1.96E+00	3.54E-01	1.00E+00	4.78E+00	1.73E+01	7.99E+00	5.43E+00	3.31E+00	1.58E-08	5.69E-08	2.63E-08	1.79E-08	1.09E-08	
Tin (50)	Sn-123m	9.09E+03	7.62E-05	1.00E+00	1.70E+03	6.51E+03	2.41E+03	1.74E+03	4.95E+03	1.21E-09	4.62E-09	1.71E-09	1.23E-09	3.51E-09	
Tin (50)	Sn-125	2.62E+01	2.64E-02	1.00E+00	1.14E+00	5.91E+00	2.10E+00	1.33E+00	5.09E+00	2.86E-10	1.48E-09	5.25E-10	3.32E-10	1.27E-09	
Tin (50)	Sn-125m	3.83E+04	1.81E-05	1.00E+00	8.27E+03	3.96E+04	1.40E+04	9.16E+03	3.92E+04	1.42E-09	6.79E-09	2.40E-09	1.57E-09	6.71E-09	
Tin (50)	Sn-126	3.01E-06	2.30E+05	1.00E+00	1.01E-02	4.95E-02	1.74E-02	1.13E-02	4.84E-02	2.21E-05	1.09E-04	3.83E-05	2.47E-05	1.06E-04	
Tin (50)	Sn-127	2.89E+03	2.40E-04	1.00E+00	2.09E+01	1.11E+02	3.87E+01	2.43E+01	1.11E+02	4.81E-11	2.56E-10	8.91E-11	5.61E-11	2.55E-10	
Tin (50)	Sn-127m	8.82E+04	7.86E-06	1.00E+00	2.51E+03	1.24E+04	4.35E+03	2.80E+03	1.21E+04	1.89E-10	9.37E-10	3.28E-10	2.12E-10	9.17E-10	
Tin (50)	Sn-128	6.17E+03	1.12E-04	1.00E+00	4.74E+01	2.34E+02	8.23E+01	5.31E+01	2.26E+02	5.16E-11	2.55E-10	8.96E-11	5.78E-11	2.46E-10	
Tin (50)	Sn-129	1.63E+05	4.24E-06	1.00E+00	2.00E+03	1.06E+04	3.69E+03	2.32E+03	1.02E+04	8.26E-11	4.39E-10	1.53E-10	9.63E-11	4.24E-10	
Tin (50)	Sn-130	9.79E+04	7.08E-06	1.00E+00	5.37E+12	2.80E+13	9.76E+12	6.19E+12	2.74E+13	3.74E-01	1.95E+00	6.80E-01	4.31E-01	1.91E+00	
Tin (50)	Sn-130m	2.14E+05	3.23E-06	1.00E+00	1.39E+06	7.12E+06	2.49E+06	1.59E+06	7.11E+06	4.42E-08	2.26E-07	7.92E-08	5.05E-08	2.26E-07	
Strontium (38)	Sr-79	1.62E+05	4.28E-06	1.00E+00	1.34E+04	6.43E+04	2.25E+04	1.47E+04	6.51E+04	3.43E-10	1.65E-09	5.76E-10	3.76E-10	1.67E-09	
Strontium (38)	Sr-80	3.43E+03	2.02E-04	1.00E+00	4.19E+01	1.98E+02	7.11E+01	4.63E+01	1.87E+02	5.14E-11	2.43E-10	8.70E-11	5.67E-11	2.29E-10	
Strontium (38)	Sr-81	1.63E+04	4.24E-05	1.00E+00	5.47E+02	2.58E+03	9.07E+02	5.97E+02	2.58E+03	1.42E-10	6.71E-10	2.36E-10	1.55E-10	6.71E-10	
Strontium (38)	Sr-82	9.97E+00	6.95E-02	1.00E+00	1.79E-01	8.52E-01	3.03E-01	1.98E-01	7.84E-01	7.70E-11	3.67E-10	1.31E-10	8.52E-11	3.38E-10	
Strontium (38)	Sr-83	1.87E+02	3.70E-03	1.00E+00	2.91E+00	1.46E+01	5.09E+00	3.27E+00	1.46E+01	6.77E-11	3.39E-10	1.18E-10	7.61E-11	3.40E-10	
Strontium (38)	Sr-85	3.90E+00	1.78E-01	1.00E+00	1.64E-01	7.94E-01	2.78E-01	1.81E-01	8.03E-01	1.87E-10	9.07E-10	3.18E-10	2.07E-10	9.18E-10	
Strontium (38)	Sr-85m	5.39E+03	1.29E-04	1.00E+00	1.80E+02	8.38E+02	2.95E+02	1.96E+02	8.54E+02	1.49E-10	6.94E-10	2.44E-10	1.62E-10	7.07E-10	

Resident 2D External Exposure DCCs July 2023															
Radionuclides		Isotope-specific Information			Dose Compliance Concentrations (DCCs)										
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Soil Volume Area Correction Factor	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	
					DCC DL=1 (Bq/g)	@ 1cm DCC DL=1 (Bq/g)	@ 5cm DCC DL=1 (Bq/g)	@ 15cm DCC DL=1 (Bq/g)	Plane DCC DL=1 (Bq/cm <sup>2</sup> )	DCC DL=1 (mg/kg)	@ 1cm DCC DL=1 (mg/kg)	@ 5cm DCC DL=1 (mg/kg)	@ 15cm DCC DL=1 (mg/kg)	Plane DCC DL=1 (mg/cm <sup>2</sup> )	
Strontium (38)	Sr-87m	2.16E+03	3.21E-04	1.00E+00	9.17E+02	2.16E+03	1.08E+03	9.20E+02	1.34E+03	1.94E-09	4.56E-09	2.28E-09	1.95E-09	2.84E-09	
Strontium (38)	Sr-89	5.01E+00	1.38E-01	1.00E+00	3.69E+01	6.21E+01	4.48E+01	3.79E+01	6.98E+00	3.44E-08	5.79E-08	4.17E-08	3.54E-08	6.50E-09	
Strontium (38)	Sr-90	2.41E-02	2.88E+01	9.00E-01	2.77E+00	4.75E+00	3.42E+00	2.87E+00	8.65E-01	5.43E-07	9.31E-07	6.71E-07	5.64E-07	1.70E-07	
Strontium (38)	Sr-91	6.30E+02	1.10E-03	1.00E+00	1.18E+01	6.02E+01	2.12E+01	1.35E+01	5.44E+01	8.97E-11	4.56E-10	1.60E-10	1.02E-10	4.12E-10	
Strontium (38)	Sr-92	2.28E+03	3.04E-04	1.00E+00	2.57E+01	1.42E+02	4.96E+01	3.07E+01	1.36E+02	5.43E-11	3.00E-10	1.05E-10	6.50E-11	2.87E-10	
Strontium (38)	Sr-93	4.91E+04	1.41E-05	1.00E+00	8.53E+03	3.88E+04	1.54E+04	9.98E+03	2.15E+04	8.48E-10	3.86E-09	1.53E-09	9.92E-10	2.14E-09	
Strontium (38)	Sr-94	2.90E+05	2.39E-06	1.00E+00	2.80E+11	1.44E+12	5.19E+11	3.27E+11	1.29E+12	4.75E-03	2.45E-02	8.81E-03	5.55E-03	2.18E-02	
Tantalum (73)	Ta-170	5.39E+04	1.29E-05	1.00E+00	3.30E+02	1.88E+03	6.53E+02	4.03E+02	1.92E+03	5.45E-11	3.10E-10	1.08E-10	6.66E-11	3.18E-10	
Tantalum (73)	Ta-172	9.90E+03	7.00E-05	1.00E+00	8.35E+01	4.30E+02	1.52E+02	9.66E+01	4.29E+02	7.61E-11	3.92E-10	1.39E-10	8.81E-11	3.91E-10	
Tantalum (73)	Ta-173	1.93E+03	3.58E-04	1.00E+00	4.37E+01	1.95E+02	7.22E+01	4.85E+01	1.90E+02	2.05E-10	9.16E-10	3.39E-10	2.28E-10	8.91E-10	
Tantalum (73)	Ta-174	5.33E+03	1.30E-04	1.00E+00	1.09E+02	5.54E+02	1.96E+02	1.26E+02	5.41E+02	1.88E-10	9.49E-10	3.36E-10	2.16E-10	9.28E-10	
Tantalum (73)	Ta-175	5.78E+02	1.20E-03	1.00E+00	8.19E+00	4.12E+01	1.47E+01	9.43E+00	4.14E+01	1.30E-10	6.54E-10	2.33E-10	1.50E-10	6.57E-10	
Tantalum (73)	Ta-176	7.50E+02	9.24E-04	1.00E+00	6.09E+00	3.49E+01	1.21E+01	7.42E+00	3.57E+01	7.50E-11	4.30E-10	1.48E-10	9.12E-11	4.40E-10	
Tantalum (73)	Ta-177	1.07E+02	6.46E-03	1.00E+00	7.54E+01	2.06E+02	9.61E+01	7.84E+01	1.74E+02	6.52E-09	1.78E-08	8.31E-09	6.78E-09	1.50E-08	
Tantalum (73)	Ta-178	3.91E+04	1.77E-05	1.00E+00	1.10E+14	4.60E+14	1.82E+14	1.26E+14	4.22E+14	2.62E+01	1.10E+02	4.34E+01	3.00E+01	1.01E+02	
Tantalum (73)	Ta-178m	2.57E+03	2.69E-04	1.00E+00	5.22E+01	2.27E+02	8.20E+01	5.56E+01	2.27E+02	1.89E-10	8.23E-10	2.98E-10	2.02E-10	8.23E-10	
Tantalum (73)	Ta-179	3.81E-01	1.82E+00	1.00E+00	3.55E+00	7.03E+00	3.77E+00	3.55E+00	5.40E+00	8.75E-08	1.73E-07	9.30E-08	8.75E-08	1.33E-07	
Tantalum (73)	Ta-180	7.45E+02	9.31E-04	1.00E+00	1.02E+03	2.17E+03	1.12E+03	1.02E+03	1.70E+03	1.29E-08	2.74E-08	1.42E-08	1.29E-08	2.15E-08	
Tantalum (73)	Ta-182	2.21E+00	3.14E-01	1.00E+00	3.69E-02	1.96E-01	6.88E-02	4.33E-02	1.99E-01	1.59E-10	8.46E-10	2.97E-10	1.87E-10	8.58E-10	
Tantalum (73)	Ta-182m	2.30E+04	3.01E-05	1.00E+00	4.84E+02	2.04E+03	7.16E+02	4.50E+02	2.07E+03	1.59E-10	8.46E-10	2.97E-10	1.87E-10	8.58E-10	
Tantalum (73)	Ta-183	4.96E+01	1.40E-02	1.00E+00	3.60E+00	1.80E+01	6.77E+00	4.80E+00	1.75E+01	8.90E-10	3.49E-09	1.31E-09	9.29E-10	3.39E-09	
Tantalum (73)	Ta-184	6.98E+02	9.93E-04	1.00E+00	9.04E+00	4.42E+01	1.55E+01	1.01E+01	4.40E+01	1.25E-10	6.11E-10	2.15E-10	1.40E-10	6.09E-10	
Tantalum (73)	Ta-185	7.37E+03	9.40E-05	1.00E+00	1.29E+03	4.82E+03	1.87E+03	1.34E+03	3.27E+03	1.70E-09	6.34E-09	2.46E-09	1.77E-09	4.30E-09	
Tantalum (73)	Ta-186	3.47E+04	2.00E-05	1.00E+00	6.28E+11	3.01E+12	1.07E+12	6.97E+11	2.86E+12	1.77E-01	8.45E-01	3.00E-01	1.96E-01	8.06E-01	
Terbium (65)	Tb-146	9.50E+05	7.29E-07	1.00E+00	7.21E+03	3.69E+04	1.30E+04	8.31E+03	3.69E+04	5.81E-11	2.97E-10	1.05E-10	6.69E-11	2.98E-10	
Terbium (65)	Tb-147	3.70E+03	1.87E-04	1.00E+00	1.79E+01	9.25E+01	3.25E+01	2.06E+01	9.29E+01	3.73E-11	1.93E-10	6.76E-11	4.30E-11	1.93E-10	
Terbium (65)	Tb-147m	1.95E+05	3.56E-06	1.00E+00	2.14E+03	1.06E+04	3.74E+03	2.41E+03	1.06E+04	8.46E-11	4.19E-10	1.48E-10	9.55E-11	4.20E-10	
Terbium (65)	Tb-148	6.07E+03	1.14E-04	1.00E+00	4.81E+01	2.58E+02	9.00E+01	5.65E+01	2.56E+02	6.14E-11	3.30E-10	1.15E-10	7.22E-11	3.27E-10	
Terbium (65)	Tb-148m	1.66E+05	4.19E-06	1.00E+00	6.92E+15	3.48E+16	1.22E+16	7.82E+15	3.51E+16	3.24E+02	1.63E+03	5.73E+02	3.67E+02	1.64E+03	
Terbium (65)	Tb-149	1.47E+03	4.70E-04	1.00E+00	1.44E+01	7.34E+01	2.59E+01	1.66E+01	7.32E+01	7.61E-11	3.89E-10	1.37E-10	8.77E-11	3.88E-10	
Terbium (65)	Tb-149m	8.76E+04	7.91E-06	1.00E+00	3.54E+03	1.58E+04	5.75E+03	3.86E+03	1.52E+04	3.15E-10	1.41E-09	5.13E-10	3.45E-10	1.36E-09	
Terbium (65)	Tb-150	1.74E+03	3.97E-04	1.00E+00	1.29E+01	7.37E+01	2.55E+01	1.57E+01	7.52E+01	5.84E-11	3.33E-10	1.15E-10	7.09E-11	3.39E-10	
Terbium (65)	Tb-150m	6.28E+04	1.10E-05	1.00E+00	1.14E+15	5.61E+15	1.97E+15	1.27E+15	5.66E+15	1.43E+02	7.03E+02	2.47E+02	1.60E+02	7.08E+02	
Terbium (65)	Tb-151	3.45E+02	2.01E-03	1.00E+00	7.17E+00	3.38E+01	1.21E+01	7.96E+00	3.33E+01	1.65E-10	7.77E-10	2.77E-10	1.83E-10	7.66E-10	
Terbium (65)	Tb-151m	8.74E+05	7.93E-07	1.00E+00	1.94E+04	9.15E+04	3.27E+04	2.16E+04	9.02E+04	1.76E-10	8.29E-10	2.96E-10	1.95E-10	8.17E-10	
Terbium (65)	Tb-152	3.47E+02	2.00E-03	1.00E+00	4.40E+00	2.37E+01	8.27E+00	5.18E+00	2.38E+01	1.01E-10	5.45E-10	1.90E-10	1.19E-10	5.46E-10	
Terbium (65)	Tb-152m	8.67E+04	7.99E-06	1.00E+00	1.39E+03	7.50E+03	2.61E+03	1.64E+03	7.51E+03	1.28E-10	6.89E-10	2.40E-10	1.51E-10	6.91E-10	
Terbium (65)	Tb-153	1.08E+02	6.41E-03	1.00E+00	7.34E+00	3.04E+01	1.15E+01	7.96E+00	2.82E+01	5.45E-10	2.26E-09	8.56E-10	5.91E-10	2.10E-09	
Terbium (65)	Tb-154	2.82E+02	2.45E-03	1.00E+00	2.21E+00	1.29E+01	4.46E+00	2.72E+00	1.33E+01	6.32E-11	3.70E-10	1.28E-10	7.79E-11	3.81E-10	
Terbium (65)	Tb-155	4.75E+01	1.46E-02	1.00E+00	9.54E+00	3.20E+01	1.31E+01	9.81E+00	2.85E+01	1.63E-09	5.48E-09	2.23E-09	1.68E-09	4.87E-09	
Terbium (65)	Tb-156	4.73E+01	1.47E-02	1.00E+00	4.74E-01	2.49E+00	8.70E-01	5.50E-01	2.52E+00	8.20E-11	4.32E-10	1.51E-10	9.52E-11	4.35E-10	
Terbium (65)	Tb-156m	2.49E+02	2.79E-03	1.00E+00	2.48E+00	1.30E+01	4.55E+00	2.88E+00	1.30E+01	8.16E-11	4.26E-10	1.49E-10	9.48E-11	4.28E-10	



Resident 2D External Exposure DCCs July 2023															
Radionuclides		Isotope-specific Information			Dose Compliance Concentrations (DCCs)										
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Soil Volume Area Correction Factor	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	
					DCC DL=1 (Bq/g)	@ 1cm DCC DL=1 (Bq/g)	@ 5cm DCC DL=1 (Bq/g)	@ 15cm DCC DL=1 (Bq/g)	Plane DCC DL=1 (Bq/cm <sup>2</sup> )	DCC DL=1 (mg/kg)	@ 1cm DCC DL=1 (mg/kg)	@ 5cm DCC DL=1 (mg/kg)	@ 15cm DCC DL=1 (mg/kg)	Plane DCC DL=1 (mg/cm <sup>2</sup> )	
Terbium (65)	Tb-156n	1.15E+03	6.05E-04	1.00E+00	1.15E+01	6.03E+01	2.11E+01	1.33E+01	6.08E+01	8.19E-11	4.31E-10	1.50E-10	9.52E-11	4.35E-10	
Terbium (65)	Tb-157	9.76E-03	7.10E+01	1.00E+00	2.63E+01	3.97E+01	2.66E+01	2.63E+01	2.37E+01	2.22E-05	3.35E-05	2.25E-05	2.22E-05	2.00E-05	
Terbium (65)	Tb-158	3.85E-03	1.80E+02	1.00E+00	2.49E-02	1.27E-01	4.49E-02	2.86E-02	1.27E-01	5.35E-08	2.74E-07	9.66E-08	6.15E-08	2.73E-07	
Terbium (65)	Tb-160	3.50E+00	1.98E-01	1.00E+00	6.14E-02	3.22E-01	1.12E-01	7.10E-02	3.24E-01	1.47E-10	7.72E-10	2.69E-10	1.70E-10	7.77E-10	
Terbium (65)	Tb-161	3.66E+01	1.89E-02	1.00E+00	8.63E+01	1.73E+02	9.53E+01	8.66E+01	1.15E+02	1.99E-08	3.99E-08	2.20E-08	2.00E-08	2.65E-08	
Terbium (65)	Tb-162	4.79E+04	1.45E-05	1.00E+00	1.06E+13	5.29E+13	1.86E+13	1.19E+13	5.14E+13	1.88E+00	9.37E+00	3.29E+00	2.12E+00	9.12E+00	
Terbium (65)	Tb-163	1.87E+04	3.71E-05	1.00E+00	1.11E+10	5.24E+10	1.84E+10	1.21E+10	5.17E+10	5.09E-03	2.40E-02	8.43E-03	5.54E-03	2.37E-02	
Terbium (65)	Tb-164	1.21E+05	5.71E-06	1.00E+00	1.78E+15	9.41E+15	3.27E+15	2.07E+15	9.28E+15	1.26E+02	6.67E+02	2.32E+02	1.47E+02	6.58E+02	
Terbium (65)	Tb-165	1.73E+05	4.01E-06	1.00E+00	1.55E+05	6.10E+05	2.45E+05	1.69E+05	2.42E+05	7.76E-09	3.06E-08	1.23E-08	8.47E-09	1.21E-08	
Technetium (43)	Tc-101	2.57E+04	2.70E-05	1.00E+00	1.32E+12	5.98E+12	2.11E+12	1.41E+12	5.38E+12	2.72E-01	1.23E+00	4.36E-01	2.91E-01	1.11E+00	
Technetium (43)	Tc-102	4.14E+06	1.67E-07	1.00E+00	9.48E+25	3.56E+26	1.59E+26	1.07E+26	1.98E+26	1.23E+11	4.60E+11	2.05E+11	1.39E+11	2.56E+11	
Technetium (43)	Tc-102m	8.37E+04	8.28E-06	1.00E+00	1.04E+14	5.75E+14	1.99E+14	1.24E+14	5.72E+14	6.61E+00	3.67E+01	1.27E+01	7.90E+00	3.66E+01	
Technetium (43)	Tc-104	1.99E+04	3.48E-05	1.00E+00	8.82E+09	4.95E+10	1.72E+10	1.07E+10	4.85E+10	2.42E-03	1.36E-02	4.73E-03	2.92E-03	1.33E-02	
Technetium (43)	Tc-105	4.79E+04	1.45E-05	1.00E+00	1.17E+03	5.73E+03	2.01E+03	1.30E+03	5.55E+03	1.34E-10	6.58E-10	2.31E-10	1.49E-10	6.38E-10	
Technetium (43)	Tc-91	1.16E+05	5.97E-06	1.00E+00	2.23E+07	1.21E+08	4.23E+07	2.64E+07	1.07E+08	9.17E-07	4.96E-06	1.74E-06	1.09E-06	4.39E-06	
Technetium (43)	Tc-91m	1.10E+05	6.28E-06	1.00E+00	1.69E+05	9.15E+05	3.20E+05	2.00E+05	8.31E+05	7.29E-09	3.96E-08	1.38E-08	8.63E-09	3.60E-08	
Technetium (43)	Tc-92	8.57E+04	8.09E-06	1.00E+00	6.31E+13	3.32E+14	1.16E+14	7.34E+13	3.29E+14	3.55E+00	1.87E+01	6.53E+00	4.13E+00	1.85E+01	
Technetium (43)	Tc-93	2.21E+03	3.14E-04	1.00E+00	2.54E+01	1.44E+02	4.97E+01	3.06E+01	1.48E+02	5.61E-11	3.19E-10	1.10E-10	6.76E-11	3.27E-10	
Technetium (43)	Tc-93m	8.37E+03	8.28E-05	1.00E+00	6.96E+01	4.03E+02	1.39E+02	8.50E+01	4.16E+02	4.06E-11	2.35E-10	8.08E-11	4.95E-11	2.42E-10	
Technetium (43)	Tc-94	1.24E+03	5.57E-04	1.00E+00	9.00E+00	4.66E+01	1.62E+01	1.03E+01	4.72E+01	3.57E-11	1.85E-10	6.43E-11	4.08E-11	1.87E-10	
Technetium (43)	Tc-94m	7.00E+03	9.89E-05	1.00E+00	6.79E+01	3.57E+02	1.24E+02	7.85E+01	3.49E+02	4.78E-11	2.51E-10	8.75E-11	5.52E-11	2.46E-10	
Technetium (43)	Tc-95	3.04E+02	2.28E-03	1.00E+00	7.45E+00	3.83E+01	1.33E+01	8.49E+00	3.87E+01	1.22E-10	6.28E-10	2.18E-10	1.39E-10	6.34E-10	
Technetium (43)	Tc-95m	4.15E+00	1.67E-01	1.00E+00	1.19E-01	5.90E-01	2.07E-01	1.33E-01	5.97E-01	1.43E-10	7.09E-10	2.49E-10	1.60E-10	7.17E-10	
Technetium (43)	Tc-96	5.91E+01	1.17E-02	1.00E+00	4.53E-01	2.35E+00	8.19E-01	5.20E-01	2.39E+00	3.86E-11	2.00E-10	6.98E-11	4.43E-11	2.03E-10	
Technetium (43)	Tc-96m	7.07E+03	9.80E-05	1.00E+00	5.44E+01	2.82E+02	9.84E+01	6.24E+01	2.86E+02	3.87E-11	2.01E-10	7.00E-11	4.44E-11	2.04E-10	
Technetium (43)	Tc-97	2.67E+07	2.60E+06	1.00E+00	2.02E+02	2.01E+02	2.02E+02	2.02E+02	2.09E+01	3.86E+00	3.83E+00	3.86E+00	3.86E+00	3.99E-01	
Technetium (43)	Tc-97m	2.81E+00	2.47E-01	1.00E+00	2.19E+02	3.83E+02	2.51E+02	2.19E+02	6.51E+01	3.97E-07	6.94E-07	4.54E-07	3.97E-07	1.18E-07	
Technetium (43)	Tc-98	1.65E-07	4.20E+06	1.00E+00	1.38E-02	6.98E-02	2.43E-02	1.56E-02	7.11E-02	4.30E-04	2.17E-03	7.58E-04	4.85E-04	2.21E-03	
Technetium (43)	Tc-99	3.28E-06	2.11E+05	1.00E+00	1.01E+03	2.36E+03	1.18E+03	1.01E+03	1.45E+03	1.59E+00	3.73E+00	1.87E+00	1.60E+00	2.30E+00	
Technetium (43)	Tc-99m	1.01E+03	6.87E-04	1.00E+00	2.23E+02	8.32E+02	3.09E+02	2.26E+02	8.43E+02	1.15E-09	4.28E-09	1.59E-09	1.16E-09	4.34E-09	
Tellurium (52)	Te-113	2.14E+05	3.23E-06	1.00E+00	1.99E+04	9.16E+04	3.25E+04	2.15E+04	8.90E+04	5.50E-10	2.53E-09	8.98E-10	5.94E-10	2.46E-09	
Tellurium (52)	Te-114	2.40E+04	2.89E-05	1.00E+00	2.72E+10	1.46E+11	5.09E+10	3.19E+10	1.45E+11	6.79E-03	3.63E-02	1.27E-02	7.96E-03	3.62E-02	
Tellurium (52)	Te-115	6.28E+04	1.10E-05	1.00E+00	1.07E+07	5.20E+07	1.83E+07	1.19E+07	5.10E+07	1.03E-06	4.99E-06	1.76E-06	1.14E-06	4.89E-06	
Tellurium (52)	Te-115m	5.44E+04	1.27E-05	1.00E+00	8.98E+06	4.35E+07	1.53E+07	9.94E+06	4.26E+07	9.96E-07	4.82E-06	1.70E-06	1.10E-06	4.73E-06	
Tellurium (52)	Te-116	2.44E+03	2.84E-04	1.00E+00	1.92E+01	1.05E+02	3.63E+01	2.27E+01	1.03E+02	4.78E-11	2.61E-10	9.07E-11	5.65E-11	2.58E-10	
Tellurium (52)	Te-117	5.87E+03	1.18E-04	1.00E+00	6.55E+01	3.48E+02	1.21E+02	7.65E+01	3.46E+02	6.84E-11	3.63E-10	1.27E-10	7.99E-11	3.62E-10	
Tellurium (52)	Te-118	4.22E+01	1.64E-02	1.00E+00	1.05E+00	5.01E+00	1.79E+00	1.16E+00	4.56E+00	1.54E-10	7.36E-10	2.63E-10	1.71E-10	6.69E-10	
Tellurium (52)	Te-119	3.78E+02	1.83E-03	1.00E+00	9.75E+00	4.95E+01	1.74E+01	1.11E+01	4.89E+01	1.61E-10	8.17E-10	2.88E-10	1.83E-10	8.07E-10	
Tellurium (52)	Te-119m	5.38E+01	1.29E-02	1.00E+00	6.81E-01	3.65E+00	1.27E+00	8.00E-01	3.67E+00	7.89E-11	4.23E-10	1.47E-10	9.27E-11	4.26E-10	
Tellurium (52)	Te-121	1.32E+01	5.25E-02	1.00E+00	4.74E-01	2.31E+00	8.13E-01	5.25E-01	2.30E+00	2.28E-10	1.11E-09	3.91E-10	2.52E-10	1.10E-09	
Tellurium (52)	Te-121m	1.64E+00	4.22E-01	1.00E+00	6.22E-02	2.93E-01	1.04E-01	6.80E-02	2.91E-01	2.40E-10	1.13E-09	4.01E-10	2.63E-10	1.12E-09	
Tellurium (52)	Te-123	1.16E-15	6.00E+14	1.00E+00	1.39E+04	1.45E+04	1.38E+04	1.39E+04	3.86E+03	7.74E+10	8.10E+10	7.72E+10	7.74E+10	2.15E+10	

Resident 2D External Exposure DCCs July 2023															
Radionuclides		Isotope-specific Information			Dose Compliance Concentrations (DCCs)										
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Soil Volume Area Correction Factor	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	
					DCC DL=1 (Bq/g)	@ 1cm DCC DL=1 (Bq/g)	@ 5cm DCC DL=1 (Bq/g)	@ 15cm DCC DL=1 (Bq/g)	Plane DCC DL=1 (Bq/cm <sup>2</sup> )	DCC DL=1 (mg/kg)	@ 1cm DCC DL=1 (mg/kg)	@ 5cm DCC DL=1 (mg/kg)	@ 15cm DCC DL=1 (mg/kg)	Plane DCC DL=1 (mg/cm <sup>2</sup> )	
Tellurium (52)	Te-123m	2.12E+00	3.27E-01	1.00E+00	4.69E-01	1.80E+00	6.65E-01	4.79E-01	1.74E+00	1.43E-09	5.48E-09	2.02E-09	1.46E-09	5.29E-09	
Tellurium (52)	Te-125m	4.41E+00	1.57E-01	1.00E+00	4.47E+01	5.17E+01	4.56E+01	4.47E+01	1.59E+01	6.65E-08	7.70E-08	6.78E-08	6.65E-08	2.36E-08	
Tellurium (52)	Te-127	6.49E+02	1.07E-03	1.00E+00	2.71E+03	1.22E+04	4.39E+03	2.93E+03	5.89E+03	2.78E-08	1.25E-07	4.51E-08	3.01E-08	6.04E-08	
Tellurium (52)	Te-127m	2.32E+00	2.99E-01	1.00E+00	9.50E+00	3.22E+01	1.44E+01	1.02E+01	1.30E+01	2.73E-08	9.24E-08	4.14E-08	2.93E-08	3.74E-08	
Tellurium (52)	Te-129	5.23E+03	1.32E-04	1.00E+00	1.77E+03	7.98E+03	2.97E+03	1.95E+03	4.30E+03	2.29E-09	1.03E-08	3.84E-09	2.52E-09	5.56E-09	
Tellurium (52)	Te-129m	7.53E+00	9.21E-02	1.00E+00	2.19E+00	9.90E+00	3.72E+00	2.43E+00	5.46E+00	1.96E-09	8.90E-09	3.34E-09	2.18E-09	4.91E-09	
Tellurium (52)	Te-131	1.46E+04	4.76E-05	1.00E+00	8.04E+02	3.76E+03	1.32E+03	8.71E+02	3.80E+03	3.79E-10	1.77E-09	6.22E-10	4.11E-10	1.79E-09	
Tellurium (52)	Te-131m	2.02E+02	3.42E-03	1.00E+00	2.06E+00	1.05E+01	3.66E+00	2.34E+00	1.05E+01	6.99E-11	3.55E-10	1.24E-10	7.94E-11	3.58E-10	
Tellurium (52)	Te-132	7.89E+01	8.78E-03	1.00E+00	6.21E-01	3.16E+00	1.10E+00	7.05E-01	3.14E+00	5.44E-11	2.77E-10	9.68E-11	6.19E-11	2.76E-10	
Tellurium (52)	Te-133	2.91E+04	2.38E-05	1.00E+00	9.19E+02	4.44E+03	1.58E+03	1.02E+03	4.18E+03	2.20E-10	1.06E-09	3.77E-10	2.45E-10	1.00E-09	
Tellurium (52)	Te-133m	6.57E+03	1.05E-04	1.00E+00	4.66E+01	2.41E+02	8.44E+01	5.36E+01	2.38E+02	4.95E-11	2.56E-10	8.96E-11	5.69E-11	2.53E-10	
Tellurium (52)	Te-134	8.71E+03	7.95E-05	1.00E+00	4.85E+01	2.51E+02	8.74E+01	5.56E+01	2.50E+02	3.91E-11	2.02E-10	7.05E-11	4.49E-11	2.02E-10	
Thorium (90)	Th-223	3.64E+07	1.90E-08	1.00E+00	1.61E+31	7.07E+31	2.56E+31	1.74E+31	7.09E+31	5.18E+15	2.27E+16	8.21E+15	5.59E+15	2.28E+16	
Thorium (90)	Th-224	2.08E+07	3.33E-08	1.00E+00	9.59E+30	4.03E+31	1.45E+31	1.00E+31	4.08E+31	5.41E+15	2.27E+16	8.16E+15	5.64E+15	2.30E+16	
Thorium (90)	Th-226	1.19E+04	5.82E-05	1.00E+00	5.69E+06	9.67E+06	6.54E+06	5.78E+06	9.93E+05	5.66E-06	9.61E-06	6.51E-06	5.75E-06	9.87E-07	
Thorium (90)	Th-227	1.35E+01	5.12E-02	1.00E+00	7.27E-01	3.10E+00	1.13E+00	7.74E-01	2.55E+00	6.39E-10	2.72E-09	9.94E-10	6.81E-10	2.24E-09	
Thorium (90)	Th-228	3.63E-01	1.91E+00	1.00E+00	1.47E-02	8.51E-02	2.94E-02	1.81E-02	8.39E-02	4.84E-10	2.81E-09	9.71E-10	5.95E-10	2.77E-09	
Thorium (90)	Th-229	9.44E-05	7.34E+03	1.00E+00	7.73E-02	3.30E-01	1.22E-01	8.37E-02	2.82E-01	9.83E-06	4.20E-05	1.55E-05	1.06E-05	3.59E-05	
Thorium (90)	Th-230	9.19E-06	7.54E+04	1.00E+00	1.16E-02	6.29E-02	2.19E-02	1.37E-02	6.06E-02	1.52E-05	8.26E-05	2.87E-05	1.80E-05	7.95E-05	
Thorium (90)	Th-231	2.38E+02	2.91E-03	1.00E+00	8.15E+02	2.26E+03	9.91E+02	8.15E+02	1.49E+03	4.15E-08	1.15E-07	5.05E-08	4.15E-08	7.59E-08	
Thorium (90)	Th-232	4.93E-11	1.41E+10	1.00E+00	7.87E-03	4.40E-02	1.52E-02	9.47E-03	4.32E-02	1.94E+00	1.08E+01	3.76E+00	2.34E+00	1.07E+01	
Thorium (90)	Th-233	1.63E+04	4.24E-05	1.00E+00	1.79E+03	7.66E+03	2.76E+03	1.89E+03	7.70E+03	1.34E-09	5.73E-09	2.06E-09	1.41E-09	5.76E-09	
Thorium (90)	Th-234	1.05E+01	6.60E-02	1.00E+00	7.21E+00	2.48E+01	1.13E+01	8.00E+00	8.17E+00	8.43E-09	2.89E-08	1.32E-08	9.35E-09	9.55E-09	
Thorium (90)	Th-235	5.13E+04	1.35E-05	1.00E+00	1.49E+11	2.51E+11	1.79E+11	1.52E+11	2.39E+10	3.57E-02	6.03E-02	4.30E-02	3.65E-02	5.73E-03	
Thorium (90)	Th-236	9.71E+03	7.13E-05	1.00E+00	1.90E+02	1.03E+03	3.58E+02	2.24E+02	9.44E+02	2.42E-10	1.31E-09	4.56E-10	2.86E-10	1.20E-09	
Titanium (22)	Ti-44	1.16E-02	6.00E+01	1.00E+00	8.77E-03	4.44E-02	1.56E-02	1.00E-02	4.35E-02	1.75E-09	8.88E-09	3.13E-09	2.00E-09	8.69E-09	
Titanium (22)	Ti-45	1.97E+03	3.52E-04	1.00E+00	4.59E+01	2.22E+02	7.78E+01	5.06E+01	2.17E+02	5.50E-11	2.65E-10	9.32E-11	6.06E-11	2.60E-10	
Titanium (22)	Ti-51	6.32E+04	1.10E-05	1.00E+00	1.18E+15	5.35E+15	1.92E+15	1.27E+15	4.39E+15	4.98E+01	2.26E+02	8.10E+01	5.38E+01	1.86E+02	
Titanium (22)	Ti-52	2.14E+05	3.23E-06	1.00E+00	1.19E+15	6.75E+15	2.35E+15	1.44E+15	6.46E+15	1.51E+01	8.59E+01	2.99E+01	1.83E+01	8.23E+01	
Thallium (81)	Tl-190	1.40E+05	4.95E-06	1.00E+00	1.06E+03	6.14E+03	2.12E+03	1.30E+03	6.32E+03	7.54E-11	4.37E-10	1.51E-10	9.27E-11	4.50E-10	
Thallium (81)	Tl-190m	9.84E+04	7.04E-06	1.00E+00	7.45E+02	4.31E+03	1.49E+03	9.15E+02	4.44E+03	7.54E-11	4.37E-10	1.51E-10	9.27E-11	4.50E-10	
Thallium (81)	Tl-194	1.10E+04	6.28E-05	1.00E+00	2.48E+02	1.17E+03	4.18E+02	2.74E+02	1.13E+03	2.28E-10	1.08E-09	3.86E-10	2.52E-10	1.05E-09	
Thallium (81)	Tl-194m	1.11E+04	6.24E-05	1.00E+00	8.88E+01	4.35E+02	1.54E+02	9.93E+01	4.39E+02	8.14E-11	3.99E-10	1.41E-10	9.10E-11	4.02E-09	
Thallium (81)	Tl-195	5.23E+03	1.32E-04	1.00E+00	7.03E+01	3.69E+02	1.31E+02	8.31E+01	3.71E+02	1.37E-10	7.22E-10	2.55E-10	1.62E-10	7.25E-10	
Thallium (81)	Tl-196	3.30E+03	2.10E-04	1.00E+00	3.30E+01	1.79E+02	6.24E+01	3.91E+01	1.83E+02	1.03E-10	5.57E-10	1.95E-10	1.22E-10	5.69E-10	
Thallium (81)	Tl-197	2.14E+03	3.24E-04	1.00E+00	9.40E+01	4.28E+02	1.58E+02	1.06E+02	4.22E+02	4.54E-10	2.07E-09	7.62E-10	5.11E-10	2.04E-09	
Thallium (81)	Tl-198	1.15E+03	6.05E-04	1.00E+00	1.06E+01	5.84E+01	2.03E+01	1.26E+01	5.99E+01	9.58E-11	5.29E-10	1.84E-10	1.14E-10	5.43E-10	
Thallium (81)	Tl-198m	3.25E+03	2.13E-04	1.00E+00	3.01E+01	1.53E+02	5.36E+01	3.44E+01	1.56E+02	9.62E-11	4.89E-10	1.71E-10	1.10E-10	4.98E-10	
Thallium (81)	Tl-199	8.18E+02	8.47E-04	1.00E+00	8.31E+01	3.43E+02	1.28E+02	8.93E+01	3.40E+02	1.06E-09	4.38E-09	1.64E-09	1.14E-09	4.34E-09	
Thallium (81)	Tl-200	2.33E+02	2.98E-03	1.00E+00	3.49E+00	1.79E+01	6.30E+00	4.01E+00	1.82E+01	1.57E-10	8.09E-10	2.84E-10	1.81E-10	8.19E-10	
Thallium (81)	Tl-201	8.33E+01	8.32E-03	1.00E+00	3.79E+01	1.09E+02	4.64E+01	3.82E+01	1.00E+02	4.80E-09	1.37E-08	5.87E-09	4.83E-09	1.27E-08	
Thallium (81)	Tl-202	2.07E+01	3.35E-02	1.00E+00	9.94E-01	4.48E+00	1.62E+00	1.08E+00	4.51E+00	5.09E-10	2.30E-09	8.28E-10	5.54E-10	2.31E-09	

Resident 2D External Exposure DCCs July 2023															
Radionuclides		Isotope-specific Information			Dose Compliance Concentrations (DCCs)										
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Soil Volume Area Correction Factor	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	
					DCC DL=1 (Bq/g)	@ 1cm DCC DL=1 (Bq/g)	@ 5cm DCC DL=1 (Bq/g)	@ 15cm DCC DL=1 (Bq/g)	Plane DCC DL=1 (Bq/cm <sup>2</sup> )	DCC DL=1 (mg/kg)	@ 1cm DCC DL=1 (mg/kg)	@ 5cm DCC DL=1 (mg/kg)	@ 15cm DCC DL=1 (mg/kg)	Plane DCC DL=1 (mg/cm <sup>2</sup> )	
Thallium (81)	TI-204	1.83E-01	3.78E+00	1.00E+00	2.91E+01	6.87E+01	3.41E+01	2.92E+01	9.56E+00	1.70E-06	4.01E-06	1.99E-06	1.71E-06	5.58E-07	
Thallium (81)	TI-206	8.67E+04	7.99E-06	1.00E+00	1.12E+17	1.89E+17	1.36E+17	1.15E+17	2.00E+16	1.40E+04	2.35E+04	1.69E+04	1.43E+04	2.50E+03	
Thallium (81)	TI-206m	9.74E+04	7.12E-06	1.00E+00	6.58E+14	3.02E+15	1.12E+15	7.34E+14	1.58E+15	7.30E+01	3.35E+02	1.24E+02	8.14E+01	1.75E+02	
Thallium (81)	TI-207	7.64E+04	9.08E-06	1.00E+00	5.55E+16	1.52E+17	8.29E+16	6.07E+16	2.02E+16	7.88E+03	2.17E+04	1.18E+04	8.63E+03	2.87E+03	
Thallium (81)	TI-208	1.19E+05	5.81E-06	1.00E+00	7.17E+14	4.38E+15	1.50E+15	9.02E+14	4.49E+15	6.56E+01	4.00E+02	1.37E+02	8.24E+01	4.11E+02	
Thallium (81)	TI-209	1.69E+05	4.11E-06	1.00E+00	2.77E+07	7.07E+07	3.50E+07	2.81E+07	5.59E+06	1.80E-06	4.59E-06	2.28E-06	1.83E-06	3.64E-07	
Thallium (81)	TI-210	2.80E+05	2.47E-06	1.00E+00	1.34E+08	2.27E+08	1.54E+08	1.36E+08	2.33E+07	5.26E-06	8.93E-06	6.05E-06	5.34E-06	9.17E-07	
Thulium (69)	Tm-161	1.21E+04	5.75E-05	1.00E+00	2.38E+02	1.20E+03	4.27E+02	2.73E+02	1.18E+03	1.67E-10	8.38E-10	2.99E-10	1.91E-10	8.26E-10	
Thulium (69)	Tm-162	1.68E+04	4.13E-05	1.00E+00	4.32E+08	2.39E+09	8.38E+08	5.19E+08	2.41E+09	2.18E-04	1.21E-03	4.24E-04	2.63E-04	1.22E-03	
Thulium (69)	Tm-163	3.35E+03	2.07E-04	1.00E+00	4.93E+01	2.59E+02	9.19E+01	5.82E+01	2.59E+02	1.26E-10	6.59E-10	2.34E-10	1.48E-10	6.59E-10	
Thulium (69)	Tm-164	1.82E+05	3.81E-06	1.00E+00	3.28E+16	1.66E+17	5.89E+16	3.76E+16	1.57E+17	1.55E+03	7.82E+03	2.78E+03	1.78E+03	7.42E+03	
Thulium (69)	Tm-165	2.02E+02	3.43E-03	1.00E+00	7.96E+00	3.58E+01	1.32E+01	8.77E+00	3.46E+01	3.41E-10	1.53E-09	5.64E-10	3.76E-10	1.48E-09	
Thulium (69)	Tm-166	7.88E+02	8.79E-04	1.00E+00	7.41E+00	4.12E+01	1.43E+01	8.87E+00	4.20E+01	8.19E-11	4.55E-10	1.58E-10	9.79E-11	4.63E-10	
Thulium (69)	Tm-167	2.73E+01	2.53E-02	1.00E+00	5.91E+00	2.14E+01	8.49E+00	6.13E+00	1.96E+01	1.89E-09	6.86E-09	2.72E-09	1.96E-09	6.27E-09	
Thulium (69)	Tm-168	2.72E+00	2.55E-01	1.00E+00	4.83E-02	2.36E-01	8.38E-02	5.42E-02	2.37E-01	1.57E-10	7.65E-10	2.72E-10	1.76E-10	7.68E-10	
Thulium (69)	Tm-170	1.97E+00	3.52E-01	1.00E+00	2.24E+01	5.05E+01	2.61E+01	2.25E+01	8.75E+00	1.02E-07	2.29E-07	1.18E-07	1.02E-07	3.96E-08	
Thulium (69)	Tm-171	3.61E-01	1.92E+00	1.00E+00	1.47E+02	2.84E+02	1.56E+02	1.47E+02	2.14E+02	3.66E-06	7.06E-06	3.88E-06	3.66E-06	5.31E-06	
Thulium (69)	Tm-172	9.55E+01	7.26E-03	1.00E+00	3.65E+00	2.03E+01	7.09E+00	4.38E+00	1.88E+01	3.45E-10	1.92E-09	6.70E-10	4.14E-10	1.78E-09	
Thulium (69)	Tm-173	7.37E+02	9.41E-04	1.00E+00	4.03E+01	1.87E+02	6.59E+01	4.35E+01	1.82E+02	4.96E-10	2.30E-09	8.12E-10	5.35E-10	2.24E-09	
Thulium (69)	Tm-174	6.75E+04	1.03E-05	1.00E+00	3.58E+13	1.77E+14	6.20E+13	4.01E+13	1.76E+14	4.84E+00	2.39E+01	8.39E+00	5.43E+00	2.38E+01	
Thulium (69)	Tm-175	2.40E+04	2.89E-05	1.00E+00	1.38E+04	6.14E+04	2.20E+04	1.48E+04	6.17E+04	5.30E-09	2.35E-08	8.44E-09	5.69E-09	2.36E-08	
Thulium (69)	Tm-176	1.97E+05	3.52E-06	1.00E+00	1.43E+17	7.84E+17	2.72E+17	1.70E+17	7.70E+17	6.68E+03	3.67E+04	1.28E+04	7.97E+03	3.61E+04	
Uranium (92)	U-227	3.31E+05	2.09E-06	1.00E+00	5.29E+18	2.17E+19	7.94E+18	5.56E+18	2.17E+19	1.90E+05	7.80E+05	2.86E+05	2.00E+05	7.80E+05	
Uranium (92)	U-228	4.00E+04	1.73E-05	1.00E+00	6.51E+14	2.70E+15	9.75E+14	6.80E+14	2.69E+15	1.95E+02	8.06E+02	2.91E+02	2.03E+02	8.03E+02	
Uranium (92)	U-230	1.22E+01	5.70E-02	1.00E+00	1.57E+01	6.51E+01	2.37E+01	1.65E+01	6.03E+01	1.56E-08	6.46E-08	2.35E-08	1.64E-08	5.98E-08	
Uranium (92)	U-231	6.02E+01	1.15E-02	1.00E+00	3.12E+01	9.70E+01	3.94E+01	3.15E+01	8.60E+01	6.28E-09	1.95E-08	7.92E-09	6.33E-09	1.73E-08	
Uranium (92)	U-232	1.01E-02	6.89E+01	1.00E+00	1.35E-02	7.85E-02	2.72E-02	1.67E-02	7.74E-02	1.64E-08	9.50E-08	3.29E-08	2.02E-08	9.36E-08	
Uranium (92)	U-233	4.35E-06	1.59E+05	1.00E+00	8.96E-02	3.83E-01	1.41E-01	9.71E-02	3.26E-01	2.51E-04	1.07E-03	3.97E-04	2.72E-04	9.16E-04	
Uranium (92)	U-234	2.82E-06	2.46E+05	1.00E+00	1.80E-02	9.77E-02	3.40E-02	2.13E-02	9.40E-02	7.83E-05	4.25E-04	1.48E-04	9.24E-05	4.09E-04	
Uranium (92)	U-235	9.84E-10	7.04E+08	1.00E+00	3.76E-02	1.57E-01	5.72E-02	3.97E-02	1.35E-01	4.71E-01	1.96E+00	7.17E-01	4.97E-01	1.69E+00	
Uranium (92)	U-235m	1.40E+04	4.95E-05												
Uranium (92)	U-236	2.96E-08	2.34E+07	1.00E+00	4.77E+00	2.67E+01	9.25E+00	5.74E+00	2.62E+01	2.00E+00	1.11E+01	3.87E+00	2.40E+00	1.10E+01	
Uranium (92)	U-237	3.75E+01	1.85E-02	1.00E+00	8.73E+00	3.07E+01	1.19E+01	8.90E+00	2.90E+01	2.89E-09	1.02E-08	3.96E-09	2.95E-09	9.63E-09	
Uranium (92)	U-238	1.55E-10	4.47E+09	1.00E+00	1.05E-02	5.65E-02	1.98E-02	1.24E-02	5.20E-02	8.46E-01	4.55E+00	1.59E+00	9.97E-01	4.19E+00	
Uranium (92)	U-239	1.55E+04	4.46E-05	1.00E+00	2.39E+03	9.26E+03	3.42E+03	2.46E+03	9.13E+03	1.93E-09	7.47E-09	2.76E-09	1.99E-09	7.37E-09	
Uranium (92)	U-240	4.31E+02	1.61E-03	1.00E+00	2.58E+01	1.28E+02	4.56E+01	2.93E+01	1.07E+02	7.55E-10	3.75E-09	1.33E-09	8.56E-10	3.14E-09	
Uranium (92)	U-242	2.17E+04	3.20E-05	1.00E+00	9.31E+10	4.74E+11	1.74E+11	1.10E+11	3.15E+11	5.45E-02	2.77E-01	1.02E-01	6.43E-02	1.84E-01	
Vanadium (23)	V-47	1.12E+04	6.20E-05	1.00E+00	2.27E+02	1.09E+03	3.83E+02	2.49E+02	1.01E+03	5.00E-11	2.40E-10	8.44E-11	5.50E-11	2.24E-10	
Vanadium (23)	V-48	1.58E+01	4.38E-02	1.00E+00	1.01E-01	5.46E-01	1.89E-01	1.18E-01	5.57E-01	1.61E-11	8.67E-11	3.01E-11	1.88E-11	8.85E-11	
Vanadium (23)	V-49	7.67E-01	9.04E-01												
Vanadium (23)	V-50	4.62E-18	1.50E+17	1.00E+00	1.24E-02	7.20E-02	2.47E-02	1.51E-02	7.44E-02	7.06E+06	4.09E+07	1.40E+07	8.59E+06	4.22E+07	
Vanadium (23)	V-52	9.73E+04	7.12E-06	1.00E+00	9.70E+14	5.51E+15	1.92E+15	1.17E+15	5.29E+15	2.72E+01	1.55E+02	5.37E+01	3.29E+01	1.48E+02	

Resident 2D External Exposure DCCs July 2023															
Radionuclides		Isotope-specific Information			Dose Compliance Concentrations (DCCs)										
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Soil Volume Area Correction Factor	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	
					DCC DL=1 (Bq/g)	@ 1cm DCC DL=1 (Bq/g)	@ 5cm DCC DL=1 (Bq/g)	@ 15cm DCC DL=1 (Bq/g)	Plane DCC DL=1 (Bq/cm <sup>2</sup> )	DCC DL=1 (mg/kg)	@ 1cm DCC DL=1 (mg/kg)	@ 5cm DCC DL=1 (mg/kg)	@ 15cm DCC DL=1 (mg/kg)	Plane DCC DL=1 (mg/cm <sup>2</sup> )	
Vanadium (23)	V-53	2.26E+05	3.06E-06	1.00E+00	8.35E+16	4.42E+17	1.55E+17	9.74E+16	4.10E+17	1.03E+03	5.44E+03	1.91E+03	1.20E+03	5.04E+03	
Tungsten (74)	W-177	2.76E+03	2.51E-04	1.00E+00	6.39E+01	2.93E+02	1.07E+02	7.12E+01	2.89E+02	2.15E-10	9.86E-10	3.60E-10	2.39E-10	9.73E-10	
Tungsten (74)	W-178	1.17E+01	5.92E-02	1.00E+00	2.54E+00	1.01E+01	4.11E+00	2.89E+00	9.16E+00	2.02E-09	8.08E-09	3.27E-09	2.30E-09	7.30E-09	
Tungsten (74)	W-179	9.83E+03	7.05E-05	1.00E+00	1.20E+04	2.39E+04	1.28E+04	1.20E+04	1.80E+04	1.14E-08	2.28E-08	1.22E-08	1.14E-08	1.72E-08	
Tungsten (74)	W-179m	5.69E+04	1.22E-05	1.00E+00	6.95E+04	1.39E+05	7.44E+04	6.95E+04	1.04E+05	1.15E-08	2.29E-08	1.23E-08	1.15E-08	1.72E-08	
Tungsten (74)	W-181	2.09E+00	3.32E-01	1.00E+00	4.14E+00	8.40E+00	4.44E+00	4.14E+00	6.67E+00	1.88E-08	3.82E-08	2.02E-08	1.88E-08	3.04E-08	
Tungsten (74)	W-185	3.37E+00	2.06E-01	1.00E+00	1.05E+03	2.86E+03	1.30E+03	1.06E+03	1.99E+03	3.02E-06	8.24E-06	3.74E-06	3.06E-06	5.73E-06	
Tungsten (74)	W-185m	2.28E+05	3.04E-06	1.00E+00	7.11E+07	1.94E+08	8.80E+07	7.18E+07	1.35E+08	3.02E-06	8.24E-06	3.74E-06	3.06E-06	5.73E-06	
Tungsten (74)	W-187	2.56E+02	2.71E-03	1.00E+00	1.18E+01	5.69E+01	2.02E+01	1.32E+01	5.53E+01	4.53E-10	2.18E-09	7.73E-10	5.04E-10	2.12E-09	
Tungsten (74)	W-188	3.62E+00	1.91E-01	1.00E+00	1.23E+00	4.89E+00	1.95E+00	1.33E+00	2.37E+00	3.34E-09	1.33E-08	5.29E-09	3.63E-09	6.44E-09	
Tungsten (74)	W-190	1.21E+04	5.71E-05	1.00E+00	3.25E+06	1.54E+07	5.47E+06	3.59E+06	1.46E+07	2.67E-06	1.26E-05	4.49E-06	2.95E-06	1.20E-05	
Xenon (54)	Xe-120	9.11E+03	7.61E-05	1.00E+00	5.57E+01	3.03E+02	1.06E+02	6.61E+01	3.00E+02	3.85E-11	2.09E-10	7.30E-11	4.57E-11	2.07E-10	
Xenon (54)	Xe-121	9.08E+03	7.63E-05	1.00E+00	7.33E+01	3.78E+02	1.33E+02	8.43E+01	3.73E+02	5.12E-11	2.64E-10	9.26E-11	5.89E-11	2.60E-10	
Xenon (54)	Xe-122	3.02E+02	2.29E-03	1.00E+00	6.01E+00	2.86E+01	1.02E+01	6.65E+00	2.62E+01	1.27E-10	6.05E-10	2.17E-10	1.41E-10	5.54E-10	
Xenon (54)	Xe-123	2.92E+03	2.37E-04	1.00E+00	7.91E+01	3.77E+02	1.35E+02	8.83E+01	3.64E+02	1.75E-10	8.32E-10	2.97E-10	1.95E-10	8.05E-10	
Xenon (54)	Xe-125	3.59E+02	1.93E-03	1.00E+00	3.34E+01	1.40E+02	5.18E+01	3.55E+01	1.23E+02	6.09E-10	2.56E-09	9.45E-10	6.49E-10	2.24E-09	
Xenon (54)	Xe-127	6.95E+00	9.97E-02	1.00E+00	6.40E-01	2.67E+00	9.69E-01	6.69E-01	2.59E+00	6.13E-10	2.56E-09	9.28E-10	6.41E-10	2.48E-09	
Xenon (54)	Xe-127m	3.16E+05	2.19E-06	1.00E+00	2.91E+04	1.22E+05	4.40E+04	3.04E+04	1.18E+05	6.13E-10	2.56E-09	9.29E-10	6.41E-10	2.48E-09	
Xenon (54)	Xe-129m	2.85E+01	2.43E-02	1.00E+00	5.55E+01	1.34E+02	7.29E+01	5.70E+01	6.51E+01	1.32E-08	3.18E-08	1.73E-08	1.35E-08	1.55E-08	
Xenon (54)	Xe-131m	2.14E+01	3.24E-02	1.00E+00	1.21E+02	2.72E+02	1.54E+02	1.24E+02	1.25E+02	3.90E-08	8.73E-08	4.94E-08	3.98E-08	4.01E-08	
Xenon (54)	Xe-133	4.82E+01	1.44E-02	1.00E+00	6.04E+01	1.51E+02	7.05E+01	6.03E+01	1.13E+02	8.73E-09	2.18E-08	1.02E-08	8.72E-09	1.64E-08	
Xenon (54)	Xe-133m	1.16E+02	6.00E-03	1.00E+00	6.20E+01	1.92E+02	8.25E+01	6.34E+01	1.45E+02	3.74E-09	1.16E-08	4.98E-09	3.83E-09	8.75E-09	
Xenon (54)	Xe-135	6.64E+02	1.04E-03	1.00E+00	6.03E+01	2.66E+02	9.38E+01	6.35E+01	2.53E+02	6.42E-10	2.83E-09	1.00E-09	6.77E-10	2.70E-09	
Xenon (54)	Xe-135m	2.38E+04	2.91E-05	1.00E+00	2.17E+03	9.59E+03	3.39E+03	2.29E+03	9.13E+03	6.46E-10	2.85E-09	1.01E-09	6.81E-10	2.71E-09	
Xenon (54)	Xe-137	9.54E+04	7.26E-06	1.00E+00	1.46E+05	7.36E+05	2.57E+05	1.65E+05	7.30E+05	1.10E-08	5.54E-08	1.94E-08	1.24E-08	5.50E-08	
Xenon (54)	Xe-138	2.59E+04	2.68E-05	1.00E+00	1.95E+02	1.11E+03	3.84E+02	2.36E+02	1.09E+03	5.45E-11	3.10E-10	1.07E-10	6.61E-11	3.05E-10	
Yttrium (39)	Y-81	3.10E+05	2.23E-06	1.00E+00	1.04E+04	4.90E+04	1.72E+04	1.14E+04	4.90E+04	1.42E-10	6.71E-10	2.36E-10	1.55E-10	6.71E-10	
Yttrium (39)	Y-83	5.14E+04	1.35E-05	1.00E+00	7.98E+02	3.99E+03	1.40E+03	8.97E+02	4.01E+03	6.76E-11	3.38E-10	1.18E-10	7.59E-11	3.39E-10	
Yttrium (39)	Y-83m	1.28E+05	5.42E-06	1.00E+00	1.98E+03	9.93E+03	3.47E+03	2.23E+03	9.97E+03	6.76E-11	3.38E-10	1.18E-10	7.60E-11	3.39E-10	
Yttrium (39)	Y-84m	9.22E+03	7.52E-05	1.00E+00	4.40E+01	2.29E+02	8.00E+01	5.09E+01	2.28E+02	2.10E-11	1.09E-10	3.82E-11	2.43E-11	1.09E-10	
Yttrium (39)	Y-85	2.27E+03	3.06E-04	1.00E+00	2.72E+01	1.30E+02	4.57E+01	2.99E+01	1.28E+02	5.34E-11	2.55E-10	8.98E-11	5.88E-11	2.51E-10	
Yttrium (39)	Y-85m	1.25E+03	5.55E-04	1.00E+00	1.33E+01	6.85E+01	2.39E+01	1.52E+01	6.77E+01	4.75E-11	2.45E-10	8.53E-11	5.44E-11	2.42E-10	
Yttrium (39)	Y-86	4.12E+02	1.68E-03	1.00E+00	2.13E+00	1.16E+01	4.02E+00	2.51E+00	1.19E+01	2.34E-11	1.27E-10	4.41E-11	2.75E-11	1.30E-10	
Yttrium (39)	Y-86m	7.59E+03	9.13E-05	1.00E+00	3.77E+01	2.03E+02	7.04E+01	4.42E+01	2.07E+02	2.24E-11	1.21E-10	4.18E-11	2.63E-11	1.23E-10	
Yttrium (39)	Y-87	7.61E+01	9.11E-03	1.00E+00	2.08E+00	9.88E+00	3.47E+00	2.27E+00	1.00E+01	1.25E-10	5.93E-10	2.08E-10	1.36E-10	6.01E-10	
Yttrium (39)	Y-87m	4.54E+02	1.53E-03	1.00E+00	9.00E+00	4.25E+01	1.49E+01	9.80E+00	4.31E+01	9.04E-11	4.27E-10	1.50E-10	9.85E-11	4.33E-10	
Yttrium (39)	Y-88	2.37E+00	2.92E-01	1.00E+00	1.72E-02	9.99E-02	3.43E-02	2.10E-02	1.03E-01	3.35E-11	1.94E-10	6.68E-11	4.08E-11	2.01E-10	
Yttrium (39)	Y-89m	1.40E+06	4.97E-07	1.00E+00	7.50E+21	3.95E+22	1.37E+22	8.66E+21	4.01E+22	2.51E+07	1.32E+08	4.60E+07	2.90E+07	1.34E+08	
Yttrium (39)	Y-90	9.47E+01	7.32E-03	1.00E+00	2.63E+02	4.48E+02	3.24E+02	2.73E+02	8.20E+01	1.31E-08	2.23E-08	1.62E-08	1.36E-08	4.09E-09	
Yttrium (39)	Y-90m	1.90E+03	3.64E-04	1.00E+00	6.37E+01	2.87E+02	1.02E+02	6.87E+01	2.55E+02	1.58E-10	7.13E-10	2.54E-10	1.70E-10	6.31E-10	
Yttrium (39)	Y-91	4.32E+00	1.60E-01	1.00E+00	1.40E+01	3.72E+01	2.11E+01	1.55E+01	5.62E+00	1.54E-08	4.11E-08	2.32E-08	1.71E-08	6.20E-09	
Yttrium (39)	Y-91m	7.33E+03	9.46E-05	1.00E+00	2.75E+02	1.33E+03	4.71E+02	3.04E+02	1.20E+03	1.79E-10	8.68E-10	3.07E-10	1.98E-10	7.82E-10	



Resident 2D External Exposure DCCs July 2023															
Radionuclides		Isotope-specific Information			Dose Compliance Concentrations (DCCs)										
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Soil Volume Area Correction Factor	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	
					DCC DL=1 (Bq/g)	@ 1cm DCC DL=1 (Bq/g)	@ 5cm DCC DL=1 (Bq/g)	@ 15cm DCC DL=1 (Bq/g)	Plane DCC DL=1 (Bq/cm <sup>2</sup> )	DCC DL=1 (mg/kg)	@ 1cm DCC DL=1 (mg/kg)	@ 5cm DCC DL=1 (mg/kg)	@ 15cm DCC DL=1 (mg/kg)	Plane DCC DL=1 (mg/cm <sup>2</sup> )	
Yttrium (39)	Y-92	1.71E+03	4.04E-04	1.00E+00	1.19E+02	5.78E+02	2.17E+02	1.39E+02	4.26E+02	3.36E-10	1.62E-09	6.11E-10	3.90E-10	1.20E-09	
Yttrium (39)	Y-93	5.96E+02	1.16E-03	1.00E+00	1.04E+02	4.72E+02	1.87E+02	1.21E+02	2.62E+02	8.48E-10	3.86E-09	1.53E-09	9.93E-10	2.14E-09	
Yttrium (39)	Y-94	1.95E+04	3.56E-05	1.00E+00	2.01E+10	1.04E+11	3.73E+10	2.35E+10	9.25E+10	5.09E-03	2.63E-02	9.45E-03	5.95E-03	2.34E-02	
Yttrium (39)	Y-95	3.54E+04	1.96E-05	1.00E+00	4.72E+02	2.41E+03	8.39E+02	5.34E+02	2.44E+03	6.64E-11	3.39E-10	1.18E-10	7.52E-11	3.44E-10	
Ytterbium (70)	Yb-162	1.93E+04	3.59E-05	1.00E+00	6.88E+07	3.81E+08	1.33E+08	8.27E+07	3.83E+08	3.03E-05	1.68E-04	5.87E-05	3.64E-05	1.69E-04	
Ytterbium (70)	Yb-163	3.30E+04	2.10E-05	1.00E+00	4.84E+02	2.54E+03	9.03E+02	5.72E+02	2.54E+03	1.26E-10	6.59E-10	2.34E-10	1.48E-10	6.59E-10	
Ytterbium (70)	Yb-164	4.81E+03	1.44E-04	1.00E+00	1.19E+02	5.85E+02	2.11E+02	1.36E+02	5.50E+02	2.12E-10	1.05E-09	3.78E-10	2.43E-10	9.85E-10	
Ytterbium (70)	Yb-165	3.68E+04	1.88E-05	1.00E+00	1.44E+03	6.48E+03	2.39E+03	1.59E+03	6.28E+03	3.39E-10	1.53E-09	5.62E-10	3.74E-10	1.48E-09	
Ytterbium (70)	Yb-166	1.07E+02	6.47E-03	1.00E+00	9.96E-01	5.43E+00	1.90E+00	1.19E+00	5.47E+00	8.10E-11	4.42E-10	1.55E-10	9.67E-11	4.45E-10	
Ytterbium (70)	Yb-167	2.08E+04	3.33E-05	1.00E+00	4.50E+03	1.63E+04	6.46E+03	4.66E+03	1.49E+04	1.89E-09	6.86E-09	2.72E-09	1.96E-09	6.27E-09	
Ytterbium (70)	Yb-169	7.90E+00	8.77E-02	1.00E+00	8.50E-01	2.82E+00	1.16E+00	8.74E-01	2.55E+00	9.54E-10	3.16E-09	1.30E-09	9.81E-10	2.86E-09	
Ytterbium (70)	Yb-175	6.04E+01	1.15E-02	1.00E+00	3.50E+01	1.55E+02	5.57E+01	3.75E+01	1.56E+02	5.31E-09	2.36E-08	8.46E-09	5.70E-09	2.37E-08	
Ytterbium (70)	Yb-177	3.18E+03	2.18E-04	1.00E+00	2.90E+02	1.39E+03	5.01E+02	3.29E+02	1.19E+03	8.46E-10	4.07E-09	1.46E-09	9.60E-10	3.47E-09	
Ytterbium (70)	Yb-178	4.92E+03	1.41E-04	1.00E+00	5.70E+02	2.83E+03	1.04E+03	6.61E+02	1.96E+03	1.08E-09	5.37E-09	1.96E-09	1.25E-09	3.72E-09	
Ytterbium (70)	Yb-179	4.55E+04	1.52E-05	1.00E+00	3.38E+04	1.32E+05	5.06E+04	3.53E+04	5.45E+04	6.96E-09	2.72E-08	1.04E-08	7.29E-09	1.12E-08	
Zinc (30)	Zn-60	1.53E+05	4.53E-06	1.00E+00	3.72E+08	2.09E+09	7.23E+08	4.48E+08	2.10E+09	7.65E-06	4.29E-05	1.49E-05	9.22E-06	4.32E-05	
Zinc (30)	Zn-61	2.45E+05	2.83E-06	1.00E+00	5.97E+03	2.90E+04	1.02E+04	6.59E+03	2.84E+04	7.79E-11	3.78E-10	1.33E-10	8.60E-11	3.71E-10	
Zinc (30)	Zn-62	6.61E+02	1.05E-03	1.00E+00	9.23E+00	4.39E+01	1.56E+01	1.02E+01	4.12E+01	4.54E-11	2.16E-10	7.70E-11	5.01E-11	2.03E-10	
Zinc (30)	Zn-63	9.47E+03	7.32E-05	1.00E+00	1.72E+02	8.34E+02	2.96E+02	1.91E+02	7.78E+02	6.00E-11	2.91E-10	1.03E-10	6.68E-11	2.71E-10	
Zinc (30)	Zn-65	1.04E+00	6.69E-01	1.00E+00	5.12E-02	2.79E-01	9.66E-02	6.02E-02	2.85E-01	1.68E-10	9.18E-10	3.18E-10	1.98E-10	9.37E-10	
Zinc (30)	Zn-69	6.46E+03	1.07E-04	1.00E+00	2.44E+05	4.73E+05	2.98E+05	2.48E+05	2.94E+04	1.37E-07	2.65E-07	1.67E-07	1.39E-07	1.65E-08	
Zinc (30)	Zn-69m	4.41E+02	1.57E-03	1.00E+00	2.19E+01	1.04E+02	3.65E+01	2.39E+01	1.00E+02	1.80E-10	8.50E-10	2.99E-10	1.96E-10	8.23E-10	
Zinc (30)	Zn-71	1.49E+05	4.66E-06	1.00E+00	2.85E+16	1.36E+17	4.95E+16	3.20E+16	1.07E+17	7.14E+02	3.41E+03	1.24E+03	8.02E+02	2.67E+03	
Zinc (30)	Zn-71m	1.53E+03	4.52E-04	1.00E+00	1.97E+01	9.64E+01	3.38E+01	2.19E+01	9.48E+01	4.79E-11	2.34E-10	8.22E-11	5.32E-11	2.30E-10	
Zinc (30)	Zn-72	1.31E+02	5.31E-03	1.00E+00	8.31E-01	4.68E+00	1.62E+00	1.00E+00	4.76E+00	2.40E-11	1.35E-10	4.69E-11	2.90E-11	1.38E-10	
Zirconium (40)	Zr-85	4.63E+04	1.50E-05	1.00E+00	4.95E+02	2.54E+03	8.87E+02	5.66E+02	2.51E+03	4.76E-11	2.45E-10	8.54E-11	5.45E-11	2.42E-10	
Zirconium (40)	Zr-86	3.68E+02	1.88E-03	1.00E+00	1.79E+00	9.64E+00	3.34E+00	2.10E+00	9.81E+00	2.20E-11	1.18E-10	4.10E-11	2.57E-11	1.20E-10	
Zirconium (40)	Zr-87	3.61E+03	1.92E-04	1.00E+00	3.73E+01	1.78E+02	6.27E+01	4.10E+01	1.74E+02	4.71E-11	2.25E-10	7.92E-11	5.18E-11	2.19E-10	
Zirconium (40)	Zr-88	3.03E+00	2.28E-01	1.00E+00	2.32E-02	1.31E-01	4.50E-02	2.78E-02	1.35E-01	3.53E-11	1.99E-10	6.85E-11	4.24E-11	2.05E-10	
Zirconium (40)	Zr-89	7.74E+01	8.95E-03	1.00E+00	1.29E+00	6.68E+00	2.33E+00	1.47E+00	6.70E+00	7.77E-11	4.03E-10	1.41E-10	8.89E-11	4.04E-10	
Zirconium (40)	Zr-89m	8.75E+04	7.92E-06	1.00E+00	1.55E+03	8.05E+03	2.81E+03	1.78E+03	8.08E+03	8.28E-11	4.29E-10	1.50E-10	9.47E-11	4.31E-10	
Zirconium (40)	Zr-93	4.53E-07	1.53E+06												
Zirconium (40)	Zr-95	3.95E+00	1.75E-01	1.00E+00	5.27E-02	2.69E-01	9.38E-02	5.97E-02	2.73E-01	6.64E-11	3.39E-10	1.18E-10	7.53E-11	3.44E-10	
Zirconium (40)	Zr-97	3.63E+02	1.91E-03	1.00E+00	4.54E+00	2.30E+01	8.03E+00	5.15E+00	2.16E+01	6.37E-11	3.22E-10	1.13E-10	7.22E-11	3.03E-10	

Resident Finfish DCCs July 2023					
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)	
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Finfish Consumption DCC DL=1 (Bq/g)	Finfish Consumption DCC DL=1 (mg/kg)
Actinium (89)	Ac-223	1.73E+05	4.00E-06	.	.
Actinium (89)	Ac-224	2.18E+03	3.17E-04	4.17E-03	2.24E-14
Actinium (89)	Ac-225	2.53E+01	2.74E-02	1.01E-02	4.69E-12
Actinium (89)	Ac-226	2.07E+02	3.35E-03	1.85E-04	1.06E-14
Actinium (89)	Ac-227	3.18E-02	2.18E+01	8.48E-04	3.17E-10
Actinium (89)	Ac-228	9.87E+02	7.02E-04	2.09E-03	2.53E-14
Actinium (89)	Ac-230	1.79E+05	3.87E-06	1.52E-04	1.02E-17
Actinium (89)	Ac-231	4.86E+04	1.43E-05	4.47E-04	1.12E-16
Actinium (89)	Ac-232	1.84E+05	3.77E-06	2.48E-04	1.64E-17
Actinium (89)	Ac-233	1.51E+05	4.60E-06	5.50E-04	4.46E-17
Silver (47)	Ag-100m	1.63E+05	4.26E-06	2.61E-01	8.41E-15
Silver (47)	Ag-101	3.28E+04	2.11E-05	1.10E+00	1.77E-13
Silver (47)	Ag-102	2.82E+04	2.45E-05	9.87E+00	1.87E-12
Silver (47)	Ag-102m	4.73E+04	1.46E-05	2.01E+01	2.28E-12
Silver (47)	Ag-103	5.54E+03	1.25E-04	1.67E+00	1.62E-12
Silver (47)	Ag-104	5.26E+03	1.32E-04	6.93E+00	7.19E-12
Silver (47)	Ag-104m	1.09E+04	6.37E-05	6.05E+00	3.03E-12
Silver (47)	Ag-105	6.13E+00	1.13E-01	8.95E-01	8.05E-10
Silver (47)	Ag-105m	5.04E+04	1.38E-05	8.98E-01	9.82E-14
Silver (47)	Ag-106	1.52E+04	4.56E-05	1.26E+01	4.60E-12
Silver (47)	Ag-106m	3.05E+01	2.27E-02	2.89E-01	5.26E-11
Silver (47)	Ag-108	1.54E+05	4.51E-06	.	.
Silver (47)	Ag-108m	1.66E-03	4.18E+02	1.79E-01	6.13E-07
Silver (47)	Ag-109m	5.52E+05	1.26E-06	.	.
Silver (47)	Ag-110	8.88E+05	7.80E-07	.	.
Silver (47)	Ag-110m	1.01E+00	6.84E-01	1.49E-01	8.49E-10
Silver (47)	Ag-111	3.40E+01	2.04E-02	3.06E-01	5.24E-11
Silver (47)	Ag-111m	3.37E+05	2.05E-06	3.08E-01	5.32E-15
Silver (47)	Ag-112	1.94E+03	3.57E-04	9.23E-01	2.80E-12
Silver (47)	Ag-113	1.13E+03	6.13E-04	1.97E-02	1.03E-13
Silver (47)	Ag-113m	3.18E+05	2.18E-06	1.99E-02	3.70E-16
Silver (47)	Ag-114	4.75E+06	1.46E-07	.	.
Silver (47)	Ag-115	1.82E+04	3.81E-05	1.47E-02	4.86E-15
Silver (47)	Ag-116	1.36E+05	5.10E-06	.	.
Silver (47)	Ag-117	2.97E+05	2.33E-06	1.00E+00	2.07E-14
Silver (47)	Ag-99	1.76E+05	3.93E-06	3.47E+00	1.02E-13
Aluminum (13)	Al-26	9.67E-07	7.17E+05	1.15E-01	1.63E-04
Aluminum (13)	Al-28	1.63E+05	4.26E-06	.	.
Aluminum (13)	Al-29	5.55E+04	1.25E-05	.	.
Americium (95)	Am-237	4.99E+03	1.39E-04	4.87E-04	1.21E-15

Resident Finfish DCCs July 2023					
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)	
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Finfish Consumption DCC DL=1 (Bq/g)	Finfish Consumption DCC DL=1 (mg/kg)
Americium (95)	Am-238	3.72E+03	1.86E-04	1.39E-04	4.68E-16
Americium (95)	Am-239	5.10E+02	1.36E-03	3.47E-04	8.52E-15
Americium (95)	Am-240	1.20E+02	5.80E-03	2.14E-04	2.25E-14
Americium (95)	Am-241	1.60E-03	4.32E+02	4.00E-04	3.15E-09
Americium (95)	Am-242	3.79E+02	1.83E-03	1.38E-04	4.63E-15
Americium (95)	Am-242m	4.91E-03	1.41E+02	1.31E-04	3.38E-10
Americium (95)	Am-243	9.40E-05	7.37E+03	3.00E-04	4.07E-08
Americium (95)	Am-244	6.01E+02	1.15E-03	2.02E-04	4.29E-15
Americium (95)	Am-244m	1.40E+04	4.95E-05	2.02E-04	1.84E-16
Americium (95)	Am-245	2.96E+03	2.34E-04	3.37E-04	1.46E-15
Americium (95)	Am-246	9.34E+03	7.42E-05	1.29E-04	1.78E-16
Americium (95)	Am-246m	1.46E+04	4.76E-05	1.29E-04	1.14E-16
Americium (95)	Am-247	1.58E+04	4.38E-05	2.66E-04	2.18E-16
Argon (18)	Ar-37	7.22E+00	9.60E-02	.	.
Argon (18)	Ar-39	2.58E-03	2.69E+02	.	.
Argon (18)	Ar-41	3.32E+03	2.09E-04	.	.
Argon (18)	Ar-42	2.11E-02	3.29E+01	8.98E-01	9.39E-08
Argon (18)	Ar-43	6.78E+04	1.02E-05	1.65E+00	5.50E-14
Argon (18)	Ar-44	3.07E+04	2.26E-05	4.77E+00	3.58E-13
Arsenic (33)	As-68	1.44E+05	4.81E-06	2.90E-01	7.17E-15
Arsenic (33)	As-69	2.39E+04	2.90E-05	1.59E+00	2.40E-13
Arsenic (33)	As-70	6.92E+03	1.00E-04	3.01E+00	1.59E-12
Arsenic (33)	As-71	9.30E+01	7.45E-03	8.79E-01	3.52E-11
Arsenic (33)	As-72	2.33E+02	2.97E-03	2.19E-01	3.54E-12
Arsenic (33)	As-73	3.15E+00	2.20E-01	1.51E+00	1.83E-09
Arsenic (33)	As-74	1.42E+01	4.87E-02	3.15E-01	8.59E-11
Arsenic (33)	As-76	2.35E+02	2.95E-03	2.51E-01	4.26E-12
Arsenic (33)	As-77	1.56E+02	4.43E-03	1.00E+00	2.59E-11
Arsenic (33)	As-78	4.02E+03	1.73E-04	2.03E+00	2.06E-12
Arsenic (33)	As-79	4.04E+04	1.71E-05	1.13E-01	1.16E-14
Astatine (85)	At-204	3.96E+04	1.75E-05	5.17E-01	1.40E-13
Astatine (85)	At-205	1.39E+04	4.98E-05	3.44E-01	2.66E-13
Astatine (85)	At-206	1.19E+04	5.82E-05	1.93E-02	1.75E-14
Astatine (85)	At-207	3.37E+03	2.05E-04	2.63E-01	8.45E-13
Astatine (85)	At-208	3.72E+03	1.86E-04	2.43E-04	7.11E-16
Astatine (85)	At-209	1.12E+03	6.18E-04	2.53E-04	2.47E-15
Astatine (85)	At-210	7.49E+02	9.25E-04	3.03E-04	4.45E-15
Astatine (85)	At-211	8.42E+02	8.24E-04	3.42E-02	4.49E-13
Astatine (85)	At-215	2.19E+11	3.17E-12	.	.
Astatine (85)	At-216	7.28E+10	9.51E-12	1.50E+00	2.34E-19

Resident Finfish DCCs July 2023					
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)	
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Finfish Consumption DCC DL=1 (Bq/g)	Finfish Consumption DCC DL=1 (mg/kg)
Astatine (85)	At-217	6.77E+08	1.02E-09	1.54E+00	2.60E-17
Astatine (85)	At-218	1.46E+07	4.76E-08	1.91E-04	1.50E-19
Astatine (85)	At-219	3.90E+05	1.78E-06	2.08E+00	6.13E-14
Astatine (85)	At-220	9.82E+04	7.06E-06	4.97E-02	5.84E-15
Gold (79)	Au-186	3.40E+04	2.04E-05	1.22E-02	3.49E-15
Gold (79)	Au-187	4.34E+04	1.60E-05	2.00E+00	4.53E-13
Gold (79)	Au-190	8.51E+03	8.14E-05	1.01E-02	1.18E-14
Gold (79)	Au-191	1.91E+03	3.63E-04	9.08E-01	4.76E-12
Gold (79)	Au-192	1.23E+03	5.64E-04	2.42E+00	1.98E-11
Gold (79)	Au-193	3.44E+02	2.01E-03	2.40E+00	7.07E-11
Gold (79)	Au-193m	5.60E+06	1.24E-07	2.40E+00	4.34E-15
Gold (79)	Au-194	1.60E+02	4.34E-03	1.03E+00	6.53E-11
Gold (79)	Au-195	1.36E+00	5.10E-01	1.49E+00	1.12E-08
Gold (79)	Au-195m	7.17E+05	9.67E-07	1.49E+00	2.13E-14
Gold (79)	Au-196	4.09E+01	1.69E-02	1.17E+00	2.93E-10
Gold (79)	Au-196m	6.32E+02	1.10E-03	5.39E-01	8.76E-12
Gold (79)	Au-198	9.39E+01	7.38E-03	3.81E-01	4.21E-11
Gold (79)	Au-198m	1.11E+02	6.22E-03	1.76E-01	1.64E-11
Gold (79)	Au-199	8.06E+01	8.60E-03	8.70E-01	1.13E-10
Gold (79)	Au-200	7.53E+03	9.21E-05	5.83E+00	8.12E-12
Gold (79)	Au-200m	3.25E+02	2.13E-03	3.96E-01	1.28E-11
Gold (79)	Au-201	1.40E+04	4.95E-05	1.62E+01	1.22E-11
Gold (79)	Au-202	7.59E+05	9.13E-07	.	.
Barium (56)	Ba-124	3.31E+04	2.09E-05	5.73E+00	1.13E-12
Barium (56)	Ba-126	3.64E+03	1.90E-04	1.57E+00	2.86E-12
Barium (56)	Ba-127	2.87E+04	2.42E-05	8.31E+00	1.93E-12
Barium (56)	Ba-128	1.04E+02	6.66E-03	1.49E-01	9.58E-12
Barium (56)	Ba-129	2.72E+03	2.55E-04	3.85E+00	9.56E-12
Barium (56)	Ba-129m	2.81E+03	2.47E-04	3.24E+00	7.81E-12
Barium (56)	Ba-131	2.20E+01	3.15E-02	7.78E-01	2.43E-10
Barium (56)	Ba-131m	2.49E+04	2.78E-05	7.70E-01	2.12E-13
Barium (56)	Ba-133	6.59E-02	1.05E+01	2.17E-01	2.30E-08
Barium (56)	Ba-133m	1.56E+02	4.44E-03	1.68E-01	7.49E-12
Barium (56)	Ba-135m	2.12E+02	3.28E-03	9.35E-01	3.13E-11
Barium (56)	Ba-137m	1.43E+05	4.86E-06	.	.
Barium (56)	Ba-139	4.39E+03	1.58E-04	3.23E+00	5.36E-12
Barium (56)	Ba-140	1.98E+01	3.49E-02	8.40E-02	3.11E-11
Barium (56)	Ba-141	1.99E+04	3.48E-05	3.34E-01	1.24E-13
Barium (56)	Ba-142	3.44E+04	2.02E-05	1.92E+00	4.16E-13
Beryllium (4)	Be-10	4.59E-07	1.51E+06	3.39E-01	3.88E-04



Resident Finfish DCCs July 2023					
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)	
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Finfish Consumption DCC DL=1 (Bq/g)	Finfish Consumption DCC DL=1 (mg/kg)
Beryllium (4)	Be-7	4.75E+00	1.46E-01	1.52E+01	1.17E-09
Bismuth (83)	Bi-197	3.92E+04	1.77E-05	1.34E+00	3.54E-13
Bismuth (83)	Bi-200	1.00E+04	6.93E-05	6.66E-01	6.98E-13
Bismuth (83)	Bi-201	3.37E+03	2.05E-04	1.12E+00	3.50E-12
Bismuth (83)	Bi-202	3.53E+03	1.96E-04	2.45E-02	7.36E-14
Bismuth (83)	Bi-203	5.16E+02	1.34E-03	5.67E-01	1.17E-11
Bismuth (83)	Bi-204	5.41E+02	1.28E-03	7.27E-01	1.44E-11
Bismuth (83)	Bi-205	1.65E+01	4.19E-02	3.52E-01	2.29E-10
Bismuth (83)	Bi-206	4.05E+01	1.71E-02	2.14E-01	5.71E-11
Bismuth (83)	Bi-207	2.11E-02	3.29E+01	3.21E-01	1.65E-07
Bismuth (83)	Bi-208	1.88E-06	3.68E+05	3.67E-01	2.13E-03
Bismuth (83)	Bi-210	5.05E+01	1.37E-02	3.02E-04	6.59E-14
Bismuth (83)	Bi-210m	2.28E-07	3.04E+06	2.63E-02	1.27E-03
Bismuth (83)	Bi-211	1.70E+05	4.07E-06	.	.
Bismuth (83)	Bi-212	6.02E+03	1.15E-04	1.50E+00	2.78E-12
Bismuth (83)	Bi-212n	5.20E+04	1.33E-05	.	.
Bismuth (83)	Bi-213	7.99E+03	8.67E-05	1.54E+00	2.16E-12
Bismuth (83)	Bi-214	1.83E+04	3.79E-05	1.91E-04	1.17E-16
Bismuth (83)	Bi-215	4.79E+04	1.45E-05	2.02E+00	4.75E-13
Bismuth (83)	Bi-216	1.68E+05	4.13E-06	4.97E-02	3.35E-15
Berkelium (97)	Bk-245	5.12E+01	1.35E-02	3.37E-04	8.45E-14
Berkelium (97)	Bk-246	1.41E+02	4.93E-03	1.29E-04	1.18E-14
Berkelium (97)	Bk-247	5.02E-04	1.38E+03	2.40E-04	6.19E-09
Berkelium (97)	Bk-248m	2.56E+02	2.71E-03	1.83E-04	9.28E-15
Berkelium (97)	Bk-249	7.67E-01	9.04E-01	2.62E-04	4.47E-12
Berkelium (97)	Bk-250	1.89E+03	3.67E-04	1.22E-04	8.48E-16
Berkelium (97)	Bk-251	6.55E+03	1.06E-04	2.17E-04	4.36E-16
Bromine (35)	Br-72	2.78E+05	2.49E-06	4.97E-02	6.75E-16
Bromine (35)	Br-73	1.07E+05	6.47E-06	8.97E-01	3.21E-14
Bromine (35)	Br-74	1.43E+04	4.83E-05	4.94E+00	1.34E-12
Bromine (35)	Br-74m	7.92E+03	8.75E-05	3.01E+00	1.47E-12
Bromine (35)	Br-75	3.77E+03	1.84E-04	1.53E-01	1.60E-13
Bromine (35)	Br-76	3.75E+02	1.85E-03	8.94E-01	9.51E-12
Bromine (35)	Br-76m	1.67E+07	4.15E-08	8.96E-01	2.14E-16
Bromine (35)	Br-77	1.06E+02	6.51E-03	4.41E+00	1.67E-10
Bromine (35)	Br-77m	8.51E+04	8.14E-06	4.41E+00	2.09E-13
Bromine (35)	Br-78	5.64E+04	1.23E-05	.	.
Bromine (35)	Br-80	2.06E+04	3.36E-05	1.27E+01	2.58E-12
Bromine (35)	Br-80m	1.37E+03	5.05E-04	2.69E+00	8.21E-12
Bromine (35)	Br-82	1.72E+02	4.03E-03	7.84E-01	1.96E-11

Resident Finfish DCCs July 2023					
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)	
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Finfish Consumption DCC DL=1 (Bq/g)	Finfish Consumption DCC DL=1 (mg/kg)
Bromine (35)	Br-82m	5.94E+04	1.17E-05	8.03E-01	5.81E-14
Bromine (35)	Br-83	2.53E+03	2.74E-04	8.85E+00	1.52E-11
Bromine (35)	Br-84	1.15E+04	6.05E-05	4.48E+00	1.72E-12
Bromine (35)	Br-84m	6.07E+04	1.14E-05	.	.
Bromine (35)	Br-85	1.26E+05	5.52E-06	.	.
Carbon (6)	C-10	1.14E+06	6.11E-07	.	.
Carbon (6)	C-11	1.79E+04	3.88E-05	1.71E+01	5.51E-13
Carbon (6)	C-14	1.22E-04	5.70E+03	8.36E-01	5.05E-06
Calcium (20)	Ca-41	6.79E-06	1.02E+05	1.79E+00	5.66E-04
Calcium (20)	Ca-45	1.55E+00	4.46E-01	5.09E-01	7.72E-10
Calcium (20)	Ca-47	5.58E+01	1.24E-02	1.89E-01	8.36E-12
Calcium (20)	Ca-49	4.18E+04	1.66E-05	4.81E+00	2.96E-13
Cadmium (48)	Cd-101	2.68E+05	2.59E-06	1.10E+00	2.17E-14
Cadmium (48)	Cd-102	6.62E+04	1.05E-05	1.91E+01	1.54E-12
Cadmium (48)	Cd-103	4.99E+04	1.39E-05	1.67E+00	1.80E-13
Cadmium (48)	Cd-104	6.31E+03	1.10E-04	2.39E+00	2.06E-12
Cadmium (48)	Cd-105	6.56E+03	1.06E-04	8.22E-01	6.89E-13
Cadmium (48)	Cd-107	9.34E+02	7.42E-04	6.16E+00	3.70E-11
Cadmium (48)	Cd-109	5.48E-01	1.26E+00	2.10E-01	2.19E-09
Cadmium (48)	Cd-111m	7.51E+03	9.23E-05	2.92E+01	2.27E-11
Cadmium (48)	Cd-113	9.00E-17	7.70E+15	2.01E-02	1.32E+06
Cadmium (48)	Cd-113m	4.91E-02	1.41E+01	2.06E-02	2.48E-09
Cadmium (48)	Cd-115	1.14E+02	6.10E-03	1.48E-02	7.86E-13
Cadmium (48)	Cd-115m	5.67E+00	1.22E-01	1.33E-02	1.41E-11
Cadmium (48)	Cd-117	2.44E+03	2.84E-04	9.63E-01	2.42E-12
Cadmium (48)	Cd-117m	1.81E+03	3.84E-04	1.27E+00	4.32E-12
Cadmium (48)	Cd-118	7.24E+03	9.57E-05	2.12E+00	1.81E-12
Cadmium (48)	Cd-119	1.35E+05	5.12E-06	9.36E+00	4.31E-13
Cadmium (48)	Cd-119m	1.66E+05	4.19E-06	1.12E+02	4.21E-12
Cerium (58)	Ce-130	1.59E+04	4.36E-05	5.65E+00	2.42E-12
Cerium (58)	Ce-131	3.57E+04	1.94E-05	6.96E-01	1.34E-13
Cerium (58)	Ce-132	1.73E+03	4.01E-04	5.38E-01	2.15E-12
Cerium (58)	Ce-133	3.76E+03	1.85E-04	2.03E-01	3.78E-13
Cerium (58)	Ce-133m	1.24E+03	5.59E-04	1.92E-01	1.08E-12
Cerium (58)	Ce-134	8.00E+01	8.66E-03	1.46E-01	1.28E-11
Cerium (58)	Ce-135	3.43E+02	2.02E-03	1.41E+00	2.90E-11
Cerium (58)	Ce-137	6.75E+02	1.03E-03	3.61E+00	3.84E-11
Cerium (58)	Ce-137m	1.76E+02	3.93E-03	5.84E-01	2.38E-11
Cerium (58)	Ce-139	1.84E+00	3.77E-01	1.51E+00	6.00E-09
Cerium (58)	Ce-141	7.78E+00	8.91E-02	5.41E-01	5.14E-10

Resident Finfish DCCs July 2023					
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)	
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Finfish Consumption DCC DL=1 (Bq/g)	Finfish Consumption DCC DL=1 (mg/kg)
Cerium (58)	Ce-143	1.84E+02	3.77E-03	1.67E-01	6.83E-12
Cerium (58)	Ce-144	8.88E-01	7.81E-01	8.80E-03	7.49E-11
Cerium (58)	Ce-145	1.21E+05	5.73E-06	9.73E-01	6.11E-14
Californium (98)	Cf-244	1.88E+04	3.69E-05	6.82E-04	4.65E-16
Californium (98)	Cf-246	1.70E+02	4.08E-03	1.38E-04	1.05E-14
Californium (98)	Cf-247	1.95E+03	3.55E-04	2.40E-04	1.59E-15
Californium (98)	Cf-248	7.57E-01	9.15E-01	1.98E-04	3.40E-12
Californium (98)	Cf-249	1.97E-03	3.51E+02	2.62E-04	1.73E-09
Californium (98)	Cf-250	5.30E-02	1.31E+01	1.22E-04	3.03E-11
Californium (98)	Cf-251	7.70E-04	9.00E+02	2.17E-04	3.71E-09
Californium (98)	Cf-252	2.62E-01	2.65E+00	1.53E-04	7.71E-12
Californium (98)	Cf-253	1.42E+01	4.88E-02	2.61E-04	2.43E-13
Californium (98)	Cf-254	4.18E+00	1.66E-01	8.47E-04	2.70E-12
Californium (98)	Cf-255	4.29E+03	1.62E-04	2.16E-04	6.73E-16
Chlorine (17)	Cl-34	1.43E+07	4.84E-08	.	.
Chlorine (17)	Cl-34m	1.14E+04	6.09E-05	3.86E+00	6.05E-13
Chlorine (17)	Cl-36	2.30E-06	3.01E+05	4.27E-01	3.50E-04
Chlorine (17)	Cl-38	9.78E+03	7.09E-05	3.39E+00	6.91E-13
Chlorine (17)	Cl-39	6.55E+03	1.06E-04	4.68E+00	1.46E-12
Chlorine (17)	Cl-40	2.70E+05	2.57E-06	.	.
Curium (96)	Cm-238	2.53E+03	2.74E-04	1.40E-04	6.89E-16
Curium (96)	Cm-239	2.09E+03	3.31E-04	3.47E-04	2.08E-15
Curium (96)	Cm-240	9.37E+00	7.40E-02	6.82E-04	9.17E-13
Curium (96)	Cm-241	7.71E+00	8.99E-02	4.00E-04	6.55E-13
Curium (96)	Cm-242	1.55E+00	4.46E-01	1.39E-04	1.13E-12
Curium (96)	Cm-243	2.38E-02	2.91E+01	3.10E-04	1.66E-10
Curium (96)	Cm-244	3.83E-02	1.81E+01	2.02E-04	6.74E-11
Curium (96)	Cm-245	8.15E-05	8.50E+03	3.37E-04	5.31E-08
Curium (96)	Cm-246	1.46E-04	4.76E+03	1.29E-04	1.14E-08
Curium (96)	Cm-247	4.44E-08	1.56E+07	2.66E-04	7.77E-05
Curium (96)	Cm-248	1.99E-06	3.48E+05	1.55E-04	1.01E-06
Curium (96)	Cm-249	5.68E+03	1.22E-04	2.62E-04	6.03E-16
Curium (96)	Cm-250	8.35E-05	8.30E+03	7.28E-05	1.14E-08
Curium (96)	Cm-251	2.17E+04	3.20E-05	2.17E-04	1.32E-16
Cobalt (27)	Co-54m	2.46E+05	2.82E-06	.	.
Cobalt (27)	Co-55	3.46E+02	2.00E-03	2.91E-01	2.42E-12
Cobalt (27)	Co-56	3.28E+00	2.12E-01	1.54E-01	1.38E-10
Cobalt (27)	Co-57	9.31E-01	7.44E-01	1.69E+00	5.43E-09
Cobalt (27)	Co-58	3.57E+00	1.94E-01	5.24E-01	4.46E-10
Cobalt (27)	Co-58m	6.72E+02	1.03E-03	5.08E-01	2.30E-12

Resident Finfish DCCs July 2023					
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)	
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Finfish Consumption DCC DL=1 (Bq/g)	Finfish Consumption DCC DL=1 (mg/kg)
Cobalt (27)	Co-60	1.31E-01	5.27E+00	9.64E-02	2.31E-09
Cobalt (27)	Co-60m	3.48E+04	1.99E-05	9.66E-02	8.73E-15
Cobalt (27)	Co-61	3.68E+03	1.88E-04	5.29E+00	4.60E-12
Cobalt (27)	Co-62	2.43E+05	2.85E-06	.	.
Cobalt (27)	Co-62m	2.62E+04	2.65E-05	8.17E+00	1.01E-12
Chromium (24)	Cr-48	2.82E+02	2.46E-03	1.90E-01	1.70E-12
Chromium (24)	Cr-49	8.61E+03	8.05E-05	4.96E+00	1.48E-12
Chromium (24)	Cr-51	9.13E+00	7.59E-02	1.05E+01	3.08E-09
Chromium (24)	Cr-55	1.04E+05	6.65E-06	.	.
Chromium (24)	Cr-56	6.13E+04	1.13E-05	1.55E+00	7.43E-14
Cesium (55)	Cs-121	1.41E+05	4.92E-06	7.86E-01	3.54E-14
Cesium (55)	Cs-121m	1.79E+05	3.87E-06	7.86E-01	2.78E-14
Cesium (55)	Cs-123	6.19E+04	1.12E-05	2.92E-01	3.04E-14
Cesium (55)	Cs-124	7.10E+05	9.77E-07	.	.
Cesium (55)	Cs-125	8.09E+03	8.56E-05	2.79E-02	2.26E-14
Cesium (55)	Cs-126	2.22E+05	3.12E-06	.	.
Cesium (55)	Cs-127	9.71E+02	7.13E-04	1.71E+01	1.17E-10
Cesium (55)	Cs-128	1.00E+05	6.93E-06	.	.
Cesium (55)	Cs-129	1.89E+02	3.66E-03	7.05E+00	2.52E-10
Cesium (55)	Cs-130	1.25E+04	5.56E-05	1.49E+01	8.13E-12
Cesium (55)	Cs-130m	1.05E+05	6.58E-06	1.49E+01	9.64E-13
Cesium (55)	Cs-131	2.61E+01	2.65E-02	7.33E+00	1.93E-09
Cesium (55)	Cs-132	3.90E+01	1.78E-02	8.82E-01	1.56E-10
Cesium (55)	Cs-134	3.36E-01	2.06E+00	2.83E-02	5.92E-10
Cesium (55)	Cs-134m	2.09E+03	3.31E-04	2.83E-02	9.49E-14
Cesium (55)	Cs-135	3.01E-07	2.30E+06	2.00E-01	4.71E-03
Cesium (55)	Cs-135m	6.87E+03	1.01E-04	1.99E-01	2.05E-13
Cesium (55)	Cs-136	1.92E+01	3.61E-02	1.53E-01	5.69E-11
Cesium (55)	Cs-137	2.30E-02	3.02E+01	3.98E-02	1.24E-08
Cesium (55)	Cs-138	1.09E+04	6.36E-05	4.13E+00	2.74E-12
Cesium (55)	Cs-138m	1.25E+05	5.54E-06	5.10E+00	2.95E-13
Cesium (55)	Cs-139	3.93E+04	1.76E-05	3.23E+00	5.99E-13
Cesium (55)	Cs-140	3.43E+05	2.02E-06	8.40E-02	1.80E-15
Copper (29)	Cu-57	1.11E+08	6.22E-09	3.57E-01	9.58E-18
Copper (29)	Cu-59	2.68E+05	2.58E-06	6.65E+00	7.67E-14
Copper (29)	Cu-60	1.54E+04	4.51E-05	5.67E+00	1.16E-12
Copper (29)	Cu-61	1.82E+03	3.80E-04	3.55E+00	6.24E-12
Copper (29)	Cu-62	3.77E+04	1.84E-05	.	.
Copper (29)	Cu-64	4.78E+02	1.45E-03	3.33E+00	2.34E-11
Copper (29)	Cu-66	7.11E+04	9.74E-06	.	.



Resident Finfish DCCs July 2023					
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)	
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Finfish Consumption DCC DL=1 (Bq/g)	Finfish Consumption DCC DL=1 (mg/kg)
Copper (29)	Cu-67	9.82E+01	7.06E-03	1.22E+00	4.35E-11
Copper (29)	Cu-69	1.28E+05	5.42E-06	1.28E+01	3.62E-13
Dysprosium (66)	Dy-148	1.10E+05	6.28E-06	7.34E-03	5.16E-16
Dysprosium (66)	Dy-149	8.67E+04	7.99E-06	4.82E-01	4.34E-14
Dysprosium (66)	Dy-150	5.08E+04	1.36E-05	4.61E-03	7.14E-16
Dysprosium (66)	Dy-151	2.03E+04	3.41E-05	1.20E-01	4.67E-14
Dysprosium (66)	Dy-152	2.55E+03	2.72E-04	3.27E-03	1.02E-14
Dysprosium (66)	Dy-153	9.49E+02	7.31E-04	5.38E-01	4.55E-12
Dysprosium (66)	Dy-154	2.31E-07	3.00E+06	2.51E-03	8.78E-05
Dysprosium (66)	Dy-155	6.13E+02	1.13E-03	9.89E-01	1.31E-11
Dysprosium (66)	Dy-157	7.46E+02	9.29E-04	4.06E+00	4.48E-11
Dysprosium (66)	Dy-159	1.75E+00	3.96E-01	3.75E+00	1.79E-08
Dysprosium (66)	Dy-165	2.60E+03	2.66E-04	3.55E+00	1.18E-11
Dysprosium (66)	Dy-165m	2.90E+05	2.39E-06	3.63E+00	1.08E-13
Dysprosium (66)	Dy-166	7.44E+01	9.32E-03	1.25E-01	1.47E-11
Dysprosium (66)	Dy-167	5.87E+04	1.18E-05	4.52E+00	6.74E-13
Dysprosium (66)	Dy-168	4.19E+04	1.66E-05	.	.
Erbium (68)	Er-154	9.77E+04	7.10E-06	2.52E-03	2.08E-16
Erbium (68)	Er-156	1.87E+04	3.71E-05	3.07E+00	1.35E-12
Erbium (68)	Er-159	1.01E+04	6.85E-05	2.92E+00	2.41E-12
Erbium (68)	Er-161	1.89E+03	3.66E-04	4.23E+00	1.89E-11
Erbium (68)	Er-163	4.86E+03	1.43E-04	7.16E+01	1.26E-10
Erbium (68)	Er-165	5.86E+02	1.18E-03	2.06E+01	3.04E-10
Erbium (68)	Er-167m	9.63E+06	7.19E-08	.	.
Erbium (68)	Er-169	2.69E+01	2.58E-02	1.03E+00	3.38E-10
Erbium (68)	Er-171	8.08E+02	8.58E-04	8.36E-01	9.28E-12
Erbium (68)	Er-172	1.23E+02	5.63E-03	1.42E-01	1.04E-11
Erbium (68)	Er-173	2.54E+05	2.73E-06	1.30E+00	4.64E-14
Einsteinium (99)	Es-249	3.56E+03	1.94E-04	2.63E-04	9.62E-16
Einsteinium (99)	Es-250	7.06E+02	9.82E-04	1.24E-04	2.31E-15
Einsteinium (99)	Es-250m	2.73E+03	2.53E-04	1.22E-04	5.86E-16
Einsteinium (99)	Es-251	1.84E+02	3.77E-03	2.17E-04	1.55E-14
Einsteinium (99)	Es-253	1.24E+01	5.61E-02	2.61E-04	2.80E-13
Einsteinium (99)	Es-254	9.17E-01	7.55E-01	1.21E-04	1.76E-12
Einsteinium (99)	Es-254m	1.54E+02	4.49E-03	1.24E-04	1.07E-14
Einsteinium (99)	Es-255	6.36E+00	1.09E-01	2.16E-04	4.54E-13
Einsteinium (99)	Es-256	1.43E+04	4.83E-05	1.71E-03	1.60E-15
Europium (63)	Eu-142	9.34E+06	7.42E-08	2.18E+00	1.74E-15
Europium (63)	Eu-142m	2.98E+05	2.33E-06	2.18E+00	5.44E-14
Europium (63)	Eu-143	1.41E+05	4.93E-06	1.76E+00	9.40E-14

Resident Finfish DCCs July 2023					
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)	
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Finfish Consumption DCC DL=1 (Bq/g)	Finfish Consumption DCC DL=1 (mg/kg)
Europium (63)	Eu-144	2.14E+06	3.23E-07	.	.
Europium (63)	Eu-145	4.27E+01	1.62E-02	4.17E-01	7.43E-11
Europium (63)	Eu-146	5.49E+01	1.26E-02	7.39E-03	1.03E-12
Europium (63)	Eu-147	1.05E+01	6.60E-02	8.19E-03	6.02E-12
Europium (63)	Eu-148	4.64E+00	1.49E-01	4.84E-03	8.09E-12
Europium (63)	Eu-149	2.72E+00	2.55E-01	2.46E+00	7.08E-09
Europium (63)	Eu-150	1.88E-02	3.69E+01	3.37E-01	1.41E-07
Europium (63)	Eu-150m	4.74E+02	1.46E-03	4.29E-03	7.12E-14
Europium (63)	Eu-152	5.12E-02	1.35E+01	1.13E-02	1.77E-09
Europium (63)	Eu-152m	6.52E+02	1.06E-03	4.54E-03	5.55E-14
Europium (63)	Eu-152n	3.79E+03	1.83E-04	1.13E-02	2.38E-14
Europium (63)	Eu-154	8.06E-02	8.59E+00	2.03E-01	2.03E-08
Europium (63)	Eu-154m	7.92E+03	8.75E-05	2.02E-01	2.06E-13
Europium (63)	Eu-155	1.46E-01	4.76E+00	1.17E+00	6.54E-08
Europium (63)	Eu-156	1.67E+01	4.16E-02	1.72E-01	8.47E-11
Europium (63)	Eu-157	4.00E+02	1.73E-03	6.32E-01	1.30E-11
Europium (63)	Eu-158	7.94E+03	8.73E-05	4.37E+00	4.57E-12
Europium (63)	Eu-159	2.01E+04	3.44E-05	6.96E-01	2.88E-13
Fluorine (9)	F-17	3.39E+05	2.04E-06	.	.
Fluorine (9)	F-18	3.32E+03	2.09E-04	8.48E+00	2.41E-12
Iron (26)	Fe-52	7.34E+02	9.45E-04	2.70E-01	1.00E-12
Iron (26)	Fe-53	4.28E+04	1.62E-05	1.28E+01	8.30E-13
Iron (26)	Fe-53m	1.44E+05	4.81E-06	1.28E+01	2.46E-13
Iron (26)	Fe-55	2.53E-01	2.74E+00	9.60E-01	1.09E-08
Iron (26)	Fe-59	5.68E+00	1.22E-01	1.93E-01	1.05E-10
Iron (26)	Fe-60	4.62E-07	1.50E+06	3.45E-03	2.35E-05
Iron (26)	Fe-61	6.09E+04	1.14E-05	5.29E+00	2.78E-13
Iron (26)	Fe-62	3.21E+05	2.16E-06	.	.
Fermium (100)	Fm-251	1.15E+03	6.05E-04	2.17E-04	2.50E-15
Fermium (100)	Fm-252	2.39E+02	2.90E-03	1.98E-04	1.09E-14
Fermium (100)	Fm-253	8.43E+01	8.22E-03	2.61E-04	4.10E-14
Fermium (100)	Fm-254	1.87E+03	3.70E-04	1.22E-04	8.70E-16
Fermium (100)	Fm-255	3.02E+02	2.29E-03	2.16E-04	9.57E-15
Fermium (100)	Fm-256	2.31E+03	3.00E-04	1.73E-03	1.01E-14
Fermium (100)	Fm-257	2.52E+00	2.75E-01	2.57E-04	1.38E-12
Francium (87)	Fr-212	1.82E+04	3.81E-05	2.42E-04	1.48E-16
Francium (87)	Fr-219	1.09E+09	6.34E-10	.	.
Francium (87)	Fr-220	7.98E+05	8.69E-07	1.51E+00	2.18E-14
Francium (87)	Fr-221	7.43E+04	9.32E-06	1.54E+00	2.41E-13
Francium (87)	Fr-222	2.57E+04	2.70E-05	1.91E-04	8.66E-17

Resident Finfish DCCs July 2023					
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)	
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Finfish Consumption DCC DL=1 (Bq/g)	Finfish Consumption DCC DL=1 (mg/kg)
Francium (87)	Fr-223	1.66E+04	4.19E-05	2.40E-03	1.70E-15
Francium (87)	Fr-224	1.09E+05	6.34E-06	3.87E-03	4.16E-16
Francium (87)	Fr-227	1.47E+05	4.70E-06	8.48E-04	6.85E-17
Gallium (31)	Ga-64	1.39E+05	5.00E-06	.	.
Gallium (31)	Ga-65	2.40E+04	2.89E-05	1.10E-01	1.56E-14
Gallium (31)	Ga-66	6.40E+02	1.08E-03	3.33E-01	1.80E-12
Gallium (31)	Ga-67	7.76E+01	8.93E-03	2.04E+00	9.22E-11
Gallium (31)	Ga-68	5.38E+03	1.29E-04	3.89E+00	2.58E-12
Gallium (31)	Ga-70	1.72E+04	4.02E-05	1.25E+01	2.67E-12
Gallium (31)	Ga-72	4.31E+02	1.61E-03	3.60E-01	3.16E-12
Gallium (31)	Ga-73	1.25E+03	5.55E-04	1.47E+00	4.52E-12
Gallium (31)	Ga-74	4.49E+04	1.54E-05	.	.
Gadolinium (64)	Gd-142	3.11E+05	2.23E-06	2.18E+00	5.21E-14
Gadolinium (64)	Gd-143m	1.99E+05	3.49E-06	1.76E+00	6.66E-14
Gadolinium (64)	Gd-144	8.15E+04	8.50E-06	.	.
Gadolinium (64)	Gd-145	1.58E+04	4.38E-05	4.03E-01	1.93E-13
Gadolinium (64)	Gd-145m	2.57E+05	2.70E-06	4.03E-01	1.19E-14
Gadolinium (64)	Gd-146	5.24E+00	1.32E-01	7.26E-03	1.06E-11
Gadolinium (64)	Gd-147	1.59E+02	4.35E-03	8.09E-03	3.92E-13
Gadolinium (64)	Gd-148	9.29E-03	7.46E+01	7.36E-03	6.15E-09
Gadolinium (64)	Gd-149	2.73E+01	2.54E-02	5.69E-01	1.63E-10
Gadolinium (64)	Gd-150	3.87E-07	1.79E+06	3.84E-03	7.80E-05
Gadolinium (64)	Gd-151	2.04E+00	3.40E-01	1.72E+00	6.69E-09
Gadolinium (64)	Gd-152	6.42E-15	1.08E+14	3.29E-03	4.08E+03
Gadolinium (64)	Gd-153	1.05E+00	6.59E-01	1.41E+00	1.08E-08
Gadolinium (64)	Gd-159	3.29E+02	2.11E-03	7.61E-01	1.93E-11
Gadolinium (64)	Gd-162	4.34E+04	1.60E-05	.	.
Germanium (32)	Ge-66	2.69E+03	2.58E-04	3.08E-01	3.97E-13
Germanium (32)	Ge-67	1.93E+04	3.60E-05	1.56E+00	2.84E-13
Germanium (32)	Ge-68	9.34E-01	7.42E-01	2.90E-01	1.11E-09
Germanium (32)	Ge-69	1.55E+02	4.46E-03	2.03E+00	4.72E-11
Germanium (32)	Ge-71	2.21E+01	3.13E-02	3.35E+01	5.63E-09
Germanium (32)	Ge-75	4.40E+03	1.57E-04	8.55E+00	7.64E-12
Germanium (32)	Ge-77	5.37E+02	1.29E-03	5.58E-01	4.20E-12
Germanium (32)	Ge-78	4.14E+03	1.67E-04	1.30E+00	1.28E-12
Hydrogen (1)	H-3	5.63E-02	1.23E+01	1.16E+01	3.23E-08
Hafnium (72)	Hf-167	1.78E+05	3.90E-06	6.14E-01	3.03E-14
Hafnium (72)	Hf-169	1.12E+05	6.16E-06	2.98E-01	2.35E-14
Hafnium (72)	Hf-170	3.79E+02	1.83E-03	3.02E-01	7.11E-12
Hafnium (72)	Hf-172	3.71E-01	1.87E+00	1.68E-01	4.09E-09

Resident Finfish DCCs July 2023					
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)	
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Finfish Consumption DCC DL=1 (Bq/g)	Finfish Consumption DCC DL=1 (mg/kg)
Hafnium (72)	Hf-173	2.57E+02	2.69E-03	6.81E-01	2.40E-11
Hafnium (72)	Hf-174	3.47E-16	2.00E+15	1.68E-03	4.42E+04
Hafnium (72)	Hf-175	3.61E+00	1.92E-01	1.00E+00	2.55E-09
Hafnium (72)	Hf-177m	7.09E+03	9.78E-05	4.90E+00	6.42E-12
Hafnium (72)	Hf-178m	2.24E-02	3.10E+01	1.06E-01	4.45E-08
Hafnium (72)	Hf-179m	1.01E+01	6.86E-02	3.15E-01	2.93E-10
Hafnium (72)	Hf-180m	1.10E+03	6.28E-04	2.39E+00	2.05E-11
Hafnium (72)	Hf-181	5.97E+00	1.16E-01	3.53E-01	5.61E-10
Hafnium (72)	Hf-182	7.70E-08	9.00E+06	9.76E-02	1.21E-02
Hafnium (72)	Hf-182m	5.92E+03	1.17E-04	1.52E-01	2.44E-13
Hafnium (72)	Hf-183	5.69E+03	1.22E-04	2.73E-01	4.60E-13
Hafnium (72)	Hf-184	1.47E+03	4.70E-04	3.30E-01	2.16E-12
Mercury (80)	Hg-190	1.82E+04	3.81E-05	1.01E-02	5.53E-15
Mercury (80)	Hg-191m	7.17E+03	9.67E-05	8.12E-01	1.13E-12
Mercury (80)	Hg-192	1.25E+03	5.54E-04	1.04E+00	8.35E-12
Mercury (80)	Hg-193	1.60E+03	4.34E-04	1.47E+00	9.33E-12
Mercury (80)	Hg-193m	5.14E+02	1.35E-03	6.68E-01	1.31E-11
Mercury (80)	Hg-194	1.58E-03	4.40E+02	2.55E-01	1.65E-06
Mercury (80)	Hg-195	5.77E+02	1.20E-03	1.08E+00	1.91E-11
Mercury (80)	Hg-195m	1.46E+02	4.75E-03	4.50E-01	3.15E-11
Mercury (80)	Hg-197	9.35E+01	7.41E-03	1.56E+00	1.72E-10
Mercury (80)	Hg-197m	2.55E+02	2.72E-03	5.47E-01	2.21E-11
Mercury (80)	Hg-199m	8.54E+03	8.12E-05	1.29E+01	1.57E-11
Mercury (80)	Hg-203	5.43E+00	1.28E-01	7.32E-01	1.44E-09
Mercury (80)	Hg-205	7.00E+04	9.89E-06	.	.
Mercury (80)	Hg-206	4.47E+04	1.55E-05	.	.
Mercury (80)	Hg-207	1.26E+05	5.52E-06	.	.
Holmium (67)	Ho-150	2.85E+05	2.44E-06	4.61E-03	1.28E-16
Holmium (67)	Ho-153	1.81E+05	3.82E-06	5.38E-01	2.38E-14
Holmium (67)	Ho-153m	3.92E+04	1.77E-05	5.37E-01	1.10E-13
Holmium (67)	Ho-154	3.10E+04	2.24E-05	2.51E-03	6.55E-16
Holmium (67)	Ho-154m	1.17E+05	5.90E-06	2.51E-03	1.73E-16
Holmium (67)	Ho-155	7.59E+03	9.13E-05	9.02E-01	9.67E-13
Holmium (67)	Ho-156	6.50E+03	1.07E-04	4.17E+00	5.24E-12
Holmium (67)	Ho-157	2.89E+04	2.40E-05	3.79E+00	1.08E-12
Holmium (67)	Ho-159	1.10E+04	6.29E-05	3.48E+00	2.64E-12
Holmium (67)	Ho-160	1.42E+04	4.87E-05	2.48E+01	1.46E-11
Holmium (67)	Ho-161	2.45E+03	2.83E-04	3.09E+01	1.07E-10
Holmium (67)	Ho-162	2.43E+04	2.85E-05	1.25E+02	4.37E-11
Holmium (67)	Ho-162m	5.44E+03	1.27E-04	1.50E+01	2.34E-11



Resident Finfish DCCs July 2023					
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)	
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Finfish Consumption DCC DL=1 (Bq/g)	Finfish Consumption DCC DL=1 (mg/kg)
Holmium (67)	Ho-163	1.52E-04	4.57E+03	1.32E+02	7.46E-03
Holmium (67)	Ho-164	1.26E+04	5.52E-05	4.17E+01	2.85E-11
Holmium (67)	Ho-164m	9.59E+03	7.23E-05	1.51E+01	1.36E-11
Holmium (67)	Ho-166	2.27E+02	3.06E-03	2.74E-01	1.05E-11
Holmium (67)	Ho-166m	5.78E-04	1.20E+03	2.07E-01	3.13E-06
Holmium (67)	Ho-167	1.96E+03	3.54E-04	4.52E+00	2.02E-11
Holmium (67)	Ho-168	1.22E+05	5.69E-06	.	.
Holmium (67)	Ho-168m	1.66E+05	4.19E-06	.	.
Holmium (67)	Ho-170	1.32E+05	5.25E-06	.	.
Iodine (53)	I-118	2.66E+04	2.61E-05	1.20E-01	2.80E-14
Iodine (53)	I-118m	4.29E+04	1.62E-05	1.28E-01	1.85E-14
Iodine (53)	I-119	1.91E+04	3.63E-05	1.32E+00	4.33E-13
Iodine (53)	I-120	4.46E+03	1.55E-04	1.29E+00	1.82E-12
Iodine (53)	I-120m	6.87E+03	1.01E-04	2.52E+00	2.31E-12
Iodine (53)	I-121	2.86E+03	2.42E-04	7.86E-01	1.74E-12
Iodine (53)	I-122	1.00E+05	6.91E-06	.	.
Iodine (53)	I-123	4.57E+02	1.51E-03	2.92E-01	4.11E-12
Iodine (53)	I-124	6.06E+01	1.14E-02	2.78E-02	2.99E-12
Iodine (53)	I-125	4.26E+00	1.63E-01	2.80E-02	4.31E-11
Iodine (53)	I-126	1.96E+01	3.54E-02	1.29E-02	4.37E-12
Iodine (53)	I-128	1.46E+04	4.75E-05	8.49E+00	3.91E-12
Iodine (53)	I-129	4.41E-08	1.57E+07	4.37E-03	6.70E-04
Iodine (53)	I-130	4.91E+02	1.41E-03	1.92E-01	2.66E-12
Iodine (53)	I-130m	4.12E+04	1.68E-05	2.28E-01	3.78E-14
Iodine (53)	I-131	3.15E+01	2.20E-02	1.69E-02	3.68E-12
Iodine (53)	I-132	2.65E+03	2.62E-04	1.31E+00	3.42E-12
Iodine (53)	I-132m	4.38E+03	1.58E-04	8.30E-01	1.31E-12
Iodine (53)	I-133	2.92E+02	2.37E-03	8.02E-02	1.92E-12
Iodine (53)	I-134	6.94E+03	9.99E-05	3.86E+00	3.91E-12
Iodine (53)	I-134m	1.01E+05	6.85E-06	3.95E+00	2.75E-13
Iodine (53)	I-135	9.24E+02	7.50E-04	1.34E-01	1.03E-12
Indium (49)	In-103	3.64E+05	1.90E-06	1.67E+00	2.47E-14
Indium (49)	In-105	7.18E+04	9.65E-06	8.22E-01	6.30E-14
Indium (49)	In-106	5.87E+04	1.18E-05	.	.
Indium (49)	In-106m	7.00E+04	9.89E-06	.	.
Indium (49)	In-107	1.12E+04	6.16E-05	3.81E+00	1.90E-12
Indium (49)	In-108	6.28E+03	1.10E-04	5.44E+00	4.91E-12
Indium (49)	In-108m	9.20E+03	7.53E-05	4.99E+00	3.07E-12
Indium (49)	In-109	1.45E+03	4.79E-04	2.04E-01	8.06E-13
Indium (49)	In-109m	2.72E+05	2.55E-06	2.04E-01	4.29E-15

Resident Finfish DCCs July 2023					
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)	
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Finfish Consumption DCC DL=1 (Bq/g)	Finfish Consumption DCC DL=1 (mg/kg)
Indium (49)	In-110	1.24E+03	5.59E-04	1.75E+00	8.13E-12
Indium (49)	In-110m	5.27E+03	1.31E-04	3.95E+00	4.32E-12
Indium (49)	In-111	9.02E+01	7.68E-03	1.40E+00	9.01E-11
Indium (49)	In-111m	4.73E+04	1.46E-05	1.40E+00	1.72E-13
Indium (49)	In-112	2.43E+04	2.85E-05	3.78E+01	9.12E-12
Indium (49)	In-112m	1.77E+04	3.91E-05	1.44E+01	4.77E-12
Indium (49)	In-113m	3.66E+03	1.89E-04	1.35E+01	2.18E-11
Indium (49)	In-114	3.04E+05	2.28E-06	.	.
Indium (49)	In-114m	5.11E+00	1.36E-01	9.11E-02	1.07E-10
Indium (49)	In-115	1.57E-15	4.41E+14	1.49E-02	5.72E+04
Indium (49)	In-115m	1.35E+03	5.12E-04	1.56E-02	6.97E-14
Indium (49)	In-116m	6.69E+03	1.04E-04	6.42E+00	5.84E-12
Indium (49)	In-117	8.43E+03	8.22E-05	1.22E+01	8.85E-12
Indium (49)	In-117m	3.13E+03	2.21E-04	2.81E+00	5.49E-12
Indium (49)	In-118	4.37E+06	1.59E-07	.	.
Indium (49)	In-118m	8.35E+04	8.30E-06	.	.
Indium (49)	In-119	1.52E+05	4.57E-06	1.15E+02	4.71E-12
Indium (49)	In-119m	2.02E+04	3.42E-05	8.50E+00	2.62E-12
Indium (49)	In-121	9.46E+05	7.32E-07	1.43E+00	9.61E-15
Indium (49)	In-121m	9.39E+04	7.38E-06	1.67E+00	1.13E-13
Iridium (77)	Ir-180	2.43E+05	2.85E-06	2.21E+01	8.61E-13
Iridium (77)	Ir-182	2.43E+04	2.85E-05	4.43E-01	1.74E-13
Iridium (77)	Ir-183	6.28E+03	1.10E-04	3.14E-01	4.81E-13
Iridium (77)	Ir-184	1.96E+03	3.53E-04	2.17E+00	1.07E-11
Iridium (77)	Ir-185	4.22E+02	1.64E-03	4.98E-01	1.15E-11
Iridium (77)	Ir-186	3.65E+02	1.90E-03	1.21E-02	3.24E-13
Iridium (77)	Ir-186m	3.16E+03	2.19E-04	1.23E-02	3.78E-14
Iridium (77)	Ir-187	5.78E+02	1.20E-03	3.48E+00	5.90E-11
Iridium (77)	Ir-188	1.46E+02	4.74E-03	5.50E-01	3.71E-11
Iridium (77)	Ir-189	1.92E+01	3.62E-02	1.61E+00	8.32E-10
Iridium (77)	Ir-190	2.15E+01	3.23E-02	3.89E-01	1.81E-10
Iridium (77)	Ir-190m	5.42E+03	1.28E-04	3.86E-01	7.10E-13
Iridium (77)	Ir-190n	1.97E+03	3.52E-04	1.97E+00	1.00E-11
Iridium (77)	Ir-191m	4.42E+06	1.57E-07	.	.
Iridium (77)	Ir-192	3.43E+00	2.02E-01	2.91E-01	8.54E-10
Iridium (77)	Ir-192m	2.51E+05	2.76E-06	2.91E-01	1.17E-14
Iridium (77)	Ir-192n	2.88E-03	2.41E+02	1.73E-01	6.05E-07
Iridium (77)	Ir-193m	2.40E+01	2.88E-02	1.32E+00	5.57E-10
Iridium (77)	Ir-194	3.15E+02	2.20E-03	2.88E-01	9.29E-12
Iridium (77)	Ir-194m	1.48E+00	4.68E-01	2.01E-01	1.38E-09

Resident Finfish DCCs July 2023					
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)	
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Finfish Consumption DCC DL=1 (Bq/g)	Finfish Consumption DCC DL=1 (mg/kg)
Iridium (77)	Ir-195	2.43E+03	2.85E-04	3.83E+00	1.61E-11
Iridium (77)	Ir-195m	1.60E+03	4.34E-04	9.19E-01	5.88E-12
Iridium (77)	Ir-196	4.20E+05	1.65E-06	.	.
Iridium (77)	Ir-196m	4.34E+03	1.60E-04	3.70E+00	8.77E-12
Potassium (19)	K-38	4.77E+04	1.45E-05	.	.
Potassium (19)	K-40	5.54E-10	1.25E+09	6.44E-02	2.44E-01
Potassium (19)	K-42	4.91E+02	1.41E-03	8.98E-01	4.03E-12
Potassium (19)	K-43	2.72E+02	2.55E-03	1.65E+00	1.37E-11
Potassium (19)	K-44	1.65E+04	4.21E-05	4.77E+00	6.68E-13
Potassium (19)	K-45	2.11E+04	3.29E-05	4.79E-01	5.37E-14
Potassium (19)	K-46	2.08E+05	3.33E-06	.	.
Krypton (36)	Kr-74	3.17E+04	2.19E-05	4.94E+00	6.06E-13
Krypton (36)	Kr-75	8.49E+04	8.16E-06	1.53E-01	7.10E-15
Krypton (36)	Kr-76	4.10E+02	1.69E-03	8.94E-01	8.68E-12
Krypton (36)	Kr-77	4.90E+03	1.42E-04	4.41E+00	3.64E-12
Krypton (36)	Kr-79	1.73E+02	4.00E-03	.	.
Krypton (36)	Kr-81	3.03E-06	2.29E+05	.	.
Krypton (36)	Kr-81m	1.67E+06	4.15E-07	.	.
Krypton (36)	Kr-83m	3.32E+03	2.09E-04	.	.
Krypton (36)	Kr-85	6.44E-02	1.08E+01	.	.
Krypton (36)	Kr-85m	1.36E+03	5.11E-04	.	.
Krypton (36)	Kr-87	4.77E+03	1.45E-04	2.58E-01	2.47E-13
Krypton (36)	Kr-88	2.14E+03	3.24E-04	4.34E+00	9.36E-12
Krypton (36)	Kr-89	1.16E+05	5.99E-06	1.44E-01	5.82E-15
Lanthanum (57)	La-128	7.03E+04	9.86E-06	1.49E-01	1.42E-14
Lanthanum (57)	La-129	3.14E+04	2.21E-05	3.03E+00	6.52E-13
Lanthanum (57)	La-130	4.19E+04	1.66E-05	.	.
Lanthanum (57)	La-131	6.17E+03	1.12E-04	7.31E-01	8.13E-13
Lanthanum (57)	La-132	1.26E+03	5.48E-04	9.78E-01	5.35E-12
Lanthanum (57)	La-132m	1.50E+04	4.62E-05	1.15E+00	5.32E-13
Lanthanum (57)	La-133	1.55E+03	4.47E-04	2.13E-01	9.58E-13
Lanthanum (57)	La-134	5.65E+04	1.23E-05	.	.
Lanthanum (57)	La-135	3.11E+02	2.23E-03	1.28E+01	2.92E-10
Lanthanum (57)	La-136	3.69E+04	1.88E-05	.	.
Lanthanum (57)	La-137	1.16E-05	6.00E+04	4.77E+00	2.97E-03
Lanthanum (57)	La-138	6.79E-12	1.02E+11	3.86E-01	4.11E+02
Lanthanum (57)	La-140	1.51E+02	4.60E-03	1.98E-01	9.65E-12
Lanthanum (57)	La-141	1.55E+03	4.47E-04	3.56E-01	1.70E-12
Lanthanum (57)	La-142	4.00E+03	1.73E-04	2.29E+00	4.27E-12
Lanthanum (57)	La-143	2.57E+04	2.70E-05	1.64E-01	4.78E-14

Resident Finfish DCCs July 2023					
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)	
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Finfish Consumption DCC DL=1 (Bq/g)	Finfish Consumption DCC DL=1 (mg/kg)
Lutetium (71)	Lu-165	3.39E+04	2.04E-05	1.02E+00	2.60E-13
Lutetium (71)	Lu-167	7.07E+03	9.80E-05	6.14E-01	7.61E-13
Lutetium (71)	Lu-169	1.78E+02	3.89E-03	2.98E-01	1.48E-11
Lutetium (71)	Lu-169m	1.37E+05	5.07E-06	2.98E-01	1.93E-14
Lutetium (71)	Lu-170	1.26E+02	5.51E-03	4.34E-01	3.08E-11
Lutetium (71)	Lu-171	3.07E+01	2.26E-02	5.85E-01	1.71E-10
Lutetium (71)	Lu-171m	2.77E+05	2.51E-06	5.85E-01	1.90E-14
Lutetium (71)	Lu-172	3.78E+01	1.84E-02	3.13E-01	7.48E-11
Lutetium (71)	Lu-172m	9.84E+04	7.04E-06	3.13E-01	2.87E-14
Lutetium (71)	Lu-173	5.06E-01	1.37E+00	1.09E+00	1.95E-08
Lutetium (71)	Lu-174	2.09E-01	3.31E+00	1.38E+00	6.02E-08
Lutetium (71)	Lu-174m	1.78E+00	3.89E-01	4.69E-01	2.40E-09
Lutetium (71)	Lu-176	1.80E-11	3.85E+10	2.19E-01	1.12E+02
Lutetium (71)	Lu-176m	1.67E+03	4.15E-04	2.33E+00	1.29E-11
Lutetium (71)	Lu-177	3.81E+01	1.82E-02	7.23E-01	1.76E-10
Lutetium (71)	Lu-177m	1.58E+00	4.39E-01	2.18E-01	1.28E-09
Lutetium (71)	Lu-178	1.28E+04	5.40E-05	8.47E+00	6.16E-12
Lutetium (71)	Lu-178m	1.58E+04	4.39E-05	1.21E+01	7.14E-12
Lutetium (71)	Lu-179	1.32E+03	5.24E-04	1.78E+00	1.26E-11
Lutetium (71)	Lu-180	6.39E+04	1.08E-05	.	.
Lutetium (71)	Lu-181	1.04E+05	6.66E-06	3.53E-01	3.22E-14
Magnesium (12)	Mg-27	3.85E+04	1.80E-05	.	.
Magnesium (12)	Mg-28	2.90E+02	2.39E-03	1.88E-01	9.49E-13
Manganese (25)	Mn-50m	2.08E+05	3.33E-06	.	.
Manganese (25)	Mn-51	7.88E+03	8.79E-05	3.05E+00	1.04E-12
Manganese (25)	Mn-52	4.52E+01	1.53E-02	2.34E-01	1.41E-11
Manganese (25)	Mn-52m	1.73E+04	4.01E-05	4.03E+00	6.37E-13
Manganese (25)	Mn-53	1.87E-07	3.70E+06	1.28E+01	1.90E-01
Manganese (25)	Mn-54	8.10E-01	8.55E-01	5.94E-01	2.08E-09
Manganese (25)	Mn-56	2.35E+03	2.94E-04	1.55E+00	1.94E-12
Manganese (25)	Mn-57	2.56E+05	2.71E-06	.	.
Manganese (25)	Mn-58m	3.35E+05	2.07E-06	.	.
Molybdenum (42)	Mo-101	2.49E+04	2.78E-05	6.76E+00	1.44E-12
Molybdenum (42)	Mo-102	3.22E+04	2.15E-05	5.68E+00	9.42E-13
Molybdenum (42)	Mo-89	1.73E+05	4.01E-06	3.81E-01	1.03E-14
Molybdenum (42)	Mo-90	1.09E+03	6.35E-04	2.79E-01	1.21E-12
Molybdenum (42)	Mo-91	2.35E+04	2.95E-05	3.71E+00	7.53E-13
Molybdenum (42)	Mo-91m	3.38E+05	2.05E-06	1.38E+00	1.94E-14
Molybdenum (42)	Mo-93	1.73E-04	4.00E+03	1.61E-01	4.55E-06
Molybdenum (42)	Mo-93m	8.86E+02	7.82E-04	1.55E-01	8.51E-13



Resident Finfish DCCs July 2023					
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)	
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Finfish Consumption DCC DL=1 (Bq/g)	Finfish Consumption DCC DL=1 (mg/kg)
Molybdenum (42)	Mo-99	9.21E+01	7.53E-03	3.12E-01	1.76E-11
Nitrogen (7)	N-13	3.66E+04	1.90E-05	.	.
Nitrogen (7)	N-16	3.07E+06	2.26E-07	.	.
Sodium (11)	Na-22	2.66E-01	2.60E+00	1.36E-01	5.91E-10
Sodium (11)	Na-24	4.06E+02	1.71E-03	9.69E-01	3.01E-12
Niobium (41)	Nb-87	9.71E+04	7.13E-06	4.12E-01	1.94E-14
Niobium (41)	Nb-88	2.51E+04	2.76E-05	2.36E-01	4.34E-14
Niobium (41)	Nb-88m	4.68E+04	1.48E-05	2.46E-01	2.43E-14
Niobium (41)	Nb-89	2.99E+03	2.32E-04	3.81E-01	5.95E-13
Niobium (41)	Nb-89m	5.52E+03	1.26E-04	4.66E-01	3.94E-13
Niobium (41)	Nb-90	4.16E+02	1.67E-03	3.27E-01	3.71E-12
Niobium (41)	Nb-91	1.02E-03	6.80E+02	8.51E+00	3.98E-05
Niobium (41)	Nb-91m	4.16E+00	1.67E-01	8.46E-01	9.72E-10
Niobium (41)	Nb-92	2.00E-08	3.47E+07	4.17E-01	1.01E-01
Niobium (41)	Nb-92m	2.49E+01	2.78E-02	8.45E-01	1.64E-10
Niobium (41)	Nb-93m	4.30E-02	1.61E+01	2.97E+00	3.37E-07
Niobium (41)	Nb-94	3.41E-05	2.03E+04	2.37E-01	3.43E-05
Niobium (41)	Nb-94m	5.82E+04	1.19E-05	2.38E-01	2.02E-14
Niobium (41)	Nb-95	7.23E+00	9.59E-02	7.05E-01	4.86E-10
Niobium (41)	Nb-95m	7.01E+01	9.89E-03	3.43E-01	2.44E-11
Niobium (41)	Nb-96	2.60E+02	2.67E-03	3.73E-01	7.22E-12
Niobium (41)	Nb-97	5.05E+03	1.37E-04	5.76E+00	5.80E-12
Niobium (41)	Nb-98m	7.10E+03	9.76E-05	3.73E+00	2.70E-12
Niobium (41)	Nb-99	1.46E+06	4.76E-07	3.12E-01	1.11E-15
Niobium (41)	Nb-99m	1.40E+05	4.95E-06	3.12E-01	1.15E-14
Neodymium (60)	Nd-134	4.29E+04	1.62E-05	1.41E-01	2.32E-14
Neodymium (60)	Nd-135	2.94E+04	2.36E-05	1.04E+00	2.49E-13
Neodymium (60)	Nd-136	7.19E+03	9.64E-05	3.03E+00	3.00E-12
Neodymium (60)	Nd-137	9.46E+03	7.32E-05	1.99E+00	1.51E-12
Neodymium (60)	Nd-138	1.20E+03	5.75E-04	6.07E-01	3.65E-12
Neodymium (60)	Nd-139	1.23E+04	5.65E-05	1.26E+00	7.48E-13
Neodymium (60)	Nd-139m	1.10E+03	6.28E-04	7.49E-01	4.95E-12
Neodymium (60)	Nd-140	7.51E+01	9.23E-03	1.95E-01	1.91E-11
Neodymium (60)	Nd-141	2.44E+03	2.84E-04	4.68E+01	1.42E-10
Neodymium (60)	Nd-141m	3.52E+05	1.97E-06	4.68E+01	9.83E-13
Neodymium (60)	Nd-144	3.03E-16	2.29E+15	1.00E-02	2.50E+05
Neodymium (60)	Nd-147	2.30E+01	3.01E-02	8.04E-03	2.69E-12
Neodymium (60)	Nd-149	3.51E+03	1.97E-04	3.44E-01	7.65E-13
Neodymium (60)	Nd-151	2.93E+04	2.37E-05	4.52E-01	1.22E-13
Neodymium (60)	Nd-152	3.20E+04	2.17E-05	8.14E+00	2.03E-12

Resident Finfish DCCs July 2023					
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)	
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Finfish Consumption DCC DL=1 (Bq/g)	Finfish Consumption DCC DL=1 (mg/kg)
Neon (10)	Ne-19	1.27E+06	5.46E-07	.	.
Neon (10)	Ne-24	1.08E+05	6.43E-06	9.69E-01	1.13E-14
Nickel (28)	Ni-56	4.16E+01	1.66E-02	1.17E-01	8.26E-12
Nickel (28)	Ni-57	1.71E+02	4.06E-03	3.57E-01	6.25E-12
Nickel (28)	Ni-59	6.86E-06	1.01E+05	6.65E+00	3.00E-03
Nickel (28)	Ni-63	6.92E-03	1.00E+02	2.67E+00	1.28E-06
Nickel (28)	Ni-65	2.41E+03	2.87E-04	2.15E+00	3.04E-12
Nickel (28)	Ni-66	1.11E+02	6.23E-03	1.27E-01	3.97E-12
Neptunium (93)	Np-232	2.48E+04	2.80E-05	8.06E-04	3.96E-16
Neptunium (93)	Np-233	1.01E+04	6.89E-05	5.51E-04	6.69E-16
Neptunium (93)	Np-234	5.75E+01	1.21E-02	1.50E-04	3.19E-14
Neptunium (93)	Np-235	6.39E-01	1.09E+00	4.27E-04	8.25E-12
Neptunium (93)	Np-236	4.50E-06	1.54E+05	2.60E-04	7.16E-07
Neptunium (93)	Np-236m	2.70E+02	2.57E-03	3.52E-04	1.61E-14
Neptunium (93)	Np-237	3.23E-07	2.14E+06	4.87E-04	1.87E-05
Neptunium (93)	Np-238	1.19E+02	5.80E-03	1.39E-04	1.45E-14
Neptunium (93)	Np-239	1.07E+02	6.46E-03	3.46E-04	4.05E-14
Neptunium (93)	Np-240	5.88E+03	1.18E-04	2.14E-04	4.57E-16
Neptunium (93)	Np-240m	5.04E+04	1.37E-05	2.14E-04	5.34E-17
Neptunium (93)	Np-241	2.62E+04	2.64E-05	3.98E-04	1.92E-16
Neptunium (93)	Np-242	1.66E+05	4.19E-06	1.37E-04	1.05E-17
Neptunium (93)	Np-242m	6.62E+04	1.05E-05	1.37E-04	2.62E-17
Oxygen (8)	O-14	3.10E+05	2.24E-06	.	.
Oxygen (8)	O-15	1.79E+05	3.88E-06	.	.
Oxygen (8)	O-19	8.26E+05	8.39E-07	.	.
Osmium (76)	Os-180	1.69E+04	4.09E-05	2.21E+01	1.23E-11
Osmium (76)	Os-181	3.47E+03	2.00E-04	6.62E-01	1.81E-12
Osmium (76)	Os-182	2.75E+02	2.52E-03	4.70E-01	1.63E-11
Osmium (76)	Os-183	4.67E+02	1.48E-03	3.30E-01	6.78E-12
Osmium (76)	Os-183m	6.13E+02	1.13E-03	3.27E-01	5.12E-12
Osmium (76)	Os-185	2.70E+00	2.56E-01	8.33E-01	2.99E-09
Osmium (76)	Os-186	3.47E-16	2.00E+15	1.23E-02	3.47E+05
Osmium (76)	Os-189m	1.05E+03	6.62E-04	2.24E+01	2.12E-10
Osmium (76)	Os-190m	3.68E+04	1.88E-05	.	.
Osmium (76)	Os-191	1.64E+01	4.22E-02	6.66E-01	4.06E-10
Osmium (76)	Os-191m	4.63E+02	1.50E-03	5.69E-01	1.23E-11
Osmium (76)	Os-193	2.02E+02	3.44E-03	4.64E-01	2.33E-11
Osmium (76)	Os-194	1.16E-01	6.00E+00	1.01E-01	8.89E-09
Osmium (76)	Os-196	1.04E+04	6.64E-05	3.58E+00	3.52E-12
Phosphorus (15)	P-30	1.46E+05	4.75E-06	.	.

Resident Finfish DCCs July 2023					
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)	
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Finfish Consumption DCC DL=1 (Bq/g)	Finfish Consumption DCC DL=1 (mg/kg)
Phosphorus (15)	P-32	1.77E+01	3.91E-02	1.56E-01	1.48E-11
Phosphorus (15)	P-33	9.98E+00	6.94E-02	1.57E+00	2.72E-10
Protactinium (91)	Pa-227	9.51E+03	7.29E-05	1.49E-02	1.87E-14
Protactinium (91)	Pa-228	2.76E+02	2.51E-03	2.11E-03	9.13E-14
Protactinium (91)	Pa-229	1.69E+02	4.11E-03	5.91E-04	4.21E-14
Protactinium (91)	Pa-230	1.45E+01	4.77E-02	1.54E-04	1.28E-13
Protactinium (91)	Pa-231	2.12E-05	3.28E+04	4.47E-04	2.56E-07
Protactinium (91)	Pa-232	1.93E+02	3.59E-03	8.05E-04	5.07E-14
Protactinium (91)	Pa-233	9.38E+00	7.39E-02	5.50E-04	7.17E-13
Protactinium (91)	Pa-234	9.06E+02	7.65E-04	1.50E-04	2.03E-15
Protactinium (91)	Pa-234m	3.11E+05	2.23E-06	1.50E-04	5.90E-18
Protactinium (91)	Pa-235	1.49E+04	4.66E-05	4.27E-04	3.54E-16
Protactinium (91)	Pa-236	4.00E+04	1.73E-05	2.42E-04	7.48E-17
Protactinium (91)	Pa-237	4.19E+04	1.66E-05	4.87E-04	1.44E-16
Lead (82)	Pb-194	3.04E+04	2.28E-05	2.45E-01	8.20E-14
Lead (82)	Pb-195m	2.43E+04	2.85E-05	9.49E-01	4.00E-13
Lead (82)	Pb-196	9.84E+03	7.04E-05	5.36E+00	5.60E-12
Lead (82)	Pb-197	4.55E+04	1.52E-05	1.44E+00	3.26E-13
Lead (82)	Pb-197m	8.47E+03	8.18E-05	1.24E+00	1.52E-12
Lead (82)	Pb-198	2.53E+03	2.74E-04	2.82E+00	1.16E-11
Lead (82)	Pb-199	4.05E+03	1.71E-04	6.32E+00	1.63E-11
Lead (82)	Pb-200	2.82E+02	2.45E-03	7.32E-01	2.72E-11
Lead (82)	Pb-201	6.51E+02	1.07E-03	1.63E+00	2.65E-11
Lead (82)	Pb-201m	3.58E+05	1.93E-06	1.63E+00	4.80E-14
Lead (82)	Pb-202	1.32E-05	5.25E+04	2.47E-02	1.98E-05
Lead (82)	Pb-202m	1.72E+03	4.03E-04	2.69E-02	1.66E-13
Lead (82)	Pb-203	1.17E+02	5.92E-03	1.72E+00	1.57E-10
Lead (82)	Pb-204m	5.42E+03	1.28E-04	8.80E+00	1.74E-11
Lead (82)	Pb-205	4.53E-08	1.53E+07	1.50E+00	3.57E-01
Lead (82)	Pb-209	1.87E+03	3.71E-04	7.08E+00	4.16E-11
Lead (82)	Pb-210	3.12E-02	2.22E+01	1.91E-04	6.73E-11
Lead (82)	Pb-211	1.01E+04	6.87E-05	2.02E+00	2.21E-12
Lead (82)	Pb-212	5.71E+02	1.21E-03	4.97E-02	9.68E-13
Lead (82)	Pb-214	1.36E+04	5.10E-05	1.91E-04	1.58E-16
Palladium (46)	Pd-100	6.97E+01	9.95E-03	2.61E-01	1.96E-11
Palladium (46)	Pd-101	7.17E+02	9.67E-04	1.20E+00	8.90E-12
Palladium (46)	Pd-103	1.49E+01	4.66E-02	1.97E+00	7.16E-10
Palladium (46)	Pd-107	1.07E-07	6.50E+06	1.00E+01	5.26E-01
Palladium (46)	Pd-109	4.43E+02	1.56E-03	6.88E-01	8.88E-12
Palladium (46)	Pd-109m	7.77E+04	8.92E-06	6.88E-01	5.06E-14

Resident Finfish DCCs July 2023					
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)	
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Finfish Consumption DCC DL=1 (Bq/g)	Finfish Consumption DCC DL=1 (mg/kg)
Palladium (46)	Pd-111	1.56E+04	4.45E-05	2.96E-01	1.11E-13
Palladium (46)	Pd-112	2.89E+02	2.40E-03	1.29E-01	2.62E-12
Palladium (46)	Pd-114	1.51E+05	4.60E-06	.	.
Palladium (46)	Pd-96	1.79E+05	3.87E-06	.	.
Palladium (46)	Pd-97	1.17E+05	5.90E-06	1.51E+00	6.53E-14
Palladium (46)	Pd-98	2.06E+04	3.37E-05	6.41E+00	1.60E-12
Palladium (46)	Pd-99	1.70E+04	4.07E-05	3.47E+00	1.06E-12
Promethium (61)	Pm-136	2.04E+05	3.39E-06	3.03E+00	1.06E-13
Promethium (61)	Pm-137m	1.52E+05	4.57E-06	1.99E+00	9.43E-14
Promethium (61)	Pm-139	8.78E+04	7.90E-06	1.26E+00	1.04E-13
Promethium (61)	Pm-140	2.38E+06	2.92E-07	1.95E-01	6.03E-16
Promethium (61)	Pm-140m	6.12E+04	1.13E-05	1.95E-01	2.34E-14
Promethium (61)	Pm-141	1.74E+04	3.98E-05	9.14E+00	3.88E-12
Promethium (61)	Pm-142	5.40E+05	1.28E-06	.	.
Promethium (61)	Pm-143	9.55E-01	7.26E-01	1.76E+00	1.39E-08
Promethium (61)	Pm-144	6.97E-01	9.95E-01	9.79E-03	1.06E-10
Promethium (61)	Pm-145	3.92E-02	1.77E+01	3.58E+00	6.94E-07
Promethium (61)	Pm-146	1.25E-01	5.53E+00	2.12E-02	1.29E-09
Promethium (61)	Pm-147	2.64E-01	2.62E+00	8.22E-03	2.40E-10
Promethium (61)	Pm-148	4.71E+01	1.47E-02	4.75E-03	7.82E-13
Promethium (61)	Pm-148m	6.13E+00	1.13E-01	4.80E-03	6.08E-12
Promethium (61)	Pm-149	1.14E+02	6.06E-03	3.86E-01	2.64E-11
Promethium (61)	Pm-150	2.27E+03	3.06E-04	1.52E+00	5.26E-12
Promethium (61)	Pm-151	2.14E+02	3.24E-03	4.67E-01	1.73E-11
Promethium (61)	Pm-152	8.84E+04	7.84E-06	.	.
Promethium (61)	Pm-152m	4.84E+04	1.43E-05	.	.
Promethium (61)	Pm-153	6.94E+04	9.99E-06	5.24E-01	6.06E-14
Promethium (61)	Pm-154	2.11E+05	3.29E-06	.	.
Promethium (61)	Pm-154m	1.36E+05	5.10E-06	.	.
Polonium (84)	Po-203	9.92E+03	6.98E-05	5.34E-01	5.73E-13
Polonium (84)	Po-204	1.72E+03	4.03E-04	5.13E-01	3.19E-12
Polonium (84)	Po-205	3.66E+03	1.89E-04	3.37E-01	9.91E-13
Polonium (84)	Po-206	2.87E+01	2.41E-02	1.93E-02	7.26E-12
Polonium (84)	Po-207	1.05E+03	6.62E-04	2.96E-01	3.07E-12
Polonium (84)	Po-208	2.39E-01	2.90E+00	2.42E-04	1.10E-11
Polonium (84)	Po-209	6.79E-03	1.02E+02	2.43E-04	3.91E-10
Polonium (84)	Po-210	1.83E+00	3.79E-01	3.02E-04	1.82E-12
Polonium (84)	Po-211	4.24E+07	1.64E-08	.	.
Polonium (84)	Po-212	7.31E+13	9.48E-15	.	.
Polonium (84)	Po-212m	4.85E+05	1.43E-06	.	.



Resident Finfish DCCs July 2023					
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)	
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Finfish Consumption DCC DL=1 (Bq/g)	Finfish Consumption DCC DL=1 (mg/kg)
Polonium (84)	Po-213	5.20E+12	1.33E-13	7.08E+00	1.52E-20
Polonium (84)	Po-214	1.33E+11	5.21E-12	1.91E-04	1.61E-23
Polonium (84)	Po-215	1.23E+10	5.65E-11	2.02E+00	1.86E-18
Polonium (84)	Po-216	1.51E+08	4.60E-09	4.97E-02	3.73E-18
Polonium (84)	Po-218	1.17E+05	5.90E-06	1.91E-04	1.86E-17
Praseodymium (59)	Pr-134	3.31E+04	2.09E-05	1.43E-01	3.04E-14
Praseodymium (59)	Pr-134m	2.14E+04	3.23E-05	1.41E-01	4.64E-14
Praseodymium (59)	Pr-135	1.52E+04	4.57E-05	1.22E+00	5.69E-13
Praseodymium (59)	Pr-136	2.78E+04	2.49E-05	1.18E+01	3.04E-12
Praseodymium (59)	Pr-137	4.74E+03	1.46E-04	2.71E+00	4.10E-12
Praseodymium (59)	Pr-138	2.51E+05	2.76E-06	.	.
Praseodymium (59)	Pr-138m	2.86E+03	2.42E-04	3.17E+00	8.01E-12
Praseodymium (59)	Pr-139	1.38E+03	5.03E-04	1.34E+00	7.12E-12
Praseodymium (59)	Pr-140	1.07E+05	6.45E-06	.	.
Praseodymium (59)	Pr-142	3.18E+02	2.18E-03	2.91E-01	6.82E-12
Praseodymium (59)	Pr-142m	2.49E+04	2.78E-05	2.87E-01	8.57E-14
Praseodymium (59)	Pr-143	1.86E+01	3.72E-02	3.27E-01	1.31E-10
Praseodymium (59)	Pr-144	2.11E+04	3.29E-05	1.00E-02	3.59E-15
Praseodymium (59)	Pr-144m	5.06E+04	1.37E-05	1.00E-02	1.49E-15
Praseodymium (59)	Pr-145	1.01E+03	6.83E-04	9.73E-01	7.29E-12
Praseodymium (59)	Pr-146	1.51E+04	4.59E-05	5.09E+00	2.58E-12
Praseodymium (59)	Pr-147	2.72E+04	2.55E-05	8.03E-03	2.28E-15
Praseodymium (59)	Pr-148	1.59E+05	4.36E-06	.	.
Praseodymium (59)	Pr-148m	1.81E+05	3.82E-06	.	.
Platinum (78)	Pt-184	2.11E+04	3.29E-05	1.87E+00	8.57E-13
Platinum (78)	Pt-186	2.92E+03	2.37E-04	1.22E-02	4.07E-14
Platinum (78)	Pt-187	2.58E+03	2.68E-04	2.00E+00	7.61E-12
Platinum (78)	Pt-188	2.48E+01	2.79E-02	2.57E-01	1.02E-10
Platinum (78)	Pt-189	5.58E+02	1.24E-03	9.00E-01	1.60E-11
Platinum (78)	Pt-190	1.07E-12	6.50E+11	1.01E-02	9.46E+01
Platinum (78)	Pt-191	9.03E+01	7.68E-03	1.08E+00	1.20E-10
Platinum (78)	Pt-193	1.39E-02	5.00E+01	1.07E+01	7.84E-06
Platinum (78)	Pt-193m	5.84E+01	1.19E-02	7.79E-01	1.35E-10
Platinum (78)	Pt-195m	6.29E+01	1.10E-02	5.99E-01	9.74E-11
Platinum (78)	Pt-197	3.05E+02	2.27E-03	8.89E-01	3.01E-11
Platinum (78)	Pt-197m	3.82E+03	1.82E-04	7.65E-01	2.07E-12
Platinum (78)	Pt-199	1.18E+04	5.86E-05	8.00E-01	7.06E-13
Platinum (78)	Pt-200	4.86E+02	1.43E-03	3.11E-01	6.72E-12
Platinum (78)	Pt-202	1.38E+02	5.02E-03	8.72E-02	6.69E-12
Plutonium (94)	Pu-232	1.08E+04	6.41E-05	1.05E-03	1.18E-15

Resident Finfish DCCs July 2023					
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)	
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Finfish Consumption DCC DL=1 (Bq/g)	Finfish Consumption DCC DL=1 (mg/kg)
Plutonium (94)	Pu-234	6.90E+02	1.00E-03	1.51E-04	2.69E-15
Plutonium (94)	Pu-235	1.44E+04	4.81E-05	4.27E-04	3.66E-16
Plutonium (94)	Pu-236	2.42E-01	2.86E+00	6.90E-04	3.52E-11
Plutonium (94)	Pu-237	5.60E+00	1.24E-01	4.87E-04	1.08E-12
Plutonium (94)	Pu-238	7.90E-03	8.77E+01	1.39E-04	2.20E-10
Plutonium (94)	Pu-239	2.87E-05	2.41E+04	3.47E-04	1.51E-07
Plutonium (94)	Pu-240	1.06E-04	6.56E+03	2.14E-04	2.55E-08
Plutonium (94)	Pu-241	4.83E-02	1.44E+01	3.98E-04	1.04E-10
Plutonium (94)	Pu-242	1.85E-06	3.75E+05	1.37E-04	9.40E-07
Plutonium (94)	Pu-243	1.22E+03	5.66E-04	3.00E-04	3.12E-15
Plutonium (94)	Pu-244	8.66E-09	8.00E+07	1.93E-04	2.85E-04
Plutonium (94)	Pu-245	5.78E+02	1.20E-03	3.36E-04	7.48E-15
Plutonium (94)	Pu-246	2.33E+01	2.97E-02	1.29E-04	7.12E-14
Radium (88)	Ra-219	2.19E+09	3.17E-10	.	.
Radium (88)	Ra-220	1.22E+09	5.68E-10	.	.
Radium (88)	Ra-221	7.81E+05	8.88E-07	7.08E+00	1.05E-13
Radium (88)	Ra-222	5.75E+05	1.20E-06	1.91E-04	3.86E-18
Radium (88)	Ra-223	2.21E+01	3.13E-02	2.44E-03	1.29E-12
Radium (88)	Ra-224	6.91E+01	1.00E-02	3.87E-03	6.58E-13
Radium (88)	Ra-225	1.70E+01	4.08E-02	1.82E-03	1.27E-12
Radium (88)	Ra-226	4.33E-04	1.60E+03	1.64E-04	4.49E-09
Radium (88)	Ra-227	8.63E+03	8.03E-05	8.48E-04	1.17E-15
Radium (88)	Ra-228	1.21E-01	5.75E+00	2.86E-04	2.83E-11
Radium (88)	Ra-230	3.92E+03	1.77E-04	1.52E-04	4.68E-16
Rubidium (37)	Rb-77	9.66E+04	7.17E-06	4.41E+00	1.84E-13
Rubidium (37)	Rb-78	2.06E+04	3.36E-05	5.70E+00	1.13E-12
Rubidium (37)	Rb-78m	6.35E+04	1.09E-05	5.70E+01	3.67E-12
Rubidium (37)	Rb-79	1.59E+04	4.36E-05	8.04E+00	2.09E-12
Rubidium (37)	Rb-80	6.54E+05	1.06E-06	.	.
Rubidium (37)	Rb-81	1.33E+03	5.22E-04	8.39E+00	2.68E-11
Rubidium (37)	Rb-81m	1.19E+04	5.80E-05	7.14E+00	2.54E-12
Rubidium (37)	Rb-82	2.86E+05	2.42E-06	.	.
Rubidium (37)	Rb-82m	9.38E+02	7.39E-04	3.25E+00	1.49E-11
Rubidium (37)	Rb-83	2.93E+00	2.36E-01	2.47E-01	3.67E-10
Rubidium (37)	Rb-84	7.72E+00	8.98E-02	1.50E-01	8.58E-11
Rubidium (37)	Rb-84m	1.80E+04	3.85E-05	1.50E-01	3.67E-14
Rubidium (37)	Rb-86	1.36E+01	5.11E-02	1.39E-01	4.62E-11
Rubidium (37)	Rb-86m	3.58E+05	1.93E-06	1.39E-01	1.75E-15
Rubidium (37)	Rb-87	1.41E-11	4.92E+10	2.58E-01	8.37E+01
Rubidium (37)	Rb-88	2.05E+04	3.38E-05	4.34E+00	9.77E-13

Resident Finfish DCCs July 2023					
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)	
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Finfish Consumption DCC DL=1 (Bq/g)	Finfish Consumption DCC DL=1 (mg/kg)
Rubidium (37)	Rb-89	2.40E+04	2.88E-05	1.44E-01	2.80E-14
Rubidium (37)	Rb-90	1.38E+05	5.01E-06	1.33E-02	4.55E-16
Rubidium (37)	Rb-90m	8.47E+04	8.18E-06	1.33E-02	7.43E-16
Rhenium (75)	Re-178	2.76E+04	2.51E-05	1.45E+00	4.91E-13
Rhenium (75)	Re-179	1.87E+04	3.71E-05	5.23E+00	2.63E-12
Rhenium (75)	Re-180	1.49E+05	4.64E-06	.	.
Rhenium (75)	Re-181	3.05E+02	2.27E-03	7.77E-01	2.42E-11
Rhenium (75)	Re-182	9.49E+01	7.31E-03	2.83E-01	2.85E-11
Rhenium (75)	Re-182m	4.78E+02	1.45E-03	1.41E+00	2.81E-11
Rhenium (75)	Re-183	3.61E+00	1.92E-01	4.04E-01	1.07E-09
Rhenium (75)	Re-184	6.66E+00	1.04E-01	4.10E-01	5.95E-10
Rhenium (75)	Re-184m	1.50E+00	4.63E-01	1.79E-01	1.16E-09
Rhenium (75)	Re-186	6.80E+01	1.02E-02	1.27E-02	1.82E-12
Rhenium (75)	Re-186m	3.47E-06	2.00E+05	1.18E-02	3.33E-05
Rhenium (75)	Re-187	1.68E-11	4.12E+10	8.03E+01	4.68E+04
Rhenium (75)	Re-188	3.57E+02	1.94E-03	2.76E-01	7.61E-12
Rhenium (75)	Re-188m	1.96E+04	3.54E-05	2.70E-01	1.36E-13
Rhenium (75)	Re-189	2.50E+02	2.77E-03	5.07E-01	2.01E-11
Rhenium (75)	Re-190	1.17E+05	5.90E-06	.	.
Rhenium (75)	Re-190m	1.90E+03	3.65E-04	1.05E+00	5.51E-12
Rhodium (45)	Rh-100	2.92E+02	2.37E-03	6.24E-01	1.12E-11
Rhodium (45)	Rh-100m	7.92E+04	8.75E-06	6.35E-01	4.20E-14
Rhodium (45)	Rh-101	2.10E-01	3.30E+00	7.67E-01	1.93E-08
Rhodium (45)	Rh-101m	5.83E+01	1.19E-02	1.67E+00	1.52E-10
Rhodium (45)	Rh-102	1.22E+00	5.67E-01	3.33E-01	1.46E-09
Rhodium (45)	Rh-102m	1.85E-01	3.74E+00	1.59E-01	4.60E-09
Rhodium (45)	Rh-103m	6.49E+03	1.07E-04	1.04E+02	8.62E-11
Rhodium (45)	Rh-104	5.17E+05	1.34E-06	.	.
Rhodium (45)	Rh-104m	8.39E+04	8.26E-06	.	.
Rhodium (45)	Rh-105	1.72E+02	4.04E-03	1.05E+00	3.38E-11
Rhodium (45)	Rh-106	7.33E+05	9.45E-07	.	.
Rhodium (45)	Rh-106m	2.78E+03	2.49E-04	2.43E+00	4.85E-12
Rhodium (45)	Rh-107	1.68E+04	4.13E-05	6.23E+00	2.08E-12
Rhodium (45)	Rh-108	1.30E+06	5.33E-07	.	.
Rhodium (45)	Rh-109	2.73E+05	2.54E-06	6.88E-01	1.44E-14
Rhodium (45)	Rh-94	3.10E+05	2.24E-06	2.03E+00	3.23E-14
Rhodium (45)	Rh-95	7.26E+04	9.55E-06	1.67E+00	1.15E-13
Rhodium (45)	Rh-95m	1.86E+05	3.73E-06	1.67E+00	4.48E-14
Rhodium (45)	Rh-96	3.68E+04	1.88E-05	.	.
Rhodium (45)	Rh-96m	2.41E+05	2.87E-06	.	.

Resident Finfish DCCs July 2023					
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)	
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Finfish Consumption DCC DL=1 (Bq/g)	Finfish Consumption DCC DL=1 (mg/kg)
Rhodium (45)	Rh-97	1.19E+04	5.84E-05	1.51E+00	6.46E-13
Rhodium (45)	Rh-97m	7.88E+03	8.79E-05	1.50E+00	9.69E-13
Rhodium (45)	Rh-98	4.19E+04	1.66E-05	.	.
Rhodium (45)	Rh-99	1.57E+01	4.41E-02	7.16E-01	2.37E-10
Rhodium (45)	Rh-99m	1.29E+03	5.37E-04	6.25E+00	2.51E-11
Radon (86)	Rn-207	3.94E+04	1.76E-05	2.94E-01	8.10E-14
Radon (86)	Rn-209	1.28E+04	5.42E-05	3.05E-04	2.61E-16
Radon (86)	Rn-210	2.53E+03	2.74E-04	5.50E-03	2.39E-14
Radon (86)	Rn-211	4.16E+02	1.67E-03	4.51E-02	1.20E-12
Radon (86)	Rn-212	1.52E+04	4.55E-05	2.42E-04	1.76E-16
Radon (86)	Rn-215	9.50E+12	7.29E-14	.	.
Radon (86)	Rn-216	4.86E+11	1.43E-12	.	.
Radon (86)	Rn-217	4.05E+10	1.71E-11	7.08E+00	1.99E-18
Radon (86)	Rn-218	6.24E+08	1.11E-09	1.91E-04	3.50E-21
Radon (86)	Rn-219	5.52E+06	1.26E-07	2.02E+00	4.20E-15
Radon (86)	Rn-220	3.93E+05	1.76E-06	4.97E-02	1.46E-15
Radon (86)	Rn-222	6.62E+01	1.05E-02	1.91E-04	3.36E-14
Radon (86)	Rn-223	1.50E+04	4.62E-05	2.40E-03	1.87E-15
Ruthenium (44)	Ru-103	6.44E+00	1.08E-01	5.59E-01	4.69E-10
Ruthenium (44)	Ru-105	1.37E+03	5.07E-04	6.03E-01	2.43E-12
Ruthenium (44)	Ru-106	6.77E-01	1.02E+00	5.52E-02	4.53E-10
Ruthenium (44)	Ru-107	9.71E+04	7.13E-06	6.23E+00	3.60E-13
Ruthenium (44)	Ru-108	8.01E+04	8.66E-06	.	.
Ruthenium (44)	Ru-92	9.98E+04	6.94E-06	.	.
Ruthenium (44)	Ru-94	7.03E+03	9.86E-05	2.03E+00	1.42E-12
Ruthenium (44)	Ru-95	3.69E+03	1.88E-04	1.67E+00	2.25E-12
Ruthenium (44)	Ru-97	8.72E+01	7.95E-03	1.83E+00	1.07E-10
Sulfur (16)	S-35	2.89E+00	2.40E-01	3.04E+00	1.93E-09
Sulphur (16)	S-37	7.21E+04	9.61E-06	.	.
Sulfur (16)	S-38	2.14E+03	3.24E-04	8.97E-01	8.36E-13
Antimony (51)	Sb-111	2.91E+05	2.38E-06	1.30E+00	2.60E-14
Antimony (51)	Sb-113	5.46E+04	1.27E-05	5.14E-01	5.58E-14
Antimony (51)	Sb-114	1.04E+05	6.64E-06	.	.
Antimony (51)	Sb-115	1.13E+04	6.11E-05	1.68E+01	8.93E-12
Antimony (51)	Sb-116	2.31E+04	3.01E-05	1.34E+01	3.53E-12
Antimony (51)	Sb-116m	6.04E+03	1.15E-04	6.51E+00	6.55E-12
Antimony (51)	Sb-117	2.17E+03	3.20E-04	2.23E+01	6.32E-11
Antimony (51)	Sb-118	1.01E+05	6.85E-06	.	.
Antimony (51)	Sb-118m	1.21E+03	5.71E-04	2.00E+00	1.02E-11
Antimony (51)	Sb-119	1.59E+02	4.36E-03	4.72E+00	1.85E-10



Resident Finfish DCCs July 2023					
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)	
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Finfish Consumption DCC DL=1 (Bq/g)	Finfish Consumption DCC DL=1 (mg/kg)
Antimony (51)	Sb-120	2.29E+04	3.02E-05	2.76E+01	7.57E-12
Antimony (51)	Sb-120m	4.39E+01	1.58E-02	3.39E-01	4.86E-11
Antimony (51)	Sb-122	9.29E+01	7.46E-03	2.29E-01	1.58E-11
Antimony (51)	Sb-122m	8.69E+04	7.97E-06	2.29E-01	1.69E-14
Antimony (51)	Sb-124	4.20E+00	1.65E-01	1.57E-01	2.43E-10
Antimony (51)	Sb-124m	2.35E+05	2.95E-06	2.09E-01	5.79E-15
Antimony (51)	Sb-124n	1.80E+04	3.84E-05	2.08E-01	7.51E-14
Antimony (51)	Sb-125	2.51E-01	2.76E+00	3.02E-01	7.88E-09
Antimony (51)	Sb-126	2.05E+01	3.38E-02	1.52E-01	4.91E-11
Antimony (51)	Sb-126m	1.90E+04	3.64E-05	9.85E-01	3.42E-13
Antimony (51)	Sb-127	6.57E+01	1.05E-02	1.71E-01	1.74E-11
Antimony (51)	Sb-128	6.74E+02	1.03E-03	4.99E-01	4.97E-12
Antimony (51)	Sb-128m	3.50E+04	1.98E-05	6.41E+00	1.23E-12
Antimony (51)	Sb-129	1.38E+03	5.02E-04	4.32E-03	2.12E-14
Antimony (51)	Sb-130	9.22E+03	7.52E-05	4.34E+00	3.21E-12
Antimony (51)	Sb-130m	5.78E+04	1.20E-05	.	.
Antimony (51)	Sb-131	1.58E+04	4.38E-05	1.66E-02	7.23E-15
Antimony (51)	Sb-133	1.46E+05	4.76E-06	7.84E-02	3.75E-15
Scandium (21)	Sc-42m	3.52E+05	1.97E-06	.	.
Scandium (21)	Sc-43	1.56E+03	4.44E-04	1.82E+00	2.63E-12
Scandium (21)	Sc-44	1.53E+03	4.53E-04	1.12E+00	1.69E-12
Scandium (21)	Sc-44m	1.04E+02	6.69E-03	1.42E-01	3.16E-12
Scandium (21)	Sc-46	3.02E+00	2.30E-01	2.81E-01	2.25E-10
Scandium (21)	Sc-47	7.55E+01	9.18E-03	7.09E-01	2.31E-11
Scandium (21)	Sc-48	1.39E+02	4.99E-03	2.47E-01	4.48E-12
Scandium (21)	Sc-49	6.37E+03	1.09E-04	4.81E+00	1.94E-12
Scandium (21)	Sc-50	2.13E+05	3.25E-06	.	.
Selenium (34)	Se-70	8.86E+03	7.82E-05	1.76E+00	7.28E-13
Selenium (34)	Se-71	7.68E+04	9.02E-06	8.79E-01	4.26E-14
Selenium (34)	Se-72	3.01E+01	2.30E-02	4.97E-02	6.23E-12
Selenium (34)	Se-73	8.49E+02	8.16E-04	8.41E-01	3.79E-12
Selenium (34)	Se-73m	9.15E+03	7.57E-05	8.97E-01	3.75E-13
Selenium (34)	Se-75	2.11E+00	3.28E-01	1.58E-01	2.94E-10
Selenium (34)	Se-77m	1.26E+06	5.50E-07	.	.
Selenium (34)	Se-79	2.35E-06	2.95E+05	1.13E-01	1.99E-04
Selenium (34)	Se-79m	9.29E+04	7.46E-06	1.13E-01	5.04E-15
Selenium (34)	Se-81	1.97E+04	3.51E-05	1.47E+01	3.15E-12
Selenium (34)	Se-81m	6.36E+03	1.09E-04	4.91E+00	3.28E-12
Selenium (34)	Se-83	1.63E+04	4.24E-05	4.46E+00	1.19E-12
Selenium (34)	Se-83m	3.12E+05	2.22E-06	8.85E+00	1.24E-13

Resident Finfish DCCs July 2023					
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)	
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Finfish Consumption DCC DL=1 (Bq/g)	Finfish Consumption DCC DL=1 (mg/kg)
Selenium (34)	Se-84	1.17E+05	5.90E-06	4.48E+00	1.68E-13
Silicon (14)	Si-31	2.32E+03	2.99E-04	2.48E+00	1.74E-12
Silicon (14)	Si-32	5.25E-03	1.32E+02	1.26E-01	4.04E-08
Samarium (62)	Sm-139	1.42E+05	4.89E-06	1.26E+00	6.47E-14
Samarium (62)	Sm-140	2.46E+04	2.82E-05	1.86E-01	5.57E-14
Samarium (62)	Sm-141	3.57E+04	1.94E-05	4.84E+00	1.00E-12
Samarium (62)	Sm-141m	1.61E+04	4.30E-05	3.78E+00	1.74E-12
Samarium (62)	Sm-142	5.02E+03	1.38E-04	2.18E+00	3.23E-12
Samarium (62)	Sm-143	4.16E+04	1.66E-05	1.76E+00	3.18E-13
Samarium (62)	Sm-143m	3.31E+05	2.09E-06	1.76E+00	3.99E-14
Samarium (62)	Sm-145	7.44E-01	9.32E-01	1.22E+00	1.25E-08
Samarium (62)	Sm-146	6.73E-09	1.03E+08	7.55E-03	8.59E-03
Samarium (62)	Sm-147	6.54E-12	1.06E+11	8.27E-03	9.75E+00
Samarium (62)	Sm-148	9.90E-17	7.00E+15	4.91E-03	3.85E+05
Samarium (62)	Sm-151	7.70E-03	9.00E+01	3.92E+00	4.03E-06
Samarium (62)	Sm-153	1.31E+02	5.31E-03	5.24E-01	3.22E-11
Samarium (62)	Sm-155	1.63E+04	4.24E-05	1.08E+00	5.36E-13
Samarium (62)	Sm-156	6.46E+02	1.07E-03	1.55E-01	1.96E-12
Samarium (62)	Sm-157	4.54E+04	1.53E-05	6.32E-01	1.15E-13
Tin (50)	Sn-106	1.90E+05	3.65E-06	.	.
Tin (50)	Sn-108	3.54E+04	1.96E-05	3.93E+00	6.30E-13
Tin (50)	Sn-109	2.02E+04	3.42E-05	2.02E-01	5.71E-14
Tin (50)	Sn-110	1.48E+03	4.69E-04	8.47E-01	3.31E-12
Tin (50)	Sn-111	1.03E+04	6.72E-05	1.30E+00	7.34E-13
Tin (50)	Sn-113	2.20E+00	3.15E-01	5.04E-01	1.36E-09
Tin (50)	Sn-113m	1.70E+04	4.07E-05	5.51E-01	1.92E-13
Tin (50)	Sn-117m	1.84E+01	3.77E-02	5.45E-01	1.82E-10
Tin (50)	Sn-119m	8.63E-01	8.03E-01	1.09E+00	7.86E-09
Tin (50)	Sn-121	2.25E+02	3.09E-03	1.67E+00	4.72E-11
Tin (50)	Sn-121m	1.58E-02	4.39E+01	6.82E-01	2.74E-07
Tin (50)	Sn-123	1.96E+00	3.54E-01	1.81E-01	5.97E-10
Tin (50)	Sn-123m	9.09E+03	7.62E-05	1.02E+01	7.25E-12
Tin (50)	Sn-125	2.62E+01	2.64E-02	8.90E-02	2.22E-11
Tin (50)	Sn-125m	3.83E+04	1.81E-05	3.02E-01	5.17E-14
Tin (50)	Sn-126	3.01E-06	2.30E+05	7.64E-02	1.68E-04
Tin (50)	Sn-127	2.89E+03	2.40E-04	1.58E-01	3.63E-13
Tin (50)	Sn-127m	8.82E+04	7.86E-06	1.71E-01	1.29E-14
Tin (50)	Sn-128	6.17E+03	1.12E-04	1.85E+00	2.01E-12
Tin (50)	Sn-129	1.63E+05	4.24E-06	4.32E-03	1.79E-16
Tin (50)	Sn-130	9.79E+04	7.08E-06	.	.

Resident Finfish DCCs July 2023					
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)	
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Finfish Consumption DCC DL=1 (Bq/g)	Finfish Consumption DCC DL=1 (mg/kg)
Tin (50)	Sn-130m	2.14E+05	3.23E-06	5.04E+00	1.60E-13
Strontium (38)	Sr-79	1.62E+05	4.28E-06	8.04E+00	2.06E-13
Strontium (38)	Sr-80	3.43E+03	2.02E-04	1.06E+00	1.29E-12
Strontium (38)	Sr-81	1.63E+04	4.24E-05	3.49E+00	9.08E-13
Strontium (38)	Sr-82	9.97E+00	6.95E-02	6.28E-02	2.71E-11
Strontium (38)	Sr-83	1.87E+02	3.70E-03	1.90E-01	4.41E-12
Strontium (38)	Sr-85	3.90E+00	1.78E-01	6.66E-01	7.61E-10
Strontium (38)	Sr-85m	5.39E+03	1.29E-04	7.61E-01	6.30E-13
Strontium (38)	Sr-87m	2.16E+03	3.21E-04	1.18E+01	2.50E-11
Strontium (38)	Sr-89	5.01E+00	1.38E-01	1.47E-01	1.37E-10
Strontium (38)	Sr-90	2.41E-02	2.88E+01	1.33E-02	2.61E-09
Strontium (38)	Sr-91	6.30E+02	1.10E-03	1.28E-01	9.71E-13
Strontium (38)	Sr-92	2.28E+03	3.04E-04	4.33E-01	9.15E-13
Strontium (38)	Sr-93	4.91E+04	1.41E-05	1.91E-01	1.90E-14
Strontium (38)	Sr-94	2.90E+05	2.39E-06	4.68E+00	7.95E-14
Tantalum (73)	Ta-170	5.39E+04	1.29E-05	3.02E-01	5.00E-14
Tantalum (73)	Ta-172	9.90E+03	7.00E-05	1.64E-01	1.49E-13
Tantalum (73)	Ta-173	1.93E+03	3.58E-04	5.74E-01	2.70E-12
Tantalum (73)	Ta-174	5.33E+03	1.30E-04	1.68E-03	2.88E-15
Tantalum (73)	Ta-175	5.78E+02	1.20E-03	6.36E-01	1.01E-11
Tantalum (73)	Ta-176	7.50E+02	9.24E-04	1.32E+00	1.63E-11
Tantalum (73)	Ta-177	1.07E+02	6.46E-03	3.62E+00	3.13E-10
Tantalum (73)	Ta-178	3.91E+04	1.77E-05	.	.
Tantalum (73)	Ta-178m	2.57E+03	2.69E-04	4.77E+00	1.73E-11
Tantalum (73)	Ta-179	3.81E-01	1.82E+00	6.64E+00	1.64E-07
Tantalum (73)	Ta-180	7.45E+02	9.31E-04	7.00E+00	8.87E-11
Tantalum (73)	Ta-182	2.21E+00	3.14E-01	2.66E-01	1.15E-09
Tantalum (73)	Ta-182m	2.30E+04	3.01E-05	2.64E-01	1.09E-13
Tantalum (73)	Ta-183	4.96E+01	1.40E-02	2.88E-01	5.56E-11
Tantalum (73)	Ta-184	6.98E+02	9.93E-04	5.91E-01	8.18E-12
Tantalum (73)	Ta-185	7.37E+03	9.40E-05	7.57E-01	9.96E-13
Tantalum (73)	Ta-186	3.47E+04	2.00E-05	1.14E+01	3.19E-12
Terbium (65)	Tb-146	9.50E+05	7.29E-07	7.26E-03	5.85E-17
Terbium (65)	Tb-147	3.70E+03	1.87E-04	8.07E-03	1.68E-14
Terbium (65)	Tb-147m	1.95E+05	3.56E-06	8.09E-03	3.20E-16
Terbium (65)	Tb-148	6.07E+03	1.14E-04	7.34E-03	9.39E-15
Terbium (65)	Tb-148m	1.66E+05	4.19E-06	7.36E-03	3.45E-16
Terbium (65)	Tb-149	1.47E+03	4.70E-04	4.31E-01	2.29E-12
Terbium (65)	Tb-149m	8.76E+04	7.91E-06	5.69E-01	5.08E-14
Terbium (65)	Tb-150	1.74E+03	3.97E-04	3.83E-03	1.73E-14

Resident Finfish DCCs July 2023					
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)	
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Finfish Consumption DCC DL=1 (Bq/g)	Finfish Consumption DCC DL=1 (mg/kg)
Terbium (65)	Tb-150m	6.28E+04	1.10E-05	3.84E-03	4.81E-16
Terbium (65)	Tb-151	3.45E+02	2.01E-03	6.79E-01	1.56E-11
Terbium (65)	Tb-151m	8.74E+05	7.93E-07	7.07E-01	6.41E-15
Terbium (65)	Tb-152	3.47E+02	2.00E-03	3.27E-03	7.51E-14
Terbium (65)	Tb-152m	8.67E+04	7.99E-06	3.27E-03	3.01E-16
Terbium (65)	Tb-153	1.08E+02	6.41E-03	7.04E-01	5.22E-11
Terbium (65)	Tb-154	2.82E+02	2.45E-03	6.68E-01	1.91E-11
Terbium (65)	Tb-155	4.75E+01	1.46E-02	1.51E+00	2.58E-10
Terbium (65)	Tb-156	4.73E+01	1.47E-02	3.58E-01	6.19E-11
Terbium (65)	Tb-156m	2.49E+02	2.79E-03	3.13E-01	1.03E-11
Terbium (65)	Tb-156n	1.15E+03	6.05E-04	3.32E-01	2.37E-12
Terbium (65)	Tb-157	9.76E-03	7.10E+01	1.00E+01	8.47E-06
Terbium (65)	Tb-158	3.85E-03	1.80E+02	3.65E-01	7.85E-07
Terbium (65)	Tb-160	3.50E+00	1.98E-01	2.46E-01	5.90E-10
Terbium (65)	Tb-161	3.66E+01	1.89E-02	5.19E-01	1.20E-10
Terbium (65)	Tb-162	4.79E+04	1.45E-05	.	.
Terbium (65)	Tb-163	1.87E+04	3.71E-05	1.88E+01	8.62E-12
Terbium (65)	Tb-164	1.21E+05	5.71E-06	.	.
Terbium (65)	Tb-165	1.73E+05	4.01E-06	3.62E+00	1.82E-13
Technetium (43)	Tc-101	2.57E+04	2.70E-05	2.12E+01	4.37E-12
Technetium (43)	Tc-102	4.14E+06	1.67E-07	.	.
Technetium (43)	Tc-102m	8.37E+04	8.28E-06	.	.
Technetium (43)	Tc-104	1.99E+04	3.48E-05	4.85E+00	1.33E-12
Technetium (43)	Tc-105	4.79E+04	1.45E-05	6.03E-01	6.92E-14
Technetium (43)	Tc-91	1.16E+05	5.97E-06	3.66E+00	1.51E-13
Technetium (43)	Tc-91m	1.10E+05	6.28E-06	1.40E+00	6.04E-14
Technetium (43)	Tc-92	8.57E+04	8.09E-06	.	.
Technetium (43)	Tc-93	2.21E+03	3.14E-04	1.57E-01	3.47E-13
Technetium (43)	Tc-93m	8.37E+03	8.28E-05	1.56E-01	9.10E-14
Technetium (43)	Tc-94	1.24E+03	5.57E-04	2.09E+00	8.29E-12
Technetium (43)	Tc-94m	7.00E+03	9.89E-05	3.89E+00	2.74E-12
Technetium (43)	Tc-95	3.04E+02	2.28E-03	2.34E+00	3.84E-11
Technetium (43)	Tc-95m	4.15E+00	1.67E-01	7.27E-01	8.73E-10
Technetium (43)	Tc-96	5.91E+01	1.17E-02	3.83E-01	3.27E-11
Technetium (43)	Tc-96m	7.07E+03	9.80E-05	3.87E-01	2.75E-13
Technetium (43)	Tc-97	2.67E-07	2.60E+06	5.59E+00	1.07E-01
Technetium (43)	Tc-97m	2.81E+00	2.47E-01	6.12E-01	1.11E-09
Technetium (43)	Tc-98	1.65E-07	4.20E+06	2.18E-01	6.78E-03
Technetium (43)	Tc-99	3.28E-06	2.11E+05	5.88E-01	9.30E-04
Technetium (43)	Tc-99m	1.01E+03	6.87E-04	5.69E-01	2.93E-12



Resident Finfish DCCs July 2023					
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)	
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Finfish Consumption DCC DL=1 (Bq/g)	Finfish Consumption DCC DL=1 (mg/kg)
Tellurium (52)	Te-113	2.14E+05	3.23E-06	5.14E-01	1.42E-14
Tellurium (52)	Te-114	2.40E+04	2.89E-05	6.07E+00	1.52E-12
Tellurium (52)	Te-115	6.28E+04	1.10E-05	1.68E+01	1.61E-12
Tellurium (52)	Te-115m	5.44E+04	1.27E-05	1.68E+01	1.86E-12
Tellurium (52)	Te-116	2.44E+03	2.84E-04	1.78E+00	4.44E-12
Tellurium (52)	Te-117	5.87E+03	1.18E-04	5.79E+00	6.05E-12
Tellurium (52)	Te-118	4.22E+01	1.64E-02	1.28E-01	1.88E-11
Tellurium (52)	Te-119	3.78E+02	1.83E-03	1.57E+00	2.60E-11
Tellurium (52)	Te-119m	5.38E+01	1.29E-02	5.25E-01	6.09E-11
Tellurium (52)	Te-121	1.32E+01	5.25E-02	9.36E-01	4.50E-10
Tellurium (52)	Te-121m	1.64E+00	4.22E-01	1.50E-01	5.79E-10
Tellurium (52)	Te-123	1.16E-15	6.00E+14	3.55E-01	1.98E+06
Tellurium (52)	Te-123m	2.12E+00	3.27E-01	1.57E-01	4.79E-10
Tellurium (52)	Te-125m	4.41E+00	1.57E-01	4.34E-01	6.45E-10
Tellurium (52)	Te-127	6.49E+02	1.07E-03	2.30E+00	2.36E-11
Tellurium (52)	Te-127m	2.32E+00	2.99E-01	1.46E-01	4.19E-10
Tellurium (52)	Te-129	5.23E+03	1.32E-04	4.37E-03	5.65E-15
Tellurium (52)	Te-129m	7.53E+00	9.21E-02	4.22E-03	3.79E-12
Tellurium (52)	Te-131	1.46E+04	4.76E-05	1.68E-02	7.94E-15
Tellurium (52)	Te-131m	2.02E+02	3.42E-03	1.56E-02	5.28E-13
Tellurium (52)	Te-132	7.89E+01	8.78E-03	9.18E-02	8.05E-12
Tellurium (52)	Te-133	2.91E+04	2.38E-05	7.90E-02	1.89E-14
Tellurium (52)	Te-133m	6.57E+03	1.05E-04	7.58E-02	8.04E-14
Tellurium (52)	Te-134	8.71E+03	7.95E-05	1.96E+00	1.58E-12
Thorium (90)	Th-223	3.64E+07	1.90E-08	.	.
Thorium (90)	Th-224	2.08E+07	3.33E-08	.	.
Thorium (90)	Th-226	1.19E+04	5.82E-05	1.91E-04	1.90E-16
Thorium (90)	Th-227	1.35E+01	5.12E-02	2.28E-03	2.01E-12
Thorium (90)	Th-228	3.63E-01	1.91E+00	2.09E-03	6.91E-11
Thorium (90)	Th-229	9.44E-05	7.34E+03	5.88E-04	7.48E-08
Thorium (90)	Th-230	9.19E-06	7.54E+04	1.52E-04	2.00E-07
Thorium (90)	Th-231	2.38E+02	2.91E-03	4.47E-04	2.28E-14
Thorium (90)	Th-232	4.93E-11	1.41E+10	2.48E-04	6.12E-02
Thorium (90)	Th-233	1.63E+04	4.24E-05	5.50E-04	4.12E-16
Thorium (90)	Th-234	1.05E+01	6.60E-02	1.49E-04	1.75E-13
Thorium (90)	Th-235	5.13E+04	1.35E-05	4.27E-04	1.03E-16
Thorium (90)	Th-236	9.71E+03	7.13E-05	2.42E-04	3.08E-16
Titanium (22)	Ti-44	1.16E-02	6.00E+01	6.71E-02	1.34E-08
Titanium (22)	Ti-45	1.97E+03	3.52E-04	2.63E+00	3.15E-12
Titanium (22)	Ti-51	6.32E+04	1.10E-05	.	.

Resident Finfish DCCs July 2023					
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)	
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Finfish Consumption DCC DL=1 (Bq/g)	Finfish Consumption DCC DL=1 (mg/kg)
Titanium (22)	Ti-52	2.14E+05	3.23E-06	.	.
Thallium (81)	TI-190	1.40E+05	4.95E-06	1.01E-02	7.19E-16
Thallium (81)	TI-190m	9.84E+04	7.04E-06	1.01E-02	1.02E-15
Thallium (81)	TI-194	1.10E+04	6.28E-05	2.48E-01	2.28E-13
Thallium (81)	TI-194m	1.11E+04	6.24E-05	2.49E-01	2.28E-13
Thallium (81)	TI-195	5.23E+03	1.32E-04	1.01E+00	1.97E-12
Thallium (81)	TI-196	3.30E+03	2.10E-04	8.24E+00	2.57E-11
Thallium (81)	TI-197	2.14E+03	3.24E-04	1.44E+00	6.94E-12
Thallium (81)	TI-198	1.15E+03	6.05E-04	5.86E+00	5.31E-11
Thallium (81)	TI-198m	3.25E+03	2.13E-04	4.74E+00	1.52E-11
Thallium (81)	TI-199	8.18E+02	8.47E-04	1.52E+01	1.94E-10
Thallium (81)	TI-200	2.33E+02	2.98E-03	2.14E+00	9.66E-11
Thallium (81)	TI-201	8.33E+01	8.32E-03	4.17E+00	5.27E-10
Thallium (81)	TI-202	2.07E+01	3.35E-02	9.45E-01	4.84E-10
Thallium (81)	TI-204	1.83E-01	3.78E+00	3.29E-01	1.92E-08
Thallium (81)	TI-206	8.67E+04	7.99E-06	.	.
Thallium (81)	TI-206m	9.74E+04	7.12E-06	.	.
Thallium (81)	TI-207	7.64E+04	9.08E-06	.	.
Thallium (81)	TI-208	1.19E+05	5.81E-06	.	.
Thallium (81)	TI-209	1.69E+05	4.11E-06	7.08E+00	4.61E-13
Thallium (81)	TI-210	2.80E+05	2.47E-06	1.91E-04	7.50E-18
Thulium (69)	Tm-161	1.21E+04	5.75E-05	3.01E+00	2.11E-12
Thulium (69)	Tm-162	1.68E+04	4.13E-05	1.02E+01	5.18E-12
Thulium (69)	Tm-163	3.35E+03	2.07E-04	6.86E+00	1.75E-11
Thulium (69)	Tm-164	1.82E+05	3.81E-06	.	.
Thulium (69)	Tm-165	2.02E+02	3.43E-03	1.08E+00	4.62E-11
Thulium (69)	Tm-166	7.88E+02	8.79E-04	1.46E+00	1.61E-11
Thulium (69)	Tm-167	2.73E+01	2.53E-02	6.69E-01	2.14E-10
Thulium (69)	Tm-168	2.72E+00	2.55E-01	3.95E-01	1.28E-09
Thulium (69)	Tm-170	1.97E+00	3.52E-01	2.92E-01	1.32E-09
Thulium (69)	Tm-171	3.61E-01	1.92E+00	3.58E+00	8.88E-08
Thulium (69)	Tm-172	9.55E+01	7.26E-03	2.28E-01	2.16E-11
Thulium (69)	Tm-173	7.37E+02	9.41E-04	1.30E+00	1.60E-11
Thulium (69)	Tm-174	6.75E+04	1.03E-05	.	.
Thulium (69)	Tm-175	2.40E+04	2.89E-05	8.30E-01	3.18E-13
Thulium (69)	Tm-176	1.97E+05	3.52E-06	.	.
Uranium (92)	U-227	3.31E+05	2.09E-06	.	.
Uranium (92)	U-228	4.00E+04	1.73E-05	.	.
Uranium (92)	U-230	1.22E+01	5.70E-02	1.86E-04	1.85E-13
Uranium (92)	U-231	6.02E+01	1.15E-02	4.47E-04	8.99E-14

Resident Finfish DCCs July 2023					
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)	
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Finfish Consumption DCC DL=1 (Bq/g)	Finfish Consumption DCC DL=1 (mg/kg)
Uranium (92)	U-232	1.01E-02	6.89E+01	8.06E-04	9.75E-10
Uranium (92)	U-233	4.35E-06	1.59E+05	5.51E-04	1.55E-06
Uranium (92)	U-234	2.82E-06	2.46E+05	1.50E-04	6.50E-07
Uranium (92)	U-235	9.84E-10	7.04E+08	4.27E-04	5.35E-03
Uranium (92)	U-235m	1.40E+04	4.95E-05	4.27E-04	3.76E-16
Uranium (92)	U-236	2.96E-08	2.34E+07	2.42E-04	1.01E-04
Uranium (92)	U-237	3.75E+01	1.85E-02	4.87E-04	1.61E-13
Uranium (92)	U-238	1.55E-10	4.47E+09	1.47E-04	1.18E-02
Uranium (92)	U-239	1.55E+04	4.46E-05	3.46E-04	2.80E-16
Uranium (92)	U-240	4.31E+02	1.61E-03	2.14E-04	6.25E-15
Uranium (92)	U-242	2.17E+04	3.20E-05	1.37E-04	8.01E-17
Vanadium (23)	V-47	1.12E+04	6.20E-05	6.32E+00	1.39E-12
Vanadium (23)	V-48	1.58E+01	4.38E-02	2.08E-01	3.31E-11
Vanadium (23)	V-49	7.67E-01	9.04E-01	2.09E+01	7.01E-08
Vanadium (23)	V-50	4.62E-18	1.50E+17	1.41E-01	8.01E+07
Vanadium (23)	V-52	9.73E+04	7.12E-06	.	.
Vanadium (23)	V-53	2.26E+05	3.06E-06	.	.
Tungsten (74)	W-177	2.76E+03	2.51E-04	2.43E+00	8.17E-12
Tungsten (74)	W-178	1.17E+01	5.92E-02	1.61E+00	1.29E-09
Tungsten (74)	W-179	9.83E+03	7.05E-05	6.27E+00	5.98E-12
Tungsten (74)	W-179m	5.69E+04	1.22E-05	6.27E+00	1.03E-12
Tungsten (74)	W-181	2.09E+00	3.32E-01	4.68E+00	2.13E-08
Tungsten (74)	W-185	3.37E+00	2.06E-01	8.73E-01	2.52E-09
Tungsten (74)	W-185m	2.28E+05	3.04E-06	8.73E-01	3.71E-14
Tungsten (74)	W-187	2.56E+02	2.71E-03	6.58E-01	2.52E-11
Tungsten (74)	W-188	3.62E+00	1.91E-01	1.11E-01	3.02E-10
Tungsten (74)	W-190	1.21E+04	5.71E-05	4.77E+00	3.91E-12
Xenon (54)	Xe-120	9.11E+03	7.61E-05	1.29E+00	8.92E-13
Xenon (54)	Xe-121	9.08E+03	7.63E-05	7.86E-01	5.49E-13
Xenon (54)	Xe-122	3.02E+02	2.29E-03	.	.
Xenon (54)	Xe-123	2.92E+03	2.37E-04	2.92E-01	6.45E-13
Xenon (54)	Xe-125	3.59E+02	1.93E-03	2.80E-02	5.11E-13
Xenon (54)	Xe-127	6.95E+00	9.97E-02	.	.
Xenon (54)	Xe-127m	3.16E+05	2.19E-06	.	.
Xenon (54)	Xe-129m	2.85E+01	2.43E-02	.	.
Xenon (54)	Xe-131m	2.14E+01	3.24E-02	.	.
Xenon (54)	Xe-133	4.82E+01	1.44E-02	.	.
Xenon (54)	Xe-133m	1.16E+02	6.00E-03	.	.
Xenon (54)	Xe-135	6.64E+02	1.04E-03	2.00E-01	2.14E-12
Xenon (54)	Xe-135m	2.38E+04	2.91E-05	2.00E-01	5.96E-14

Resident Finfish DCCs July 2023					
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)	
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Finfish Consumption DCC DL=1 (Bq/g)	Finfish Consumption DCC DL=1 (mg/kg)
Xenon (54)	Xe-137	9.54E+04	7.26E-06	3.98E-02	3.00E-15
Xenon (54)	Xe-138	2.59E+04	2.68E-05	4.13E+00	1.16E-12
Yttrium (39)	Y-81	3.10E+05	2.23E-06	3.49E+00	4.78E-14
Yttrium (39)	Y-83	5.14E+04	1.35E-05	1.90E-01	1.61E-14
Yttrium (39)	Y-83m	1.28E+05	5.42E-06	1.90E-01	6.47E-15
Yttrium (39)	Y-84m	9.22E+03	7.52E-05	2.96E+00	1.41E-12
Yttrium (39)	Y-85	2.27E+03	3.06E-04	5.64E-01	1.11E-12
Yttrium (39)	Y-85m	1.25E+03	5.55E-04	4.12E-01	1.47E-12
Yttrium (39)	Y-86	4.12E+02	1.68E-03	4.34E-01	4.75E-12
Yttrium (39)	Y-86m	7.59E+03	9.13E-05	4.12E-01	2.45E-13
Yttrium (39)	Y-87	7.61E+01	9.11E-03	6.99E-01	4.19E-11
Yttrium (39)	Y-87m	4.54E+02	1.53E-03	5.12E-01	5.14E-12
Yttrium (39)	Y-88	2.37E+00	2.92E-01	3.29E-01	6.39E-10
Yttrium (39)	Y-89m	1.40E+06	4.97E-07	.	.
Yttrium (39)	Y-90	9.47E+01	7.32E-03	1.43E-01	7.13E-12
Yttrium (39)	Y-90m	1.90E+03	3.64E-04	1.34E-01	3.33E-13
Yttrium (39)	Y-91	4.32E+00	1.60E-01	1.62E-01	1.79E-10
Yttrium (39)	Y-91m	7.33E+03	9.46E-05	1.61E-01	1.05E-13
Yttrium (39)	Y-92	1.71E+03	4.04E-04	7.79E-01	2.19E-12
Yttrium (39)	Y-93	5.96E+02	1.16E-03	1.91E-01	1.56E-12
Yttrium (39)	Y-94	1.95E+04	3.56E-05	4.68E+00	1.19E-12
Yttrium (39)	Y-95	3.54E+04	1.96E-05	2.55E-01	3.59E-14
Ytterbium (70)	Yb-162	1.93E+04	3.59E-05	5.74E+00	2.53E-12
Ytterbium (70)	Yb-163	3.30E+04	2.10E-05	5.41E+00	1.40E-12
Ytterbium (70)	Yb-164	4.81E+03	1.44E-04	4.34E+00	7.76E-12
Ytterbium (70)	Yb-165	3.68E+04	1.88E-05	1.08E+00	2.54E-13
Ytterbium (70)	Yb-166	1.07E+02	6.47E-03	3.32E-01	2.70E-11
Ytterbium (70)	Yb-167	2.08E+04	3.33E-05	6.61E-01	2.78E-13
Ytterbium (70)	Yb-169	7.90E+00	8.77E-02	4.81E-01	5.40E-10
Ytterbium (70)	Yb-175	6.04E+01	1.15E-02	8.77E-01	1.33E-10
Ytterbium (70)	Yb-177	3.18E+03	2.18E-04	6.17E-01	1.80E-12
Ytterbium (70)	Yb-178	4.92E+03	1.41E-04	2.40E+00	4.55E-12
Ytterbium (70)	Yb-179	4.55E+04	1.52E-05	1.78E+00	3.67E-13
Zinc (30)	Zn-60	1.53E+05	4.53E-06	5.67E+00	1.17E-13
Zinc (30)	Zn-61	2.45E+05	2.83E-06	3.55E+00	4.63E-14
Zinc (30)	Zn-62	6.61E+02	1.05E-03	4.34E-01	2.13E-12
Zinc (30)	Zn-63	9.47E+03	7.32E-05	4.99E+00	1.74E-12
Zinc (30)	Zn-65	1.04E+00	6.69E-01	1.11E-01	3.65E-10
Zinc (30)	Zn-69	6.46E+03	1.07E-04	1.28E+01	7.16E-12
Zinc (30)	Zn-69m	4.41E+02	1.57E-03	1.12E+00	9.15E-12



Resident Finfish DCCs July 2023					
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)	
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Finfish Consumption DCC DL=1 (Bq/g)	Finfish Consumption DCC DL=1 (mg/kg)
Zinc (30)	Zn-71	1.49E+05	4.66E-06	.	.
Zinc (30)	Zn-71m	1.53E+03	4.52E-04	1.71E+00	4.15E-12
Zinc (30)	Zn-72	1.31E+02	5.31E-03	1.61E-01	4.65E-12
Zirconium (40)	Zr-85	4.63E+04	1.50E-05	4.16E-01	4.00E-14
Zirconium (40)	Zr-86	3.68E+02	1.88E-03	2.28E-01	2.80E-12
Zirconium (40)	Zr-87	3.61E+03	1.92E-04	4.12E-01	5.20E-13
Zirconium (40)	Zr-88	3.03E+00	2.28E-01	2.46E-01	3.75E-10
Zirconium (40)	Zr-89	7.74E+01	8.95E-03	5.19E-01	3.13E-11
Zirconium (40)	Zr-89m	8.75E+04	7.92E-06	5.53E-01	2.95E-14
Zirconium (40)	Zr-93	4.53E-07	1.53E+06	4.51E-01	4.85E-03
Zirconium (40)	Zr-95	3.95E+00	1.75E-01	2.62E-01	3.31E-10
Zirconium (40)	Zr-97	3.63E+02	1.91E-03	1.83E-01	2.57E-12

Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)																								
Element (Atomic Number)	Isotope	Lambda (1/yr)	Half-life (years)	Apple Consumption	Asparagus Consumption	Beet Consumption	Berry Consumption	Broccoli Consumption	Cabbage Consumption	Carrot Consumption	Citrus fruit Consumption	Com Consumption	Cucumber Consumption	Large Beans Consumption	Lima Beans Consumption	Peanut Consumption	Onion Consumption	Peaches Consumption	Pears Consumption	Pean Consumption	Peppers Consumption	Potatoes Consumption	Pumpkin Consumption	Snap beans Consumption	Strawberries Consumption	Tomatoes Consumption	Total Produce	
				DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)
Actinium (89)	Ac-223	1.73E+05	4.00E-06																									
Actinium (89)	Ac-227	2.16E+03	3.10E+04	7.64E-01	9.84E-01	1.36E+00	1.72E+00	1.98E+00	4.85E-01	1.56E+00	1.98E-01	1.16E+00	7.68E-01	1.06E+00	1.70E+00	2.07E+00	2.11E+00	4.91E-01	1.00E+00	1.70E+00	3.24E+00	5.12E-01	9.86E-01	1.09E+00	1.49E+00	7.47E-01	3.79E-02	
Actinium (89)	Ac-225	2.00E+00	2.74E-02	2.00E+00	4.36E+00	5.26E+00	4.49E+00	5.48E+00	2.15E+00	6.05E+00	5.17E-01	2.84E+00	2.13E+00	4.47E+00	4.54E+00	5.74E+00	8.19E+00	1.28E+00	2.61E+00	4.56E+00	8.95E+00	1.34E+00	2.73E+00	2.92E+00	3.90E+00	2.06E+00	1.09E-01	
Actinium (89)	Ac-226	2.07E+02	3.35E-03	3.50E+02	6.04E-02	8.87E-02	8.05E-02	9.66E-02	2.97E-02	1.02E-01	9.28E-03	5.25E-02	6.37E-02	6.78E-02	8.28E-02	1.01E-01	1.38E-01	2.30E-02	4.60E-02	8.30E-02	1.58E-01	2.44E-02	4.81E-02	5.32E-02	7.01E-02	3.64E-02	1.90E-03	
Actinium (89)	Ac-227	3.18E+02	2.18E+01	1.64E-01	2.84E-01	3.62E-01	3.69E-01	4.41E-01	1.40E-01	4.17E-01	4.26E-02	2.39E-01	1.71E-01	2.99E-01	3.70E-01	4.62E-01	5.63E-01	1.05E-01	2.15E-01	3.70E-01	7.21E-01	1.10E-01	2.20E-01	2.38E-01	3.21E-01	1.66E-01	8.65E-03	
Actinium (89)	Ac-228	9.87E+02	7.02E-04	3.99E-01	6.21E-01	8.21E-01	8.96E-01	1.06E+00	3.06E-01	4.16E-01	1.03E-01	5.89E-01	4.10E-01	6.60E-01	8.94E-01	1.11E+00	1.28E+00	2.56E-01	5.22E-01	8.90E-01	1.73E+00	2.68E-01	5.27E-01	5.75E-01	7.80E-01	3.99E-01	2.06E-02	
Actinium (89)	Ac-230	1.79E+05	3.87E-06	2.94E-02	4.84E-02	6.95E-02	6.61E-02	7.90E-02	3.19E-02	8.01E-02	7.62E-03	4.32E-02	3.06E-02	5.12E-02	6.74E-02	8.26E-02	1.08E-01	1.89E-02	3.85E-02	6.78E-02	1.29E-01	1.99E-02	3.93E-02	4.34E-02	5.75E-02	2.97E-02	1.55E-03	
Actinium (89)	Ac-231	4.86E+04	1.43E-05	8.44E-02	1.62E-01	1.90E-01	2.29E-01	3.00E-02	2.33E-01	2.19E-02	1.22E-01	8.89E-02	1.30E-01	1.91E-01	2.40E-01	3.15E-01	5.42E-02	1.11E-01	1.92E-01	3.74E-01	5.69E-02	1.23E-01	1.65E-01	8.63E-02	4.53E-03			
Actinium (89)	Ac-232	1.84E+05	3.77E-06	4.63E-02	6.33E-02	8.47E-02	1.04E-01	1.21E-01	2.32E-02	9.75E-02	1.20E-02	6.97E-02	4.69E-02	6.81E-02	1.03E-01	1.26E-01	1.32E-01	2.97E-02	6.06E-02	1.03E-01	1.98E-01	3.09E-02	6.02E-02	6.61E-02	9.05E-02	4.56E-02	2.32E-03	
Actinium (89)	Ac-233	1.51E+05	4.60E-06	1.08E-01	1.95E-01	2.48E-01	2.42E-01	2.89E-01	9.62E-02	2.85E-01	2.79E-02	1.55E-01	1.12E-01	2.04E-01	2.43E-01	3.02E-01	3.85E-01	6.92E-02	1.41E-01	2.44E-01	4.71E-01	7.22E-02	1.44E-01	1.56E-01	2.11E-01	1.09E-01	5.72E-03	
Actinium (89)	Ac-100m	1.63E+05	4.26E-06	3.10E+01	6.79E+01	8.19E+01	8.56E+01	8.56E+01	3.34E+01	9.43E+01	8.05E+00	4.41E+01	3.31E+01	7.29E+01	1.71E+01	8.93E+01	1.27E+02	1.99E+01	4.07E+01	7.10E+01	1.40E+02	2.09E+01	4.24E+01	4.63E+01	6.07E+01	3.23E+01	1.71E+00	
Silver (47)	Ag-101	3.28E+04	2.11E-05	1.37E+02	3.36E+02	4.04E+02	3.08E+02	4.23E+02	1.65E+02	4.66E+02	3.55E+01	1.95E+02	1.63E+02	3.59E+02	3.16E+02	4.41E+02	4.41E+02	8.79E+01	1.79E+02	3.13E+02	6.92E+02	9.20E+01	2.10E+02	2.04E+02	2.68E+02	1.59E+02	7.82E+00	
Silver (47)	Ag-102	2.82E+04	2.45E-05	1.07E+02	4.34E+03	5.10E+03	1.51E+03	5.43E+03	2.14E+03	5.97E+03	1.74E+02	9.55E+02	2.11E+03	4.44E+03	1.57E+03	5.68E+03	6.09E+03	4.31E+02	8.80E+02	1.54E+03	8.86E+03	4.52E+02	2.70E+03	1.01E+03	1.31E+03	2.04E+03	4.79E+01	
Silver (47)	Ag-103m	4.73E+04	1.46E-05	1.37E+03	8.98E+03	1.08E+04	3.09E+03	1.11E+04	4.38E+03	1.22E+04	3.56E+02	1.95E+03	9.07E+03	4.30E+03	1.97E+03	1.16E+04	1.64E+04	8.90E+02	1.80E+03	3.12E+03	9.22E+03	2.07E+03	2.68E+03	4.17E+03	7.82E+03			
Silver (47)	Ag-103	5.54E+03	1.25E-04	1.58E+02	4.04E+02	4.87E+02	3.59E+02	5.09E+02	1.99E+02	5.61E+02	4.10E+01	2.25E+02	1.97E+02	4.38E+02	3.67E+02	5.31E+02	7.57E+02	1.02E+02	2.07E+02	3.61E+02	8.35E+02	1.08E+02	2.52E+02	2.37E+02	3.09E+02	1.42E+02	9.15E+00	
Silver (47)	Ag-104	5.26E+03	1.32E-04	4.72E+02	3.05E+03	3.64E+03	1.06E+03	3.61E+03	1.50E+03	4.19E+03	1.22E+02	6.71E+02	1.48E+03	3.12E+03	1.10E+03	3.99E+03	5.69E+03	3.03E+02	6.18E+02	1.08E+03	6.23E+03	3.17E+02	9.23E+02	1.94E+03	1.44E+03	3.37E+01		
Silver (47)	Ag-104m	1.09E+04	6.37E-05	4.12E+02	2.66E+03	3.17E+03	9.26E+02	3.32E+03	1.31E+03	3.66E+03	1.07E+02	5.85E+02	1.29E+03	2.72E+03	9.95E+02	3.48E+03	4.94E+03	2.64E+02	5.40E+02	9.41E+02	5.04E+03	2.77E+02	1.66E+03	6.21E+02	8.05E+02	1.25E+03	2.94E+01	
Silver (47)	Ag-105	6.13E+00	1.13E-01	6.09E+01	3.94E+02	4.70E+02	1.37E+02	4.33E+02	1.94E+02	5.41E+02	1.58E+01	8.89E+01	1.91E+02	4.03E+02	1.42E+02	5.15E+02	7.31E+02	3.91E+02	7.98E+01	1.91E+02	8.40E+02	4.10E+02	2.45E+02	9.19E+01	1.19E+02	1.85E+02	4.35E+00	
Silver (47)	Ag-105m	5.04E+04	1.93E-05	1.39E+03	1.03E+04	1.29E+04	3.89E+03	5.43E+03	2.14E+03	6.30E+03	1.94E+02	8.30E+03	3.43E+03	7.51E+03	2.51E+03	9.01E+03	1.40E+04	1.42E+04	2.80E+03	5.01E+03	1.42E+04	9.23E+03	1.28E+04	1.28E+04	1.66E+04	2.32E+04	4.36E+03	
Silver (47)	Ag-106	1.52E+04	4.56E-05	8.56E+02	5.53E+03	6.59E+03	1.92E+03	6.91E+03	2.72E+03	7.80E+03	2.22E+02	1.22E+03	2.68E+03	5.66E+03	1.99E+03	2.24E+03	1.03E+04	5.49E+02	1.12E+03	1.96E+03	1.13E+04	5.75E+02	3.44E+03	1.29E+03	1.67E+03	2.60E+03	6.10E+01	
Silver (47)	Ag-106m	3.05E+01	2.27E-02	1.97E+01	1.27E+02	1.52E+02	4.43E+01	1.59E+02	6.28E+01	1.75E+02	5.00E+00	2.80E+01	6.17E+01	1.30E+02	4.58E+01	1.66E+02	2.36E+02	1.26E+01	2.58E+01	5.40E+01	2.10E+02	1.32E+01	7.92E+01	2.97E+01	3.85E+01	5.99E+01	1.40E+00	
Silver (47)	Ag-108	1.54E+05	4.51E-06	1.66E+03	4.18E+02																							
Silver (47)	Ag-108m	1.66E+03	4.18E+02	1.22E+01	7.89E+01	9.41E+01	2.75E+01	9.87E+01	3.89E+01	1.08E+02	3.17E+00	1.74E+01	3.83E+01	8.07E+01	2.84E+01	1.03E+02	1.46E+02	7.84E+00	1.60E+01	2.79E+01	1.61E+02	8.21E+00	4.91E+01	1.84E+01	2.39E+01	3.71E+01	8.71E-01	
Silver (47)	Ag-109	5.52E+05	1.26E-06																									
Silver (47)	Ag-109m	8.88E+05	7.80E-07																									
Silver (47)	Ag-110	1.01E+00	6.84E-01	1.01E+00	6.56E+01	7.82E+01	2.28E+01	8.20E+01	3.23E+01	9.01E+01	2.63E+00	1.44E+01	3.18E+01	6.71E+01	2.36E+01	8.58E+01	1.22E+02	6.51E+00	1.33E+01	2.32E+01	1.34E+02	6.82E+00	4.08E+01	1.53E+01	1.98E+01	3.09E+01	7.24E-01	
Silver (47)	Ag-111	3.40E+01	2.04E-02	2.08E+01	1.35E+02	1.60E+02	4.68E+01	1.68E+02	6.63E+01	1.85E+02	5.40E+00	2.96E+01	6.53E+01	1.38E+02	4.85E+01	1.77E+02	2.50E+02	1.34E+01	2.73E+01	4.79E+01	2.75E+02	1.40E+01	8.38E+01	3.14E+01	4.07E+01	6.33E+01	1.49E+00	
Silver (47)	Ag-111m	3.37E+05	2.05E-06	2.10E+01	1.36E+02	1.62E+02	4.71E+01	1.69E+02	6.67E+01	1.86E+02	5.44E+00	2.98E+01	6.57E+01	1.39E+02	4.88E+01	1.77E+02	2.51E+02	1.35E+01	2.75E+01	4.76E+01	2.77E+02	1.41E+01	8.43E+01	3.16E+01	4.10E+01	6.38E+01	1.50E+00	
Silver (47)	Ag-112	1.94E+03	3.57E-04	6.29E+01	4.06E+02	4.84E+02	1.41E+02	5.08E+02	2.00E+02	5.58E+02	1.37E+01	8.93E+01	1.97E+02	4.16E+02	1.48E+02	5.32E+02	7.54E+02	4.04E+01	8.24E+01	1.44E+02	8.29E+02	4.23E+01	2.53E+02	9.48E+01	1.23E+02	1.91E+02	4.48E+00	
Silver (47)	Ag-113	1.13E+05	3.93E-06	1.89E+03	1.59E+03	1.89E+03	1.54E+03	1.90E+03	7.37E+01	2.09E+03	1.73E+01	3.29E+03	1.69E+03	2.44E+03	2.85E+03	3.19E+03	2.85E+03	1.16E+03	2.80E+03	4.39E+03	1.75E+03	9.93E+02	1.66E+03	1.33E+03	1.67E+03	3.50E+03		
Silver (47)	Ag-113m	3.18E+05	2.18E-06	6.83E+01	5.03E+00	6.81E+00	1.54E+00	1.90E+00	7.38E+01	2.08E+00	1.77E-01	3.77E+00	7.30E-01	1.70E+00	2.52E+00	1.97E+00	2.81E+00	4.38E-01	8.94E-01	2.51E+00	3.13E+00	1.73E-01	9.37E-01	1.66E+00	1.33E+00	1.78E-01	3.51E-02	
Silver (47)	Ag-114	4.75E+06	1.46E-07																									
Silver (47)	Ag-115	1.82E+04	3.81E-05	2.30E+00																								

Radionuclides		Isotope-specific Information		Dose Consumption Concentrations (DCCs)																									
Element (Atomic Number)	Isotope	Lambda (1/yr)	Half-life (Yr)	Apple Consumption	Asparagus Consumption	Beet Consumption	Berry Consumption	Broccoli Consumption	Cabbage Consumption	Carrot Consumption	Citrus fruit Consumption	Corn Consumption	Cucumber Consumption	Lettuce Consumption	Lima beans Consumption	N/A Consumption	Onion Consumption	Peaches Consumption	Pears Consumption	Peanut Consumption	Peppers Consumption	Potatoes Consumption	Pumpkin Consumption	Snap beans Consumption	Strawberries Consumption	Tomatoes Consumption	Total Produce		
				DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)
Gold (79)	Au-196m	6.32E+02	1.10E-03	1.06E+02	2.33E+02	2.77E+02	2.38E+02	2.93E+02	1.15E+02	3.19E+02	2.74E+01	1.51E+02	1.13E+02	2.39E+02	2.42E+02	3.06E+02	4.30E+02	6.78E+01	1.38E+02	2.43E+02	4.78E+02	7.05E+01	1.46E+02	1.56E+02	2.07E+02	1.10E+02	5.81E+02		
Gold (79)	Au-199	9.36E+02	7.41E-03	7.49E+01	1.65E+02	1.93E+02	1.69E+02	2.07E+02	8.10E+01	2.07E+02	1.01E+01	1.34E+01	1.82E+02	1.89E+02	1.71E+02	2.16E+02	3.04E+02	4.79E+01	9.78E+01	1.72E+02	3.37E+02	4.99E+01	1.03E+02	1.10E+02	7.78E+01	4.41E+02			
Gold (79)	Au-198m	1.11E+02	6.22E-03	3.46E+01	7.85E+01	9.05E+01	7.78E+01	7.58E+01	3.75E+01	1.04E+02	4.97E+01	1.07E+02	3.71E+01	7.81E+01	7.92E+01	4.00E+02	1.41E+02	2.22E+01	4.53E+01	7.99E+01	1.56E+02	2.31E+01	4.17E+01	6.77E+01	3.67E+01	1.98E+02			
Gold (79)	Au-199	8.06E+01	8.60E-03	1.17E+02	3.76E+02	4.47E+02	3.84E+02	4.73E+02	1.85E+02	5.14E+02	4.42E+01	2.44E+02	1.02E+02	3.86E+02	7.32E+02	9.99E+02	6.95E+02	1.10E+02	2.24E+02	3.93E+02	7.71E+02	1.14E+02	2.35E+02	2.52E+02	3.34E+02	1.78E+02	9.38E+02		
Gold (79)	Au-200	7.53E+03	9.21E-05	1.14E+03	2.52E+03	2.99E+03	2.57E+03	3.16E+03	1.24E+03	3.44E+03	2.96E+02	1.64E+03	1.23E+03	2.58E+03	2.62E+03	3.31E+03	4.65E+03	7.34E+02	1.50E+03	2.63E+03	5.16E+03	7.62E+02	1.57E+03	1.69E+03	2.24E+03	1.19E+03	6.28E+03		
Gold (79)	Au-200m	3.25E+02	2.13E-03	7.76E+01	1.71E+02	2.03E+02	1.75E+02	2.15E+02	8.43E+01	2.34E+02	2.01E+01	1.11E+02	8.34E+01	1.75E+02	2.25E+02	1.36E+02	3.16E+02	4.99E+01	1.02E+02	1.79E+02	3.51E+02	5.18E+01	1.07E+02	1.65E+02	1.52E+02	8.09E+01	4.27E+02		
Gold (79)	Au-201	1.40E+04	4.95E-05	3.17E+03	6.99E+03	8.30E+03	7.14E+03	8.79E+03	3.44E+03	9.57E+03	8.23E+02	4.55E+03	3.41E+03	7.17E+03	7.28E+03	9.19E+03	1.29E+04	2.04E+03	4.16E+03	7.31E+03	1.43E+04	2.12E+03	4.37E+03	4.68E+03	6.21E+03	3.31E+03	1.74E+04		
Barium (56)	Ba-124	3.31E+04	2.09E-05	1.05E+03	2.41E+03	2.90E+03	2.37E+03	2.89E+03	1.19E+03	3.34E+03	2.73E+02	1.50E+03	1.12E+03	2.48E+03	2.40E+03	3.02E+03	4.52E+03	6.75E+02	1.38E+03	2.40E+03	4.72E+03	7.40E+02	1.44E+03	1.55E+03	2.06E+03	1.09E+03	5.83E+03		
Barium (56)	Ba-126	3.64E+03	1.90E-04	2.89E+02	6.62E+02	7.98E+02	6.50E+02	7.94E+02	3.28E+02	9.15E+02	7.49E+01	4.11E+02	3.08E+02	6.80E+02	6.60E+02	8.31E+02	1.24E+03	1.86E+02	3.79E+02	6.08E+02	1.30E+03	2.03E+02	3.95E+02	4.25E+02	5.65E+02	2.95E+02	1.60E+03		
Barium (56)	Ba-127	2.87E+04	2.42E-05	1.55E+03	2.79E+03	3.60E+03	3.55E+03	4.05E+03	1.38E+03	4.15E+03	4.02E+02	1.97E+03	1.55E+03	2.94E+03	3.09E+03	4.18E+03	5.61E+03	9.97E+02	2.03E+03	3.80E+03	6.54E+03	8.71E+02	1.99E+03	1.99E+03	3.08E+03	1.51E+03	7.37E+03		
Barium (56)	Ba-128	1.04E+02	6.66E-03	2.73E+01	6.24E+01	7.53E+01	6.13E+01	7.50E+01	3.07E+01	8.67E+01	7.07E+00	3.88E+01	2.91E+01	6.42E+01	6.23E+01	7.84E+01	1.17E+02	1.75E+01	3.57E+01	6.23E+01	1.22E+02	1.92E+01	3.73E+01	4.01E+01	5.33E+01	2.82E+01	1.51E+02		
Barium (56)	Ba-129	2.72E+03	2.55E-04	7.20E+02	1.26E+03	1.64E+03	1.65E+03	1.84E+03	6.21E+02	1.89E+03	1.57E+02	9.02E+02	7.14E+02	1.33E+03	1.41E+03	1.93E+03	2.55E+03	4.62E+02	9.44E+02	1.41E+03	3.01E+03	3.94E+02	9.19E+02	9.09E+02	1.43E+03	6.94E+02	3.94E+03		
Barium (56)	Ba-129m	2.93E+03	2.38E-03	6.06E+02	1.02E+03	1.42E+03	1.38E+03	1.57E+03	5.43E+02	1.93E+03	1.57E+02	9.02E+02	6.07E+02	1.16E+03	1.21E+03	1.64E+03	2.21E+03	3.89E+02	7.94E+02	1.21E+03	2.55E+02	3.43E+02	7.79E+02	1.20E+03	1.20E+03	5.90E+02	3.61E+03		
Barium (56)	Ba-131	2.20E+01	3.15E-02	1.43E+02	3.10E+02	3.80E+02	3.23E+02	3.88E+02	1.53E+02	4.38E+02	3.72E+01	1.99E+02	1.51E+02	3.21E+02	3.17E+02	4.06E+02	5.91E+02	9.20E+01	1.88E+02	3.17E+02	6.35E+02	9.58E+01	1.93E+02	2.04E+02	2.81E+02	1.46E+02	7.80E+02		
Barium (56)	Ba-131m	2.49E+04	2.78E-05	1.42E+02	3.07E+02	3.76E+02	3.20E+02	3.85E+02	1.51E+02	4.34E+02	3.68E+01	1.97E+02	1.49E+02	3.18E+02	3.14E+02	4.02E+02	5.86E+02	9.11E+01	1.86E+02	3.14E+02	6.28E+02	9.47E+01	1.91E+02	2.02E+02	2.78E+02	1.45E+02	7.72E+02		
Barium (56)	Ba-133	6.59E+02	1.05E+01	3.98E+01	9.11E+01	1.10E+02	8.95E+01	1.09E+02	4.49E+01	1.27E+02	1.03E+01	5.68E+01	4.24E+01	9.37E+01	9.02E+01	1.14E+02	1.71E+02	2.55E+01	5.21E+01	1.09E+01	1.79E+02	2.80E+01	5.44E+01	5.85E+01	7.78E+01	4.12E+01	2.21E+02		
Barium (56)	Ba-133m	1.56E+02	4.44E-03	3.07E+01	7.04E+01	8.48E+01	6.91E+01	8.45E+01	3.47E+01	9.77E+01	7.97E+00	4.37E+01	3.28E+01	7.24E+01	7.08E+01	8.84E+01	1.32E+02	1.97E+01	4.03E+01	7.02E+01	1.38E+02	2.16E+01	4.20E+01	4.52E+01	6.01E+01	3.18E+01	1.70E+02		
Barium (56)	Ba-135m	2.12E+02	3.28E-03	1.72E+02	3.93E+02	4.73E+02	3.86E+02	4.72E+02	1.93E+02	5.45E+02	4.45E+01	2.44E+02	1.83E+02	4.04E+02	3.92E+02	4.79E+02	7.37E+02	1.10E+02	2.29E+02	3.92E+02	7.70E+02	1.21E+02	2.35E+02	2.52E+02	3.36E+02	1.78E+02	9.51E+02		
Barium (56)	Ba-137m	1.43E+05	4.88E-06	4.59E+04	9.39E+04	1.58E+04	5.92E+02	1.36E+03	1.63E+03	1.33E+03	1.63E+03	6.67E+02	1.35E+03	1.53E+02	8.42E+02	6.31E+02	1.39E+03	1.35E+03	4.70E+02	2.54E+03	3.80E+02	7.78E+02	1.41E+02	4.16E+02	8.10E+02	8.70E+02	1.36E+03	6.13E+03	3.28E+01
Barium (56)	Ba-140	1.98E+01	3.49E-02	1.58E+01	3.52E+01	4.31E+01	3.56E+01	4.30E+01	1.73E+01	4.97E+01	4.10E+00	2.25E+01	1.67E+01	3.62E+01	3.65E+01	4.50E+01	6.71E+01	1.02E+01	2.07E+01	3.65E+01	7.03E+01	1.10E+01	2.14E+01	2.35E+01	3.10E+01	1.62E+01	8.72E+01		
Barium (56)	Ba-141	1.99E+04	3.48E-05	1.69E+01	1.39E+02	1.70E+02	1.48E+02	1.79E+02	6.65E+01	1.95E+02	1.71E+01	9.35E+01	6.95E+01	1.43E+02	1.41E+02	1.87E+02	2.64E+02	4.23E+01	8.63E+01	1.41E+02	2.92E+02	4.39E+01	8.91E+01	9.09E+01	1.29E+02	6.74E+01	3.56E+02		
Barium (56)	Ba-142	3.44E+04	2.02E-05	3.72E+02	8.02E+02	9.99E+02	8.36E+02	9.98E+02	3.95E+02	1.15E+03	9.64E+01	5.29E+02	3.87E+02	8.25E+02	8.64E+02	1.04E+03	1.55E+03	2.39E+02	4.87E+02	8.67E+02	1.63E+03	2.57E+02	4.97E+02	5.56E+02	7.27E+02	3.76E+02	2.04E+03		
Beryllium (4)	Be-10	4.95E+07	4.13E+06	6.59E+01	1.44E+02	1.73E+02	1.48E+02	1.81E+02	7.09E+01	2.00E+02	1.70E+01	9.35E+01	6.59E+01	1.43E+02	1.41E+02	1.89E+02	1.50E+02	2.70E+02	4.22E+01	8.85E+01	9.81E+01	8.95E+01	8.81E+01	9.81E+01	1.29E+02	4.42E+01	8.81E+01	1.29E+02	
Beryllium (4)	Be-7	4.75E+00	1.46E-01	2.95E+03	6.45E+03	7.77E+03	6.63E+03	8.10E+03	3.18E+03	8.95E+03	7.64E+02	4.19E+03	6.62E+03	6.62E+03	8.48E+03	1.21E+04	1.89E+03	3.86E+03	6.74E+03	1.32E+04	1.98E+03	4.03E+03	4.32E+03	7.77E+03	5.02E+03	1.62E+04			
Bismuth (83)	Bi-197	3.92E+04	1.77E-05	7.19E+01	1.65E+02	2.02E+02	1.72E+02	2.11E+02	8.14E+01	2.32E+02	1.98E+01	1.09E+02	8.14E+01	1.85E+02	1.79E+02	2.20E+02	3.14E+02	4.91E+01	1.00E+02	1.75E+02	3.48E+02	5.15E+01	1.05E+02	1.16E+02	1.50E+02	7.99E+01	4.21E+02		
Bismuth (83)	Bi-200	1.00E+04	6.93E-05	1.17E+02	1.88E+02	3.01E+02	2.63E+02	3.13E+02	9.29E+01	3.46E+02	3.03E+01	1.74E+02	1.21E+02	2.01E+02	2.73E+02	3.27E+02	4.68E+02	7.51E+01	1.53E+02	2.73E+02	5.48E+02	8.22E+01	1.56E+02	1.76E+02	2.29E+02	1.18E+02	6.20E+02		
Bismuth (83)	Bi-201	3.37E+03	2.05E-04	1.67E+02	3.01E+02	4.34E+02	3.76E+02	4.52E+02	1.49E+02	5.00E+02	4.75E+01	2.44E+02	1.75E+02	3.23E+02	3.88E+02	4.72E+02	6.75E+02	1.07E+02	2.19E+02	3.87E+02	7.40E+02	1.15E+02	2.25E+02	2.50E+02	3.27E+02	1.71E+02	8.98E+02		
Bismuth (83)	Bi-203	5.16E+02	1.34E-03	6.78E+01	1.30E+02	1.77E+02	1.52E+02	1.85E+02	6.42E+01	2.03E+02	1.73E+01	9.78E+01	7.14E+01	1.41E+02	1.57E+02	1.93E+02	2.75E+02	4.34E+01	8.86E+01	1.56E+02	3.03E+02	4.62E+01	9.16E+01	1.02E+02	1.32E+02	6.97E+01	3.67E+02		
Bismuth (83)	Bi-204	5.41E+02	1.28E-03	7.42E+01	1.62E+02	1.96E+02	1.67E+02	2.05E+02	7.97E+01	2.25E+02	1.92E+01	1.06E+02	7.91E+01	1.76E+02	1.72E+02	2.13E+02	3.05E+02	4.77E+01	9.73E+01	1.70E+02	3.36E+02	4.99E+01	1.01E+02	1.11E+02	1.45E+02	7.73E+01	4.08E+		





Radionuclides			Resident Tap Water Produce DCCs July 2023																													
Isotope-specific Information			Dose Compliance Concentrations (DCCs)																	Total Produce												
Element (Atomic Number)	Isotope	Lambda (1/yr)	Half-life (Years)	Apple Consumption	Asparagus Consumption	Beet Consumption	Berry Consumption	Broccoli Consumption	Cabbage Consumption	Carrot Consumption	Citrus fruit Consumption	Corn Consumption	Cucumber Consumption	Lettuce Consumption	Lima beans Consumption	Onion Consumption	Peaches Consumption	Pears Consumption	Peas Consumption	Peppers Consumption	Potatoes Consumption	Pumpkin Consumption	Snap beans Consumption	Strawberries Consumption	Tomatoes Consumption	DCC	DCC					
				DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)			
Dysprosium (66)	Dy-151	2.03E+04	3.41E+05	2.39E+01	5.23E+01	6.30E+01	5.38E+01	6.57E+01	2.57E+01	7.26E+01	6.20E+00	3.40E+01	2.55E+01	5.53E+01	5.44E+01	6.87E+01	9.81E+01	1.54E+01	3.14E+01	5.48E+01	1.07E+02	1.61E+01	3.27E+01	3.50E+01	4.68E+01	2.47E+01	1.31E+02					
Dysprosium (66)	Dy-152	2.05E+03	2.72E+04	6.48E+01	1.42E+02	1.71E+02	1.46E+02	1.78E+02	6.98E+01	1.97E+02	1.68E+01	9.21E+01	6.85E+01	1.47E+02	1.06E+02	1.48E+02	2.66E+02	4.15E+01	6.49E+01	9.40E+01	1.48E+02	4.32E+01	8.80E+01	9.45E+01	7.47E+01	6.70E+01	1.10E+02	5.82E+02				
Dysprosium (66)	Dy-153	9.97E+02	7.31E+04	1.05E+02	2.32E+02	2.80E+02	2.39E+02	2.92E+02	1.14E+02	3.32E+02	2.75E+01	1.51E+02	1.13E+02	2.38E+02	2.42E+02	3.36E+02	4.38E+02	6.82E+01	1.39E+02	2.42E+02	1.14E+02	4.56E+02	4.76E+02	1.14E+02	1.45E+02	1.56E+02	2.08E+02	1.10E+02	2.73E+02			
Dysprosium (66)	Dy-154	2.31E+07	3.00E+06	4.98E+01	1.09E+02	1.31E+02	1.12E+02	1.37E+02	5.36E+01	1.51E+02	1.29E+01	7.08E+01	5.31E+01	1.12E+02	1.13E+02	1.43E+02	2.04E+02	3.20E+01	6.53E+01	1.14E+02	2.23E+02	3.35E+01	6.81E+01	7.29E+01	9.75E+01	5.15E+01	2.75E+02					
Dysprosium (66)	Dy-155	6.13E+02	1.13E+03	1.95E+02	4.27E+02	5.15E+02	4.39E+02	5.37E+02	2.11E+02	5.44E+02	5.07E+01	2.78E+02	2.08E+02	4.38E+02	4.45E+02	5.62E+02	8.02E+02	1.25E+02	2.56E+02	4.02E+02	1.52E+02	3.19E+02	4.87E+02	8.76E+02	1.31E+02	2.67E+02	2.86E+02	3.82E+02	2.02E+02	1.07E+02		
Dysprosium (66)	Dy-157	7.46E+02	9.29E+04	8.02E+02	1.76E+03	2.12E+03	1.80E+03	2.20E+03	8.64E+02	2.94E+03	2.08E+02	1.14E+03	8.55E+02	1.80E+03	1.83E+03	2.31E+03	3.29E+03	5.15E+02	1.05E+03	1.83E+03	3.60E+03	1.53E+02	1.10E+03	1.18E+03	1.57E+03	1.57E+03	8.30E+02	4.40E+01	1.40E+01			
Dysprosium (66)	Dy-159	1.75E+00	3.96E+01	7.42E+02	1.62E+03	1.96E+03	1.67E+03	2.04E+03	7.99E+02	2.25E+03	1.92E+02	1.05E+03	7.90E+02	1.66E+03	1.69E+03	2.13E+03	3.04E+03	4.76E+02	9.71E+02	1.69E+03	3.33E+03	4.99E+02	1.01E+03	1.09E+03	1.45E+03	7.67E+02	4.74E+02	3.97E+01				
Dysprosium (66)	Dy-165	2.60E+03	2.66E+04	7.02E+02	1.53E+03	1.89E+03	1.93E+03	2.13E+03	7.59E+02	2.13E+03	1.82E+02	9.99E+02	7.48E+03	1.57E+03	1.60E+03	2.02E+03	2.89E+03	4.51E+02	9.19E+02	1.60E+03	3.15E+03	4.72E+02	1.60E+03	1.37E+03	1.37E+03	7.26E+02	3.85E+01					
Dysprosium (66)	Dy-165m	2.90E+05	2.93E+06	1.78E+02	5.57E+03	1.89E+03	1.61E+03	1.97E+03	7.73E+02	2.18E+03	1.86E+02	1.02E+03	6.75E+02	1.61E+03	1.63E+03	2.06E+03	2.95E+03	4.61E+02	9.40E+02	1.64E+03	3.22E+03	4.82E+02	9.82E+02	1.05E+03	1.40E+03	7.42E+02	4.94E+01					
Dysprosium (66)	Dy-166	7.44E+01	9.32E+03	2.48E+01	5.42E+01	6.53E+01	5.57E+01	6.81E+01	2.67E+01	7.53E+01	6.42E+00	3.52E+01	2.64E+01	5.56E+01	5.64E+01	7.12E+01	1.02E+02	1.59E+01	3.25E+01	5.66E+01	1.11E+02	1.66E+01	3.39E+01	3.63E+01	4.85E+01	2.56E+01	1.36E+02					
Dysprosium (66)	Dy-167	5.87E+04	1.18E+05	8.94E+02	1.95E+03	2.36E+03	2.01E+03	2.46E+03	9.63E+02	2.71E+03	3.22E+02	1.27E+03	9.52E+02	2.00E+03	2.03E+03	2.57E+03	3.67E+03	5.74E+02	1.17E+03	2.04E+03	4.01E+03	6.00E+02	1.22E+03	1.31E+03	1.75E+03	9.24E+02	4.90E+01					
Dysprosium (66)	Dy-168	4.19E+04	1.66E+05	4.99E+01	1.09E+02	1.32E+02	1.12E+02	1.37E+02	5.38E+01	1.52E+02	1.29E+01	7.09E+01	5.32E+01	1.12E+02	1.14E+02	1.43E+02	2.05E+02	3.21E+01	6.54E+01	1.14E+02	2.24E+02	3.35E+01	6.83E+01	7.31E+01	9.77E+01	5.16E+01	2.74E+01					
Erbium (68)	Er-154	9.47E+04	7.10E+06	6.09E+02	1.33E+03	1.61E+03	1.37E+03	1.67E+03	6.58E+02	1.85E+03	1.58E+02	8.65E+02	6.49E+02	1.12E+03	1.39E+03	1.75E+03	2.50E+03	3.91E+02	7.99E+02	1.39E+03	4.09E+02	8.33E+02	8.91E+02	1.19E+03	6.30E+02	3.34E+01						
Erbium (68)	Er-159	1.01E+04	6.85E+05	5.78E+02	1.26E+03	1.52E+03	1.30E+03	1.59E+03	6.23E+02	1.76E+03	1.50E+02	8.22E+02	6.16E+02	1.30E+03	1.32E+03	1.66E+03	2.37E+03	3.71E+02	7.58E+02	1.32E+03	2.59E+03	3.89E+02	7.91E+02	8.47E+02	1.13E+03	5.89E+02	3.17E+01					
Erbium (68)	Er-161	1.89E+03	3.66E+04	8.44E+02	1.84E+03	2.22E+03	1.90E+03	2.32E+03	9.08E+02	2.60E+03	2.19E+02	1.20E+03	8.98E+02	1.89E+03	1.92E+03	2.42E+03	3.46E+03	5.42E+02	1.11E+03	1.93E+03	3.78E+03	5.68E+02	1.15E+03	1.23E+03	1.65E+03	1.87E+02	4.62E+01					
Erbium (68)	Er-163	4.86E+03	1.43E+04	1.42E+04	3.11E+04	3.75E+04	3.20E+04	3.90E+04	1.53E+04	4.32E+04	3.69E+03	2.02E+04	1.51E+04	3.18E+04	3.24E+04	4.09E+04	5.83E+04	9.13E+03	1.86E+04	3.25E+04	6.37E+04	9.55E+03	1.94E+04	2.08E+04	2.78E+04	1.47E+04	7.79E+02					
Erbium (68)	Er-165	8.86E+02	1.18E+03	4.12E+03	8.99E+03	1.08E+04	9.26E+03	1.13E+04	4.42E+03	1.25E+04	1.07E+03	5.84E+03	4.38E+03	9.20E+03	9.35E+03	1.10E+04	1.49E+04	2.64E+03	5.39E+03	3.29E+03	1.84E+04	2.76E+03	5.62E+03	6.01E+03	8.05E+03	4.25E+03	2.75E+02					
Erbium (68)	Er-167m	6.83E+06	7.19E+06	2.41E+02	4.16E+02	5.43E+02	5.43E+02	6.50E+02	2.65E+02	6.70E+02	6.08E+02	3.52E+02	2.52E+02	5.54E+02	6.00E+02	9.07E+02	1.55E+02	3.17E+02	1.55E+02	1.06E+02	1.64E+02	3.24E+02	3.56E+02	4.72E+02	4.45E+02	4.72E+02	2.45E+02	1.29E+03				
Erbium (68)	Er-169	2.69E+01	2.58E+02	2.05E+02	4.48E+02	5.40E+02	4.61E+02	5.62E+02	2.20E+02	6.21E+02	5.31E+01	2.91E+02	2.18E+02	4.58E+02	4.66E+02	5.88E+02	8.40E+02	1.32E+02	2.69E+02	4.67E+02	9.17E+02	1.37E+02	2.80E+02	3.00E+02	4.01E+02	2.12E+02	1.12E+01					
Erbium (68)	Er-171	8.08E+02	8.58E+04	1.67E+02	3.64E+02	4.39E+02	3.75E+02	4.57E+02	1.79E+02	5.05E+02	4.32E+01	2.37E+02	1.77E+02	3.73E+02	3.79E+02	4.78E+02	6.83E+02	1.07E+02	2.18E+02	3.80E+02	7.46E+02	1.12E+02	2.44E+02	2.28E+02	3.26E+02	1.72E+02	9.13E+00					
Erbium (68)	Er-172	1.23E+02	5.63E+03	2.82E+01	6.17E+01	7.44E+01	6.35E+01	7.75E+01	3.04E+01	8.57E+01	7.32E+00	4.01E+01	3.01E+01	6.32E+01	6.42E+01	8.11E+01	1.16E+02	1.81E+01	3.70E+01	6.45E+01	1.27E+02	1.90E+01	3.86E+01	4.13E+01	5.52E+01	2.92E+01	1.55E+01					
Erbium (68)	Er-173	2.54E+05	2.73E+06	2.57E+02	5.62E+02	7.77E+02	7.06E+02	7.06E+02	2.77E+02	7.80E+02	6.66E+01	3.65E+02	2.74E+02	5.78E+02	5.82E+02	7.39E+02	1.05E+03	1.65E+02	3.37E+02	5.87E+02	1.15E+03	1.73E+02	3.51E+02	3.76E+02	5.03E+02	2.66E+02	1.41E+01					
Einsteinium (99)	Es-249	3.56E+03	1.94E+04	5.20E+02	1.02E+03	1.25E+03	1.17E+03	1.40E+03	5.02E+02	1.48E+03	1.35E+02	7.41E+02	5.42E+02	1.08E+03	1.17E+03	1.46E+03	1.97E+03	3.34E+02	6.81E+02	1.17E+03	2.28E+03	3.49E+02	6.95E+02	7.51E+02	1.02E+02	5.26E+02	2.79E+03					
Einsteinium (99)	Es-250	2.73E+03	2.53E+04	2.41E+02	4.18E+02	5.43E+02	5.43E+02	6.50E+02	2.65E+02	6.71E+02	6.26E+02	3.52E+02	2.52E+02	5.54E+02	6.00E+02	9.07E+02	1.55E+02	3.17E+02	1.55E+02	1.06E+02	1.64E+02	3.24E+02	3.56E+02	4.72E+02	4.45E+02	4.72E+02	2.45E+02	1.29E+03				
Einsteinium (99)	Es-250m	2.73E+03	2.53E+04	2.38E+02	4.10E+02	5.73E+02	5.35E+02	6.40E+02	2.02E+02	6.02E+02	6.17E+03	3.46E+02	2.48E+02	4.31E+02	4.54E+02	6.70E+02	8.92E+02	1.53E+02	3.12E+02	5.47E+02	1.05E+03	1.61E+02	3.18E+02	3.52E+02	4.62E+02	2.41E+02	2.76E+03					
Einsteinium (99)	Es-251	1.84E+02	3.77E+03	4.22E+02	8.60E+02	1.06E+03	9.48E+02	1.15E+03	4.23E+02	1.22E+03	1.09E+02	6.02E+02	4.46E+02	8.90E+02	9.58E+02	1.20E+03	1.64E+03	2.71E+02	5.53E+02	9.60E+02	1.88E+03	2.83E+02	5.72E+02	6.16E+02	8.25E+02	4.33E+02	2.29E+03					
Einsteinium (99)	Es-253	1.24E+01	5.61E+02	5.17E+02	1.01E+03	1.26E+03	1.16E+03	1.39E+03	4.99E+02	1.45E+03	1.34E+02	7.36E+02	5.38E+02	1.05E+03	1.16E+03	1.45E+03	1.96E+03	3.32E+02	6.77E+02	1.16E+03	2.27E+03	3.46E+02	6.91E+02	7.46E+02	1.01E+03	5.52E+02	2.77E+03					
Einsteinium (99)	Es-254	9.17E+01	7.55E+01	2.35E+02	4.07E+02	5.68E+02	5.29																									

Radionuclides		Isotope-specific Information		Dose Consumption Concentrations (DCCs)																							
Element (Atomic Number)	Isotope (Nuclide)	Lambda (1/yr)	Half-life (Years)	Apple Consumption	Asparagus Consumption	Beet Consumption	Berry Consumption	Broccoli Consumption	Cabbage Consumption	Carrot Consumption	Citrus fruit Consumption	Com Consumption	Cucumber Consumption	Legume Consumption	Lima beans Consumption	Nuts Consumption	Onion Consumption	Peaches Consumption	Pears Consumption	Peas Consumption	Peppers Consumption	Potatoes Consumption	Pumpkin Consumption	Snap beans Consumption	Strawberries Consumption	Tomatoes Consumption	Total Produce
				DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)
Gadolinium (64)	Gd-149	2.73E+01	2.54E-02	1.12E+02	2.45E+02	2.96E+02	2.52E+02	3.08E+02	1.21E+02	3.41E+02	2.91E+01	1.59E+02	1.20E+02	2.52E+02	2.55E+02	3.23E+02	4.60E+02	7.20E+01	1.47E+02	2.56E+02	5.03E+02	7.54E+01	1.53E+02	1.64E+02	2.19E+02	1.16E+02	6.15E+02
Gadolinium (64)	Gd-151	3.81E+07	1.74E-06	7.63E+01	1.67E+02	2.01E+02	1.72E+02	2.09E+02	8.21E+01	2.31E+02	1.98E+01	1.03E+02	1.21E+02	2.61E+02	2.18E+02	3.10E+02	4.40E+02	3.12E+01	1.90E+02	3.42E+02	1.93E+02	5.12E+01	1.10E+02	1.15E+02	1.40E+02	1.52E+02	7.88E+01
Gadolinium (64)	Gd-151	3.41E+02	3.40E-01	3.41E+02	1.87E+02	8.98E+02	7.62E+02	3.76E+02	3.67E+02	1.03E+03	8.83E+01	4.84E+02	7.76E+02	1.40E+03	2.19E+02	4.46E+02	7.78E+02	2.19E+02	4.46E+02	1.53E+03	2.35E+02	4.66E+02	4.66E+02	4.66E+02	1.68E+02	1.68E+02	3.37E+02
Gadolinium (64)	Gd-152	6.42E+15	1.08E-14	6.42E+15	1.43E+02	1.79E+02	1.47E+02	1.79E+02	7.02E+01	1.98E+02	1.69E+01	9.26E+01	6.94E+01	1.46E+02	1.48E+02	1.87E+02	2.67E+02	4.19E+01	8.54E+01	1.49E+02	2.92E+02	4.38E+01	8.91E+01	9.54E+01	1.28E+02	6.74E+01	3.57E-02
Gadolinium (64)	Gd-153	1.05E+00	6.59E-01	2.80E+02	6.12E+02	3.77E+02	6.29E+02	7.68E+02	3.01E+02	8.49E+02	7.25E+01	3.97E+02	2.98E+02	6.27E+02	6.37E+02	8.04E+02	1.15E+03	1.79E+02	3.66E+02	6.39E+02	1.25E+03	1.88E+02	3.82E+02	4.09E+02	5.47E+02	2.89E+02	1.53E+01
Gadolinium (64)	Gd-159	3.29E+02	2.11E-03	1.50E+02	3.29E+02	3.97E+02	3.38E+02	4.13E+02	1.62E+02	4.57E+02	3.90E+01	2.14E+02	1.60E+02	3.27E+02	3.43E+02	4.33E+02	4.33E+02	6.17E+02	9.66E+01	2.76E+02	3.44E+02	6.75E+02	1.01E+02	2.06E+02	2.92E+02	1.56E+02	8.25E+00
Gadolinium (64)	Gd-162	4.34E+04	1.60E-05																								
Germanium (32)	Ge-66	2.69E+03	2.58E-04	4.80E+01	1.04E+02	1.27E+02	1.08E+02	1.31E+02	5.14E+01	1.46E+02	1.24E+01	6.79E+01	5.09E+01	1.10E+02	1.10E+02	1.37E+02	1.97E+02	3.08E+01	6.29E+01	1.09E+02	2.15E+02	3.23E+01	6.53E+01	7.06E+01	9.39E+01	4.96E+01	2.63E+00
Germanium (32)	Ge-67	1.93E+04	3.60E-05	1.64E+01	3.58E+02	4.43E+02	3.89E+02	4.52E+02	1.78E+02	4.99E+02	2.42E+01	2.33E+02	1.74E+02	3.88E+02	3.79E+02	4.71E+02	6.74E+02	1.05E+02	2.15E+02	3.74E+02	7.41E+02	1.10E+02	2.24E+02	4.02E+02	3.21E+02	1.71E+02	9.02E+00
Germanium (32)	Ge-68	9.34E-01	7.42E-01	1.26E+01	2.76E+01	3.31E+01	2.84E+01	3.49E+01	1.38E+01	3.83E+01	3.27E+00	1.79E+01	1.34E+01	3.10E+01	2.95E+01	3.36E+01	5.18E+01	8.10E+00	1.65E+01	2.88E+01	5.74E+01	8.49E+00	1.72E+01	1.91E+01	2.47E+01	1.32E+01	6.95E-01
Germanium (32)	Ge-69	1.55E+02	4.46E-03	8.30E+01	1.82E+02	2.19E+02	1.87E+02	2.30E+02	8.94E+01	2.52E+02	2.15E+01	1.18E+02	8.84E+01	2.05E+02	1.94E+02	2.63E+02	3.41E+02	5.33E+01	1.09E+02	1.90E+02	3.78E+02	5.58E+01	1.13E+02	1.26E+02	1.62E+02	8.69E+01	4.57E+00
Germanium (32)	Ge-71	2.21E+01	3.13E-02	1.37E+03	3.00E+03	3.62E+03	3.08E+03	3.79E+03	1.48E+03	4.16E+03	3.56E+02	1.95E+03	1.46E+03	3.38E+03	3.21E+03	3.94E+03	5.63E+03	8.81E+02	1.80E+03	3.10E+03	6.25E+03	9.22E+02	1.87E+03	2.08E+03	2.68E+03	1.44E+03	7.56E+01
Germanium (32)	Ge-75	4.40E+03	1.57E-04	3.50E+02	7.85E+02	9.33E+02	7.87E+02	9.88E+02	3.77E+02	1.09E+03	9.08E+01	4.98E+02	3.73E+02	8.33E+02	8.19E+02	1.01E+03	1.44E+03	2.25E+02	4.59E+02	8.00E+02	1.59E+03	2.35E+02	4.78E+02	5.31E+02	6.94E+02	3.87E+02	1.93E+01
Germanium (32)	Ge-76	5.37E+02	3.05E-03	3.54E+01	7.74E+01	9.33E+01	8.21E+01	9.78E+01	3.81E+01	1.07E+02	9.18E+00	5.03E+01	3.77E+01	8.60E+01	8.26E+01	1.02E+02	1.45E+02	2.27E+01	4.64E+01	8.61E+01	2.38E+01	3.89E+01	5.35E+01	6.02E+01	8.92E+01	3.70E+01	1.95E+00
Germanium (32)	Ge-78	4.14E+03	1.67E-04	8.97E+01	1.96E+02	2.38E+02	2.02E+02	2.48E+02	9.66E+01	2.72E+02	2.32E+01	1.27E+02	9.55E+01	2.17E+02	2.09E+02	2.58E+02	3.68E+02	5.76E+01	1.17E+02	2.05E+02	4.07E+02	6.03E+01	1.23E+02	1.35E+02	1.75E+02	9.37E+01	4.94E+00
Hydrogen (1)	H-3	5.63E-02	1.23E+01	4.85E+01	1.06E+02	1.28E+02	1.09E+02	1.34E+02	5.22E+01	1.47E+02	1.26E+01	6.89E+01	5.16E+01	1.22E+02	1.14E+02	1.39E+02	1.99E+02	3.11E+01	6.35E+01	1.11E+02	2.22E+02	3.29E+01	6.62E+01	7.42E+01	9.47E+01	5.07E+01	2.67E+00
Hafnium (72)	Hf-167	1.78E+05	3.90E-06	1.21E+02	2.66E+02	3.20E+02	2.73E+02	3.34E+02	1.31E+02	3.99E+02	3.15E+01	1.73E+02	1.29E+02	2.72E+02	2.77E+02	3.49E+02	4.98E+02	7.80E+01	1.59E+02	2.78E+02	5.45E+02	8.16E+01	1.66E+02	1.78E+02	2.18E+02	1.26E+02	6.66E+00
Hafnium (72)	Hf-169	1.12E+05	6.16E-06	5.91E+01	1.29E+02	1.56E+02	1.33E+02	1.62E+02	6.38E+01	1.79E+02	1.53E+01	8.39E+01	6.29E+01	1.32E+02	1.34E+02	1.70E+02	2.42E+02	3.79E+01	7.74E+01	1.38E+02	2.65E+02	3.97E+01	8.08E+01	8.65E+01	1.13E+02	6.11E+01	3.24E+00
Hafnium (72)	Hf-170	3.79E+02	1.83E-03	3.15E+01	1.83E+02	2.21E+02	1.92E+02	2.35E+02	8.75E+01	2.62E+02	2.23E+01	1.17E+02	8.51E+01	1.85E+02	1.73E+02	2.17E+02	3.07E+02	4.82E+01	9.61E+01	1.63E+02	3.13E+02	4.57E+01	9.85E+01	1.07E+02	1.28E+02	7.88E+01	4.19E+00
Hafnium (72)	Hf-172	3.71E+01	1.87E+00	3.33E+01	7.27E+01	8.76E+01	7.48E+01	9.13E+01	3.58E+01	1.01E+02	8.62E+00	4.72E+01	3.54E+01	7.45E+01	7.56E+01	9.55E+01	1.36E+02	2.13E+01	4.36E+01	7.59E+01	1.49E+02	2.23E+01	4.54E+01	1.86E+01	6.50E+01	3.44E+01	1.82E+00
Hafnium (72)	Hf-173	2.57E+02	2.69E-03	1.35E+02	2.95E+02	3.56E+02	3.04E+02	3.71E+02	1.45E+02	4.10E+02	3.50E+01	1.92E+02	1.44E+02	3.02E+02	3.07E+02	3.88E+02	5.54E+02	8.67E+01	1.76E+02	3.08E+02	6.05E+02	9.06E+01	1.84E+02	1.98E+02	2.64E+02	1.39E+02	7.40E+00
Hafnium (72)	Hf-174	3.47E-16	2.00E-15	3.29E-01	7.19E-01	8.67E-01	7.39E-01	9.03E-01	3.54E-01	9.99E-01	8.52E-02	4.67E-01	3.50E-01	7.38E-01	7.49E-01	9.45E-01	1.35E+00	2.11E-01	4.31E-01	7.51E-01	1.47E+00	2.21E-01	4.50E-01	4.82E-01	6.43E-01	3.40E-01	1.80E-02
Hafnium (72)	Hf-175	3.61E+00	1.92E-01	1.96E+02	4.29E+02	5.17E+02	4.41E+02	5.39E+02	2.11E+02	5.99E+02	5.08E+01	2.79E+02	2.09E+02	4.40E+02	4.47E+02	5.64E+02	8.05E+02	1.26E+02	2.57E+02	4.48E+02	8.80E+02	1.32E+02	2.68E+02	2.87E+02	3.84E+02	2.03E+02	1.08E+01
Hafnium (72)	Hf-177m	7.09E+03	9.78E-05	9.59E+02	2.10E+03	2.53E+03	2.16E+03	2.64E+03	1.03E+03	2.91E+03	2.49E+02	1.38E+03	1.02E+03	2.15E+03	2.18E+03	2.76E+03	3.94E+03	6.16E+02	1.26E+03	2.19E+03	4.40E+03	6.44E+02	1.31E+03	1.40E+03	1.88E+03	9.92E+02	5.26E+01
Hafnium (72)	Hf-179m	2.24E+02	3.10E-01	2.24E+02	4.56E+01	5.49E+01	4.89E+01	5.73E+01	2.24E+01	6.33E+01	5.40E+00	2.98E+01	2.22E+01	4.75E+01	4.75E+01	5.99E+01	8.55E+01	1.34E+01	2.73E+01	4.93E+01	1.40E+02	2.89E+01	1.40E+02	2.89E+01	1.40E+02	2.89E+01	1.40E+02
Hafnium (72)	Hf-179m	1.01E+01	6.86E-02	6.16E+01	1.35E+02	1.63E+02	1.39E+02	1.69E+02	6.64E+01	1.87E+02	1.60E+01	8.76E+01	6.57E+01	1.38E+02	1.44E+02	1.77E+02	2.53E+02	3.96E+01	8.08E+01	1.41E+02	2.77E+02	4.44E+01	8.43E+01	9.03E+01	1.21E+02	6.98E+01	3.38E+00
Hafnium (72)	Hf-180m	1.10E+03	6.28E-04	4.69E+02	1.03E+03	1.24E+03	1.05E+03	1.29E+03	5.05E+02	1.42E+03	1.21E+02	6.66E+02	4.99E+02	1.05E+03	1.07E+03	1.35E+03	1.92E+03	3.01E+02	6.14E+02	1.07E+03	2.10E+03	3.15E+02	6.41E+02	6.87E+02	1.97E+02	4.85E+02	2.57E+01
Hafnium (72)	Hf-181	5.97E+00	1.16E-01	6.90E+01	1.51E+02	1.82E+02	1.55E+02	1.90E+02	7.44E+01	2.10E+02	1.79E+01	9.81E+01	7.36E+01	1.55E+02	1.57E+02	1.99E+02	2.83E+02	4.43E+01	9.04E+01	1.58E+02	3.10E+02	4.64E+01	9.41E+01	1.01E+02	1.37E+02	7.45E+01	3.79E+00
Hafnium (72)	Hf-182	7.70E-08	9.00E+06	1.59E+01	4.19E+01	5.06E+01	4.31E+01	5.27E+01	2.07E+01	5.82E+01	4.97E+00	2.73E+01	2.04E+01	4.30E+01	4.37E+01	5.51E+01	7.87E+01	1.23E+01	2.51E+01	4.38E+01	8.80E+01	1.29E+01	2.62E+01	2.81E+01	3.75E+01	1.98E+01	1.05E+00
Hafnium (72)	Hf-183	1.82E+03	1.10E-03	1.82E+03	3.65E+01	4.38E+01	3.80E+01	4.51E+01	1.73E+01	4.24E+01	3.18E+01	1.69E+01	1.25														

Radionuclides			Resident Tap Water Produce DCCs July 2023																											
Element (Atomic Number)	Isotope	Half-life (Years)	Dose Compliance Concentrations (DCCs)																											
			Apple Consumption DCC DL=1 (Bq/L)	Asparagus Consumption DCC DL=1 (Bq/L)	Beet Consumption DCC DL=1 (Bq/L)	Berry Consumption DCC DL=1 (Bq/L)	Broccoli Consumption DCC DL=1 (Bq/L)	Cabbage Consumption DCC DL=1 (Bq/L)	Carrot Consumption DCC DL=1 (Bq/L)	Citrus fruit Consumption DCC DL=1 (Bq/L)	Corn Consumption DCC DL=1 (Bq/L)	Cucumber Consumption DCC DL=1 (Bq/L)	Lettuce Consumption DCC DL=1 (Bq/L)	Lima beans Consumption DCC DL=1 (Bq/L)	Onion Consumption DCC DL=1 (Bq/L)	Peaches Consumption DCC DL=1 (Bq/L)	Pears Consumption DCC DL=1 (Bq/L)	Peanut Consumption DCC DL=1 (Bq/L)	Peppers Consumption DCC DL=1 (Bq/L)	Potatoes Consumption DCC DL=1 (Bq/L)	Pumpkin Consumption DCC DL=1 (Bq/L)	Snap beans Consumption DCC DL=1 (Bq/L)	Strawberries Consumption DCC DL=1 (Bq/L)	Tomatoes Consumption DCC DL=1 (Bq/L)	Total Produce DCC DL=1 (Bq/L)					
Indium (49)	In-107	4.71E+01	1.12E+00	6.16E-05	1.90E+02	4.16E+02	5.02E+02	4.28E+02	5.26E+02	2.05E+02	5.78E+02	4.94E+01	8.36E+02	2.03E+02	4.66E+02	6.77E+02	5.47E+02	7.81E+02	1.22E+02	2.50E+02	6.65E+02	8.66E+02	5.11E+01	2.60E+02	4.38E+02	3.72E+02	1.99E+02	9.82E+00		
Indium (49)	In-110	11.11	9.02E+01	7.68E+03	2.81E+02	6.10E+02	7.41E+02	6.32E+02	7.67E+02	3.01E+02	8.54E+02	7.29E+01	3.97E+02	2.97E+02	2.97E+02	6.35E+02	8.03E+02	1.15E+03	1.80E+02	3.88E+02	6.88E+02	1.25E+03	1.89E+02	4.09E+02	5.50E+02	2.89E+02	1.54E+01			
Indium (49)	In-108m	9.20E+03	1.00E+03	7.53E-05	1.00E+03	2.18E+03	2.65E+03	2.74E+03	1.07E+03	3.05E+03	2.61E+02	1.42E+03	1.06E+03	2.27E+03	3.87E+03	4.72E+03	6.45E+03	2.29E+03	4.12E+03	6.45E+03	2.29E+03	4.47E+03	6.30E+03	1.48E+03	1.97E+03	3.36E+03	5.48E+01			
Indium (49)	In-109	1.45E+03	4.79E+04	7.14E+00	1.56E+01	1.88E+01	1.60E+01	1.97E+01	7.68E+00	2.17E+01	1.85E+00	3.96E+01	7.60E+00	1.76E+01	2.69E+01	2.05E+01	2.93E+01	4.58E+00	9.35E+00	2.63E+01	3.25E+01	1.81E+00	9.75E+00	1.74E+01	1.39E+01	7.47E+00	5.66E+01			
Indium (49)	In-109m	2.72E+05	2.55E-06	7.14E+00	1.56E+01	1.88E+01	1.60E+01	1.97E+01	7.68E+00	2.17E+01	1.85E+00	3.96E+01	7.60E+00	1.76E+01	2.69E+01	2.05E+01	2.93E+01	4.58E+00	9.35E+00	2.63E+01	3.25E+01	1.81E+00	9.75E+00	1.74E+01	1.39E+01	7.47E+00	3.66E+01			
Indium (49)	In-110	1.24E+03	5.59E-04	3.52E+00	1.66E+02	1.92E+02	7.91E+02	9.59E+02	3.76E+02	1.07E+03	9.11E+01	4.96E+02	3.72E+02	7.82E+02	7.95E+02	1.00E+03	1.44E+03	2.26E+02	4.61E+02	7.98E+02	1.57E+03	2.36E+02	4.77E+02	5.11E+02	6.88E+02	3.67E+02	1.92E+01			
Indium (49)	In-110m	5.27E+03	1.31E-04	7.95E+02	1.73E+03	2.10E+03	1.79E+03	2.17E+03	8.50E+02	2.41E+03	2.06E+02	1.12E+03	8.41E+02	1.77E+03	1.80E+03	2.27E+03	3.29E+03	5.10E+02	1.04E+03	1.80E+03	3.54E+03	5.34E+02	1.08E+03	1.16E+03	1.56E+03	8.16E+02	4.35E+01			
Indium (49)	In-111	4.75E+04	1.46E-05	2.81E+02	6.10E+02	7.41E+02	6.32E+02	7.67E+02	3.01E+02	8.54E+02	7.29E+01	3.97E+02	2.97E+02	2.97E+02	6.35E+02	8.03E+02	1.15E+03	1.80E+02	3.88E+02	6.88E+02	1.25E+03	1.89E+02	4.09E+02	5.50E+02	2.89E+02	1.54E+01				
Indium (49)	In-112	2.43E+04	2.85E-05	7.61E+03	1.65E+04	2.01E+04	1.71E+04	2.08E+04	8.14E+03	2.31E+04	1.97E+03	1.07E+04	8.05E+03	1.69E+04	1.72E+04	2.17E+04	3.12E+04	4.89E+03	9.97E+03	1.73E+04	3.39E+04	5.11E+03	1.03E+04	1.11E+04	1.49E+04	7.81E+03	4.16E+02			
Indium (49)	In-112m	1.77E+04	3.91E-05	2.89E+03	6.29E+03	7.63E+03	6.51E+03	7.90E+03	3.10E+03	8.79E+03	7.50E+02	4.09E+03	3.06E+03	6.44E+03	6.54E+03	8.27E+03	1.19E+04	1.86E+03	3.79E+03	6.57E+03	1.29E+04	1.94E+03	3.93E+03	4.21E+03	5.66E+03	2.97E+03	1.68E+02			
Indium (49)	In-113m	3.66E+03	1.89E-04	2.72E+03	5.90E+03	7.17E+03	6.11E+03	7.41E+03	2.91E+03	8.25E+03	7.04E+02	3.84E+03	2.88E+03	6.04E+03	6.14E+03	7.76E+03	1.12E+04	1.74E+03	3.56E+03	6.17E+03	1.21E+04	1.83E+03	3.69E+03	3.95E+03	5.32E+03	2.79E+03	1.49E+02			
Indium (49)	In-114	3.04E+05	2.28E-06	1.83E+01	3.98E+01	4.83E+01	4.12E+01	5.00E+01	1.96E+01	5.57E+01	4.75E+00	2.59E+01	1.94E+01	4.08E+01	4.14E+01	5.24E+01	7.52E+01	1.18E+01	2.40E+01	4.16E+01	1.83E+01	1.23E+01	2.49E+01	2.49E+01	2.66E+01	3.59E+01	1.88E+01	1.00E+00		
Indium (49)	In-115	1.57E+15	4.41E-14	3.00E+00	6.52E+00	7.91E+00	6.75E+00	8.19E+00	3.21E+00	9.11E+00	7.78E+01	4.24E+00	3.18E+00	6.67E+00	6.78E+00	8.57E+00	1.23E+01	1.93E+00	3.93E+00	6.81E+00	1.34E+01	2.02E+00	4.08E+00	4.36E+00	5.87E+00	3.08E+00	1.64E+01			
Indium (49)	In-115m	1.35E+03	5.12E-04	3.15E+00	6.84E+00	8.30E+00	7.08E+00	8.59E+00	3.37E+00	9.56E+00	8.16E+01	4.44E+00	3.33E+00	7.00E+00	7.11E+00	8.99E+00	1.29E+01	2.02E+00	4.77E+00	1.74E+00	1.40E+01	2.11E+00	4.27E+00	4.57E+00	6.16E+00	3.23E+00	1.72E+01			
Indium (49)	In-116m	6.69E+03	1.04E-04	1.29E+03	2.81E+03	3.41E+03	2.91E+03	3.53E+03	1.38E+03	3.93E+03	3.35E+02	1.82E+03	1.37E+03	2.87E+03	2.92E+03	3.69E+03	5.31E+03	8.30E+02	1.69E+03	2.93E+03	5.76E+03	8.69E+02	1.76E+03	1.88E+03	2.53E+03	1.33E+03	7.07E+01			
Indium (49)	In-117	8.43E+03	8.22E-05	1.99E+03	4.32E+03	5.24E+03	4.47E+03	5.44E+03	2.13E+03	6.04E+03	5.15E+02	2.81E+03	2.11E+03	4.52E+03	4.53E+03	6.69E+03	8.18E+03	1.28E+03	2.60E+03	4.52E+03	8.90E+03	1.34E+03	2.70E+03	2.92E+03	3.89E+03	2.03E+03	1.09E+02			
Indium (49)	In-117m	4.13E+03	2.21E-04	5.51E+02	1.20E+03	1.45E+03	1.24E+03	1.50E+03	5.90E+02	1.67E+03	1.43E+02	7.78E+02	5.84E+02	1.23E+03	1.25E+03	1.57E+03	2.29E+03	3.54E+02	7.22E+02	1.25E+03	2.46E+03	3.70E+02	7.49E+02	8.02E+02	1.08E+03	5.66E+02	3.01E+01			
Indium (49)	In-118m	8.35E+04	8.30E-06	1.52E+05	4.57E-06	5.86E+03	1.28E+04	1.55E+04	1.32E+04	1.62E+04	6.31E+03	1.78E+04	1.52E+03	8.33E+03	6.24E+03	1.44E+04	1.37E+04	1.68E+04	2.41E+04	3.76E+03	7.68E+03	1.34E+04	2.67E+04	3.94E+03	8.01E+03	8.88E+03	1.15E+04	6.13E+03	3.23E+02	
Indium (49)	In-119	1.02E+04	3.42E-05	1.69E+03	3.67E+03	4.46E+03	3.80E+03	4.61E+03	1.81E+03	5.13E+03	4.38E+02	2.39E+03	1.79E+03	3.76E+03	3.82E+03	4.83E+03	6.24E+03	9.09E+03	2.21E+03	3.84E+03	5.75E+03	1.14E+03	2.30E+03	2.46E+03	3.31E+03	1.74E+03	9.24E+01			
Indium (49)	In-121	9.43E+05	7.32E-07	7.33E+01	1.60E+02	1.93E+02	1.65E+02	2.03E+02	7.89E+01	2.23E+02	1.90E+01	1.04E+02	7.81E+01	1.80E+02	1.71E+02	2.11E+02	3.01E+02	4.71E+01	9.60E+01	1.68E+02	3.34E+02	4.93E+01	1.00E+02	1.11E+02	1.43E+02	7.67E+01	4.04E+00			
Indium (49)	In-121m	1.98E+04	1.86E-06	8.52E+01	1.86E+02	2.25E+02	1.92E+02	2.36E+02	9.17E+01	2.59E+02	2.21E+01	1.21E+02	9.07E+01	2.09E+02	1.99E+02	2.45E+02	3.49E+02	5.47E+01	1.12E+02	1.95E+02	3.88E+02	5.73E+01	1.16E+02	1.29E+02	1.67E+02	8.91E+01	4.69E+00			
Indium (77)	In-120	2.48E+05	2.85E-06	3.45E+03	7.54E+03	9.09E+03	7.75E+03	9.49E+03	3.71E+03	1.05E+04	8.94E+02	4.90E+03	3.67E+03	7.92E+03	7.91E+03	9.91E+03	1.41E+04	2.21E+03	4.52E+03	7.88E+03	1.55E+04	2.32E+03	4.71E+03	5.10E+03	6.74E+03	3.58E+03	1.89E+00			
Indium (77)	In-121	2.43E+04	2.85E-05	4.91E+01	1.07E+02	1.29E+02	1.10E+02	1.35E+02	5.28E+01	1.49E+02	1.27E+01	6.97E+01	5.23E+01	1.16E+02	1.13E+02	1.41E+02	2.01E+02	3.15E+01	6.43E+01	1.12E+02	2.22E+02	3.30E+01	6.71E+01	7.33E+01	9.59E+01	5.11E+01	2.70E+00			
Indium (77)	In-123	6.28E+03	1.10E-04	2.45E+01	5.35E+01	6.45E+01	5.50E+01	6.75E+01	2.63E+01	7.43E+01	6.34E+00	3.48E+01	2.60E+01	5.89E+01	5.96E+01	7.03E+01	1.00E+02	1.57E+01	3.20E+01	5.99E+01	1.11E+02	1.64E+01	3.68E+01	4.78E+01	5.55E+01	1.35E+00				
Indium (77)	In-124	1.96E+03	3.53E-04	3.38E+02	7.38E+02	8.90E+02	7.59E+02	9.29E+02	3.64E+02	1.03E+03	8.75E+01	4.80E+02	3.60E+02	7.75E+02	7.74E+02	9.71E+02	1.39E+03	2.17E+02	4.42E+02	7.72E+02	1.52E+03	2.27E+02	4.62E+02	4.99E+02	6.60E+02	3.50E+02	1.85E+01			
Indium (77)	In-125	4.22E+02	1.64E-03	7.75E+01	1.70E+02	2.04E+02	1.74E+02	2.13E+02	7.95E+01	2.21E+02	1.10E+02	6.26E+01	4.78E+01	1.17E+02	1.23E+02	1.39E+02	1.98E+02	1.02E+02	1.77E+02	3.49E+02	5.01E+01	1.06E+02	1.15E+02	1.52E+02	8.04E+01	4.25E+00				
Indium (77)	In-126	3.65E+02	1.90E-03	1.89E+00	4.13E+00	4.98E+00	4.25E+00	5.20E+00	2.03E+00	5.74E+00	4.90E+01	2.68E+00	2.01E+00	4.34E+00	4.33E+00	5.43E+00	7.75E+00	1.21E+00	2.27E+00	4.32E+00	8.50E+00	1.27E+00	2.58E+00	2.79E+00	3.69E+00	1.96E+00	1.04E+01			
Indium (77)	In-126m	3.16E+03	2.19E-04	1.91E+02	4.17E+00	5.03E+00	4.29E+00	5.25E+00	2.06E+00	5.80E+00	4.95E+01	2.71E+00	2.03E+00	4.38E+00	4.38E+00	5.49E+00	7.83E+00	1.23E+00	2.50E+00	4.36E+00	8.59E+00	1.28E+00	2.61E+00	2.82E+00	3.73E+00	1.98E+00	1.05E+01			
Indium (77)	In-127	5.78E+02	1.47E-03	5.42E+00	1.19E+03	1.43E+03	1.22E+03	1.49E+03	5.84E+02	1.65E+03	1.41E+02	7.70E+02	5.78E+02	1.25E+03	1.24E+03	1.56E+03	2.22E+03	3.48E+02	7.10E+02	1.24E+03	2.44E+03	3.64E+02	4.01E+02	8.01E+02	1.06E+03	5.62E+02	1.30E+00			
Indium (77)	In-128	1.46E+02	4.74E-03	8.56E+01	1.87E+02	2.28E+02	1.93E+02	2.36E+02	9.22E+01	2.61E+02																				





Radionuclides		Isotope-specific Information		Dose Consumption Concentrations (DCCs)																							
Element (Atomic Number)	Isotope	Lambda (1/Yr)	Half-life (Years)	Apple Consumption	Asparagus Consumption	Beet Consumption	Berry Consumption	Broccoli Consumption	Cabbage Consumption	Carrot Consumption	Citrus fruit Consumption	Com Consumption	Cucumber Consumption	Legume Consumption	Lima beans Consumption	Onion Consumption	Peaches Consumption	Pears Consumption	Peanut Consumption	Peppers Consumption	Potatoes Consumption	Pumpkin Consumption	Snap beans Consumption	Strawberries Consumption	Tomatoes Consumption	Total Produce	
				DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)
Osmium (76)	Os-180	1.69E+04	4.09E+05	3.45E+03	7.54E+03	9.09E+03	7.75E+03	9.49E+03	3.71E+03	1.05E+04	8.94E+02	4.90E+03	3.67E+03	7.92E+03	7.91E+03	9.91E+03	1.41E+04	2.21E+03	4.52E+03	7.88E+03	1.55E+04	2.32E+03	4.71E+03	5.10E+03	6.74E+03	3.58E+03	1.89E+02
Osmium (76)	Os-182	3.47E+03	2.03E+04	3.76E+01	8.23E+01	9.92E+01	8.4E+01	1.04E+02	1.04E+02	1.14E+02	9.76E+01	5.35E+02	4.01E+01	9.10E+01	1.04E+02	1.08E+02	1.54E+02	2.42E+01	4.93E+01	1.71E+02	2.53E+01	5.44E+01	5.69E+01	7.36E+01	3.93E+01	2.07E+03	
Osmium (76)	Os-183	2.75E+02	2.52E+03	5.12E+01	1.12E+02	1.35E+02	1.15E+02	1.41E+02	1.51E+02	1.55E+02	1.33E+01	7.27E+01	5.45E+01	1.21E+02	1.18E+02	1.18E+02	2.10E+02	3.29E+01	5.77E+01	1.12E+02	2.32E+02	3.44E+01	7.00E+01	7.65E+01	1.00E+02	5.33E+01	
Osmium (76)	Os-184	4.67E+02	1.48E+03	2.50E+01	5.47E+01	6.60E+01	5.63E+01	6.91E+01	2.70E+01	7.60E+01	6.49E+00	3.56E+01	2.67E+01	6.04E+01	5.82E+01	7.12E+01	1.03E+02	1.61E+01	3.28E+01	5.72E+01	1.14E+02	1.68E+01	3.42E+01	3.77E+01	4.89E+01	2.61E+01	
Osmium (76)	Os-185m	6.13E+02	1.13E+03	2.49E+01	5.45E+01	6.57E+01	5.61E+01	6.88E+01	2.68E+01	7.57E+01	6.46E+00	3.54E+01	2.66E+01	6.01E+01	5.80E+01	7.17E+01	1.02E+02	1.60E+01	3.27E+01	5.70E+01	1.13E+02	1.68E+01	3.41E+01	3.75E+01	4.87E+01	2.60E+01	
Osmium (76)	Os-186	2.70E+00	2.56E+01	1.30E+02	2.84E+02	3.42E+02	2.92E+02	3.57E+02	1.40E+02	3.94E+02	3.36E+01	1.84E+02	1.36E+02	2.98E+02	2.98E+02	3.32E+02	8.33E+01	1.70E+02	2.96E+02	5.84E+02	8.72E+01	1.71E+02	1.41E+02	1.37E+02	2.54E+02	1.35E+02	
Osmium (76)	Os-186	3.47E+16	2.00E+15	1.39E+00	4.70E+00	5.06E+00	4.32E+00	5.29E+00	2.07E+00	5.83E+00	4.98E+01	2.73E+00	2.05E+00	4.41E+00	4.01E+00	5.52E+00	7.88E+00	1.23E+00	2.52E+00	4.98E+00	8.65E+00	1.29E+00	2.63E+00	2.84E+00	3.78E+00	1.99E+00	
Osmium (76)	Os-190m	3.49E+03	6.62E+04	3.49E+03	6.62E+04	3.49E+03	6.62E+04	3.49E+03	6.62E+04	3.49E+03	6.62E+04	3.49E+03	6.62E+04	3.49E+03	6.62E+04	3.49E+03	6.62E+04	3.49E+03	6.62E+04	3.49E+03	6.62E+04	3.49E+03	6.62E+04	3.49E+03	6.62E+04	3.49E+03	6.62E+04
Osmium (76)	Os-191	1.64E+01	4.22E+02	1.04E+02	2.27E+02	2.74E+02	2.33E+02	2.86E+02	1.12E+02	3.15E+02	2.69E+01	1.47E+02	1.11E+02	2.38E+02	2.38E+02	2.98E+02	4.26E+02	6.66E+01	1.36E+02	2.37E+02	4.67E+02	6.97E+01	1.42E+02	1.53E+02	2.03E+02	1.08E+02	
Osmium (76)	Os-191m	4.63E+02	1.50E+03	8.86E+01	1.94E+02	2.34E+02	1.99E+02	2.44E+02	9.54E+01	2.65E+02	2.30E+01	1.26E+02	9.44E+01	2.04E+02	2.03E+02	2.55E+02	3.64E+02	2.02E+02	3.99E+02	2.03E+02	5.95E+01	1.21E+02	1.31E+02	1.73E+02	1.91E+02	1.08E+02	
Osmium (76)	Os-193	2.02E+02	3.44E+03	7.22E+01	1.58E+02	1.90E+02	1.62E+02	1.99E+02	1.77E+01	2.19E+02	1.87E+01	1.03E+02	7.69E+01	1.68E+02	1.68E+02	2.08E+02	2.96E+02	4.63E+01	9.46E+01	1.65E+02	3.25E+02	4.85E+01	9.87E+01	1.07E+02	1.41E+02	7.49E+01	
Osmium (76)	Os-194	1.16E+01	6.00E+00	1.57E+01	3.44E+01	4.15E+01	3.54E+01	4.33E+01	1.67E+01	4.78E+01	4.08E+00	2.23E+01	1.68E+01	3.61E+01	3.61E+01	4.52E+01	6.45E+01	1.01E+02	2.06E+01	3.69E+01	7.08E+01	1.09E+01	2.91E+01	2.32E+01	1.85E+01	6.83E+01	
Osmium (76)	Os-196	1.04E+04	6.64E+05	5.57E+02	1.22E+03	1.47E+03	1.25E+03	1.53E+03	6.00E+02	1.89E+03	1.44E+02	7.91E+02	5.93E+02	1.29E+03	1.28E+03	1.60E+03	2.29E+03	3.57E+02	7.29E+02	1.27E+03	2.51E+03	3.74E+02	7.61E+02	8.23E+02	1.09E+03	5.78E+02	
Phosphorus (15)	P-30	1.46E+05	4.75E+06	1.77E+01	3.91E+02	2.91E+00	6.37E+00	7.68E+00	6.55E+00	8.06E+00	3.14E+00	8.84E+00	7.55E+01	4.14E+00	3.10E+00	7.28E+00	6.84E+00	3.37E+00	1.19E+01	1.87E+00	3.82E+00	6.66E+00	1.33E+01	3.58E+00	3.98E+00	4.44E+00	5.69E+00
Phosphorus (15)	P-32	1.46E+05	4.75E+06	1.77E+01	3.91E+02	2.91E+00	6.37E+00	7.68E+00	6.55E+00	8.06E+00	3.14E+00	8.84E+00	7.55E+01	4.14E+00	3.10E+00	7.28E+00	6.84E+00	3.37E+00	1.19E+01	1.87E+00	3.82E+00	6.66E+00	1.33E+01	3.58E+00	3.98E+00	4.44E+00	5.69E+00
Phosphorus (15)	P-33	9.98E+00	6.94E+02	2.93E+01	6.40E+01	7.72E+01	6.59E+01	8.11E+01	3.15E+01	8.89E+01	7.59E+00	4.16E+01	3.12E+01	7.32E+01	6.88E+01	8.42E+01	1.20E+02	1.88E+01	3.84E+01	6.99E+01	1.34E+02	3.60E+01	4.40E+01	4.47E+01	5.73E+01	3.07E+01	
Protactinium (91)	Pa-227	9.51E+03	7.29E+05	2.76E+00	6.81E+00	4.88E+00	6.20E+00	7.17E+00	1.78E+00	5.60E+00	7.15E+01	4.18E+00	2.78E+00	3.90E+00	6.10E+00	7.49E+00	7.57E+00	1.77E+00	3.61E+00	6.10E+00	1.17E+01	1.84E+00	3.56E+00	3.92E+00	5.39E+00	2.70E+00	
Protactinium (91)	Pa-228	2.73E+02	2.51E+03	4.01E+01	6.25E+01	8.26E+01	9.03E+01	1.07E+02	3.09E+01	9.51E+01	5.93E+01	4.13E+01	6.64E+01	9.01E+01	1.11E+02	1.29E+02	2.58E+01	5.20E+01	9.02E+01	1.74E+02	2.70E+01	5.20E+01	5.73E+01	7.65E+01	4.01E+01	2.07E+03	
Protactinium (91)	Pa-229	1.69E+02	4.11E+03	1.16E+01	2.09E+01	2.64E+01	2.60E+01	3.12E+01	1.03E+01	3.04E+01	3.00E+02	1.67E+01	1.21E+01	2.19E+01	2.81E+01	3.26E+01	4.11E+01	7.42E+02	1.51E+01	2.61E+01	5.09E+01	7.76E+02	1.55E+01	6.68E+01	2.28E+01	1.17E+01	
Protactinium (91)	Pa-230	1.45E+01	4.77E+02	2.98E+02	4.93E+02	7.09E+02	6.71E+02	8.12E+02	2.43E+02	6.17E+02	7.36E+03	4.38E+02	1.12E+02	5.21E+02	6.85E+02	8.39E+02	1.17E+02	1.92E+02	3.92E+02	6.87E+02	1.31E+02	2.03E+02	3.99E+02	4.41E+02	3.02E+02	1.57E+03	
Protactinium (91)	Pa-231	2.12E+05	3.28E+04	8.44E+02	1.62E+01	2.02E+01	1.90E+01	2.29E+01	1.80E+02	2.33E+01	2.19E+02	1.22E+01	8.89E+02	1.70E+01	1.91E+01	2.40E+01	3.15E+01	5.42E+02	1.11E+01	1.92E+01	3.75E+01	5.68E+02	1.14E+01	1.23E+01	1.65E+01	8.64E+02	
Protactinium (91)	Pa-232	1.93E+02	3.59E+03	1.58E+01	2.71E+01	3.60E+01	3.55E+01	3.96E+01	1.34E+01	4.15E+01	4.09E+02	2.10E+01	1.53E+01	2.85E+01	3.55E+01	4.14E+01	5.61E+01	1.01E+02	2.07E+01	3.56E+01	6.47E+01	1.04E+01	1.97E+01	2.28E+01	3.09E+01	1.49E+01	
Protactinium (91)	Pa-233	9.38E+00	7.39E+02	1.08E+01	1.95E+01	2.48E+01	2.42E+01	2.89E+01	9.62E+02	2.85E+01	2.79E+02	1.55E+01	1.12E+02	2.04E+01	2.43E+01	3.02E+01	6.92E+02	1.41E+01	2.44E+01	4.71E+01	7.22E+02	1.44E+01	1.56E+01	2.11E+01	1.09E+01		
Protactinium (91)	Pa-234	1.01E+04	6.87E+05	2.91E+02	4.99E+02	9.35E+02	8.35E+02	9.76E+02	2.46E+02	7.85E+02	9.61E+01	5.72E+02	3.78E+02	3.01E+02	8.82E+02	1.02E+03	1.46E+03	2.38E+02	4.89E+02	8.84E+02	1.59E+03	2.69E+02	4.89E+02	7.25E+02	3.67E+02		
Protactinium (91)	Pa-234m	3.31E+05	2.23E+06	2.89E+02	4.77E+02	6.85E+02	6.50E+02	7.76E+02	2.35E+02	7.89E+02	7.49E+02	4.24E+02	3.05E+02	6.64E+02	8.11E+02	1.07E+03	1.86E+02	3.79E+02	6.65E+02	1.27E+03	1.96E+02	3.86E+02	4.27E+02	5.65E+02	2.92E+02		
Protactinium (91)	Pa-235	1.49E+04	4.66E+05	8.08E+02	1.51E+01	1.94E+01	1.82E+01	2.19E+01	7.65E+02	2.23E+01	2.10E+02	1.16E+01	8.47E+02	1.62E+01	1.83E+01	2.29E+01	3.02E+01	5.19E+02	1.06E+01	1.83E+01	3.57E+01	5.41E+02	1.09E+01	1.18E+01	1.84E+01		
Protactinium (91)	Pa-236	4.00E+04	1.73E+05	4.52E+02	6.22E+02	8.32E+02	1.02E+03	1.18E+03	3.06E+02	9.58E+02	1.17E+02	6.77E+02	4.57E+02	6.68E+02	1.00E+03	1.23E+03	1.29E+03	2.90E+02	5.92E+02	1.00E+03	1.93E+02	3.02E+02	5.88E+02	6.46E+02	4.44E+02		
Protactinium (91)	Pa-237	4.19E+04	1.66E+05	9.98E+02	1.72E+01	2.18E+01	2.15E+01	2.52E+01	1.49E+02	2.51E+01	2.48E+02	1.36E+01	9.77E+02	1.80E+01	2.12E+01	2.63E+01	3.40E+01	6.14E+02	1.25E+01	2.13E+01	4.11E+01	6.37E+02	1.25E+01	1.36E+01	1.87E+01		
Lead (82)	Pb-195m	2.43E+04	2.85E+05	1.09E+02	2.33E+02	2.86E+02	2.45E+02	3.00E+02	1.15E+02	3.29E+02	2.82E+01	1.55E+02	1.16E+02	2.52E+02	3.13E+02	4.44E+02	6.98E+01	1.43E+02	2.50E+02	4.92E+02	7.31E+01	1.49E+02	1.63E+02	2.13E+02	1.13E+02		
Lead (82)	Pb-196	9.84E+03	7.04E+05	1.04E+03	1.85E+03	2.71E+03	2.35E+03	2.81E+03	9.09E+02	3.12E+03	2.71E+02	1.52E+03	1.09E+03	1.94E+03	2.40E+03	2.94E+03	4.21E+03	6.70E+02	1.37E+03	2.41E+03	4.59E+03	7.22E+02	1.40E+03	1.55E+03	2.04E+03		
Lead (82)	Pb-197	4.55E+04	1.52E+05	7.81E+01	1.71E+02	2.06																					

Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)																							
Element (Atomic Number)	Isotope	Lambda (Hr)	Half-life (Years)	Apple Consumption	Asparagus Consumption	Beet Consumption	Berry Consumption	Broccoli Consumption	Cabbage Consumption	Carrot Consumption	Citrus fruit Consumption	Com Consumption	Cucumber Consumption	Legume Consumption	Lima beans Consumption	Nuts Consumption	Onion Consumption	Peaches Consumption	Pears Consumption	Peanut Consumption	Peppers Consumption	Potatoes Consumption	Pumpkin Consumption	Snap beans Consumption	Strawberries Consumption	Tomatoes Consumption	Total Produce
				DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)
Polonium (84)	Po-213	5.20E+12	1.33E-13	1.30E+03	1.75E+03	3.28E+03	2.92E+03	3.42E+03	8.62E+02	3.78E+03	3.37E+02	2.01E+03	1.33E+03	1.89E+03	3.09E+03	3.58E+03	5.11E+03	8.34E+02	1.70E+03	3.10E+03	5.59E+03	9.45E+02	1.70E+03	1.99E+03	2.54E+03	1.29E+03	6.73E+01
Polonium (84)	Po-214	1.33E+11	5.21E-12	3.71E+02	6.30E+02	9.30E+02	8.30E+02	1.00E+01	3.37E+02	1.07E+01	9.61E+03	5.43E+02	3.89E+02	6.64E+02	1.05E+01	1.65E+01	2.39E+02	4.85E+02	8.60E+02	1.63E+01	2.53E+02	4.89E+02	5.51E+02	7.25E+02	3.77E+02	1.87E+03	
Polonium (84)	Po-215	1.23E+10	5.67E-11	3.71E+02	4.99E+02	3.95E+02	8.33E+02	9.76E+02	2.48E+02	1.08E+03	6.81E+01	5.72E+02	3.78E+02	8.92E+02	1.02E+03	1.46E+03	2.38E+02	4.85E+02	8.84E+02	1.46E+03	2.38E+02	4.85E+02	5.67E+02	7.25E+02	3.87E+02	1.92E+01	
Polonium (84)	Po-216	1.51E+08	4.60E-09	8.89E+00	1.22E+01	2.25E+01	2.00E+01	2.34E+01	6.02E+00	2.59E+01	2.30E+01	1.36E+01	9.08E+00	1.32E+01	2.11E+01	2.45E+01	3.50E+01	5.70E+00	1.16E+01	2.11E+01	3.83E+01	6.43E+00	1.17E+01	1.36E+01	1.74E+01	8.83E+00	4.61E+01
Polonium (84)	Po-218	1.17E+05	5.90E-06	3.70E+02	6.30E+02	9.30E+02	8.33E+02	1.00E+01	3.10E+02	1.07E+01	9.60E+03	5.43E+02	3.88E+02	6.64E+02	8.57E+02	1.05E+01	1.45E+01	2.38E+02	4.85E+02	8.60E+02	1.63E+01	2.53E+02	4.98E+02	5.51E+02	7.25E+02	3.77E+02	1.97E+03
Praseodymium (59)	Pr-134	3.31E+04	2.09E-05	2.68E+01	5.95E+01	1.77E+01	6.44E+01	7.85E+01	2.93E+01	8.26E+01	7.40E+00	4.06E+01	3.05E+01	6.12E+01	8.87E+01	8.22E+01	1.12E+02	1.84E+01	3.75E+01	5.86E+01	1.28E+02	1.87E+01	3.91E+01	5.71E+01	5.60E+01	2.97E+01	1.54E+02
Praseodymium (59)	Pr-134m	2.14E+04	3.23E-05	2.83E+01	5.86E+01	1.70E+01	6.35E+01	7.75E+01	2.89E+01	8.14E+01	7.35E+00	4.01E+01	3.01E+01	6.04E+01	5.79E+01	8.11E+01	1.10E+02	1.81E+01	3.70E+01	5.79E+01	1.26E+02	1.84E+01	3.86E+01	5.73E+01	5.53E+01	2.92E+01	1.52E+02
Praseodymium (59)	Pr-139	1.39E+03	5.03E-04	2.43E+02	5.00E+02	5.47E+02	6.65E+02	2.46E+02	6.96E+02	6.30E+01	3.45E+02	2.58E+02	1.53E+02	5.10E+02	6.96E+02	9.41E+02	1.56E+02	3.19E+02	5.10E+02	1.09E+03	1.69E+02	4.85E+02	4.76E+02	2.50E+02	1.34E+02		
Praseodymium (59)	Pr-140	1.07E+05	6.45E-06	2.69E+02	5.17E+02	6.15E+02	6.04E+02	7.37E+02	2.72E+02	1.62E+03	6.96E+01	8.91E+02	5.69E+02	1.43E+03	1.77E+02	1.04E+03	1.72E+02	3.52E+02	1.55E+03	1.20E+03	1.76E+02	3.67E+02	9.17E+02	1.22E+03	2.47E+02	1.35E+01	
Praseodymium (59)	Pr-142	3.18E+02	2.18E-03	5.75E+01	1.07E+02	1.29E+02	1.29E+02	1.58E+02	5.28E+01	1.49E+02	1.47E+01	8.17E+01	6.12E+01	1.12E+02	1.31E+02	1.65E+02	2.01E+02	3.69E+01	7.53E+01	1.31E+02	2.58E+02	3.88E+01	7.86E+01	8.41E+01	1.12E+02	5.94E+01	3.07E+02
Praseodymium (59)	Pr-142m	2.49E+04	1.27E-05	5.67E+01	1.06E+02	1.28E+02	1.28E+02	1.56E+02	5.21E+01	1.47E+02	1.47E+01	8.06E+01	6.05E+01	1.10E+02	1.29E+02	1.63E+02	2.08E+02	3.64E+01	7.43E+01	1.30E+02	2.54E+02	3.81E+01	7.76E+01	8.31E+01	1.11E+02	5.87E+01	3.03E+02
Praseodymium (59)	Pr-143	1.86E+01	3.72E-02	6.45E+01	1.20E+02	1.45E+02	1.45E+02	1.77E+02	5.93E+01	1.67E+02	1.67E+01	9.17E+01	6.88E+01	1.25E+02	1.47E+02	1.86E+02	2.26E+02	4.14E+01	8.46E+01	1.42E+02	2.89E+02	4.34E+01	8.83E+01	9.45E+01	1.28E+02	6.67E+01	3.45E+02
Praseodymium (59)	Pr-144	2.11E+04	3.29E-05	1.98E+03	4.33E+03	5.21E+03	4.45E+03	5.43E+03	2.13E+03	6.01E+03	5.13E+01	2.81E+03	2.11E+03	4.43E+03	5.69E+03	6.81E+03	1.27E+04	2.79E+03	2.59E+03	4.52E+03	8.87E+03	1.33E+04	2.70E+03	2.90E+03	1.87E+03	2.05E+03	1.08E+01
Praseodymium (59)	Pr-144m	1.37E+05	1.37E-05	1.98E+03	4.33E+03	5.21E+03	4.45E+03	5.43E+03	2.13E+03	6.01E+03	5.13E+01	2.81E+03	2.11E+03	4.43E+03	5.69E+03	6.81E+03	1.27E+04	2.79E+03	2.59E+03	4.52E+03	8.87E+03	1.33E+04	2.70E+03	2.90E+03	1.87E+03	2.05E+03	1.08E+01
Praseodymium (59)	Pr-145	1.01E+03	6.83E-04	1.92E+02	3.58E+02	4.32E+02	4.32E+02	5.28E+02	1.76E+02	4.98E+02	4.28E+01	2.73E+02	2.05E+02	3.74E+02	4.38E+02	5.53E+02	6.72E+02	1.23E+02	2.52E+02	4.39E+02	8.62E+02	1.29E+02	2.63E+02	2.81E+02	3.76E+02	1.99E+02	1.03E+01
Praseodymium (59)	Pr-146	1.51E+04	4.59E-05	1.01E+03	1.87E+03	2.26E+03	2.26E+03	2.76E+03	9.23E+02	2.60E+03	2.35E+01	1.43E+03	1.07E+03	1.95E+03	2.29E+03	2.89E+03	3.52E+03	6.45E+02	1.32E+03	2.30E+03	4.51E+03	6.76E+02	1.37E+03	1.97E+03	1.04E+03	1.03E+03	
Praseodymium (59)	Pr-147	2.72E+04	2.55E-05	1.60E+03	3.50E+03	4.21E+03	3.61E+03	4.40E+03	1.73E+03	4.85E+03	4.16E+01	2.28E+03	1.71E+03	3.59E+03	3.62E+03	4.61E+03	6.56E+03	1.03E+03	2.10E+03	3.63E+03	7.18E+03	1.08E+04	2.19E+03	2.32E+03	3.14E+03	1.66E+03	8.78E+02
Praseodymium (59)	Pr-148	1.81E+05	3.62E-06	2.69E+02	5.17E+02	6.15E+02	6.04E+02	7.37E+02	2.72E+02	1.62E+03	6.96E+01	8.91E+02	5.69E+02	1.43E+03	1.77E+02	1.04E+03	1.72E+02	3.52E+02	1.55E+03	1.20E+03	1.76E+02	3.67E+02	9.17E+02	1.22E+03	2.47E+02	1.35E+01	
Platinum (78)	Pt-184	2.92E+03	2.37E-04	1.90E+04	4.14E+04	7.10E+04	4.26E+04	5.27E+04	2.04E+04	5.76E+04	4.91E+01	2.69E+04	2.02E+04	4.38E+04	4.35E+04	5.45E+04	7.78E+04	1.22E+04	2.49E+04	4.33E+04	8.54E+04	1.87E+04	2.59E+04	2.80E+04	3.71E+04	1.97E+04	1.04E+01
Platinum (78)	Pt-187	2.58E+03	2.68E-04	2.55E+02	5.57E+02	6.72E+02	5.73E+02	7.02E+02	2.74E+02	7.74E+02	6.61E+01	3.62E+02	2.71E+02	5.95E+02	5.87E+02	7.32E+02	1.05E+03	1.64E+02	3.34E+02	5.82E+02	1.15E+03	1.71E+02	3.48E+02	3.79E+02	4.98E+02	2.65E+02	1.40E+01
Platinum (78)	Pt-188	2.48E+01	2.79E-01	3.11E+01	6.81E+01	8.21E+01	7.00E+01	8.59E+01	3.35E+01	9.46E+01	8.07E+00	4.43E+01	3.32E+01	7.30E+01	5.17E+01	8.95E+01	1.28E+02	2.00E+01	4.08E+01	7.12E+01	1.41E+02	2.09E+01	4.26E+01	4.64E+01	6.09E+01	3.24E+01	1.71E+02
Platinum (78)	Pt-189	5.58E+02	1.24E-03	1.14E+02	2.48E+02	3.00E+02	2.59E+02	3.13E+02	1.22E+02	3.45E+02	2.95E+01	1.62E+02	1.21E+02	2.66E+02	2.62E+02	3.27E+02	4.68E+02	7.30E+01	1.49E+02	2.60E+02	5.13E+02	7.64E+01	1.55E+02	1.69E+02	2.22E+02	1.18E+02	6.24E+00
Platinum (78)	Pt-190	1.07E+05	1.82E-06	7.70E+01	1.70E+02	2.05E+02	1.75E+02	2.13E+02	7.83E+01	2.30E+02	2.02E+01	1.11E+02	8.18E+01	1.85E+02	1.34E+02	2.42E+02	3.00E+02	1.02E+02	1.76E+02	3.23E+02	5.23E+01	1.06E+02	1.52E+02	1.86E+02	2.29E+02	1.35E+02	
Platinum (78)	Pt-191	9.03E+01	7.68E-03	1.10E+02	2.41E+02	2.91E+02	2.48E+02	3.04E+02	1.19E+02	3.35E+02	2.86E+01	1.57E+02	1.18E+02	2.62E+02	2.59E+02	3.17E+02	4.53E+02	7.08E+01	1.45E+02	2.62E+02	5.00E+02	7.42E+01	1.51E+02	1.65E+02	1.16E+02	1.15E+02	6.07E+00
Platinum (78)	Pt-193	1.39E+02	5.00E-01	1.09E+03	2.39E+03	2.88E+03	2.46E+03	3.01E+03	1.18E+03	3.21E+03	2.83E+02	1.55E+03	1.16E+03	2.59E+03	2.53E+03	3.14E+03	4.48E+03	7.01E+02	1.43E+03	2.50E+03	4.94E+03	7.34E+02	1.49E+03	1.63E+03	2.14E+03	1.14E+03	6.01E+01
Platinum (78)	Pt-193m	5.84E+01	1.19E-02	7.93E+01	1.73E+02	2.09E+02	1.72E+02	2.19E+02	8.54E+01	2.41E+02	2.05E+01	1.13E+02	8.44E+01	1.88E+02	1.84E+02	2.28E+02	3.25E+02	5.09E+01	1.04E+02	1.81E+02	3.59E+02	5.33E+01	1.08E+02	1.19E+02	1.55E+02	8.26E+01	3.35E+02
Platinum (78)	Pt-195m	6.29E+01	1.10E-02	6.10E+01	1.33E+02	1.61E+02	1.37E+02	1.68E+02	6.57E+01	1.85E+02	1.58E+01	8.67E+01	6.50E+01	1.45E+02	1.41E+02	1.75E+02	2.50E+02	3.92E+01	7.99E+01	1.39E+02	2.76E+02	4.40E+01	8.34E+01	9.13E+01	1.17E+02	6.35E+01	3.35E+02
Platinum (78)	Pt-197	3.05E+02	2.27E-03	9.05E+01	1.98E+02	2.39E+02	2.04E+02	2.60E+02	9.75E+01	2.75E+02	2.35E+01	1.29E+02	9.64E+01	2.15E+02	2.10E+02	2.60E+02	3.71E+02	5.81E+01	1.19E+02	2.07E+02	4.10E+02	6.08E+01	1.24E+02	1.35E+02	1.79E+02	9.43E+01	4.95E+02
Platinum (78)	Pt-197m	1.82E+03	1.92E-04	7.70E+01	1.70E+02	2.05E+02	1.75E+02	2.13E+02	7.83E+01	2.30E+02	2.02E+01	1.11E+02	8.18E+01	1.85E+02	1.34E+02	2.42E+02	3.00E+02	1.02E+02	1.76E+02	3.23E+02	5.23E+01	1.06E+02	1.52E+02	1.86E+02	2.29E+02	1.35E+02	
Platinum (78)	Pt-199	1.18E+04	5.86E-05	1.46E+02	3.21E+02	3																					

Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)																											
Element (Atomic Number)	Isotope	Lambda (1/yr)	Half-life (years)	Apple Consumption	Asparagus Consumption	Beet Consumption	Berry Consumption	Broccoli Consumption	Cabbage Consumption	Carrot Consumption	Citrus fruit Consumption	Com Consumption	Cucumber Consumption	Legume Consumption	Lima beans Consumption	Onion Consumption	Peaches Consumption	Pears Consumption	Peas Consumption	Peppers Consumption	Potatoes Consumption	Pumpkin Consumption	Snap beans Consumption	Strawberries Consumption	Tomatoes Consumption	Total Produce					
				DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)		
Rhenium (75)	Re-188	3.57E+02	1.94E+03	1.88E+01	4.10E+01	4.95E+01	4.22E+01	5.18E+01	2.02E+01	5.70E+01	4.86E+00	2.67E+01	2.00E+01	4.55E+01	4.37E+01	5.39E+01	7.70E+01	1.20E+01	2.46E+01	4.29E+01	8.52E+01	1.26E+01	2.66E+01	2.83E+01	3.67E+01	1.96E+01	1.03E+00				
Rhenium (75)	Re-187m	1.96E+04	3.54E+05	1.88E+01	4.01E+01	4.84E+01	4.13E+01	5.07E+01	1.99E+01	5.58E+01	4.79E+00	2.61E+01	1.96E+01	4.45E+01	4.28E+01	5.28E+01	7.53E+01	1.18E+01	2.41E+01	4.20E+01	8.34E+01	1.23E+01	2.51E+01	2.77E+01	3.59E+01	1.92E+01	1.01E+00				
Rhenium (75)	Re-187	2.50E+02	1.32E+03	1.84E+01	4.01E+01	4.84E+01	4.13E+01	5.07E+01	1.99E+01	5.58E+01	4.79E+00	2.61E+01	1.96E+01	4.45E+01	4.28E+01	5.28E+01	7.53E+01	1.18E+01	2.41E+01	4.20E+01	8.34E+01	1.23E+01	2.51E+01	2.77E+01	3.59E+01	1.92E+01	1.01E+00				
Rhenium (75)	Re-190m	1.90E+03	3.65E+04	7.15E+01	1.56E+02	1.88E+02	1.61E+02	1.97E+02	7.70E+01	2.17E+02	1.85E+01	1.02E+02	7.61E+01	1.73E+02	1.66E+02	2.05E+02	2.93E+02	4.69E+01	9.36E+01	1.63E+02	3.25E+02	4.80E+01	9.77E+01	1.08E+02	1.40E+02	7.47E+01	3.93E+00				
Rhenium (75)	Re-190	2.92E+02	2.37E+03	9.72E+01	2.12E+02	2.56E+02	2.18E+02	2.67E+02	1.05E+02	2.97E+02	2.52E+01	1.38E+02	1.04E+02	2.23E+02	2.23E+02	2.79E+02	3.99E+02	6.24E+01	1.27E+02	2.62E+02	4.38E+02	6.53E+01	1.33E+02	1.44E+02	1.90E+02	1.01E+02	5.33E+00				
Rhodium (45)	Rh-100	7.92E+04	8.75E+06	9.88E+01	2.16E+02	2.61E+02	2.22E+02	2.72E+02	1.06E+02	3.00E+02	2.56E+01	1.40E+02	1.05E+02	2.27E+02	2.27E+02	2.84E+02	4.06E+02	6.93E+01	1.29E+02	2.26E+02	4.45E+02	6.64E+01	1.35E+02	1.46E+02	1.93E+02	1.03E+02	5.43E+00				
Rhodium (45)	Rh-101m	1.19E+02	2.61E+02	1.19E+02	2.61E+02	2.68E+02	2.39E+02	1.29E+02	3.63E+02	3.10E+01	1.70E+02	1.27E+02	2.74E+02	3.43E+02	4.90E+02	7.67E+01	1.56E+02	2.73E+02	5.38E+02	8.02E+01	1.63E+02	1.77E+02	2.34E+02	1.24E+02	1.24E+02	6.85E+00					
Rhodium (45)	Rh-101	5.83E+01	1.19E+02	1.19E+02	2.61E+02	2.68E+02	2.39E+02	1.29E+02	3.63E+02	3.10E+01	1.70E+02	1.27E+02	2.74E+02	3.43E+02	4.90E+02	7.67E+01	1.56E+02	2.73E+02	5.38E+02	8.02E+01	1.63E+02	1.77E+02	2.34E+02	1.24E+02	1.24E+02	6.85E+00					
Rhodium (45)	Rh-102m	1.22E+00	5.67E+01	5.18E+01	1.13E+02	1.37E+02	1.17E+02	1.43E+02	5.58E+01	1.57E+02	1.34E+01	7.37E+01	5.52E+01	1.19E+02	1.19E+02	1.49E+02	2.13E+02	3.33E+01	6.79E+01	1.18E+02	2.33E+02	3.48E+01	7.09E+01	7.66E+01	1.01E+02	5.38E+01	2.84E+00				
Rhodium (45)	Rh-102	1.85E+01	3.74E+00	2.48E+01	5.42E+01	6.54E+01	5.57E+01	6.82E+01	2.67E+01	7.53E+01	6.43E+00	3.52E+01	2.64E+01	5.70E+01	5.69E+01	7.13E+01	1.02E+02	1.59E+01	3.25E+01	5.66E+01	1.12E+02	1.67E+01	3.39E+01	6.66E+01	4.85E+01	2.57E+01	1.36E+00				
Rhodium (45)	Rh-103m	6.49E+03	1.07E+04	1.61E+04	3.53E+04	4.25E+04	3.63E+04	4.44E+04	1.74E+04	4.90E+04	4.18E+03	2.29E+04	1.72E+04	3.70E+04	3.70E+04	4.64E+04	6.62E+04	1.04E+04	2.11E+04	3.68E+04	7.26E+04	1.08E+04	2.20E+04	2.38E+04	3.15E+04	1.67E+04	8.85E+02				
Rhodium (45)	Rh-104	5.17E+05	1.34E+06	8.99E+04	8.26E+06	1.64E+02	3.59E+02	4.33E+02	3.69E+02	4.52E+02	1.07E+02	4.98E+02	4.25E+01	2.33E+02	1.75E+02	3.77E+02	3.76E+02	4.72E+02	6.73E+02	1.05E+02	2.15E+02	3.75E+02	7.39E+02	1.10E+02	2.24E+02	2.43E+02	3.21E+02	1.70E+02	9.01E+00		
Rhodium (45)	Rh-106	7.33E+05	9.45E+07	7.33E+02	8.27E+02	9.97E+02	8.50E+02	1.04E+03	4.77E+02	1.17E+03	9.80E+01	5.37E+02	4.03E+02	8.68E+02	8.67E+02	1.09E+03	1.55E+03	2.43E+02	4.95E+02	8.64E+02	1.70E+03	2.54E+02	5.17E+02	5.59E+02	7.39E+02	3.92E+02	2.07E+01				
Rhodium (45)	Rh-106m	2.78E+03	2.49E+04	3.79E+02	4.80E+02	9.97E+02	8.50E+02	1.04E+03	4.77E+02	1.17E+03	9.80E+01	5.37E+02	4.03E+02	8.68E+02	8.67E+02	1.09E+03	1.55E+03	2.43E+02	4.95E+02	8.64E+02	1.70E+03	2.54E+02	5.17E+02	5.59E+02	7.39E+02	3.92E+02	2.07E+01				
Rhodium (45)	Rh-107	1.68E+04	4.13E+05	7.28E+02	8.60E+02	1.92E+03	1.64E+03	2.01E+03	7.86E+02	2.22E+03	1.89E+02	1.04E+03	7.73E+02	1.72E+03	1.68E+03	2.10E+03	2.99E+03	4.68E+02	9.56E+02	1.67E+03	3.30E+03	4.90E+02	9.97E+02	1.09E+03	1.43E+03	7.95E+02	4.01E+01				
Rhodium (45)	Rh-109	2.73E+05	2.54E+06	7.00E+01	1.53E+02	1.85E+02	1.57E+02	1.93E+02	7.54E+01	2.13E+02	1.82E+01	9.95E+01	7.46E+01	1.62E+02	1.62E+02	2.01E+02	2.87E+02	4.50E+01	9.17E+01	1.60E+02	3.17E+02	4.71E+01	9.57E+01	1.05E+02	1.37E+02	7.30E+01	3.85E+00				
Rhodium (45)	Rh-94	3.10E+05	2.54E+06	1.54E+01	3.10E+02	3.82E+02	3.46E+01	4.25E+01	4.78E+01	5.26E+02	3.99E+00	2.84E+01	1.63E+01	1.12E+02	1.48E+01	4.41E+01	7.10E+00	9.88E+00	2.02E+01	4.05E+01	7.01E+01	1.25E+02	2.10E+01	3.01E+01	3.01E+01	1.61E+01	1.83E+01				
Rhodium (45)	Rh-95m	7.26E+04	9.55E+06	8.86E+00	5.52E+01	2.60E+00	1.99E+01	2.45E+01	2.72E+01	2.99E+00	2.30E+00	1.64E+01	9.42E+00	6.39E+01	2.41E+01	2.54E+01	4.04E+00	5.69E+00	1.16E+01	2.34E+01	4.05E+01	8.34E+01	1.21E+01	1.57E+01	1.73E+01	9.29E+00	1.05E+01				
Rhodium (45)	Rh-96m	1.86E+05	3.73E+06	8.86E+00	5.52E+01	2.60E+00	1.99E+01	2.45E+01	2.72E+01	2.99E+00	2.30E+00	1.64E+01	9.42E+00	6.39E+01	2.41E+01	2.54E+01	4.04E+00	5.69E+00	1.16E+01	2.34E+01	4.05E+01	8.34E+01	1.21E+01	1.57E+01	1.73E+01	9.29E+00	1.05E+01				
Rhodium (45)	Rh-96	3.89E+04	1.89E+05	8.86E+00	5.52E+01	2.60E+00	1.99E+01	2.45E+01	2.72E+01	2.99E+00	2.30E+00	1.64E+01	9.42E+00	6.39E+01	2.41E+01	2.54E+01	4.04E+00	5.69E+00	1.16E+01	2.34E+01	4.05E+01	8.34E+01	1.21E+01	1.57E+01	1.73E+01	9.29E+00	1.05E+01				
Rhodium (45)	Rh-97m	2.41E+05	2.87E+06	1.19E+04	5.84E+05	2.12E+01	1.39E+00	6.50E+00	4.77E+01	5.83E+01	6.83E+01	7.49E+00	5.50E+00	3.86E+01	2.24E+01	1.60E+00	5.69E+01	6.05E+01	1.01E+01	1.36E+01	2.78E+01	5.54E+01	9.62E+01	1.21E+02	2.88E+01	3.70E+01	4.14E+01	2.21E+01	2.60E+01		
Rhodium (45)	Rh-97m	7.88E+03	8.79E+05	2.12E+01	1.39E+00	6.50E+00	4.77E+01	5.83E+01	6.83E+01	7.49E+00	5.49E+00	3.86E+01	2.24E+01	1.60E+00	5.69E+01	6.05E+01	1.01E+01	1.36E+01	2.78E+01	5.54E+01	9.61E+01	1.20E+02	2.88E+01	3.70E+01	4.14E+01	2.21E+01	2.60E+01				
Rhodium (45)	Rh-98	4.19E+04	1.66E+05	1.11E+02	2.44E+02	2.94E+02	2.81E+02	3.07E+02	1.12E+02	3.39E+02	2.89E+01	1.58E+02	1.19E+02	2.56E+02	2.56E+02	3.21E+02	4.57E+02	7.16E+01	1.46E+02	2.58E+02	5.02E+02	1.49E+01	1.52E+02	1.65E+02	2.18E+02	1.16E+02	6.12E+00				
Rhodium (45)	Rh-99	1.57E+01	4.41E+02	1.11E+02	2.44E+02	2.94E+02	2.81E+02	3.07E+02	1.12E+02	3.39E+02	2.89E+01	1.58E+02	1.19E+02	2.56E+02	2.56E+02	3.21E+02	4.57E+02	7.16E+01	1.46E+02	2.58E+02	5.02E+02	1.49E+01	1.52E+02	1.65E+02	2.18E+02	1.16E+02	6.12E+00				
Radium (88)	Ra-226	4.82E+00	1.60E+03	2.95E+01	6.33E+01	7.76E+01	6.83E+01	8.13E+01	3.10E+01	1.20E+02	1.32E+01	6.83E+01	6.55E+00	4.20E+01	3.14E+01	6.89E+01	6.84E+01	8.47E+01	1.21E+02	1.89E+01	3.86E+01	6.75E+01	1.33E+02	1.98E+01	4.03E+01	4.42E+01	5.77E+01	3.07E+01	1.62E+00		
Radium (88)	Ra-226	4.82E+00	1.60E+03	2.95E+01	6.33E+01	7.76E+01	6.83E+01	8.13E+01	3.10E+01	1.20E+02	1.32E+01	6.83E+01	6.55E+00	4.20E+01	3.14E+01	6.89E+01	6.84E+01	8.47E+01	1.21E+02	1.89E+01	3.86E+01	6.75E+01	1.33E+02	1.98E+01	4.03E+01	4.42E+01	5.77E+01	3.07E+01	1.62E+00		
Radium (88)	Ra-226	4.82E+00	1.60E+03	2.95E+01	6.33E+01	7.76E+01	6.83E+01	8.13E+01	3.10E+01	1.20E+02	1.32E+01	6.83E+01	6.55E+00	4.20E+01	3.14E+01	6.89E+01	6.84E+01	8.47E+01	1.21E+02	1.89E+01	3.86E+01	6.75E+01	1.33E+02	1.98E+01	4.03E+01	4.42E+01	5.77E+01	3.07E+01	1.62E+00		
Radium (88)	Ra-226	4.82E+00	1.60E+03	2.95E+01	6.33E+01	7.76E+01	6.83E+01	8.13E+01	3.10E+01	1.20E+02	1.32E+01	6.83E+01	6.55E+00	4.20E+01	3.14E+01	6.89E+01	6.84E+01	8.47E+01	1.21E+02	1.89E+01	3.86E+01	6.75E+01	1.33E+02	1.98E+01	4.03E+01	4.42E+01	5.77E+01	3.07E+01	1.62E+00		
Radium (88)	Ra-226	4.82E+00	1.60E+03	2.95E+01	6.33E+01	7.76E+01	6.83E+01	8.13E+01	3.10E+01	1.20E+02	1.32E+01	6.83E+01	6.55E+00	4.20E+01	3.14E+01	6.89E+01	6.84E+01	8.47E+01													

Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)																											
Element (Atomic Number)	Isotope	Lambda (1/Yr)	Half-life (Years)	Apple Consumption	Asparagus Consumption	Beet Consumption	Berry Consumption	Broccoli Consumption	Cabbage Consumption	Carrot Consumption	Citrus fruit Consumption	Com Consumption	Cucumber Consumption	Legume Consumption	Lima beans Consumption	Nuts Consumption	Onion Consumption	Peaches Consumption	Pears Consumption	Peanut Consumption	Peppers Consumption	Potatoes Consumption	Pumpkin Consumption	Snap beans Consumption	Strawberries Consumption	Tomatoes Consumption	Total Produce				
				DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	
Selenium (34)	Se-73	8.49E+02	8.16E+04	2.94E+01	6.42E+01	7.75E+01	6.61E+01	8.13E+01	3.18E+01	8.92E+01	7.62E+00	4.18E+01	3.13E+01	7.27E+01	6.88E+01	8.44E+01	1.21E+02	1.89E+01	3.85E+01	6.71E+01	1.34E+02	1.98E+01	4.02E+01	4.47E+01	5.74E+01	3.08E+01	1.62E+02				
Selenium (34)	Se-79m	9.15E+03	7.57E+05	3.33E+01	7.28E+01	8.79E+01	7.49E+01	9.21E+01	3.59E+01	1.01E+02	6.83E+00	4.73E+01	3.55E+02	8.22E+03	6.80E+01	9.57E+01	1.37E+02	2.14E+01	4.36E+01	7.61E+01	1.52E+02	2.24E+01	4.55E+01	5.06E+01	6.51E+01	3.49E+01	1.83E+02				
Selenium (34)	Se-75	2.11E+02	3.92E+04	2.99E+00	6.44E+00	7.77E+00	6.63E+00	8.16E+00	3.17E+00	8.95E+00	7.64E+01	4.19E+00	3.14E+00	7.37E+00	6.92E+00	8.47E+00	1.21E+01	1.89E+00	3.86E+00	6.70E+00	1.35E+01	1.98E+00	4.02E+00	4.47E+00	5.74E+00	3.08E+00	1.62E+01				
Selenium (34)	Se-79	2.35E+06	2.95E+05	2.11E+00	4.61E+00	5.56E+00	4.74E+00	5.84E+00	2.27E+00	6.40E+00	5.47E+01	3.00E+00	2.25E+00	5.27E+00	4.96E+00	6.06E+00	8.65E+00	1.35E+00	2.76E+00	4.82E+00	9.63E+00	1.42E+00	2.88E+00	3.22E+00	4.12E+00	2.21E+00	1.16E+01				
Selenium (34)	Se-79m	9.29E+04	7.46E+06	2.11E+00	4.61E+00	5.56E+00	4.75E+00	5.84E+00	2.27E+00	6.40E+00	5.47E+01	3.00E+00	2.25E+00	5.28E+00	4.96E+00	6.06E+00	8.66E+00	1.36E+00	2.77E+00	4.82E+00	9.64E+00	1.42E+00	2.88E+00	3.22E+00	4.13E+00	2.21E+00	1.16E+01				
Selenium (34)	Se-81	1.97E+04	3.51E+05	2.73E+02	5.98E+02	7.21E+02	6.15E+02	7.57E+02	2.94E+02	8.30E+02	7.09E+01	3.89E+02	2.91E+02	6.84E+02	6.43E+02	7.86E+02	1.12E+03	1.79E+02	3.58E+02	6.25E+02	1.25E+03	1.84E+02	3.74E+02	4.17E+02	5.35E+02	2.87E+02	1.51E+03				
Selenium (34)	Se-83	1.63E+04	4.24E+05	1.51E+02	3.30E+02	3.98E+02	3.40E+02	4.18E+02	1.63E+02	4.59E+02	3.92E+01	2.15E+02	1.61E+02	3.74E+02	3.54E+02	4.34E+02	6.20E+02	9.70E+01	1.99E+02	3.54E+02	6.28E+02	1.02E+03	2.07E+02	3.30E+02	2.58E+02	1.87E+02	8.33E+02				
Selenium (34)	Se-83m	3.12E+05	2.22E+06	1.49E+03	3.26E+03	3.93E+03	3.35E+03	4.10E+03	1.61E+03	4.53E+03	3.86E+02	2.12E+03	1.59E+03	3.40E+03	3.41E+03	4.29E+03	6.12E+03	9.57E+02	1.95E+03	3.41E+03	6.70E+03	1.00E+03	2.04E+03	2.20E+03	2.92E+03	1.55E+03	8.18E+03				
Selenium (34)	Se-84	1.17E+05	5.90E+06	7.55E+02	1.65E+03	1.99E+03	1.70E+03	2.08E+03	8.14E+02	2.59E+03	1.96E+02	1.07E+03	8.05E+02	1.72E+03	1.73E+03	2.17E+03	3.10E+03	4.85E+02	9.90E+02	1.73E+03	3.40E+03	5.08E+02	1.03E+03	1.11E+03	1.48E+03	7.83E+02	4.15E+03				
Silicon (14)	Si-31	2.32E+03	2.99E+04	4.18E+02	9.15E+02	1.10E+03	9.41E+02	1.15E+03	4.51E+02	1.27E+03	1.08E+02	5.95E+02	4.46E+02	9.54E+02	9.98E+02	1.20E+03	1.72E+03	2.69E+02	5.48E+02	9.56E+02	1.88E+03	2.81E+02	5.72E+02	6.17E+02	6.17E+02	4.34E+02	2.30E+03				
Silicon (14)	Si-32	5.25E+03	1.32E+02	2.84E+00	6.20E+00	7.49E+00	6.39E+00	7.85E+00	3.07E+00	8.62E+00	7.30E+01	4.03E+00	3.02E+00	7.09E+00	6.89E+00	8.16E+00	1.82E+00	3.72E+00	6.49E+00	1.30E+01	3.42E+00	6.49E+00	1.30E+01	3.42E+00	4.33E+00	5.99E+00	2.98E+00				
Samarium (62)	Sm-139	1.42E+05	4.89E+02	2.51E+02	5.18E+02	6.24E+02	5.64E+02	6.88E+02	2.55E+02	7.19E+02	5.61E+01	3.05E+02	2.58E+02	5.95E+02	5.72E+02	7.20E+02	1.81E+02	3.29E+02	5.52E+02	1.12E+03	1.64E+02	3.43E+02	4.91E+02	4.91E+02	3.36E+02	2.87E+02	1.73E+03				
Samarium (62)	Sm-140	2.46E+04	2.82E+05	3.68E+01	8.06E+01	9.72E+01	8.29E+01	1.01E+02	3.97E+01	1.12E+02	9.55E+00	5.24E+01	3.93E+01	8.28E+01	8.39E+01	1.06E+02	1.51E+02	2.37E+01	4.83E+01	8.42E+01	1.65E+02	2.48E+01	5.04E+01	5.40E+01	7.21E+01	3.81E+01	2.02E+02				
Samarium (62)	Sm-141	3.57E+04	1.94E+05	9.58E+02	2.09E+03	2.18E+03	2.15E+03	2.63E+03	1.03E+03	2.51E+03	2.48E+02	1.35E+03	1.02E+03	2.15E+03	1.31E+03	2.75E+03	3.39E+03	5.15E+02	1.25E+03	3.10E+03	4.29E+03	6.25E+02	1.31E+03	8.47E+02	1.87E+03	9.90E+02	4.92E+03				
Samarium (62)	Sm-142	1.61E+04	4.30E+05	7.50E+02	1.64E+03	1.76E+03	1.69E+03	2.06E+03	8.07E+02	2.02E+03	1.95E+02	1.07E+03	7.99E+02	1.68E+03	1.12E+03	2.15E+03	2.73E+03	4.82E+02	9.83E+02	1.11E+03	3.36E+03	4.92E+02	1.02E+03	7.26E+02	1.47E+03	7.75E+02	3.90E+03				
Samarium (62)	Sm-143	5.02E+03	1.38E+04	4.35E+02	9.65E+02	1.15E+03	9.79E+02	1.19E+03	4.68E+02	1.32E+03	1.13E+02	6.18E+02	4.63E+02	9.73E+02	9.89E+02	1.25E+03	1.79E+03	2.79E+02	5.70E+02	9.93E+02	1.95E+03	2.92E+02	5.94E+02	6.38E+02	8.51E+02	4.49E+02	2.38E+03				
Samarium (62)	Sm-143m	4.18E+04	1.95E+05	4.18E+02	9.25E+02	1.10E+03	9.79E+02	1.19E+03	4.68E+02	1.32E+03	1.13E+02	6.18E+02	4.63E+02	9.73E+02	9.89E+02	1.25E+03	1.79E+03	2.79E+02	5.70E+02	9.93E+02	1.95E+03	2.92E+02	5.94E+02	6.38E+02	8.51E+02	4.49E+02	2.38E+03				
Samarium (62)	Sm-143m	3.31E+05	2.09E+06	3.45E+02	7.55E+02	8.64E+02	7.76E+02	9.49E+02	3.72E+02	7.85E+02	8.95E+01	4.91E+02	3.68E+02	7.75E+02	3.10E+02	9.93E+02	1.03E+03	2.22E+02	4.52E+02	3.05E+02	1.55E+03	2.17E+02	4.72E+02	2.01E+02	6.75E+02	3.57E+02	1.64E+03				
Samarium (62)	Sm-145	7.44E+01	9.32E+01	2.42E+02	5.29E+02	6.56E+02	5.44E+02	6.64E+02	2.60E+02	6.51E+02	6.27E+01	3.44E+02	2.54E+02	5.42E+02	3.80E+02	6.95E+02	8.79E+02	1.55E+02	3.17E+02	3.56E+02	1.08E+03	1.59E+02	3.30E+02	2.32E+02	4.04E+02	4.73E+02	2.50E+02	1.26E+03			
Samarium (62)	Sm-146	6.73E+09	1.03E+08	1.51E+00	3.29E+00	3.97E+00	3.39E+00	4.14E+00	1.62E+00	4.57E+00	3.91E+01	2.14E+00	1.61E+00	3.37E+00	3.43E+00	4.33E+00	6.18E+00	9.69E+01	1.98E+00	3.44E+00	6.75E+00	1.01E+00	2.06E+00	2.20E+00	2.95E+00	1.56E+00	8.26E+02				
Samarium (62)	Sm-146m	6.54E+12	1.06E+11	1.65E+00	3.61E+00	4.35E+00	3.72E+00	4.53E+00	1.78E+00	5.01E+00	4.28E+01	2.34E+00	1.76E+00	3.69E+00	3.74E+00	4.73E+00	6.77E+00	1.06E+00	2.17E+00	3.77E+00	7.40E+00	1.11E+00	2.26E+00	2.41E+00	3.23E+00	1.71E+00	9.05E+02				
Samarium (62)	Sm-146m	9.90E+17	7.00E+15	9.70E+01	2.13E+02	2.57E+02	2.19E+02	2.68E+02	1.05E+02	2.96E+02	2.53E+01	1.39E+02	1.04E+02	2.18E+02	2.22E+02	2.80E+02	4.00E+02	6.26E+01	1.28E+02	2.23E+02	4.37E+02	6.55E+01	1.33E+02	1.43E+02	1.91E+02	1.01E+02	5.35E+02				
Samarium (62)	Sm-147	1.70E+04	4.07E+05	2.58E+01	5.74E+01	6.92E+01	5.95E+01	7.25E+01	2.85E+01	8.38E+01	7.15E+00	3.89E+01	2.85E+01	6.31E+01	6.34E+01	7.89E+01	1.07E+02	1.63E+01	3.30E+01	6.26E+01	1.32E+02	1.98E+01	3.96E+01	4.39E+01	5.67E+01	3.35E+01	1.63E+02				
Samarium (62)	Sm-153	1.31E+02	5.31E+03	1.05E+02	2.29E+02	2.76E+02	2.36E+02	2.87E+02	1.13E+02	3.18E+02	2.72E+01	1.49E+02	1.11E+02	2.34E+02	2.38E+02	3.01E+02	4.29E+02	6.72E+01	1.37E+02	2.39E+02	4.69E+02	7.02E+01	1.43E+02	1.53E+02	2.05E+02	1.08E+02	5.74E+02				
Samarium (62)	Sm-155	1.63E+04	4.24E+05	2.11E+02	4.62E+02	5.56E+02	4.75E+02	5.80E+02	2.27E+02	6.41E+02	5.47E+01	3.00E+02	2.25E+02	4.74E+02	4.81E+02	6.07E+02	8.66E+02	1.35E+02	2.76E+02	4.82E+02	9.46E+02	1.42E+02	2.89E+02	3.09E+02	4.13E+02	2.18E+02	1.16E+03				
Samarium (62)	Sm-156	6.46E+02	1.07E+03	3.04E+01	6.62E+01	8.01E+01	6.83E+01	8.34E+01	3.27E+01	9.22E+01	7.87E+00	4.32E+01	3.24E+01	6.81E+01	6.73E+01	8.70E+01	1.25E+02	1.95E+01	3.98E+01	6.94E+01	1.36E+02	2.04E+01	4.15E+01	4.59E+01	5.94E+01	3.14E+01	1.66E+02				
Samarium (62)	Sm-157	4.54E+04	1.53E+05	1.24E+02	2.71E+02	3.26E+02	2.78E+02	3.40E+02	1.33E+02	3.76E+02	3.21E+01	1.78E+02	1.32E+02	2.78E+02	2.82E+02	3.56E+02	5.08E+02	7.94E+01	1.62E+02	2.83E+02	5.55E+02	3.81E+01	1.69E+02	1.81E+02	2.42E+02	1.28E+02	6.78E+02				
Tin (50)	Sn-103	3.54E+04	1.96E+05	4.88E+02	1.06E+03	1.29E+03	1.15E+03	1.34E+03	5.24E+02	1.48E+03	1.27E+02	6.92E+02	5.11E+02	1.14E+03	1.12E+03	1.40E+03	2.00E+03	3.13E+02	6.40E+02	1.11E+03	2.20E+03	3.28E+02	6.65E+02	7.52E+02	9.55E+02	5.06E+02	2.68E+03				
Tin (50)	Sn-109	2.02E+04	3.42E+05	7.09E+00	1.55E+01	1.87E+01	1.59E+01	1.96E+01	7.63E+00	2.15E+01	1.84E+00	3.82E+01	7.55E+00	1.75E+01	2.66E+01	2.04E+01	2.91E+01	4.55E+00	9.29E+00	2.60E+01	3.23E+01	1.80E+00	6.99E+00	1.72E+01	1.39E+01	7.43E+00					





Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)																								
Element (Atomic Number)	Isotope	Lambda (1/yr)	Half-life (years)	Apple Consumption	Asparagus Consumption	Beet Consumption	Berry Consumption	Broccoli Consumption	Cabbage Consumption	Carrot Consumption	Citrus fruit Consumption	Corn Consumption	Cucumber Consumption	Lettuce Consumption	Lima beans Consumption	N/A Consumption	Onion Consumption	Peaches Consumption	Pears Consumption	Peas Consumption	Peppers Consumption	Potatoes Consumption	Pumpkin Consumption	Snap beans Consumption	Strawberries Consumption	Tomatoes Consumption	Total Produce	
				DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)
Thallium (81)	Tl-210	2.80E+05	2.47E-06	3.71E+02	6.30E+02	9.30E+02	8.33E+02	1.00E+01	3.10E+02	1.07E+01	9.61E+03	5.43E+02	3.88E+02	6.64E+02	8.57E+02	1.05E+01	1.45E+01	2.38E+02	4.89E+02	8.60E+02	1.63E+01	2.53E+02	4.98E+02	5.51E+02	7.25E+02	1.07E+02	3.77E+02	1.97E+03
Thallium (81)	Tl-207	1.21E+05	5.75E+05	1.32E+02	2.89E+02	2.97E+02	3.63E+02	1.42E+02	4.02E+02	3.43E+01	1.89E+02	1.41E+02	2.95E+02	3.01E+02	3.80E+02	5.42E+02	8.49E+01	1.73E+02	3.02E+02	5.93E+02	3.88E+01	1.94E+02	1.94E+02	2.59E+02	1.37E+02	7.25E+02		
Thallium (81)	Tl-203	4.18E+04	4.13E+03	2.02E+03	2.17E+03	5.33E+03	1.35E+03	1.65E+03	2.18E+03	5.56E+03	2.18E+03	6.14E+03	2.87E+03	2.16E+03	4.53E+03	3.61E+03	1.30E+03	2.65E+03	4.62E+03	3.10E+03	9.07E+03	1.35E+03	2.77E+03	2.96E+03	3.98E+03	2.09E+03	1.14E+04	
Thallium (81)	Tl-201	3.35E+03	2.07E-04	1.36E+03	2.97E+03	3.58E+03	3.05E+03	3.07E+03	1.46E+03	4.12E+03	3.52E+02	1.93E+03	1.45E+03	3.04E+03	3.06E+03	4.0E+03	5.57E+03	8.71E+02	1.78E+03	1.37E+03	6.09E+03	9.12E+02	1.86E+03	1.99E+03	2.65E+03	1.40E+03	7.44E+01	
Thulium (69)	Tm-167	2.73E+01	2.53E+02	2.13E+02	4.66E+02	5.62E+02	4.79E+02	5.86E+02	2.30E+02	6.48E+02	5.53E+01	3.03E+02	2.27E+02	4.78E+02	4.85E+02	6.13E+02	8.75E+02	1.37E+02	2.79E+02	4.87E+02	9.56E+02	1.43E+02	2.92E+02	3.12E+02	4.17E+02	2.20E+02	1.17E+01	
Thulium (69)	Tm-163	7.88E+02	8.79E-04	2.89E+02	6.32E+02	7.62E+02	6.49E+02	7.94E+02	3.11E+02	8.77E+02	7.49E+01	4.11E+02	3.08E+02	6.48E+02	6.98E+02	8.31E+02	1.19E+03	1.85E+02	3.78E+02	6.80E+02	1.30E+03	1.94E+02	3.95E+02	4.23E+02	5.65E+02	2.99E+02	1.58E+01	
Thulium (69)	Tm-162	1.21E+05	5.75E+05	1.32E+02	2.89E+02	2.97E+02	3.63E+02	1.42E+02	4.02E+02	3.43E+01	1.89E+02	1.41E+02	2.95E+02	3.01E+02	3.80E+02	5.42E+02	8.49E+01	1.73E+02	3.02E+02	5.93E+02	3.88E+01	1.94E+02	1.94E+02	2.59E+02	1.37E+02	7.25E+02		
Thulium (69)	Tm-161	1.82E+05	3.81E-06	1.36E+03	2.97E+03	3.58E+03	3.05E+03	3.07E+03	1.46E+03	4.12E+03	3.52E+02	1.93E+03	1.45E+03	3.04E+03	3.06E+03	4.0E+03	5.57E+03	8.71E+02	1.78E+03	1.37E+03	6.09E+03	9.12E+02	1.86E+03	1.99E+03	2.65E+03	1.40E+03	7.44E+01	
Thulium (69)	Tm-160	2.02E+02	3.43E-03	2.13E+02	4.66E+02	5.62E+02	4.79E+02	5.86E+02	2.30E+02	6.48E+02	5.53E+01	3.03E+02	2.27E+02	4.78E+02	4.85E+02	6.13E+02	8.75E+02	1.37E+02	2.79E+02	4.87E+02	9.56E+02	1.43E+02	2.92E+02	3.12E+02	4.17E+02	2.20E+02	1.17E+01	
Thulium (69)	Tm-158	7.88E+02	8.79E-04	2.89E+02	6.32E+02	7.62E+02	6.49E+02	7.94E+02	3.11E+02	8.77E+02	7.49E+01	4.11E+02	3.08E+02	6.48E+02	6.98E+02	8.31E+02	1.19E+03	1.85E+02	3.78E+02	6.80E+02	1.30E+03	1.94E+02	3.95E+02	4.23E+02	5.65E+02	2.99E+02	1.58E+01	
Thulium (69)	Tm-157	1.21E+05	5.75E+05	1.32E+02	2.89E+02	2.97E+02	3.63E+02	1.42E+02	4.02E+02	3.43E+01	1.89E+02	1.41E+02	2.95E+02	3.01E+02	3.80E+02	5.42E+02	8.49E+01	1.73E+02	3.02E+02	5.93E+02	3.88E+01	1.94E+02	1.94E+02	2.59E+02	1.37E+02	7.25E+02		
Thulium (69)	Tm-156	2.72E+02	2.55E-01	7.80E+01	1.71E+02	2.08E+02	2.75E+02	2.14E+02	8.40E+01	2.37E+02	2.02E+01	1.11E+02	8.32E+01	1.75E+02	1.78E+02	2.24E+02	3.20E+02	5.01E+01	1.02E+02	1.78E+02	3.50E+02	5.24E+01	1.07E+02	1.14E+02	1.53E+02	8.07E+01	4.28E+00	
Thulium (69)	Tm-170	1.97E+02	3.52E-01	5.78E+01	1.26E+02	1.52E+02	1.30E+02	1.59E+02	6.22E+01	1.75E+02	1.50E+01	8.21E+01	6.16E+01	1.30E+02	1.32E+02	1.66E+02	2.37E+02	3.71E+01	5.7E+01	1.32E+02	2.59E+02	3.88E+01	7.90E+01	8.46E+01	1.13E+02	5.97E+01	3.17E+00	
Thulium (69)	Tm-171	3.61E+01	1.92E+00	7.06E+02	1.55E+03	1.86E+03	1.59E+03	1.94E+03	7.61E+02	2.15E+03	1.83E+02	1.00E+03	7.53E+02	1.58E+03	1.61E+03	2.03E+03	2.90E+03	4.54E+02	9.26E+02	1.61E+03	3.17E+03	4.75E+02	9.66E+02	1.03E+03	1.38E+03	7.31E+02	3.87E+01	
Thulium (69)	Tm-172	9.55E+01	7.26E-03	4.51E+01	9.66E+01	1.19E+02	1.01E+02	1.24E+02	4.85E+01	1.37E+02	1.17E+01	6.41E+01	4.80E+01	1.01E+02	1.03E+02	1.30E+02	1.85E+02	2.89E+01	5.90E+01	1.03E+02	2.02E+02	3.03E+01	6.60E+01	8.82E+01	4.66E+01	2.47E+00		
Thulium (69)	Tm-173	7.37E+02	9.41E-04	2.57E+02	5.62E+02	6.77E+02	5.78E+02	7.06E+02	2.77E+02	7.80E+02	6.66E+01	3.65E+02	2.74E+02	5.76E+02	5.85E+02	7.39E+02	1.05E+03	1.65E+02	3.37E+02	5.87E+02	1.15E+03	1.73E+02	3.51E+02	3.76E+02	5.03E+02	2.66E+02	1.41E+01	
Thulium (69)	Tm-174	6.97E+04	1.03E-05	1.64E+02	3.59E+02	4.33E+02	3.69E+02	4.51E+02	1.77E+02	4.98E+02	4.25E+01	2.33E+02	1.75E+02	3.68E+02	3.74E+02	4.72E+02	6.73E+02	1.05E+02	2.15E+02	5.87E+02	7.36E+02	1.10E+02	2.24E+02	2.40E+02	3.21E+02	1.70E+02	9.00E+00	
Thulium (69)	Tm-175	1.97E+05	3.52E-06	1.64E+02	3.59E+02	4.33E+02	3.69E+02	4.51E+02	1.77E+02	4.98E+02	4.25E+01	2.33E+02	1.75E+02	3.68E+02	3.74E+02	4.72E+02	6.73E+02	1.05E+02	2.15E+02	5.87E+02	7.36E+02	1.10E+02	2.24E+02	2.40E+02	3.21E+02	1.70E+02	9.00E+00	
Uranium (92)	U-227	3.31E+05	2.09E-06	3.00E+04	1.73E-05																							
Uranium (92)	U-228	4.00E+04	1.73E-05																									
Uranium (92)	U-230	1.22E+02	5.70E+02	3.61E+02	6.16E+02	9.06E+02	8.13E+02	9.73E+02	3.03E+02	1.04E+01	9.37E+03	5.27E+02	3.77E+02	6.49E+02	2.86E+02	1.02E+01	1.44E+01	2.32E+02	4.73E+02	8.38E+02	1.59E+01	2.46E+02	4.84E+02	5.37E+02	6.66E+02	1.92E+03		
Uranium (92)	U-231	6.02E+01	1.15E+02	8.44E+02	1.62E+01	2.02E+01	1.90E+01	2.29E+01	8.00E+02	2.33E+01	2.19E+02	1.22E+01	8.89E+02	1.70E+01	1.91E+01	2.40E+01	3.15E+01	5.42E+02	1.11E+01	1.92E+01	3.74E+01	5.68E+02	1.14E+01	1.23E+01	1.65E+01	8.63E+02	4.53E+03	
Uranium (92)	U-232	1.01E+02	6.89E+01	1.58E+01	2.72E+01	3.61E+01	3.55E+01	3.96E+01	1.34E+01	4.16E+01	4.10E+02	2.10E+01	1.54E+01	2.88E+01	3.55E+01	4.14E+01	5.62E+01	1.01E+01	2.07E+01	3.56E+01	6.47E+01	1.04E+01	1.17E+01	2.28E+01	3.09E+01	1.49E+01	8.18E+03	
Uranium (92)	U-233	4.35E+06	1.59E+05	1.08E+01	1.96E+01	2.48E+01	2.43E+01	2.89E+01	9.63E+02	2.86E+01	2.80E+02	1.55E+01	1.12E+01	2.05E+01	2.43E+01	3.02E+01	3.86E+01	6.93E+02	1.41E+01	2.44E+01	4.72E+01	7.23E+02	1.44E+01	1.57E+01	2.11E+01	1.09E+01	5.72E+03	
Uranium (92)	U-234	2.82E+06	2.46E+05	2.89E+02	4.77E+02	6.85E+02	6.50E+02	7.76E+02	2.35E+02	7.89E+02	7.49E+03	4.24E+02	3.10E+02	5.05E+02	6.64E+02	8.11E+02	1.07E+01	1.68E+02	3.79E+02	6.65E+02	1.27E+01	1.96E+02	3.86E+02	4.47E+02	5.65E+02	2.92E+02	1.52E+03	
Uranium (92)	U-235	9.84E+10	7.04E+08	8.09E+02	1.55E+01	1.94E+01	1.82E+01	2.19E+01	7.65E+02	2.23E+01	2.10E+02	1.19E+01	8.47E+02	1.62E+01	1.83E+01	2.29E+01	3.02E+01	5.19E+02	1.06E+01	1.83E+01	3.57E+01	5.41E+02	1.09E+01	1.18E+01	1.88E+01	8.23E+02	4.34E+03	
Uranium (92)	U-236m	1.40E+04	4.95E+05	8.09E+02	1.55E+01	1.94E+01	1.82E+01	2.19E+01	7.65E+02	2.23E+01	2.10E+02	1.19E+01	8.47E+02	1.62E+01	1.83E+01	2.29E+01	3.02E+01	5.19E+02	1.06E+01	1.83E+01	3.57E+01	5.41E+02	1.09E+01	1.18E+01	1.88E+01	8.23E+02	4.34E+03	
Uranium (92)	U-236	2.96E+08	2.34E+07	4.52E+02	6.22E+02	8.32E+02	1.02E+01	1.18E+01	3.06E+02	9.58E+01	1.17E+02	6.77E+02	4.57E+02	6.68E+02	1.00E+01	1.23E+01	1.29E+01	2.90E+02	5.92E+02	1.00E+01	1.93E+01	3.02E+02	5.86E+02	6.46E+02	8.84E+02	4.44E+02	2.27E+03	
Uranium (92)	U-237	3.75E+01	1.85E+02	9.56E+02	1.72E+01	2.18E+01	2.15E+01	2.52E+01	8.49E+02	2.51E+01	2.48E+02	1.36E+01	9.77E+02	1.80E+01	2.12E+01	2.63E+01	3.40E+01	6.14E+02	1.25E+01	2.13E+01	4.11E+01	6.37E+02	1.25E+01	1.36E+01	1.87E+01	9.48E+02	5.04E+03	
Uranium (92)	U-238	1.55E+10	4.47E+09	2.85E+02	4.71E+02	6.75E+02	6.40E+02	7.63E+02	2.32E+02	7.77E+02	7.38E+03	4.16E+02	2.96E+02	4.98E+02	7.98E+02	1.05E+01	1.83E+02	3.73E+02	6.35E+02	6.55E+02	1.25E+01	1.93E+02	4.70E+02	5.57E+02	6.87E+02	2.87E+03	1.50E+03	

Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)																								
Element (Atomic Number)	Isotope	Lambda (1/yr)	Half-life (years)	Apple Consumption	Asparagus Consumption	Beet Consumption	Berry Consumption	Broccoli Consumption	Cabbage Consumption	Carrot Consumption	Citrus fruit Consumption	Corn Consumption	Cucumber Consumption	Lettuce Consumption	Lima beans Consumption	Okra Consumption	Onion Consumption	Peaches Consumption	Pears Consumption	Peas Consumption	Peppers Consumption	Potatoes Consumption	Pumpkin Consumption	Shap beans Consumption	Strawberries Consumption	Tomatoes Consumption	Total Produce	
				DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)
Zinc (30)	Zn-62	6.61E+02	1.05E-03	8.09E+00	7.79E+00	3.91E+01	1.82E+01	4.72E+01	3.84E+00	4.50E+01	2.10E+00	1.86E+01	1.82E+01	8.97E+00	2.07E+01	4.91E+01	6.08E+01	5.19E+00	1.06E+01	2.01E+01	7.78E+01	1.49E+01	2.33E+01	1.34E+01	1.58E+01	1.79E+01	4.83E+01	4.83E+01
Zinc (30)	Zn-63	9.47E+03	7.32E-05	9.31E+01	8.97E+01	4.43E+02	2.09E+02	5.44E+02	4.42E+01	5.18E+02	2.41E+01	2.14E+02	2.09E+02	1.03E+02	2.39E+02	5.65E+02	6.99E+02	5.99E+01	1.22E+02	2.32E+02	8.96E+02	1.72E+02	2.69E+02	1.55E+02	1.82E+02	2.06E+02	5.56E+00	
Zinc (30)	Zn-65	1.04E+00	6.69E-01	2.07E+00	1.99E+00	9.99E+00	4.65E+00	1.21E+01	9.81E-01	1.15E+01	5.37E-01	4.75E+00	4.65E+00	2.29E+00	5.29E+00	1.26E+01	1.55E+01	1.33E+00	2.71E+00	5.15E+00	1.99E+01	3.81E+00	5.97E+00	3.44E+00	4.05E+00	4.57E+00	1.23E-01	
Zinc (30)	Zn-69	6.46E+03	1.07E-04	2.38E+02	2.30E+02	1.15E+03	5.36E+02	1.39E+03	1.13E+02	1.33E+03	6.18E+01	5.48E+02	5.36E+02	2.64E+02	6.10E+02	1.45E+03	1.79E+03	1.53E+02	3.12E+02	5.93E+02	2.29E+03	4.39E+02	6.88E+02	3.96E+02	4.66E+02	5.27E+02	1.42E+01	
Zinc (30)	Zn-69m	4.41E+02	1.57E-03	2.08E+01	2.00E+01	1.00E+02	4.68E+01	1.21E+02	9.87E+00	1.16E+02	5.39E+00	4.78E+01	4.68E+01	2.31E+01	5.32E+01	1.26E+02	1.56E+02	1.34E+01	2.73E+01	5.18E+01	2.00E+02	3.83E+01	6.00E+01	3.46E+01	4.07E+01	4.60E+01	1.24E+00	
Zinc (30)	Zn-71	1.49E+05	4.66E-06																									
Zinc (30)	Zn-71m	1.53E+03	4.52E-04	3.18E+01	3.07E+01	1.54E+02	7.18E+01	1.86E+02	1.51E+01	1.77E+02	8.26E+00	7.31E+01	7.16E+01	3.53E+01	8.15E+01	1.93E+02	2.39E+02	2.04E+01	4.17E+01	7.93E+01	3.06E+02	5.87E+01	9.19E+01	5.29E+01	6.23E+01	7.04E+01	1.90E+00	
Zinc (30)	Zn-72	1.31E+02	5.31E-03	5.05E+00	5.05E+00	2.30E+01	1.13E+01	2.73E+01	2.49E+00	2.65E+01	1.31E+00	1.11E+01	1.05E+01	5.80E+00	1.28E+01	2.84E+01	3.59E+01	3.24E+00	6.61E+00	1.25E+01	4.49E+01	8.23E+00	1.35E+01	8.30E+00	9.87E+00	1.03E+01	2.99E-01	
Zirconium (40)	Zr-85	4.63E+04	1.50E-05	7.34E+01	3.26E+01	4.11E+01	1.44E+02	7.26E+01	1.61E+01	4.74E+01	1.90E+01	4.00E+01	2.80E+01	3.69E+01	2.07E+01	7.55E+01	6.40E+01	4.71E+01	9.62E+01	2.01E+01	1.19E+02	2.85E+01	3.59E+01	1.34E+01	1.32E+02	2.74E+01	1.51E+00	
Zirconium (40)	Zr-86	3.68E+02	1.88E-03	4.37E+01	9.77E+01	1.18E+02	9.82E+01	1.23E+02	4.81E+01	1.36E+02	1.13E+01	6.21E+01	4.76E+01	1.00E+02	9.96E+01	1.28E+02	1.83E+02	2.80E+01	5.72E+01	9.98E+01	2.00E+02	3.04E+01	6.11E+01	6.41E+01	8.54E+01	4.62E+01	2.42E+00	
Zirconium (40)	Zr-87	3.61E+03	1.92E-04	7.65E+01	1.43E+02	1.72E+02	1.71E+02	2.02E+02	7.03E+01	1.98E+02	1.98E+01	1.01E+02	7.82E+01	1.50E+02	1.29E+02	2.11E+02	2.68E+02	4.91E+01	1.00E+02	1.28E+02	3.30E+02	5.25E+01	1.00E+02	8.30E+01	1.49E+02	7.60E+01	3.93E+00	
Zirconium (40)	Zr-88	3.03E+00	2.28E-01	4.62E+01	1.06E+02	1.28E+02	1.04E+02	1.33E+02	5.22E+01	1.47E+02	1.20E+01	6.57E+01	5.17E+01	1.09E+02	1.05E+02	1.39E+02	1.99E+02	2.97E+01	6.06E+01	1.06E+02	2.17E+02	3.30E+01	6.63E+01	6.79E+01	9.05E+01	5.01E+01	2.59E+00	
Zirconium (40)	Zr-89	7.74E+01	8.95E-03	1.04E+02	2.20E+02	2.65E+02	2.35E+02	2.76E+02	1.08E+02	3.05E+02	2.71E+01	1.48E+02	1.07E+02	2.26E+02	2.39E+02	2.89E+02	4.13E+02	6.70E+01	1.37E+02	2.39E+02	4.51E+02	6.98E+01	1.29E+02	1.53E+02	2.04E+02	1.04E+02	5.94E+00	
Zirconium (40)	Zr-89m	8.75E+04	7.92E-06	1.11E+02	2.35E+02	2.83E+02	2.50E+02	2.95E+02	1.16E+02	3.28E+02	2.89E+01	1.58E+02	1.14E+02	2.41E+02	2.53E+02	3.08E+02	4.40E+02	7.15E+01	1.46E+02	2.54E+02	4.81E+02	7.35E+01	1.47E+02	1.63E+02	2.18E+02	1.11E+02	6.02E+00	
Zirconium (40)	Zr-93	4.53E-07	1.53E+06	8.95E+01	1.88E+02	2.28E+02	2.01E+02	2.39E+02	9.25E+01	2.61E+02	2.32E+01	1.27E+02	9.27E+01	1.93E+02	2.04E+02	2.50E+02	3.52E+02	5.74E+01	1.17E+02	2.04E+02	3.90E+02	5.97E+01	1.19E+02	1.31E+02	1.75E+02	8.99E+01	4.84E+00	
Zirconium (40)	Zr-95	3.95E+00	1.75E-01	5.09E+01	1.06E+02	1.28E+02	1.14E+02	1.38E+02	5.23E+01	1.48E+02	1.32E+01	7.24E+01	5.34E+01	1.10E+02	1.16E+02	1.44E+02	1.99E+02	3.27E+01	6.67E+01	1.16E+02	2.25E+02	3.46E+01	6.85E+01	7.46E+01	9.96E+01	5.18E+01	2.77E+00	
Zirconium (40)	Zr-97	3.63E+02	1.91E-03	3.67E+01	7.73E+01	9.32E+01	8.26E+01	9.74E+01	3.81E+01	1.07E+02	9.52E+00	5.22E+01	3.78E+01	7.94E+01	8.36E+01	1.02E+02	1.45E+02	2.36E+01	4.81E+01	8.39E+01	1.59E+02	2.43E+01	4.85E+01	5.37E+01	7.18E+01	3.67E+01	1.98E+00	

Farmer Soil DCCs July 2023																				
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)														
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Produce Consumption DCC DL=1 (Bq/g)	Finfish Consumption DCC DL=1 (Bq/g)	Shellfish Consumption DCC DL=1 (Bq/g)	Beef Consumption DCC DL=1 (Bq/g)	Dairy Consumption DCC DL=1 (Bq/g)	Swine Consumption DCC DL=1 (Bq/g)	Egg Consumption DCC DL=1 (Bq/g)	Poultry Consumption DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)	
Actinium (89)	Ac-223	1.73E+05	4.00E-06	1.36E+09	1.00E+00			1.96E+16										1.96E+16	1.00E-08	1.32E+03
Actinium (89)	Ac-224	2.18E+03	3.17E-04	1.36E+09	1.00E+00	4.27E+03	1.29E+06	1.26E+01	1.54E+01	9.84E-01	3.01E-02	3.50E+02	1.70E+02					2.91E-02	1.00E-08	1.57E-13
Actinium (89)	Ac-225	2.53E+01	2.74E-02	1.36E+09	1.00E+00	1.19E+02	5.76E+03	1.27E+00	4.09E+00	1.09E+01	3.65E+02	3.02E+02	1.06E+02					8.69E-01	1.00E-08	4.05E-10
Actinium (89)	Ac-226	2.07E+02	3.35E-03	1.36E+09	1.00E+00	7.68E+02	2.57E+05	1.83E+01	7.83E+00	3.73E+00	5.07E-01	4.95E+01	5.75E+01		7.25E+00	5.18E+00		3.90E-01	1.00E-08	2.23E-11
Actinium (89)	Ac-227	3.18E-02	2.18E+01	1.36E+09	1.00E+00	4.08E-01	2.70E+01	2.84E-02	3.56E-03	2.42E-04	6.81E-06	8.68E-02	4.40E-02					6.61E-06	3.18E-01	2.47E-12
Actinium (89)	Ac-228	9.87E+02	7.02E-04	1.36E+09	1.00E+00	3.19E+03	1.44E+05	7.27E+00	1.99E+01	1.25E+00	1.75E-02	4.28E+02	2.30E+02					1.72E-02	1.00E-08	2.09E-13
Actinium (89)	Ac-230	1.79E+05	3.87E-06	1.36E+09	1.00E+00	1.51E+09	3.48E+11	1.16E+08	1.31E+07	1.86E+06	4.06E+04	1.07E+08	1.07E+08		1.79E+07	1.28E+07		3.94E+04	7.82E+03	2.65E-09
Actinium (89)	Ac-231	4.86E+04	1.43E-05	1.36E+09	1.00E+00	2.54E+07	1.53E+10	8.52E+04	1.21E+06	7.23E+04	1.14E+02	1.57E+07	7.70E+07					1.14E+02	1.00E-08	2.84E-11
Actinium (89)	Ac-232	1.84E+05	3.77E-06	1.36E+09	1.00E+00	4.34E+14	8.69E+16	1.51E+13	1.83E+12	1.10E+11	2.56E+09	4.00E+13	2.03E+13					2.50E+09	1.76E+02	1.66E-04
Actinium (89)	Ac-233	1.51E+05	4.60E-06	1.36E+09	1.00E+00	2.84E+07	6.88E+10	8.48E+03	2.12E+05	4.36E+06	4.61E+04	5.84E+08	6.15E+07	1.78E+09	2.35E+09	1.91E+09		7.87E+03	1.00E-08	6.38E-10
Silver (47)	Ag-100m	1.63E+05	4.26E-06	1.36E+09	1.00E+00	1.99E+07	2.52E+11	5.40E+02	2.26E+04	1.54E+04	1.61E+06	5.85E+05						5.10E+02	1.00E-08	1.64E-11
Silver (47)	Ag-101	3.28E+04	2.11E-05	1.36E+09	1.00E+00	2.03E+07	1.81E+11	5.81E+02	3.17E+04	9.63E+03	3.46E+14	1.13E+06	4.56E+05	1.30E+15		2.56E+14		5.37E+02	1.00E-08	8.67E-11
Silver (47)	Ag-102	2.82E+04	2.45E-05	1.36E+09	1.00E+00	5.50E+16	1.13E+21	3.34E+10	3.38E+13	1.59E+14	5.79E+13	9.80E+14	3.39E+12	2.17E+14		4.28E+13		3.30E+10	1.00E-08	6.25E-03
Silver (47)	Ag-102m	4.73E+04	1.45E-05	1.36E+09	1.00E+00	7.80E+16	1.60E+21	4.62E+10	4.79E+13	2.25E+14	8.20E+13	1.39E+15	4.81E+12	3.08E+14		6.07E+13		4.57E+10	1.00E-08	5.16E-03
Silver (47)	Ag-103	5.54E+03	1.25E-04	1.36E+09	1.00E+00	4.34E+06	2.18E+10	6.85E+01	3.37E+03	2.75E+04	2.92E+04	3.51E+05	1.70E+03	1.10E+05		2.16E+04		6.41E+01	1.00E-08	6.24E-11
Silver (47)	Ag-104	5.26E+03	1.32E-04	1.36E+09	1.00E+00	1.71E+07	2.42E+11	1.91E+01	1.05E+04	4.94E+04	1.80E+04	3.05E+05	1.06E+03	6.76E+04		1.33E+04		1.86E+01	1.00E-08	1.93E-11
Silver (47)	Ag-104m	1.09E+04	6.37E-05	1.36E+09	1.00E+00	3.09E+07	6.36E+11	5.85E+01	1.90E+04	8.90E+04	3.25E+04	5.51E+05	1.91E+03	1.22E+05		2.41E+04		5.63E+01	1.00E-08	2.82E-11
Silver (47)	Ag-105	6.13E+00	1.13E-01	1.36E+09	1.00E+00	2.58E+03	1.39E+07	1.33E-01	1.59E+00	7.43E+00	2.71E+00	4.60E+01	1.59E-01	1.02E+01		2.01E+00		6.42E-02	1.00E-08	5.77E-11
Silver (47)	Ag-105m	5.04E+04	1.38E-05	1.36E+09	1.00E+00	2.13E+07	1.14E+11	1.09E+03	1.31E+04	6.13E+04	2.24E+04	3.79E+05	1.31E+03	8.40E+04		1.66E+04		5.30E+02	1.00E-08	5.79E-11
Silver (47)	Ag-106	1.52E+04	4.56E-05	1.36E+09	1.00E+00	4.41E+13	8.62E+17	1.12E+08	2.71E+10	1.27E+11	4.64E+10	7.86E+11	2.72E+09	1.74E+11		3.43E+10		1.06E+08	1.00E-08	3.88E-05
Silver (47)	Ag-106m	3.05E+01	2.27E-02	1.36E+09	1.00E+00	4.15E+03	4.93E+07	1.07E-01	2.55E+00	1.19E+01	4.36E+00	7.39E+01	2.56E-01	1.64E+01		3.23E+00		6.99E-02	1.00E-08	1.27E-11
Silver (47)	Ag-108	1.54E+05	4.51E-06	1.36E+09	1.00E+00			5.70E+17										5.70E+17	1.00E-08	2.10E+04
Silver (47)	Ag-108m	1.66E-03	4.18E+02	1.36E+09	1.00E+00	8.43E+01	5.21E+04	6.37E-03	5.18E-02	2.43E-01	8.86E-02	1.50E+00	5.20E-03	3.32E-01		6.56E-02		2.48E-03	1.00E-08	8.48E-09
Silver (47)	Ag-109m	5.52E+05	1.26E-06	1.36E+09	1.00E+00			6.57E+21										6.57E+21	1.00E-08	6.81E+07
Silver (47)	Ag-110	8.88E+05	7.80E-07	1.36E+09	1.00E+00			5.25E+21										5.25E+21	1.00E-08	3.41E+07
Silver (47)	Ag-110m	1.01E+00	6.84E-01	1.36E+09	1.00E+00	1.11E+02	2.42E+05	5.60E-03	6.84E-02	3.21E-01	1.17E-01	1.98E+00	6.86E-03	4.39E-01		8.66E-02		2.74E-03	1.00E-08	1.56E-11
Silver (47)	Ag-111	3.40E+01	2.04E-02	1.36E+09	1.00E+00	4.88E+03	3.67E+07	1.39E+01	3.00E+00	1.40E+01	5.13E+00	8.69E+01	3.01E-01	1.92E+01		3.80E+00		2.31E+01	1.00E-08	3.96E-11
Silver (47)	Ag-111m	3.37E+05	2.05E-06	1.36E+09	1.00E+00	4.88E+07	3.68E+11	1.39E+05	3.00E+04	1.41E+05	5.13E+04	8.69E+05	3.01E+03	1.92E+05		3.80E+04		2.31E+03	1.00E-08	3.99E-11
Silver (47)	Ag-112	1.94E+03	3.57E-04	1.36E+09	1.00E+00	8.41E+05	1.94E+10	2.61E+01	5.17E+02	2.42E+03	8.84E+02	1.50E+04	5.19E+01	3.32E+03		6.55E+02		1.59E+01	1.00E-08	4.81E-11
Silver (47)	Ag-113	1.13E+03	6.13E-04	1.36E+09	1.00E+00	5.00E+05	8.06E+09	1.57E+02	2.74E+02	5.28E+01	7.24E+01	8.19E+03	3.21E+01	2.02E+03	6.35E+05	3.97E+02		1.30E+01	1.00E-08	6.80E-11
Silver (47)	Ag-113m	3.18E+05	2.18E-06	1.36E+09	1.00E+00	2.19E+08	3.54E+12	6.87E+04	1.20E+05	2.32E+04	3.18E+04	3.59E+06	1.41E+04	8.84E+05	2.79E+08	1.74E+05		5.69E+03	1.00E-08	1.06E-10
Silver (47)	Ag-114	4.75E+06	1.46E-07	1.36E+09	1.00E+00			3.65E+25										3.65E+25	1.00E-08	4.59E+10
Silver (47)	Ag-115	1.82E+04	3.81E-05	1.36E+09	1.00E+00	2.10E+06	2.20E+10	5.93E+02	3.28E+02	9.19E+00	1.41E+01	1.18E+04	3.78E+04	2.03E+04	1.08E+05	3.49E+03		5.41E+00	1.00E-08	1.79E-12
Silver (47)	Ag-116	1.36E+05	5.10E-06	1.36E+09	1.00E+00			9.27E+14										9.27E+14	1.00E-08	4.15E+01
Silver (47)	Ag-117	2.97E+05	2.33E-06	1.36E+09	1.00E+00	1.39E+08	2.03E+12	1.70E+03	2.89E+04	7.86E+02	1.25E+03	9.31E+05	3.02E+06	1.79E+06	9.53E+06	3.10E+05		3.70E+02	1.00E-08	7.65E-12
Silver (47)	Ag-99	1.76E+05	3.93E-06	1.36E+09	1.00E+00	4.11E+08	3.91E+12	2.86E+03	1.08E+06	1.37E+05		1.70E+07	7.35E+06					2.79E+03	1.00E-08	8.23E-11
Aluminum (13)	Al-26	9.67E-07	7.17E+05	1.36E+09	1.00E+00	5.41E+01	1.84E+04	3.47E-03	9.08E-01	1.33E+00	1.52E-02	1.13E+01	3.07E+00					2.81E-03	1.00E-08	3.96E-06
Aluminum (13)	Al-28	1.63E+05	4.26E-06	1.36E+09	1.00E+00			7.67E+15										7.67E+15	1.00E-08	6.93E+01
Aluminum (13)	Al-29	5.55E+04	1.25E-05	1.36E+09	1.00E+00			5.17E+12										5.17E+12	1.00E-08	1.42E-01
Americium (95)	Am-237	4.99E+03	1.39E-04	1.36E+09	1.00E+00	7.12E+06	2.24E+10	1.54E+02	5.88E+05	1.63E+00	3.31E+00	1.43E+07	1.27E+07	4.31E+07	9.09E+07	2.13E+07		1.09E+00	1.00E-08	2.70E-12
Americium (95)	Am-238	3.72E+03	1.86E-04	1.36E+09	1.00E+00	4.38E+05	9.01E+06	4.19E+01	3.67E+04	8.85E-02	1.90E-01	5.72E+06	6.94E+05	2.99E+06	1.86E+06	1.33E+06		6.03E-02	1.00E-08	2.03E-13
Americium (95)	Am-239	5.10E+02	1.36E-03	1.36E+09	1.00E+00	3.73E+05	2.86E+08	3.27E+01	2.85E+04	1.93E+00	3.81E-01	1.07E+05	8.89E+06	1.24E+06	2.33E+06	6.41E+05		3.15E-01	1.00E-08	7.75E-12
Americium (95)	Am-240	1.20E+02	5.80E-03	1.36E+09	1.00E+00	3.74E+04	1.90E+07	1.17E+00	2.87E+03	1.44E-01	3.76E-02	1.09E+04	7.43E+05	1.26E+05	2.36E+05	6.49E+04		2.91E-02	1.00E-08	3.06E-12
Americium (95)	Am-241	1.60E-03	4.32E+02	1.36E+09	1.00E+00	1.04E+00	2.14E+01	1.54E+00	7.97E-02	1.45E-05	1.11E-06	2.92E-01	3.43E+01	3.43E+00	6.43E+00	1.78E+00		1.03E-06	1.00E-08	8.11E-12
Americium (95)	Am-242	3.79E+02	1.83E-03	1.36E+09	1.00E+00	6.84E+03	1.73E+05	4.81E+02	3.79E+02	1.12E-02	1.92E-03	8.99E+03	6.95E+04	3.78E+05	2.29E+05	1.64E+05				



Farmer Soil DCCs July 2023																			
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)													
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion	Inhalation	External	Produce	Finfish	Shellfish	Beef	Dairy	Swine	Egg	Poultry	Total	Peak Dose	Total
						DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)
Argon (18)	Ar-44	3.07E+04	2.26E-05	1.36E+09	1.00E+00	5.95E+13	1.40E+18	9.87E+07	1.22E+10	2.02E+08	8.34E+08	1.06E+11	3.19E+10		3.27E+11	1.81E+12	6.09E+07	1.00E-08	4.58E-06
Arsenic (33)	As-68	1.44E+05	4.81E-06	1.36E+09	1.00E+00	3.23E+07	1.49E+10	2.59E+03	7.08E+03	1.82E+02		1.66E+03	3.43E+03				1.45E+02	1.00E-08	3.58E-12
Arsenic (33)	As-69	2.39E+04	2.90E-05	1.36E+09	1.00E+00	2.26E+07	1.70E+11	2.45E+02	4.59E+03	1.18E+02		1.08E+03	2.23E+03				7.07E+01	1.00E-08	1.07E-11
Arsenic (33)	As-70	6.92E+03	1.00E-04	1.36E+09	1.00E+00	9.78E+06	1.68E+11	1.56E+01	9.83E+03			4.05E+04	8.74E+05				1.56E+01	1.00E-08	8.26E-12
Arsenic (33)	As-71	9.30E+01	7.45E-03	1.36E+09	1.00E+00	3.84E+04	4.31E+08	1.76E+00	3.50E+01	7.62E+00		4.88E+01	1.38E+02				1.32E+00	1.00E-08	5.30E-11
Arsenic (33)	As-72	2.33E+02	2.97E-03	1.36E+09	1.00E+00	2.40E+04	4.30E+08	1.31E+00	2.41E+01			9.94E+01	2.14E+03				1.22E+00	1.00E-08	1.98E-11
Arsenic (33)	As-73	3.15E+00	2.20E-01	1.36E+09	1.00E+00	2.33E+03	4.55E+06	2.41E+01	2.34E+00			9.66E+00	2.08E+02				1.73E+00	1.00E-08	2.11E-09
Arsenic (33)	As-74	1.42E+01	4.87E-02	1.36E+09	1.00E+00	2.11E+03	1.08E+07	1.93E-01	2.12E+00			8.73E+00	1.88E+02				1.73E-01	1.00E-08	4.72E-11
Arsenic (33)	As-76	2.35E+02	2.95E-03	1.36E+09	1.00E+00	2.76E+04	5.40E+08	5.49E+00	2.78E+01			1.15E+02	2.47E+03				4.40E+00	1.00E-08	7.47E-11
Arsenic (33)	As-77	1.56E+02	4.43E-03	1.36E+09	1.00E+00	7.37E+04	6.80E+08	2.08E+02	7.41E+01			3.06E+02	6.59E+03				4.60E+01	1.00E-08	1.19E-09
Arsenic (33)	As-78	4.02E+03	1.73E-04	1.36E+09	1.00E+00	3.82E+06	7.81E+10	2.89E+01	3.84E+03			1.59E+04	3.42E+05				2.86E+01	1.00E-08	2.92E-11
Arsenic (33)	As-79	4.04E+04	1.71E-05	1.36E+09	1.00E+00	9.14E+11	5.33E+15	4.36E+13	7.42E+07	2.54E+07	2.04E+08	9.07E+07	9.34E+07	5.08E+07	3.67E+07	3.34E+07	6.40E+06	1.00E-08	6.55E-07
Astatine (85)	At-204	3.96E+04	1.75E-05	1.36E+09	1.00E+00	9.64E+06	9.92E+10	9.59E+01	1.13E+04	9.92E+04	1.59E+06	2.70E+05	7.44E+04		2.00E+05	1.43E+05	9.47E+01	1.00E-08	2.56E-11
Astatine (85)	At-205	1.39E+04	4.98E-05	1.36E+09	1.00E+00	3.02E+06	2.43E+10	4.19E+01	2.64E+03	5.31E+04	7.58E+05	7.52E+04	1.77E+04		3.35E+05	2.39E+05	4.11E+01	1.00E-08	3.18E-11
Astatine (85)	At-206	1.19E+04	5.82E-05	1.36E+09	1.00E+00	1.14E+05	3.45E+08	2.79E+01	8.35E+02	5.95E+02	7.39E+08	4.93E+03	3.97E+03		7.42E+02	5.29E+02	2.35E+01	1.00E-08	2.14E-11
Astatine (85)	At-207	3.37E+03	2.05E-04	1.36E+09	1.00E+00	1.56E+06	2.12E+09	9.66E+00	9.73E+02	2.45E+04	1.37E+05	8.88E+03	9.76E+02		3.99E+04	2.84E+04	9.46E+00	1.00E-08	3.04E-11
Astatine (85)	At-208	3.72E+03	1.86E-04	1.36E+09	1.00E+00	2.00E+03	4.98E+06	1.21E+01	6.95E+01	9.71E+00	1.23E+08	9.25E+01	1.41E+02		1.19E+01	8.49E+00	2.38E+00	1.00E-08	6.97E-12
Astatine (85)	At-209	1.12E+03	6.18E-04	1.36E+09	1.00E+00	1.90E+04	3.40E+07	4.87E+00	1.64E+02	9.57E+01	7.62E+10	6.15E+02	1.74E+02		1.17E+02	8.37E+01	4.00E+00	1.00E-08	3.91E-11
Astatine (85)	At-210	7.49E+02	9.25E-04	1.36E+09	1.00E+00	1.27E+02	4.00E+05	2.40E+00	4.23E+00	6.18E-01		5.84E+00	8.08E+00		7.57E-01	5.40E-01	1.74E-01	1.00E-08	2.96E-09
Astatine (85)	At-211	8.42E+02	8.24E-04	1.36E+09	1.00E+00	1.41E+04	1.36E+07	2.41E+02	5.71E+00	3.88E+05		4.84E+01	5.07E+00				2.52E+00	1.00E-08	3.31E-11
Astatine (85)	At-215	2.19E+11	3.17E-12	1.36E+09	1.00E+00			3.94E+22									3.94E+22	1.00E-08	2.03E+03
Astatine (85)	At-216	7.28E+10	9.51E-12	1.36E+09	1.00E+00	2.10E+15	3.79E+17	1.93E+10	1.69E+12	5.61E+13		5.41E+13	1.15E+13				1.91E+10	1.00E-08	2.96E-09
Astatine (85)	At-217	6.77E+08	1.02E-09	1.36E+09	1.00E+00	2.37E+12	7.41E+15	9.49E+09	1.05E+10	1.20E+10	1.04E+10	4.17E+11	1.57E+11				2.57E+09	1.00E-08	4.32E-08
Astatine (85)	At-218	1.46E+07	4.76E-08	1.36E+09	9.00E-01	4.49E+07	9.67E+10	3.58E+09	4.59E+05	2.21E+05	5.01E+05	2.90E+06	3.37E+06		4.24E+05	3.03E+05	6.71E+04	1.61E+00	5.27E-11
Astatine (85)	At-219	3.90E+05	1.78E-06																
Astatine (85)	At-220	9.82E+04	7.06E-06	1.36E+09	1.00E+00	2.27E+06	1.68E+09	6.21E+02	9.25E+03	1.17E+04	1.02E+04	3.59E+05	1.24E+05				5.23E+02	1.00E-08	6.15E-11
Gold (79)	Au-186	3.40E+04	2.04E-05	1.36E+09	1.00E+00	1.70E+07	2.42E+11	1.48E+02	2.74E+04	5.93E+03	2.47E+15	9.24E+05	3.20E+06				1.44E+02	1.00E-08	4.11E-11
Gold (79)	Au-187	4.34E+04	1.60E-05	1.36E+09	1.00E+00	4.08E+07	5.23E+11	5.31E+02	5.48E+04	1.77E+04		2.62E+06	5.11E+06				5.10E+02	1.00E-08	1.15E-10
Gold (79)	Au-190	8.51E+03	8.14E-05	1.36E+09	1.00E+00	3.91E+07	6.16E+11	3.31E+01	9.27E+05	4.07E+06	5.33E+05	1.02E+06	1.03E+08				3.31E+01	1.00E-08	3.88E-11
Gold (79)	Au-191	1.91E+03	3.63E-04	1.36E+09	1.00E+00	8.14E+05	8.07E+09	2.61E+01	7.78E+02	5.22E+05	6.83E+04	8.60E+04	5.28E+04				2.53E+01	1.00E-08	1.33E-10
Gold (79)	Au-192	1.23E+03	5.64E-04	1.36E+09	1.00E+00	1.39E+06	2.24E+10	5.96E+00	3.31E+04	1.45E+05	1.90E+04	3.64E+04	3.67E+06				5.96E+00	1.00E-08	4.88E-11
Gold (79)	Au-193	3.44E+02	2.01E-03	1.36E+09	1.00E+00	4.98E+05	5.43E+09	3.30E+01	1.06E+04	5.21E+04	6.81E+03	1.31E+04	1.11E+06				3.26E+01	1.00E-08	9.59E-10
Gold (79)	Au-193m	5.60E+06	1.24E-07	1.36E+09	1.00E+00	8.11E+09	8.83E+13	5.37E+05	1.68E+08	8.49E+08	1.11E+08	2.13E+08	1.73E+10				5.31E+05	1.00E-08	9.60E-10
Gold (79)	Au-194	1.60E+02	4.34E-03	1.36E+09	1.00E+00	7.69E+04	1.20E+09	1.53E+00	1.82E+03	8.01E+03	1.05E+03	2.01E+03	2.03E+05				1.52E+00	1.00E-08	9.72E-11
Gold (79)	Au-195	1.36E+00	5.10E-01	1.36E+09	1.00E+00	1.28E+03	1.92E+06	5.84E-01	3.04E+01	1.33E+02	1.75E+01	3.35E+01	3.37E+03				5.43E-01	1.00E-08	4.09E-09
Gold (79)	Au-195m	7.17E+05	9.67E-07	1.36E+09	1.00E+00	6.75E+08	1.01E+12	3.08E+05	1.60E+07	7.03E+07	9.20E+06	1.76E+07	1.78E+09				2.86E+05	1.00E-08	4.09E-09
Gold (79)	Au-196	4.09E+01	1.69E-02	1.36E+09	1.00E+00	2.24E+04	2.29E+08	1.02E+00	5.31E+02	2.33E+03	3.05E+02	5.85E+02	5.90E+04				1.01E+00	1.00E-08	2.54E-10
Gold (79)	Au-196m	6.32E+02	1.10E-03	1.36E+09	1.00E+00	1.60E+05	1.52E+09	1.13E+01	3.80E+03	1.67E+04	2.18E+03	4.18E+03	4.22E+05				1.12E+01	1.00E-08	1.81E-10
Gold (79)	Au-198	9.39E+01	7.38E-03	1.36E+09	1.00E+00	1.68E+04	2.00E+08	2.50E+00	3.98E+02	1.75E+03	2.29E+02	4.39E+02	4.42E+04				2.44E+00	1.00E-08	2.70E-10
Gold (79)	Au-198m	1.11E+02	6.22E-03	1.36E+09	1.00E+00	9.23E+03	7.71E+07	1.46E+00	2.19E+02	9.62E+02	1.26E+02	2.41E+02	2.43E+04				1.42E+00	1.00E-08	1.33E-10
Gold (79)	Au-199	8.06E+01	8.60E-03	1.36E+09	1.00E+00	3.29E+04	1.88E+08	1.21E+01	7.81E+02	3.43E+03	4.49E+02	8.61E+02	8.68E+04				1.14E+01	1.00E-08	1.47E-09
Gold (79)	Au-200	7.53E+03	9.21E-05	1.36E+09	1.00E+00	2.06E+07	3.82E+11	2.63E+02	4.89E+05	2.15E+06	2.81E+05	5.38E+05	5.43E+07				2.62E+02	1.00E-08	3.65E-10
Gold (79)	Au-200m	3.25E+02	2.13E-03	1.36E+09	1.00E+00	6.04E+04	8.49E+08	1.69E+00	1.43E+03	6.29E+03	8.23E+02	1.58E+03	1.59E+05				1.68E+00	1.00E-08	5.44E-11
Gold (79)	Au-201	1.40E+04	4.95E-05	1.36E+09	1.00E+00	1.53E+13	2.08E+17	6.12E+08	3.63E+11	1.60E+12	2.09E+11	4.00E+11	4.03E+13				6.08E+08	1.00E-08	4.57E-04
Gold (79)	Au-202	7.59E+05	9.13E-07	1.36E+09	1.00E+00			8.21E+20									8.21E+20	1.00E-08	1.15E+07
Barium (56)	Ba-124	3.31E+04	2.09E-05	1.36E+09	1.00E+00	1.35E+17	3.90E+21	2.88E+11	1.14E+15	3.76E+13	2.46E+11	1.34E+17	1.31E+16		2.86E+15	7.25E+16	1.32E+11	1.00E-08	2.60E-02
Barium (56)	Ba-126	3.64E+03	1.90E-04	1.36E+09	1.00E+00	2.69E+06	5.75E+10	2.17E+01	2.27E+04	7.49E+02	4.90E+00	2.68E+06	2.61E+05		5.70E+04	1.44E+06	3.97E+00	1.00E-08	7.21E-12
Barium (56)	Ba-127	2.87E+04	2.42E-05	1.36E+09	1.00E+00	2.31E+08	1.28E+12	4.81E+02	7.40E+05	7.69E+02	6.38E+04	1.31E+06	6.95E+05	5.85E+05	9.75E+06	7.98E+05	2.94E+02	1.00E-08	6.83E-11
Barium (56)	Ba-128	1.04E+02	6.66E-03	1.36E+09	1.00E+00	7.27E+03	1.32E+08	1.16E+00	6.13E+01	2.02E+00	1.32E-02	7.22E+03	7.04E+02		1.54E+02	3.89E+03	1.30E-02	1.00E-08	8.36E-13
Barium (56)	Ba-129	2.72E+03	2.55E-04	1.36E+09	1.00E+00	4.92E+06	4.47E+10	5.10E+01	2.20E+04	2.98E+01	1.95E+01	5.11E+04	2.65E+04	2.29E+04	1.43E+05	3.10E+04	9.55E+00	1.00E-08	2.37E-11
Barium (56)	Ba-129m	2.81E+03	2.47E-04	1.36E+09	1.00E+00	4.28E+06	3.95E+10	1.56E+0											

Farmer Soil DCCs July 2023																			
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)													
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion	Inhalation	External	Produce	Finfish	Shellfish	Beef	Dairy	Swine	Egg	Poultry	Total	Peak Dose	Total
						DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)
Barium (56)	Ba-140	1.98E+01	3.49E-02	1.36E+09	1.00E+00	7.82E+02	5.29E+06	7.47E-02	8.69E+00	3.77E-01	2.47E-03	8.03E+02	1.21E+02		2.85E+01	7.27E+02	2.37E-03	1.00E-08	8.78E-13
Barium (56)	Ba-141	1.99E+04	3.48E-05	1.36E+09	1.00E+00	3.33E+06	9.71E+09	2.26E+03	6.96E+04	1.73E+05	8.21E+03	6.55E+05	2.57E+06	2.80E+07	1.20E+07	1.52E+15	1.71E+03	1.00E-08	6.33E-10
Barium (56)	Ba-142	3.44E+04	2.02E-05	1.36E+09	1.00E+00	3.70E+07	6.74E+11	1.28E+02	7.21E+05	4.41E+06	3.56E+05	3.97E+07	2.88E+07		7.59E+07	1.28E+17	1.28E+02	1.00E-08	2.78E-11
Beryllium (4)	Be-10	4.59E-07	1.51E+06	1.36E+09	9.00E-01	1.59E+02	5.74E+04	6.27E+01	2.67E+00	1.31E+00		3.31E+00	2.18E+03				6.85E-01	1.00E-08	7.83E-04
Beryllium (4)	Be-7	4.75E+00	1.46E-01	1.36E+09	1.00E+00	3.42E+04	1.57E+08	1.01E+00	5.74E+02	2.83E+02		7.12E+02	4.68E+05				1.01E+00	1.00E-08	7.78E-11
Bismuth (83)	Bi-197	3.92E+04	1.77E-05	1.36E+09	1.00E+00	2.47E+07	1.60E+10	4.24E+02	7.72E+03	2.32E+04	1.41E+05	8.38E+04	1.75E+05			2.59E+06	3.91E+02	1.00E-08	1.03E-10
Bismuth (83)	Bi-200	1.00E+04	6.93E-05	1.36E+09	1.00E+00	3.13E+06	3.17E+10	2.64E+01	1.28E+04	9.02E+03	2.27E+04	3.19E+04	4.79E+04				2.62E+01	1.00E-08	2.75E-11
Bismuth (83)	Bi-201	3.37E+03	2.05E-04	1.36E+09	1.00E+00	1.77E+06	1.57E+10	1.25E+01	3.67E+03	6.15E+03	1.85E+04	1.90E+04	1.80E+04				1.24E+01	1.00E-08	3.89E-11
Bismuth (83)	Bi-202	3.53E+03	1.96E-04	1.36E+09	1.00E+00	6.95E+06	9.75E+10	1.28E+01	5.61E+03	1.83E+05	1.38E+07	1.79E+05	3.80E+04				1.28E+01	1.00E-08	3.83E-11
Bismuth (83)	Bi-203	5.16E+02	1.34E-03	1.36E+09	1.00E+00	1.37E+05	1.81E+09	1.87E+00	1.52E+02	1.51E+03	1.81E+03	4.95E+03	1.08E+03				1.84E+00	1.00E-08	3.79E-11
Bismuth (83)	Bi-204	5.41E+02	1.28E-03	1.36E+09	1.00E+00	1.85E+05	2.95E+09	1.71E+00	1.50E+02	4.76E+03	9.85E+04	4.79E+03	1.02E+03				1.69E+00	1.00E-08	3.33E-11
Bismuth (83)	Bi-205	1.65E+01	4.19E-02	1.36E+09	1.00E+00	3.57E+03	2.82E+07	9.28E-02	2.88E+00	9.52E+01	1.12E+09	9.20E+01	1.95E+01				8.93E-02	1.00E-08	5.81E-11
Bismuth (83)	Bi-206	4.05E+01	1.71E-02	1.36E+09	1.00E+00	4.08E+03	3.96E+07	1.22E-01	3.28E+00	1.09E+02		1.05E+02	2.22E+01				1.17E-01	1.00E-08	3.11E-11
Bismuth (83)	Bi-207	2.11E-02	3.29E+01	1.36E+09	1.00E+00	1.52E+02	5.20E+04	6.56E-03	1.23E-01	4.06E+00		3.92E+00	8.30E-01				6.16E-03	1.00E-08	3.18E-09
Bismuth (83)	Bi-208	1.88E-06	3.68E+05	1.36E+09	1.00E+00	1.73E+02	5.48E+04	3.24E-03	1.39E-01	4.60E+00		4.45E+00	9.41E-01				3.15E-03	1.00E-08	1.83E-05
Bismuth (83)	Bi-210	5.05E+01	1.37E-02	1.36E+09	1.00E+00	8.58E+00	2.62E+04	5.24E+02	2.90E-01	4.18E-02		3.99E-01	6.26E-01	5.12E-02	3.65E-02		1.27E-02	2.30E-03	2.78E-12
Bismuth (83)	Bi-210m	2.28E-07	3.04E+06	1.36E+09	1.00E+00	1.24E+01	1.96E+02	4.37E-02	9.96E-03	3.30E-01		3.18E-01	6.74E-02				6.93E-03	1.00E-08	3.35E-04
Bismuth (83)	Bi-211	1.70E+05	4.07E-06	1.36E+09	1.00E+00			3.07E+16									3.07E+16	1.00E-08	1.99E+03
Bismuth (83)	Bi-212	6.02E+03	1.15E-04	1.36E+09	1.00E+00	4.25E+06	7.65E+08	4.10E+01	3.42E+03	1.13E+05		1.09E+05	2.32E+04				4.04E+01	1.00E-08	7.46E-11
Bismuth (83)	Bi-212n	5.20E+04	1.33E-05	1.36E+09	9.00E-01			9.33E+13									9.33E+13	1.00E-08	1.99E+01
Bismuth (83)	Bi-213	7.99E+03	8.67E-05	1.36E+09	1.00E+00	5.79E+06	4.72E+08	4.78E+02	5.70E+03	7.95E+04	1.15E+05	1.84E+05	3.96E+04				4.31E+02	1.00E-08	6.03E-10
Bismuth (83)	Bi-214	1.83E+04	3.79E-05	1.36E+09	1.00E+00	5.65E+04	1.21E+08	4.50E+06	5.77E+02	2.78E+02	6.29E+02	3.64E+03	4.23E+03	5.33E+02	3.81E+02		8.44E+01	1.61E+00	5.17E-11
Bismuth (83)	Bi-215	4.79E+04	1.45E-05	1.36E+09	1.00E+00	4.55E+07	7.40E+09	4.34E+03	2.14E+05	2.27E+05	1.97E+05	8.69E+06	3.56E+06				4.08E+03	1.00E-08	9.60E-10
Bismuth (83)	Bi-216	1.68E+05	4.13E-06	1.36E+09	1.00E+00	3.90E+06	2.89E+09	1.06E+03	1.59E+04	2.01E+04	1.75E+04	6.16E+05	2.12E+05				8.95E+02	1.00E-08	6.04E-11
Berkelium (97)	Bk-245	5.12E+01	1.35E-02	1.36E+09	1.00E+00	1.58E+04	7.64E+06	3.24E+00	7.01E+02	3.98E+00	1.54E-01	7.67E+04	9.14E+04	2.50E+06	4.69E+06	1.29E+06	1.48E-01	9.65E+02	3.72E-11
Berkelium (97)	Bk-246	1.41E+02	4.93E-03	1.36E+09	1.00E+00	5.66E+04	2.00E+07	1.70E+00	2.52E+03	1.45E+01	2.67E-01	2.55E+05	3.33E+05	5.09E+08	7.50E+08	2.48E+08	2.31E-01	1.00E-08	2.12E-11
Berkelium (97)	Bk-247	5.02E+04	1.38E+03	1.36E+09	1.00E+00	5.61E-01	1.19E+01	9.67E-02	2.47E-02	5.01E-06	5.21E-06	2.02E+00	3.19E+00	2.59E+01	4.88E+01	1.34E+01	2.88E-06	1.40E+04	7.43E-11
Berkelium (97)	Bk-248m	2.56E+02	2.71E-03	1.36E+09	1.00E+00	3.32E+03	1.62E+05	6.21E+01	1.48E+02	6.03E-01	4.94E-03	5.80E+03	1.96E+04	2.12E+07	4.67E+07	1.03E+07	4.93E-03	3.70E+00	2.50E-13
Berkelium (97)	Bk-249	7.67E-01	9.04E-01	1.36E+09	1.00E+00	2.04E+02	4.61E+03	1.34E+01	8.97E+00	6.15E-02	2.40E-03	3.80E+02	1.16E+03	3.84E+04	7.21E+04	1.99E+04	2.31E-03	2.02E+03	3.94E-11
Berkelium (97)	Bk-250	1.89E+03	3.67E-04	1.36E+09	1.00E+00	4.04E+04	4.93E+06	2.03E+01	1.78E+03	1.95E+02	3.65E+00	7.07E+04	2.29E+05	6.85E+09	1.01E+10	3.34E+09	3.64E+00	1.10E+02	2.52E-11
Berkelium (97)	Bk-251	6.55E+03	1.06E-04	1.36E+09	1.00E+00	4.06E+06	9.87E+07	1.21E+03	1.78E+05	2.52E+04	2.05E+04	7.69E+06	2.30E+07	3.25E+11	5.24E+11	1.65E+11	1.20E+03	1.00E-08	2.41E-09
Bromine (35)	Br-72	2.78E+05	2.49E-06	1.36E+09	1.00E+00	6.49E+06	1.10E+11	1.55E+03	6.66E+02	2.33E+02	1.87E+03	8.27E+02	8.58E+02	4.66E+02	3.37E+02	3.07E+02	5.65E+01	1.00E-08	7.67E-13
Bromine (35)	Br-73	1.07E+05	6.47E-06	1.36E+09	1.00E+00	4.63E+07	1.35E+11	1.09E+03	8.14E+03	3.10E+03	2.49E+04	1.07E+04	1.14E+04	6.20E+03	4.48E+03	4.08E+03	4.45E+02	1.00E-08	1.62E-11
Bromine (35)	Br-74	1.43E+04	4.83E-05	1.36E+09	1.00E+00	6.73E+12	1.28E+17	5.62E+06	2.62E+10	3.39E+09	1.81E+08	2.23E+10	3.01E+09				5.43E+06	1.00E-08	1.47E-06
Bromine (35)	Br-74m	7.92E+03	8.75E-05	1.36E+09	1.00E+00	1.12E+07	2.06E+11	1.79E+01	4.36E+04	5.63E+03	3.01E+02	3.71E+04	5.00E+03				1.67E+01	1.00E-08	8.20E-12
Bromine (35)	Br-75	3.77E+03	1.84E-04	1.36E+09	1.00E+00	3.07E+05	5.86E+09	2.67E+01	2.58E+01	8.81E+00	5.50E+01	3.15E+01	3.22E+01	1.76E+01	1.27E+01	1.16E+01	2.03E+00	1.00E-08	2.12E-12
Bromine (35)	Br-76	3.75E+02	1.85E-03	1.36E+09	1.00E+00	1.57E+05	1.55E+09	1.25E+00	6.13E+02	7.93E+01	4.23E+00	5.22E+02	7.03E+01				9.39E-01	1.00E-08	9.98E-12
Bromine (35)	Br-76m	1.67E+07	4.15E-08	1.36E+09	1.00E+00	7.03E+09	6.91E+13	5.59E+04	2.74E+07	3.54E+06	1.89E+05	2.33E+07	3.14E+06				4.19E+04	1.00E-08	1.00E-11
Bromine (35)	Br-77	1.06E+02	6.51E-03	1.36E+09	1.00E+00	2.20E+05	2.09E+09	3.61E+00	8.59E+02	1.11E+02	5.93E+00	7.31E+02	9.85E+01				2.14E+00	1.00E-08	8.12E-11
Bromine (35)	Br-77m	8.51E+04	8.14E-06	1.36E+09	1.00E+00	1.76E+08	1.67E+12	2.88E+03	6.86E+05	8.87E+04	4.74E+03	5.84E+05	7.87E+04				1.71E+03	1.00E-08	8.11E-11
Bromine (35)	Br-78	5.64E+04	1.23E-05	1.36E+09	1.00E+00			8.54E+12									8.54E+12	1.00E-08	6.20E-01
Bromine (35)	Br-80	2.06E+04	3.36E-05	1.36E+09	1.00E+00	8.35E+15	1.70E+20	1.79E+11	3.26E+13	4.21E+12	2.25E+11	2.77E+13	3.73E+12				9.44E+10	1.00E-08	1.92E-02
Bromine (35)	Br-80m	1.37E+03	5.05E-04	1.36E+09	1.00E+00	1.73E+06	2.03E+10	1.72E+02	6.76E+03	8.74E+02	4.67E+01	5.75E+03	7.75E+02				3.33E+01	1.00E-08	1.02E-10
Bromine (35)	Br-82	1.72E+02	4.03E-03	1.36E+09	1.00E+00	6.33E+04	4.68E+08	6.38E-01	2.47E+02	3.19E+01	1.70E+00	2.10E+02	2.83E+01				4.48E-01	1.00E-08	1.12E-11
Bromine (35)	Br-82m	5.94E+04	1.17E-05	1.36E+09	1.00E+00	2.24E+07	1.65E+11	2.25E+02	8.71E+04	1.13E+04	6.02E+02	7.41E+04	9.99E+03				1.58E+02	1.00E-08	1.15E-11

Farmer Soil DCCs July 2023																			
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)													
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Produce Consumption DCC DL=1 (Bq/g)	Finfish Consumption DCC DL=1 (Bq/g)	Shellfish Consumption DCC DL=1 (Bq/g)	Beef Consumption DCC DL=1 (Bq/g)	Dairy Consumption DCC DL=1 (Bq/g)	Swine Consumption DCC DL=1 (Bq/g)	Egg Consumption DCC DL=1 (Bq/g)	Poultry Consumption DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Cadmium (48)	Cd-103	4.99E+04	1.39E-05	1.36E+09	1.00E+00	3.90E+07	1.96E+11	6.17E+02	3.03E+04	2.48E+05	2.63E+05	3.16E+06	1.53E+04	9.85E+05	1.95E+05	5.77E+02	1.00E-08	6.24E-11	
Cadmium (48)	Cd-104	6.31E+03	1.10E-04	1.36E+09	1.00E+00	7.08E+06	1.40E+11	3.05E+01	1.50E+03	4.88E+01	7.42E+01	5.28E+04	1.10E+03	4.26E+04	5.68E+05	7.95E+03	1.46E+01	1.00E-08	1.26E-11
Cadmium (48)	Cd-105	6.56E+03	1.06E-04	1.36E+09	1.00E+00	2.54E+06	1.45E+10	3.58E+01	1.23E+03	1.22E+02	1.78E+02	3.78E+04	1.71E+02	1.05E+04	1.45E+06	2.06E+03	2.04E+01	1.00E-08	1.71E-11
Cadmium (48)	Cd-107	9.34E+02	7.42E-04	1.36E+09	1.00E+00	2.70E+06	2.15E+10	1.26E+03	4.00E+02	1.13E+01	1.72E+01	1.46E+04	4.66E+04	2.47E+04	1.31E+05	4.26E+03	6.64E+00	1.00E-08	3.99E-11
Cadmium (48)	Cd-109	5.48E-01	1.26E+00	1.36E+09	1.00E+00	1.28E+02	3.95E+05	6.12E+00	1.89E+02	5.34E-04	8.15E-04	6.91E-01	2.21E+00	1.17E+00	6.21E+00	2.02E-01	3.16E-04	1.00E-08	3.30E-12
Cadmium (48)	Cd-111m	7.51E+03	9.23E-05	1.36E+09	1.00E+00	1.03E+08	5.93E+11	3.28E+02	1.52E+04	4.30E+02	6.56E+02	5.57E+05	1.78E+06	9.42E+05	5.00E+06	1.62E+05	1.43E+02	1.00E-08	1.11E-10
Cadmium (48)	Cd-113	9.00E-17	7.70E+15	1.36E+09	9.00E-01	9.45E+00	1.69E+04	6.60E+02	1.40E-03	3.94E-05	6.01E-05	5.10E-02	1.63E-01	8.63E-02	4.58E-01	1.49E-02	2.33E-05	3.32E+00	1.54E+03
Cadmium (48)	Cd-113m	4.91E-02	1.41E+01	1.36E+09	1.00E+00	9.91E+00	1.84E+04	6.53E+01	1.46E-03	4.13E-05	6.30E-05	5.35E-02	1.71E-01	9.05E-02	4.80E-01	1.56E-02	2.45E-05	1.00E-08	2.95E-12
Cadmium (48)	Cd-115	1.14E+02	6.10E-03	1.36E+09	1.00E+00	1.40E+04	1.80E+08	3.51E+00	2.20E+00	6.15E-02	9.45E-02	7.86E+01	2.53E+02	1.36E+02	7.20E+02	2.34E+01	3.62E-02	1.00E-08	1.92E-12
Cadmium (48)	Cd-115m	5.67E+00	1.22E-01	1.36E+09	1.00E+00	3.25E+02	1.41E+06	1.53E+00	4.81E-02	1.36E-03	2.07E-03	1.76E+00	5.61E+00	2.97E+00	1.58E+01	5.12E-01	8.03E-04	1.00E-08	8.53E-13
Cadmium (48)	Cd-117	2.44E+03	2.84E-04	1.36E+09	1.00E+00	1.10E+06	1.66E+10	1.59E+01	2.39E+02	6.46E+00	1.03E+01	7.58E+03	1.48E+04	7.88E+04	2.56E+03	3.13E+00	1.00E-08	7.88E-12	
Cadmium (48)	Cd-117m	1.81E+03	3.84E-04	1.36E+09	1.00E+00	1.08E+06	1.30E+10	6.29E+00	1.78E+02	4.99E+00	7.70E+00	6.22E+03	1.94E+04	1.11E+04	5.87E+04	1.91E+03	2.02E+00	1.00E-08	6.85E-12
Cadmium (48)	Cd-118	7.24E+03	9.57E-05	1.36E+09	9.00E-01	7.20E+06	1.58E+11	6.60E+02	1.06E+03	3.00E+01	4.58E+01	3.89E+04	1.24E+05	6.57E+04	3.49E+05	1.13E+04	1.73E+01	1.00E-08	1.48E-11
Cadmium (48)	Cd-119	1.35E+05	5.12E-06	1.36E+09	1.00E+00	8.43E+10	9.15E+13	3.43E+09	2.28E+07	3.75E+07	2.66E+08	2.79E+08					1.28E+07	1.00E-08	5.89E-07
Cadmium (48)	Cd-119m	1.66E+05	4.19E-06	1.36E+09	1.00E+00	1.54E+10	1.68E+13	6.31E+08	4.17E+06	6.87E+06	4.88E+07	5.11E+07					2.34E+06	1.00E-08	8.83E-08
Cerium (58)	Ce-130	1.59E+04	4.36E-05	1.36E+09	1.00E+00	4.34E+13	8.05E+17	4.03E+07	9.43E+11	1.74E+12	7.71E+10	5.99E+12	3.34E+13	2.40E+14	2.56E+14		4.03E+07	1.00E-08	1.73E-05
Cerium (58)	Ce-131	3.57E+04	1.94E-05	1.36E+09	1.00E+00	1.23E+07	7.23E+10	3.54E+02	9.16E+04	3.72E+02	2.65E+01	6.66E+05	2.93E+05	3.12E+05	2.91E+05	4.03E+05	2.31E+01	1.00E-08	4.45E-12
Cerium (58)	Ce-132	1.73E+03	4.01E-04	1.36E+09	1.00E+00	4.37E+05	9.29E+09	7.65E+00	8.94E+03	2.76E+04	1.41E+03	1.16E+05	3.38E+05	5.37E+06	1.27E+06		7.60E+00	1.00E-08	3.04E-11
Cerium (58)	Ce-133	3.76E+03	1.85E-04	1.36E+09	1.00E+00	2.93E+06	9.90E+09	6.10E+01	3.57E+04	1.66E+03	1.09E+01	8.70E+05	6.14E+05	4.26E+07	1.26E+05	3.21E+06	9.19E+00	1.00E-08	1.71E-11
Cerium (58)	Ce-133m	1.24E+03	5.59E-04	1.36E+09	1.00E+00	6.60E+05	2.97E+09	6.53E+00	9.34E+03	5.44E+02	3.60E+00	1.43E+05	1.53E+05	6.32E+06	4.16E+04	1.06E+06	2.31E+00	1.00E-08	1.30E-11
Cerium (58)	Ce-134	8.00E+01	8.66E-03	1.36E+09	1.00E+00	5.48E+03	9.83E+07	1.15E+00	1.19E+02	2.19E+02	9.73E+00	7.56E+02	4.21E+03	3.03E+04	3.23E+04		1.01E+00	1.00E-08	8.87E-11
Cerium (58)	Ce-135	3.43E+02	2.02E-03	1.36E+09	1.00E+00	2.27E+05	3.86E+09	4.43E+00	4.86E+03	9.78E+03	4.42E+02	3.45E+04	1.74E+05	1.41E+06	1.11E+06		4.38E+00	1.00E-08	9.03E-11
Cerium (58)	Ce-137	6.75E+02	1.03E-03	1.36E+09	1.00E+00	4.70E+06	1.04E+11	5.33E+02	1.02E+05	1.88E+05	8.34E+03	6.48E+05	3.61E+06	2.59E+07	2.77E+07		4.97E+02	1.00E-08	5.29E-09
Cerium (58)	Ce-137m	1.76E+02	3.93E-03	1.36E+09	1.00E+00	5.52E+04	6.95E+08	3.88E+01	1.20E+03	2.21E+03	9.80E+01	7.61E+03	4.24E+04	3.05E+05	3.26E+05		2.67E+01	1.00E-08	1.09E-09
Cerium (58)	Ce-139	1.84E+00	3.77E-01	1.36E+09	1.00E+00	1.55E+03	2.15E+06	2.16E-01	3.37E+01	6.21E+01	2.75E+00	2.14E+02	1.19E+03	8.57E+03	9.15E+03		1.98E-01	1.00E-08	7.87E-10
Cerium (58)	Ce-141	7.78E+00	8.91E-02	1.36E+09	1.00E+00	1.98E+03	3.97E+06	1.53E+00	4.29E+01	7.92E+01	3.51E+00	2.73E+02	1.52E+03	1.09E+04	1.17E+04		1.02E+00	1.00E-08	9.70E-10
Cerium (58)	Ce-143	1.84E+02	3.77E-03	1.36E+09	1.00E+00	1.44E+04	1.05E+08	7.71E+00	2.51E+02	1.35E+02	5.26E+01	1.26E+03	5.20E+03	1.64E+05	6.28E+04	9.01E+03	6.20E+00	1.00E-08	2.53E-10
Cerium (58)	Ce-144	8.88E-01	7.81E-01	1.36E+09	1.00E+00	5.12E+01	5.50E+04	2.79E-01	1.11E+00	1.93E+00	9.18E-02	6.99E+00	3.86E+01	2.86E+02	3.00E+02	1.76E+03	6.21E-02	1.00E-08	5.28E-10
Cerium (58)	Ce-145	1.21E+05	5.73E-06	1.36E+09	1.00E+00	5.53E+07	1.26E+12	5.46E+04	8.07E+05	3.00E+05		3.58E+06	1.32E+07	1.92E+08	1.77E+07		4.29E+04	1.00E-08	2.70E-09
Californium (98)	Cf-244	1.88E+04	3.69E-05	1.36E+09	1.00E+00	1.41E+05	6.53E+06	1.37E+04	6.63E+03	4.07E-02	5.08E-02	1.77E+05	1.04E+04	1.64E+04	2.17E+04	1.76E+04	2.34E-02	2.76E-05	1.59E-14
Californium (98)	Cf-246	1.70E+02	4.08E-03	1.36E+09	1.00E+00	2.04E+03	5.90E+04	2.50E+04	1.06E+02	4.15E-03	7.19E-04	3.13E+03	1.74E+04	1.46E+05	8.49E+04	6.07E+04	6.60E-04	2.27E-03	5.01E-14
Californium (98)	Cf-247	1.95E+03	3.55E-04	1.36E+09	1.00E+00	1.92E+06	4.61E+07	3.46E+02	8.45E+04	1.95E+01	2.03E+01	7.86E+06	1.09E+07	1.01E+08	1.90E+08	5.19E+07	1.12E+01	1.40E+04	7.43E-11
Californium (98)	Cf-248	7.57E-01	9.15E-01	1.36E+09	1.00E+00	7.08E+00	3.36E+02	3.79E+01	3.15E-01	1.25E-03	1.02E-05	1.21E+01	4.19E+01	4.39E+04	9.68E+04	2.14E+04	1.02E-05	3.70E+00	1.75E-13
Californium (98)	Cf-249	1.97E-03	3.51E+02	1.36E+09	1.00E+00	5.58E-01	1.18E+01	3.40E-02	2.45E-02	1.58E-04	6.18E-06	9.67E-01	3.17E+00	9.90E+01	1.86E+02	5.12E+01	5.95E-06	2.02E+03	3.94E-11
Californium (98)	Cf-250	5.30E-02	1.31E+01	1.36E+09	1.00E+00	1.15E+00	1.38E+02	9.63E-01	5.06E-02	5.46E-03	1.02E-04	1.99E+00	6.52E+00	1.92E+05	2.83E+05	9.36E+04	1.02E-04	1.10E+02	2.52E-11
Californium (98)	Cf-251	7.70E-04	9.00E+02	1.36E+09	1.00E+00	5.46E-01	1.16E+01	1.24E-01	2.40E-02	2.96E-03	2.41E-03	9.47E-01	3.10E+00	3.82E+04	6.16E+04	1.94E+04	1.33E-03	2.22E+05	2.27E-08
Californium (98)	Cf-252	2.62E-01	2.65E+00	1.36E+09	1.00E+00	1.87E+00	1.56E+02	2.29E-02	8.23E-02	3.06E+00	1.00E-02	3.24E+00	1.06E+01	3.06E+06	4.08E+06	3.22E+06	9.99E-03	4.12E+01	5.04E-10
Californium (98)	Cf-253	1.42E+01	4.88E-02	1.36E+09	1.00E+00	2.77E+02	5.45E+03	2.46E+02	1.22E+01	1.14E+00	4.45E-02	9.84E+02	1.57E+03	7.12E+05	1.34E+06	3.69E+05	4.28E-02	2.02E+03	4.00E-11
Californium (98)	Cf-254	4.18E+00	1.66E-01	1.36E+09	1.00E+00	1.75E+00	1.85E+02	2.32E-03	7.71E-02	8.06E+01	1.74E-01	3.04E+00	9.95E+00	1.94E+10	2.17E+10	9.45E+09	2.23E-03	1.00E-08	7.09E-12
Californium (98)	Cf-255	4.29E+03	1.62E-04	1.36E+09	9.00E-01	7.88E+04	1.68E+06	6.96E+03	3.07E+03	1.65E+04	1.34E+04	1.27E+05	2.60E+05	2.12E+11	3.43E+11	1.08E+11	2.02E+03	1.00E-08	6.31E-09
Chlorine (17)	Cl-34	1.43E+07	4.84E-08	1.36E+09	1.00E+00			6.47E+27									6.47E+27	7.94E-06	8.06E+11
Chlorine (17)	Cl-34m	1.14E+04	6.09E-05	1.36E+09	1.00E+00	2.07E+07	4.35E+11	4.93E+01	2.13E+02	1.10E+02	2.46E+01	1.19E+03	1.22E+02				1.20E+01	1.00E-08	1.87E-12
Chlorine (17)	Cl-36	2.30E-06	3.01E+05	1.36E+09	1.00E+00	2.00E+02	5.26E+04	2.36E+01	2.06E-03	1.07E-03	2.39E-04	1.15E-02	1.19E-03				1.53E-04	1.00E-08	1.25E-07
Chlorine (17)	Cl-38	9.78E+03	7.09E-05	1.36E+09	1.00E+00	1.56E+07	3.60E+11	5.86E+01	1.61E+02	8.30E+01	1.86E+01	8.90E+02	9.24E+01				9.90E+00	1.00E-08	2.02E-12
Chlorine (17)	Cl-39	6.55E+03	1.06E-04	1.36E+09	1.00E+00	1.44E+07	2.38E+11	4.21E+01	1.48E+02	7.67E+01	1.72E+01	8.30E+02	8.54E+01				8.72E+00	1.00E-08	2.72E-12
Chlorine (17)	Cl-40	2.70E+05	2.57E-06	1.36E+09	1.00E+00			3.38E+16									3.38E+16	1.00E-08	2.63E+02
Curium (96)	Cm-238	2.53E+03	2.74E-04	1.36E+09	1.00E+00	2.58E+05	6.06E+06	2.68E+01	1.02E+04	6.24E-02	8.58E-02	2.17E+05	2.78E+04	4.60E+04	3.18E+04	2.2			



Farmer Soil DCCs July 2023																					
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)															
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion	Inhalation	External	Produce	Finfish	Shellfish	Beef	Dairy	Swine	Egg	Poultry	Total	Peak Dose	Total		
						DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)
Curium (96)	Cm-250	8.35E-05	8.30E+03	1.36E+09	1.00E+00	4.02E-02	8.36E-01	6.78E-04	2.16E-03	4.99E-06	1.08E-08	5.61E-02	6.23E-01	1.20E+03	1.71E+03	5.85E+02	1.07E-08	4.17E-02	1.69E-12		
Curium (96)	Cm-251	2.17E+04	3.20E-05	1.36E+09	1.00E+00	1.34E+07	3.27E+08	4.00E+03	5.91E+05	8.33E+04	6.79E+04	2.54E+07	7.62E+07	1.07E+12	1.73E+12	5.46E+11	3.97E+03	1.00E-08	2.41E-09		
Cobalt (27)	Co-54m	2.46E+05	2.82E-06	1.36E+09	1.00E+00			8.47E+16											8.47E+16	1.00E-08	9.75E+02
Cobalt (27)	Co-55	3.46E+02	2.00E-03	1.36E+09	1.00E+00	6.18E+04	8.59E+08	1.72E+00	8.37E+01	3.19E+02	1.62E+02	5.25E+03	8.99E+03	1.61E+04	6.01E+03	6.33E+02	1.65E+00	1.00E-08	1.38E-11		
Cobalt (27)	Co-56	3.28E+00	2.12E-01	1.36E+09	1.00E+00	2.46E+02	9.68E+05	8.55E-03	3.18E-01	1.29E+00	3.41E+00	7.72E+01	3.36E+01	6.67E+01	1.34E+02	2.52E+00	8.22E-03	1.00E-08	7.37E-12		
Cobalt (27)	Co-57	9.31E-01	7.44E-01	1.36E+09	1.00E+00	1.22E+03	2.88E+06	1.93E-01	1.58E+00	6.42E+00	1.69E+01	3.83E+02	1.67E+02	3.31E+02	6.65E+02	1.25E+01	1.63E-01	1.00E-08	5.25E-10		
Cobalt (27)	Co-58	3.57E+00	1.94E-01	1.36E+09	1.00E+00	9.04E+02	3.30E+06	3.75E-02	1.17E+00	4.76E+00	1.25E+01	2.84E+02	1.23E+02	2.45E+02	4.92E+02	9.26E+00	3.58E+02	1.00E-08	3.05E-11		
Cobalt (27)	Co-58m	6.72E+02	1.03E-03	1.36E+09	1.00E+00	1.65E+05	6.15E+08	7.06E+00	2.13E+02	8.68E+02	2.29E+03	5.18E+04	2.25E+04	4.47E+04	8.98E+04	1.69E+03	6.73E+00	1.00E-08	3.05E-11		
Cobalt (27)	Co-60	1.31E-01	5.27E+00	1.36E+09	1.00E+00	4.83E+01	6.79E+04	3.97E-03	6.24E-02	2.54E-01	6.70E-01	1.52E+01	6.60E+00	1.31E+01	2.63E+01	4.95E-01	3.63E-03	1.00E-08	8.68E-11		
Cobalt (27)	Co-60m	3.48E+04	1.99E-05	1.36E+09	1.00E+00	1.28E+07	1.80E+10	1.05E+03	1.66E+04	6.75E+04	1.78E+05	4.03E+06	1.75E+06	3.48E+06	6.98E+06	1.31E+05	9.62E+02	1.00E-08	8.70E-11		
Cobalt (27)	Co-61	3.68E+03	1.88E-04	1.36E+09	1.00E+00	9.14E+06	1.30E+11	5.88E+02	1.18E+04	4.81E+04	1.27E+05	2.87E+06	1.25E+06	2.48E+06	4.98E+06	9.37E+04	5.47E+02	1.00E-08	4.76E-10		
Cobalt (27)	Co-62	2.43E+05	2.85E-06	1.36E+09	1.00E+00			1.01E+17											1.01E+17	1.00E-08	1.35E+03
Cobalt (27)	Co-62m	2.62E+04	2.65E-05	1.36E+09	1.00E+00	4.98E+16	1.08E+21	4.44E+10	6.44E+13	2.62E+14	6.92E+14	1.57E+16	6.81E+15	1.35E+16	2.72E+16	5.10E+14	4.43E+10	1.00E-08	5.50E-03		
Chromium (24)	Cr-48	2.82E+02	2.46E-03	1.36E+09	1.00E+00	2.51E+04	1.77E+08	8.28E-01	2.04E+02	7.10E+01	1.35E+01	7.69E+03	7.72E+03				7.68E-01	1.00E-08	6.87E-12		
Chromium (24)	Cr-49	8.61E+03	8.05E-05	1.36E+09	1.00E+00	2.26E+07	2.14E+11	8.83E-01	6.66E+05	4.07E+05	7.73E+04	7.34E+05	9.47E+05				8.82E+01	1.00E-08	2.63E-11		
Chromium (24)	Cr-51	9.13E+00	7.59E-02	1.36E+09	1.00E+00	4.51E+04	4.42E+08	3.20E+00	2.61E+03			1.26E+03	1.63E+03				3.19E+00	1.00E-08	9.33E-10		
Chromium (24)	Cr-55	1.04E+05	6.65E-06	1.36E+09	1.00E+00			6.57E+16											6.57E+16	1.00E-08	1.82E+03
Chromium (24)	Cr-56	6.13E+04	1.13E-05	1.36E+09	1.00E+00	4.47E+07	8.36E+11	3.34E+02	1.89E+04	1.86E+05	1.62E+05	4.95E+06	7.74E+06	2.38E+06	1.04E+07	1.27E+08	3.27E+02	1.00E-08	1.57E-11		
Cesium (55)	Cs-121	1.41E+05	4.92E-06	1.36E+09	1.00E+00	5.22E+07	3.88E+11	5.85E+02	2.66E+04	1.64E+05	6.66E+05	4.76E+06	6.66E+05	4.76E+06	1.58E+05	7.89E+05	5.67E+02	1.00E-08	2.55E-11		
Cesium (55)	Cs-121m	1.79E+05	3.87E-06	1.36E+09	1.00E+00	6.63E+07	4.93E+11	2.02E+03	3.38E+04	2.08E+05	9.95E+05	8.47E+05	6.05E+06	2.01E+05	1.00E+06	1.86E+03	1.00E-08	6.59E-11			
Cesium (55)	Cs-123	6.19E+04	1.12E-05	1.36E+09	1.00E+00	4.75E+07	4.56E+11	8.63E+02	7.83E+04	5.62E+08	9.87E+05	1.37E+05	6.46E+05	3.65E+05	5.45E+07		8.44E+02	1.00E-08	8.79E-11		
Cesium (55)	Cs-124	7.10E+05	9.77E-07	1.36E+09	1.00E+00			4.71E+19											4.71E+19	1.00E-08	4.32E+05
Cesium (55)	Cs-125	8.09E+03	8.56E-05	1.36E+09	1.00E+00	1.08E+05	1.04E+09	8.67E+01	1.78E+02	1.47E+02	1.22E+04	2.22E+03	3.10E+02	1.45E+03	8.29E+02	6.91E+04	3.37E+01	1.00E-08	2.73E-11		
Cesium (55)	Cs-126	2.22E+05	3.12E-06	1.36E+09	1.00E+00			3.64E+16											3.64E+16	1.00E-08	1.08E+03
Cesium (55)	Cs-127	9.71E+02	7.13E-04	1.36E+09	1.00E+00	7.81E+06	4.32E+10	1.63E+01	2.51E+04	2.61E+01	2.16E+03	4.45E+04	2.35E+04	1.98E+04	3.30E+05	2.70E+04	9.96E+00	1.00E-08	6.83E-11		
Cesium (55)	Cs-128	1.00E+05	6.93E-06	1.36E+09	1.00E+00			5.59E+15											5.59E+15	1.00E-08	3.75E+02
Cesium (55)	Cs-129	1.89E+02	3.66E-03	1.36E+09	1.00E+00	6.27E+05	4.25E+09	8.24E+00	2.01E+03	2.09E+00	1.74E+02	3.57E+03	1.89E+03	1.59E+03	2.65E+04	2.17E+03	1.65E+00	1.00E-08	5.88E-11		
Cesium (55)	Cs-130	1.25E+04	5.56E-05	1.36E+09	1.00E+00	2.55E+12	4.74E+16	7.68E+06	8.19E+09	8.51E+06	7.06E+08	1.45E+10	7.69E+09	6.47E+09	1.08E+11	8.83E+09	4.00E+06	1.00E-08	2.19E-06		
Cesium (55)	Cs-130m	1.05E+05	6.58E-06	1.36E+09	1.00E+00	1.90E+13	3.53E+17	5.72E+07	6.10E+10	6.34E+07	5.26E+09	1.08E+11	5.73E+10	4.82E+10	8.04E+11	6.58E+10	2.98E+07	1.00E-08	1.93E-06		
Cesium (55)	Cs-131	2.61E+01	2.65E-02	1.36E+09	1.00E+00	8.99E+04	9.60E+08	1.90E+02	2.88E+02	3.00E-01	2.49E+01	5.12E+02	2.71E+02	2.28E+02	3.11E+02	3.11E+02	2.94E-01	1.00E-08	7.74E-11		
Cesium (55)	Cs-132	3.90E+01	1.78E-02	1.36E+09	1.00E+00	1.62E+04	2.24E+08	5.67E-01	5.19E+01	5.39E-02	4.47E+00	9.21E+01	4.87E+01	4.10E+01	6.83E+02	5.59E+01	4.85E-02	1.00E-08	8.60E-12		
Cesium (55)	Cs-134	3.36E-01	2.06E+00	1.36E+09	1.00E+00	1.56E+01	1.11E+05	7.58E-03	5.02E-02	5.22E-05	4.33E-03	8.91E-02	4.71E-02	3.97E-02	6.61E-01	5.41E-02	5.09E-05	1.00E-08	1.07E-12		
Cesium (55)	Cs-134m	2.09E+03	3.31E-04	1.36E+09	1.00E+00	9.70E+04	6.87E+08	4.61E+01	3.11E+02	3.24E-01	2.68E+01	5.53E+02	2.92E+02	2.46E+02	4.10E+03	3.36E+02	3.16E-01	1.00E-08	1.06E-12		
Cesium (55)	Cs-135	3.01E-07	2.30E+06	1.36E+09	9.00E-01	9.41E+01	1.68E+05	8.13E+02	3.02E-01	3.14E-04	2.60E-02	5.36E-01	2.83E-01	2.39E-01	3.98E+00	3.26E-01	3.09E-04	1.00E-08	7.25E-06		
Cesium (55)	Cs-135m	6.87E+03	1.01E-04	1.36E+09	1.00E+00	7.21E+07	7.48E+11	4.24E+01	2.31E+05	2.40E-02	1.99E+04	4.11E+05	2.17E+05	1.83E+05	3.05E+06	2.49E+05	3.60E+01	1.00E-08	3.70E-11		
Cesium (55)	Cs-136	1.92E+01	3.61E-02	1.36E+09	1.00E+00	1.38E+03	1.33E+07	8.89E-02	4.44E+00	4.62E-03	3.83E-01	7.89E+00	4.17E+00	3.51E+00	5.85E+01	4.79E+00	4.32E-03	1.00E-08	1.60E-12		
Cesium (55)	Cs-137	2.30E-02	3.02E+01	1.36E+09	1.00E+00	1.89E+01	5.09E+04	1.81E-02	6.06E-02	6.30E-05	5.23E-03	1.08E-01	5.69E-02	4.79E-02	7.99E-01	6.54E-02	6.17E-05	1.00E-08	1.93E-11		
Cesium (55)	Cs-138	1.09E+04	6.36E-05	1.36E+09	1.00E+00	2.12E+07	4.24E+11	4.22E+01	6.79E+04	7.06E+01	5.86E+03	1.21E+05	6.38E+04	5.37E+04	8.95E+05	7.32E+04	2.62E+01	1.00E-08	1.74E-11		
Cesium (55)	Cs-138m	1.25E+05	5.54E-06	1.36E+09	1.00E+00	1.56E+12	3.12E+16	3.11E+06	5.00E+09	5.19E+06	4.31E+08	8.87E+09	4.69E+09	3.95E+09	6.58E+10	5.39E+09	1.93E+06	1.00E-08	1.12E-07		
Cesium (55)	Cs-139	3.93E+04	1.76E-05	1.36E+09	1.00E+00	5.95E+07	1.18E+12	9.56E+03	5.02E+05	1.65E+04	1.08E+02	5.91E+07	5.77E+06		1.26E+06	3.19E+07	1.06E+02	1.00E-08	1.97E-11		
Cesium (55)	Cs-140	3.43E+05	2.02E-06	1.36E+09	1.00E+00	1.35E+07	9.16E+10	1.29E+03	1.50E+05	6.52E+03	4.27E+01	1.39E+07	2.09E+06		4.93E+05	1.26E+07	4.11E+01	1.00E-08	8.79E-13		
Copper (29)	Cu-57	1.11E+08	6.22E-09	1.36E+09	1.00E+00	2.04E+10	1.75E+14	5.29E+05	9.15E+07	1.96E+08	2.03E+09	2.80E+09	3.42E+08	3.97E+10	7.97E+10	1.50E+09	5.23E+05	1.00E-08	1.40E-11		
Copper (29)	Cu-59	2.68E+05	2.58E-06	1.36E+09	1.00E+00	1.22E+14	8.99E+16	1.62E+13	9.14E+11	1.36E+12		1.54E+13	1.79E+12				4.00E+11	1.00E-08	4.61E-03		
Copper (29)	Cu-60	1.54E+04	4.51E-05	1.36E+09	1.00E+00	2.39E+13	4.47E+17	2.14E+07	3.83E+10	4.60E+10	1.92E+11	8.95E+10									



Farmer Soil DCCs July 2023																			
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)													
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion	Inhalation	External	Produce	Finfish	Shellfish	Beef	Dairy	Swine	Egg	Poultry	Total	Peak Dose	Total
						DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)
Dysprosium (66)	Dy-157	7.46E+02	9.29E-04	1.36E+09	1.00E+00	2.37E+06	2.21E+10	2.63E+01	6.77E+04	4.59E+03		1.23E+05	4.49E+05				2.62E+01	1.00E-08	2.89E-10
Dysprosium (66)	Dy-159	1.75E+00	3.96E-01	1.36E+09	1.00E+00	3.73E+03	8.67E+06	2.68E+00	1.07E+02	7.19E+00		1.94E+02	7.07E+02				1.89E+00	1.00E-08	9.02E-09
Dysprosium (66)	Dy-165	2.60E+03	2.66E-04	1.36E+09	1.00E+00	4.34E+06	7.26E+10	1.18E+03	1.24E+05	8.35E+03		2.26E+05	8.21E+05				1.02E+03	1.00E-08	3.38E-09
Dysprosium (66)	Dy-165m	2.90E+05	2.39E-06	1.36E+09	1.00E+00	4.90E+08	8.21E+12	1.33E+05	1.40E+07	9.43E+05		2.55E+07	9.28E+07				1.15E+05	1.00E-08	3.43E-09
Dysprosium (66)	Dy-166	7.44E+01	9.32E-03	1.36E+09	1.00E+00	4.38E+03	4.82E+07	1.74E+01	1.25E+02	1.48E+01		2.28E+02	8.29E+02				7.20E+00	1.00E-08	8.42E-10
Dysprosium (66)	Dy-167	5.87E+04	1.18E-05	1.36E+09	1.00E+00	1.25E+08	1.35E+12	1.83E+03	3.56E+06	3.87E+06		6.49E+06	2.36E+07				1.83E+03	1.00E-08	2.73E-10
Dysprosium (66)	Dy-168	4.19E+04	1.66E-05	1.36E+09	1.00E+00			1.18E+12									1.18E+12	1.00E-08	2.49E-01
Erbium (68)	Er-154	9.77E+04	7.10E-06	1.36E+09	1.00E+00	4.31E+09	1.24E+13	7.38E+04	1.06E+08	1.23E+08	8.29E+08	1.52E+08	1.22E+09				7.37E+04	1.00E-08	6.09E-09
Erbium (68)	Er-156	1.87E+04	3.71E-05	1.36E+09	1.00E+00	3.65E+07	5.98E+11	8.80E+01	1.04E+06	1.13E+06		1.90E+06	6.92E+06				8.80E+01	1.00E-08	3.85E-11
Erbium (68)	Er-159	1.01E+04	6.85E-05	1.36E+09	1.00E+00	1.60E+07	4.69E+10	8.24E+01	4.93E+05	4.04E+04		9.43E+05	3.53E+06				8.22E+01	1.00E-08	6.77E-11
Erbium (68)	Er-161	1.89E+03	3.66E-04	1.36E+09	1.00E+00	3.76E+06	5.42E+10	1.92E+01	1.60E+05	8.49E+04		4.16E+05	2.01E+06				1.92E+01	1.00E-08	8.57E-11
Erbium (68)	Er-163	4.86E+03	1.43E-04	1.36E+09	1.00E+00	3.56E+08	6.37E+12	5.58E+03	1.64E+07	7.72E+06		4.81E+07	2.67E+08				5.57E+03	1.00E-08	9.81E-09
Erbium (68)	Er-165	5.86E+02	1.18E-03	1.36E+09	1.00E+00	5.67E+06	1.18E+11	7.92E+02	2.62E+05	1.23E+05		7.65E+05	4.25E+06				7.83E+02	1.00E-08	1.16E-08
Erbium (68)	Er-167m	9.63E+06	7.19E-08	1.36E+09	1.00E+00			1.71E+28									1.71E+28	7.94E-06	1.55E+13
Erbium (68)	Er-169	2.69E+01	2.58E-02	1.36E+09	1.00E+00	1.30E+04	4.41E+07	1.22E+04	5.98E+02	2.81E+02		1.75E+03	9.73E+03				1.65E+02	1.00E-08	5.43E-08
Erbium (68)	Er-171	8.08E+02	8.58E-04	1.36E+09	1.00E+00	3.79E+05	2.46E+09	2.61E+01	1.66E+04	8.97E+03		4.51E+04	2.27E+05				2.60E+01	1.00E-08	2.89E-10
Erbium (68)	Er-172	1.23E+02	5.63E-03	1.36E+09	1.00E+00	8.23E+03	9.20E+07	1.26E+00	2.74E+02	4.74E+02		5.57E+02	2.17E+03				1.25E+00	1.00E-08	9.16E-11
Erbium (68)	Er-173	2.54E+05	2.73E-06	1.36E+09	1.00E+00	1.55E+08	2.36E+12	7.13E+03	4.42E+06	4.30E+04		8.05E+06	2.93E+07				7.11E+03	1.00E-08	2.54E-10
Einsteinium (99)	Es-249	3.56E+03	1.94E-04	1.36E+09	1.00E+00	9.77E+05	2.14E+07	9.98E+01	4.30E+04	2.86E+02	1.12E+01	1.73E+06	5.55E+06	1.79E+08	3.35E+08	9.25E+07	1.07E+01	2.02E+03	3.94E-11
Einsteinium (99)	Es-250	7.06E+02	9.82E-04	1.36E+09	1.00E+00	1.48E+04	1.87E+06	6.46E+00	6.49E+02	7.38E+01	1.38E+00	2.65E+04	8.38E+04	2.60E+09	3.83E+09	1.27E+09	1.38E+00	1.10E+02	2.56E-11
Einsteinium (99)	Es-250m	2.73E+03	2.53E-04	1.36E+09	1.00E+00	5.91E+04	7.13E+06	5.11E+01	2.60E+03	2.82E+02	5.27E+00	1.03E+05	3.36E+05	9.91E+09	1.46E+10	4.83E+09	5.26E+00	1.10E+02	2.52E-11
Einsteinium (99)	Es-251	1.84E+02	3.77E-03	1.36E+09	1.00E+00	7.71E+04	2.75E+06	3.29E+01	3.39E+03	3.21E+02	2.82E+02	1.85E+05	4.38E+05	1.83E+09	3.46E+09	9.44E+08	3.26E+01	1.00E-08	2.33E-09
Einsteinium (99)	Es-253	1.24E+01	5.61E-02	1.36E+09	1.00E+00	3.05E+02	6.93E+03	2.16E+02	1.34E+01	9.91E-01	3.87E-02	1.52E+03	1.73E+03	6.20E+05	1.16E+06	3.21E+05	3.72E-02	2.02E+03	4.00E-11
Einsteinium (99)	Es-254	9.17E-01	7.55E-01	1.36E+09	1.00E+00	7.20E+00	3.51E+02	1.64E+02	3.17E-01	9.45E-02	1.77E-03	2.99E+01	4.09E+01	3.33E+06	4.90E+06	1.62E+06	1.77E-03	1.11E+02	2.56E-11
Einsteinium (99)	Es-254m	1.54E+02	4.49E-03	1.36E+09	1.00E+00	2.10E+03	2.22E+05	3.17E+00	9.09E+01	1.62E+01	3.03E-01	4.24E+03	1.08E+04	5.70E+08	8.39E+08	2.78E+08	3.03E-01	1.10E+02	2.61E-11
Einsteinium (99)	Es-255	6.36E+00	1.09E-01	1.36E+09	1.00E+00	1.17E+02	2.49E+03	1.06E+01	4.57E+00	2.44E+01	1.99E+01	1.89E+02	3.86E+02	3.15E+08	5.08E+08	1.60E+08	3.03E+00	1.00E-08	6.38E-09
Einsteinium (99)	Es-256	1.43E+04	4.83E-05	1.36E+09	1.00E+00	1.28E+05	5.28E+07	1.06E+01	3.79E+03	2.07E+06	6.76E+03	7.17E+04	1.97E+05	2.07E+12	2.76E+12	2.17E+12	1.06E+01	1.00E-08	9.93E-12
Europium (63)	Eu-142	9.34E+06	7.42E-08	1.36E+09	1.00E+00	1.56E+11	3.61E+15	1.64E+06	7.20E+09	4.03E+09	5.77E+07	2.11E+10	1.17E+11				1.59E+06	1.00E-08	1.27E-09
Europium (63)	Eu-142m	2.98E+05	2.33E-06	1.36E+09	1.00E+00	3.00E+08	6.93E+12	3.14E+03	1.38E+07	7.74E+06	1.11E+05	4.04E+07	2.25E+08				3.05E+03	1.00E-08	7.64E-11
Europium (63)	Eu-143	1.41E+05	4.93E-06	1.36E+09	1.00E+00	1.89E+08	1.47E+11	7.88E+03	7.74E+05	2.37E+06		5.01E+06	1.39E+08		1.67E+08	9.25E+08	7.76E+03	1.00E-08	4.14E-10
Europium (63)	Eu-144	2.14E+06	3.23E-07	1.36E+09	1.00E+00			5.32E+22									5.32E+22	1.00E-08	1.88E+08
Europium (63)	Eu-145	4.27E+01	1.62E-02	1.36E+09	1.00E+00	1.08E+04	3.72E+07	3.21E-01	2.46E+02	1.04E+03	2.59E+01	3.10E+02	7.61E+03		1.91E+06	1.05E+07	3.16E-01	1.00E-08	5.64E-11
Europium (63)	Eu-146	5.49E+01	1.26E-02	1.36E+09	1.00E+00	9.03E+03	1.24E+08	2.24E-01	1.91E+02	1.74E+03	7.83E+02	2.29E+02	6.32E+03				2.23E-01	1.00E-08	3.12E-11
Europium (63)	Eu-147	1.05E+01	6.60E-02	1.36E+09	1.00E+00	4.54E+03	1.68E+07	2.49E-01	9.60E+01	8.74E+02	3.94E+02	1.15E+02	3.18E+03		5.96E+08	3.29E+09	2.48E-01	1.00E-08	1.82E-10
Europium (63)	Eu-148	4.64E+00	1.49E-01	1.36E+09	1.00E+00	7.19E+02	2.38E+06	2.13E-02	1.52E+01	1.38E+02	6.24E+01	1.82E+01	5.03E+02		1.97E+11	1.09E+12	1.2E-02	1.00E-08	3.54E-11
Europium (63)	Eu-149	2.72E+00	2.55E-01	1.36E+09	1.00E+00	3.36E+03	1.25E+07	8.66E-01	7.10E+01	6.47E+02	2.92E+02	8.51E+01	2.35E+03				8.43E-01	1.00E-08	2.42E-09
Europium (63)	Eu-150	1.88E-02	3.69E+01	1.36E+09	1.00E+00	1.60E+02	1.58E+04	6.80E-03	3.37E+00	3.07E+01	1.39E+01	4.05E+00	1.12E+02				6.77E-03	1.00E-08	2.84E-09
Europium (63)	Eu-150m	4.74E+02	1.46E-03	1.36E+09	1.00E+00	2.24E+05	4.05E+09	1.05E+02	4.72E+03	4.30E+04	1.94E+04	5.66E+03	1.57E+05				9.97E+01	1.00E-08	1.65E-09
Europium (63)	Eu-152	5.12E-02	1.35E+01	1.36E+09	1.00E+00	1.46E+02	2.17E+04	8.71E-03	3.09E+00	2.82E+01	1.27E+01	3.71E+00	1.03E+02		1.03E+50	1.89E+47	8.66E-03	1.00E-08	1.35E-09
Europium (63)	Eu-152m	6.52E+02	1.06E-03	1.36E+09	1.00E+00	2.38E+05	5.45E+09	2.22E+01	5.02E+03	4.57E+04	2.06E+04	6.02E+03	1.66E+05		6.44E+51	1.19E+49	2.20E+01	1.00E-08	2.69E-10
Europium (63)	Eu-152n	3.79E+03	1.83E-04	1.36E+09	1.00E+00	9.03E+06	1.60E+09	4.08E+02	1.91E+05	1.74E+06	7.83E+05	2.29E+05	6.32E+06		5.36E+22	1.40E+52	4.06E+02	1.00E-08	8.53E-10
Europium (63)	Eu-154	8.06E-02	8.59E+00	1.36E+09	1.00E+00	9.91E+01	1.90E+04	8.18E-03	2.09E+00	1.91E+01	8.60E+00	2.51E+00	6.94E+01				8.11E-03	1.00E-08	8.12E-10
Europium (63)	Eu-154m	7.92E+03	8.75E-05	1.36E+09	1.00E+00	9.24E+06	1.86E+09	6.37E+02	1.95E+05	1.78E+06	8.02E+05	2.34E+05	6.47E+06				6.32E+02	1.00E-08	6.45E-10
Europium (63)	Eu-155	1.46E-01	4.76E+00	1.36E+09	1.00E+00	5.91E+02	3.47E+05	3.77E-01	1.25E+01	1.14E+02	5.12E+01	1.50E+01	4.14E+02				3.53E-01	1.00E-08	1.97E-08
Europium (63)	Eu-156	1.67E+01	4.16E-02	1.36E+09	1.00E+00	1.35E+03	7.93E+06	1.25E-01	2.85E+01	2.59E+02	1.17E+02	3.41E+01	9.44E+02				1.24E-01	1.00E-08	6.07E-11
Europium (63)	Eu-157	4.00E+02	1.73E-03	1.36E+09	1.00E+00	1.19E+05	2.21E+09	1.64E+01	2.51E+03	2.28E+04	1.03E+04	3.01E+03	8.32E+04				1.62E+01	1.00E-08	3.33E-10
Europium (63)	Eu-158	7.94E+03	8.73E-05	1.36E+09	1.00E+00	1.63E+07	2.85E+11	5.84E+01	3.44E+05	3.14E+06	1.41E+06	4.13E+05	1.14E+07				5.83E+01	1.00E-08	6.09E-11
Europium (63)	Eu-159	2.01E+04	3.44E-05	1.36E+09	1.00E+00	7.20E+06	1.20E+11	4.75E+03	2.05E+05	1.56E+05	3.98E+14	3.74E+05	1.36E+06				4.43E+03	1.00E-08	1.84E-09
Fluorine (9)	F-17	3.39E+05	2.04E-06	1.36E+09	1.00E+00			6.80E+17									6.80E+17	1.00E-08	1.79E+03
Fluorine (9)	F-18	3.32E+03	2.09E-04	1.36E+09	9.00E-01	1.32E+07	1.05E+11	3.88E+01	5.15E+04	1.65E+05		6.87E+04	2.14E+04				3.87E+01</		

Farmer Soil DCCs July 2023																			
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)													
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m³/kg)	Soil Volume Area Correction Factor	Ingestion	Inhalation	External	Produce	Finfish	Shellfish	Beef	Dairy	Swine	Egg	Poultry	Total	Peak Dose	Total
						DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)
Fermium (100)	Fm-251	1.15E+03	6.05E-04	1.36E+09	1.00E+00	4.16E+05	1.70E+07	6.65E+01	1.70E+04	4.85E+02	4.83E+02	6.58E+05	1.65E+06	2.56E+09	4.83E+09	1.32E+09	6.47E+01	1.00E-08	7.44E-10
Fermium (100)	Fm-252	2.39E+02	2.90E-03	1.36E+09	1.00E+00	1.95E+03	9.78E+04	4.83E+03	8.08E+01	3.94E-01	3.23E-03	2.56E+03	8.14E+03	1.39E+07	3.05E+07	6.75E+06	3.22E-03	3.70E+00	1.78E-13
Fermium (100)	Fm-253	8.43E+01	8.22E-03	1.36E+09	1.00E+00	1.96E+03	4.62E+04	2.24E+01	7.92E+01	6.76E+00	2.64E-01	4.04E+03	7.47E+03	4.23E+06	7.94E+06	2.19E+06	2.54E-01	2.02E+03	4.00E-11
Fermium (100)	Fm-254	1.87E+03	3.70E-04	1.36E+09	1.00E+00	3.86E+04	4.48E+06	2.29E+03	1.65E+03	1.93E+02	3.62E+00	5.96E+04	1.89E+05	6.80E+09	1.00E+10	3.31E+09	3.61E+00	1.10E+02	2.57E-11
Fermium (100)	Fm-255	3.02E+02	2.29E-03	1.36E+09	1.00E+00	1.93E+04	1.39E+06	3.02E+03	5.68E+02	1.16E+03	9.47E+02	1.07E+04	2.93E+04	1.50E+10	2.42E+10	7.62E+09	4.40E+02	1.00E-08	1.95E-08
Fermium (100)	Fm-256	2.31E+03	3.00E-04	1.36E+09	1.00E+00	2.06E+04	8.51E+06	1.71E+00	6.11E+02	3.33E+05	1.09E+03	1.16E+04	3.17E+04	3.33E+11	4.45E+11	3.50E+11	1.71E+00	1.00E-08	9.93E-12
Fermium (100)	Fm-257	2.52E+00	2.75E-01	1.36E+09	1.00E+00	1.64E+01	4.02E+02	2.51E-01	5.23E-01	2.02E-01	7.90E-03	1.14E+01	2.98E+01	1.26E+05	2.37E+05	6.54E+04	7.60E-03	2.02E+03	4.07E-11
Francium (87)	Fr-212	1.82E+04	3.81E-05	1.36E+09	1.00E+00	9.74E+03	2.43E+07	1.38E+02	3.43E+02	4.74E+01	1.41E+09	4.52E+02	7.05E+02		5.80E+01	4.14E+01	1.31E+01	1.00E-08	7.99E-12
Francium (87)	Fr-219	1.09E+09	6.34E-10	1.36E+09	1.00E+00			1.97E+20									1.97E+20	1.00E-08	2.07E+03
Francium (87)	Fr-220	7.98E+05	8.69E-07	1.36E+09	1.00E+00	5.61E+08	1.01E+11	5.45E+03	4.52E+05	1.50E+07		1.45E+07	3.06E+06				5.37E+03	1.00E-08	7.76E-11
Francium (87)	Fr-221	7.43E+04	9.32E-06	1.36E+09	1.00E+00	5.39E+07	4.39E+09	6.18E+03	5.30E+04	7.40E+05	1.07E+06	1.71E+06	3.69E+05				5.37E+03	1.00E-08	8.37E-10
Francium (87)	Fr-222	2.57E+04	2.70E-05	1.36E+09	1.00E+00	7.91E+04	1.70E+08	6.30E+06	8.08E+02	3.89E+02	8.82E+02	5.10E+03	5.93E+03		7.47E+02	5.33E+02	1.18E+02	1.61E+00	5.37E-11
Francium (87)	Fr-223	1.66E+04	4.19E-05	1.36E+09	1.00E+00	1.89E+04	3.69E+06	6.27E+02	6.60E+01	3.95E+00	1.20E-01	1.46E+03	7.23E+02				1.17E-01	1.00E-08	8.24E-14
Francium (87)	Fr-224	1.09E+05	6.34E-06	1.36E+09	1.00E+00	1.99E+05	6.10E+07	6.89E+02	7.01E+02	4.48E+01	1.37E+00	1.59E+04	7.78E+03				1.33E+00	1.00E-08	1.42E-13
Francium (87)	Fr-227	1.47E+05	4.70E-06	1.36E+09	1.00E+00	1.89E+06	1.25E+08	1.31E+05	1.65E+04	1.12E+03	3.15E+01	4.02E+05	2.04E+05				3.06E+01	3.18E-01	2.47E-12
Gallium (31)	Ga-64	1.39E+05	5.00E-06	1.36E+09	1.00E+00			6.22E+14									6.22E+14	1.00E-08	1.51E+01
Gallium (31)	Ga-65	2.40E+04	2.89E-05	1.36E+09	1.00E+00	1.93E+06	3.05E+10	6.09E+02	1.74E+02	4.51E+02	1.27E+04	2.09E+02	1.29E+03	8.71E+02	3.78E+03	6.23E+03	5.94E+01	1.00E-08	8.45E-12
Gallium (31)	Ga-66	6.40E+02	1.08E-03	1.36E+09	1.00E+00	1.00E+05	2.36E+09	2.30E+00	6.60E+03	6.25E+01		2.72E+04	3.02E+04				2.22E+00	1.00E-08	1.20E-11
Gallium (31)	Ga-67	7.76E+01	8.93E-03	1.36E+09	1.00E+00	7.41E+04	5.41E+08	6.46E+00	4.90E+03	4.64E+01		2.01E+04	2.24E+04				5.66E+00	1.00E-08	2.56E-10
Gallium (31)	Ga-68	5.38E+03	1.29E-04	1.36E+09	1.00E+00	9.83E+06	1.84E+11	5.87E+01	6.49E+05	6.15E+03		2.67E+06	2.97E+06				5.81E+01	1.00E-08	3.85E-11
Gallium (31)	Ga-70	1.72E+04	4.02E-05	1.36E+09	1.00E+00	4.48E+14	8.20E+18	7.21E+10	2.96E+13	2.80E+11		1.22E+14	1.36E+14				5.72E+10	1.00E-08	1.22E-02
Gallium (31)	Ga-72	4.31E+02	1.61E-03	1.36E+09	1.00E+00	7.28E+04	1.35E+09	1.46E+00	4.81E+03	4.55E+01		1.98E+04	2.20E+04				1.41E+00	1.00E-08	1.24E-11
Gallium (31)	Ga-73	1.25E+03	5.55E-04	1.36E+09	1.00E+00	8.65E+05	1.43E+10	3.99E+01	5.71E+04	5.41E+02		2.35E+05	2.61E+05				3.71E+01	1.00E-08	1.14E-10
Gallium (31)	Ga-74	4.49E+04	1.54E-05	1.36E+09	1.00E+00			5.97E+11									5.97E+11	1.00E-08	5.16E-02
Gadolinium (64)	Gd-142	3.11E+05	2.23E-06	1.36E+09	1.00E+00	3.13E+08	7.25E+12	3.29E+03	1.45E+07	8.09E+06	1.16E+05	4.23E+07	2.35E+08				3.19E+03	1.00E-08	7.64E-11
Gadolinium (64)	Gd-143m	1.99E+05	3.49E-06	1.36E+09	1.00E+00	2.68E+08	2.07E+11	1.11E+04	1.09E+06	3.35E+06		7.08E+06	1.97E+08		2.37E+08	1.31E+09	1.10E+04	1.00E-08	4.14E-10
Gadolinium (64)	Gd-144	8.15E+04	8.50E-06	1.36E+09	1.00E+00			1.02E+14									1.02E+14	1.00E-08	9.50E+00
Gadolinium (64)	Gd-145	1.58E+04	4.38E-05	1.36E+09	1.00E+00	3.99E+06	1.38E+10	1.19E+02	9.10E+04	3.86E+05	9.62E+03	1.15E+05	2.82E+06		7.08E+08	3.91E+09	1.17E+02	1.00E-08	5.62E-11
Gadolinium (64)	Gd-145m	2.57E+05	2.70E-06	1.36E+09	1.00E+00	6.47E+07	2.24E+11	1.93E+03	1.48E+06	6.26E+06	1.56E+05	1.87E+06	4.58E+07		1.15E+10	6.35E+10	1.90E+03	1.00E-08	5.62E-11
Gadolinium (64)	Gd-146	5.24E+00	1.32E-01	1.36E+09	1.00E+00	4.73E+02	1.27E+06	2.05E-02	1.13E+01	1.98E+01	7.52E+01	1.56E+01	1.49E+02				2.04E-02	1.00E-08	2.97E-11
Gadolinium (64)	Gd-147	1.59E+02	4.35E-03	1.36E+09	1.00E+00	2.85E+04	1.83E+08	9.00E-01	7.11E+02	9.76E+02	5.98E+03	1.03E+03	7.73E+03		9.05E+09	5.00E+10	8.97E-01	1.00E-08	4.34E-11
Gadolinium (64)	Gd-148	9.29E-03	7.46E+01	1.36E+09	9.00E-01	3.47E+00	3.18E+02		9.91E-02	7.53E-02		1.81E-01	6.57E+01				3.25E-02	1.00E-08	2.72E-08
Gadolinium (64)	Gd-149	2.73E+01	2.54E-02	1.36E+09	1.00E+00	7.41E+03	3.81E+07	5.66E-01	1.96E+02	1.99E+02	2.95E+03	3.13E+02	1.67E+03				5.62E-01	1.00E-08	1.61E-10
Gadolinium (64)	Gd-150	3.87E-07	1.79E+06	1.36E+09	9.00E-01	3.66E+00	3.70E+02		1.05E-01	7.94E-02	8.10E-02	1.91E-01	6.94E-01				3.43E-02	1.00E-08	6.98E-04
Gadolinium (64)	Gd-151	2.04E+00	3.40E-01	1.36E+09	1.00E+00	1.90E+03	3.76E+06	7.32E-01	5.42E+01	4.11E+01	4.48E+16	9.87E+01	3.59E+02				7.03E-01	1.00E-08	2.73E-09
Gadolinium (64)	Gd-152	6.42E-15	1.08E+14	1.36E+09	9.00E-01	4.67E+00	1.04E+02		1.33E-01	1.01E-01	1.24E-01	2.43E-01	8.84E-01		4.54E+34	4.79E+01	4.38E-02	7.04E-01	5.44E+04
Gadolinium (64)	Gd-153	1.05E+00	6.59E-01	1.36E+09	1.00E+00	1.07E+03	1.28E+06	4.35E-01	3.07E+01	2.33E+01		5.59E+01	2.03E+02				4.17E-01	1.00E-08	3.18E-09
Gadolinium (64)	Gd-159	3.29E+02	2.11E-03	1.36E+09	1.00E+00	1.17E+05	1.97E+09	7.75E+01	3.35E+03	2.55E+03		6.11E+03	2.22E+04				7.24E+01	1.00E-08	1.84E-09
Gadolinium (64)	Gd-162	4.34E+04	1.60E-05	1.36E+09	1.00E+00			2.16E+11									2.16E+11	1.00E-08	4.23E-02
Germanium (32)	Ge-66	2.69E+03	2.58E-04	1.36E+09	1.00E+00	3.89E+05	8.29E+09	7.90E+00	1.02E+03	2.46E+01		2.48E+02	5.11E+02				5.74E+00	1.00E-08	7.40E-12
Germanium (32)	Ge-67	1.93E+04	3.60E-05	1.36E+09	1.00E+00	1.84E+07	1.34E+11	1.61E+03	1.22E+06	1.15E+04		5.01E+06	5.57E+06				1.41E+03	1.00E-08	2.56E-10
Germanium (32)	Ge-68	9.34E-01	7.42E-01	1.36E+09	1.00E+00	2.09E+02	9.62E+04	1.68E-02	4.58E-02	1.18E-03		1.08E-02	2.22E-02				9.36E-04	1.00E-08	3.58E-12
Germanium (32)	Ge-69	1.55E+02	4.46E-03	1.36E+09	1.00E+00	1.48E+05	1.11E+09	1.60E+00	3.00E+01	7.71E-01		7.04E+00	1.46E+01				4.62E-01	1.00E-08	1.08E-11
Germanium (32)	Ge-71	2.21E+01	3.13E-02	1.36E+09	1.00E+00	3.48E+05	3.23E+09	1.11E+06	7.06E+01	1.81E+00		1.66E+01	3.42E+01				1.53E+00	1.00E-08	2.57E-10
Germanium (32)	Ge-75	4.40E+03	1.57E-04	1.36E+09	1.00E+00	1.77E+07	2.06E+11	1.39E+03	3.58E+03	9.21E+01		8.40E+02	1.74E+03				7.34E+01	1.00E-08	6.56E-11
Germanium (32)	Ge-77	5.37E+02	1.29E-03	1.36E+09	1.00E+00	1.41E+05	1.21E+09	5.08E+00	5.13E+01	1.65E+00		1.49E+01	3.11E+01				1.09E+00	1.00E-08	8.16E-12
Germanium (32)	Ge-78	4.14E+03	1.67E-04	1.36E+09	1.00E+00	2.52E+06	3.90E+10	2.53E+01	1.04E+03	3.65E+01		3.26E+02	6.87E+02				1.38E+01	1.00E-08	1.37E-11
Hydrogen (1)	H-3	5.63E-02	1.23E+01	1.70E+01	9.00E-01	5.58E+03	9.34E-02		9.44E-02			7.81E-01	9.65E-02				3.04E-02	1.00E-08	8.49E-11
Hafnium (72)	Hf-167	1.78E+05	3.90E-06	1.36E+09	1.00E+00	5.13E+07	2.45E+11	8.94E+02	1.50E+06	1.02E+08	2.12E+06	2.79E+06	1.02E+07				8.92E+02	1.00E-08	4.40E-11
Hafnium (72)	Hf-169	1.12E+05	6.16E-06	1.36E+09	1.00E+00	1.57E+07	5.52E+10	7.43E+02	5.25E+05	5.84E+06	1.22E+05	1.07E+06	4.16E+06				7.37E+02	1.00E-08	5.81E-11
Hafnium (72)	Hf-170	3.79E+02	1.83E-03	1.36E+09	1.00E+00	5.38E+04	7.25E+08	1.19E+00	1.83E+03	3.27E+02	1.07E								

Farmer Soil DCCs July 2023																				
Radionuclides		Isotope-specific Information					Dose Compliance Concentrations (DCCs)													
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Produce Consumption DCC DL=1 (Bq/g)	Finfish Consumption DCC DL=1 (Bq/g)	Shellfish Consumption DCC DL=1 (Bq/g)	Beef Consumption DCC DL=1 (Bq/g)	Dairy Consumption DCC DL=1 (Bq/g)	Swine Consumption DCC DL=1 (Bq/g)	Egg Consumption DCC DL=1 (Bq/g)	Poultry Consumption DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)	
Hafnium (72)	Hf-180m	1.10E+03	6.28E-04	1.36E+09	1.00E+00	1.24E+06	1.39E+10	1.29E+01	2.62E+04	2.35E+03	1.41E+03	3.23E+05	7.05E+05	.	.	.	1.27E+01	1.00E-08	1.08E-10	
Hafnium (72)	Hf-181	5.97E+00	1.16E-01	1.36E+09	1.00E+00	9.91E+02	1.93E+06	1.26E-01	2.09E+01	1.88E+00	1.13E+00	2.58E+02	5.63E+02	.	.	.	1.07E-01	1.00E-08	1.70E-10	
Hafnium (72)	Hf-182	7.70E-08	9.00E+06	1.36E+09	1.00E+00	4.58E+01	6.66E+03	6.63E-03	1.07E+00	1.17E-01	8.23E-02	1.87E+01	3.59E+01	.	.	.	5.79E-03	6.95E+00	7.18E-04	
Hafnium (72)	Hf-182m	5.92E+03	1.17E-04	1.36E+09	1.00E+00	1.35E+06	2.09E+09	3.92E+01	3.79E+04	7.76E+03	2.82E+04	5.30E+06	2.64E+06	.	.	.	3.89E+01	1.00E-08	6.28E-11	
Hafnium (72)	Hf-183	5.69E+03	1.22E-04	1.36E+09	1.00E+00	7.29E+05	4.64E+09	5.95E+01	2.05E+04	4.22E+03	1.63E+04	3.02E+06	1.44E+06	.	.	.	5.83E+01	1.00E-08	9.83E-11	
Hafnium (72)	Hf-184	1.47E+03	4.70E-04	1.36E+09	1.00E+00	2.29E+05	3.37E+09	8.77E+00	5.65E+03	7.18E+02	5.89E+02	1.33E+05	2.24E+05	.	.	.	8.53E+00	1.00E-08	5.58E-11	
Mercury (80)	Hg-190	1.82E+04	3.81E-05	1.36E+09	1.00E+00	8.37E+07	1.32E+12	7.09E+01	1.98E+06	8.72E+06	1.14E+06	2.19E+06	2.20E+08	.	.	1.99E+14	7.09E+01	1.00E-08	3.88E-11	
Mercury (80)	Hg-191m	7.17E+03	9.67E-05	1.36E+09	1.00E+00	2.73E+06	1.78E+10	3.31E-01	2.06E+03	2.21E+04	8.99E+04	6.53E+04	9.19E+04	.	.	2.33E+06	3.25E+01	1.00E-08	4.54E-11	
Mercury (80)	Hg-192	1.25E+03	5.54E-04	1.36E+09	1.00E+00	6.10E+05	2.20E+09	5.55E+00	2.86E+02	9.15E+02	4.41E+03	3.10E+03	7.06E+03	.	.	9.63E+04	5.39E+00	1.00E-08	4.34E-11	
Mercury (80)	Hg-193	1.60E+03	4.34E-04	1.36E+09	1.00E+00	1.28E+06	3.11E+09	1.72E+01	7.60E+02	2.43E+03	1.03E+04	7.85E+03	1.88E+04	.	.	2.57E+05	1.66E+01	1.00E-08	1.05E-10	
Mercury (80)	Hg-193m	5.14E+02	1.35E-03	1.36E+09	1.00E+00	1.72E+05	3.13E+08	3.91E+00	6.02E+01	1.92E+02	1.07E+03	6.82E+02	1.48E+03	.	.	2.01E+04	3.56E+00	1.00E-08	7.01E-11	
Mercury (80)	Hg-194	1.58E-03	4.40E+02	1.36E+09	1.00E+00	1.20E+02	8.45E+04	9.59E-03	4.29E-02	1.37E-01	7.54E-01	4.84E-01	1.05E+00	.	.	1.44E+01	7.18E-03	3.87E-02	4.64E-08	
Mercury (80)	Hg-195	5.77E+02	1.20E-03	1.36E+09	1.00E+00	3.58E+05	3.89E+08	3.18E+01	2.76E+02	8.86E+02	3.19E+03	2.68E+03	6.88E+03	.	.	9.42E+04	2.70E+01	1.00E-08	4.79E-10	
Mercury (80)	Hg-195m	1.46E+02	4.75E-03	1.36E+09	1.00E+00	3.34E+04	2.74E+07	5.41E+00	1.19E+01	3.79E+01	2.10E+02	1.34E+02	2.92E+02	.	.	3.98E+03	3.21E+00	1.00E-08	2.25E-10	
Mercury (80)	Hg-197	9.35E+01	7.41E-03	1.36E+09	1.00E+00	6.85E+04	3.88E+07	3.37E+01	1.85E+01	5.90E+01	3.66E+02	2.16E+02	4.53E+02	.	.	6.17E+03	9.06E+00	1.00E-08	1.00E-09	
Mercury (80)	Hg-197m	2.55E+02	2.72E-03	1.36E+09	1.00E+00	6.55E+04	4.87E+07	3.05E+01	1.77E+01	5.64E+01	3.50E+02	2.07E+02	4.33E+02	.	.	5.90E+03	8.53E+00	1.00E-08	3.45E-10	
Mercury (80)	Hg-199m	8.54E+03	8.12E-05	1.36E+09	1.00E+00	5.16E+07	9.39E+10	6.75E+02	1.39E+04	4.45E+04	2.76E+05	1.63E+05	3.41E+05	.	.	4.65E+06	6.29E+02	1.00E-08	7.69E-10	
Mercury (80)	Hg-203	5.43E+00	1.28E-01	1.36E+09	1.00E+00	1.87E+03	1.48E+06	2.68E-01	5.06E-01	1.61E+00	1.00E+01	5.92E+00	1.24E+01	.	.	1.69E+02	1.50E-01	1.00E-08	2.93E-10	
Mercury (80)	Hg-205	7.00E+04	9.89E-06	1.36E+09	1.00E+00	.	.	5.17E+15	.	.	.	.	.	.	.	.	5.17E+15	1.00E-08	7.94E+02	
Mercury (80)	Hg-206	4.47E+04	1.55E-05	1.36E+09	1.00E+00	.	.	1.81E+13	.	.	.	.	.	.	.	.	1.81E+13	1.00E-08	4.39E+00	
Mercury (80)	Hg-207	1.26E+05	5.52E-06	1.36E+09	1.00E+00	.	.	9.64E+15	.	.	.	.	.	.	.	.	9.64E+15	1.00E-08	8.33E+02	
Holmium (67)	Ho-150	2.85E+05	2.44E-06	1.36E+09	1.00E+00	6.04E+07	1.86E+11	1.10E+03	1.48E+06	1.84E+06	1.13E+07	2.11E+06	1.72E+07	.	.	.	1.09E+03	1.00E-08	3.02E-11	
Holmium (67)	Ho-153	1.81E+05	3.82E-06	1.36E+09	1.00E+00	5.28E+07	1.79E+11	1.66E+03	1.51E+06	2.76E+05	3.14E+10	2.75E+06	9.99E+06	.	.	7.22E+16	3.99E+17	1.65E+03	1.00E-08	7.29E-11
Holmium (67)	Ho-153m	3.92E+04	1.77E-05	1.36E+09	1.00E+00	1.14E+07	3.85E+10	3.59E+02	3.26E+05	5.99E+04	7.69E+07	5.93E+05	2.16E+06	.	.	5.82E+12	3.22E+13	3.56E+02	1.00E-08	7.30E-11
Holmium (67)	Ho-154	3.10E+04	2.24E-05	1.36E+09	1.00E+00	1.28E+11	4.34E+13	7.66E+05	3.65E+09	6.26E+08	6.77E+09	6.65E+09	2.42E+10	.	.	.	7.64E+05	1.00E-08	1.99E-07	
Holmium (67)	Ho-154m	1.17E+05	5.90E-06	1.36E+09	1.00E+00	1.64E+12	1.65E+14	4.41E+14	4.68E+10	3.34E+09	2.57E+10	8.53E+10	3.11E+11	.	.	.	3.00E+09	1.00E-08	2.06E-04	
Holmium (67)	Ho-155	7.59E+03	9.13E-05	1.36E+09	1.00E+00	3.22E+06	3.27E+10	5.91E+01	9.18E+04	1.50E+04	1.67E+05	6.09E+05	1.02E+06	.	.	.	5.88E+01	1.00E-08	6.30E-11	
Holmium (67)	Ho-156	6.50E+03	1.07E-04	1.36E+09	1.00E+00	1.27E+07	2.08E+11	3.06E+01	3.63E+05	3.95E+05	6.62E+05	2.41E+06	1.74E+07	.	.	.	3.06E+01	1.00E-08	3.85E-11	
Holmium (67)	Ho-157	2.89E+04	2.40E-05	1.36E+09	1.00E+00	9.20E+07	8.56E+11	1.02E+03	2.63E+06	1.78E+05	4.78E+06	1.74E+07	1.02E+08	.	.	.	1.01E+03	1.00E-08	2.89E-10	
Holmium (67)	Ho-159	1.10E+04	6.29E-05	1.36E+09	1.00E+00	2.15E+07	5.36E+10	3.90E+02	6.13E+05	4.49E+04	1.12E+06	4.07E+06	1.12E+07	.	.	.	3.86E+02	1.00E-08	2.92E-10	
Holmium (67)	Ho-160	1.42E+04	4.87E-05	1.36E+09	1.00E+00	2.99E+13	3.30E+17	1.53E+07	8.53E+11	9.27E+11	1.56E+12	5.66E+12	1.12E+13	.	.	.	1.53E+07	1.00E-08	9.05E-06	
Holmium (67)	Ho-161	2.45E+03	2.83E-04	1.36E+09	1.00E+00	3.56E+07	5.72E+11	1.91E+03	1.02E+06	1.10E+06	1.85E+06	6.73E+06	1.12E+07	.	.	.	1.91E+03	1.00E-08	6.57E-09	
Holmium (67)	Ho-162	2.43E+04	2.85E-05	1.36E+09	1.00E+00	6.12E+17	6.40E+21	8.11E+11	1.75E+16	1.90E+16	3.18E+16	1.16E+17	1.16E+17	.	.	.	8.11E+11	1.00E-08	2.84E-01	
Holmium (67)	Ho-162m	5.44E+03	1.27E-04	1.36E+09	1.00E+00	3.83E+07	4.19E+11	8.99E+01	1.09E+06	1.19E+06	1.99E+06	7.24E+06	1.12E+07	.	.	.	8.99E+01	1.00E-08	1.40E-10	
Holmium (67)	Ho-163	1.52E-04	4.57E+03	1.36E+09	1.00E+00	6.21E+04	7.45E+06	1.77E+03	1.93E+03	3.23E+03	1.18E+04	1.18E+04	1.18E+04	.	.	.	6.69E+02	1.00E-08	3.77E-02	
Holmium (67)	Ho-164	1.26E+04	5.52E-05	1.36E+09	1.00E+00	7.92E+12	8.33E+16	6.08E+08	2.26E+11	2.46E+11	4.12E+11	1.50E+12	1.50E+12	.	.	.	6.04E+08	1.00E-08	4.13E-04	
Holmium (67)	Ho-164m	9.59E+03	7.23E-05	1.36E+09	1.00E+00	6.81E+07	8.49E+11	6.23E+03	1.94E+06	2.11E+06	3.54E+06	1.29E+07	1.29E+07	.	.	.	6.17E+03	1.00E-08	5.54E-09	
Holmium (67)	Ho-166	2.27E+02	3.06E-03	1.36E+09	1.00E+00	2.92E+04	5.65E+08	8.16E+01	8.33E+02	9.05E+02	1.52E+03	5.52E+03	5.52E+03	.	.	.	6.48E+01	1.00E-08	2.49E-09	
Holmium (67)	Ho-166m	5.78E-04	1.20E+03	1.36E+09	1.00E+00	9.75E+01	7.09E+03	6.39E-03	2.78E+00	3.02E+00	5.07E+00	1.84E+01	1.84E+01	.	.	.	6.35E-03	1.00E-08	9.57E-08	
Holmium (67)	Ho-167	1.96E+03	3.54E-04	1.36E+09	1.00E+00	4.16E+06	4.51E+10	6.10E+01	1.19E+05	1.29E+05	2.16E+05	7.87E+05	7.87E+05	.	.	.	6.09E+01	1.00E-08	2.73E-10	
Holmium (67)	Ho-168	1.22E+05	5.69E-06	1.36E+09	1.00E+00	.	.	2.93E+15	.	.	.	.	.	.	.	.	2.93E+15	1.00E-08	2.12E+02	
Holmium (67)	Ho-168m	1.66E+05	4.19E-06	1.36E+09	1.00E+00	.	.	1.37E+15	.	.	.	.	.	.	.	.	1.37E+15	1.00E-08	7.31E+01	
Holmium (67)	Ho-170	1.32E+05	5.52E-06	1.36E+09	1.00E+00	.	.	1.51E+15	.	.	.	.	.	.	.	.	1.51E+15	1.00E-08	1.02E+02	
Iodine (53)	I-118	2.66E+04	2.61E-05	1.36E+09	1.00E+00	1.60E+06	1.89E+10	3.40E+02	7.27E+02	4.26E+03	7.95E+03	2.29E+04	5.13E+04	1.37E+14	4.39E+03	2.06E+04	2.04E+02	1.00E-08	4.76E-11	
Iodine (53)	I-118m	4.29E+04	1.62E-05	1.36E+09	1.00E+00	2.58E+06	3.05E+10	5.49E+02	1.17E+03	6.87E+03	7.95E+03	3.69E+04	8.27E+04	7.07E+03	3.32E+04	3.30E+02	1.00E-08	4.76E-11		
Iodine (53)	I-119	1.91E+04	3.63E-05	1.36E+09	1.00E+00	1.38E+07	2.16E+11	2.50E+02	9.17E+03	2.85E+04	2.78E+05	6.36E+05	5.65E+04	2.65E+05	2.33E+02	1.00E-08	7.63E-11			
Iodine (53)	I-120	4.46E+03	1.55E-04	1.36E+09	1.00E+00	2.71E+06	2.89E+10	1.57E+01	4.46E+03	2.71E+03	5.									



Farmer Soil DCCs July 2023																			
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)													
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion	Inhalation	External	Produce	Finfish	Shellfish	Beef	Dairy	Swine	Egg	Poultry	Total	Peak Dose	Total
						DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)
Iodine (53)	I-131	3.15E+01	2.20E-02	1.36E+09	1.00E+00	2.50E+02	2.54E+06	8.95E-01	4.13E-01			5.20E+00	7.20E-01	3.40E+00	1.92E+00	2.93E+02	1.68E-01	1.00E-08	3.67E-11
Iodine (53)	I-132	2.65E+03	2.62E-04	1.36E+09	1.00E+00	1.62E+06	1.44E+10	1.15E+01	2.68E+03			3.37E+04	4.67E+03	2.21E+04	1.25E+04	1.90E+06	1.14E+01	1.00E-08	2.99E-11
Iodine (53)	I-132m	4.38E+03	1.58E-04	1.36E+09	1.00E+00	1.71E+06	1.46E+10	1.90E+01	2.81E+03			3.55E+04	4.91E+03	2.32E+04	1.31E+04	2.00E+06	1.88E+01	1.00E-08	2.97E-11
Iodine (53)	I-133	2.92E+02	2.37E-03	1.36E+09	1.00E+00	1.10E+04	1.12E+08	4.74E+00	1.81E+01			2.28E+02	3.16E+01	1.49E+02	8.44E+01	1.29E+04	3.11E+00	1.00E-08	7.44E-11
Iodine (53)	I-134	6.94E+03	9.99E-05	1.36E+09	1.00E+00	1.26E+07	8.99E+10	2.59E+01	2.08E+04			2.62E+05	3.62E+04	1.71E+05	9.67E+04	1.47E+07	2.58E+01	1.00E-08	2.62E-11
Iodine (53)	I-134m	1.01E+05	6.85E-06	1.36E+09	1.00E+00	1.88E+08	1.34E+12	3.87E+02	3.10E+05			3.90E+06	5.40E+05	2.55E+06	1.44E+06	2.20E+08	3.86E+02	1.00E-08	2.68E-11
Iodine (53)	I-135	9.24E+02	7.50E-04	1.36E+09	1.00E+00	1.75E+05	1.67E+09	4.65E+00	2.89E+02	9.62E+05	7.98E+07	3.64E+03	5.04E+02	2.38E+03	1.35E+03	2.05E+05	4.51E+00	1.00E-08	3.45E-11
Indium (49)	In-103	3.64E+05	1.90E-06	1.36E+09	1.00E+00	2.84E+08	1.43E+12	4.50E+03	2.21E+05	1.80E+06	1.92E+06	2.30E+07	1.12E+05	7.19E+06	1.42E+06	4.21E+03	1.00E-08	6.24E-11	
Indium (49)	In-105	7.18E+04	9.65E-06	1.36E+09	1.00E+00	2.77E+07	1.58E+11	3.92E+02	1.34E+04	1.34E+03	1.95E+03	4.13E+05	1.87E+03	1.15E+05	1.58E+07	2.26E+04	2.24E+02	1.00E-08	1.71E-11
Indium (49)	In-106	5.87E+04	1.18E-05	1.36E+09	1.00E+00			3.84E+12									3.84E+12	1.00E-08	3.64E-01
Indium (49)	In-106m	7.00E+04	9.89E-06	1.36E+09	1.00E+00			1.10E+13									1.10E+13	1.00E-08	8.70E-01
Indium (49)	In-107	1.12E+04	6.16E-05	1.36E+09	1.00E+00	2.01E+07	1.94E+11	7.08E+01	4.80E+03	1.27E+02	2.07E+02	1.47E+05	4.92E+05	2.97E+05	1.58E+06	5.12E+04	3.70E+01	1.00E-08	1.85E-11
Indium (49)	In-108	6.28E+03	1.10E-04	1.36E+09	1.00E+00	1.61E+07	2.31E+11	1.57E+01	1.06E+06	6.43E+02		2.73E+05	1.21E+06				1.53E+01	1.00E-08	1.38E-11
Indium (49)	In-108m	9.20E+03	7.53E-05	1.36E+09	1.00E+00	2.16E+07	4.26E+11	3.05E+01	1.42E+06	8.63E+02		2.76E+05	1.63E+06				2.95E+01	1.00E-08	1.82E-11
Indium (49)	In-109	1.45E+03	4.79E-04	1.36E+09	1.00E+00	3.16E+05	1.03E+09	2.37E+01	4.99E+01	1.40E+00	2.15E+00	1.78E+03	5.74E+03	3.08E+03	1.64E+04	5.32E+02	8.03E-01	1.00E-08	3.17E-12
Indium (49)	In-109m	2.72E+05	2.55E-06	1.36E+09	1.00E+00	5.94E+07	1.93E+11	4.43E+03	9.39E+03	2.63E+02	4.04E+02	3.36E+05	1.08E+06	5.80E+05	3.08E+06	1.00E+05	1.51E+02	1.00E-08	3.17E-12
Indium (49)	In-110	1.24E+03	5.59E-04	1.36E+09	1.00E+00	1.02E+06	1.59E+10	3.96E+00	6.71E+04	4.07E+01		1.73E+04	7.68E+04				3.61E+00	1.00E-08	1.68E-11
Indium (49)	In-110m	5.27E+03	1.31E-04	1.36E+09	1.00E+00	9.78E+06	1.84E+11	3.32E+01	6.46E+05	3.91E+02		1.66E+05	7.39E+05				3.06E+01	1.00E-08	3.35E-11
Indium (49)	In-111	9.02E+01	7.68E-03	1.36E+09	1.00E+00	5.91E+04	6.60E+08	2.85E+00	3.90E+03	2.37E+00	1.58E+05	1.00E+03	4.47E+03	2.26E+08	1.20E+09	3.90E+07	1.29E+00	1.00E-08	8.33E-11
Indium (49)	In-111m	4.73E+04	1.46E-05	1.36E+09	1.00E+00	3.10E+07	3.46E+11	1.49E+03	2.04E+06	1.24E+03	8.15E+07	5.26E+05	2.34E+06	1.17E+11	6.21E+11	2.02E+10	6.76E+02	1.00E-08	8.32E-11
Indium (49)	In-112	2.43E+04	2.85E-05	1.36E+09	1.00E+00	2.00E+17	2.51E+21	4.45E+11	1.32E+16	8.00E+12		3.39E+15	1.51E+16				4.21E+11	1.00E-08	1.02E-01
Indium (49)	In-112m	1.77E+04	3.91E-05	1.36E+09	1.00E+00	4.61E+14	4.76E+18	1.46E+09	3.04E+13	1.84E+10		7.38E+12	3.48E+13				1.35E+09	1.00E-08	4.49E-04
Indium (49)	In-113m	3.66E+03	1.89E-04	1.36E+09	1.00E+00	2.32E+07	3.08E+11	1.56E+02	1.53E+06	9.29E+02		3.94E+05	1.75E+06				1.33E+02	1.00E-08	2.16E-10
Indium (49)	In-114	3.04E+05	2.28E-06	1.36E+09	1.00E+00			8.62E+19									8.62E+19	1.00E-08	1.70E+06
Indium (49)	In-114m	5.11E+00	1.36E-01	1.36E+09	1.00E+00	2.20E+02	7.19E+05	7.16E-01	1.45E+01	8.80E-03		3.73E+00	1.66E+01				8.66E-03	1.00E-08	1.01E-11
Indium (49)	In-115	1.57E-15	4.41E+14	1.36E+09	9.00E-01	7.00E+00	5.13E+03	1.76E+02	4.62E-01	2.80E-04		1.19E-01	5.29E-01				2.79E-04	3.17E+00	1.07E+03
Indium (49)	In-115m	1.35E+03	5.12E-04	1.36E+09	1.00E+00	2.83E+06	3.83E+10	9.69E+01	1.87E+05	1.13E+02		4.80E+04	2.14E+05				5.21E+01	1.00E-08	2.32E-10
Indium (49)	In-116m	6.69E+03	1.04E-04	1.36E+09	1.00E+00	2.02E+07	2.49E+11	2.52E+01	1.33E+06	8.08E+02		3.43E+05	1.53E+06				2.45E+01	1.00E-08	2.22E-11
Indium (49)	In-117	8.43E+03	8.22E-05	1.36E+09	1.00E+00	4.81E+07	3.83E+11	1.32E+02	1.57E+05	2.08E+03		6.08E+05	1.34E+06				1.24E+02	1.00E-08	9.01E-11
Indium (49)	In-117m	3.13E+03	2.21E-04	1.36E+09	1.00E+00	4.13E+06	5.92E+10	8.33E+01	8.80E+04	1.67E+02		6.76E+04	2.63E+05				5.55E+01	1.00E-08	1.09E-10
Indium (49)	In-118	4.37E+06	1.59E-07	1.36E+09	1.00E+00			3.90E+25									3.90E+25	1.00E-08	5.53E+10
Indium (49)	In-118m	8.35E+04	8.30E-06	1.36E+09	1.00E+00			4.95E+13									4.95E+13	1.00E-08	3.67E+00
Indium (49)	In-119	1.52E+05	4.57E-06	1.36E+09	1.00E+00	1.41E+10	1.53E+13	5.78E+08	3.82E+06	6.28E+06		4.46E+07	4.67E+07				2.14E+06	1.00E-08	8.81E-08
Indium (49)	In-119m	2.02E+04	3.42E-05	1.36E+09	1.00E+00	3.36E+10	3.65E+13	1.36E+09	9.09E+06	1.50E+07		1.06E+08	1.11E+08				5.10E+06	1.00E-08	1.57E-06
Indium (49)	In-121	9.46E+05	7.32E-07	1.36E+09	1.00E+00	8.33E+08	7.09E+12	3.78E+08	2.25E+05	3.70E+05		2.63E+06	2.75E+06				1.27E+05	1.00E-08	8.50E-10
Indium (49)	In-121m	9.39E+04	7.38E-06	1.36E+09	1.00E+00	7.35E+07	6.93E+11	3.38E+07	1.99E+04	3.27E+04		2.32E+05	2.43E+05				1.12E+04	1.00E-08	7.56E-10
Iridium (77)	Ir-180	2.43E+05	2.85E-06	1.36E+09	1.00E+00	7.49E+15	8.55E+19	5.10E+09	1.97E+13			3.11E+14	6.70E+14				5.10E+09	1.00E-08	1.98E-04
Iridium (77)	Ir-182	2.43E+04	2.85E-05	1.36E+09	1.00E+00	5.36E+06	7.03E+10	1.54E+02	4.97E+03	9.34E+12		4.40E+04	2.56E+04				1.48E+02	1.00E-08	5.83E-11
Iridium (77)	Ir-183	6.28E+03	1.10E-04	1.36E+09	1.00E+00	9.47E+05	3.22E+09	2.86E+01	4.74E+02	5.73E+03		3.78E+03	2.02E+03				2.63E+01	1.00E-08	4.02E-11
Iridium (77)	Ir-184	1.96E+03	3.53E-04	1.36E+09	1.00E+00	2.00E+06	2.77E+10	1.01E+01	5.27E+03	5.00E+02		8.30E+04	8.94E+06				9.87E+00	1.00E-08	4.85E-11
Iridium (77)	Ir-185	4.22E+02	1.64E-03	1.36E+09	1.00E+00	1.03E+05	4.68E+08	2.88E+00	2.71E+02	6.12E+01		4.26E+03	1.56E+04				2.72E+00	1.00E-08	6.25E-11
Iridium (77)	Ir-186	3.65E+02	1.90E-03	1.36E+09	1.00E+00	1.25E+05	1.82E+09	2.22E+00	3.29E+02	3.12E+01		5.17E+03	5.57E+05				2.06E+00	1.00E-08	5.51E-11
Iridium (77)	Ir-186m	3.16E+03	2.19E-04	1.36E+09	1.00E+00	2.85E+06	4.03E+10	1.88E+01	7.51E+03	7.13E+02		1.18E+05	1.27E+07				1.83E+01	1.00E-08	5.64E-11
Iridium (77)	Ir-187	5.78E+02	1.20E-03	1.36E+09	1.00E+00	9.45E+05	1.33E+10	2.05E+01	2.49E+03	3.26E+02		3.92E+04	4.22E+06				1.87E+01	1.00E-08	3.17E-10
Iridium (77)	Ir-188	1.46E+02	4.74E-03	1.36E+09	1.00E+00	3.78E+04	5.38E+08	6.46E-01	9.96E+01	9.45E+00		1.57E+03	1.69E+05				6.01E-01	1.00E-08	4.05E-11
Iridium (77)	Ir-189	1.92E+01	3.62E-02	1.36E+09	1.00E+00	1.45E+04	6.42E+07	5.29E+00	3.82E+01	3.64E+00		6.00E+02	5.13E+04				2.03E+00	1.00E-08	1.05E-09
Iridium (77)	Ir-190	2.15E+01	3.23E-02	1.36E+09	1.00E+00	3.92E+03	2.89E+07	1.57E-01	1.03E+01	9.81E-01		1.63E+02	1.75E+04						



Farmer Soil DCCs July 2023																				
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)														
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Produce Consumption DCC DL=1 (Bq/g)	Finfish Consumption DCC DL=1 (Bq/g)	Shellfish Consumption DCC DL=1 (Bq/g)	Beef Consumption DCC DL=1 (Bq/g)	Dairy Consumption DCC DL=1 (Bq/g)	Swine Consumption DCC DL=1 (Bq/g)	Egg Consumption DCC DL=1 (Bq/g)	Poultry Consumption DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)	
Iridium (77)	Ir-196	4.20E+05	1.65E-06	1.36E+09	1.00E+00			1.25E+19										1.25E+19	1.00E-08	3.06E+05
Iridium (77)	Ir-196m	4.34E+03	1.60E-04	1.36E+09	1.00E+00	7.54E+06	8.43E+10	1.85E+01	1.99E+04	1.88E+03		3.12E+05	3.37E+07					1.83E+01	1.00E-08	4.34E-11
Potassium (19)	K-38	4.77E+04	1.45E-05	1.36E+09	1.00E+00			1.49E+12										1.49E+12	1.00E-08	6.22E-02
Potassium (19)	K-40	5.54E-10	1.25E+09	1.36E+09	1.00E+00	3.02E+01	2.37E+04	5.74E-02	6.18E-03	1.02E-04	4.24E-04	5.40E-02	1.62E-02		1.66E-01	9.17E-01		8.07E-05	1.00E-08	3.06E-04
Potassium (19)	K-42	4.91E+02	1.41E-03	1.36E+09	1.00E+00	2.07E+05	2.53E+09	1.52E+01	4.24E+01	7.02E-01	2.90E+00	3.70E+02	1.11E+02		1.14E+03	6.29E+03		5.34E-01	1.00E-08	2.40E-12
Potassium (19)	K-43	2.72E+02	2.55E-03	1.36E+09	1.00E+00	2.11E+05	1.32E+09	2.95E+00	4.32E+01	7.16E-01	2.96E+00	3.78E+02	1.13E+02		1.16E+03	6.42E+03		4.74E-01	1.00E-08	3.93E-12
Potassium (19)	K-44	1.65E+04	4.21E-05	1.36E+09	1.00E+00	6.89E+13	1.62E+18	1.14E+08	1.41E+10	2.33E+08	9.66E+08	1.23E+11	3.69E+10		3.78E+11	2.09E+12		7.05E+07	1.00E-08	9.89E-06
Potassium (19)	K-45	2.11E+04	3.29E-05	1.36E+09	1.00E+00	6.38E+06	1.40E+10	2.85E+07	1.54E+03	3.54E+03	9.54E+02	2.75E+03	3.68E+02	7.99E+04	1.31E+04	7.23E+04		1.94E+02	1.00E-08	2.17E-11
Potassium (19)	K-46	2.08E+05	3.33E-06	1.36E+09	1.00E+00			1.40E+16										1.40E+16	1.00E-08	1.63E+02
Krypton (36)	Kr-74	3.17E+04	2.19E-05	1.36E+09	1.00E+00	8.13E+12	1.55E+17	6.80E+06	3.17E+10	4.10E+09	2.19E+08	2.70E+10	3.63E+09					6.57E+06	1.00E-08	8.05E-07
Krypton (36)	Kr-75	8.49E+04	8.16E-06	1.36E+09	1.00E+00	6.92E+06	1.32E+11	6.02E+02	5.81E+02	1.99E+02	1.24E+03	7.09E+02	7.26E+02	3.98E+02	2.87E+02	2.62E+02		4.58E+01	1.00E-08	2.12E-12
Krypton (36)	Kr-76	4.10E+02	1.69E-03	1.36E+09	1.00E+00	1.72E+05	1.69E+09	1.22E+00	6.71E+02	8.68E+01	4.63E+00	5.71E+02	7.70E+01					9.39E-01	1.00E-08	9.12E-12
Krypton (36)	Kr-77	4.90E+03	1.42E-04	1.36E+09	1.00E+00	1.01E+07	9.61E+10	3.91E+01	3.95E+04	5.11E+03	2.73E+02	3.36E+04	4.53E+03					3.37E+01	1.00E-08	2.78E-11
Krypton (36)	Kr-79	1.73E+02	4.00E-03	1.36E+09	1.00E+00			7.37E+00										7.37E+00	1.00E-08	1.76E-10
Krypton (36)	Kr-81	3.03E-06	2.29E+05	1.36E+09	1.00E+00			1.38E+01										1.38E+01	1.00E-08	1.94E-02
Krypton (36)	Kr-81m	1.67E+06	4.15E-07	1.36E+09	1.00E+00			7.61E+12										7.61E+12	1.00E-08	1.94E-02
Krypton (36)	Kr-83m	3.32E+03	2.09E-04	1.36E+09	1.00E+00			8.14E+06										8.14E+06	1.00E-08	1.07E-05
Krypton (36)	Kr-85	6.44E-02	1.08E+01	1.36E+09	1.00E+00			4.34E+00										4.34E+00	1.00E-08	3.00E-07
Krypton (36)	Kr-85m	1.36E+03	5.11E-04	1.36E+09	1.00E+00			1.12E+02										1.12E+02	1.00E-08	3.68E-10
Krypton (36)	Kr-87	4.77E+03	1.45E-04	1.36E+09	1.00E+00	4.11E+16	4.24E+19	5.46E+01	1.72E+13	1.47E+12	2.75E+12	1.26E+14	1.32E+13					5.46E+01	1.00E-08	5.22E-11
Krypton (36)	Kr-88	2.14E+03	3.24E-04	1.36E+09	1.00E+00	4.35E+06	1.35E+11	7.24E+00	1.82E+03	1.56E+02	2.91E+02	1.34E+04	1.40E+03					6.70E+00	1.00E-08	1.45E-11
Krypton (36)	Kr-89	1.16E+05	5.99E-06	1.36E+09	1.00E+00	8.01E+06	2.77E+10	4.38E+05	1.95E+03	2.30E+03	1.89E+01	6.01E+05	6.53E+04	1.29E+06	3.13E+05	3.03E+06		1.85E+01	1.00E-08	7.48E-13
Lanthanum (57)	La-128	7.03E+04	9.86E-06	1.36E+09	1.00E+00	4.90E+06	8.94E+10	7.80E+02	4.13E+04	1.36E+03	8.91E+00	4.87E+06	4.75E+05		1.04E+05	2.62E+06		8.75E+00	1.00E-08	8.35E-13
Lanthanum (57)	La-129	3.14E+04	2.21E-05	1.36E+09	1.00E+00	5.59E+07	5.09E+11	4.98E+02	2.51E+05	3.43E+02	2.18E+02	5.90E+05	3.05E+05	2.64E+05	1.62E+06	3.58E+05		1.05E+02	1.00E-08	2.26E-11
Lanthanum (57)	La-130	4.19E+04	1.66E-05	1.36E+09	1.00E+00			8.93E+11										8.93E+11	1.00E-08	1.45E-01
Lanthanum (57)	La-131	6.17E+03	1.12E-04	1.36E+09	1.00E+00	2.12E+06	1.25E+10	6.12E+01	1.58E+04	6.44E+01	4.58E+00	1.15E+05	5.06E+04	5.39E+04	5.04E+04	6.97E+04		4.00E+00	1.00E-08	4.45E-12
Lanthanum (57)	La-132	1.26E+03	5.48E-04	1.36E+09	1.00E+00	5.81E+05	1.21E+10	6.15E+00	1.13E+04	6.94E+04	5.60E+03	6.24E+05	4.52E+05					6.13E+00	1.00E-08	3.36E-11
Lanthanum (57)	La-132m	1.50E+04	4.62E-05	1.36E+09	1.00E+00	9.06E+06	1.89E+11	9.58E+01	1.77E+05	1.08E+06	8.73E+04	9.73E+06	7.05E+06					1.86E+07	1.00E-08	4.42E-11
Lanthanum (57)	La-133	1.55E+03	4.47E-04	1.36E+09	1.00E+00	1.95E+06	4.44E+09	1.02E+02	1.87E+04	6.89E+02	4.51E+00	1.97E+06	2.32E+05		5.23E+04	1.33E+06		4.29E+00	1.00E-08	1.93E-11
Lanthanum (57)	La-134	5.65E+04	1.23E-05	1.36E+09	1.00E+00			1.25E+13										1.25E+13	1.00E-08	1.55E+00
Lanthanum (57)	La-135	3.11E+02	2.23E-03	1.36E+09	1.00E+00	1.88E+06	3.55E+10	2.66E+02	3.66E+04	2.24E+05	1.81E+04	2.02E+06	1.46E+06		3.85E+06			2.60E+02	1.00E-08	5.91E-09
Lanthanum (57)	La-136	3.69E+04	1.88E-05	1.36E+09	1.00E+00			1.97E+12										1.97E+12	1.00E-08	3.80E-01
Lanthanum (57)	La-137	1.16E-05	6.00E+04	1.36E+09	1.00E+00	2.24E+03	2.23E+05	5.35E+00	4.37E+01	2.67E+02	2.16E+01	2.40E+03	1.74E+03		4.59E+03			3.82E+00	1.00E-08	2.38E-03
Lanthanum (57)	La-138	6.79E-12	1.02E+11	1.36E+09	1.00E+00	1.81E+02	1.30E+04	7.61E-03	3.54E+00	2.17E+01	1.75E+00	1.95E+02	1.41E+02		3.72E+02			7.55E-03	1.00E-08	8.05E+00
Lanthanum (57)	La-140	1.51E+02	4.60E-03	1.36E+09	1.00E+00	1.40E+04	2.34E+08	6.06E-01	2.74E+02	1.68E+03	1.35E+02	1.51E+04	1.09E+04		2.88E+04			6.01E-01	1.00E-08	2.93E-11
Lanthanum (57)	La-141	1.55E+03	4.47E-04	1.36E+09	1.00E+00	2.59E+05	7.54E+08	1.76E+02	5.41E+03	1.34E+04	6.38E+02	5.09E+04	2.00E+05	2.18E+06	9.29E+05			1.33E+02	1.00E-08	6.33E-10
Lanthanum (57)	La-142	4.00E+03	1.73E-04	1.36E+09	1.00E+00	4.30E+06	7.85E+10	1.49E+01	8.39E+04	5.14E+05	4.14E+04	4.62E+06	3.35E+06		8.83E+06			1.49E+01	1.00E-08	2.78E-11
Lanthanum (57)	La-143	2.57E+04	2.70E-05	1.36E+09	1.00E+00	2.01E+06	1.46E+10	1.07E+03	3.49E+04	1.89E+04	7.30E+03	1.76E+05	7.25E+05	2.27E+07	8.74E+06	1.26E+06		8.60E+02	1.00E-08	2.52E-10
Lutetium (71)	Lu-165	3.39E+04	2.04E-05	1.36E+09	1.00E+00	1.70E+07	2.48E+11	6.80E+02	4.95E+05	7.11E+06	1.12E+15	9.13E+05	3.35E+06					6.78E+02	1.00E-08	1.73E-10
Lutetium (71)	Lu-167	7.07E+03	9.80E-05	1.36E+09	1.00E+00	2.04E+06	9.75E+09	3.56E+01	5.99E+04	4.06E+06	8.44E+04	1.11E+05	4.08E+05					3.55E+01	1.00E-08	4.40E-11
Lutetium (71)	Lu-169	1.78E+02	3.89E-03	1.36E+09	1.00E+00	2.49E+04	8.76E+07	1.18E+00	8.33E+02	9.27E+03	1.93E+02	1.69E+03	6.60E+03					1.17E+00	1.00E-08	5.81E-11
Lutetium (71)	Lu-169m	1.37E+05	5.07E-06	1.36E+09	1.00E+00	1.91E+07	6.71E+10	9.03E+02	6.38E+05	7.10E+06	1.48E+05	1.30E+06	5.06E+06					8.95E+02	1.00E-08	5.81E-11
Lutetium (71)	Lu-170	1.26E+02	5.51E-03	1.36E+09	1.00E+00	2.56E+04	3.49E+08	4.46E-01	1.18E+03	3.63E+03	7.55E+01	3.46E+03	1.92E+04					4.43E-01	1.00E-08	3.14E-11
Lutetium (71)	Lu-171	3.07E+01	2.26E-02	1.36E+09	1.00E+00	8.43E+03	5.81E+07	5.23E-01	3.89E+02	1.19E+03	2.49E+01	1.14E+03	6.33E+03					5.11E-01	1.00E-08	1.49E-10
Lutetium (71)	Lu-171m	2.77E+05	2.51E-06	1.36E+09	1.00E+00	7.60E+07	5.23E+11	4.71E+03	3.51E+06	1.08E+07	2.24E+05	1.03E+07	5.70E+07					4.61E+03	1.00E-08	1.49E-10
Lutetium (71)	Lu-172	3.78E+01	1.84E-02	1.36E+09	1.00E+00	5.55E+03	4.40E+07	1.92E-01	2.56E+02	7.87E+02	1.64E+01	7.49E+02	4.17E+03					1.90E-01	1.00E-08	4.54E-11
Lutetium (71)	Lu-172m	9.84E+04	7.04E-06	1.36E+09	1.00E+00	1.45E+07	1.15E+11	5.01E+02	6.68E+05	2.05E+06	4.27E+04	1.95E+06	1.09E+07	</						

Farmer Soil DCCs July 2023																			
Radionuclides		Isotope-specific Information					Dose Compliance Concentrations (DCCs)												
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion	Inhalation	External	Produce	Finfish	Shellfish	Beef	Dairy	Swine	Egg	Poultry	Total	Peak Dose	Total
						DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)
Lutetium (71)	Lu-181	1.04E+05	6.66E-06	1.36E+09	1.00E+00	1.73E+07	3.36E+10	2.21E+03	3.65E+05	3.28E+04	1.96E+04	4.50E+06	9.81E+06				1.86E+03	1.00E-08	1.70E-10
Magnesium (12)	Mg-27	3.85E+04	1.80E-05	1.36E+09	1.00E+00			2.26E+12									2.26E+12	1.00E-08	8.29E-02
Magnesium (12)	Mg-28	2.90E+02	2.39E-03	1.36E+09	1.00E+00	2.56E+04	4.06E+08	8.43E-01	6.74E+01	2.19E+00	1.93E-01	8.87E+02	3.63E+01				1.46E-01	1.00E-08	7.37E-13
Manganese (25)	Mn-50m	2.08E+05	3.33E-06	1.36E+09	1.00E+00			9.67E+15									9.67E+15	1.00E-08	1.22E+02
Manganese (25)	Mn-51	7.88E+03	8.79E-05	1.36E+09	1.00E+00	1.13E+07	1.74E+11	7.96E+01	6.72E+03	6.64E+04	5.79E+04	6.73E+05	9.33E+05	8.49E+05	3.70E+06	4.52E+07	7.85E+01	1.00E-08	2.66E-11
Manganese (25)	Mn-52	4.52E+01	1.53E-02	1.36E+09	1.00E+00	4.97E+03	5.72E+07	1.25E-01	2.10E+00	2.07E+01	1.81E+01	5.51E+02	8.61E+02	2.65E+02	1.16E+03	1.41E+04	1.16E-01	1.00E-08	7.02E-12
Manganese (25)	Mn-52m	1.73E+04	4.01E-05	1.36E+09	1.00E+00	1.08E+08	1.24E+12	2.72E+03	4.58E+04	4.51E+05	3.93E+05	1.20E+07	1.87E+07	5.76E+06	2.51E+07	3.07E+08	2.53E+03	1.00E-08	4.00E-10
Manganese (25)	Mn-53	1.87E-07	3.70E+06	1.36E+09	1.00E+00	6.00E+03	5.75E+06		2.54E+00	2.50E+01	2.18E+01	6.65E+02	1.04E+03	3.20E+02	1.39E+03	1.70E+04	2.06E+00	1.00E-08	3.05E-02
Manganese (25)	Mn-54	8.10E-01	8.55E-01	1.36E+09	1.00E+00	4.07E+02	8.51E+05	1.72E-02	1.72E-01	1.70E+00	1.48E+00	4.51E+01	7.05E+01	2.17E+01	9.46E+01	1.16E+03	1.53E-02	1.00E-08	5.35E-11
Manganese (25)	Mn-56	2.35E+03	2.94E-04	1.36E+09	1.00E+00	1.72E+06	3.21E+10	1.28E+01	7.26E+02	7.15E+03	6.24E+03	1.90E+05	2.97E+05	9.13E+04	3.98E+05	4.87E+06	1.25E+01	1.00E-08	1.57E-11
Manganese (25)	Mn-57	2.56E+05	2.71E-06	1.36E+09	1.00E+00			3.27E+18									3.27E+18	1.00E-08	3.81E+04
Manganese (25)	Mn-58m	3.35E+05	2.07E-06	1.36E+09	1.00E+00			2.73E+17									2.73E+17	1.00E-08	2.48E+03
Molybdenum (42)	Mo-101	2.49E+04	2.78E-05	1.36E+09	1.00E+00	4.39E+15	6.43E+19	1.42E+10	1.53E+10	5.70E+15	1.84E+16	1.02E+13	1.06E+12	2.99E+15	5.30E+12	2.78E+14	7.30E+09	1.00E-08	1.55E-03
Molybdenum (42)	Mo-102	3.22E+04	2.15E-05	1.36E+09	1.00E+00	2.32E+17	6.08E+21	6.87E+12	1.30E+14	4.06E+15	1.31E+16	7.80E+15	7.43E+14		1.88E+15	3.69E+15	6.42E+12	1.00E-08	1.06E+00
Molybdenum (42)	Mo-89	1.73E+05	4.01E-06	1.36E+09	1.00E+00	3.09E+07	4.59E+11	6.63E+02	5.32E+05	2.78E+05	4.51E+09	1.74E+08	3.10E+08	1.34E+09	2.47E+09	6.61E+02	1.00E-08	1.79E-11	
Molybdenum (42)	Mo-90	1.09E+03	6.35E-04	1.36E+09	1.00E+00	1.43E+05	1.87E+09	2.04E+00	3.82E+02	6.71E+02	5.54E+04	3.30E+04	3.14E+03	4.46E+05	7.93E+03	1.56E+04	2.02E+00	1.00E-08	8.73E-12
Molybdenum (42)	Mo-91	2.35E+04	2.95E-05	1.36E+09	1.00E+00	2.30E+10	1.39E+13	2.24E+07	1.70E+08	9.60E+07	8.00E+14	1.14E+13	8.10E+11	6.13E+10	4.08E+11	7.47E+11	1.64E+07	1.00E-08	3.32E-06
Molybdenum (42)	Mo-91m	3.38E+05	2.05E-06	1.36E+09	1.00E+00	3.02E+08	3.15E+11	2.60E+05	2.24E+06	1.26E+06	2.14E+16	1.54E+11	1.08E+10	8.04E+08	5.34E+09	9.84E+09	1.97E+05	1.00E-08	2.77E-09
Molybdenum (42)	Mo-93	1.09E+03	6.35E-04	1.36E+09	1.00E+00	7.69E+01	5.11E+05	1.23E+02	4.48E+02	1.18E+00	4.50E+00	2.68E+00	2.56E-01	4.32E+03	6.47E-01	1.27E+00	3.34E-02	1.54E+01	9.41E-07
Molybdenum (42)	Mo-93m	8.86E+02	7.82E-04	1.36E+09	1.00E+00	1.49E+06	8.64E+09	3.63E+00	8.41E+02	2.62E+04	8.44E+04	5.03E+04	4.79E+03	2.21E+10	1.21E+04	2.38E+04	3.61E+00	1.00E-08	1.99E-11
Molybdenum (42)	Mo-99	9.21E+01	7.53E-03	1.36E+09	1.00E+00	2.86E+04	1.67E+08	4.15E+00	2.60E+00	5.19E+02	1.67E+03	6.71E+02	6.57E+01	6.02E+05	1.96E+02	4.68E+02	1.53E+00	1.00E-08	8.66E-11
Nitrogen (7)	N-13	3.66E+04	1.90E-05	1.36E+09	9.00E-01			7.38E+11									7.38E+11	1.00E-08	1.38E-02
Nitrogen (7)	N-16	3.07E+06	2.26E-07	1.36E+09	1.00E+00			2.25E+23									2.25E+23	1.00E-08	6.15E+07
Sodium (11)	Na-22	2.66E-01	2.60E+00	1.36E+09	1.00E+00	7.29E+01	7.59E+04	5.06E+03	1.24E-01	2.72E-03	4.64E-02	6.53E-01	8.38E-02		3.26E-01	1.03E-01	1.61E-03	1.00E-08	6.98E-12
Sodium (11)	Na-24	4.06E+02	1.71E-03	1.36E+09	1.00E+00	1.85E+05	1.46E+09	8.52E-01	3.14E+02	6.89E+00	1.18E+02	1.65E+03	2.12E+02		8.27E+02	2.61E+02	7.46E-01	1.00E-08	2.31E-12
Niobium (41)	Nb-87	9.71E+04	7.13E-06	1.36E+09	1.00E+00	1.89E+07	2.70E+11	5.16E+02	9.56E+04	2.08E+04	1.50E+03	3.17E+06	4.03E+06	1.02E+08	2.23E+07	2.25E+07	3.75E+02	1.00E-08	1.76E-11
Niobium (41)	Nb-88	2.51E+04	2.76E-05	1.36E+09	1.00E+00	3.65E+06	5.91E+09	9.90E+01	5.07E+04	4.88E+03	7.09E+05	3.72E+06	1.41E+18	4.54E+07	5.18E+06	9.69E+01	1.00E-08	1.78E-11	
Niobium (41)	Nb-88m	4.68E+04	1.48E-05	1.36E+09	1.00E+00	6.80E+06	1.10E+10	1.84E+02	9.44E+04	9.10E+03	1.32E+06	6.93E+06		8.46E+07	9.65E+06	1.80E+02	2.33E-02	1.78E-11	
Niobium (41)	Nb-89	2.99E+03	2.32E-04	1.36E+09	1.00E+00	5.35E+05	7.94E+09	1.15E+01	9.21E+03	4.82E+03	7.81E+07	3.01E+06	5.36E+06	2.33E+07	4.29E+07	1.14E+01	1.00E-08	1.79E-11	
Niobium (41)	Nb-89m	5.52E+03	1.26E-04	1.36E+09	1.00E+00	1.21E+06	1.68E+10	1.85E+01	2.57E+04	1.31E+04	1.19E+08	6.04E+06	2.03E+07	6.67E+07	1.23E+08	1.85E+01	1.00E-08	1.56E-11	
Niobium (41)	Nb-90	4.16E+02	1.67E-03	1.36E+09	1.00E+00	6.38E+04	1.10E+09	9.04E-01	4.72E+02	2.66E+02		3.25E+07	2.29E+06	1.70E+05	1.13E+06	2.08E+06	8.99E-01	1.00E-08	1.02E-11
Niobium (41)	Nb-91	1.02E-03	6.80E+02	1.36E+09	1.00E+00	4.00E+03	1.07E+06	6.29E+00	2.96E+01	1.67E+01	2.03E+06	1.43E+05	1.06E+04	7.07E+04	1.30E+05	3.95E+00	1.00E-08	1.85E-05	
Niobium (41)	Nb-91m	4.16E+00	1.67E-01	1.36E+09	1.00E+00	1.86E+03	1.94E+06	1.60E+00	1.37E+01	7.74E+00	9.45E+05	6.65E+04	4.94E+03	3.28E+04	6.05E+04	1.21E+00	1.00E-08	1.39E-09	
Niobium (41)	Nb-92	2.00E-08	3.47E+07	1.36E+09	1.00E+00	1.96E+02	7.39E+04	6.64E-03	1.45E+00	8.16E-01	9.96E+04	7.01E+03	5.21E+02	3.46E+03	6.37E+03	6.55E-03	1.00E-08	1.58E-03	
Niobium (41)	Nb-92m	2.49E+01	2.78E-02	1.36E+09	1.00E+00	9.89E+03	1.01E+08	2.52E-01	7.32E+01	4.12E+01	5.04E+06	3.54E+05	2.63E+04	1.75E+05	3.22E+05	2.50E-01	1.00E-08	4.84E-11	
Niobium (41)	Nb-93m	4.30E-02	1.61E+01	1.36E+09	1.00E+00	1.43E+03	1.03E+06	8.01E+02	1.06E+01	5.94E+00	7.26E+05	5.11E+04	3.80E+03	2.52E+04	4.64E+04	3.77E+00	1.00E-08	4.28E-07	
Niobium (41)	Nb-94	3.41E-05	2.03E+04	1.36E+09	1.00E+00	1.11E+02	4.11E+04	6.35E-03	8.25E-01	4.64E-01	5.67E+04	3.99E+03	2.97E+02	1.97E+03	3.63E+03	6.21E-03	1.00E-08	8.97E-07	
Niobium (41)	Nb-94m	5.82E+04	1.19E-05	1.36E+09	1.00E+00	1.91E+11	7.03E+13	1.09E+07	1.41E+09	7.95E+08		9.71E+13	6.84E+12	5.08E+11	3.37E+12	6.21E+12	1.06E+07	1.00E-08	9.02E-07
Niobium (41)	Nb-95	7.23E+00	9.59E-02	1.36E+09	1.00E+00	2.40E+03	7.87E+06	9.40E-02	1.77E+01	9.99E+00	1.22E+06	8.59E+04	6.38E+03	4.24E+04	7.81E+04	9.26E-02	1.00E-08	6.38E-11	
Niobium (41)	Nb-95m	7.01E+01	9.89E-03	1.36E+09	1.00E+00	1.13E+04	5.22E+07	9.00E-01	8.36E+01	4.71E+01	5.75E+06	4.05E+05	3.01E+04	2.00E+05	3.68E+05	8.73E-01	1.00E-08	6.21E-11	
Niobium (41)	Nb-96	2.60E+02	2.67E-03	1.36E+09	1.00E+00	4.55E+04	6.95E+08	1.04E+00	3.37E+02	1.90E+02	2.32E+07	1.63E+06	1.21E+05	8.04E+05	1.48E+06	1.03E+00	1.00E-08	2.00E-11	
Niobium (41)	Nb-97	5.05E+03	1.37E-04	1.36E+09	1.00E+00	1.37E+07	1.99E+11	7.63E+01	1.01E+05	5.70E+04		6.96E+09	4.90E+08	3.64E+07	2.42E+08	4.45E+08	7.62E+01	1.00E-08	7.67E-11
Niobium (41)	Nb-98m	7.10E+03	9.76E-05	1.36E+09	1.00E+00	1.24E+07	2.11E+11	2.42E+01	9.20E+04	5.18E+04		6.32E+09	4.45E+08	3.31E+07	2.20E+08	4.05E+08	2.41E+01	1.00E-08	1.75E-11
Niobium (41)	Nb-99	1.46E+06	4.76E-07	1.36E+09	1.00E+00	4.54E+08	2.64E+12	6.57E+04	4.12E+04	8.22E+06	2.65E+07	1.06E+07	1.04E+06	9.52E+09	3.11E+06	7.42E+06	2.43E+04	1.00E-08	8.66E-11
Niobium (41)	Nb-99m	1.40E+05	4.95E-06	1.36E+09	1.00E+00</														

Farmer Soil DCCs July 2023																			
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)													
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion	Inhalation	External	Produce	Finfish	Shellfish	Beef	Dairy	Swine	Egg	Poultry	Total	Peak Dose	Total
						DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)
Neodymium (60)	Nd-151	2.93E+04	2.37E-05	1.36E+09	1.00E+00	7.24E+06	9.70E+10	1.01E+03	2.96E+04	9.06E+04	2.60E+06	1.92E+05	5.32E+06	.	6.41E+06	3.54E+07	9.58E+02	1.00E-08	2.59E-10
Neodymium (60)	Nd-152	3.20E+04	2.17E-05	1.36E+09	1.00E+00	5.05E+17	9.90E+21	2.15E+12	1.44E+16	2.73E+15	.	2.62E+16	9.55E+16	.	2.43E+19	4.48E+16	2.15E+12	1.00E-08	5.37E-01
Neon (10)	Ne-19	1.27E+06	5.46E-07	1.36E+09	1.00E+00	.	.	1.24E+22	.	.	.	.	.	.	.	.	.	.	.
Neon (10)	Ne-24	1.08E+05	6.43E-06	1.36E+09	1.00E+00	4.89E+07	3.87E+11	2.26E+02	8.31E+04	1.82E+03	3.11E+04	4.38E+05	5.61E+04	.	2.19E+05	6.91E+04	1.97E+02	1.00E-08	2.31E-12
Nickel (28)	Ni-56	4.16E+01	1.66E-02	1.36E+09	1.00E+00	2.36E+03	1.02E+07	7.56E+02	3.84E+00	1.43E+01	4.35E+01	5.43E+02	1.06E+02	8.50E+02	1.71E+03	3.21E+01	7.34E-02	1.00E-08	5.18E-12
Nickel (28)	Ni-57	1.71E+02	4.06E-03	1.36E+09	1.00E+00	3.12E+04	2.69E+08	8.10E-01	1.40E+02	3.00E+02	3.11E+03	4.29E+03	5.23E+02	6.08E+04	1.22E+05	2.30E+03	8.01E-01	1.00E-08	1.40E-11
Nickel (28)	Ni-59	6.86E-06	1.01E+05	1.36E+09	1.00E+00	3.12E+03	2.30E+06	6.71E+02	2.34E+01	3.47E+01	.	3.94E+02	4.59E+01	.	.	.	1.02E+01	1.00E-08	4.61E-03
Nickel (28)	Ni-63	6.92E-03	1.00E+02	1.36E+09	9.00E-01	1.26E+03	9.45E+05	.	9.43E+00	1.40E+01	.	1.59E+02	1.85E+01	.	.	.	4.19E+00	1.00E-08	2.00E-06
Nickel (28)	Ni-65	2.41E+03	2.87E-04	1.36E+09	1.00E+00	2.44E+06	1.25E+10	3.98E+01	1.83E+04	2.71E+04	.	3.08E+05	3.58E+04	.	.	.	3.96E+01	1.00E-08	5.59E-11
Nickel (28)	Ni-66	1.11E+02	6.23E-03	1.36E+09	9.00E-01	6.66E+03	1.09E+08	1.00E+01	4.99E+01	7.40E+01	.	8.40E+02	9.78E+01	.	.	.	6.89E+00	1.00E-08	2.14E-10
Neptunium (93)	Np-232	2.48E+04	2.80E-05	1.36E+09	1.00E+00	1.02E+06	6.62E+07	1.72E+04	8.38E+03	3.70E+02	2.08E+00	2.22E+05	1.25E+04	1.89E+04	2.51E+04	2.03E+04	2.07E+00	4.33E+00	1.02E-12
Neptunium (93)	Np-233	1.01E+04	6.89E-05	1.36E+09	1.00E+00	6.94E+08	5.44E+10	1.97E+03	7.68E+06	4.72E+03	1.14E+01	1.55E+08	4.84E+07	1.19E+08	1.57E+08	1.27E+08	1.13E+01	1.00E-08	1.37E-11
Neptunium (93)	Np-234	5.75E+01	1.21E-02	1.36E+09	1.00E+00	1.73E+04	2.15E+08	4.94E+01	1.35E+02	9.61E-02	2.32E-04	2.39E+04	1.53E+05	1.08E+06	2.87E+04	2.05E+04	2.31E-04	1.00E-08	4.93E-14
Neptunium (93)	Np-235	6.39E-01	1.09E+00	1.36E+09	1.00E+00	4.22E+03	4.52E+06	4.11E+01	3.31E+01	2.35E-02	5.66E-05	5.83E+03	6.49E+04	3.65E+07	4.83E+07	3.92E+07	5.64E-05	1.00E-08	1.09E-12
Neptunium (93)	Np-236	4.50E-06	1.54E+05	1.36E+09	1.00E+00	2.01E+00	8.88E+01	3.46E-02	1.81E-02	3.35E-06	1.19E-07	6.14E-01	3.82E-02	6.05E-02	8.02E-02	6.50E-02	1.15E-07	3.74E+02	3.17E-10
Neptunium (93)	Np-236m	2.70E+02	2.57E-03	1.36E+09	1.00E+00	5.67E+03	4.71E+05	9.12E+01	1.98E+02	1.17E-03	1.44E-03	5.29E+03	3.10E+02	4.90E+02	6.49E+02	5.26E+02	6.47E-04	1.00E-08	2.97E-14
Neptunium (93)	Np-237	3.23E-07	2.14E+06	1.36E+09	1.00E+00	2.82E-01	2.23E+01	2.77E-02	2.98E-03	1.10E-05	2.66E-08	6.98E-02	2.24E-02	6.32E-02	8.37E-02	6.78E-02	2.66E-08	5.07E-02	1.02E-09
Neptunium (93)	Np-238	1.19E+02	5.80E-03	1.36E+09	1.00E+00	9.13E+03	2.90E+05	1.98E+00	1.67E+02	2.81E-03	3.15E-04	3.35E+04	2.13E+04	1.00E+05	5.97E+04	4.27E+04	2.83E-04	1.00E-08	2.96E-14
Neptunium (93)	Np-239	1.07E+02	6.46E-03	1.36E+09	1.00E+00	2.39E+04	4.88E+07	8.48E+00	1.89E+02	1.11E-01	3.22E-04	3.32E+04	3.44E+05	2.25E+07	4.96E+07	1.10E+07	3.21E-04	1.00E-08	3.75E-14
Neptunium (93)	Np-240	5.88E+03	1.18E-04	1.36E+09	1.00E+00	1.16E+07	9.61E+08	5.77E+01	1.16E+05	8.58E+00	2.02E-01	2.10E+07	5.67E+07	3.36E+08	7.40E+08	1.64E+08	1.97E-01	1.00E-08	4.21E-13
Neptunium (93)	Np-240m	5.04E+04	1.37E-05	1.36E+09	1.00E+00	4.12E+08	8.29E+09	1.43E+07	3.46E+07	8.18E+01	1.77E+02	5.18E+10	6.42E+08	2.88E+09	6.35E+09	1.40E+09	5.59E+01	1.00E-08	1.40E-11
Neptunium (93)	Np-241	2.62E+04	2.64E-05	1.36E+09	1.00E+00	1.85E+07	3.78E+08	2.83E+07	1.42E+06	5.26E+00	1.12E+01	5.35E+06	4.12E+07	6.22E+07	1.17E+08	3.22E+07	3.58E+00	1.00E-08	1.73E-12
Neptunium (93)	Np-242	1.66E+05	4.19E-06	1.36E+09	1.00E+00	8.12E+10	1.64E+12	5.77E+12	6.82E+09	1.61E+04	3.49E+04	5.34E+12	1.26E+11	5.67E+11	8.83E+11	2.76E+11	1.10E+04	1.00E-08	8.46E-10
Neptunium (93)	Np-242m	6.62E+04	1.05E-05	1.36E+09	1.00E+00	3.25E+10	6.54E+11	2.31E+12	2.73E+09	6.45E+03	1.40E+04	2.14E+12	5.06E+10	2.27E+11	3.53E+11	1.11E+11	4.41E+03	1.00E-08	8.46E-10
Oxygen (8)	O-14	3.10E+05	2.24E-06	1.36E+09	1.00E+00	.	.	3.69E+17	.	.	.	.	.	.	.	.	3.69E+17	1.00E-08	8.75E+02
Oxygen (8)	O-15	1.79E+05	3.88E-06	1.36E+09	9.00E-01	.	.	1.22E+16	.	.	.	.	.	.	.	.	1.22E+16	1.00E-08	5.38E+01
Oxygen (8)	O-19	8.26E+05	8.39E-07	1.36E+09	1.00E+00	.	.	2.54E+20	.	.	.	.	.	.	.	.	2.54E+20	1.00E-08	3.06E+05
Osmium (76)	Os-180	1.69E+04	4.09E-05	1.36E+09	1.00E+00	5.62E+14	6.41E+18	3.83E+08	1.48E+12	.	.	2.33E+13	5.02E+13	.	.	.	3.82E+08	1.00E-08	2.13E-04
Osmium (76)	Os-181	3.47E+03	2.00E-04	1.36E+09	1.00E+00	1.10E+06	1.08E+10	1.65E+01	3.56E+02	9.08E+02	.	1.72E+03	2.40E+03	.	.	.	1.53E+01	1.00E-08	4.19E-11
Osmium (76)	Os-182	2.75E+02	2.52E-03	1.36E+09	1.00E+00	6.06E+04	7.96E+08	1.75E+00	5.62E+01	.	.	4.98E+02	2.89E+02	.	.	.	1.68E+00	1.00E-08	5.83E-11
Osmium (76)	Os-183	4.67E+02	1.48E-03	1.36E+09	1.00E+00	7.39E+04	2.42E+08	7.75E+00	3.56E+01	.	.	2.83E+02	1.50E+02	.	.	.	5.97E+00	1.00E-08	1.23E-10
Osmium (76)	Os-183m	6.13E+02	1.13E-03	1.36E+09	1.00E+00	9.63E+04	3.19E+08	5.22E+00	4.66E+01	.	.	3.71E+02	1.97E+02	.	.	.	4.53E+00	1.00E-08	7.09E-11
Osmium (76)	Os-185	2.70E+00	2.56E-01	1.36E+09	1.00E+00	1.13E+03	3.52E+06	4.42E-02	2.99E+00	.	.	4.70E+01	1.01E+02	.	.	.	4.35E-02	1.00E-08	1.56E-10
Osmium (76)	Os-186	3.47E-16	2.00E+15	1.36E+09	9.00E-01	5.79E+00	4.65E+02	.	1.53E-02	.	.	2.40E-01	5.18E-01	.	.	.	1.39E-02	1.34E-08	3.92E+05
Osmium (76)	Os-189m	1.05E+03	6.62E-04	1.36E+09	1.00E+00	1.10E+07	3.42E+11	4.10E+07	2.90E+04	.	.	4.57E+05	9.85E+05	.	.	.	2.65E+04	1.00E-08	2.51E-07
Osmium (76)	Os-190m	3.68E+04	1.88E-05	1.36E+09	1.00E+00	3.68E+04	1.88E-05	4.78E+11	.	.	.	.	.	.	.	.	4.78E+11	1.00E-08	1.29E-01
Osmium (76)	Os-191	1.64E+01	4.22E-02	1.36E+09	1.00E+00	5.14E+03	1.56E+07	4.09E+00	1.35E+01	.	.	2.13E+02	4.59E+02	.	.	.	3.08E+00	1.00E-08	1.88E-09
Osmium (76)	Os-191m	4.63E+02	1.50E-03	1.36E+09	1.00E+00	1.24E+05	4.06E+08	1.10E+02	3.26E+02	.	.	5.13E+03	1.11E+04	.	.	.	8.05E+01	1.00E-08	1.74E-09
Osmium (76)	Os-193	2.02E+02	3.44E-03	1.36E+09	1.00E+00	4.39E+04	6.65E+08	3.68E+01	1.16E+02	9.01E+03	.	1.82E+03	3.93E+03	.	.	.	2.72E+01	1.00E-08	1.37E-09
Osmium (76)	Os-194	1.16E-01	6.00E+00	1.36E+09	1.00E+00	5.02E+01	2.43E+04	1.14E-01	1.32E-01	3.58E-02	.	2.08E+00	6.84E+00	.	.	.	2.23E-02	6.63E-03	1.96E-09
Osmium (76)	Os-196	1.04E+04	6.64E-05	1.36E+09	1.00E+00	1.75E+07	3.30E+11	3.42E+02	4.62E+04	.	.	7.27E+05	1.57E+06	.	.	.	3.40E+02	1.00E-08	3.34E-10
Phosphorus (15)	P-30	1.46E+05	4.75E-06	1.36E+09	1.00E+00	.	.	3.46E+15	.	.	.	.	.	.	.	.	3.46E+15	1.00E-08	3.73E+01
Phosphorus (15)	P-32	1.77E+01	3.91E-02	1.36E+09	9.00E-01	1.30E+03	8.50E+06	5.54E+01	1.11E-01	6.97E-04	.	1.85E+00	5.46E-01	1.58E+01	2.29E+01	.	6.91E-04	1.00E-08	6.54E-14
Phosphorus (15)	P-33	9.98E+00	6.94E-02	1.36E+09	9.00E-01	7.36E+03	1.07E+07	1.26E+04	6.26E-01	3.95E-03	.	1.05E+01	3.09E+00	8.96E+01	1.30E+02	.	3.91E-03	1.00E-08	6.79E-13
Protactinium (91)	Pa-227	9.51E+03	7.29E-05	1.36E+09	1.00E+00	6.67E+04	6.29E+06	8.12E+02	2.50E+02	1.51E+01	4.21E-01	5.54E+03	2.77E+03	.	.	.	4.08E-01	1.00E-08	5.11E-13
Protactinium (91)	Pa-228	2.76E+02	2.51E-03	1.36E+09	1.00E+00	8.77E+02	4.09E+04	1.49E+00	5.34E+00	3.40E-01	4.88E-03	1.16E+02	6.22E+01	.	.	.	4.80E-03	7.16E-04	2.08E-13
Protactinium (91)	Pa-229	1.69E+02	4.11E-03	1.36E+09	1.00E+00	9.36E+04	5.84E+06	5.02E+01	1.41E+03	3.28E+02	2.53E+00	8.85E+04	4.63E+04	.	.	.	2.43E+00	1.00E-08	1.73E-10
Protactinium (91)	Pa-230	1.45E+01	4.77E-02	1.36E+09	1.00E+00	3.17E+02	1.36E+04	2.26E-01	2.80E+00	1.98E-01	8.91E-04	3.44E+01	4.67E+00	7.41E+00	5.04E+00	3.60E+00	8.82E-04	1.00E-08	7.32E-13
Protactinium (91)	Pa-231	2.12E+05	3.28E+04	1.36E+09	1.00E+00	2.11E-01	6.66E+00	2.58E-02	1.71E-03	2.37E-04	6.67E-06	8.44E-02	4.14E-02	.	.	.	6.46E-06	2.24E+02	3.70E-09
Protactinium (91)	Pa-232	1.93E+02	3.59E-03	1.36E+09	1.00E+00	7.97E+03	5.16E+05	2.06E+00	6.53E+01	2.89E+00	1.62E-02	1.73E+03	9.77E+01	1.47E+02	1.95E+02	1.58E+02	1.61E-02	4.34E+00	1.02E-12
Protactinium (91)	Pa-233	9.3																	







Farmer Soil DCCs July 2023																							
Radionuclides		Isotope-specific Information					Dose Compliance Concentrations (DCCs)													Total DCC		Peak Dose	Total DCC
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Produce Consumption DCC DL=1 (Bq/g)	Finfish Consumption DCC DL=1 (Bq/g)	Shellfish Consumption DCC DL=1 (Bq/g)	Beef Consumption DCC DL=1 (Bq/g)	Dairy Consumption DCC DL=1 (Bq/g)	Swine Consumption DCC DL=1 (Bq/g)	Egg Consumption DCC DL=1 (Bq/g)	Poultry Consumption DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)				
Polonium (84)	Po-208	2.39E-01	2.90E+00	1.36E+09	1.00E+00	1.28E-01	3.18E+02	5.74E+02	4.54E-03	6.20E-04	5.93E-03	9.45E-03		7.59E-04	5.42E-04	1.90E-04	1.00E-08	8.65E-12					
Polonium (84)	Po-209	6.79E-03	1.02E+02	1.36E+09	1.00E+00	1.14E-01	2.07E+02	1.73E+00	4.07E-03	5.56E-04	4.61E+05	5.32E-03	8.47E-03	6.81E-04	4.86E-04	1.70E-04	1.00E-08	2.74E-10					
Polonium (84)	Po-210	1.83E+00	3.79E-01	1.36E+09	1.00E+00	3.09E-01	9.77E+02	2.21E+03	1.10E-02	1.50E-03	1.44E-02	2.29E-02		1.84E-03	1.31E-03	4.59E-04	1.00E-08	2.77E-12					
Polonium (84)	Po-211	4.24E+07	1.64E-08	1.36E+09	1.00E+00			8.12E+32								8.12E+32	7.94E-06	2.12E+17					
Polonium (84)	Po-212	7.31E+13	9.48E-15					1.42E+20									1.42E+20	1.00E-08	3.26E+06				
Polonium (84)	Po-212m	4.85E+05	1.43E-06	1.36E+09	1.00E+00			1.42E+20									1.42E+20	1.00E-08	3.26E+06				
Polonium (84)	Po-213	5.20E+12	1.33E-13	1.36E+09	1.00E+00	2.41E+16	2.18E+20	6.12E+14	1.13E+14	1.20E+14	1.04E+14	4.60E+15	1.88E+15			3.44E+13	1.00E-08	7.37E-08					
Polonium (84)	Po-214	1.33E+11	5.21E-12	1.36E+09	1.00E+00	4.10E+11	8.83E+14	3.27E+13	4.19E+09	2.02E+09	4.57E+09	2.65E+10	3.07E+10	3.87E+09	2.77E+09	6.13E+08	1.61E+00	5.17E-11					
Polonium (84)	Po-215	1.23E+10	5.65E-11	1.36E+09	1.00E+00	2.83E+16	4.60E+18	2.61E+12	1.33E+14	1.41E+14	1.23E+14	5.41E+15	2.21E+15			2.46E+12	1.00E-08	2.26E-06					
Polonium (84)	Po-216	1.51E+08	4.60E-09	1.36E+09	1.00E+00	3.47E+09	2.54E+12	8.59E+05	1.39E+07	1.79E+07	1.56E+07	5.38E+08	1.83E+08			7.33E+05	1.00E-08	5.51E-11					
Polonium (84)	Po-218	1.17E+05	5.90E-06	1.36E+09	9.00E-01	3.62E+05	7.08E+08	1.00E+07	3.70E+03	1.78E+03	4.04E+03	2.34E+04	2.72E+04	3.42E+03	2.44E+03	7.32E+02	1.00E-08	7.12E-11					
Praseodymium (59)	Pr-134	3.31E+04	2.09E-05	1.36E+09	1.00E+00	2.26E+06	4.06E+10	4.73E+02	4.91E+04	9.05E+04	4.02E+03	3.12E+05	1.74E+06	1.25E+07	1.33E+07	6.19E+16	4.17E+02	1.00E-08	8.84E-11				
Praseodymium (59)	Pr-134m	2.14E+04	3.23E-05	1.36E+09	1.00E+00	1.47E+06	2.63E+10	3.07E+02	3.18E+04	5.87E+04	2.60E+03	2.02E+05	1.13E+06	8.10E+06	8.65E+06	1.22E+15	2.70E+02	1.00E-08	8.87E-11				
Praseodymium (59)	Pr-135	1.52E+04	4.57E-05	1.36E+09	1.00E+00	1.00E+07	1.71E+11	1.96E+02	2.15E+05	4.33E+05	1.95E+04	1.53E+06	7.71E+06	6.22E+07	4.91E+07	1.01E+13	1.94E+02	1.00E-08	9.03E-11				
Praseodymium (59)	Pr-136	2.78E+04	2.49E-05	1.36E+09	1.00E+00	6.04E+16	1.36E+21	4.98E+10	8.82E+14	3.27E+14	3.91E+15	1.44E+16		2.10E+17	1.93E+16	4.98E+10	1.00E-08	1.28E-02					
Praseodymium (59)	Pr-137	4.74E+03	1.46E-04	1.36E+09	1.00E+00	1.40E+07	2.72E+11	1.32E+02	2.37E+05	1.19E+05	5.86E+04	1.17E+06	4.71E+06	1.82E+08	5.87E+07	7.74E+06	1.32E+02	1.00E-08	2.00E-10				
Praseodymium (59)	Pr-138	2.51E+05	2.76E-06	1.36E+09	1.00E+00			2.09E+18								2.09E+18	1.00E-08	6.02E+04					
Praseodymium (59)	Pr-138m	2.86E+03	2.42E-04	1.36E+09	1.00E+00	4.26E+06	6.62E+10	1.16E+01	6.22E+04	2.31E+04		2.76E+05	1.02E+06		1.48E+07	1.36E+06	1.15E+01	1.00E-08	2.92E-11				
Praseodymium (59)	Pr-139	1.38E+03	5.03E-04	1.36E+09	1.00E+00	1.01E+06	1.59E+09	7.26E+01	2.07E+04	2.23E+04	2.06E+03	1.22E+05	6.06E+05	6.42E+06	5.48E+06	2.52E+06	6.96E+01	1.00E-08	3.69E-10				
Praseodymium (59)	Pr-140	1.07E+05	6.45E-06	1.36E+09	1.00E+00			1.03E+15								1.03E+15	1.00E-08	7.06E+01					
Praseodymium (59)	Pr-142	3.18E+02	2.18E-03	1.36E+09	1.00E+00	4.34E+04	1.00E+09	4.53E+01	6.33E+02	2.35E+02		2.81E+03	1.04E+04		1.51E+05	1.39E+04	3.51E+01	1.00E-08	8.24E-10				
Praseodymium (59)	Pr-142m	2.49E+04	2.78E-05	1.36E+09	1.00E+00	3.41E+06	7.85E+10	3.56E+03	4.97E+04	1.85E+04		2.20E+05	8.14E+05		1.18E+07	1.09E+06	2.76E+03	1.00E-08	8.24E-10				
Praseodymium (59)	Pr-143	1.86E+01	3.72E-02	1.36E+09	1.00E+00	2.86E+03	1.44E+07	3.64E+02	4.17E+01	1.55E+01		1.85E+02	6.84E+02		9.93E+03	9.14E+02	1.00E+01	1.00E-08	4.04E-09				
Praseodymium (59)	Pr-144	2.11E+04	3.29E-05	1.36E+09	1.00E+00	5.73E+15	1.48E+20	3.66E+11	8.37E+13	3.11E+13		3.71E+14	1.37E+15		1.99E+16	1.83E+15	3.59E+11	1.00E-08	1.29E-01				
Praseodymium (59)	Pr-144m	5.06E+04	1.37E-05	1.36E+09	1.00E+00	8.04E+15	2.10E+20	5.12E+11	1.17E+14	4.36E+13		5.20E+14	1.92E+15		2.79E+16	2.57E+15	5.04E+11	1.00E-08	7.52E-02				
Praseodymium (59)	Pr-145	1.01E+03	6.83E-04	1.36E+09	1.00E+00	4.63E+05	1.06E+10	4.58E+02	6.76E+03	2.51E+03		3.00E+04	1.11E+05		1.61E+06	1.48E+05	3.60E+02	1.00E-08	2.70E-09				
Praseodymium (59)	Pr-146	1.51E+04	4.59E-05	1.36E+09	1.00E+00	1.56E+13	3.84E+17	6.03E+07	2.28E+11	8.48E+10		1.01E+12	3.74E+12		5.43E+13	5.00E+12	6.02E+07	1.00E-08	3.06E-05				
Praseodymium (59)	Pr-147	2.72E+04	2.55E-05	1.36E+09	1.00E+00	4.32E+06	1.48E+10	2.52E+03	9.42E+04	2.41E+04		2.14E+05	8.51E+05		5.52E+07	4.04E+05	2.18E+03	1.00E-08	6.19E-10				
Praseodymium (59)	Pr-148	1.59E+05	4.36E-06	1.36E+09	1.00E+00			4.90E+16								4.90E+16	1.00E-08	2.39E+03					
Praseodymium (59)	Pr-148m	1.81E+05	3.82E-06	1.36E+09	1.00E+00			1.33E+16								1.33E+16	1.00E-08	5.70E+02					
Platinum (78)	Pt-184	2.11E+04	3.29E-05	1.36E+09	1.00E+00	2.14E+07	2.97E+11	1.08E+02	5.65E+04	5.36E+03		8.89E+05	9.58E+07			1.33E+16	1.00E-08	5.70E+02					
Platinum (78)	Pt-186	2.92E+03	2.37E-04	1.36E+09	1.00E+00	1.46E+06	2.07E+10	1.27E+01	2.35E+03	5.08E+02		7.92E+04	2.74E+05			1.06E+02	1.00E-08	4.85E-11					
Platinum (78)	Pt-187	2.58E+03	2.68E-04	1.36E+09	1.00E+00	2.43E+06	3.12E+10	3.16E+01	3.26E+03	1.06E+03		1.57E+05	3.08E+05			1.23E+01	1.00E-08	1.15E-11					
Platinum (78)	Pt-188	2.48E+01	2.79E-02	1.36E+09	1.00E+00	2.99E+03	1.83E+07	1.03E-01	3.56E+00	1.60E+00		2.24E+02	3.02E+02			9.44E-02	1.00E-08	3.75E-11					
Platinum (78)	Pt-189	5.58E+02	1.24E-03	1.36E+09	1.00E+00	2.36E+05	1.41E+09	1.25E+01	3.11E+02	1.06E+02		1.55E+04	2.87E+04			1.08E+01	1.00E-08	1.91E-10					
Platinum (78)	Pt-190	1.07E-12	6.50E+11	1.36E+09	9.00E-01	2.65E+01	3.76E+02		2.13E-02			6.82E+00	1.44E+00			2.10E-02	1.00E-08	1.96E+02					
Platinum (78)	Pt-191	9.03E+01	7.68E-03	1.36E+09	1.00E+00	4.60E+04	4.50E+08	4.20E+00	3.70E+01			1.18E+04	2.51E+03			3.77E+00	1.00E-08	4.18E-10					
Platinum (78)	Pt-193	1.39E-02	5.00E+01	1.36E+09	1.00E+00	5.07E+03	2.91E+06	1.32E+04	4.09E+00			1.31E+03	2.77E+02			4.01E+00	1.00E-08	2.93E-06					
Platinum (78)	Pt-193m	5.84E+01	1.19E-02	1.36E+09	1.00E+00	2.30E+04	1.13E+08	1.53E+02	1.85E+01			5.93E+03	1.26E+03			1.63E+01	1.00E-08	2.82E-09					
Platinum (78)	Pt-195m	6.29E+01	1.10E-02	1.36E+09	1.00E+00	1.77E+04	1.02E+08	2.17E+01	1.43E+01			4.56E+03	9.66E+02			8.51E+00	1.00E-08	1.38E-09					
Platinum (78)	Pt-197	3.05E+02	2.27E-03	1.36E+09	1.00E+00	1.27E+05	1.49E+09	2.36E+02	1.03E+02			3.28E+04	6.95E+03			7.06E+01	1.00E-08	2.39E-09					
Platinum (78)	Pt-197m	3.82E+03	1.82E-04	1.36E+09	1.00E+00	1.37E+06	1.58E+10	5.81E+02	1.11E+03			3.54E+05	7.48E+04			3.79E+02	1.00E-08	1.02E-09					
Platinum (78)	Pt-199	1.18E+04	5.86E-05	1.36E+09	1.00E+00	4.83E+06	2.76E+10	1.77E+03	1.15E+05	5.04E+05	6.59E+04	1.26E+05	1.27E+07			1.67E+03	1.00E-08	1.47E-09					
Platinum (78)	Pt-200	4.86E+02	1.43E-03	1.36E+09	1.00E+00	7.10E+04	1.35E+09	1.51E+01	6.03E+01	1.39E+05	1.81E+04	1.24E+04	4.08E+03			1.20E+01	1.00E-08	2.59E-10					
Platinum (78)	Pt-202	1.38E+02	5.02E-03	1.36E+09	9.00E-01	5.65E+03	1.11E+08	7.34E+00	4.55E+00			1.46E+03	3.08E+02			2.78E+00	1.00E-08	2.13E-10					
Plutonium (94)	Pu-232	1.08E+04	6.41E-05	1.36E+09	1.00E+00	5.79E+05	3.75E+07	9.72E+03	4.75E+03	2.86E+00	8.19E-01	1.25E+05	7.10E+03			6.33E-01	1.00E-08	7.13E-13					
Plutonium (94)	Pu-234	6.90E+02	1.00E-03	1.36E+09	1.00E+00	2.00E+04	1.32E+06	6.09E+00	1.83E+02	1.43E-01	2.79E-03	2.29E+03	3.08E+02	4.92E+02	3.35E+02	2.39E+02	2.74E-03	1.00E-08	4.87E-14				
Plutonium (94)	Pu-235	1.44E+04	4.81E-05	1.36E+09	1.00E+00	9.52E+07	1.02E+11	9.18E+05	7.46														

Farmer Soil DCCs July 2023																				
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)														
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m³/kg)	Soil Volume Area Correction Factor	Ingestion	Inhalation	External	Produce	Finfish	Shellfish	Beef	Dairy	Swine	Egg	Poultry	Total	Peak Dose	Total	
						DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)
Plutonium (94)	Pu-246	2.33E+01	2.97E-02	1.36E+09	1.00E+00	1.49E+03	2.56E+06	2.12E-01	1.25E+02	3.03E-04	6.44E-04	2.66E+04	2.37E+03	1.04E+04	2.28E+04	5.07E+03	2.06E-04	1.00E-08	1.14E-13	
Radium (88)	Ra-219	2.19E+09	3.17E-10	1.36E+09	1.00E+00			4.11E+34									4.11E+34	3.98E-06	2.16E+17	
Radium (88)	Ra-220	1.22E+09	5.68E-10	1.36E+09	1.00E+00			4.07E+39									4.07E+39	6.31E-06	3.85E+22	
Radium (88)	Ra-221	7.81E+05	8.88E-07	1.36E+09	1.00E+00	2.59E+09	2.34E+13	6.59E+07	1.22E+07	1.30E+07	1.12E+07	4.95E+08	2.03E+08				3.70E+06	1.00E-08	5.49E-08	
Radium (88)	Ra-222	5.75E+05	1.20E-06	1.36E+09	1.00E+00	1.77E+06	3.82E+09	1.41E+08	1.81E+04	8.72E+03	1.98E+04	1.14E+05	1.33E+05		1.68E+04	1.20E+04	2.65E+03	1.61E+00	5.37E-11	
Radium (88)	Ra-223	2.21E+01	3.13E-02	1.36E+09	1.00E+00	2.53E+01	4.94E+03	8.39E-01	8.83E-02	5.28E-03	1.61E-04	1.95E+00	9.67E-01				1.56E-04	1.00E-08	8.25E-14	
Radium (88)	Ra-224	6.91E+01	1.00E-02	1.36E+09	1.00E+00	1.26E+02	3.86E+04	4.35E-01	4.43E-01	2.83E-02	8.67E-04	1.01E+01	4.91E+00				8.38E-04	1.00E-08	1.42E-13	
Radium (88)	Ra-225	1.70E+01	4.08E-02	1.36E+09	1.00E+00	1.45E+01	2.02E+03	8.43E-01	6.04E-02	3.69E-03	1.13E-04	1.36E+00	6.71E-01				1.09E-04	1.00E-08	7.59E-14	
Radium (88)	Ra-226	4.33E-04	1.60E+03	1.36E+09	1.00E+00	8.18E-02	1.05E+02	5.49E-03	6.62E-04	9.54E-05	3.49E-06	5.39E-03	5.39E-03		8.98E-04	6.41E-04	3.37E-06	1.89E+01	9.21E-11	
Radium (88)	Ra-227	8.63E+03	8.03E-05	1.36E+09	1.00E+00	1.11E+05	7.33E+06	7.69E+03	9.66E+02	6.57E+01	1.85E+00	2.36E+04	1.19E+04				1.79E+00	3.18E-01	2.47E-12	
Radium (88)	Ra-228	1.21E-01	5.75E+00	1.36E+09	1.00E+00	1.61E-01	5.57E+01	6.81E-03	5.67E-04	3.39E-05	1.02E-06	1.25E-02	6.21E-03				9.87E-07	1.00E-08	9.79E-14	
Radium (88)	Ra-230	3.92E+03	1.77E-04	1.36E+09	1.00E+00	4.00E+06	7.61E+09	6.02E+01	1.41E+04	8.41E+02	2.53E+01	3.11E+05	1.54E+05		3.91E+05	2.79E+05	1.74E+01	1.00E-08	5.37E-11	
Rubidium (37)	Rb-77	9.66E+04	7.17E-06	1.36E+09	1.00E+00	2.00E+08	1.90E+12	7.72E+02	7.80E+05	1.01E+05	5.38E+03	6.64E+05	8.94E+04				6.65E+02	1.00E-08	2.78E-11	
Rubidium (37)	Rb-78	2.06E+04	3.36E-05	1.36E+09	1.00E+00	3.78E+15	8.32E+19	3.12E+09	1.58E+12	1.35E+11	2.52E+11	1.16E+13	1.22E+12				3.00E+09	1.00E-08	5.94E-04	
Rubidium (37)	Rb-78m	6.35E+04	1.09E-05	1.36E+09	1.00E+00	7.85E+16	1.74E+21	6.46E+10	3.27E+13	2.80E+12	5.24E+12	2.41E+14	2.53E+13				6.21E+10	1.00E-08	4.00E-03	
Rubidium (37)	Rb-79	1.59E+04	4.36E-05	1.36E+09	1.00E+00	6.18E+13	1.01E+18	6.76E+02	2.58E+10	2.21E+09	4.13E+09	1.90E+11	1.99E+10				6.76E+02	1.00E-08	1.76E-10	
Rubidium (37)	Rb-80	6.54E+05	1.06E-06	1.36E+09	1.00E+00			5.34E+19									5.34E+19	1.00E-08	3.43E+05	
Rubidium (37)	Rb-81	1.33E+03	5.22E-04	1.36E+09	1.00E+00	5.22E+06	3.34E+10	2.29E+01	2.18E+03	1.87E+02	3.49E+02	1.61E+04	1.68E+03				1.88E+01	1.00E-08	6.03E-11	
Rubidium (37)	Rb-81m	1.19E+04	5.80E-05	1.36E+09	1.00E+00	4.82E+07	3.08E+11	2.11E+02	2.01E+04	1.72E+03	3.22E+03	1.48E+05	1.55E+04				1.74E+02	1.00E-08	6.18E-11	
Rubidium (37)	Rb-82	2.86E+05	2.42E-06	1.36E+09	1.00E+00			1.87E+17									1.87E+17	1.00E-08	2.82E+03	
Rubidium (37)	Rb-82m	9.38E+02	7.39E-04	1.36E+09	1.00E+00	1.43E+06	1.11E+10	3.15E+00	5.97E+02	5.11E+01	9.55E+01	4.40E+03	4.60E+02				2.85E+00	1.00E-08	1.31E-11	
Rubidium (37)	Rb-83	2.93E+00	2.36E-01	1.36E+09	1.00E+00	3.60E+02	4.17E+06	6.64E-02	1.50E-01	1.29E-02	2.40E-02	1.11E+00	1.16E-01				6.64E-03	1.00E-08	9.85E-12	
Rubidium (37)	Rb-84	7.72E+00	8.98E-02	1.36E+09	1.00E+00	5.45E+02	5.00E+06	8.52E-02	2.27E-01	1.95E-02	3.64E-02	1.68E+00	1.75E-01				9.88E-03	1.00E-08	5.64E-12	
Rubidium (37)	Rb-84m	1.80E+04	3.85E-05	1.36E+09	1.00E+00	1.27E+06	1.17E+10	1.98E+02	5.30E+02	4.54E+01	8.48E+01	3.91E+03	4.09E+02				2.30E+01	1.00E-08	5.64E-12	
Rubidium (37)	Rb-86	1.36E+01	5.11E-02	1.36E+09	1.00E+00	8.85E+02	5.41E+06	1.34E+00	3.69E-01	3.16E-02	5.91E-02	2.85E+00	2.85E-01				1.79E-02	1.00E-08	5.95E-12	
Rubidium (37)	Rb-86m	3.58E+05	1.93E-06	1.36E+09	1.00E+00	2.34E+07	1.43E+11	3.53E+04	9.75E+03	8.35E+02	1.56E+03	7.19E+04	7.52E+03				4.73E+02	1.00E-08	5.95E-12	
Rubidium (37)	Rb-87	1.41E-11	4.92E+10	1.36E+09	9.00E-01	1.21E+02	1.25E+05	4.72E+02	5.06E-02	4.33E-03	8.10E-03	3.73E-01	3.90E-02				2.48E-03	1.00E-08	8.05E-01	
Rubidium (37)	Rb-88	2.05E+04	3.38E-05	1.36E+09	1.00E+00	2.77E+15	8.59E+19	1.82E+10	1.16E+12	9.91E+10	1.85E+11	8.54E+12	8.93E+11				1.38E+10	1.00E-08	3.11E-03	
Rubidium (37)	Rb-89	2.40E+04	2.88E-05	1.36E+09	1.00E+00	1.67E+06	5.75E+09	9.10E+04	4.05E+02	4.79E+02	3.92E+00	1.25E+05	1.36E+04		2.69E+05	6.51E+04	6.29E+05	3.85E+00	1.00E-08	7.48E-13
Rubidium (37)	Rb-90	1.38E+05	5.01E-06	1.36E+09	1.00E+00	3.64E+07	7.37E+10	8.18E+06	9.74E+03	1.12E+04	9.46E+01	2.85E+06	3.27E+05	6.48E+06	1.57E+06	1.46E+07	9.29E+01	1.00E-08	3.17E-12	
Rubidium (37)	Rb-90m	8.47E+04	8.18E-06	1.36E+09	1.00E+00	2.23E+07	4.51E+10	5.01E+06	5.97E+03	6.86E+03	5.79E+01	1.75E+06	2.00E+05	3.97E+06	9.60E+05	8.95E+06	5.69E+01	1.00E-08	3.17E-12	
Rhenium (75)	Re-178	2.76E+04	2.51E-05	1.36E+09	1.00E+00	2.09E+07	6.24E+10	3.08E+03	2.12E+03	2.18E+03		6.48E+03	1.41E+05				7.06E+02	1.00E-08	2.39E-10	
Rhenium (75)	Re-179	1.87E+04	3.71E-05	1.36E+09	1.00E+00	1.55E+08	2.25E+11	1.17E+04	9.80E+04	9.45E+04		3.05E+05	6.55E+06				9.13E+03	1.00E-08	4.59E-09	
Rhenium (75)	Re-180	1.49E+05	4.64E-06	1.36E+09	1.00E+00			4.30E+15									4.30E+15	1.00E-08	2.72E+02	
Rhenium (75)	Re-181	3.05E+02	2.27E-03	1.36E+09	1.00E+00	1.14E+05	1.07E+09	4.14E+00	3.19E+01	7.99E+01		1.52E+02	2.12E+02				3.37E+00	1.00E-08	1.05E-10	
Rhenium (75)	Re-182	9.49E+01	7.31E-03	1.36E+09	1.00E+00	1.26E+04	1.35E+08	5.55E-01	5.10E+00			3.98E+01	2.08E+01				4.83E-01	1.00E-08	4.86E-11	
Rhenium (75)	Re-182m	4.78E+02	1.45E-03	1.36E+09	1.00E+00	3.16E+05	3.92E+09	3.94E+00	1.28E+02			9.98E+02	5.22E+02				3.78E+00	1.00E-08	7.55E-11	
Rhenium (75)	Re-183	3.61E+00	1.92E-01	1.36E+09	1.00E+00	7.04E+02	1.98E+06	4.65E-01	2.85E-01			2.23E+00	1.16E+00				1.43E-01	1.00E-08	3.81E-10	
Rhenium (75)	Re-184	6.66E+00	1.04E-01	1.36E+09	1.00E+00	1.28E+03	5.45E+06	7.77E-02	5.19E-01			4.06E+00	2.12E+00				6.45E-02	1.00E-08	9.34E-11	
Rhenium (75)	Re-184m	1.50E+00	4.63E-01	1.36E+09	1.00E+00	1.67E+02	3.12E+05	2.10E-02	6.75E-02			5.27E-01	2.76E-01				1.47E-02	1.00E-08	9.48E-11	
Rhenium (75)	Re-186	6.80E+01	1.02E-02	1.36E+09	1.00E+00	8.49E+03	1.09E+08	5.43E+01	3.44E+00			2.68E+01	1.40E+01				2.39E+00	1.00E-08	3.43E-10	
Rhenium (75)	Re-186m	3.47E-06	2.00E+05	1.36E+09	1.00E+00	4.94E+01	3.20E+04	5.96E-01	2.00E-02			1.56E-01	8.17E-02				1.42E-02	1.69E-01	4.00E-05	
Rhenium (75)	Re-187	1.68E-11	4.12E+10	1.36E+09	9.00E-01	3.77E+04	4.93E+07		1.53E+01			1.19E+02	6.23E+01				1.11E+01	1.00E-08	6.48E+03	
Rhenium (75)	Re-188	3.57E+02	1.94E-03	1.36E+09	1.00E+00	4.62E+04	1.12E+09	6.22E+01	1.17E+01			1.46E+02	7.64E+01				1.12E+01	1.00E-08	3.08E-10	
Rhenium (75)	Re-188m	1.96E+04	3.54E-05	1.36E+09	1.00E+00	2.54E+06	6.16E+10	3.41E+03	1.03E+03			8.01E+03	4.19E+03				6.13E+02	1.00E-08	3.08E-10	
Rhenium (75)	Re-189	2.50E+02	2.77E-03	1.36E+09	1.00E+00	5.95E+04	1.04E+09	5.51E+01	2.41E+01			1.89E+02	9.87E+01				1.33E+01	1.00E-08	5.29E-10	
Rhenium (75)	Re-190	1.17E+05	5.90E-06	1.36E+09	1.00E+00			8.03E+14									8.03E+14	1.00E-08	6.81E+01	
Rhenium (75)	Re-190m	1.90E+03	3.65E-04	1.36E+09	1.00E+00															

Farmer Soil DCCs July 2023																					
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)															
Element (Atomic Number)	Isotope	Lambda (1/yr)	Half-life (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion	Inhalation	External	Produce	Finfish	Shellfish	Beef	Dairy	Swine	Egg	Poultry	Total	Peak Dose	Total		
						DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)
Rhodium (45)	Rh-106	7.33E+05	9.45E-07	1.36E+09	1.00E+00			3.53E+20													
Rhodium (45)	Rh-106m	2.78E+03	2.49E-04	1.36E+09	1.00E+00			9.55E+00	8.35E+03	1.06E+03											
Rhodium (45)	Rh-107	1.68E+04	4.13E-05	1.36E+09	1.00E+00	3.17E+06	4.42E+10	1.58E+09	3.62E+11	1.15E+11		1.31E+05	5.67E+04								
Rhodium (45)	Rh-108	1.30E+06	5.33E-07	1.36E+09	1.00E+00			1.46E+22													
Rhodium (45)	Rh-109	2.73E+05	2.54E-06	1.36E+09	1.00E+00	8.82E+07	1.30E+12	8.68E+05	7.10E+04	1.32E+06		2.27E+07	4.81E+06								
Rhodium (45)	Rh-94	3.10E+05	2.24E-06	1.36E+09	1.00E+00	2.95E+08	5.18E+12	1.24E+03	1.95E+03	2.52E+06	2.71E+09	1.23E+06	1.35E+05	8.73E+07	6.76E+05	7.62E+05	7.52E+02	1.00E-08	1.20E-11		
Rhodium (45)	Rh-95	7.26E+04	9.55E-06	1.36E+09	1.00E+00	5.70E+07	7.00E+11	3.56E+02	2.60E+02	9.52E+05	1.02E+09	1.70E+05	1.80E+04	2.32E+07	9.02E+04	2.78E+05	1.49E+02	1.00E-08	1.02E-11		
Rhodium (45)	Rh-95m	1.86E+05	3.73E-06	1.36E+09	1.00E+00	1.46E+08	1.79E+12	9.13E+02	6.66E+02	2.44E+06	2.62E+09	4.34E+05	4.60E+04	5.95E+07	2.31E+05	7.11E+05	1.56E+09	1.00E-08	1.02E-11		
Rhodium (45)	Rh-96	3.68E+04	1.88E-05	1.36E+09	1.00E+00			1.77E+11													
Rhodium (45)	Rh-96m	2.41E+05	2.87E-06	1.36E+09	1.00E+00			1.64E+12													
Rhodium (45)	Rh-97	1.19E+04	5.84E-05	1.36E+09	1.00E+00	1.52E+07	1.78E+11	6.18E+02	2.29E+04	6.22E+04	6.69E+07	6.18E+05	2.11E+06	2.80E+06	9.92E+06	1.92E+04	5.77E+02	1.00E-08	2.48E-10		
Rhodium (45)	Rh-97m	7.88E+03	8.79E-05	1.36E+09	1.00E+00	7.60E+06	9.49E+10	2.97E+01	1.28E+04	8.26E+03	4.45E+07	3.11E+05	3.96E+05	1.86E+06	6.59E+06	1.28E+04	2.94E+01	1.00E-08	1.90E-11		
Rhodium (45)	Rh-98	4.19E+04	1.66E-05	1.36E+09	1.00E+00			1.11E+12													
Rhodium (45)	Rh-99	1.57E+01	4.41E-02	1.36E+09	1.00E+00	5.28E+03	2.34E+07	3.09E+01	1.39E+01	1.76E+00		2.19E+02	9.44E+01								
Rhodium (45)	Rh-99m	1.29E+03	5.37E-04	1.36E+09	1.00E+00	3.79E+06	5.52E+10	2.08E+01	1.00E+04	1.27E+03		1.57E+05	6.78E+04								
Radon (86)	Rn-207	3.94E+04	1.76E-05	1.36E+09	1.00E+00	1.57E+07	2.99E+10	1.18E+02	1.14E+04	2.18E+05	4.98E+05	1.22E+05	1.39E+04		5.89E+05	4.20E+05	1.16E+02	1.00E-08	3.19E-11		
Radon (86)	Rn-209	1.28E+04	5.42E-05	1.36E+09	1.00E+00	2.56E+05	4.65E+08	5.14E+01	1.92E+03	1.31E+03	8.30E+08	8.27E+03	2.32E+03		1.61E+03	1.15E+03	4.39E+01	1.00E-08	3.76E-11		
Radon (86)	Rn-210	2.53E+03	2.74E-04	1.36E+09	1.00E+00	7.50E+03	2.34E+07	5.89E+00	1.21E+02	3.73E+01	1.89E+08	3.39E+02	3.83E+02		4.59E+01	3.27E+01	3.80E+00	1.00E-08	1.66E-11		
Radon (86)	Rn-211	4.16E+02	1.67E-03	1.36E+09	1.00E+00	9.57E+03	9.20E+06	1.82E+00	3.89E+00	1.22E+04	2.54E+07	3.29E+01	3.45E+02		1.64E+04	1.17E+04	8.88E+01	1.00E-08	2.36E-11		
Radon (86)	Rn-212	1.52E+04	4.55E-05	1.36E+09	1.00E+00	8.13E+03	2.03E+07	3.66E+07	2.89E+02	3.95E+01		3.78E+02	6.02E+02		4.84E+01	3.45E+01	1.21E+01	1.00E-08	8.81E-12		
Radon (86)	Rn-215	9.50E+12	7.29E-14																		
Radon (86)	Rn-216	4.86E+11	1.43E-12																		
Radon (86)	Rn-217	4.05E+10	1.71E-11																		
Radon (86)	Rn-218	6.24E+08	1.11E-09	1.36E+09	1.00E+00	1.93E+09	4.14E+12	1.53E+11	1.97E+07	9.47E+06	2.15E+07	1.24E+08	1.44E+08		1.82E+07	1.30E+07	2.88E+06	1.61E+00	5.27E-11		
Radon (86)	Rn-219	5.52E+06	1.26E-07	1.36E+09	1.00E+00	1.27E+13	2.07E+15	1.17E+09	5.99E+10	6.35E+10	5.51E+10	2.43E+12	9.94E+11				1.11E+09	1.00E-08	2.30E-06		
Radon (86)	Rn-220	3.93E+05	1.76E-06	1.36E+09	1.00E+00	9.16E+06	6.78E+09	2.49E+03	3.72E+04	4.71E+04	4.11E+04	1.45E+06	4.98E+05				2.10E+03	1.00E-08	6.15E-11		
Radon (86)	Rn-222	6.62E+01	1.05E-02	1.36E+09	1.00E+00	2.04E+02	4.39E+05	3.64E-01	2.08E+00	1.00E+00	2.28E+00	1.32E+01	1.53E-01		1.93E+00	1.38E+00	1.94E-01	1.33E-05	3.42E-11		
Radon (86)	Rn-223	1.50E+04	4.62E-05	1.36E+09	1.00E+00	1.71E+04	3.34E+06	5.67E+02	5.97E+01	3.57E+00	1.09E-01	1.32E+03	6.54E+02				1.05E-01	1.00E-08	8.23E-14		
Ruthenium (44)	Ru-103	6.44E+00	1.08E-01	1.36E+09	1.00E+00	1.69E+03	4.30E+06	1.36E-01	8.08E+00	6.54E+00	7.51E+03	7.09E+01	1.87E+03	3.14E+02	7.79E+03	2.15E+00	1.24E-01	1.00E-08	1.04E-10		
Ruthenium (44)	Ru-105	1.37E+03	5.07E-04	1.36E+09	1.00E+00	3.87E+05	4.53E+09	1.71E+01	1.26E+03	2.13E+02	3.98E+06	1.61E+04	1.20E+04	1.66E+05	4.13E+06	1.14E+03	1.54E+01	1.00E-08	6.20E-11		
Ruthenium (44)	Ru-106	6.77E-01	1.02E+00	1.36E+09	9.00E-01	3.57E+01	4.00E+04	6.30E-02	1.71E-01	1.46E-01	1.57E+02	1.49E+00	5.83E+01	6.57E+00	1.63E+02	4.51E-02	1.94E-02	1.00E-08	1.59E-10		
Ruthenium (44)	Ru-107	9.71E+04	7.13E-06	1.36E+09	1.00E+00	1.20E+15	2.58E+18	7.59E+09	1.93E+12	5.53E+11		6.52E+13	2.65E+13				7.45E+09	1.00E-08	4.30E-04		
Ruthenium (44)	Ru-108	8.01E+04	8.66E-06	1.36E+09	1.00E+00			1.19E+15										1.19E+15	1.00E-08	8.40E+01	
Ruthenium (44)	Ru-92	9.98E+04	6.94E-06	1.36E+09	1.00E+00			5.28E+12													
Ruthenium (44)	Ru-94	7.03E+03	9.86E-05	1.36E+09	1.00E+00	6.70E+06	1.18E+11	2.82E+01	4.42E+01	5.72E+04	6.16E+07	2.80E+04	3.06E+03	1.98E+06	1.54E+04	1.73E+04	1.71E+01	1.00E-08	1.20E-11		
Ruthenium (44)	Ru-95	3.69E+03	1.88E-04	1.36E+09	1.00E+00	2.90E+06	3.57E+10	1.82E+01	1.32E+01	4.85E+04	5.22E+07	8.63E+03	9.15E+02	1.18E+06	4.60E+03	1.41E+04	7.57E+00	1.00E-08	1.02E-11		
Ruthenium (44)	Ru-97	8.72E+01	7.95E-03	1.36E+09	1.00E+00	1.12E+05	1.31E+09	4.55E+00	1.68E+02	4.57E+02	4.92E+05	4.54E+03	1.55E+04	2.06E+04	7.29E+04	1.41E+02	4.25E+00	1.00E-08	2.48E-10		
Sulfur (16)	S-35	2.89E+00	2.40E-01	1.36E+09	9.00E-01	4.37E+03	3.15E+06	1.60E+04	5.91E-01	5.47E+01		9.45E-02	3.70E-01				6.67E-02	1.00E-08	4.24E-11		
Sulphur (16)	S-37	7.21E+04	9.61E-06	1.36E+09	1.00E+00			1.17E+13										1.17E+13	1.00E-08	3.16E-01	
Sulfur (16)	S-38	2.14E+03	3.24E-04	1.36E+09	1.00E+00	9.01E+05	1.10E+10	5.93E+00	2.90E+01	1.81E+01	4.06E+00	2.33E+01	1.69E+01				1.65E+00	1.00E-08	1.54E-12		
Antimony (51)	Sb-111	2.91E+05	2.38E-06	1.36E+09	1.00E+00	1.91E+08	2.13E+12	9.22E+03	1.25E+07	7.65E+03	4.99E+08	3.25E+06	1.44E+07	7.16E+11	3.80E+12	1.24E+11	4.17E+03	1.00E-08	8.33E-11		
Antimony (51)	Sb-113	5.46E+04	1.27E-05	1.36E+09	1.00E+00	1.48E+07	2.95E+10	2.61E+03	4.16E+03	4.79E+03		4.84E+04	5.09E+04				1.15E+03	1.00E-08	1.24E-10		
Antimony (51)	Sb-114	1.04E+05	6.64E-06	1.36E+09	1.00E+00			2.30E+14										2.30E+14	1.00E-08	1.32E+01	
Antimony (51)	Sb-115	1.13E+04	6.11E-05	1.36E+09	1.00E+00	8.96E+07	1.46E+12	1.34E+02	1.01E+06	1.25E+05	1.68E+04	1.03E+07	3.64E+07				1.33E+02	1.00E-08	7.08E-11		
Antimony (51)	Sb-116	2.31E+04	3.01E-05	1.36E+09	1.00E+00	2.08E+16	3.95E+20	1.38E+10	2.33E+14	2.90E+13	3.90E+12	2.40E+15	8.45E+15				1.37E+10	1.00E-08	3.62E-03		
Antimony (51)	Sb-116m	6.04E+03	1.15E-04	1.36E+09	1.00E+00	1.85E+07	2.25E+11	1.91E+01	2.07E+05	2.58E+04	3.47E+03	2.13E+06	7.51E+06				1.89E+01	1.00E-08	1.91E-11		
Antimony (51)	Sb-117	2.17E+03	3.20E-04	1.36E+09	1.00E+00	2.27E+07	2.18E+11	1.67E+02	2.55E+05	3.18E+04	4.27E+03	2.63E+06	9.24E+06				1.60E+02	1.00E-08	4.52E-10		
Antimony (51)	Sb-118	1.01E+05	6.85E-06	1.36E+09	1.00E+00			1.93E+15										1.93E+15	1.00E-08	1.18E+02	
Antimony (51)	Sb-118m	1.21E+03	5.71E-04	1.36E+09	1.00E+00	1.14E+06	1.70E+10	4.55E+00	1.28E+04	1.59E+03	2.14E+02	1.32E+05	4.63E+05				4.44E+00	1.00E-08	2.26E-11		
Antimony (51)	Sb-119	1.59E+02	4.36E-03	1.36E+09	1.00E+00	3.53E+05	7.00E+09	2.03E+03	3.96E+03	4.93E+02	6.62E+01	4.07E+04	1.43E+05				5.59E+01	1.00E-08	2.19E-09		
Antimony (51)	Sb-120	2.29E+04	3.02E-05	1.36E+09	1.00E+00	3.97E+16	7.40E+20	7.18E+10	4.46E+14	5.54E+13	7.45E+12	4.59E+15	1.61E+16				7.10E+10	1.00E-08	1.95E-02		
Antimony (51)	Sb-120m	4.39E+01	1.58E-02	1.36E+09	1.00E+00	7.00E+03	7.26E+07	1.76E-01	7.85E+01	9.77E+00	1.31E+00	8.08E+02	2.84E+03				1.53E-01	1.00E-08	2.19E-11		
Antimony (51)	Sb-122	9.29E+01	7.46E-03	1.36E+09	1.00E+00	9.99E+03	1.48E+08	2.12E+00	1.12E+02	1.40E+01	1.88E+00	1.15E+03	4.06E+03				9.21E-01	1.00E-08	6.35E-11		



Farmer Soil DCCs July 2023																			
Radionuclides		Isotope-specific Information					Dose Compliance Concentrations (DCCs)												
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Produce Consumption DCC DL=1 (Bq/g)	Finfish Consumption DCC DL=1 (Bq/g)	Shellfish Consumption DCC DL=1 (Bq/g)	Beef Consumption DCC DL=1 (Bq/g)	Dairy Consumption DCC DL=1 (Bq/g)	Swine Consumption DCC DL=1 (Bq/g)	Egg Consumption DCC DL=1 (Bq/g)	Poultry Consumption DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Antimony (51)	Sb-126	2.05E+01	3.38E-02	1.36E+09	1.00E+00	1.46E+03	1.08E+07	7.51E-02	1.64E+01	2.04E+00	2.75E-01	1.69E+02	5.95E+02				5.71E-02	1.00E-08	1.84E-11
Antimony (51)	Sb-126m	1.90E+04	3.64E-05	1.36E+09	1.00E+00	9.69E+06	7.18E+10	4.98E+02	1.09E+05	1.35E+04	1.82E+03	1.12E+06	3.94E+06				3.78E+02	1.00E-08	1.31E-10
Antimony (51)	Sb-127	6.57E+01	1.05E-02	1.36E+09	1.00E+00	5.40E+03	3.44E+07	9.62E-01	8.67E+00	8.57E+00	1.36E+00	2.24E+02	5.56E+02		5.86E+01	2.75E+02	4.91E-01	1.00E-08	4.98E-11
Antimony (51)	Sb-128	6.74E+02	1.03E-03	1.36E+09	1.00E+00	1.58E+05	2.68E+09	2.19E+00	1.77E+03	2.21E+02	2.97E+01	1.82E+04	6.42E+04				2.02E+00	1.00E-08	2.01E-11
Antimony (51)	Sb-128m	3.50E+04	1.98E-05	1.36E+09	1.00E+00	2.24E+08	3.80E+12	3.10E+03	2.51E+06	3.13E+05	4.20E+04	2.58E+07	9.09E+07				2.86E+03	1.00E-08	5.47E-10
Antimony (51)	Sb-129	1.38E+03	5.02E-04	1.36E+09	1.00E+00	2.13E+05	1.25E+09	8.74E+00	1.47E+02	4.29E+02	1.13E+02	4.42E+03	1.02E+04	8.72E+08	9.06E+02	4.26E+03	7.45E+00	1.00E-08	3.65E-11
Antimony (51)	Sb-130	9.22E+03	7.52E-05	1.36E+09	1.00E+00	1.88E+07	3.01E+11	2.80E+01	2.11E+05	2.62E+04	3.53E+03	2.17E+06	7.64E+06				2.77E+01	1.00E-08	2.05E-11
Antimony (51)	Sb-130m	5.78E+04	1.20E-05	1.36E+09	1.00E+00			3.95E+12									3.95E+12	1.00E-08	4.66E-01
Antimony (51)	Sb-131	1.58E+04	4.38E-05	1.36E+09	1.00E+00	1.24E+05	1.26E+09	1.88E+02	1.99E+02	3.14E+04	4.70E+09	2.57E+03	3.61E+02	1.71E+03	9.37E+02	7.47E+04	6.58E+01	1.00E-08	2.86E-11
Antimony (51)	Sb-133	1.46E+05	4.76E-06	1.36E+09	1.00E+00	5.43E+06	5.53E+10	1.54E+03	8.74E+03	1.53E+06		1.12E+05	1.58E+04	7.46E+04	4.10E+04	3.44E+06	1.14E+03	1.00E-08	5.46E-11
Scandium (21)	Sc-42m	3.52E+05	1.97E-06	1.36E+09	1.00E+00			1.62E+17									1.62E+17	1.00E-08	1.02E+03
Scandium (21)	Sc-43	1.56E+03	4.44E-04	1.36E+09	1.00E+00	1.33E+06	2.20E+10	1.66E+01	3.80E+04	1.23E+04	5.09E+02	6.93E+04	2.52E+05				1.60E+01	1.00E-08	2.31E-11
Scandium (21)	Sc-44	1.53E+03	4.53E-04	1.36E+09	1.00E+00	8.05E+05	1.44E+10	7.04E+00	2.30E+04	7.42E+03	3.07E+02	4.19E+04	1.52E+05				6.87E+00	1.00E-08	1.04E-11
Scandium (21)	Sc-44m	1.04E+02	6.69E-03	1.36E+09	1.00E+00	6.91E+03	1.16E+08	4.33E-01	1.97E+02	6.37E+01	2.64E+00	3.59E+02	1.31E+03				3.69E+01	1.00E-08	8.21E-12
Scandium (21)	Sc-46	3.02E+00	2.30E-01	1.36E+09	1.00E+00	4.19E+02	8.93E+05	1.52E-02	1.20E+01	3.87E+00	1.60E-01	2.18E+01	7.94E+01				1.38E-02	1.00E-08	1.10E-11
Scandium (21)	Sc-47	7.55E+01	9.18E-03	1.36E+09	1.00E+00	2.52E+04	1.95E+08	9.34E+00	7.18E+02	2.32E+02	9.60E+00	1.31E+03	4.76E+03				4.59E+00	1.00E-08	1.50E-10
Scandium (21)	Sc-48	1.39E+02	4.99E-03	1.36E+09	1.00E+00	1.61E+04	2.25E+08	3.91E-01	4.61E+02	1.49E+02	6.16E+00	8.40E+02	3.06E+03				3.68E-01	1.00E-08	6.63E-12
Scandium (21)	Sc-49	6.37E+03	1.09E-04	1.36E+09	1.00E+00	1.44E+07	2.86E+11	1.01E+04	4.11E+05	1.33E+05	5.49E+03	7.48E+05	2.72E+06				3.42E+03	1.00E-08	1.38E-09
Scandium (21)	Sc-50	2.13E+05	3.25E-06	1.36E+09	1.00E+00			1.13E+16									1.13E+16	1.00E-08	1.39E+02
Selenium (34)	Se-70	8.86E+03	7.82E-05	1.36E+09	1.00E+00	7.32E+06	1.11E+11	1.74E+01	1.28E+03	4.90E+02	3.93E+03	1.69E+03	1.80E+03	9.79E+02	7.07E+02	6.44E+02	1.52E+01	1.00E-08	6.31E-12
Selenium (34)	Se-71	7.68E+04	9.02E-06	1.36E+09	1.00E+00	3.17E+07	3.56E+11	1.45E+03	2.89E+04	6.30E+03		4.03E+04	1.14E+05				1.09E+03	1.00E-08	5.29E-11
Selenium (34)	Se-72	3.01E+01	2.30E-02	1.36E+09	1.00E+00	7.03E+02	1.19E+07	1.68E-01	7.21E-02	2.53E-02	2.03E-01	8.96E-02	9.29E-02	5.05E-02	3.65E-02	3.32E-02	6.11E-03	1.00E-08	7.67E-13
Selenium (34)	Se-73	8.49E+02	8.16E-04	1.36E+09	1.00E+00	3.44E+05	1.04E+09	8.44E+00	5.61E+01	2.11E+01	1.69E+02	7.32E+01	7.75E+01	4.22E+01	3.04E+01	2.77E+01	3.24E+00	1.00E-08	1.46E-11
Selenium (34)	Se-73m	9.15E+03	7.57E-05	1.36E+09	1.00E+00	3.96E+06	1.15E+10	9.33E-01	6.95E+02	2.65E+02	2.13E+03	9.15E+02	9.73E+02	5.30E+02	3.82E+02	3.49E+02	3.86E+01	1.00E-08	1.62E-11
Selenium (34)	Se-75	2.11E+00	3.28E-01	1.36E+09	1.00E+00	1.78E+02	3.45E+06	7.61E-02	1.45E-02	4.95E-03	3.98E-02	1.77E-02	1.82E-02	9.90E-03	7.15E-03	6.51E-03	1.23E-03	1.00E-08	2.28E-12
Selenium (34)	Se-77m	1.26E+06	5.50E-07	1.36E+09	1.00E+00			5.61E+23									5.61E+23	1.00E-08	1.80E+09
Selenium (34)	Se-79	2.35E-06	2.95E+05	1.36E+09	9.00E-01	5.31E+01	3.10E+05	4.99E+03	4.31E-03	1.48E-03	1.19E-02	5.27E-03	5.43E-03	2.95E-03	2.13E-03	1.94E-03	3.71E-04	1.00E-08	6.55E-07
Selenium (34)	Se-79m	9.29E+04	7.64E-06	1.36E+09	1.00E+00	2.10E+12	1.23E+16	1.97E+14	1.71E+08	5.84E+07	4.69E+08	2.08E+08	2.15E+08	1.17E+08	8.43E+07	7.68E+07	1.47E+07	1.00E-08	6.55E-07
Selenium (34)	Se-81	1.97E+04	3.51E-05	1.36E+09	1.00E+00	7.01E+15	1.24E+20	9.88E+11	5.69E+11	1.95E+11	1.56E+12	6.95E+11	7.16E+11	3.89E+11	2.81E+11	2.56E+11	4.67E+10	1.00E-08	1.01E-02
Selenium (34)	Se-81m	6.36E+03	1.09E-04	1.36E+09	1.00E+00	1.47E+07	1.74E+11	3.46E+03	1.19E+03	4.08E+02	3.28E+03	1.46E+03	1.50E+03	8.15E+02	5.89E+02	5.37E+02	9.97E+01	1.00E-08	6.66E-11
Selenium (34)	Se-83	1.63E+04	4.24E-05	1.36E+09	1.00E+00	6.79E+07	5.68E+11	2.27E+04	2.65E+05	3.42E+04	1.83E+03	2.25E+05	3.03E+04	6.26E+09	4.52E+09	4.12E+09	1.51E+03	1.00E-08	4.03E-10
Selenium (34)	Se-83m	3.12E+05	2.22E-06	1.36E+09	1.00E+00	1.29E+09	1.08E+13	4.31E+05	5.01E+06	6.48E+05	3.46E+04	4.26E+06	5.75E+05				2.86E+04	1.00E-08	4.00E-10
Selenium (34)	Se-84	1.17E+05	5.90E-06	1.36E+09	1.00E+00	2.27E+12	4.89E+16	5.38E+06	8.83E+09	1.14E+09	6.10E+07	7.51E+09	1.01E+09				4.89E+06	1.00E-08	1.83E-07
Silicon (14)	Si-31	2.32E+03	2.99E-04	1.36E+09	1.00E+00	2.70E+06	5.23E+10	6.70E+03	1.05E+04				9.37E+05				4.06E+03	1.00E-08	2.85E-09
Silicon (14)	Si-32	5.25E-03	1.32E+02	1.36E+09	9.00E-01	5.96E+01	1.75E+04	3.13E+00	6.23E-03	3.94E-05		1.04E-01	3.09E-02	8.96E-01	1.30E+00		3.91E-05	2.97E-01	1.25E-11
Samarium (62)	Sm-139	1.42E+05	4.89E-06	1.36E+09	1.00E+00	1.04E+08	1.64E+11	7.47E+03	2.13E+06	2.29E+06	2.12E+05	1.26E+07	6.24E+07	6.61E+08	5.65E+08	2.59E+08	7.16E+03	1.00E-08	3.68E-10
Samarium (62)	Sm-140	2.46E+04	2.82E-05	1.36E+09	1.00E+00	2.25E+06	3.88E+10	4.71E+02	6.43E+04	1.22E+04	1.28E+13	1.17E+05	4.27E+05		1.09E+08	2.00E+05	4.47E+02	1.00E-08	1.34E-10
Samarium (62)	Sm-141	3.57E+04	1.94E-05	1.36E+09	1.00E+00	7.85E+08	1.18E+13	7.02E+03	2.24E+07	4.26E+06	9.11E+13	4.08E+07	1.49E+08				7.00E+03	1.00E-08	1.45E-09
Samarium (62)	Sm-141m	1.61E+04	4.30E-05	1.36E+09	1.00E+00	3.54E+08	5.30E+12	3.17E+03	1.01E+07	1.92E+06	2.33E+10	1.84E+07	6.71E+07		1.70E+10	3.15E+07	3.16E+03	1.00E-08	1.45E-09
Samarium (62)	Sm-142	5.02E+03	1.38E-04	1.36E+09	1.00E+00	5.14E+06	1.19E+11	5.44E+01	2.37E+05	1.33E+05	1.90E+03	6.94E+05	3.88E+06				5.29E+01	1.00E-08	7.83E-11
Samarium (62)	Sm-143	4.16E+04	1.66E-05	1.36E+09	1.00E+00	5.61E+07	4.35E+10	2.33E+03	2.29E+05	7.01E+05		1.48E+06	4.12E+07		4.96E+07	2.74E+08	2.30E+03	1.00E-08	4.14E-10
Samarium (62)	Sm-143m	3.31E+05	2.09E-06	1.36E+09	1.00E+00	4.46E+08	3.46E+11	1.85E+04	1.82E+06	5.58E+06		1.18E+07	3.28E+08		3.94E+08	2.18E+09	1.83E+04	1.00E-08	4.14E-10
Samarium (62)	Sm-145	7.44E-01	9.32E-01	1.36E+09	1.00E+00	1.22E+03	8.54E+05	1.51E+00	5.05E+01	3.11E+01	4.55E-01	1.57E+02	9.14E+02		3.32E+04	1.84E+05	3.43E-01	1.00E-08	3.50E-09
Samarium (62)	Sm-146	6.73E-09	1.03E+08	1.36E+09	9.00E-01	1.35E+00	7.86E+01		1.64E-01	9.16E-02	1.31E-03	4.78E-01	2.66E+00				1.28E-03	1.00E-08	1.45E-03
Samarium (62)	Sm-147	6.54E-12	1.06E+11	1.36E+09	9.00E-01	3.88E+00	8.60E+01		1.79E-01	1.00E-01	1.44E-03	5.24E-01	2.91E+00				1.40E-03	1.00E-08	1.65E+00
Samarium (62)	Sm-148	9.90E-17	7.00E+15	1.36E+09	9.00E-01	3.70E+00													



Farmer Soil DCCs July 2023																			
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)													
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion	Inhalation	External	Produce	Finfish	Shellfish	Beef	Dairy	Swine	Egg	Poultry	Total	Peak Dose	Total
						DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)
Tin (50)	Sn-117m	1.84E+01	3.77E-02	1.36E+09	1.00E+00	4.71E+03	1.25E+07	1.76E+00	1.27E+00	2.09E+00		1.49E+01	1.56E+01				5.09E-01	1.00E-08	1.70E-10
Tin (50)	Sn-119m	8.63E-01	8.03E-01	1.36E+09	1.00E+00	7.62E+02	8.27E+05	3.11E+01	2.06E-01	3.39E-01		2.41E+00	2.52E+00				1.15E-01	1.00E-08	8.35E-10
Tin (50)	Sn-121	2.25E+02	3.09E-03	1.36E+09	9.00E-01	1.76E+05	1.66E+09	8.11E+04	4.76E+01	7.83E-01		5.56E+02	5.82E+02				2.68E+01	1.00E-08	7.57E-10
Tin (50)	Sn-121m	1.58E-02	4.39E+01	1.36E+09	1.00E+00	3.23E+02	1.31E+05	3.68E+01	8.72E-02	1.44E-01		1.02E+00	1.07E+00				4.91E-02	1.34E-02	1.97E-08
Tin (50)	Sn-123	1.96E+00	3.54E-01	1.36E+09	1.00E+00	1.94E+02	3.37E+05	2.46E+00	5.24E-02	8.62E-02		6.13E-01	6.41E-01				2.92E-02	1.00E-08	9.61E-11
Tin (50)	Sn-123m	9.09E+03	7.62E-05	1.36E+09	1.00E+00	4.36E+07	5.73E+11	8.74E+02	1.18E+04	1.94E+04		1.38E+05	1.44E+05				7.72E+02	1.00E-08	5.48E-10
Tin (50)	Sn-125	2.62E+01	2.64E-02	1.36E+09	1.00E+00	1.43E+03	7.94E+06	5.89E-01	4.17E-01	6.75E-01	3.80E+00	4.89E+00	5.14E+00		3.13E+02	1.47E+03	1.60E-01	1.00E-08	4.00E-11
Tin (50)	Sn-125m	3.83E+04	1.81E-05	1.36E+09	1.00E+00	2.53E+07	2.62E+10	4.25E+03	6.23E+04	3.77E+04	5.47E+03	1.43E+06	3.76E+06		4.55E+05	2.14E+06	2.16E+03	1.00E-08	3.71E-10
Tin (50)	Sn-126	3.01E-06	2.30E+05	1.36E+09	1.00E+00	3.59E+01	1.26E+04	5.19E-03	1.05E-02	1.68E-02	8.69E-02	1.23E-01	1.28E-01				2.67E-03	5.19E-01	5.85E-06
Tin (50)	Sn-127	2.89E+03	2.40E-04	1.36E+09	1.00E+00	2.18E+05	1.45E+09	1.07E+01	2.51E+02	2.88E+02	5.97E+01	4.59E+03	6.58E+03		2.58E+03	1.21E+04	8.46E+00	1.00E-08	1.95E-11
Tin (50)	Sn-127m	8.82E+04	7.86E-06	1.36E+09	1.00E+00	7.24E+06	4.62E+10	1.29E+03	1.16E+04	1.15E+04	1.82E+03	3.00E+05	7.46E+05		7.86E+04	3.69E+05	6.59E+02	1.00E-08	4.98E-11
Tin (50)	Sn-128	6.17E+03	1.12E-04	1.36E+09	1.00E+00	5.35E+06	8.59E+10	2.44E+01	2.01E+03	2.96E+03	3.49E+03	2.35E+04	2.48E+04				2.37E+01	1.00E-08	2.58E-11
Tin (50)	Sn-129	1.63E+05	4.24E-06	1.36E+09	1.00E+00	2.51E+07	1.48E+11	1.03E+03	1.74E+04	5.06E+04	1.32E+04	5.23E+05	1.20E+06	1.03E+11	1.07E+05	5.04E+05	8.76E+02	1.00E-08	3.63E-11
Tin (50)	Sn-130	9.79E+04	7.08E-06	1.36E+09	1.00E+00			2.76E+12									2.76E+12	1.00E-08	1.92E-01
Tin (50)	Sn-130m	2.14E+05	3.23E-06	1.36E+09	1.00E+00	4.79E+11	7.67E+15	7.14E+05	5.38E+09	6.69E+08	9.00E+07	5.53E+10	1.95E+11				7.08E+05	1.00E-08	2.25E-08
Strontium (38)	Sr-79	1.62E+05	4.28E-06	1.36E+09	1.00E+00	5.67E+14	9.22E+18	6.88E+03	2.37E+09	2.03E+10	1.75E+12	1.83E+11					6.88E+03	1.00E-08	1.76E-10
Strontium (38)	Sr-80	3.43E+03	2.02E-04	1.36E+09	1.00E+00	1.70E+06	3.77E+10	2.16E+01	4.14E+02	4.89E+02	4.00E+00	1.27E+05	1.39E+04	2.74E+05	6.64E+04	6.42E+05	3.33E+00	1.00E-08	4.07E-12
Strontium (38)	Sr-81	1.63E+04	4.24E-05	1.36E+09	1.00E+00	6.43E+07	4.11E+11	2.81E+02	2.68E+04	2.30E+03	4.30E+03	1.98E+05	2.07E+04	1.21E+13	2.92E+12	2.83E+13	2.32E+02	1.00E-08	6.03E-11
Strontium (38)	Sr-82	9.97E+00	6.95E-02	1.36E+09	1.00E+00	2.94E+02	1.72E+06	9.18E-02	7.15E-02	8.45E-02	6.93E-04	2.20E+01	2.40E+00	4.74E+01	1.15E+01	1.11E+02	6.75E-04	1.00E-08	2.91E-13
Strontium (38)	Sr-83	1.87E+02	3.70E-03	1.36E+09	1.00E+00	1.74E+04	2.07E+08	1.50E+00	6.20E+00	7.90E-01	1.53E-01	6.98E+01	7.31E+00	1.16E+04	2.81E+03	2.72E+04	1.14E-01	1.00E-08	2.64E-12
Strontium (38)	Sr-85	3.90E+00	1.78E-01	1.36E+09	1.00E+00	1.25E+03	9.07E+06	8.42E-02	3.03E-01	3.58E-01	2.94E-03	9.34E+01	1.02E+01	2.01E+02	4.87E+01	4.71E+02	2.79E-03	1.00E-08	3.19E-12
Strontium (38)	Sr-85m	5.39E+03	1.29E-04	1.36E+09	1.00E+00	1.96E+06	1.43E+10	9.27E+01	4.78E+02	5.64E+02	4.63E+00	1.47E+05	1.60E+04	3.17E+05	7.67E+04	7.41E+05	4.33E+00	1.00E-08	3.58E-12
Strontium (38)	Sr-87m	2.16E+03	3.21E-04	1.36E+09	1.00E+00	1.21E+02	1.25E+05	4.72E+02	5.06E-02	4.33E-03	8.10E-03	3.73E-01	3.90E-02				2.48E-03	1.00E-08	5.26E-15
Strontium (38)	Sr-89	5.01E+00	1.38E-01	1.36E+09	1.00E+00	3.47E+02	1.20E+06	1.90E+01	8.44E-02	9.97E-02	8.17E-04	2.60E+01	2.83E+00	5.60E+01	1.35E+01	1.31E+02	8.03E-04	1.00E-08	7.48E-13
Strontium (38)	Sr-90	2.41E-02	2.88E+01	1.36E+09	9.00E-01	6.34E+00	1.28E+04	1.42E+00	1.70E-03	1.95E-03	1.65E-05	4.96E-01	5.69E-02	1.13E+00	2.73E-01	2.54E+00	1.62E-05	1.00E-08	3.17E-12
Strontium (38)	Sr-91	6.30E+02	1.10E-03	1.36E+09	1.00E+00	3.84E+04	1.29E+08	6.09E+00	4.15E+01	2.51E+01	4.36E-01	4.54E+03	1.45E+03	2.98E+04	7.11E+03	2.89E+04	3.96E-01	1.00E-08	3.00E-12
Strontium (38)	Sr-92	2.28E+03	3.04E-04	1.36E+09	1.00E+00	4.64E+05	9.88E+09	1.32E+01	2.47E+02	2.19E+02	2.46E+00	4.68E+04	8.39E+03	1.68E+05	4.05E+04	2.69E+05	2.03E+00	1.00E-08	4.30E-12
Strontium (38)	Sr-93	4.91E+04	1.41E-05	1.36E+09	1.00E+00	7.62E+06	1.98E+11	4.39E+03	8.51E+04	7.47E+03		1.06E+06	5.92E+06	4.13E+14	7.03E+07	7.77E+06	2.67E+03	1.00E-08	2.65E-10
Strontium (38)	Sr-94	2.90E+05	2.39E-06	1.36E+09	1.00E+00	2.64E+16	7.67E+20	1.44E+11	2.95E+14	2.59E+13		3.68E+15	2.05E+16		2.44E+17	2.69E+16	1.43E+11	1.00E-08	2.43E-03
Tantalum (73)	Ta-170	5.39E+04	1.29E-05	1.36E+09	1.00E+00	7.64E+06	1.03E+11	1.69E+02	2.59E+05	4.61E+04	1.52E+04	1.21E+06	5.22E+06				1.67E+02	1.00E-08	2.76E-11
Tantalum (73)	Ta-172	9.90E+03	7.00E-05	1.36E+09	1.00E+00	2.55E+06	2.31E+09	4.30E+01	7.57E+04	9.69E+03	4.30E+03	4.43E+05	1.66E+06				4.23E+01	1.00E-08	3.86E-11
Tantalum (73)	Ta-173	1.93E+03	3.58E-04	1.36E+09	1.00E+00	7.67E+05	2.19E+09	2.25E+01	2.09E+04	2.72E+03	1.50E+03	1.88E+05	5.78E+05				2.20E+01	1.00E-08	1.03E-10
Tantalum (73)	Ta-174	5.33E+03	1.30E-04	1.36E+09	1.00E+00	1.39E+07	1.96E+11	5.63E+01	3.97E+05	9.05E+04	1.38E+16	2.90E+08	3.61E+07				5.63E+01	1.00E-08	9.64E-11
Tantalum (73)	Ta-175	5.78E+02	1.20E-03	1.36E+09	1.00E+00	1.76E+05	7.20E+08	4.21E+00	4.11E+03	4.52E+02	3.18E+02	7.22E+04	1.38E+05				4.11E+00	1.00E-08	6.53E-11
Tantalum (73)	Ta-176	7.50E+02	9.24E-04	1.36E+09	1.00E+00	4.66E+05	6.54E+09	3.13E+00	1.33E+04	3.03E+03		9.70E+06	1.06E+06				3.13E+00	1.00E-08	3.85E-11
Tantalum (73)	Ta-177	1.07E+02	6.46E-03	1.36E+09	1.00E+00	1.83E+05	1.85E+09	3.88E+01	5.21E+03	1.19E+03		3.80E+06	4.15E+05				3.73E+01	1.00E-08	3.23E-09
Tantalum (73)	Ta-178	3.91E+04	1.77E-05	1.36E+09	1.00E+00			5.65E+13									5.65E+13	1.00E-08	1.35E+01
Tantalum (73)	Ta-178m	2.57E+03	2.69E-04	1.36E+09	1.00E+00	5.76E+06	6.03E+10	2.68E+01	1.64E+05	3.75E+04		1.20E+08	1.31E+07				2.68E+01	1.00E-08	9.73E-11
Tantalum (73)	Ta-179	3.81E-01	1.82E+00	1.36E+09	1.00E+00	3.75E+03	4.62E+06	1.82E+00	1.07E+02	2.44E+01		7.80E+04	8.51E+03				1.67E+00	1.00E-08	4.12E-08
Tantalum (73)	Ta-180	7.45E+02	9.31E-04	1.36E+09	1.00E+00	2.45E+06	3.10E+10	5.25E+02	6.99E+04	1.59E+04		5.09E+07	5.56E+06				5.04E+02	1.00E-08	6.39E-09
Tantalum (73)	Ta-182	2.21E+00	3.14E-01	1.36E+09	1.00E+00	3.10E+02	4.57E+05	1.90E-02	8.85E+00	2.02E+00		6.45E+03	7.04E+02				1.88E-02	1.00E-08	8.10E-11
Tantalum (73)	Ta-182m	2.30E+04	3.01E-05	1.36E+09	1.00E+00	3.22E+06	4.76E+09	1.97E+02	9.20E+04	2.10E+04		6.71E+07	7.32E+06				1.95E+02	1.00E-08	8.10E-11
Tantalum (73)	Ta-183	4.96E+01	1.40E-02	1.36E+09	1.00E+00	6.70E+03	4.17E+07	2.37E+00	1.91E+02	4.36E+01		1.39E+05	1.52E+04				2.22E+00	1.00E-08	4.29E-10
Tantalum (73)	Ta-184	6.98E+02	9.93E-04	1.36E+09	1.00E+00	1.94E+05	2.87E+09	4.65E+00	5.33E+03	1.26E+03		4.03E+06	4.40E+05				4.63E+00	1.00E-08	6.40E-11
Tantalum (73)	Ta-185	7.37E+03	9.40E-05	1.36E+09	1.00E+00	2.70E+06	3.73E+09	6.63E+02	3.17E+02	3.25E+02		9.70E+02	2.11E+04				1.13E+02	1.00E-08	1.49E-10
Tantalum (73)	Ta-186	3.47E+04	2.00E-05	1.36E+09	1.00E+00	2.33E+17	4.28E+21	3.23E+11	6.64E+15	1.51E+15		4.84E+18	5.28E+17				3.23E+11	1.00E-08	9.08E-02
Terbium (65)	Tb-146	9.50E+05	7.29E-07	1.36E+09	1.00E+00	8.57E+07	2.30E+11	3.71E+03	2.05E+06	3.60E+06	1.36E+07	2.83E+06	2.69E+07				3.69E+03	1.00E-08	2.97E-11
Terbium (65)	Tb-147	3.70E+03	1.87E-04	1.36E+09	1.00E+00	5.93E+05	4.05E+09	9.21E+00	1.50E+04	1.71E+04	1.39E+05	2.22E+04	1.54E+05		2.10E+11	1.16E+12	9.20E+00	1.00E-08	1.92E-11
Terbium (65)	Tb-147m	1.95E+05	3.56E-06	1.36E+09	1.00E+00	3.48E+07	2.23E+11	1.10E+03	8.68E+05	1.19E+06	7.32E+06	1.26E+06	9.44E+06		1.11E+13	6.11E+13	1.10E+03	1.00E-08	4.34E-11
Terbium (65)	Tb-148	6.07E+03																	

Farmer Soil DCCs July 2023																			
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)													
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Produce Consumption DCC DL=1 (Bq/g)	Finfish Consumption DCC DL=1 (Bq/g)	Shellfish Consumption DCC DL=1 (Bq/g)	Beef Consumption DCC DL=1 (Bq/g)	Dairy Consumption DCC DL=1 (Bq/g)	Swine Consumption DCC DL=1 (Bq/g)	Egg Consumption DCC DL=1 (Bq/g)	Poultry Consumption DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Terbium (65)	Tb-152m	8.67E+04	7.99E-06	1.36E+09	1.00E+00	2.97E+07	6.03E+11	7.15E+02	8.47E+05	3.62E+05	4.58E+32	1.54E+06	5.62E+06		6.18E+53	1.14E+51	7.13E+02	1.00E-08	6.55E-11
Terbium (65)	Tb-153	1.08E+02	6.41E-03	1.36E+09	1.00E+00	4.33E+04	1.15E+08	3.78E+00	1.24E+03	6.37E+02		2.25E+03	8.20E+03				3.73E+00	1.00E-08	2.77E-10
Terbium (65)	Tb-154	2.82E+02	2.45E-03	1.36E+09	1.00E+00	8.86E+04	1.38E+09	1.14E+00	2.53E+03	1.08E+03		4.61E+03	1.68E+04				1.13E+00	1.00E-08	3.24E-11
Terbium (65)	Tb-155	4.75E+01	1.46E-02	1.36E+09	1.00E+00	3.37E+04	2.85E+08	4.91E+00	9.61E+02	4.11E+02		1.75E+03	6.37E+03				4.81E+00	1.00E-08	8.22E-10
Terbium (65)	Tb-156	4.73E+01	1.47E-02	1.36E+09	1.00E+00	7.94E+03	6.89E+07	2.44E-01	2.27E+02	9.69E+01		4.13E+02	1.50E+03				2.43E+01	1.00E-08	4.20E-11
Terbium (65)	Tb-156m	2.49E+02	2.79E-03	1.36E+09	1.00E+00	3.65E+04	3.12E+08	1.28E+00	1.04E+03	4.46E+02		1.90E+03	6.91E+03				1.27E+00	1.00E-08	4.18E-11
Terbium (65)	Tb-156n	1.15E+03	6.05E-04	1.36E+09	1.00E+00	1.78E+05	1.53E+09	5.90E+00	5.09E+03	2.18E+03		9.28E+03	3.38E+04				5.87E+00	1.00E-08	4.19E-11
Terbium (65)	Tb-157	9.76E-03	7.10E+01	1.36E+09	1.00E+00	4.74E+03	6.17E+05	1.35E+01	1.35E+02	5.78E+01		2.46E+02	8.97E+02				9.61E+00	1.00E-08	8.10E-06
Terbium (65)	Tb-158	3.85E-03	1.80E+02	1.36E+09	1.00E+00	1.72E+02	1.91E+04	1.28E-02	4.90E+00	2.09E+00		8.93E+00	3.25E+01				1.27E-02	1.00E-08	2.73E-08
Terbium (65)	Tb-160	3.50E+00	1.98E-01	1.36E+09	1.00E+00	4.17E+02	8.26E+05	3.16E-02	1.19E+01	5.09E+00		2.17E+01	7.89E+01				3.13E-02	1.00E-08	7.50E-11
Terbium (65)	Tb-161	3.66E+01	1.89E-02	1.36E+09	1.00E+00	8.92E+03	4.84E+07	4.44E+01	2.55E+02	1.09E+02		4.64E+02	1.69E+03				2.60E+01	1.00E-08	5.99E-09
Terbium (65)	Tb-162	4.79E+04	1.45E-05	1.36E+09	1.00E+00			5.45E+12									5.45E+12	1.00E-08	9.67E-01
Terbium (65)	Tb-163	1.87E+04	3.71E-05	1.36E+09	1.00E+00	3.71E+15	4.34E+19	5.72E+09	1.06E+14	4.53E+13		1.93E+14	7.03E+14				5.72E+09	1.00E-08	2.62E-03
Terbium (65)	Tb-164	1.21E+05	5.71E-06	1.36E+09	1.00E+00			9.17E+14									9.17E+14	1.00E-08	6.49E+01
Terbium (65)	Tb-165	1.73E+05	4.01E-06	1.36E+09	1.00E+00	2.94E+08	4.92E+12	7.97E+04	8.39E+06	5.65E+05		1.53E+07	5.56E+07				6.88E+04	1.00E-08	3.45E-09
Tchnetium (43)	Tc-101	2.57E+04	2.70E-05	1.36E+09	1.00E+00	2.05E+17	3.01E+21	6.78E+11	7.07E+11			4.69E+14	4.89E+13	1.38E+17	2.46E+14	1.36E+16	3.43E+11	1.00E-08	7.08E-02
Tchnetium (43)	Tc-102	4.14E+06	1.67E-07	1.36E+09	1.00E+00			4.88E+25									4.88E+25	1.00E-08	6.30E+02
Tchnetium (43)	Tc-102m	8.37E+04	8.28E-06	1.36E+09	1.00E+00			5.32E+13									5.32E+13	1.00E-08	3.40E+00
Tchnetium (43)	Tc-104	1.99E+04	3.48E-05	1.36E+09	1.00E+00	2.52E+15	6.54E+19	4.54E+09	8.68E+09			5.76E+12	6.00E+11	1.69E+15	3.01E+12	1.66E+14	2.96E+09	1.00E-08	8.11E-04
Tchnetium (43)	Tc-105	4.79E+04	1.45E-05	1.36E+09	1.00E+00	1.36E+07	1.59E+11	5.99E+02	4.43E+04	7.46E+03	1.40E+08	5.64E+05	4.21E+05	5.84E+06	1.45E+08	4.00E+04	5.39E+02	1.00E-08	6.19E-11
Tchnetium (43)	Tc-91	1.16E+05	5.97E-06	1.36E+09	1.00E+00	1.31E+10	1.27E+13	1.15E+07	9.73E+07	5.48E+07	3.16E+15	6.66E+12	4.70E+11	3.50E+10	2.32E+11	4.28E+11	6.65E+06	1.00E-08	3.55E-07
Tchnetium (43)	Tc-91m	1.10E+05	6.28E-06	1.36E+09	1.00E+00	1.01E+08	1.05E+11	8.67E+04	7.45E+05	4.19E+05	5.40E+15	5.12E+10	3.60E+09	2.68E+08	1.78E+09	3.28E+09	8.55E+04	1.00E-08	2.83E-09
Tchnetium (43)	Tc-92	8.57E+04	8.09E-06	1.36E+09	1.00E+00			3.25E+13									3.25E+13	1.00E-08	1.83E+00
Tchnetium (43)	Tc-93	2.21E+03	3.14E-04	1.36E+09	1.00E+00	6.17E+06	8.23E+10	1.31E+01	2.14E+01	1.50E+07	5.74E+07	1.42E+04	1.48E+03	4.17E+06	7.41E+03	4.00E+05	8.05E+00	1.00E-08	1.78E-11
Tchnetium (43)	Tc-93m	8.37E+03	8.28E-05	1.36E+09	1.00E+00	1.90E+07	2.57E+11	3.58E+01	6.58E+01	5.68E+07	2.18E+08	4.37E+04	4.55E+03	1.28E+07	2.28E+04	1.24E+06	2.30E+01	1.00E-08	1.34E-11
Tchnetium (43)	Tc-94	1.24E+03	5.57E-04	1.36E+09	1.00E+00	1.22E+06	1.67E+10	4.63E+00	4.20E+00			2.79E+03	2.91E+02	8.20E+05	1.46E+03	8.07E+04	2.18E+00	1.00E-08	8.65E-12
Tchnetium (43)	Tc-94m	7.00E+03	9.89E-05	1.36E+09	1.00E+00	1.28E+07	2.62E+11	3.49E+01	4.41E+01			2.93E+04	3.05E+03	8.59E+06	1.53E+04	8.45E+05	1.93E+01	1.00E-08	1.36E-11
Tchnetium (43)	Tc-95	3.04E+02	2.28E-03	1.36E+09	1.00E+00	3.34E+05	4.79E+09	3.83E+00	1.15E+00			7.63E+02	7.94E+01	2.24E+05	3.99E+02	2.20E+04	8.71E-01	1.00E-08	1.43E-11
Tchnetium (43)	Tc-95m	4.15E+00	1.67E-01	1.36E+09	1.00E+00	1.44E+03	6.48E+06	6.14E-02	4.95E-03			3.29E+00	3.42E-01	9.66E+02	1.72E+00	9.50E+01	4.50E-03	1.00E-08	5.41E-12
Tchnetium (43)	Tc-96	5.91E+01	1.17E-02	1.36E+09	1.00E+00	1.06E+04	1.46E+08	2.33E-01	3.66E-02			2.43E+01	2.53E+00	7.15E+03	1.27E+01	7.03E+02	3.12E-02	1.00E-08	2.65E-12
Tchnetium (43)	Tc-96m	7.07E+03	9.80E-05	1.36E+09	1.00E+00	1.28E+06	1.77E+10	2.80E+01	4.42E+00			2.94E+03	3.06E+02	8.63E+05	1.54E+03	8.48E+04	3.76E+00	1.00E-08	2.68E-12
Tchnetium (43)	Tc-97	2.67E-07	2.60E+06	1.36E+09	1.00E+00	2.62E+03	1.10E+06	1.04E+02	9.03E-03			6.00E+00	6.24E-01	1.76E+03	3.14E+00	1.73E+02	8.86E-03	1.00E-08	1.69E-04
Tchnetium (43)	Tc-97m	2.81E+00	2.47E-01	1.36E+09	1.00E+00	9.64E+02	1.38E+06	1.13E+02	3.32E-03			2.20E+00	2.29E-01	6.47E+02	1.15E+00	6.37E+01	3.26E-03	1.00E-08	5.90E-12
Tchnetium (43)	Tc-98	1.65E-07	4.20E+06	1.36E+09	1.00E+00	1.02E+02	4.70E+04	7.10E-03	3.52E-04			2.34E-01	2.43E-02	6.86E+01	1.22E-01	6.75E+00	3.29E-04	1.00E-08	1.03E-05
Tchnetium (43)	Tc-99	3.28E-06	2.11E+05	1.36E+09	1.00E+00	2.76E+02	1.48E+05	5.19E+02	9.50E-04			6.31E-01	6.57E-02	1.85E+02	3.30E-01	1.82E+01	9.33E-04	1.00E-08	1.48E-06
Tchnetium (43)	Tc-99m	1.01E+03	6.87E-04	1.36E+09	1.00E+00	8.62E+06	9.08E+10	1.15E+02	2.97E+01			1.97E+04	2.05E+03	5.79E+06	1.03E+04	5.69E+05	2.32E+01	1.00E-08	1.19E-10
Tellurium (52)	Te-113	2.14E+05	3.23E-06	1.36E+09	1.00E+00	5.82E+07	1.16E+11	1.02E+04	1.63E+04	1.88E+04		1.90E+05	2.00E+05				4.49E+03	1.00E-08	1.24E-10
Tellurium (52)	Te-114	2.40E+04	2.89E-05	1.36E+09	1.00E+00	1.98E+16	3.82E+20	1.40E+10	9.02E+12	5.29E+13		2.84E+14	6.37E+14		5.44E+13	2.56E+14	1.40E+10	1.00E-08	3.49E-03
Tellurium (52)	Te-115	6.28E+04	1.10E-05	1.36E+09	1.00E+00	3.68E+12	6.01E+16	5.52E+06	4.13E+10	5.14E+09	6.91E+08	4.25E+11	1.50E+12				5.47E+06	1.00E-08	5.26E-07
Tellurium (52)	Te-115m	5.44E+04	1.27E-05	1.36E+09	1.00E+00	3.08E+12	5.02E+16	4.62E+06	3.45E+10	4.30E+09	5.78E+08	3.55E+11	1.25E+12				4.58E+06	1.00E-08	5.08E-07
Tellurium (52)	Te-116	2.44E+03	2.84E-04	1.36E+09	1.00E+00	2.04E+06	3.05E+10	9.86E+00	1.06E+03	4.85E+03	2.87E+03	3.30E+04	7.45E+04	6.45E+03	3.03E+04		9.70E+00	1.00E-08	2.42E-11
Tellurium (52)	Te-117	5.87E+03	1.18E-04	1.36E+09	1.00E+00	1.60E+07	2.26E+11	3.37E+01	9.68E+03	3.45E+04	1.16E+04	2.96E+05	6.74E+05		5.92E+04	2.78E+05	3.34E+01	1.00E-08	3.49E-11
Tellurium (52)	Te-118	4.22E+01	1.64E-02	1.36E+09	1.00E+00	2.54E+03	3.00E+07	5.40E-01	1.15E+00	6.77E+00		3.63E+01	8.14E+01		6.96E+00	3.27E+01	3.25E-01	1.00E-08	4.77E-11
Tellurium (52)	Te-119	3.78E+02	1.83E-03	1.36E+09	1.00E+00	2.80E+05	4.42E+09	5.02E+00	1.87E+02	5.73E+02	1.58E+02	5.66E+03	1.30E+04		1.15E+03	5.41E+03	4.67E+00	1.00E-08	7.71E-11
Tellurium (52)	Te-119m	5.38E+01	1.29E-02	1.36E+09	1.00E+00	1.33E+04	1.45E+08	3.50E-01	6.76E+00	3.21E+01	2.24E+01	2.10E+02	4.74E+02		4.10E+01	1.92E+02	3.21E-01	1.00E-08	3.72E-11
Tellurium (52)	Te-121	1.32E+01	5.25E-02	1.36E+09	1.00E+00	5.81E+03	4.25E+07	2.44E-01	2.64E+00	1.55E+01		8.31E+01	1.86E+02		1.59E+01	7.49E+01	2.16E-01	1.00E-08	1.04E-10
Tellurium (52)	Te-121m	1.64E+00	4.22E-01	1.36E+09	1.00E+00	1.44E+02	6.19E+05	3.20E-02	6.55E-02	3.84E-01		2.06E+00	4.62E+00		3.95E-01	1.86E+00	1.89E-02	1.00E-08	7.30E-11
Tellurium (52)	Te-123	1.16E-15	6.00E+14	1.36E+09	1.00E+00	1.67E+02	5.34E+05	7.13E+03	7.58E-02	4.45E-01		2.39E+00	5.35E+00		4.58E-01	2.15E+00	5.35E-02	6.54E-02	2.99E+05
Tellurium (52)	Te-123m	2.12E+00	3.27E-01	1.36E+09	1.00E+00	3.20E+02	9.12E+05	2.41E-01	1.46E-01	8.54E-01		4.58E+00	1.03E+01		8.79E-01	4.13E+00	7.21E-02	1.00E-08	2.19E-10
Tellurium (52)	Te-125m	4.41E+00	1.57E-01	1.36E+09	1.00E+00	9.09E+02	2.08E+06	2.30E+01	4.13E-01	2.42E+00		1.30E+01	1.03E+01		2.49E+00	1.17E+01	2.88E-01	1.00E-08	4.28E-10
Tellurium (52)	Te-127	6.49E+02	1.07E-03	1.36E+09	1.00														

Farmer Soil DCCs July 2023																				
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)														
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m³/kg)	Soil Volume Area Correction Factor	Ingestion	Inhalation	External	Produce	Finfish	Shellfish	Beef	Dairy	Swine	Egg	Poultry	Total	Peak Dose	Total	
						DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)
Tellurium (52)	Te-133m	6.57E+03	1.05E-04	1.36E+09	1.00E+00	2.34E+05	2.39E+09	2.40E+01	3.37E+02	1.14E+04	.	4.75E+03	7.08E+02	3.36E+03	1.64E+03	4.64E+04	2.11E+01	1.00E-08	2.24E-11	
Tellurium (52)	Te-134	8.71E+03	7.95E-05	1.36E+09	1.00E+00	8.02E+06	7.06E+10	2.49E+01	5.77E+03	4.34E+04	.	1.36E+05	4.18E+04	2.15E+05	3.27E+04	2.08E+05	2.48E+01	1.00E-08	2.00E-11	
Thorium (90)	Th-223	3.64E+07	1.90E-08	1.36E+09	1.00E+00	.	.	8.30E+30	.	.	.	.	.	.	.	.	.	8.30E+30	6.31E-06	2.67E+15
Thorium (90)	Th-224	2.08E+07	3.33E-08	1.36E+09	1.00E+00	.	.	4.93E+30	.	.	.	.	.	.	.	.	.	4.93E+30	1.26E-05	2.78E+15
Thorium (90)	Th-226	1.19E+04	5.82E-05	1.36E+09	1.00E+00	3.68E+04	7.91E+07	2.93E+06	3.75E+02	1.81E+02	4.09E+02	2.37E+03	2.75E+03	.	3.47E+02	2.48E+02	7.42E+01	1.00E-08	7.38E-11	
Thorium (90)	Th-227	1.35E+01	5.12E-02	1.36E+09	1.00E+00	1.45E+01	1.38E+03	3.74E-01	5.38E-02	3.22E-03	8.98E-05	1.18E+00	5.91E-01	.	.	.	8.72E-05	1.00E-08	7.67E-14	
Thorium (90)	Th-228	3.63E-01	1.91E+00	1.36E+09	1.00E+00	1.18E+00	5.30E+01	7.55E-03	7.30E-03	4.60E-04	6.44E-06	1.57E-01	8.44E-02	.	.	.	6.34E-06	5.30E-03	2.09E-13	
Thorium (90)	Th-229	9.44E-05	7.34E+03	1.36E+09	1.00E+00	2.76E-01	2.25E+01	3.97E-02	3.08E-03	1.82E-04	1.41E-06	6.03E-02	3.83E-02	.	.	.	1.40E-06	4.53E-01	1.78E-10	
Thorium (90)	Th-230	9.19E-06	7.54E+04	1.36E+09	1.00E+00	7.76E-02	1.79E+01	5.96E-03	6.71E-04	9.55E-05	2.09E-06	5.47E-03	5.52E-03	.	9.19E-04	6.56E-04	2.02E-06	7.82E+03	2.65E-09	
Thorium (90)	Th-231	2.38E+02	2.91E-03	1.36E+09	1.00E+00	1.25E+05	7.49E+07	4.19E+02	5.96E+03	3.56E+02	5.63E-01	7.71E+04	3.79E+05	.	.	.	5.61E-01	1.00E-08	2.86E-11	
Thorium (90)	Th-232	4.93E-11	1.41E+10	1.36E+09	1.00E+00	1.17E-01	2.33E+01	4.05E-03	4.92E-04	2.95E-05	6.88E-07	1.07E-02	5.46E-03	.	.	.	6.71E-07	1.76E+02	1.66E-04	
Thorium (90)	Th-233	1.63E+04	4.24E-05	1.36E+09	1.00E+00	3.07E+06	7.45E+09	9.19E+02	2.30E+04	4.72E+05	4.99E+03	6.33E+07	6.66E+06	1.92E+08	2.55E+08	2.07E+08	8.52E+02	1.00E-08	6.38E-10	
Thorium (90)	Th-234	1.05E+01	6.60E-02	1.36E+09	1.00E+00	5.57E+02	2.55E+06	3.71E+00	3.08E+01	1.55E+00	2.45E-03	3.36E+02	1.70E+03	1.98E+05	5.24E+03	3.75E+03	2.44E-03	1.00E-08	2.85E-12	
Thorium (90)	Th-235	5.13E+04	1.3E-05	1.36E+09	1.00E+00	1.05E+13	3.36E+14	7.65E+10	8.55E+10	1.07E+10	1.75E+08	4.16E+12	1.03E+12	2.90E+12	3.84E+12	3.11E+12	1.71E+08	4.38E+05	4.12E-05	
Thorium (90)	Th-236	9.71E+03	7.13E-05	1.36E+09	1.00E+00	2.06E+07	3.03E+11	9.77E-01	1.14E+06	5.74E+04	9.06E+01	1.24E+07	6.34E+07	1.85E+10	2.46E+10	1.99E+10	4.69E+01	1.00E-08	5.98E-11	
Titanium (22)	Ti-44	1.16E-02	6.00E+01	1.36E+09	1.00E+00	3.17E+01	1.58E+04	4.51E-03	1.35E+00	1.44E-01	2.02E-01	1.74E-01	3.83E-02	.	.	.	3.76E-03	2.79E-03	7.51E-10	
Titanium (22)	Ti-45	1.97E+03	3.52E-04	1.36E+09	1.00E+00	2.44E+06	3.73E+10	2.36E+01	1.07E+05	1.07E+04	.	1.27E+04	2.77E+03	.	.	.	2.33E+01	1.00E-08	2.79E-11	
Titanium (22)	Ti-51	6.32E+04	1.10E-05	1.36E+09	1.00E+00	.	.	6.05E+14	.	.	.	.	.	.	.	.	6.05E+14	1.00E-08	2.56E+01	
Titanium (22)	Ti-52	2.14E+05	3.23E-06	1.36E+09	1.00E+00	.	.	6.11E+14	.	.	.	.	.	.	.	.	6.11E+14	1.00E-08	7.78E+00	
Thallium (81)	Tl-190	1.40E+05	4.95E-06	1.36E+09	1.00E+00	6.43E+08	1.01E+13	5.45E+02	1.53E+07	6.71E+07	8.77E+06	1.68E+07	1.70E+09	.	.	1.33E+15	5.45E+02	1.00E-08	3.88E-11	
Thallium (81)	Tl-190m	9.84E+04	7.04E-06	1.36E+09	1.00E+00	4.52E+08	7.13E+12	3.83E+02	1.07E+07	4.71E+07	6.16E+06	1.18E+07	1.19E+09	.	.	8.77E+14	3.83E+02	1.00E-08	3.88E-11	
Thallium (81)	Tl-194	1.10E+04	6.28E-05	1.36E+09	1.00E+00	4.30E+07	3.73E+11	1.27E+02	2.73E+05	5.91E+04	5.28E+06	1.47E+05	3.28E+05	.	.	1.01E+08	1.27E+02	1.00E-08	1.17E-10	
Thallium (81)	Tl-194m	1.11E+04	6.24E-05	1.36E+09	1.00E+00	5.23E+07	3.13E+11	4.57E+01	2.79E+05	7.17E+04	5.32E+06	1.79E+05	3.99E+05	.	.	1.01E+08	4.56E+01	1.00E-08	4.18E-11	
Thallium (81)	Tl-195	5.23E+03	1.32E-04	1.36E+09	1.00E+00	3.00E+06	3.46E+09	3.62E+01	2.47E+03	6.97E+03	2.86E+04	2.05E+04	5.15E+04	.	.	8.40E+05	3.53E+01	1.00E-08	6.90E-11	
Thallium (81)	Tl-196	3.30E+03	2.10E-04	1.36E+09	1.00E+00	1.28E+07	1.47E+11	1.70E+01	8.44E+05	1.77E+04	4.34E+04	9.65E+04	.	.	.	.	1.69E+01	1.00E-08	5.28E-11	
Thallium (81)	Tl-197	2.14E+03	3.24E-04	1.36E+09	1.00E+00	1.44E+06	8.79E+08	4.84E+01	4.23E+02	1.28E+03	8.37E+03	4.58E+03	9.63E+03	.	.	1.41E+05	4.12E+01	1.00E-08	1.99E-10	
Thallium (81)	Tl-198	1.15E+03	6.05E-04	1.36E+09	1.00E+00	3.15E+06	2.63E+10	5.44E+00	2.08E+05	4.38E+03	1.07E+04	2.38E+04	.	.	.	.	5.43E+00	1.00E-08	4.92E-11	
Thallium (81)	Tl-198m	3.25E+03	2.13E-04	1.36E+09	1.00E+00	7.23E+06	5.55E+10	1.55E+01	4.78E+05	1.01E+04	2.46E+04	5.47E+04	.	.	.	.	1.54E+01	1.00E-08	4.94E-11	
Thallium (81)	Tl-199	8.18E+02	8.47E-04	1.36E+09	1.00E+00	5.84E+06	2.96E+10	4.27E+01	3.86E+05	8.12E+03	1.98E+04	4.42E+04	.	.	.	.	4.24E+01	1.00E-08	5.41E-10	
Thallium (81)	Tl-200	2.33E+02	2.98E-03	1.36E+09	1.00E+00	2.34E+05	2.28E+09	1.80E+00	1.55E+04	3.25E+02	7.95E+02	1.77E+03	.	.	.	.	1.78E+00	1.00E-08	8.03E-11	
Thallium (81)	Tl-201	8.33E+01	8.32E-03	1.36E+09	1.00E+00	1.63E+05	7.95E+08	1.95E+01	1.08E+04	2.26E+02	5.53E+02	1.23E+03	.	.	.	.	1.71E+01	1.00E-08	2.17E-09	
Thallium (81)	Tl-202	2.07E+01	3.35E-02	1.36E+09	1.00E+00	9.18E+03	9.46E+07	5.11E-01	6.06E+02	1.28E+01	3.12E+01	6.94E+01	.	.	.	.	4.80E-01	1.00E-08	2.46E-10	
Thallium (81)	Tl-204	1.83E-01	3.78E+00	1.36E+09	1.00E+00	1.69E+02	1.12E+05	1.50E+01	1.12E+01	2.35E-01	5.74E-01	1.28E+00	.	.	.	.	1.44E-01	1.00E-08	8.40E-09	
Thallium (81)	Tl-206	8.67E+04	7.99E-06	1.36E+09	1.00E+00	.	.	5.77E+16	.	.	.	.	.	.	.	.	5.77E+16	1.00E-08	7.19E+03	
Thallium (81)	Tl-206m	9.74E+04	7.12E-06	1.36E+09	1.00E+00	.	.	3.39E+14	.	.	.	.	.	.	.	.	3.39E+14	1.00E-08	3.76E+01	
Thallium (81)	Tl-207	7.64E+04	9.08E-06	1.36E+09	1.00E+00	.	.	2.85E+16	.	.	.	.	.	.	.	.	2.85E+16	1.00E-08	4.06E+03	
Thallium (81)	Tl-208	1.19E+05	5.81E-06	1.36E+09	1.00E+00	.	.	3.69E+14	.	.	.	.	.	.	.	.	3.69E+14	1.00E-08	3.37E+01	
Thallium (81)	Tl-209	1.69E+05	4.11E-06	1.36E+09	1.00E+00	5.61E+08	5.07E+12	1.42E+07	2.64E+06	2.80E+06	2.43E+06	1.07E+08	4.39E+07	.	.	.	8.00E+05	1.00E-08	5.20E-08	
Thallium (81)	Tl-210	2.80E+05	2.47E-06	1.36E+09	1.00E+00	8.64E+05	1.86E+09	6.89E+07	8.83E+03	4.25E+03	9.63E+03	5.57E+04	6.48E+04	.	8.16E+03	5.82E+03	1.29E+03	1.61E+00	5.08E-11	
Thulium (69)	Tm-161	1.21E+04	5.75E-05	1.36E+09	1.00E+00	2.40E+07	3.46E+11	1.22E+02	1.02E+06	5.42E+05	2.66E+06	1.28E+07	.	.	.	.	1.22E+02	1.00E-08	8.57E-11	
Thulium (69)	Tm-162	1.68E+04	4.13E-05	1.36E+09	1.00E+00	2.16E+14	3.93E+18	2.22E+08	6.17E+12	1.12E+13	4.09E+13	.	.	.	.	.	2.22E+08	1.00E-08	1.12E-04	
Thulium (69)	Tm-163	3.35E+03	2.07E-04	1.36E+09	1.00E+00	1.14E+07	1.50E+11	2.54E+01	3.31E+05	5.33E+06	6.11E+05	2.24E+06	.	.	.	.	2.53E+01	1.00E-08	6.46E-11	
Thulium (69)	Tm-164	1.82E+05	3.81E-06	1.36E+09	1.00E+00	.	.	1.69E+16	.	.	.	.	.	.	.	.	1.69E+16	1.00E-08	7.97E+02	
Thulium (69)	Tm-165	2.02E+02	3.43E-03	1.36E+09	1.00E+00	1.02E+05	1.49E+09	4.09E+00	2.98E+03	4.23E+04	5.50E+03	2.01E+04	.	.	.	.	4.08E+00	1.00E-08	1.75E-10	
Thulium (69)	Tm-166	7.88E+02	8.79E-04	1.36E+09	1.00E+00	5.41E+05	7.59E+09	3.81E+00	1.54E+04	.	.	2.82E+04	1.02E+05	.	.	.	3.81E+00	1.00E-08	4.21E-11	
Thulium (69)	Tm-167	2.73E+01	2.53E-02	1.36E+09	1.00E+00	8.59E+03	3.91E+07	3.04E+00	2.45E+02	.	.	4.47E+02	1.63E+03	.	.	.	2.97E+00	1.00E-08	9.53E-10	
Thulium (69)	Tm-168	2.72E+00	2.55E-01	1.36E+09	1.00E+00	5.39E+02	1.09E+06	2.48E-02	1.54E+01	.	.	2.81E+01	1.02E+02	.	.	.	2.48E-02	1.00E-08	8.03E-11	
Thulium (69)	Tm-170	1.97E+00	3.52E-01	1.36E+09	1.															



Farmer Soil DCCs July 2023																			
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)													
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Produce Consumption DCC DL=1 (Bq/g)	Finfish Consumption DCC DL=1 (Bq/g)	Shellfish Consumption DCC DL=1 (Bq/g)	Beef Consumption DCC DL=1 (Bq/g)	Dairy Consumption DCC DL=1 (Bq/g)	Swine Consumption DCC DL=1 (Bq/g)	Egg Consumption DCC DL=1 (Bq/g)	Poultry Consumption DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Uranium (92)	U-232	1.01E-02	6.89E+01	1.36E+09	1.00E+00	4.15E-01	2.69E+01	6.97E-03	3.40E-03	1.50E-04	8.45E-07	8.99E-02	5.09E-03	7.68E-03	1.02E-02	8.25E-03	8.40E-07	4.33E+00	1.02E-12
Uranium (92)	U-233	4.35E-06	1.59E+05	1.36E+09	1.00E+00	3.00E-01	2.35E+01	4.61E-02	3.32E-03	1.88E-04	1.33E-06	6.71E-02	2.09E-02	5.13E-02	6.80E-02	5.51E-02	1.32E-06	3.22E+04	3.71E-09
Uranium (92)	U-234	2.82E-06	2.46E+05	1.36E+09	1.00E+00	1.19E-01	2.62E+01	9.26E-03	1.03E-03	1.40E-04	2.47E-06	8.47E-03	7.49E-03	5.31E-02	1.01E-03	2.41E-06	1.58E+05	1.05E-08	
Uranium (92)	U-235	9.84E-10	7.04E+08	1.36E+09	1.00E+00	2.01E-01	6.45E+00	1.93E-02	1.64E-03	2.05E-04	3.35E-06	7.97E-02	1.98E-02	5.62E-02	7.45E-02	6.04E-02	3.29E-06	4.38E+05	4.12E-05
Uranium (92)	U-235m	1.40E+04	4.95E-05	1.36E+09	1.00E+00	2.86E+12	9.18E+13	2.75E+11	2.34E+10	2.92E+09	4.77E+07	1.13E+12	2.82E+11	8.00E+11	1.06E+12	8.59E+11	4.68E+07	4.38E+05	4.12E-05
Uranium (92)	U-236	2.96E-08	2.34E+07	1.36E+09	1.00E+00	4.54E+00	2.24E+02	2.45E+00	4.63E-02	1.58E-03	6.80E-06	1.59E+00	3.83E-02	5.64E-02	7.48E-02	6.06E-02	6.77E-06	1.00E-08	2.83E-06
Uranium (92)	U-237	3.75E+01	1.85E-02	1.36E+09	1.00E+00	8.78E+03	3.74E+07	4.49E+00	8.95E+01	3.04E+00	1.31E-02	3.07E+03	7.40E+01	1.09E+02	1.45E+02	1.17E+02	1.30E-02	1.00E-08	4.31E-12
Uranium (92)	U-238	1.55E-10	4.47E+09	1.36E+09	1.00E+00	6.92E-02	1.46E+01	5.40E-03	6.01E-04	7.90E-05	1.22E-06	5.00E-03	4.00E-03	2.80E-02	8.27E-04	5.92E-04	1.19E-06	3.49E+06	9.60E-05
Uranium (92)	U-239	1.55E+04	4.46E-05	1.36E+09	1.00E+00	3.45E+06	7.07E+09	1.23E+03	2.72E+04	1.60E+01	4.66E-02	4.80E+06	4.98E+07	3.25E+09	7.18E+09	1.59E+09	4.64E-02	1.00E-08	3.75E-14
Uranium (92)	U-240	4.31E+02	1.61E-03	1.36E+09	1.00E+00	6.99E+04	6.74E+07	1.33E+01	7.25E+02	6.81E-01	9.90E-02	2.49E+04	6.01E+02	8.86E+02	1.17E+03	9.52E+02	8.58E-02	1.00E-08	2.51E-12
Uranium (92)	U-242	2.17E+04	3.20E-05	1.36E+09	1.00E+00	1.06E+10	2.14E+11	4.79E+10	8.93E+08	2.11E+03	4.57E+03	7.00E+11	1.66E+10	7.42E+10	1.16E+11	3.62E+10	1.44E+03	1.00E-08	8.46E-10
Vanadium (23)	V-47	1.12E+04	6.20E-05	1.36E+09	1.00E+00	3.32E+07	6.41E+11	1.17E+02	2.49E+05	8.55E+04	1.62E+04	3.45E+08	3.77E+07				1.15E+02	1.00E-08	2.55E-11
Vanadium (23)	V-48	1.58E+01	4.38E-02	1.36E+09	1.00E+00	1.55E+03	1.08E+07	5.20E-02	1.16E+01	3.99E+00	7.58E-01	1.61E+04	1.76E+03				4.79E-02	1.00E-08	7.62E-12
Vanadium (23)	V-49	7.67E-01	9.04E-01	1.36E+09	1.00E+00	1.41E+04	3.77E+07		1.05E+02	3.63E+01	6.88E+00	1.46E+05	1.60E+04				5.48E+00	1.00E-08	1.84E-08
Vanadium (23)	V-50	4.62E-18	1.50E+17	1.36E+09	1.00E+00	6.63E+01	3.14E+04	6.40E-03	4.96E-01	1.71E-01	3.24E-02	6.89E+02	7.52E+01				5.13E-03	3.57E-06	2.91E+06
Vanadium (23)	V-52	9.73E+04	7.12E-06	1.36E+09	1.00E+00			4.99E+14									4.99E+14	1.00E-08	1.40E+01
Vanadium (23)	V-53	2.26E+05	3.06E-06	1.36E+09	1.00E+00			4.29E+16									4.29E+16	1.00E-08	5.28E+02
Tungsten (74)	W-177	2.76E+03	2.51E-04	1.36E+09	1.00E+00	3.15E+06	3.33E+10	3.29E+01	9.61E+02	9.63E+02		2.96E+03	6.41E+04				3.04E+01	1.00E-08	1.02E-10
Tungsten (74)	W-178	1.17E+01	5.92E-02	1.36E+09	1.00E+00	8.87E+03	2.65E+07	1.31E+00	9.00E-01	9.25E-01		2.75E+00	6.00E+01				3.00E-01	1.00E-08	2.39E-10
Tungsten (74)	W-179	9.83E+03	7.05E-05	1.36E+09	1.00E+00	8.15E+07	1.18E+11	6.17E+03	5.16E+04	4.97E+04		1.61E+05	3.44E+06				4.80E+03	1.00E-08	4.59E-09
Tungsten (74)	W-179m	5.69E+04	1.22E-05	1.36E+09	1.00E+00	4.72E+08	6.85E+11	3.58E+04	2.99E+05	2.88E+05		9.32E+05	2.00E+07				2.79E+04	1.00E-08	4.60E-09
Tungsten (74)	W-181	2.09E+00	3.32E-01	1.36E+09	1.00E+00	5.24E+03	1.54E+07	2.13E+00	5.32E-01	5.46E-01		1.92E+00	3.54E+01				2.07E-01	1.00E-08	9.42E-10
Tungsten (74)	W-185	3.37E+00	2.06E-01	1.36E+09	1.00E+00	1.43E+03	1.73E+06	5.40E+02	1.45E-01	1.49E-01		4.43E-01	9.67E+00				6.27E-02	1.00E-08	1.80E-10
Tungsten (74)	W-185m	2.28E+05	3.04E-06	1.36E+09	1.00E+00	9.68E+07	1.17E+11	3.66E+07	9.83E+03	1.01E+04		3.00E+04	6.55E+05				4.24E+03	1.00E-08	1.80E-10
Tungsten (74)	W-187	2.56E+02	2.71E-03	1.36E+09	1.00E+00	7.97E+04	1.11E+09	6.08E+00	8.09E+00	8.31E+00		2.47E+01	5.39E+02				2.22E+00	1.00E-08	8.50E-11
Tungsten (74)	W-188	3.62E+00	1.91E-01	1.36E+09	1.00E+00	1.94E+02	4.38E+05	6.32E-01	2.82E-02	3.38E-02		9.44E-02	5.85E-01				1.27E-02	1.00E-08	3.45E-11
Tungsten (74)	W-190	1.21E+04	5.71E-05	1.36E+09	1.00E+00	5.66E+11	6.22E+15	1.67E+06	5.74E+07	5.90E+07		1.75E+08	3.83E+09				1.57E+06	1.00E-08	1.29E-06
Xenon (54)	Xe-120	9.11E+03	7.61E-05	1.36E+09	1.00E+00	5.52E+06	5.90E+10	2.86E+01	9.10E+03			1.15E+05	1.59E+04	7.50E+04	4.24E+04	6.46E+06	2.85E+01	1.00E-08	1.97E-11
Xenon (54)	Xe-121	9.08E+03	7.63E-05	1.36E+09	1.00E+00	3.36E+06	2.50E+10	3.77E+01	1.71E+03	1.05E+04		5.05E+04	4.29E+04	3.07E+05	1.02E+04	5.08E+04	3.65E+01	1.00E-08	2.55E-11
Xenon (54)	Xe-122	3.02E+02	2.29E-03	1.36E+09	1.00E+00			3.09E+00									3.09E+00	1.00E-08	6.55E-11
Xenon (54)	Xe-123	2.92E+03	2.37E-04	1.36E+09	1.00E+00	2.24E+06	2.15E+10	4.07E+01	3.69E+03	2.65E+07		4.65E+04	6.44E+03	3.04E+04	1.72E+04	2.57E+06	3.98E+01	1.00E-08	8.80E-11
Xenon (54)	Xe-125	3.59E+02	1.93E-03	1.36E+09	1.00E+00	4.79E+03	4.64E+07	1.72E+01	7.90E+00			9.96E+01	1.38E+01	6.51E+01	3.68E+01	5.61E+03	3.22E+00	1.00E-08	5.88E-11
Xenon (54)	Xe-127	6.95E+00	9.97E-02	1.36E+09	1.00E+00			3.29E-01									3.29E-01	1.00E-08	3.15E-10
Xenon (54)	Xe-127m	3.16E+05	2.19E-06	1.36E+09	1.00E+00			1.50E+04									1.50E+04	1.00E-08	3.15E-10
Xenon (54)	Xe-129m	2.85E+01	2.43E-02	1.36E+09	1.00E+00			2.85E+01									2.85E+01	1.00E-08	6.78E-09
Xenon (54)	Xe-131m	2.14E+01	3.24E-02	1.36E+09	1.00E+00			6.24E+01									6.24E+01	1.00E-08	2.01E-08
Xenon (54)	Xe-133	4.82E+01	1.44E-02	1.36E+09	1.00E+00			3.11E+01									3.11E+01	1.00E-08	4.49E-09
Xenon (54)	Xe-133m	1.16E+02	6.00E-03	1.36E+09	1.00E+00			3.19E+01									3.19E+01	1.00E-08	1.93E-09
Xenon (54)	Xe-135	6.64E+02	1.04E-03	1.36E+09	1.00E+00	2.07E+11	3.70E+14	3.10E+01	6.66E+08	6.92E+05	5.74E+07	1.18E+09	6.25E+08	5.26E+08	8.77E+09	7.18E+08	3.10E+01	1.00E-08	3.30E-10
Xenon (54)	Xe-135m	2.38E+04	2.91E-05	1.36E+09	1.00E+00	7.44E+12	1.33E+16	1.12E+03	2.39E+10	2.48E+07	2.06E+09	4.24E+10	2.24E+10	1.89E+10	3.14E+11	2.57E+10	1.12E+03	1.00E-08	3.32E-10
Xenon (54)	Xe-137	9.54E+04	7.26E-06	1.36E+09	1.00E+00	7.85E+07	2.11E+11	7.54E+04	2.52E+05	2.62E+02	2.17E+04	4.47E+05	2.36E+05	1.99E+05	3.32E+06	2.71E+05	1.25E+02	1.00E-08	1.93E-11
Xenon (54)	Xe-138	2.59E+04	2.68E-05	1.36E+09	1.00E+00	5.02E+07	1.01E+12	1.00E+02	1.61E+05	1.67E+02	1.39E+04	2.86E+05	1.51E+05	1.27E+05	2.12E+06	1.74E+05	6.23E+01	1.00E-08	1.74E-11
Yttrium (39)	Y-81	3.10E+05	2.23E-06	1.36E+09	1.00E+00	1.22E+09	7.81E+12	5.35E+03	5.10E+05	4.37E+04	8.17E+04	3.76E+06	3.93E+05	2.17E+14	5.26E+13	5.09E+14	4.41E+03	1.00E-08	6.03E-11
Yttrium (39)	Y-83	5.14E+04	1.35E-05	1.36E+09	1.00E+00	4.78E+06	5.67E+10	1.41E+02	1.70E+03	2.17E+02	4.19E+01	1.92E+04	3.18E+06	7.71E+05	7.45E+06	7.45E+06	3.12E+01	1.00E-08	2.64E-12
Yttrium (39)	Y-83m	1.28E+05	5.42E-06	1.36E+09	1.00E+00	1.19E+07	1.41E+11	1.02E+03	4.23E+03	5.39E+02	1.04E+02	4.76E+04	4.99E+03	7.91E+06	1.92E+06	1.85E+07	7.75E+01	1.00E-08	2.64E-12
Yttrium (39)	Y-84m	9.22E+03	7.52E-05	1.36E+09	1.00E+00	1.28E+07	2.58E+11	2.26E+01	1.43E+05	1.25E+04		1.78E+06	9.94E+06		1.18E+08	1.30E+07	2.26E+01	1.00E-08	1.08E-11
Yttrium (39)	Y-85	2.27E+03	3.06E-04	1.36E+09	1.00E+00	6.09E+05	5.26E+09	1.40E+01	1.99E+02	2.15E+02	1.95E+00	5.20E+04	6.71E+03	1.33E+05	3.22E+04	2.76E+05	1.68E+00	1.00E-08	3.31E-12
Yttrium (39)	Y-85m	1.25E+03	5.55E-04	1.36E+09	1.00E+00	2.45E+05	2.38E+09	6.85E+00	9.62E+01	9.71E+01	9.45E-01	2.24E+04	3.25E+03	6.47E+04	1.56E+04	1.22E+05	8.16E-01	1.00E-08	2.91E-12
Yttrium (39)	Y-86	4.12E+02	1.68E-03	1.36E+09	1.00E+00	8.39E+04	1.52E+09	1.10E+00	9.36E+02	8.22E+01		1.17E+04	6.52E+04		7.74E+05	8.55E+04	1.08E+00	1.00E-08	1.19E-11
Yttrium (39)	Y-86m	7.59E+02	9.13E-05	1.36E+09	1.00E+00	1.47E+06	2.66E+10	1.94E+01	1.64E+04	1.44E+03		2.05E+05	1.14E+06		1.35E+07	1.50E+06	1.91E+01	1.00E-08	1.14E-11
Yttrium (39)	Y-87	7.61E+01	9.11E-03	1.36E+09	1.00E+00	2.52E+04	3.26E+08	1.07E+											



Farmer Soil DCCs July 2023																			
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)													
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion	Inhalation	External	Produce	Finfish	Shellfish	Beef	Dairy	Swine	Egg	Poultry	Total	Peak Dose	Total
						DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	Exposure DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)
Yttrium (39)	Y-92	1.71E+03	4.04E-04	1.36E+09	1.00E+00	6.28E+05	1.67E+10	6.14E+01	7.01E+03	6.15E+02	.	8.75E+04	4.87E+05	.	5.79E+06	6.40E+05	5.53E+01	1.00E-08	1.56E-10
Yttrium (39)	Y-93	5.96E+02	1.16E-03	1.36E+09	1.00E+00	9.27E+04	2.41E+09	5.33E+01	1.03E+03	9.08E+01	.	1.29E+04	7.20E+04	5.02E+12	8.54E+05	9.44E+04	3.24E+01	1.00E-08	2.65E-10
Yttrium (39)	Y-94	1.95E+04	3.56E-05	1.36E+09	1.00E+00	1.90E+15	5.51E+19	1.03E+10	2.12E+13	1.86E+12	.	2.65E+14	1.48E+15	.	1.75E+16	1.94E+15	1.03E+10	1.00E-08	2.60E-03
Yttrium (39)	Y-95	3.54E+04	1.96E-05	1.36E+09	1.00E+00	4.48E+06	9.04E+09	2.43E+02	6.48E+04	3.46E+04	.	7.27E+08	2.86E+07	3.21E+07	1.61E+08	2.97E+08	2.40E+02	1.00E-08	3.38E-11
Ytterbium (70)	Yb-162	1.93E+04	3.59E-05	1.36E+09	1.00E+00	3.42E+13	6.22E+17	3.54E+07	9.76E+11	.	.	1.78E+12	6.47E+12	.	.	.	3.54E+07	1.00E-08	1.56E-05
Ytterbium (70)	Yb-163	3.30E+04	2.10E-05	1.36E+09	1.00E+00	1.12E+08	1.48E+12	2.49E+02	3.26E+06	5.24E+07	.	6.00E+06	2.20E+07	.	.	.	2.49E+02	1.00E-08	6.46E-11
Ytterbium (70)	Yb-164	4.81E+03	1.44E-04	1.36E+09	1.00E+00	9.79E+06	1.90E+11	6.11E+01	2.79E+05	.	.	5.09E+05	1.85E+06	.	.	.	6.10E+01	1.00E-08	1.09E-10
Ytterbium (70)	Yb-165	3.68E+04	1.88E-05	1.36E+09	1.00E+00	1.85E+07	2.70E+11	7.42E+02	5.40E+05	7.71E+06	.	9.97E+05	3.65E+06	.	.	.	7.40E+02	1.00E-08	1.74E-10
Ytterbium (70)	Yb-166	1.07E+02	6.47E-03	1.36E+09	1.00E+00	1.67E+04	2.03E+08	5.12E-01	4.77E+02	.	.	8.69E+02	3.16E+03	.	.	.	5.11E-01	1.00E-08	4.16E-11
Ytterbium (70)	Yb-167	2.08E+04	3.33E-05	1.36E+09	1.00E+00	6.54E+06	2.97E+10	2.31E+03	1.87E+05	.	.	3.40E+05	1.24E+06	.	.	.	2.26E+03	1.00E-08	9.53E-10
Ytterbium (70)	Yb-169	7.90E+00	8.77E-02	1.36E+09	1.00E+00	1.78E+03	4.41E+06	4.37E-01	5.09E+01	.	.	9.28E+01	3.38E+02	.	.	.	4.31E-01	1.00E-08	4.84E-10
Ytterbium (70)	Yb-175	6.04E+01	1.15E-02	1.36E+09	1.00E+00	2.49E+04	1.56E+08	1.80E+01	7.11E+02	.	.	1.30E+03	4.71E+03	.	.	.	1.72E+01	1.00E-08	2.62E-09
Ytterbium (70)	Yb-177	3.18E+03	2.18E-04	1.36E+09	1.00E+00	9.21E+05	4.75E+09	1.49E+02	3.90E+04	1.53E+05	3.18E+03	1.01E+05	4.83E+05	.	.	.	1.41E+02	1.00E-08	4.13E-10
Ytterbium (70)	Yb-178	4.92E+03	1.41E-04	1.36E+09	1.00E+00	5.55E+06	8.93E+10	2.93E+02	1.78E+05	2.77E+06	5.77E+04	3.49E+05	1.33E+06	.	.	.	2.91E+02	1.00E-08	5.51E-10
Ytterbium (70)	Yb-179	4.55E+04	1.52E-05	1.36E+09	1.00E+00	3.81E+07	7.35E+11	1.74E+04	1.76E+06	5.40E+06	1.12E+05	5.14E+06	2.86E+07	.	.	.	1.48E+04	1.00E-08	3.05E-09
Zinc (30)	Zn-60	1.53E+05	4.53E-06	1.36E+09	1.00E+00	2.14E+14	4.01E+18	1.91E+08	3.43E+11	4.12E+11	1.72E+12	8.01E+11	4.21E+11	1.59E+12	2.46E+12	1.36E+12	1.91E+08	1.00E-08	3.93E-06
Zinc (30)	Zn-61	2.45E+05	2.83E-06	1.36E+09	1.00E+00	4.06E+08	5.67E+12	3.07E+03	6.49E+05	7.80E+05	3.26E+06	1.52E+06	7.97E+05	3.00E+06	4.65E+06	2.57E+06	3.02E+03	1.00E-08	3.93E-11
Zinc (30)	Zn-62	6.61E+02	1.05E-03	1.36E+09	1.00E+00	1.35E+05	2.11E+09	4.75E+00	1.21E+01	3.14E+01	8.84E+02	1.45E+01	8.95E+01	6.06E+01	2.63E+02	4.33E+02	2.33E+00	1.00E-08	1.15E-11
Zinc (30)	Zn-63	9.47E+03	7.32E-05	1.36E+09	1.00E+00	2.22E+07	4.49E+11	8.85E+01	1.99E+03	5.17E+03	1.46E+05	2.40E+03	1.48E+04	1.00E+04	4.34E+04	7.14E+04	7.92E+01	1.00E-08	2.77E-11
Zinc (30)	Zn-65	1.04E+00	6.69E-01	1.36E+09	1.00E+00	8.37E+01	1.32E+06	2.63E-02	7.52E-03	1.95E-02	5.50E-01	9.04E-03	5.56E-02	3.77E-02	1.64E-01	2.69E-01	2.57E-03	1.00E-08	8.45E-12
Zinc (30)	Zn-69	6.46E+03	1.07E-04	1.36E+09	1.00E+00	3.88E+07	4.21E+11	1.25E+05	3.48E+03	9.03E+03	2.55E+05	4.19E+03	2.58E+04	1.75E+04	7.58E+04	1.25E+05	1.31E+03	1.00E-08	7.32E-10
Zinc (30)	Zn-69m	4.41E+02	1.57E-03	1.36E+09	1.00E+00	2.31E+05	2.61E+09	1.13E+01	2.08E+01	5.38E+01	1.52E+03	2.50E+01	1.54E+02	1.04E+02	4.52E+02	7.44E+02	4.63E+00	1.00E-08	3.80E-11
Zinc (30)	Zn-71	1.49E+05	4.66E-06	1.36E+09	1.00E+00	.	.	1.47E+16	.	.	.	.	.	.	.	.	1.47E+16	1.00E-08	3.67E+02
Zinc (30)	Zn-71m	1.53E+03	4.52E-04	1.36E+09	1.00E+00	1.23E+06	1.64E+10	1.02E+01	1.10E+02	2.86E+02	8.07E+03	1.33E+02	8.17E+02	5.54E+02	2.40E+03	3.96E+03	8.17E+00	1.00E-08	1.98E-11
Zinc (30)	Zn-72	1.31E+02	5.31E-03	1.36E+09	1.00E+00	9.86E+03	1.23E+08	4.27E-01	1.60E+00	3.19E+00	1.17E+02	1.93E+00	1.18E+01	8.03E+00	3.49E+01	5.74E+01	2.46E-01	1.00E-08	7.12E-12
Zirconium (40)	Zr-85	4.63E+04	1.50E-05	1.36E+09	1.00E+00	9.16E+06	8.87E+10	2.55E+02	3.58E+03	3.62E+03	3.52E+01	8.36E+05	1.21E+05	2.41E+06	5.82E+05	4.57E+06	3.04E+01	1.00E-08	2.92E-12
Zirconium (40)	Zr-86	3.68E+02	1.88E-03	1.36E+09	1.00E+00	3.94E+04	7.06E+08	9.23E-01	6.41E+02	6.95E+01	.	1.04E+04	5.01E+04	.	6.34E+05	7.60E+04	9.09E-01	1.00E-08	1.11E-11
Zirconium (40)	Zr-87	3.61E+03	1.92E-04	1.36E+09	1.00E+00	7.03E+05	1.00E+10	1.92E+01	3.56E+03	7.76E+02	5.57E+01	1.18E+05	1.50E+05	3.81E+06	8.29E+05	8.37E+05	1.40E+01	1.00E-08	1.76E-11
Zirconium (40)	Zr-88	3.03E+00	2.28E-01	1.36E+09	1.00E+00	4.41E+02	7.13E+05	1.19E-02	6.12E+00	5.89E-01	.	8.56E+01	4.49E+02	.	5.48E+03	6.25E+02	1.17E-02	2.33E-02	1.78E-11
Zirconium (40)	Zr-89	7.74E+01	8.95E-03	1.36E+09	1.00E+00	1.89E+04	2.51E+08	6.63E-01	6.23E+01	2.93E+02	.	2.19E+06	8.12E+04	.	1.74E+06	3.20E+06	6.61E-01	1.00E-08	3.98E-11
Zirconium (40)	Zr-89m	8.75E+04	7.92E-06	1.36E+09	1.00E+00	2.27E+07	3.03E+11	7.99E+02	7.51E+05	3.53E+05	.	2.63E+09	9.79E+07	.	2.09E+09	3.85E+09	7.96E+02	1.00E-08	4.25E-11
Zirconium (40)	Zr-93	4.53E-07	1.53E+06	1.36E+09	9.00E-01	2.12E+02	8.73E+04	8.04E-02	4.63E+00	2.34E+00	.	2.77E+04	1.05E+03	3.81E+03	1.20E+04	2.21E+04	1.54E+00	2.44E+02	1.66E-02
Zirconium (40)	Zr-95	3.95E+00	1.75E-01	1.36E+09	1.00E+00	5.00E+02	1.01E+06	2.71E-02	7.24E+00	3.86E+00	.	8.12E+04	3.19E+03	3.59E+03	1.80E+04	3.31E+04	2.68E-02	1.00E-08	3.38E-11
Zirconium (40)	Zr-97	3.63E+02	1.91E-03	1.36E+09	1.00E+00	3.12E+04	6.22E+08	2.34E+00	9.27E+02	4.46E+02	.	3.70E+06	1.38E+05	2.61E+06	2.53E+06	4.66E+06	2.32E+00	1.00E-08	3.25E-11

Farmer Tap Water DCCs July 2023																	
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)													
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Ingestion	Inhalation	Immersion	Produce	Finfish	Shellfish	Beef	Dairy	Swine	Egg	Poultry	Total	Total	
				DCC	DCC	DCC	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	DCC	DCC
				DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1
				(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(mg/L)
Actinium (89)	Ac-223	1.73E+05	4.00E-06			1.64E+03										1.64E+03	1.10E-13
Actinium (89)	Ac-224	2.18E+03	3.17E-04	1.00E-01	9.76E-02	6.59E+01	3.57E-02	2.80E-01	1.36E-02	1.12E+01	5.04E+00					7.95E-03	4.27E-17
Actinium (89)	Ac-225	2.53E+01	2.74E-02	2.42E-01		5.42E+02	1.03E-01	2.62E-01	9.62E+01	1.38E+03	5.95E+02					5.66E-02	2.64E-14
Actinium (89)	Ac-226	2.07E+02	3.35E-03	4.45E-03	1.34E-01	2.60E+02	1.79E-03	2.33E-03	5.05E-03	3.69E-01	3.88E-01		1.52E-01	1.09E-01		6.95E-04	3.98E-17
Actinium (89)	Ac-227	3.18E-02	2.18E+01	2.04E-02	2.63E-01	2.78E+02	8.14E-03	3.03E-02	2.48E-03	5.90E+00	2.75E+00					1.63E-03	6.11E-13
Actinium (89)	Ac-228	9.87E+02	7.02E-04	5.03E-02	9.76E-02	4.76E+01	1.94E-02	1.41E-01	4.53E-04	9.06E+00	4.53E+00					4.35E-04	5.27E-18
Actinium (89)	Ac-230	1.79E+05	3.87E-06	3.66E-03	1.34E-01	4.89E+01	1.46E-03	2.25E-03	1.97E-04	3.32E-01	3.12E-01		1.52E-01	1.09E-01		1.54E-04	1.04E-20
Actinium (89)	Ac-231	4.86E+04	1.43E-05	1.08E-02	2.63E-01	1.35E+02	4.26E-03	1.67E-02	2.43E-03	5.86E+00	2.66E+00					1.24E-03	3.10E-19
Actinium (89)	Ac-232	1.84E+05	3.77E-06	5.98E-03	9.76E-02	3.17E+01	2.19E-03	2.17E-02	1.20E-04	7.43E-01	3.49E-01					1.11E-04	7.36E-21
Actinium (89)	Ac-233	1.51E+05	4.60E-06	1.33E-02		1.13E+02	5.38E-03	3.79E-02	8.78E-05	3.95E+00	1.14E+00	7.10E+00	1.25E+01	1.01E+01		8.56E-05	6.94E-21
Silver (47)	Ag-100m	1.63E+05	4.26E-06	6.28E+00		1.99E+01	1.61E+00	1.02E+01		1.17E+03	4.25E+02					1.07E+00	3.46E-17
Silver (47)	Ag-101	3.28E+04	2.11E-05	2.64E+01		5.35E+01	7.35E+00	2.28E+01		3.21E+03	1.59E+02	2.20E+04			5.34E+03	3.27E+00	5.29E-16
Silver (47)	Ag-102	2.82E+04	2.45E-05	2.38E+02		3.33E+01	4.50E+01	3.51E+01	1.28E+01	4.20E+04	1.43E+02				4.26E+03	5.88E+00	1.11E-15
Silver (47)	Ag-102m	4.73E+04	1.46E-05	4.85E+02		3.04E+01	9.18E+01	7.17E+01	2.62E+01	8.58E+04	2.92E+02	3.58E+04			8.69E+03	9.85E+00	1.11E-15
Silver (47)	Ag-103	5.54E+03	1.25E-04	4.01E+01		1.40E+02	8.61E+00	2.55E+01	1.39E+01	2.00E+04	1.52E+02	1.90E+04			4.60E+03	3.75E+00	3.65E-15
Silver (47)	Ag-104	5.26E+03	1.32E-04	1.67E+02		4.28E+01	3.16E+01	2.47E+01	9.01E+00	2.95E+04	1.01E+02	1.23E+04			2.99E+03	4.49E+00	4.65E-15
Silver (47)	Ag-104m	1.09E+04	6.37E-05	1.46E+02		6.31E+01	2.76E+01	2.15E+01	7.86E+00	2.58E+04	8.77E+01	1.08E+04			2.61E+03	4.09E+00	2.05E-15
Silver (47)	Ag-105	6.13E+00	1.13E-01	2.16E+01		2.40E+02	4.08E+00	3.19E+00	1.16E+00	3.81E+03	1.30E+01	1.59E+03			3.86E+02	6.45E-01	5.80E-13
Silver (47)	Ag-105m	5.04E+04	1.38E-05	2.16E+01		2.41E+02	4.09E+00	3.20E+00	1.17E+00	3.83E+03	1.30E+01	1.60E+03			3.87E+02	6.47E-01	7.08E-17
Silver (47)	Ag-106	1.52E+04	4.56E-05	3.03E+02		1.71E+02	5.73E+01	4.47E+01	1.63E+01	5.35E+04	1.82E+02	2.23E+04			5.42E+03	8.62E+00	3.15E-15
Silver (47)	Ag-106m	3.05E+01	2.27E-02	6.96E+00		4.15E+01	1.32E+00	1.03E+00	3.76E-01	1.23E+03	4.19E+00	5.14E+02			1.25E+02	2.08E-01	3.78E-14
Silver (47)	Ag-108	1.54E+05	4.51E-06			4.99E+03										4.99E+03	1.84E-13
Silver (47)	Ag-108m	1.66E-03	4.18E+02	4.32E+00		7.36E+01	8.18E-01	6.38E-01	2.33E-01	7.64E+02	2.60E+00	3.19E+02			7.74E+01	1.29E-01	4.42E-10
Silver (47)	Ag-109m	5.52E+05	1.26E-06			3.25E+04										3.25E+04	3.37E-13
Silver (47)	Ag-110	8.88E+05	7.80E-07			2.64E+03										2.64E+03	1.71E-14
Silver (47)	Ag-110m	1.01E+00	6.84E-01	3.59E+00		4.17E+01	6.79E-01	5.30E-01	1.94E-01	6.35E+02	2.16E+00	2.65E+02			6.43E+01	1.07E-01	6.12E-13
Silver (47)	Ag-111	3.40E+01	2.04E-02	7.36E+00		4.13E+03	1.39E+00	1.09E+00	3.97E-01	1.30E+03	4.43E+00	5.44E+02			1.32E+02	2.21E-01	3.79E-14
Silver (47)	Ag-111m	3.37E+05	2.05E-06	7.42E+00		3.67E+03	1.40E+00	1.10E+00	4.00E-01	1.31E+03	4.47E+00	5.47E+02			1.33E+02	2.23E-01	3.84E-18
Silver (47)	Ag-112	1.94E+03	3.57E-04	2.22E+01		1.60E+02	4.21E+00	3.29E+00	1.20E+00	3.93E+03	1.34E+01	1.64E+03			3.98E+02	6.64E-01	2.01E-15
Silver (47)	Ag-113	1.13E+03	6.13E-04	4.75E-01		1.49E+03	3.27E-02	3.90E-02	5.74E-02	1.47E+01	1.09E+01	4.64E+01	3.14E+02	9.97E+00		1.32E-02	6.90E-17
Silver (47)	Ag-113m	3.18E+05	2.18E-06	4.78E-01		4.50E+02	3.28E-02	3.91E-02	5.84E-02	1.47E+01	1.50E+01	4.69E+01	3.14E+02	1.01E+01		1.32E-02	2.47E-19
Silver (47)	Ag-114	4.75E+06	1.46E-07			3.89E+02										3.89E+02	4.90E-16
Silver (47)	Ag-115	1.82E+04	3.81E-05	3.53E-01		1.39E+02	1.16E-01	6.10E-04	7.08E-01	7.95E+00	2.38E+01	5.83E+02	4.05E+03	1.25E+02		6.05E-04	2.00E-19
Silver (47)	Ag-116	1.36E+05	5.10E-06			5.05E+01										5.05E+01	2.26E-15
Silver (47)	Ag-117	2.97E+05	2.33E-06	2.41E+01		3.71E+01	2.18E+00	1.28E-01	4.24E+00	6.60E+02	2.22E+03	3.36E+03	2.22E+04	7.20E+02		1.16E-01	2.40E-18
Silver (47)	Ag-99	1.76E+05	3.93E-06	8.36E+01		2.73E+01	2.41E+01	1.36E+02		1.01E+04	3.98E+03					1.02E+01	3.01E-16
Aluminum (13)	Al-26	9.67E-07	7.17E+05	2.78E+00		4.16E+01	1.15E+00	8.85E-01	1.01E-02	9.82E+02	2.51E+02					9.89E-03	1.40E-08
Aluminum (13)	Al-28	1.63E+05	4.26E-06			6.06E+01										6.06E+01	5.47E-16
Aluminum (13)	Al-29	5.55E+04	1.25E-05			8.03E+01										8.03E+01	2.20E-15
Americium (95)	Am-237	4.99E+03	1.39E-04	1.17E-02		1.29E+02	4.74E-03	1.67E-02	5.29E-05	3.87E+00	1.14E+00	7.10E+00	1.25E+01	1.01E+01		5.19E-05	1.29E-19
Americium (95)	Am-238	3.72E+03	1.86E-04	3.35E-03	1.34E-01	4.31E+01	1.34E-03	3.69E-05	5.73E-05	3.30E-01	2.73E-01	7.30E+00	1.50E-01	1.08E-01		2.19E-05	7.36E-20
Americium (95)	Am-239	5.10E+02	1.36E-03	8.35E-03	2.63E-01	1.42E+02	3.36E-03	3.42E-05	7.16E-05	5.54E+00	1.22E+00	7.71E+00	1.36E+01	1.09E+01		2.29E-05	5.63E-19
Americium (95)	Am-240	1.20E+02	5.80E-03	5.15E-03	9.76E-02	3.35E+01	1.92E-03	3.42E-05	4.57E-05	7.38E-01	3.02E-01	7.74E+00	1.36E+01	1.09E+01		1.93E-05	2.03E-18
Americium (95)	Am-241	1.60E-03	4.32E+02	9.62E-03		2.18E+02	3.94E-03	3.12E-03	4.44E-05	3.21E+00	1.14E+00	6.99E+00	1.23E+01	9.80E+00		4.31E-05	3.40E-13
Americium (95)	Am-242	3.79E+02	1.83E-03	3.33E-03	1.34E-01	6.38E+01	1.33E-03	3.66E-05	5.40E-05	3.30E-01	2.68E-01	6.32E+00	1.50E-01	1.07E-01		2.13E-05	7.14E-19
Americium (95)	Am-242m	4.91E-03	1.41E+02	3.15E-03	1.34E-01	6.37E+01	1.27E-03	3.63E-05	4.59E-05	3.25E-01	2.68E-01	6.24E+00	1.50E-01	1.07E-01		1.98E-05	5.11E-14
Americium (95)	Am-243	9.40E-05	7.37E+03	7.22E-03	2.63E-01	1.42E+02	2.93E-03	3.39E-05	5.68E-05	4.30E+00	1.22E+00	7.59E+00	1.34E+01	1.05E+01		2.10E-05	2.85E-12
Americium (95)	Am-244	6.01E+02	1.15E-03	4.85E-03	9.76E-02	3.61E+01	1.83E-03	3.42E-05	3.23E-05	7.34E-01	3.02E-01	7.74E+00	1.37E+01	1.09E+01		1.64E-05	3.49E-19
Americium (95)	Am-244m	1.40E+04	4.95E-05	4.86E-03	9.76E-02	4.72E+01	1.83E-03	3.42E-05	3.23E-05	7.34E-01	3.02E-01	7.74E+00	1.37E+01	1.09E+01		1.64E-05	1.50E-20
Americium (95)	Am-245	2.96E+03	2.34E-04	8.11E-03		1.78E+02	3.34E-03	1.14E-03	2.68E-05	3.11E+00	1.14E+00	6.99E+00	1.23E+01	9.80E+00		2.59E-05	1.12E-19
Americium (95)	Am-246	9.34E+03	7.42E-05	3.10E-03	1.34E-01	4.55E+01	1.25E-03	3.54E-05	3.07E-05	3.28E-01	2.45E-01	3.85E+00	1.49E-01	1.07E-01		1.61E-05	2.23E-20

Farmer Tap Water DCCs July 2023																
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)												
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Ingestion	Inhalation	Immersion	Produce	Finfish	Shellfish	Beef	Dairy	Swine	Egg	Poultry	Total	Total
				DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)
Americium (95)	Am-246m	1.46E+04	4.76E-05	3.10E-03	1.34E-01	4.11E+01	1.25E-03	3.54E-05	3.07E-05	3.28E-01	2.45E-01	3.85E+00	1.49E-01	1.07E-01	1.61E-05	1.43E-20
Americium (95)	Am-247	1.58E+04	4.38E-05	6.42E-03	2.63E-01	9.17E+01	2.62E-03	3.38E-05	3.23E-05	4.12E+00	1.22E+00	7.59E+00	1.34E+01	1.05E+01	1.64E-05	1.34E-20
Argon (18)	Ar-37	7.22E+00	9.60E-02	.	.	.	.	.	.	.	.	.	.	.	.	.
Argon (18)	Ar-39	2.58E-03	2.69E+02	.	.	9.04E+04	.	.	.	.	.	.	.	.	9.04E+04	7.17E-05
Argon (18)	Ar-41	3.32E+03	2.09E-04	.	.	8.70E+01	.	.	.	.	.	.	.	.	8.70E+01	5.63E-14
Argon (18)	Ar-42	2.11E-02	3.29E+01	2.16E+01	.	3.70E+02	1.92E+00	1.10E-01	4.55E-01	1.91E+02	5.58E+01	.	1.40E+03	7.75E+03	8.41E-02	8.79E-12
Argon (18)	Ar-43	6.78E+04	1.02E-05	3.98E+01	.	4.52E+01	3.53E+00	2.02E-01	8.37E-01	3.52E+02	1.03E+02	.	2.58E+03	1.43E+04	1.54E-01	5.13E-18
Argon (18)	Ar-44	3.07E+04	2.26E-05	1.15E+02	.	2.51E+01	1.02E+01	5.83E-01	2.41E+00	1.01E+03	2.96E+02	.	7.44E+03	4.11E+04	4.39E-01	3.30E-17
Arsenic (33)	As-68	1.44E+05	4.81E-06	6.98E+00	.	2.45E+01	6.54E-01	3.04E-02	.	6.66E+00	1.36E+01	.	.	.	2.87E-02	7.10E-19
Arsenic (33)	As-69	2.39E+04	2.90E-05	3.82E+01	.	5.56E+01	3.91E+00	1.94E-01	1.45E+00	4.20E+01	8.79E+01	.	.	.	1.62E-01	2.45E-17
Arsenic (33)	As-70	6.92E+03	1.00E-04	7.24E+01	.	2.68E+01	1.76E+01	3.57E+00	5.99E-01	6.40E+02	1.31E+04	.	.	.	4.85E-01	2.57E-16
Arsenic (33)	As-71	9.30E+01	7.45E-03	2.12E+01	.	2.08E+02	4.91E+00	8.07E-01	1.80E-01	1.51E+02	1.06E+03	.	.	.	1.42E-01	5.67E-15
Arsenic (33)	As-72	2.33E+02	2.97E-03	5.26E+00	.	6.53E+01	1.28E+00	2.59E-01	4.35E-02	4.65E+01	9.51E+02	.	.	.	3.59E-02	5.81E-16
Arsenic (33)	As-73	3.15E+00	2.20E-01	3.63E+01	.	3.26E+04	8.81E+00	1.79E+00	3.00E-01	3.21E+02	6.56E+03	.	.	.	2.48E-01	3.01E-13
Arsenic (33)	As-74	1.42E+01	4.87E-02	7.58E+00	.	1.57E+02	1.84E+00	3.74E-01	6.27E-02	6.71E+01	1.37E+03	.	.	.	5.18E-02	1.41E-14
Arsenic (33)	As-76	2.35E+02	2.95E-03	6.04E+00	.	2.72E+02	1.46E+00	2.97E-01	4.99E-02	5.34E+01	1.09E+03	.	.	.	4.12E-02	7.00E-16
Arsenic (33)	As-77	1.56E+02	4.43E-03	2.42E+01	.	1.24E+04	5.87E+00	1.19E+00	2.00E-01	2.14E+02	4.37E+03	.	.	.	1.65E-01	4.26E-15
Arsenic (33)	As-78	4.02E+03	1.73E-04	4.88E+01	.	8.57E+01	1.18E+01	2.40E+00	4.04E-01	4.32E+02	8.82E+03	.	.	.	3.32E-01	3.38E-16
Arsenic (33)	As-79	4.04E+04	1.71E-05	2.72E+00	.	2.32E+03	1.10E-01	7.38E-03	5.93E-02	1.20E+01	1.23E+01	1.26E+01	1.10E+01	1.01E+01	6.16E-03	6.31E-19
Astatine (85)	At-204	3.96E+04	1.75E-05	1.25E+01	.	1.79E+01	3.22E+00	6.59E+00	2.68E+02	8.28E+02	2.95E+02	.	9.11E+02	6.50E+02	1.64E+00	4.43E-16
Astatine (85)	At-205	1.39E+04	4.98E-05	8.28E+00	.	2.64E+01	1.99E+00	5.48E+00	2.14E+01	5.91E+02	1.19E+02	.	4.34E+03	3.10E+03	1.11E+00	8.58E-16
Astatine (85)	At-206	1.19E+04	5.82E-05	4.64E-01	.	1.72E+01	1.81E-01	2.18E-01	5.46E+00	2.86E+01	2.71E+01	.	1.12E+01	8.03E+00	7.81E-02	7.09E-17
Astatine (85)	At-207	3.37E+03	2.05E-04	6.32E+00	.	2.40E-01	1.33E+00	7.24E+00	2.72E+02	3.45E+02	4.99E+01	.	2.13E+03	1.52E+03	8.95E-01	2.88E-15
Astatine (85)	At-208	3.72E+03	1.86E-04	5.85E-03	.	3.80E+01	2.49E-03	2.64E-03	2.21E+05	3.45E-01	5.02E-01	.	1.22E-01	8.73E-02	1.02E-03	3.00E-18
Astatine (85)	At-209	1.12E+03	6.18E-04	6.09E-03	.	4.99E+01	2.59E-03	2.75E-03	2.05E+01	3.59E-01	5.18E-01	.	1.27E-01	9.10E-02	1.07E-03	1.04E-17
Astatine (85)	At-210	7.49E+02	9.25E-04	7.29E-03	.	3.81E+01	3.10E-03	3.29E-03	4.29E-01	6.08E-01	6.08E-01	.	1.53E-01	1.09E-01	1.28E-03	1.88E-17
Astatine (85)	At-211	8.42E+02	8.24E-04	8.22E-01	.	1.72E+02	1.22E-01	2.00E+01	.	1.51E+01	1.55E+00	.	.	.	9.84E-02	1.29E-15
Astatine (85)	At-215	2.19E+11	3.17E-12	.	.	2.23E+03	.	.	.	.	.	.	.	.	2.23E+03	1.15E-19
Astatine (85)	At-216	7.28E+10	9.51E-12	3.62E+01	.	8.15E+01	7.91E+00	3.92E+01	.	3.20E+03	6.54E+02	.	.	.	5.17E+00	8.03E-22
Astatine (85)	At-217	6.77E+08	1.02E-09	3.72E+01	.	6.67E+02	8.93E+00	3.52E+01	9.62E+01	3.83E+03	8.16E+02	.	.	.	5.54E+00	9.31E-20
Astatine (85)	At-218	1.46E+07	4.76E-08	4.60E-03	.	7.49E+01	1.86E-03	2.34E-03	7.04E-03	3.78E-01	4.09E-01	.	1.52E-01	1.09E-01	7.43E-04	5.83E-22
Astatine (85)	At-219	3.90E+05	1.78E-06	5.01E+01	.	3.22E+02	1.87E+01	3.26E+01	2.83E+01	1.27E+04	4.77E+03	.	.	.	6.99E+00	2.06E-16
Astatine (85)	At-220	9.82E+04	7.06E-06	1.20E+00	9.76E-02	5.63E+01	4.35E-01	7.88E-01	6.98E-01	2.85E+02	9.97E+01	.	.	.	6.21E-02	7.29E-18
Gold (79)	Au-186	3.40E+04	2.04E-05	2.93E-01	.	3.03E+01	9.78E-02	1.17E+01	1.91E+00	2.59E+01	5.35E+01	.	.	.	6.97E-02	2.00E-17
Gold (79)	Au-187	4.34E+04	1.60E-05	4.82E+01	.	5.88E+01	1.32E+01	1.36E+02	.	6.89E+03	1.99E+04	.	.	.	8.25E+00	1.87E-15
Gold (79)	Au-190	8.51E+03	8.14E-05	2.43E-01	.	4.61E+01	7.43E-02	1.60E+01	2.09E+00	2.56E+01	4.40E+01	.	.	.	5.50E-02	6.44E-17
Gold (79)	Au-191	1.91E+03	3.63E-04	2.19E+01	.	1.41E+02	5.19E+00	9.11E+00	1.19E+00	3.95E+03	4.67E+03	.	.	.	8.37E-01	4.39E-15
Gold (79)	Au-192	1.23E+03	5.64E-04	5.82E+01	.	5.73E+01	2.45E+01	3.94E+00	5.16E-01	2.06E+03	1.91E+05	.	.	.	4.41E-01	3.61E-15
Gold (79)	Au-193	3.44E+02	2.01E-03	5.78E+01	.	8.14E+02	2.02E+01	5.05E+00	6.60E-01	2.61E+03	3.92E+04	.	.	.	5.61E-01	1.65E-14
Gold (79)	Au-193m	5.60E+06	1.24E-07	5.78E+01	.	3.56E+02	2.01E+01	5.05E+00	6.60E-01	2.61E+03	3.91E+04	.	.	.	5.61E-01	1.01E-18
Gold (79)	Au-194	1.60E+02	4.34E-03	2.47E+01	.	1.10E+02	1.04E+01	1.67E+00	2.19E-01	8.73E+02	8.11E+04	.	.	.	1.88E-01	1.20E-14
Gold (79)	Au-195	1.36E+00	5.10E-01	3.59E+01	.	1.90E+03	1.51E+01	2.43E+00	3.18E-01	1.27E+03	1.18E+05	.	.	.	2.74E-01	2.06E-12
Gold (79)	Au-195m	7.17E+05	9.67E-07	3.59E+01	.	4.66E+02	1.51E+01	2.43E+00	3.18E-01	1.27E+03	1.18E+05	.	.	.	2.74E-01	3.91E-18
Gold (79)	Au-196	4.09E+01	1.69E-02	2.81E+00	.	2.62E+02	1.18E+01	1.90E+00	2.49E-01	9.93E+02	9.22E+04	.	.	.	2.14E-01	5.38E-14
Gold (79)	Au-196m	6.32E+02	1.10E-03	1.30E+01	.	1.76E+02	5.46E+00	8.79E-01	1.15E-01	4.59E+02	4.26E+04	.	.	.	9.90E-02	1.61E-15
Gold (79)	Au-198	9.39E+01	7.38E-03	9.16E+00	.	2.97E+02	3.86E+00	6.21E-01	8.12E-02	3.24E+02	3.01E+04	.	.	.	6.99E-02	7.74E-15
Gold (79)	Au-198m	1.11E+02	6.22E-03	4.25E+00	.	1.32E+02	1.79E+00	2.88E-01	3.76E-02	1.50E+02	1.39E+04	.	.	.	3.24E-02	3.02E-15
Gold (79)	Au-199	8.06E+01	8.60E-03	2.10E+01	.	1.32E+03	8.82E+00	1.42E+00	1.86E-01	7.41E+02	6.88E+04	.	.	.	1.60E-01	2.07E-14
Gold (79)	Au-200	7.53E+03	9.21E-05	1.40E+02	.	4.07E+02	5.91E+01	9.51E+00	1.24E+00	4.96E+03	4.61E+05	.	.	.	1.07E+00	1.49E-15
Gold (79)	Au-200m	3.25E+02	2.13E-03	9.53E+00	.	5.87E+01	4.01E+00	6.46E-01	8.45E-02	3.37E+02	3.13E+04	.	.	.	7.27E-02	2.35E-15
Gold (79)	Au-201	1.40E+04	4.95E-05	3.90E+02	.	3.20E+03	1.64E+02	2.64E+01	3.45E+00	1.38E+04	1.28E+06	.	.	.	2.97E+00	2.24E-15

Farmer Tap Water DCCs July 2023																	
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)													
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Ingestion	Inhalation	Immersion	Produce	Finfish	Shellfish	Beef	Dairy	Swine	Egg	Poultry	Total	Total	
				DCC	DCC	DCC	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	DCC	DCC
				DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1
				(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(mg/L)
Gold (79)	Au-202	7.59E+05	9.13E-07			6.25E+02									6.25E+02	8.73E-15	
Barium (56)	Ba-124	3.31E+04	2.09E-05	1.38E+02		6.78E+01	5.49E+01	1.87E+03	1.22E+01	1.74E+05	1.56E+04		1.03E+04	2.60E+05	8.15E+00	1.60E-15	
Barium (56)	Ba-126	3.64E+03	1.90E-04	3.79E+01		6.82E+01	1.51E+01	5.14E+02	3.36E+00	4.79E+04	4.28E+03		2.83E+03	7.15E+04	2.45E+00	4.45E-15	
Barium (56)	Ba-127	2.87E+04	2.42E-05	2.00E+02		8.52E+01	7.44E+01	2.68E+00	2.98E+01	3.29E+03	1.56E+03	3.04E+03	2.02E+04	5.43E+03	2.28E+00	5.30E-16	
Barium (56)	Ba-128	1.04E+02	6.66E-03	3.58E+00		1.26E+02	1.42E+00	4.85E+01	3.17E-01	4.52E+03	4.04E+02		2.67E+02	6.75E+03	2.40E-01	1.55E-14	
Barium (56)	Ba-129	2.72E+03	2.55E-04	9.26E+01		2.07E+02	3.42E+01	1.10E+00	1.51E+01	1.36E+03	6.48E+02	1.25E+03	9.78E+03	2.24E+03	9.80E-01	2.44E-15	
Barium (56)	Ba-129m	2.81E+03	2.47E-04	7.81E+01		6.40E+01	2.92E+01	1.10E+00	1.12E+01	1.36E+03	6.41E+02	1.25E+03	7.75E+03	2.24E+03	9.42E-01	2.27E-15	
Barium (56)	Ba-131	2.20E+01	3.15E-02	1.87E+01		2.62E+02	7.34E+00	1.14E+00	1.82E+00	1.35E+03	5.36E+02	1.30E+03	1.48E+03	2.21E+03	6.17E-01	1.93E-13	
Barium (56)	Ba-131m	2.49E+04	2.78E-05	1.85E+01		2.31E+02	7.27E+00	1.14E+00	1.80E+00	1.35E+03	5.35E+02	1.30E+03	1.47E+03	2.21E+03	6.13E-01	1.69E-16	
Barium (56)	Ba-133	6.59E-02	1.05E+01	5.22E+00		3.25E+02	2.08E+00	7.07E+01	4.63E-01	6.60E+03	5.90E+02		3.89E+02	9.85E+03	3.50E-01	3.71E-11	
Barium (56)	Ba-133m	1.56E+02	4.44E-03	4.03E+00		2.82E+02	1.60E+00	5.46E+01	3.57E-01	5.09E+03	4.55E+02		3.01E+02	7.61E+03	2.70E-01	1.21E-14	
Barium (56)	Ba-135m	2.12E+02	3.28E-03	2.25E+01		2.49E+03	8.95E+00	3.05E+02	1.99E+00	2.84E+04	2.54E+03		1.68E+03	4.24E+04	1.51E+00	5.05E-14	
Barium (56)	Ba-137m	1.43E+05	4.86E-06			1.98E+02									1.98E+02	9.99E-15	
Barium (56)	Ba-139	4.39E+03	1.58E-04	7.77E+01		2.24E+03	3.09E+01	1.05E+03	6.88E+00	9.81E+04	8.77E+03		5.79E+03	1.46E+05	5.20E+00	8.65E-15	
Barium (56)	Ba-140	1.98E+01	3.49E-02	2.02E+00		4.51E+01	8.21E-01	2.01E+00	1.10E-01	2.63E+03	3.63E+02		2.60E+02	6.62E+03	8.80E-02	3.26E-14	
Barium (56)	Ba-141	1.99E+04	3.48E-05	8.03E+00		1.11E+02	3.35E+00	4.77E+00	2.58E-01	2.13E+03	5.06E+03	1.92E+05	8.85E+03	2.44E+05	2.21E-01	8.21E-17	
Barium (56)	Ba-142	3.44E+04	2.02E-05	4.62E+01		3.20E+01	1.92E+01	2.41E+01	1.81E+00	6.21E+04	1.96E+04		2.02E+04	5.39E+05	1.43E+00	3.11E-16	
Beryllium (4)	Be-10	4.59E-07	1.51E+06	8.17E+00		7.46E+04	3.39E+00	1.33E+00		2.89E+02	1.78E+05				8.52E-01	9.73E-07	
Beryllium (4)	Be-7	4.75E+00	1.46E-01	3.66E+02		2.40E+03	1.52E+02	5.95E+01		1.29E+04	7.97E+06				3.76E+01	2.90E-12	
Bismuth (83)	Bi-197	3.92E+04	1.77E-05	3.24E+01		3.13E+01	3.96E+00	9.89E-02	6.20E-01	4.91E+02	9.86E+02			4.49E+04	8.30E-02	2.19E-17	
Bismuth (83)	Bi-200	1.00E+04	6.93E-05	1.60E+01		2.99E+01	5.84E+00	8.80E-01	1.51E+01	2.18E+02	3.51E+02				6.77E-01	7.10E-16	
Bismuth (83)	Bi-201	3.37E+03	2.05E-04	2.69E+01		4.25E+01	8.46E+00	1.71E+00	3.65E+01	4.08E+02	5.23E+02				1.25E+00	3.92E-15	
Bismuth (83)	Bi-202	3.53E+03	1.96E-04	5.90E-01		3.65E+01	2.20E-01	2.02E-01	3.44E-01	6.08E+01	4.42E+01				7.06E-02	2.12E-16	
Bismuth (83)	Bi-203	5.16E+02	1.34E-03	1.37E+01		4.24E+01	3.45E+00	1.21E+01	2.34E+01	1.54E+03	3.36E+02				1.94E+00	4.00E-14	
Bismuth (83)	Bi-204	5.41E+02	1.28E-03	1.75E+01		3.70E+01	3.84E+00	1.89E+01	1.21E+03	1.56E+03	3.18E+02				2.49E+00	4.92E-14	
Bismuth (83)	Bi-205	1.65E+01	4.19E-02	8.48E+00		6.69E+01	2.05E+00	7.95E+00	2.04E+01	8.85E+02	1.89E+02				1.25E+00	8.12E-13	
Bismuth (83)	Bi-206	4.05E+01	1.71E-02	5.16E+00		3.53E+01	1.13E+00	5.59E+00		4.56E+02	9.32E+01				7.69E-01	2.05E-13	
Bismuth (83)	Bi-207	2.11E-02	3.29E+01	7.72E+00		7.56E+01	1.69E+00	8.37E+00		6.83E+02	1.39E+02				1.16E+00	5.97E-10	
Bismuth (83)	Bi-208	1.88E-06	3.68E+05	8.85E+00		3.95E+01	1.93E+00	9.59E+00		7.82E+02	1.60E+02				1.30E+00	7.55E-06	
Bismuth (83)	Bi-210	5.05E+01	1.37E-02	7.27E-03		3.87E+04	3.09E-03	3.29E-03		4.29E-01	6.23E-01		1.52E-01	1.09E-01	1.27E-03	2.78E-16	
Bismuth (83)	Bi-210m	2.28E-07	3.04E+06	6.34E-01		4.56E+02	1.39E-01	6.87E-01		5.60E+01	1.15E+01				9.66E-02	4.67E-06	
Bismuth (83)	Bi-211	1.70E+05	4.07E-06			2.24E+03									2.24E+03	1.46E-13	
Bismuth (83)	Bi-212	6.02E+03	1.15E-04	3.62E+01		8.17E+01	7.91E+00	3.92E+01		3.20E+03	6.54E+02				5.17E+00	9.55E-15	
Bismuth (83)	Bi-212n	5.20E+04	1.33E-05			1.27E+03									1.27E+03	2.71E-13	
Bismuth (83)	Bi-213	7.99E+03	8.67E-05	3.72E+01		6.68E+02	8.93E+00	3.52E+01	9.62E+01	3.83E+03	8.16E+02				5.54E+00	7.74E-15	
Bismuth (83)	Bi-214	1.83E+04	3.79E-05	4.60E-03		7.49E+01	1.86E-03	2.34E-03	7.04E-03	3.78E-01	4.09E-01		1.52E-01	1.09E-01	7.43E-04	4.55E-19	
Bismuth (83)	Bi-215	4.79E+04	1.45E-05	4.86E+01		3.12E+02	1.81E+01	3.16E+01	2.74E+01	1.23E+04	4.62E+03				6.78E+00	1.60E-15	
Bismuth (83)	Bi-216	1.68E+05	4.13E-06	1.20E+00		5.07E+01	4.35E-01	7.88E-01	6.98E-01	2.85E+02	9.97E+01				1.70E-01	1.15E-17	
Berkelium (97)	Bk-245	5.12E+01	1.35E-02	8.10E-03		1.40E+02	3.34E-03	1.14E-03	2.68E-05	3.11E+00	1.14E+00	6.99E+00	1.23E+01	9.80E+00	2.59E-05	6.50E-18	
Berkelium (97)	Bk-246	1.41E+02	4.93E-03	3.10E-03	1.34E-01	4.35E+01	1.25E-03	3.54E-05	3.07E-05	3.28E-01	2.45E-01	3.85E+00	1.49E-01	1.07E-01	1.61E-05	1.48E-18	
Berkelium (97)	Bk-247	5.02E-04	1.38E+03	5.77E-03	2.63E-01	1.22E+02	2.37E-03	3.39E-05	5.68E-05	4.23E+00	1.22E+00	7.59E+00	1.34E+01	1.05E+01	2.09E-05	5.40E-13	
Berkelium (97)	Bk-248m	2.56E+02	2.71E-03	4.40E-03	1.40E+01	3.95E+01	1.68E-03	2.77E-05	2.11E-05	7.47E-01	3.09E-01	7.86E+00	1.39E+01	1.10E+01	1.18E-05	6.01E-19	
Berkelium (97)	Bk-249	7.67E-01	9.04E-01	6.31E-03		1.24E+02	2.62E-03	1.07E-03	2.68E-05	2.99E+00	1.13E+00	6.99E+00	1.23E+01	9.80E+00	2.58E-05	4.39E-16	
Berkelium (97)	Bk-250	1.89E+03	3.67E-04	2.94E-03	1.34E-01	4.22E+01	1.19E-03	3.54E-05	3.07E-05	3.28E-01	2.45E-01	3.85E+00	1.49E-01	1.07E-01	1.61E-05	1.12E-19	
Berkelium (97)	Bk-251	6.55E+03	1.06E-04	5.22E-03	2.63E-01	8.76E+01	2.15E-03	3.38E-05	3.23E-05	3.93E+00	1.21E+00	7.59E+00	1.34E+01	1.05E+01	1.63E-05	3.28E-20	
Bromine (35)	Br-72	2.78E+05	2.49E-06	1.20E+00		2.40E+01	5.93E-02	4.13E-03	1.90E-02	5.97E+00	6.94E+00	7.14E+00	6.27E+00	5.72E+00	3.19E-03	4.33E-20	
Bromine (35)	Br-73	1.07E+05	6.47E-06	2.16E+01		4.76E+01	1.73E+00	1.34E-01	2.39E-01	1.36E+02	2.33E+02	2.46E+02	2.16E+02	1.97E+02	8.11E-02	2.90E-18	
Bromine (35)	Br-74	1.43E+04	4.83E-05	1.19E+02		2.32E+01	4.30E+01	2.13E+01	1.14E+00	8.42E+02	1.08E+02				9.88E-01	2.67E-16	
Bromine (35)	Br-74m	7.92E+03	8.75E-05	7.24E+01		2.67E+01	2.61E+01	1.29E+01	6.91E-01	5.12E+02	6.54E+01				6.13E-01	3.00E-16	
Bromine (35)	Br-75	3.77E+03	1.84E-04	3.69E+00		7.59E+01	1.52E-01	1.03E-02	7.74E-02	1.65E+01	1.49E+01	1.75E+01	1.54E+01	1.40E+01	8.53E-03	8.91E-18	
Bromine (35)	Br-76	3.75E+02	1.85E-03	2.15E+01		3.97E+01	7.77E+00	3.85E+00	2.05E-01	1.52E+02	1.94E+01				1.86E-01	1.97E-15	



Farmer Tap Water DCCs July 2023																	
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)													
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Ingestion	Inhalation	Immersion	Produce	Finfish	Shellfish	Beef	Dairy	Swine	Egg	Poultry	Total	Total	
				DCC	DCC	DCC	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	DCC	DCC
				DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1
				(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(mg/L)
Bromine (35)	Br-76m	1.67E+07	4.15E-08	2.16E+01	.	3.96E+01	7.80E+00	3.86E+00	2.06E-01	1.53E+02	1.95E+01	.	.	.	1.86E-01	4.45E-20	
Bromine (35)	Br-77	1.06E+02	6.51E-03	1.06E+02	.	3.79E+02	3.83E+01	1.90E+01	1.01E+00	7.51E+02	9.59E+01	.	.	.	9.18E-01	3.48E-14	
Bromine (35)	Br-77m	8.51E+04	8.14E-06	1.06E+02	.	3.63E+02	3.83E+01	1.90E+01	1.01E+00	7.51E+02	9.59E+01	.	.	.	9.18E-01	4.35E-17	
Bromine (35)	Br-78	5.64E+04	1.23E-05	.	.	1.15E+02	.	.	.	.	.	.	.	.	1.15E+02	8.31E-15	
Bromine (35)	Br-80	2.06E+04	3.36E-05	3.05E+02	.	1.43E+03	1.10E+02	5.45E+01	2.91E+00	2.16E+03	2.75E+02	.	.	.	2.64E+00	5.37E-16	
Bromine (35)	Br-80m	1.37E+03	5.05E-04	6.47E+01	.	1.34E+03	2.34E+01	1.16E+01	6.18E-01	4.58E+02	5.85E+01	.	.	.	5.61E-01	1.71E-15	
Bromine (35)	Br-82	1.72E+02	4.03E-03	1.89E+01	.	4.38E+01	6.82E+00	3.37E+00	1.80E-01	1.34E+02	1.70E+01	.	.	.	1.63E-01	4.07E-15	
Bromine (35)	Br-82m	5.94E+04	1.17E-05	1.93E+01	.	4.48E+01	6.99E+00	3.46E+00	1.85E-01	1.37E+02	1.75E+01	.	.	.	1.67E-01	1.21E-17	
Bromine (35)	Br-83	2.53E+03	2.74E-04	2.13E+02	.	1.28E+04	7.70E+01	3.81E+01	2.03E+00	1.51E+03	1.92E+02	.	.	.	1.85E+00	3.18E-15	
Bromine (35)	Br-84	1.15E+04	6.05E-05	1.08E+02	.	6.02E+01	3.90E+01	1.93E+01	1.03E+00	7.64E+02	9.75E+01	.	.	.	9.21E-01	3.54E-16	
Bromine (35)	Br-84m	6.07E+04	1.14E-05	.	.	4.09E+01	.	.	.	.	.	.	.	.	4.09E+01	2.97E-15	
Bromine (35)	Br-85	1.26E+05	5.52E-06	.	.	5.08E+02	.	.	.	.	.	.	.	.	5.08E+02	1.80E-14	
Carbon (6)	C-10	1.14E+06	6.11E-07	.	.	6.76E+01	.	.	.	.	.	.	.	.	6.76E+01	3.13E-17	
Carbon (6)	C-11	1.79E+04	3.88E-05	4.11E+02	.	1.17E+02	8.99E+01	1.67E-02	7.84E-02	2.34E+03	6.19E+02	.	.	.	1.38E-02	4.45E-19	
Carbon (6)	C-14	1.22E-04	5.70E+03	2.01E+01	5.02E-01	4.00E+06	4.40E+00	8.18E-04	3.84E-03	1.15E+02	3.03E+01	.	.	.	6.73E-04	4.07E-12	
Calcium (20)	Ca-41	6.79E-06	1.02E+05	4.30E+01	.	.	4.35E+00	5.83E+01	1.57E+01	5.85E+02	7.78E+01	3.18E+04	6.34E+03	3.50E+04	2.87E+00	9.08E-07	
Calcium (20)	Ca-45	1.55E+00	4.46E-01	1.22E+01	.	6.97E+05	1.24E+00	1.66E+01	4.47E+00	1.67E+02	2.21E+01	9.04E+03	1.81E+03	9.97E+03	8.17E-01	1.24E-12	
Calcium (20)	Ca-47	5.58E+01	1.24E-02	4.56E+00	.	9.78E+01	5.78E-01	1.25E+00	5.90E-02	8.01E+01	1.12E+01	4.59E+03	9.16E+02	5.06E+03	5.04E-02	2.23E-15	
Calcium (20)	Ca-49	4.18E+04	1.66E-05	1.16E+02	.	3.20E+01	4.90E+01	9.91E+00	4.11E-01	1.02E+04	3.49E+04	.	.	.	3.85E-01	2.37E-17	
Cadmium (48)	Cd-101	2.68E+05	2.59E-06	2.64E+01	.	2.46E+01	7.35E+00	2.28E+01	1.61E+01	3.21E+03	1.59E+02	2.20E+04	.	5.34E+03	3.06E+00	6.04E-17	
Cadmium (48)	Cd-102	6.62E+04	1.05E-05	4.59E+02	.	2.52E+01	8.70E+01	6.79E+01	2.48E+01	8.12E+04	2.77E+02	3.39E+04	.	8.23E+03	8.91E+00	7.20E-16	
Cadmium (48)	Cd-103	4.99E+04	1.39E-05	4.01E+01	.	3.86E+01	8.61E+00	2.55E+01	1.39E+01	2.00E+04	1.52E+02	1.90E+04	.	4.60E+03	3.50E+00	3.79E-16	
Cadmium (48)	Cd-104	6.31E+03	1.10E-04	5.75E+01	.	5.63E+01	5.24E+00	5.69E+00	4.72E+00	2.61E+03	8.69E+01	5.00E+03	6.16E+04	1.13E+03	1.60E+00	1.38E-15	
Cadmium (48)	Cd-105	6.56E+03	1.06E-04	1.98E+01	.	6.39E+01	3.25E+00	2.73E+00	1.12E+00	2.49E+03	1.30E+01	1.49E+03	1.51E+05	3.59E+02	5.84E-01	4.90E-16	
Cadmium (48)	Cd-107	9.34E+02	7.42E-04	1.48E+02	.	1.06E+04	1.01E+01	1.21E+01	1.84E+01	4.52E+03	1.41E+04	1.46E+04	9.62E+04	3.13E+03	4.10E+00	2.46E-14	
Cadmium (48)	Cd-109	5.48E-01	1.26E+00	5.06E+00	.	2.22E+04	3.44E-01	4.11E-01	6.27E-01	1.54E+02	4.81E+02	4.98E+02	3.28E+03	1.07E+02	1.40E-01	1.46E-12	
Cadmium (48)	Cd-111m	7.51E+03	9.23E-05	7.04E+02	.	4.38E+02	4.79E+01	5.72E+01	8.73E+01	2.15E+04	6.69E+04	6.93E+04	4.56E+05	1.48E+04	1.86E+01	1.44E-14	
Cadmium (48)	Cd-113	9.00E-17	7.70E+15	4.84E-01	.	4.25E+05	3.30E-02	3.94E-02	6.01E-02	1.48E+01	4.61E+01	4.77E+01	3.14E+02	1.02E+01	1.34E-02	8.82E+02	
Cadmium (48)	Cd-113m	4.91E-02	1.41E+01	4.95E-01	.	1.09E+05	3.37E-02	4.02E-02	6.14E-02	1.51E+01	4.71E+01	4.87E+01	3.21E+02	1.04E+01	1.37E-02	1.65E-12	
Cadmium (48)	Cd-115	1.14E+02	6.10E-03	3.56E-01	.	3.41E+02	1.19E-01	6.11E-04	8.32E-01	8.00E+00	3.23E+01	6.60E+02	4.35E+03	1.41E+02	6.07E-04	3.22E-17	
Cadmium (48)	Cd-115m	5.67E+00	1.22E-01	3.20E-01	.	2.93E+03	8.70E-02	5.82E-04	3.63E-01	7.29E+00	2.90E+01	2.88E+02	1.90E+03	6.17E+01	5.76E-04	6.13E-16	
Cadmium (48)	Cd-117	2.44E+03	2.84E-04	2.32E+01	.	7.59E+01	2.16E+00	1.14E-01	4.24E+00	6.30E+02	2.14E+03	3.36E+03	2.21E+04	7.20E+02	1.05E-01	2.63E-16	
Cadmium (48)	Cd-117m	1.81E+03	3.84E-04	3.06E+01	.	4.12E+01	2.28E+00	4.14E-01	4.26E+00	8.95E+02	2.80E+03	3.38E+03	2.23E+04	7.24E+02	3.18E-01	1.08E-15	
Cadmium (48)	Cd-118	7.24E+03	9.57E-05	5.10E+01	.	1.06E+03	3.47E+00	4.14E+00	6.32E+00	1.55E+03	4.85E+03	5.02E+03	3.30E+04	1.07E+03	1.41E+00	1.20E-15	
Cadmium (48)	Cd-119	1.35E+05	5.12E-06	2.25E+02	.	6.08E+01	9.35E+01	3.69E-01	.	4.97E+03	1.94E+04	.	.	.	3.65E-01	1.68E-17	
Cadmium (48)	Cd-119m	1.66E+05	4.19E-06	2.69E+03	.	3.65E+01	3.02E+02	1.37E+01	.	4.78E+04	4.97E+04	.	.	.	9.59E+00	3.62E-16	
Cerium (58)	Ce-130	1.59E+04	4.36E-05	1.36E+02	.	4.29E+01	5.71E+01	8.84E+01	3.92E+00	2.40E+04	1.23E+05	2.01E+06	2.84E+06	.	3.18E+00	1.36E-15	
Cerium (58)	Ce-131	3.57E+04	1.94E-05	1.68E+01	.	4.32E+01	6.61E+00	1.13E+00	1.34E+00	1.31E+03	5.34E+02	1.30E+03	1.48E+03	2.21E+03	5.35E-01	1.03E-16	
Cerium (58)	Ce-132	1.73E+03	4.01E-04	1.30E+01	.	5.12E+01	5.43E+00	6.67E+00	4.17E-01	4.40E+03	1.17E+04	4.25E+05	1.32E+05	.	3.53E-01	1.41E-15	
Cerium (58)	Ce-133	3.76E+03	1.85E-04	4.89E+00	.	1.17E+02	1.95E+00	2.76E+01	3.87E-01	4.81E+03	5.85E+02	1.55E+06	3.89E+02	9.85E+03	2.99E-01	5.55E-16	
Cerium (58)	Ce-133m	1.24E+03	5.59E-04	4.63E+00	.	5.20E+01	1.85E+00	1.85E+01	3.35E-01	3.66E+03	5.80E+02	6.99E+05	3.89E+02	9.85E+03	2.62E-01	1.47E-15	
Cerium (58)	Ce-134	8.00E+01	8.66E-03	3.51E+00	.	1.63E+02	1.47E+00	2.28E+00	1.01E-01	6.21E+02	3.17E+03	5.18E+04	7.34E+04	.	8.86E-02	7.78E-15	
Cerium (58)	Ce-135	3.43E+02	2.02E-03	3.39E+01	.	1.44E+02	1.42E+01	2.09E+01	9.97E-01	6.62E+03	3.06E+04	5.61E+05	5.86E+05	.	8.64E-01	1.78E-14	
Cerium (58)	Ce-137	6.75E+02	1.03E-03	8.68E+01	.	4.41E+03	3.63E+01	4.14E+01	2.92E+00	4.49E+04	7.84E+04	5.27E+06	7.44E+05	.	2.46E+00	2.62E-14	
Cerium (58)	Ce-137m	1.76E+02	3.93E-03	1.41E+01	.	1.70E+03	5.90E+00	8.64E+00	1.41E-01	2.79E+03	1.27E+04	2.37E+05	2.39E+05	.	3.62E-01	1.47E-14	
Cerium (58)	Ce-139	1.84E+00	3.77E-01	3.64E+01	.	8.76E+02	1.53E+01	2.37E+01	1.05E+00	6.44E+03	3.29E+04	5.37E+05	7.61E+05	.	9.19E-01	3.64E-12	
Cerium (58)	Ce-141	7.78E+00	8.91E-02	1.30E+01	.	1.68E+03	5.47E+00	8.47E+00	3.76E-01	2.30E+03	1.18E+04	1.92E+05	2.72E+05	.	3.29E-01	3.13E-13	
Cerium (58)	Ce-143	1.84E+02	3.77E-03	4.03E+00	.	4.44E+02	1.68E+00	1.03E+00	2.39E-01	4.71E+02	1.80E+03	1.22E+05	6.42E+04	9.39E+03	1.66E-01	6.79E-15	
Cerium (58)	Ce-144	8.88E-01	7.81E-01	2.12E-01	.	1.91E+03	8.96E-02	3.79E-02	5.07E-02	1.99E+01	6.94E+01	2.59E+04	2.14E+04	9.60E+01	1.61E-02	1.37E-13	
Cerium (58)	Ce-145	1.21E+05	5.73E-06	2.34E+01	.	1.43E+02	9.66E+00	3.81E+00	.	2.07E+03	7.05E+03	.	3.04E+05	2.80E+04	2.40E+00	1.51E-16	
Californium (98)	Cf-244	1.88E+04	3.69E-05	1.64E-02	9.76E-02	7.42E+01	6.59E-03	8.99E-05	1.18E-04	5.54E+00	2.96E-01	1.06E+00	1.86E+00	1.51E+00	5.05E-05	3.44E-20	

Farmer Tap Water DCCs July 2023																	
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)													
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Ingestion	Inhalation	Immersion	Produce	Finfish	Shellfish	Beef	Dairy	Swine	Egg	Poultry	Total	Total	
				DCC	DCC	DCC	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	DCC	DCC
				DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1
				(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(mg/L)
Californium (98)	Cf-246	1.70E+02	4.08E-03	3.33E-03	1.34E-01	6.45E+01	1.34E-03	3.69E-05	5.38E-05	3.30E-01	2.73E-01	7.30E+00	1.50E-01	1.08E-01	2.14E-05	1.62E-18	
Californium (98)	Cf-247	1.95E+03	3.55E-04	5.77E-03	2.63E-01	1.13E+02	2.37E-03	3.39E-05	5.68E-05	4.23E+00	1.22E+00	7.59E+00	1.34E+01	1.05E+01	2.09E-05	1.39E-19	
Californium (98)	Cf-248	7.57E-01	9.15E-01	4.77E-03	9.76E-02	4.76E+01	1.80E-03	3.42E-05	3.23E-05	7.33E-01	3.02E-01	7.74E+00	1.37E+01	1.09E+01	1.64E-05	2.82E-16	
Californium (98)	Cf-249	1.97E-03	3.51E+02	6.31E-03		1.24E+02	2.62E-03	1.07E-03	2.68E-05	2.99E+00	1.13E+00	6.99E+00	1.23E+01	9.80E+00	2.58E-05	1.71E-13	
Californium (98)	Cf-250	5.30E-02	1.31E+01	2.94E-03	1.34E-01	6.29E+01	1.19E-03	3.54E-05	3.07E-05	3.28E-01	2.45E-01	3.85E+00	1.49E-01	1.07E-01	1.61E-05	3.99E-15	
Californium (98)	Cf-251	7.70E-04	9.00E+02	5.22E-03	2.63E-01	9.31E+01	2.15E-03	3.38E-05	3.23E-05	3.93E+00	1.21E+00	7.59E+00	1.34E+01	1.05E+01	1.63E-05	2.79E-13	
Californium (98)	Cf-252	2.62E-01	2.65E+00	3.68E-03	9.76E-02	2.70E+01	1.44E-03	1.98E-05	1.20E-05	8.03E-01	3.38E-01	8.42E+00	1.49E+01	1.17E+01	7.41E-06	3.74E-16	
Californium (98)	Cf-253	1.42E+01	4.88E-02	6.27E-03		1.24E+02	2.61E-03	1.07E-03	2.68E-05	2.99E+00	1.13E+00	6.99E+00	1.23E+01	9.80E+00	2.58E-05	2.41E-17	
Californium (98)	Cf-254	4.18E+00	1.66E-01	2.04E-02	1.34E-01	6.48E+00	8.72E-03	1.02E-02	8.49E-04	5.17E+01	1.16E+02	4.78E+03	1.85E+02	1.32E+02	6.91E-04	2.20E-15	
Californium (98)	Cf-255	4.29E+03	1.62E-04	5.19E-03	2.63E-01	9.23E+01	2.14E-03	3.38E-05	3.23E-05	3.92E+00	1.21E+00	7.59E+00	1.34E+01	1.05E+01	1.63E-05	5.10E-20	
Chlorine (17)	Cl-34	1.43E+07	4.84E-08			1.13E+02									1.13E+02	1.41E-17	
Chlorine (17)	Cl-34m	1.14E+04	6.09E-05	9.30E+01		4.29E+01	5.16E-01	3.22E+01	7.21E+00	9.67E+02	9.88E+01				4.64E-01	7.27E-17	
Chlorine (17)	Cl-36	2.30E-06	3.01E+05	1.03E+01		5.96E+04	5.70E-02	3.55E+00	7.97E-01	1.07E+02	1.09E+01				5.19E-02	4.25E-08	
Chlorine (17)	Cl-38	9.78E+03	7.09E-05	8.17E+01		7.32E+01	4.53E-01	2.83E+01	6.33E+00	8.50E+02	8.68E+01				4.10E-01	8.35E-17	
Chlorine (17)	Cl-39	6.55E+03	1.06E-04	1.13E+02		7.70E+01	6.25E-01	3.90E+01	8.74E+00	1.17E+03	1.20E+02				5.65E-01	1.76E-16	
Chlorine (17)	Cl-40	2.70E+05	2.57E-06			2.55E+01									2.55E+01	1.99E-16	
Curium (96)	Cm-238	2.53E+03	2.74E-04	3.36E-03	1.34E-01	4.20E+01	1.35E-03	3.83E-05	5.89E-05	3.30E-01	2.73E-01	7.29E+00	1.50E-01	1.08E-01	2.27E-05	1.12E-19	
Curium (96)	Cm-239	2.09E+03	3.31E-04	8.34E-03	2.63E-01	1.10E+02	3.36E-03	3.42E-05	7.16E-05	5.54E+00	1.22E+00	7.71E+00	1.36E+01	1.09E+01	2.29E-05	1.37E-19	
Curium (96)	Cm-240	9.37E+00	7.40E-02	1.64E-02	9.76E-02	7.42E+01	6.59E-03	8.99E-05	1.18E-04	5.54E+00	2.96E-01	1.06E+00	1.86E+00	1.51E+00	5.05E-05	6.79E-17	
Curium (96)	Cm-241	7.71E+00	8.99E-02	9.63E-03		1.16E+02	3.94E-03	3.15E-03	4.43E-05	3.22E+00	1.14E+00	6.99E+00	1.23E+01	9.80E+00	4.30E-05	7.05E-17	
Curium (96)	Cm-242	1.55E+00	4.46E-01	3.34E-03	1.34E-01	6.45E+01	1.34E-03	3.69E-05	5.38E-05	3.30E-01	2.73E-01	7.30E+00	1.50E-01	1.08E-01	2.14E-05	1.75E-16	
Curium (96)	Cm-243	2.38E-02	2.91E+01	7.46E-03	2.63E-01	1.59E+02	3.02E-03	3.42E-05	4.04E-05	5.31E+00	1.22E+00	7.71E+00	1.36E+01	1.09E+01	1.83E-05	9.81E-15	
Curium (96)	Cm-244	3.83E-02	1.81E+01	4.85E-03	9.76E-02	4.76E+01	1.83E-03	3.23E-05	3.23E-05	7.34E-01	3.02E-01	7.74E+00	1.37E+01	1.09E+01	1.64E-05	5.48E-15	
Curium (96)	Cm-245	8.15E-05	8.50E+03	8.11E-03		1.87E+02	3.34E-03	1.14E-03	2.68E-05	3.11E+00	1.14E+00	6.99E+00	1.23E+01	9.80E+00	2.59E-05	4.08E-12	
Curium (96)	Cm-246	1.46E-04	4.76E+03	3.10E-03	1.34E-01	6.32E+01	1.25E-03	3.54E-05	3.07E-05	3.28E-01	2.45E-01	3.85E+00	1.49E-01	1.07E-01	1.61E-05	1.43E-12	
Curium (96)	Cm-247	4.44E-08	1.56E+07	6.42E-03	2.63E-01	1.02E+02	2.62E-03	3.38E-05	3.23E-05	4.12E+00	1.22E+00	7.59E+00	1.34E+01	1.05E+01	1.64E-05	4.78E-09	
Curium (96)	Cm-248	1.99E-06	3.48E+05	3.73E-03	9.76E-02	2.94E+01	1.46E-03	1.91E-05	1.16E-05	7.81E-01	3.28E-01	8.16E+00	1.44E+01	1.14E+01	7.18E-06	4.69E-11	
Curium (96)	Cm-249	5.68E+03	1.22E-04	6.31E-03		1.22E+02	2.62E-03	1.07E-03	2.68E-05	2.99E+00	1.13E+00	6.99E+00	1.23E+01	9.80E+00	2.58E-05	5.93E-20	
Curium (96)	Cm-250	8.35E-05	8.30E+03	1.75E-03	1.34E-01	7.79E+00	7.45E-04	1.23E-04	2.63E-06	9.38E-01	9.20E-01	1.48E+01	5.73E-01	4.10E-01	2.56E-06	4.03E-13	
Curium (96)	Cm-251	2.17E+04	3.20E-05	5.22E-03	2.63E-01	8.09E+01	2.15E-03	3.38E-05	3.23E-05	3.93E+00	1.21E+00	7.59E+00	1.34E+01	1.05E+01	1.63E-05	9.91E-21	
Cobalt (27)	Co-54m	2.46E+05	2.82E-06			2.90E+01									2.90E+01	3.34E-16	
Cobalt (27)	Co-55	3.46E+02	2.00E-03	7.00E+00		5.81E+01	2.00E+00	1.09E+00	1.40E-01	2.73E+02	1.45E+03	4.49E+03	7.99E+02	2.56E+02	1.14E-01	9.53E-16	
Cobalt (27)	Co-56	3.28E+00	2.12E-01	3.70E+00		3.03E+01	9.97E-01	7.92E-01	2.09E+00	1.52E+03	6.08E+02	2.73E+03	7.28E+03	1.37E+02	3.27E-01	2.93E-13	
Cobalt (27)	Co-57	9.31E-01	7.44E-01	4.07E+01		1.04E+03	1.10E+01	8.71E+00	2.30E+01	1.67E+04	6.69E+03	3.00E+04	8.00E+04	1.50E+03	3.62E+00	1.16E-11	
Cobalt (27)	Co-58	3.57E+00	1.94E-01	1.26E+01		1.20E+02	3.39E+00	2.70E+00	7.11E+00	5.19E+03	2.07E+03	9.31E+03	2.48E+04	4.66E+02	1.12E+00	9.51E-13	
Cobalt (27)	Co-58m	6.72E+02	1.03E-03	1.22E+01		1.20E+02	3.29E+00	2.62E+00	6.90E+00	5.03E+03	2.01E+03	9.03E+03	2.40E+04	4.52E+02	1.08E+00	4.90E-15	
Cobalt (27)	Co-60	1.31E-01	5.27E+00	2.32E+00		4.48E+01	6.25E-01	4.96E-01	1.31E+00	9.54E+02	3.81E+02	1.71E+03	4.56E+03	8.57E+01	2.06E-01	4.94E-12	
Cobalt (27)	Co-60m	3.48E+04	1.99E-05	2.32E+00		4.49E+01	6.26E-01	4.97E-01	1.31E+00	9.56E+02	3.82E+02	1.72E+03	4.57E+03	8.59E+01	2.07E-01	1.87E-17	
Cobalt (27)	Co-61	3.68E+03	1.88E-04	1.27E+02		1.33E+03	3.43E+01	2.73E+01	7.18E+01	5.24E+04	2.09E+04	9.40E+04	2.50E+05	4.71E+03	1.13E+01	9.81E-15	
Cobalt (27)	Co-62	2.43E+05	2.85E-06			6.80E+01									6.80E+01	9.11E-16	
Cobalt (27)	Co-62m	2.62E+04	2.65E-05	1.97E+02		4.12E+01	5.29E+01	4.21E+01	1.11E+02	8.09E+04	3.23E+04	1.45E+05	3.86E+05	7.26E+03	1.23E+01	1.53E-15	
Chromium (24)	Cr-48	2.82E+02	2.46E-03	4.57E+00		3.44E+01	1.81E+00	8.08E-01	1.48E-01	1.79E+03	1.75E+03				1.14E-01	1.02E-15	
Chromium (24)	Cr-49	8.61E+03	8.05E-05	1.20E+02		1.13E+02	5.02E+01	3.63E+01	4.61E+00	5.54E+03	6.54E+03				3.55E+00	1.06E-15	
Chromium (24)	Cr-51	9.13E+00	7.59E-02	2.53E+02		3.79E+03	1.09E+02	1.03E+02	1.05E+01	8.96E+03	1.06E+04				8.42E+00	2.47E-12	
Chromium (24)	Cr-55	1.04E+05	6.65E-06			8.90E+03									8.90E+03	2.46E-13	
Chromium (24)	Cr-56	6.13E+04	1.13E-05	3.74E+01		6.31E+01	5.63E+00	2.53E+00	2.21E+00	1.10E+04	1.65E+04	1.04E+04	5.77E+04	7.04E+05	9.36E-01	4.48E-17	
Cesium (55)	Cs-121	1.41E+05	4.92E-06	1.89E+01		3.23E+01	3.21E+00	2.33E+00	9.30E+01	4.81E+02	3.13E+02	4.59E+03	2.61E+02	1.32E+03	1.18E+00	5.32E-17	
Cesium (55)	Cs-121m	1.79E+05	3.87E-06	1.89E+01		3.07E+01	3.21E+00	2.33E+00	9.30E+01	4.81E+02	3.13E+02	4.59E+03	2.61E+02	1.32E+03	1.18E+00	4.18E-17	
Cesium (55)	Cs-123	6.19E+04	1.12E-05	7.02E+00		6.34E+01	1.21E+00	8.88E-01	2.87E+01	1.79E+02	1.02E+02	1.42E+03	9.86E+01	5.09E+02	4.60E-01	4.79E-17	
Cesium (55)	Cs-124	7.10E+05	9.77E-07			9.97E+01									9.97E+01	9.14E-16	
Cesium (55)	Cs-125	8.09E+03	8.56E-05	6.72E-01		1.18E+02	1.97E-01	3.04E-01	4.90E-01	1.77E+01	2.25E+00	2.40E+01	1.82E+01	1.59E+03	8.01E-02	6.48E-17	

Farmer Tap Water DCCs July 2023																	
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)													
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Ingestion	Inhalation	Immersion	Produce	Finfish	Shellfish	Beef	Dairy	Swine	Egg	Poultry	Total	Total	
				DCC	DCC	DCC	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	DCC	DCC
				DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1
				(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(mg/L)
Cesium (55)	Cs-126	2.22E+05	3.12E-06			1.01E+02										1.01E+02	3.02E-15
Cesium (55)	Cs-127	9.71E+02	7.13E-04	4.12E+02		1.78E+02	1.44E+02	2.68E+00	2.22E+02	3.31E+03	1.62E+03	3.04E+03	6.68E+04	5.47E+03	2.54E+00	1.74E-14	
Cesium (55)	Cs-128	1.00E+05	6.93E-06			1.33E+02									1.33E+02	8.91E-15	
Cesium (55)	Cs-129	1.89E+02	3.66E-03	1.70E+02		4.70E+02	5.92E+01	1.10E+00	9.16E+01	1.37E+03	6.67E+02	1.25E+03	2.75E+04	2.25E+03	1.06E+00	3.78E-14	
Cesium (55)	Cs-130	1.25E+04	5.56E-05	3.58E+02		2.39E+02	1.25E+02	2.33E+00	1.93E+02	2.88E+03	1.41E+03	2.64E+03	5.80E+04	4.75E+03	2.21E+00	1.21E-15	
Cesium (55)	Cs-130m	1.05E+05	6.58E-06	3.58E+02		2.19E+02	1.25E+02	2.33E+00	1.93E+02	2.88E+03	1.41E+03	2.65E+03	5.81E+04	4.76E+03	2.22E+00	1.44E-16	
Cesium (55)	Cs-131	2.61E+01	2.65E-02	1.76E+02		2.05E+04	6.15E+01	1.15E+00	9.52E+01	1.42E+03	6.93E+02	1.30E+03	2.86E+04	2.34E+03	1.10E+00	2.90E-13	
Cesium (55)	Cs-132	3.90E+01	1.78E-02	2.12E+01		1.69E+02	7.40E+00	1.38E-01	1.15E+01	1.71E+02	8.34E+01	1.57E+02	3.44E+03	2.82E+02	1.33E-01	2.35E-14	
Cesium (55)	Cs-134	3.36E-01	2.06E+00	6.81E-01		7.56E+01	2.37E-01	4.43E-03	3.68E-01	5.48E+00	2.68E+00	5.03E+00	1.10E+02	9.04E+00	4.26E-03	8.91E-14	
Cesium (55)	Cs-134m	2.09E+03	3.31E-04	6.80E-01		7.47E+01	2.37E-01	4.42E-03	3.67E-01	5.47E+00	2.67E+00	5.02E+00	1.10E+02	9.03E+00	4.25E-03	1.43E-17	
Cesium (55)	Cs-135	3.01E-07	2.30E+06	4.83E+00		4.88E+05	1.68E+00	3.14E-02	2.60E+00	3.88E+01	1.90E+01	3.56E+01	7.82E+02	6.40E+01	3.01E-02	7.08E-07	
Cesium (55)	Cs-135m	6.87E+03	1.01E-04	4.78E+00		7.27E+01	1.67E+00	3.11E-02	2.58E+00	3.84E+01	1.88E+01	3.53E+01	7.75E+02	6.35E+01	2.99E-02	3.08E-17	
Cesium (55)	Cs-136	1.92E+01	3.61E-02	3.69E+00		5.43E+01	1.29E+00	2.40E-02	1.99E+00	2.97E+01	1.45E+01	2.73E+01	5.99E+02	4.90E+01	2.31E-02	8.56E-15	
Cesium (55)	Cs-137	2.30E-02	3.02E+01	9.58E-01		2.10E+02	3.34E-01	6.23E-03	5.17E-01	7.70E+00	3.76E+00	7.07E+00	1.55E+02	1.27E+01	5.98E-03	1.87E-12	
Cesium (55)	Cs-138	1.09E+04	6.36E-05	9.95E+01		4.66E+01	3.47E+01	6.47E-01	5.37E+01	8.00E+02	3.91E+02	7.35E+02	1.61E+04	1.32E+03	6.14E-01	4.07E-16	
Cesium (55)	Cs-138m	1.25E+05	5.54E-06	1.23E+02		4.77E+01	4.28E+01	7.99E-01	6.63E+01	9.88E+02	4.83E+02	9.07E+02	1.99E+04	1.63E+03	7.55E-01	4.37E-17	
Cesium (55)	Cs-139	3.93E+04	1.76E-05	7.77E+01		2.92E+02	3.09E+01	1.05E+03	6.88E+00	9.81E+04	8.77E+03		5.79E+03	1.46E+05	5.12E+00	9.50E-16	
Cesium (55)	Cs-140	3.43E+05	2.02E-06	2.02E+00		2.59E+01	8.21E-01	2.01E+00	1.10E-01	2.63E+03	3.63E+02		2.60E+02	6.62E+03	8.78E-02	1.88E-18	
Copper (29)	Cu-57	1.11E+08	6.22E-09	8.59E+00		3.51E+01	3.08E+00	4.28E+00	2.30E+01	1.73E+03	2.01E+02	3.00E+04	8.00E+04	1.50E+03	1.33E+00	3.57E-20	
Copper (29)	Cu-59	2.68E+05	2.58E-06	1.60E+02		8.03E+01	6.29E+01	1.24E+02		2.83E+04	3.04E+03				2.32E+01	2.68E-16	
Copper (29)	Cu-60	1.54E+04	4.51E-05	1.37E+02		2.85E+01	3.96E+01	9.65E+00	4.03E+01	2.41E+03	1.23E+03	9.16E+03	1.77E+04	9.78E+03	5.06E+00	1.04E-15	
Copper (29)	Cu-61	1.82E+03	3.80E-04	8.55E+01		1.44E+02	2.48E+01	6.04E+00	2.53E+01	1.51E+03	7.72E+02	5.74E+03	1.11E+04	6.13E+03	3.75E+00	6.59E-15	
Copper (29)	Cu-62	3.77E+04	1.84E-05			1.17E+02									1.17E+02	1.01E-14	
Copper (29)	Cu-64	4.78E+02	1.45E-03	8.01E+01		6.43E+02	2.33E+01	5.66E+00	2.37E+01	1.42E+03	7.24E+02	5.38E+03	1.04E+04	5.74E+03	3.59E+00	2.52E-14	
Copper (29)	Cu-66	7.11E+04	9.74E-06			1.04E+03									1.04E+03	5.07E-14	
Copper (29)	Cu-67	9.82E+01	7.06E-03	2.93E+01		1.07E+03	8.50E+00	2.07E+00	8.65E+00	5.18E+02	2.65E+02	1.97E+03	3.80E+03	2.10E+03	1.32E+00	4.72E-14	
Copper (29)	Cu-69	1.28E+05	5.42E-06	3.08E+02		2.13E+02	1.36E+01	1.47E+00	4.15E+01	3.40E+02	2.06E+03	2.67E+03	1.43E+04	2.35E+04	1.27E+00	3.59E-17	
Dysprosium (66)	Dy-148	1.10E+05	6.28E-06	1.77E-01		3.75E+01	7.48E-02	1.11E-01		1.56E+01	5.32E+01				3.55E-02	2.50E-18	
Dysprosium (66)	Dy-149	8.67E+04	7.99E-06	1.16E+01		3.22E+01	4.89E+00	1.90E+00	1.53E+00	7.43E+02	4.32E+03		2.95E+06	1.63E+07	6.65E-01	5.99E-17	
Dysprosium (66)	Dy-150	5.08E+04	1.36E-05	1.11E-01		4.11E+01	4.73E-02	6.20E-02	1.41E-03	1.40E+01	5.68E+01				1.32E-03	2.05E-19	
Dysprosium (66)	Dy-151	2.03E+04	3.41E-05	2.89E+00		4.81E+01	1.23E+00	6.64E-01	2.75E-02	4.23E+02	1.92E+03		1.12E+11	6.17E+11	2.56E-02	9.96E-18	
Dysprosium (66)	Dy-152	2.55E+03	2.72E-04	7.86E-02		6.54E+01	3.34E-02	2.37E-02	1.80E-03	8.38E+00	3.06E+01		5.22E+04	9.61E+01	1.56E-03	4.87E-18	
Dysprosium (66)	Dy-153	9.49E+02	7.31E-04	1.29E+01		9.63E+01	5.48E+00	6.57E-01	3.56E+04	1.14E+03	3.90E+03				5.58E-01	4.72E-15	
Dysprosium (66)	Dy-154	2.31E-07	3.00E+06	6.05E-02			2.57E-02	4.06E-03	1.41E-03	6.42E+00	2.34E+01				9.88E-04	3.46E-08	
Dysprosium (66)	Dy-155	6.13E+02	1.13E-03	2.38E+01		1.47E+02	1.01E+01	7.86E-01		2.11E+03	7.17E+03				7.04E-01	9.33E-15	
Dysprosium (66)	Dy-157	7.46E+02	9.29E-04	9.78E+01		3.65E+02	4.14E+01	2.88E+00		8.65E+03	2.94E+04				2.60E+00	2.87E-14	
Dysprosium (66)	Dy-159	1.75E+00	3.96E-01	9.03E+01		4.99E+03	3.82E+01	2.26E+00		7.99E+03	2.72E+04				2.08E+00	9.92E-12	
Dysprosium (66)	Dy-165	2.60E+03	2.66E-04	8.55E+01		4.24E+03	3.62E+01	2.14E+00		7.56E+03	2.57E+04				1.97E+00	6.56E-15	
Dysprosium (66)	Dy-165m	2.90E+05	2.39E-06	8.75E+01		2.74E+03	3.70E+01	2.19E+00		7.73E+03	2.63E+04				2.02E+00	6.02E-17	
Dysprosium (66)	Dy-166	7.44E+01	9.32E-03	3.02E+00		1.85E+03	1.28E+00	1.35E-01		2.67E+02	9.09E+02				1.17E-01	1.37E-14	
Dysprosium (66)	Dy-167	5.87E+04	1.18E-05	1.09E+02		1.34E+02	4.61E+01	7.08E+01		9.63E+03	3.28E+04				1.90E+01	2.83E-15	
Dysprosium (66)	Dy-168	4.19E+04	1.66E-05			9.27E+01									9.27E+01	1.95E-14	
Erbium (68)	Er-154	9.77E+04	7.10E-06	6.06E-02		6.01E+01	2.57E-02	4.08E-03	1.41E-03	6.43E+00	2.35E+01				9.90E-04	8.18E-20	
Erbium (68)	Er-156	1.87E+04	3.71E-05	1.87E+01		5.36E+01	3.14E+01	4.81E+01		7.53E+03	2.70E+04				1.18E+01	5.15E-15	
Erbium (68)	Er-159	1.01E+04	6.85E-05	7.03E+01		8.85E+01	2.98E+01	2.24E+00		6.77E+03	2.37E+04				1.97E+00	1.63E-15	
Erbium (68)	Er-161	1.89E+03	3.66E-04	1.02E+02		1.16E+02	4.35E+01	6.62E+01		1.58E+04	7.22E+04				1.77E+01	7.88E-14	
Erbium (68)	Er-163	4.86E+03	1.43E-04	1.72E+03		5.12E+03	7.33E+02	1.12E+03		1.98E+05	7.48E+05				3.29E+02	5.79E-13	
Erbium (68)	Er-165	5.86E+02	1.18E-03	4.96E+02		5.56E+03	2.12E+02	3.22E+02		8.77E+04	4.48E+05				9.97E+01	1.47E-12	
Erbium (68)	Er-167m	9.63E+06	7.19E-08			1.31E+03									1.31E+03	1.19E-15	
Erbium (68)	Er-169	2.69E+01	2.58E-02	2.47E+01		3.57E+05	1.06E+01	1.61E+01		4.37E+03	2.23E+04				5.06E+00	1.67E-12	
Erbium (68)	Er-171	8.08E+02	8.58E-04	2.01E+01		3.30E+02	8.59E+00	1.71E+01		2.88E+03	1.24E+04				4.38E+00	4.87E-14	

Farmer Tap Water DCCs July 2023																
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)												
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Ingestion	Inhalation	Immersion	Produce	Finfish	Shellfish	Beef	Dairy	Swine	Egg	Poultry	Total	Total
				DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)
Erbium (68)	Er-172	1.23E+02	5.63E-03	3.42E+00	.	1.18E+02	1.46E+00	5.92E+00	.	3.73E+02	1.38E+03	.	.	.	8.62E-01	6.31E-14
Erbium (68)	Er-173	2.54E+05	2.73E-06	3.13E+01	.	9.79E+01	1.32E+01	.	.	2.77E+03	9.43E+03	.	.	.	8.47E+00	3.02E-16
Einsteinium (99)	Es-249	3.56E+03	1.94E-04	6.32E-03	.	8.79E+01	2.63E-03	1.07E-03	2.68E-05	3.00E+00	1.13E+00	6.99E+00	1.23E+01	9.80E+00	2.58E-05	9.45E-20
Einsteinium (99)	Es-250	7.06E+02	9.82E-04	2.99E-03	1.34E-01	3.92E+01	1.21E-03	3.59E-05	3.12E-05	3.33E-01	2.49E-01	3.91E+00	1.51E-01	1.08E-01	1.64E-05	3.04E-19
Einsteinium (99)	Es-250m	2.73E+03	2.53E-04	2.94E-03	1.34E-01	4.86E+01	1.19E-03	3.54E-05	3.07E-05	3.28E-01	2.45E-01	3.85E+00	1.49E-01	1.07E-01	1.61E-05	7.73E-20
Einsteinium (99)	Es-251	1.84E+02	3.77E-03	5.22E-03	2.63E-01	8.75E+01	2.15E-03	3.38E-05	3.24E-05	3.93E+00	1.21E+00	7.59E+00	1.34E+01	1.05E+01	1.63E-05	1.17E-18
Einsteinium (99)	Es-253	1.24E+01	5.61E-02	6.28E-03	.	1.24E+02	2.61E-03	1.07E-03	2.68E-05	2.99E+00	1.13E+00	6.99E+00	1.23E+01	9.80E+00	2.58E-05	2.77E-17
Einsteinium (99)	Es-254	9.17E-01	7.55E-01	2.91E-03	1.34E-01	4.21E+01	1.18E-03	3.54E-05	3.07E-05	3.28E-01	2.45E-01	3.85E+00	1.49E-01	1.07E-01	1.61E-05	2.34E-16
Einsteinium (99)	Es-254m	1.54E+02	4.49E-03	2.99E-03	1.34E-01	5.04E+01	1.21E-03	3.60E-05	3.13E-05	3.34E-01	2.50E-01	3.92E+00	1.52E-01	1.09E-01	1.64E-05	1.41E-18
Einsteinium (99)	Es-255	6.36E+00	1.09E-01	5.19E-03	2.63E-01	9.24E+01	2.14E-03	3.38E-05	3.23E-05	3.92E+00	1.21E+00	7.59E+00	1.34E+01	1.05E+01	1.63E-05	3.44E-17
Einsteinium (99)	Es-256	1.43E+04	4.83E-05	4.12E-02	9.76E-02	8.60E+00	1.63E-02	2.44E-04	1.48E-04	9.70E+00	4.16E+00	1.04E+02	1.84E+02	1.45E+02	9.14E-05	8.55E-20
Europium (63)	Eu-142	9.34E+06	7.42E-08	5.24E+01	.	5.33E+01	2.24E+01	2.84E+01	4.07E-01	9.27E+03	4.74E+04	.	.	.	3.88E-01	3.09E-19
Europium (63)	Eu-142m	2.98E+05	2.33E-06	5.24E+01	.	2.65E+01	2.24E+01	2.84E+01	4.07E-01	9.27E+03	4.74E+04	.	.	.	3.85E-01	9.63E-18
Europium (63)	Eu-143	1.41E+05	4.93E-06	4.25E+01	.	5.98E+01	1.55E+01	2.30E+01	.	1.50E+03	3.84E+04	.	1.38E+05	7.61E+05	6.71E+00	3.58E-16
Europium (63)	Eu-144	2.14E+06	3.23E-07	.	.	1.04E+02	.	.	.	.	.	.	.	.	1.04E+02	3.67E-16
Europium (63)	Eu-145	4.27E+01	1.62E-02	1.00E+01	.	8.69E+01	4.15E+00	1.70E+00	2.46E-01	4.33E+02	9.06E+03	.	2.79E+05	1.54E+06	2.00E-01	3.56E-14
Europium (63)	Eu-146	5.49E+01	1.26E-02	1.78E-01	.	4.82E+01	7.61E-02	9.01E-02	1.41E-03	2.90E+01	1.61E+02	.	.	.	1.35E-03	1.88E-16
Europium (63)	Eu-147	1.05E+01	6.60E-02	1.97E-01	.	2.62E+02	8.44E-02	1.04E-01	1.54E-03	3.37E+01	1.78E+02	.	6.26E+09	3.46E+10	1.48E-03	1.09E-15
Europium (63)	Eu-148	4.64E+00	1.49E-01	1.16E-01	.	5.28E+01	4.95E-02	2.90E-02	1.79E-03	1.34E+01	5.35E+01	.	5.22E+04	9.60E+01	1.61E-03	2.69E-15
Europium (63)	Eu-149	2.72E+00	2.55E-01	5.93E+01	.	2.55E+03	2.48E+01	7.41E+00	3.34E+00	2.10E+03	5.35E+04	.	.	.	2.03E+00	5.84E-12
Europium (63)	Eu-150	1.88E-02	3.69E+01	8.11E+00	.	7.66E+01	3.40E+00	1.01E+00	4.58E-01	2.87E+02	7.33E+03	.	.	.	2.77E-01	1.16E-10
Europium (63)	Eu-150m	4.74E+02	1.46E-03	1.03E-01	.	2.37E+03	4.40E-02	6.01E-02	1.58E-03	1.21E+01	4.72E+01	.	.	.	1.47E-03	2.43E-17
Europium (63)	Eu-152	5.12E-02	1.35E+01	5.12E-01	.	9.89E+01	1.16E-01	8.19E-02	6.34E-03	2.71E+01	1.09E+02	.	1.87E+05	3.44E+02	5.48E-03	8.54E-13
Europium (63)	Eu-152m	6.52E+02	1.06E-03	1.09E-01	.	3.93E+02	4.64E-02	3.43E-02	2.49E-03	1.15E+01	4.27E+01	.	7.24E+04	1.33E+02	2.17E-03	2.65E-17
Europium (63)	Eu-152n	3.79E+03	1.83E-04	2.73E-01	.	9.41E+01	1.16E-01	8.18E-02	6.34E-03	2.71E+01	1.09E+02	.	1.87E+05	3.44E+02	5.48E-03	1.15E-17
Europium (63)	Eu-154	8.06E-02	8.59E+00	4.88E+00	.	9.25E+01	2.05E+00	6.10E-01	2.75E-01	1.73E+02	4.41E+03	.	.	.	1.67E-01	1.67E-11
Europium (63)	Eu-154m	7.92E+03	8.75E-05	4.86E+00	.	8.91E+01	2.04E+00	6.08E-01	2.74E-01	1.72E+02	4.39E+03	.	.	.	1.67E-01	1.70E-16
Europium (63)	Eu-155	1.46E-01	4.76E+00	2.82E+01	.	2.37E+03	1.18E+01	3.53E+00	1.59E+00	9.97E+02	2.55E+04	.	.	.	9.67E-01	5.40E-11
Europium (63)	Eu-156	1.67E+01	4.16E-02	4.15E+00	.	9.04E+01	1.74E+00	5.19E-01	2.34E-01	1.47E+02	3.75E+03	.	.	.	1.42E-01	6.99E-14
Europium (63)	Eu-157	4.00E+02	1.73E-03	1.52E+01	.	4.33E+02	6.38E+00	1.90E+00	8.58E-01	5.38E+02	1.37E+04	.	.	.	5.22E-01	1.07E-14
Europium (63)	Eu-158	7.94E+03	8.73E-05	1.05E+02	.	8.76E+01	4.41E+01	1.32E+01	5.94E+00	3.72E+03	9.51E+04	.	.	.	3.47E+00	3.62E-15
Europium (63)	Eu-159	2.01E+04	3.44E-05	1.67E+01	.	3.48E+02	7.08E+00	7.99E+00	1.09E+01	1.31E+03	5.35E+03	.	.	.	2.37E+00	9.84E-16
Fluorine (9)	F-17	3.39E+05	2.04E-06	.	.	1.16E+02	.	.	.	.	.	.	.	.	1.16E+02	3.06E-16
Fluorine (9)	F-18	3.32E+03	2.09E-04	2.04E+02	.	1.21E+02	7.37E+01	3.32E+02	.	1.81E+03	5.27E+02	.	.	.	3.11E+01	8.83E-15
Iron (26)	Fe-52	7.34E+02	9.45E-04	6.50E+00	.	3.59E+01	2.01E+00	6.05E-01	4.29E-02	8.77E+01	3.32E+03	3.04E+03	2.50E+02	2.49E+02	3.89E-02	1.45E-16
Iron (26)	Fe-53	4.28E+04	1.62E-05	3.08E+02	.	1.01E+02	4.64E+01	2.08E+01	1.82E+01	9.07E+04	1.36E+05	8.57E+04	4.75E+05	5.80E+06	7.26E+00	4.71E-16
Iron (26)	Fe-53m	1.44E+05	4.81E-06	3.08E+02	.	2.71E+01	4.64E+01	2.08E+01	1.82E+01	9.07E+04	1.36E+05	8.57E+04	4.75E+05	5.80E+06	6.07E+00	1.17E-16
Iron (26)	Fe-55	2.53E-01	2.74E+00	2.31E+01	.	7.76E+11	7.73E+00	2.21E+00	1.43E-01	2.92E+02	1.19E+04	1.14E+04	8.33E+02	8.28E+02	1.32E-01	1.50E-12
Iron (26)	Fe-59	5.68E+00	1.22E-01	4.65E+00	.	9.48E+01	1.55E+00	4.45E-01	2.88E-02	5.87E+01	2.40E+03	2.29E+03	1.67E+02	1.67E+02	2.64E-02	1.44E-14
Iron (26)	Fe-60	4.62E-07	1.50E+06	8.30E-02	.	4.49E+01	2.75E-02	8.10E-03	5.34E-04	1.09E+00	3.98E+01	4.13E+01	3.10E+00	2.98E+00	4.89E-04	3.33E-09
Iron (26)	Fe-61	6.09E+04	1.14E-05	1.27E+02	.	7.58E+01	3.43E+01	2.73E+01	7.18E+01	5.24E+04	2.09E+04	9.40E+04	2.50E+05	4.71E+03	9.89E+00	5.19E-16
Iron (26)	Fe-62	3.21E+05	2.16E-06	.	.	5.26E+01	.	.	.	.	.	.	.	.	5.26E+01	5.32E-16
Fermium (100)	Fm-251	1.15E+03	6.05E-04	5.23E-03	2.63E-01	7.94E+01	2.15E-03	3.38E-05	3.26E-05	3.93E+00	1.21E+00	7.59E+00	1.34E+01	1.05E+01	1.64E-05	1.89E-19
Fermium (100)	Fm-252	2.39E+02	2.90E-03	4.76E-03	9.76E-02	4.76E+01	1.79E-03	3.42E-05	3.23E-05	7.33E-01	3.02E-01	7.74E+00	1.37E+01	1.09E+01	1.64E-05	9.06E-19
Fermium (100)	Fm-253	8.43E+01	8.22E-03	6.28E-03	.	1.18E+02	2.61E-03	1.07E-03	2.68E-05	2.99E+00	1.13E+00	6.99E+00	1.23E+01	9.80E+00	2.58E-05	4.06E-18
Fermium (100)	Fm-254	1.87E+03	3.70E-04	2.95E-03	1.34E-01	6.26E+01	1.19E-03	3.54E-05	3.07E-05	3.28E-01	2.46E-01	3.86E+00	1.49E-01	1.07E-01	1.61E-05	1.15E-19
Fermium (100)	Fm-255	3.02E+02	2.29E-03	5.21E-03	2.63E-01	9.29E+01	2.15E-03	3.38E-05	3.23E-05	3.92E+00	1.21E+00	7.59E+00	1.34E+01	1.05E+01	1.63E-05	7.22E-19
Fermium (100)	Fm-256	2.31E+03	3.00E-04	4.17E-02	9.76E-02	8.60E+00	1.64E-02	2.44E-04	1.48E-04	9.70E+00	4.16E+00	1.04E+02	1.84E+02	1.45E+02	9.14E-05	5.31E-19
Fermium (100)	Fm-257	2.52E+00	2.75E-01	6.20E-03	.	1.09E+02	2.57E-03	1.08E-03	2.69E-05	2.98E+00	1.13E+00	7.01E+00	1.24E+01	9.82E+00	2.58E-05	1.38E-16
Francium (87)	Fr-212	1.82E+04	3.81E-05	5.83E-03	.	4.72E+01	2.48E-03	2.63E-03	5.13E+05	3.42E-01	4.94E-01	.	1.22E-01	8.70E-02	1.02E-03	6.23E-19
Francium (87)	Fr-219	1.09E+09	6.34E-10	.	.	2.10E+03	.	.	.	.	.	.	.	.	2.10E+03	2.20E-17



Farmer Tap Water DCCs July 2023																	
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)													
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Ingestion	Inhalation	Immersion	Produce	Finfish	Shellfish	Beef	Dairy	Swine	Egg	Poultry	Total	Total	
				DCC	DCC	DCC	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	DCC	DCC
				DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (mg/L)
Francium (87)	Fr-220	7.98E+05	8.69E-07	3.63E+01	.	8.14E+01	7.94E+00	3.94E+01	.	3.21E+03	6.56E+02	.	.	.	5.18E+00	7.50E-17	
Francium (87)	Fr-221	7.43E+04	9.32E-06	3.72E+01	.	5.76E+02	8.93E+00	3.52E+01	9.62E+01	3.83E+03	8.16E+02	.	.	.	5.53E+00	8.62E-16	
Francium (87)	Fr-222	2.57E+04	2.70E-05	4.59E-03	.	6.16E+02	1.86E-03	2.34E-03	7.04E-03	3.76E-01	4.04E-01	.	1.52E-01	1.09E-01	7.43E-04	3.37E-19	
Francium (87)	Fr-223	1.66E+04	4.19E-05	5.78E-02	2.63E-01	3.33E+02	2.04E-02	2.37E-01	7.28E-03	4.83E+00	2.12E+00	.	.	.	4.71E-03	3.33E-18	
Francium (87)	Fr-224	1.09E+05	6.34E-06	9.32E-02	1.40E+01	5.45E+01	3.31E-02	2.70E-01	1.23E-02	1.01E+01	4.59E+00	.	.	.	7.92E-03	8.51E-19	
Francium (87)	Fr-227	1.47E+05	4.70E-06	2.04E-02	2.63E-01	1.17E+02	8.14E-03	3.03E-02	2.48E-03	5.90E+00	2.75E+00	.	.	.	1.63E-03	1.32E-19	
Gallium (31)	Ga-64	1.39E+05	5.00E-06	.	.	3.26E+01	.	.	.	.	.	.	.	.	3.26E+01	7.89E-16	
Gallium (31)	Ga-65	2.40E+04	2.89E-05	2.64E+00	.	6.73E+01	1.18E-01	1.28E-02	3.60E-01	2.95E+00	1.79E+01	2.32E+01	1.24E+02	2.04E+02	1.10E-02	1.57E-18	
Gallium (31)	Ga-66	6.40E+02	1.08E-03	8.01E+00	.	4.30E+01	3.44E+00	3.26E-01	.	2.83E+03	2.90E+03	.	.	.	2.85E-01	1.54E-15	
Gallium (31)	Ga-67	7.76E+01	8.93E-03	4.90E+01	.	7.98E+02	2.11E+01	1.99E+00	.	1.73E+04	1.77E+04	.	.	.	1.75E+00	7.93E-14	
Gallium (31)	Ga-68	5.38E+03	1.29E-04	9.37E+01	.	1.25E+02	4.03E+01	3.81E+00	.	3.31E+04	3.38E+04	.	.	.	3.27E+00	2.16E-15	
Gallium (31)	Ga-70	1.72E+04	4.02E-05	3.02E+02	.	8.76E+03	1.30E+02	1.23E+01	.	1.07E+05	1.09E+05	.	.	.	1.08E+01	2.30E-15	
Gallium (31)	Ga-72	4.31E+02	1.61E-03	8.67E+00	.	4.09E+01	3.73E+00	3.52E-01	.	3.07E+03	3.13E+03	.	.	.	3.08E-01	2.70E-15	
Gallium (31)	Ga-73	1.25E+03	5.55E-04	3.55E+01	.	3.43E+02	1.53E+01	1.44E+00	.	1.26E+04	1.28E+04	.	.	.	1.27E+00	3.88E-15	
Gallium (31)	Ga-74	4.49E+04	1.54E-05	.	.	3.45E+01	.	.	.	.	.	.	.	.	3.45E+01	2.99E-15	
Gadolinium (64)	Gd-142	3.11E+05	2.23E-06	5.24E+01	.	3.62E+01	2.24E+01	2.84E+01	4.07E-01	9.27E+03	4.74E+04	.	.	.	3.87E-01	9.25E-18	
Gadolinium (64)	Gd-143m	1.99E+05	3.49E-06	4.25E+01	.	2.86E+01	1.55E+01	2.30E+01	.	1.50E+03	3.84E+04	.	1.38E+05	7.61E+05	5.98E+00	2.26E-16	
Gadolinium (64)	Gd-144	8.15E+04	8.50E-06	.	.	5.70E+01	.	.	.	.	.	.	.	.	5.70E+01	5.28E-15	
Gadolinium (64)	Gd-145	1.58E+04	4.38E-05	9.69E+00	.	2.98E+01	4.02E+00	1.69E+00	2.46E-01	4.26E+02	8.21E+03	.	2.79E+05	1.54E+06	1.98E-01	9.53E-17	
Gadolinium (64)	Gd-145m	2.57E+05	2.70E-06	9.71E+00	.	2.63E+01	4.02E+00	1.69E+00	2.46E-01	4.26E+02	8.25E+03	.	2.79E+05	1.54E+06	1.98E-01	5.86E-18	
Gadolinium (64)	Gd-146	5.24E+00	1.32E-01	1.75E-01	.	4.46E+01	7.47E-02	8.89E-02	1.41E-03	2.81E+01	1.53E+02	.	.	.	1.35E-03	1.97E-15	
Gadolinium (64)	Gd-147	1.59E+02	4.35E-03	1.95E-01	.	6.38E+01	8.33E-02	1.03E-01	1.54E-03	3.29E+01	1.72E+02	.	6.26E+09	3.46E+10	1.48E-03	7.16E-17	
Gadolinium (64)	Gd-148	9.29E-03	7.46E+01	9.29E-01	.	1.77E-01	7.50E-02	1.15E-01	.	1.57E+01	5.34E+01	.	.	.	3.61E-02	3.01E-11	
Gadolinium (64)	Gd-149	2.73E+01	2.54E-02	1.37E+01	.	2.16E+02	5.79E+00	4.52E+00	3.34E+00	8.99E+02	4.88E+03	.	.	.	1.29E+00	3.71E-13	
Gadolinium (64)	Gd-150	3.87E-07	1.79E+06	9.24E-02	.	.	3.93E-02	5.45E-02	1.41E-03	1.10E+01	4.21E+01	.	.	.	1.31E-03	2.66E-08	
Gadolinium (64)	Gd-151	2.04E+00	3.40E-01	4.15E+01	.	2.40E+03	1.76E+01	2.70E+01	1.54E+05	3.67E+03	1.25E+04	.	.	.	8.41E+00	3.27E-11	
Gadolinium (64)	Gd-152	6.42E-15	1.08E+14	7.91E-02	.	.	3.36E-02	2.51E-02	1.80E-03	8.44E+00	3.09E+01	.	5.22E+04	9.60E+01	1.56E-03	1.94E+00	
Gadolinium (64)	Gd-153	1.05E+00	6.59E-01	3.41E+01	.	1.64E+03	1.44E+01	2.22E+01	.	3.01E+03	1.03E+04	.	.	.	6.90E+00	5.26E-11	
Gadolinium (64)	Gd-159	3.29E+02	2.11E-03	1.83E+01	.	2.34E+03	7.76E+00	1.19E+01	.	1.62E+03	5.52E+03	.	.	.	3.72E+00	9.45E-14	
Gadolinium (64)	Gd-162	4.34E+04	1.60E-05	.	.	7.75E+01	.	.	.	.	.	.	.	.	7.75E+01	1.52E-14	
Germanium (32)	Ge-66	2.69E+03	2.58E-04	7.41E+00	.	3.47E+01	2.47E+00	1.80E-01	.	8.54E+01	1.69E+02	.	.	.	1.63E-01	2.10E-16	
Germanium (32)	Ge-67	1.93E+04	3.60E-05	3.76E+01	.	7.44E+01	8.48E+00	4.93E-01	.	1.41E+02	2.86E+02	.	.	.	4.55E-01	8.29E-17	
Germanium (32)	Ge-68	9.34E-01	7.42E-01	6.98E+00	.	1.25E+02	6.54E-01	3.04E-02	.	6.66E+00	1.36E+01	.	.	.	2.87E-02	1.10E-13	
Germanium (32)	Ge-69	1.55E+02	4.46E-03	4.88E+01	.	1.22E+02	4.30E+00	1.98E-01	.	4.32E+01	8.82E+01	.	.	.	1.87E-01	4.36E-15	
Germanium (32)	Ge-71	2.21E+01	3.13E-02	8.06E+02	.	5.56E+07	7.11E+01	3.28E+00	.	7.13E+02	1.46E+03	.	.	.	3.10E+00	5.22E-13	
Germanium (32)	Ge-75	4.40E+03	1.57E-04	2.06E+02	.	3.12E+03	1.82E+01	8.37E-01	.	1.82E+02	3.72E+02	.	.	.	7.91E-01	7.07E-16	
Germanium (32)	Ge-77	5.37E+02	1.29E-03	1.34E+01	.	1.07E+02	1.83E+00	1.11E-01	2.00E-01	2.38E+01	5.40E+01	.	.	.	6.82E-02	5.13E-16	
Germanium (32)	Ge-78	4.14E+03	1.67E-04	3.12E+01	.	7.15E+01	4.65E+00	3.07E-01	4.04E-01	6.51E+01	1.54E+02	.	.	.	1.66E-01	1.64E-16	
Hydrogen (1)	H-3	5.63E-02	1.23E+01	2.78E+02	1.07E+01	.	2.52E+00	5.03E+03	.	4.10E+03	5.03E+02	.	.	.	2.01E+00	5.63E-12	
Hafnium (72)	Hf-167	1.78E+05	3.90E-06	1.48E+01	.	4.37E+01	6.26E+00	1.12E+02	2.34E+00	1.36E+03	4.68E+03	.	.	.	1.46E+00	7.17E-17	
Hafnium (72)	Hf-169	1.12E+05	6.16E-06	7.17E+00	.	5.28E+01	3.05E+00	1.02E+01	2.12E-01	7.83E+02	2.89E+03	.	.	.	1.89E-01	1.49E-17	
Hafnium (72)	Hf-170	3.79E+02	1.83E-03	7.28E+00	.	3.72E+01	3.09E+00	3.34E-01	7.58E-02	1.57E+03	6.58E+03	.	.	.	6.00E-02	1.41E-15	
Hafnium (72)	Hf-172	3.71E-01	1.87E+00	4.04E+00	.	5.75E+01	1.71E+00	1.25E-01	4.05E-02	9.91E+02	3.65E+03	.	.	.	2.98E-02	7.26E-13	
Hafnium (72)	Hf-173	2.57E+02	2.69E-03	1.64E+01	.	2.31E+02	6.96E+00	6.21E-01	1.68E-01	3.74E+03	1.48E+04	.	.	.	1.29E-01	4.53E-15	
Hafnium (72)	Hf-174	3.47E-16	2.00E+15	4.04E-02	.	.	1.70E-02	5.98E-04	3.58E-04	1.79E+01	3.65E+01	.	.	.	2.20E-04	5.79E+00	
Hafnium (72)	Hf-175	3.61E+00	1.92E-01	2.41E+01	.	3.59E+02	1.01E+01	3.57E-01	2.14E-01	1.07E+04	2.18E+04	.	.	.	1.31E-01	3.33E-13	
Hafnium (72)	Hf-177m	7.09E+03	9.78E-05	1.18E+02	.	5.38E+01	4.95E+01	1.74E+00	1.05E+00	5.22E+04	1.07E+05	.	.	.	6.34E-01	8.30E-16	
Hafnium (72)	Hf-178m	2.24E-02	3.10E+01	2.56E+00	.	5.43E+01	1.07E+00	3.79E-02	2.27E-02	1.13E+03	2.32E+03	.	.	.	1.39E-02	5.82E-12	
Hafnium (72)	Hf-179m	1.01E+01	6.86E-02	7.58E+00	.	1.35E+02	3.18E+00	1.12E-01	6.72E-02	3.35E+03	6.85E+03	.	.	.	4.12E-02	3.83E-14	
Hafnium (72)	Hf-180m	1.10E+03	6.28E-04	5.76E+01	.	1.24E+02	2.42E+01	8.52E-01	5.11E-01	2.55E+04	5.21E+04	.	.	.	3.13E-01	2.67E-15	
Hafnium (72)	Hf-181	5.97E+00	1.16E-01	8.49E+00	.	2.29E+02	3.56E+00	1.26E-01	7.53E-02	3.75E+03	7.67E+03	.	.	.	4.62E-02	7.35E-14	

Farmer Tap Water DCCs July 2023																
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)												
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Ingestion	Inhalation	Immersion	Produce	Finfish	Shellfish	Beef	Dairy	Swine	Egg	Poultry	Total	Total
				DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)
Hafnium (72)	Hf-182	7.70E-08	9.00E+06	2.35E+00	.	7.57E+01	9.89E-01	5.22E-02	3.29E-02	1.63E+03	2.93E+03	.	.	.	1.96E-02	2.43E-06
Hafnium (72)	Hf-182m	5.92E+03	1.17E-04	3.65E+00	.	5.06E+01	1.54E+00	1.12E-01	7.53E-02	3.69E+03	5.76E+03	.	.	.	4.32E-02	6.96E-17
Hafnium (72)	Hf-183	5.69E+03	1.22E-04	6.57E+00	.	1.13E+02	2.78E+00	7.08E-01	1.14E+00	4.63E+04	2.06E+04	.	.	.	3.56E-01	6.01E-16
Hafnium (72)	Hf-184	1.47E+03	4.70E-04	7.96E+00	.	6.59E+01	3.35E+00	2.39E-01	1.60E-01	7.85E+03	1.24E+04	.	.	.	9.20E-02	6.02E-16
Mercury (80)	Hg-190	1.82E+04	3.81E-05	2.43E-01	.	4.31E+01	7.42E-02	1.13E+00	1.64E+00	2.55E+01	4.39E+01	.	.	5.47E+05	5.22E-02	2.85E-17
Mercury (80)	Hg-191m	7.17E+03	9.67E-05	1.96E+01	.	5.08E+01	4.13E+00	4.68E-01	8.58E-01	1.79E+03	2.75E+03	.	.	2.21E+05	2.77E-01	3.86E-16
Mercury (80)	Hg-192	1.25E+03	5.54E-04	2.50E+01	.	5.11E+01	4.03E+00	1.13E-01	3.01E-01	5.63E+02	1.57E+03	.	.	5.23E+04	8.03E-02	6.46E-16
Mercury (80)	Hg-193	1.60E+03	4.34E-04	3.55E+01	.	1.18E+02	6.73E+00	2.33E-01	4.60E-01	9.99E+02	3.05E+03	.	.	1.09E+05	1.50E-01	9.52E-16
Mercury (80)	Hg-193m	5.14E+02	1.35E-03	1.61E+01	.	8.41E+01	2.19E+00	5.87E-02	2.37E-01	3.42E+02	7.89E+02	.	.	2.66E+04	4.59E-02	9.02E-16
Mercury (80)	Hg-194	1.58E-03	4.40E+02	6.14E+00	.	1.10E+02	8.27E-01	2.15E-02	8.35E-02	1.24E+02	2.94E+02	.	.	9.75E+03	1.67E-02	1.08E-10
Mercury (80)	Hg-195	5.77E+02	1.20E-03	2.59E+01	.	4.78E+02	6.10E+00	2.25E-01	2.64E-01	7.16E+02	3.27E+03	.	.	1.11E+05	1.18E-01	2.10E-15
Mercury (80)	Hg-195m	1.46E+02	4.75E-03	1.08E+01	.	3.38E+02	1.53E+00	4.07E-02	1.42E-01	2.26E+02	5.58E+02	.	.	1.85E+04	3.09E-02	2.16E-15
Mercury (80)	Hg-197	9.35E+01	7.41E-03	3.76E+01	.	2.14E+03	4.14E+00	1.00E-01	6.22E-01	6.65E+02	1.36E+03	.	.	4.49E+04	8.43E-02	9.32E-15
Mercury (80)	Hg-197m	2.55E+02	2.72E-03	1.32E+01	.	8.75E+02	1.45E+00	3.51E-02	2.18E-01	2.33E+02	4.76E+02	.	.	1.57E+04	2.95E-02	1.20E-15
Mercury (80)	Hg-199m	8.54E+03	8.12E-05	3.10E+02	.	7.01E+02	3.41E+01	8.26E-01	5.13E+00	5.48E+03	1.12E+04	.	.	3.70E+05	6.95E-01	8.49E-16
Mercury (80)	Hg-203	5.43E+00	1.28E-01	1.76E+01	.	5.10E+02	1.94E+00	4.70E-02	2.91E-01	3.12E+02	6.37E+02	.	.	2.10E+04	3.95E-02	7.75E-14
Mercury (80)	Hg-205	7.00E+04	9.89E-06	.	.	1.20E+04	.	.	.	.	.	.	.	.	1.20E+04	1.84E-12
Mercury (80)	Hg-206	4.47E+04	1.55E-05	.	.	9.35E+02	.	.	.	.	.	.	.	.	9.35E+02	2.26E-13
Mercury (80)	Hg-207	1.26E+05	5.52E-06	.	.	4.17E+01	.	.	.	.	.	.	.	.	4.17E+01	3.60E-15
Holmium (67)	Ho-150	2.85E+05	2.44E-06	1.11E-01	.	2.46E+01	4.73E-02	6.20E-02	1.41E-03	1.40E+01	5.68E+01	.	.	.	1.32E-03	3.65E-20
Holmium (67)	Ho-153	1.81E+05	3.82E-06	1.29E+01	.	5.26E+01	5.48E+00	6.58E-01	5.52E+03	1.14E+03	3.90E+03	.	2.49E+12	1.37E+13	5.55E-01	2.46E-17
Holmium (67)	Ho-153m	3.92E+04	1.77E-05	1.29E+01	.	5.20E+01	5.48E+00	6.58E-01	5.89E+02	1.14E+03	3.90E+03	.	9.28E+08	5.13E+09	5.55E-01	1.14E-16
Holmium (67)	Ho-154	3.10E+04	2.24E-05	6.05E-02	.	6.18E+01	2.57E-02	4.06E-03	1.41E-03	6.42E+00	2.34E+01	.	.	.	9.88E-04	2.58E-19
Holmium (67)	Ho-154m	1.17E+05	5.90E-06	6.05E-02	.	4.88E+01	2.57E-02	4.06E-03	1.41E-03	6.42E+00	2.34E+01	.	.	.	9.88E-04	6.79E-20
Holmium (67)	Ho-155	7.59E+03	9.13E-05	2.17E+01	.	8.42E+01	9.20E+00	7.82E-01	.	1.92E+03	6.54E+03	.	.	.	6.92E-01	7.41E-16
Holmium (67)	Ho-156	6.50E+03	1.07E-04	1.00E+02	.	5.46E+01	4.25E+01	6.52E+01	.	8.87E+03	3.02E+04	.	.	.	1.49E+01	1.87E-14
Holmium (67)	Ho-157	2.89E+04	2.40E-05	9.12E+01	.	1.35E+02	3.86E+01	2.87E+00	.	8.07E+03	2.75E+04	.	.	.	2.54E+00	7.24E-16
Holmium (67)	Ho-159	1.10E+04	6.29E-05	8.39E+01	.	3.22E+02	3.55E+01	2.25E+00	.	7.42E+03	2.53E+04	.	.	.	2.05E+00	1.55E-15
Holmium (67)	Ho-160	1.42E+04	4.87E-05	5.98E+02	.	6.97E+01	2.53E+02	3.89E+02	.	5.29E+04	1.80E+05	.	.	.	4.43E+01	2.61E-14
Holmium (67)	Ho-161	2.45E+03	2.83E-04	7.45E+02	.	3.78E+03	3.15E+02	4.85E+02	.	6.59E+04	2.24E+05	.	.	.	1.46E+02	5.03E-13
Holmium (67)	Ho-162	2.43E+04	2.85E-05	3.00E+03	.	8.09E+02	1.27E+03	1.95E+03	.	2.66E+05	9.05E+05	.	.	.	3.48E+02	1.22E-13
Holmium (67)	Ho-162m	5.44E+03	1.27E-04	3.61E+02	.	1.84E+02	1.53E+02	2.35E+02	.	3.19E+04	1.09E+05	.	.	.	5.25E+01	8.20E-14
Holmium (67)	Ho-163	1.52E-04	4.57E+03	3.18E+03	.	.	1.35E+03	2.07E+03	.	2.82E+05	9.59E+05	.	.	.	6.48E+02	3.65E-05
Holmium (67)	Ho-164	1.26E+04	5.52E-05	1.00E+03	.	6.57E+03	4.25E+02	6.52E+02	.	8.87E+04	3.02E+05	.	.	.	1.98E+02	1.36E-13
Holmium (67)	Ho-164m	9.59E+03	7.23E-05	3.64E+02	.	2.75E+03	1.54E+02	2.37E+02	.	3.22E+04	1.10E+05	.	.	.	7.21E+01	6.47E-14
Holmium (67)	Ho-166	2.27E+02	3.06E-03	6.60E+00	.	3.46E+03	2.79E+00	4.29E+00	.	5.84E+02	1.99E+03	.	.	.	1.34E+00	5.16E-14
Holmium (67)	Ho-166m	5.78E-04	1.20E+03	5.00E+00	.	7.27E+01	2.11E+00	3.25E+00	.	4.42E+02	1.50E+03	.	.	.	1.00E+00	1.51E-08
Holmium (67)	Ho-167	1.96E+03	3.54E-04	1.09E+02	.	3.32E+02	4.61E+01	7.08E+01	.	9.63E+03	3.28E+04	.	.	.	2.08E+01	9.29E-14
Holmium (67)	Ho-168	1.22E+05	5.69E-06	.	.	1.32E+02	.	.	.	.	.	.	.	.	1.32E+02	9.57E-15
Holmium (67)	Ho-168m	1.66E+05	4.19E-06	.	.	1.32E+02	.	.	.	.	.	.	.	.	1.32E+02	7.01E-15
Holmium (67)	Ho-170	1.32E+05	5.25E-06	.	.	6.84E+01	.	.	.	.	.	.	.	.	6.84E+01	4.62E-15
Iodine (53)	I-118	2.66E+04	2.61E-05	2.89E+00	.	4.12E+01	4.71E-01	3.30E-01	3.37E+01	7.32E+01	7.95E+01	1.66E+03	3.80E+01	1.84E+02	1.78E-01	4.15E-17
Iodine (53)	I-118m	4.29E+04	1.62E-05	3.08E+00	.	2.57E+01	4.87E-01	3.34E-01	.	7.79E+01	1.64E+02	.	3.92E+01	1.84E+02	1.83E-01	2.65E-17
Iodine (53)	I-119	1.91E+04	3.63E-05	3.19E+01	.	7.08E+01	6.60E+00	5.12E+00	6.45E+00	1.06E+03	5.86E+02	7.98E+03	6.29E+02	3.29E+03	1.81E+00	5.93E-16
Iodine (53)	I-120	4.46E+03	1.55E-04	3.11E+01	.	4.19E+01	9.11E+00	1.68E+01	2.27E+01	8.20E+02	1.04E+02	1.12E+03	8.39E+02	1.28E+05	3.54E+00	5.00E-15
Iodine (53)	I-120m	6.87E+03	1.01E-04	6.07E+01	.	3.28E+01	1.78E+01	3.29E+01	4.43E+01	1.60E+03	2.03E+02	2.18E+03	1.64E+03	2.50E+05	6.14E+00	5.62E-15
Iodine (53)	I-121	2.86E+03	2.42E-04	1.89E+01	.	1.26E+02	3.21E+00	2.33E+00	9.30E+01	4.81E+02	3.13E+02	4.59E+03	2.61E+02	1.32E+03	1.22E+00	2.69E-15
Iodine (53)	I-122	1.00E+05	6.91E-06	.	.	1.22E+02	.	.	.	.	.	.	.	.	1.22E+02	7.80E-15
Iodine (53)	I-123	4.57E+02	1.51E-03	7.02E+00	.	7.98E+02	1.21E+00	8.88E-01	2.87E+01	1.79E+02	1.02E+02	1.42E+03	9.86E+01	5.09E+02	4.63E-01	6.53E-15
Iodine (53)	I-124	6.06E+01	1.14E-02	6.70E-01	.	1.04E+02	1.97E-01	3.63E-01	4.89E-01	1.77E+01	2.24E+00	2.41E+01	1.81E+01	2.76E+03	8.35E-02	8.96E-15
Iodine (53)	I-125	4.26E+00	1.63E-01	6.74E-01	.	1.30E+04	1.98E-01	3.65E-01	4.92E-01	1.78E+01	2.26E+00	2.43E+01	1.82E+01	2.78E+03	8.40E-02	1.29E-13

Farmer Tap Water DCCs July 2023																
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)												
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Ingestion	Inhalation	Immersion	Produce	Finfish	Shellfish	Beef	Dairy	Swine	Egg	Poultry	Total	Total
				DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)
Iodine (53)	I-126	1.96E+01	3.54E-02	3.11E-01	.	2.77E+02	9.14E-02	1.69E-01	2.27E-01	8.22E+00	1.04E+00	1.12E+01	8.42E+00	1.28E+03	3.88E-02	1.31E-14
Iodine (53)	I-128	1.46E+04	4.75E-05	2.04E+02	.	1.62E+03	6.00E+01	1.11E+02	1.49E+02	5.40E+03	6.84E+02	7.36E+03	5.52E+03	8.42E+05	2.51E+01	1.16E-14
Iodine (53)	I-129	4.41E-08	1.57E+07	1.05E-01	.	1.73E+04	3.09E-02	5.71E-02	7.68E-02	2.78E+00	3.52E-01	3.79E+00	2.84E+00	4.34E+02	1.31E-02	2.01E-06
Iodine (53)	I-130	4.91E+02	1.41E-03	4.62E+00	.	5.51E+01	1.35E+00	2.50E+00	3.37E+00	1.22E+02	1.54E+01	1.66E+02	1.25E+02	1.90E+04	5.69E-01	7.90E-15
Iodine (53)	I-130m	4.12E+04	1.68E-05	5.49E+00	.	6.19E+01	1.61E+00	2.98E+00	4.01E+00	1.45E+02	1.84E+01	1.98E+02	1.48E+02	2.26E+04	6.77E-01	1.12E-16
Iodine (53)	I-131	3.15E+01	2.20E-02	4.07E-01	.	3.13E+02	1.19E-01	2.21E-01	2.97E-01	1.07E+01	1.36E+00	1.47E+01	1.10E+01	1.68E+03	5.07E-02	1.10E-14
Iodine (53)	I-132	2.65E+03	2.62E-04	3.15E+01	.	5.12E+01	9.23E+00	1.70E+01	2.30E+01	8.30E+02	1.05E+02	1.13E+03	8.50E+02	1.30E+05	3.64E+00	9.53E-15
Iodine (53)	I-132m	4.38E+03	1.58E-04	2.00E+01	.	5.10E+01	5.86E+00	1.08E+01	1.46E+01	5.28E+02	6.69E+01	7.20E+02	5.40E+02	8.23E+04	2.37E+00	3.76E-15
Iodine (53)	I-133	2.92E+02	2.37E-03	1.93E+00	.	1.83E+02	5.66E-01	1.05E+00	1.41E+00	5.09E+01	6.46E+00	6.95E+01	5.22E+01	7.95E+03	2.40E-01	5.74E-15
Iodine (53)	I-134	6.94E+03	9.99E-05	9.30E+01	.	4.43E+01	2.73E+01	5.04E+01	6.79E+01	2.45E+03	3.11E+02	3.35E+03	2.51E+03	3.83E+05	9.18E+00	9.30E-15
Iodine (53)	I-134m	1.01E+05	6.85E-06	9.52E+01	.	4.12E+01	2.79E+01	5.16E+01	6.95E+01	2.51E+03	3.18E+02	3.43E+03	2.57E+03	3.92E+05	9.21E+00	6.39E-16
Iodine (53)	I-135	9.24E+02	7.50E-04	3.23E+00	.	5.94E+01	1.06E+00	3.12E-02	1.90E+00	3.37E+01	1.20E+01	3.23E+01	1.97E+02	6.39E+01	2.94E-02	2.25E-16
Indium (49)	In-103	3.64E+05	1.90E-06	4.01E+01	.	1.99E+01	8.61E+00	2.55E+01	1.39E+01	2.00E+04	1.52E+02	1.90E+04	.	4.60E+03	3.23E+00	4.79E-17
Indium (49)	In-105	7.18E+04	9.65E-06	1.98E+01	.	3.08E+01	3.25E+00	2.73E+00	1.12E+00	2.49E+03	1.30E+01	1.49E+03	1.51E+05	3.59E+02	5.78E-01	4.43E-17
Indium (49)	In-106	5.87E+04	1.18E-05	.	.	3.28E+01	.	.	.	.	.	.	.	.	3.28E+01	3.10E-15
Indium (49)	In-106m	7.00E+04	9.89E-06	.	.	3.96E+01	.	.	.	.	.	.	.	.	3.96E+01	3.14E-15
Indium (49)	In-107	1.12E+04	6.16E-05	9.18E+01	.	7.36E+01	9.20E+00	3.79E-01	1.84E+01	2.45E+03	8.56E+03	1.46E+04	9.62E+04	3.13E+03	3.54E-01	1.77E-16
Indium (49)	In-108	6.28E+03	1.10E-04	1.31E+02	.	2.94E+01	5.63E+01	2.13E-01	2.90E+03	1.18E+04	.	.	.	.	2.10E-01	1.90E-16
Indium (49)	In-108m	9.20E+03	7.53E-05	1.20E+02	.	3.96E+01	5.17E+01	1.95E-01	2.66E+03	1.09E+04	.	.	.	.	1.93E-01	1.19E-16
Indium (49)	In-109	1.45E+03	4.79E-04	4.91E+00	.	1.84E+02	3.42E-01	1.66E-01	6.27E-01	1.48E+02	4.66E+02	4.98E+02	3.28E+03	1.07E+02	9.28E-02	3.67E-16
Indium (49)	In-109m	2.72E+05	2.55E-06	4.91E+00	.	9.46E+01	3.42E-01	1.66E-01	6.27E-01	1.48E+02	4.66E+02	4.98E+02	3.28E+03	1.07E+02	9.27E-02	1.95E-18
Indium (49)	In-110	1.24E+03	5.59E-04	4.20E+01	.	3.78E+01	1.81E+01	6.84E-02	.	9.29E+02	3.80E+03	.	.	.	6.79E-02	3.16E-16
Indium (49)	In-110m	5.27E+03	1.31E-04	9.51E+01	.	7.37E+01	4.09E+01	1.55E-01	.	2.10E+03	8.59E+03	.	.	.	1.53E-01	1.68E-16
Indium (49)	In-111	9.02E+01	7.68E-03	3.36E+01	.	3.13E+02	1.45E+01	5.47E-02	1.75E+06	7.43E+02	3.04E+03	1.39E+09	9.13E+09	2.97E+08	5.43E-02	3.51E-15
Indium (49)	In-111m	4.73E+04	1.46E-05	3.36E+01	.	1.40E+02	1.45E+01	5.47E-02	1.75E+06	7.43E+02	3.04E+03	1.39E+09	9.13E+09	2.97E+08	5.43E-02	6.69E-18
Indium (49)	In-112	2.43E+04	2.85E-05	9.10E+02	.	4.52E+02	3.91E+02	1.48E+00	.	2.01E+04	8.22E+04	.	.	.	1.47E+00	3.54E-16
Indium (49)	In-112m	1.77E+04	3.91E-05	3.46E+02	.	4.17E+02	1.49E+02	5.63E-01	.	7.65E+03	3.13E+04	.	.	.	5.59E-01	1.85E-16
Indium (49)	In-113m	3.66E+03	1.89E-04	3.25E+02	.	4.70E+02	1.40E+02	5.28E-01	.	7.18E+03	2.94E+04	.	.	.	5.25E-01	8.50E-16
Indium (49)	In-114	3.04E+05	2.28E-06	.	.	1.17E+04	.	.	.	.	.	.	.	.	1.17E+04	2.30E-13
Indium (49)	In-114m	5.11E+00	1.36E-01	2.19E+00	.	1.44E+03	9.43E-01	3.57E-03	.	4.85E+01	1.98E+02	.	.	.	3.55E-03	4.15E-15
Indium (49)	In-115	1.57E-15	4.41E+14	3.59E-01	.	1.59E+05	1.54E-01	5.83E-04	.	7.93E+00	3.24E+01	.	.	.	5.80E-04	2.23E+00
Indium (49)	In-115m	1.35E+03	5.12E-04	3.76E-01	.	7.68E+02	1.62E-01	6.12E-04	.	8.32E+00	3.40E+01	.	.	.	6.09E-04	2.71E-18
Indium (49)	In-116m	6.69E+03	1.04E-04	1.55E+02	.	4.54E+01	6.65E+01	2.51E-01	.	3.42E+03	1.40E+04	.	.	.	2.49E-01	2.26E-16
Indium (49)	In-117	8.43E+03	8.22E-05	2.93E+02	.	1.73E+02	1.02E+02	5.04E-01	.	6.35E+03	2.01E+04	.	.	.	4.99E-01	3.63E-16
Indium (49)	In-117m	3.13E+03	2.21E-04	6.76E+01	.	2.88E+02	2.84E+01	1.11E-01	.	1.49E+03	5.90E+03	.	.	.	1.10E-01	2.15E-16
Indium (49)	In-118	4.37E+06	1.59E-07	.	.	1.07E+03	.	.	.	.	.	.	.	.	1.07E+03	1.52E-15
Indium (49)	In-118m	8.35E+04	8.30E-06	.	.	4.09E+01	.	.	.	.	.	.	.	.	4.09E+01	3.03E-15
Indium (49)	In-119	1.52E+05	4.57E-06	2.76E+03	.	1.52E+02	3.04E+02	1.50E+01	.	4.88E+04	4.99E+04	.	.	.	1.30E+01	5.33E-16
Indium (49)	In-119m	2.02E+04	3.42E-05	2.05E+02	.	9.72E+02	8.69E+01	3.34E-01	.	4.52E+03	1.82E+04	.	.	.	3.32E-01	1.02E-16
Indium (49)	In-121	9.46E+05	7.32E-07	3.45E+01	.	1.23E+02	3.80E+00	1.87E-01	.	6.10E+02	6.24E+02	.	.	.	1.77E-01	1.19E-18
Indium (49)	In-121m	9.39E+04	7.38E-06	4.01E+01	.	1.37E+03	4.42E+00	2.17E-01	.	7.09E+02	7.25E+02	.	.	.	2.06E-01	1.39E-17
Iridium (77)	Ir-180	2.43E+05	2.85E-06	5.33E+02	.	4.07E+01	1.78E+02	.	.	4.71E+04	9.63E+04	.	.	.	3.11E+01	1.21E-15
Iridium (77)	Ir-182	2.43E+04	2.85E-05	1.07E+01	.	3.85E+01	2.54E+00	2.98E+02	.	4.17E+02	2.78E+02	.	.	.	1.91E+00	7.51E-16
Iridium (77)	Ir-183	6.28E+03	1.10E-04	7.57E+00	.	5.13E+01	1.27E+00	3.04E+02	.	1.63E+02	8.68E+01	.	.	.	1.04E+00	1.59E-15
Iridium (77)	Ir-184	1.96E+03	3.53E-04	5.22E+01	.	5.90E+01	1.74E+01	8.49E+01	.	4.62E+03	4.72E+05	.	.	.	9.48E+00	4.66E-14
Iridium (77)	Ir-185	4.22E+02	1.64E-03	1.20E+01	.	7.59E+01	4.00E+00	4.84E+01	.	1.06E+03	3.58E+03	.	.	.	2.72E+00	6.25E-14
Iridium (77)	Ir-186	3.65E+02	1.90E-03	2.92E-01	.	6.97E+01	9.75E-02	2.85E+01	.	2.58E+01	5.36E+01	.	.	.	7.25E-02	1.94E-15
Iridium (77)	Ir-186m	3.16E+03	2.19E-04	2.95E-01	.	6.91E+01	9.86E-02	7.52E+01	.	2.61E+01	5.36E+01	.	.	.	7.34E-02	2.27E-16
Iridium (77)	Ir-187	5.78E+02	1.20E-03	8.38E+01	.	3.77E+02	2.80E+01	1.36E+02	.	7.41E+03	7.57E+05	.	.	.	1.73E+01	2.94E-13
Iridium (77)	Ir-188	1.46E+02	4.74E-03	1.32E+01	.	5.28E+01	4.42E+00	2.15E+01	.	1.17E+03	1.20E+05	.	.	.	2.72E+00	1.83E-13
Iridium (77)	Ir-189	1.92E+01	3.62E-02	3.87E+01	.	1.93E+03	1.29E+01	6.33E+01	.	3.43E+03	2.78E+05	.	.	.	8.36E+00	4.32E-12

Farmer Tap Water DCCs July 2023																
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)												
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Ingestion	Inhalation	Immersion	Produce	Finfish	Shellfish	Beef	Dairy	Swine	Egg	Poultry	Total	Total
				DCC	DCC	DCC	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	DCC
				DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1
				(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)
Iridium (77)	Ir-190	2.15E+01	3.23E-02	9.37E+00	.	8.15E+01	3.13E+00	1.52E+01	.	8.28E+02	8.46E+04	.	.	.	1.98E+00	9.18E-13
Iridium (77)	Ir-190m	5.42E+03	1.28E-04	9.30E+00	.	8.15E+01	3.11E+00	1.51E+01	.	8.23E+02	8.41E+04	.	.	.	1.97E+00	3.61E-15
Iridium (77)	Ir-190n	1.97E+03	3.52E-04	4.75E+01	.	7.41E+01	1.59E+01	7.73E+01	.	4.20E+03	4.29E+05	.	.	.	9.03E+00	4.58E-14
Iridium (77)	Ir-191m	4.42E+06	1.57E-07	.	.	1.94E+03	.	.	.	.	.	.	.	.	1.94E+03	4.39E-15
Iridium (77)	Ir-192	3.43E+00	2.02E-01	7.00E+00	.	1.47E+02	2.34E+00	1.14E+01	.	6.19E+02	6.32E+04	.	.	.	1.50E+00	4.41E-12
Iridium (77)	Ir-192m	2.51E+05	2.76E-06	7.00E+00	.	1.47E+02	2.34E+00	1.14E+01	.	6.19E+02	6.32E+04	.	.	.	1.50E+00	6.01E-17
Iridium (77)	Ir-192n	2.88E-03	2.41E+02	4.16E+00	.	1.47E+02	1.39E+00	6.77E+00	.	3.68E+02	3.76E+04	.	.	.	8.96E-01	3.14E-09
Iridium (77)	Ir-193m	2.40E+01	2.88E-02	3.18E+01	.	4.99E+05	1.06E+01	5.18E+01	.	2.82E+03	2.88E+05	.	.	.	6.89E+00	2.90E-12
Iridium (77)	Ir-194	3.15E+02	2.20E-03	6.92E+00	.	1.19E+03	2.31E+00	1.13E+01	.	6.12E+02	6.25E+04	.	.	.	1.50E+00	4.84E-14
Iridium (77)	Ir-194m	1.48E+00	4.68E-01	4.84E+00	.	5.12E+01	1.62E+00	7.88E+00	.	4.28E+02	4.38E+04	.	.	.	1.03E+00	7.07E-12
Iridium (77)	Ir-195	2.43E+03	2.85E-04	9.23E+01	.	2.45E+03	3.08E+01	1.50E+02	.	8.16E+03	8.34E+05	.	.	.	1.98E+01	8.35E-14
Iridium (77)	Ir-195m	1.60E+03	4.34E-04	2.21E+01	.	3.02E+02	5.46E+00	1.09E+02	.	4.93E+03	5.91E+03	.	.	.	4.15E+00	2.65E-14
Iridium (77)	Ir-196	4.20E+05	1.65E-06	.	.	4.78E+02	.	.	.	.	.	.	.	.	4.78E+02	1.17E-14
Iridium (77)	Ir-196m	4.34E+03	1.60E-04	8.91E+01	.	4.84E+01	2.98E+01	1.45E+02	.	7.88E+03	8.05E+05	.	.	.	1.38E+01	3.27E-14
Potassium (19)	K-38	4.77E+04	1.45E-05	.	.	3.44E+01	.	.	.	.	.	.	.	.	3.44E+01	1.44E-15
Potassium (19)	K-40	5.54E-10	1.25E+09	1.55E+00	.	6.88E+02	1.38E-01	7.87E-03	3.26E-02	1.37E+01	4.00E+00	.	1.00E+02	5.55E+02	6.03E-03	2.28E-05
Potassium (19)	K-42	4.91E+02	1.41E-03	2.16E+01	.	3.72E+02	1.92E+00	1.10E-01	4.55E-01	1.91E+02	5.58E+01	.	1.40E+03	7.75E+03	8.41E-02	3.77E-16
Potassium (19)	K-43	2.72E+02	2.55E-03	3.98E+01	.	1.23E+02	3.53E+00	2.02E-01	8.37E-01	3.52E+02	1.03E+02	.	2.58E+03	1.43E+04	1.55E-01	1.28E-15
Potassium (19)	K-44	1.65E+04	4.21E-05	1.15E+02	.	4.50E+01	1.02E+01	5.83E-01	2.41E+00	1.01E+03	2.96E+02	.	7.44E+03	4.11E+04	4.42E-01	6.20E-17
Potassium (19)	K-45	2.11E+04	3.29E-05	1.15E+01	.	5.93E+01	1.16E+00	9.42E-01	2.15E+00	1.52E+02	2.12E+01	9.04E+03	1.58E+03	8.74E+03	3.92E-01	4.40E-17
Potassium (19)	K-46	2.08E+05	3.33E-06	.	.	3.65E+01	.	.	.	.	.	.	.	.	3.65E+01	4.23E-16
Krypton (36)	Kr-74	3.17E+04	2.19E-05	1.19E+02	.	1.93E+01	4.30E+01	2.13E+01	1.14E+00	8.42E+02	1.08E+02	.	.	.	9.79E-01	1.20E-16
Krypton (36)	Kr-75	8.49E+04	8.16E-06	3.69E+00	.	4.15E+01	1.52E-01	1.03E-02	7.74E-02	1.65E+01	1.49E+01	1.75E+01	1.54E+01	1.40E+01	8.53E-03	3.95E-19
Krypton (36)	Kr-76	4.10E+02	1.69E-03	2.15E+01	.	3.49E+01	7.77E+00	3.85E+00	2.05E-01	1.52E+02	1.94E+01	.	.	.	1.86E-01	1.80E-15
Krypton (36)	Kr-77	4.90E+03	1.42E-04	1.06E+02	.	8.85E+01	3.83E+01	1.90E+01	1.01E+00	7.51E+02	9.59E+01	.	.	.	9.11E-01	7.51E-16
Krypton (36)	Kr-79	1.73E+02	4.00E-03	.	.	4.78E+02	.	.	.	.	.	.	.	.	4.78E+02	1.14E-11
Krypton (36)	Kr-81	3.03E-06	2.29E+05	.	.	1.38E+05	.	.	.	.	.	.	.	.	1.38E+05	1.94E-01
Krypton (36)	Kr-81m	1.67E+06	4.15E-07	.	.	9.42E+02	.	.	.	.	.	.	.	.	9.42E+02	2.40E-15
Krypton (36)	Kr-83m	3.32E+03	2.09E-04	.	.	4.50E+06	.	.	.	.	.	.	.	.	4.50E+06	5.91E-09
Krypton (36)	Kr-85	6.44E-02	1.08E+01	.	.	3.08E+04	.	.	.	.	.	.	.	.	3.08E+04	2.13E-06
Krypton (36)	Kr-85m	1.36E+03	5.11E-04	.	.	7.72E+02	.	.	.	.	.	.	.	.	7.72E+02	2.54E-12
Krypton (36)	Kr-87	4.77E+03	1.45E-04	6.21E+00	.	1.36E+02	9.29E-01	2.06E-02	3.86E-02	1.10E+02	1.12E+01	.	.	.	1.32E-02	1.26E-17
Krypton (36)	Kr-88	2.14E+03	3.24E-04	1.04E+02	.	4.11E+01	1.56E+01	3.47E-01	6.48E-01	1.85E+03	1.89E+02	.	.	.	2.21E-01	4.76E-16
Krypton (36)	Kr-89	1.16E+05	5.99E-06	3.47E+00	.	2.61E+01	3.55E-01	6.86E-01	1.45E-01	4.26E+02	4.35E+01	2.08E+03	6.54E+02	6.32E+03	8.66E-02	3.50E-18
Lanthanum (57)	La-128	7.03E+04	9.86E-06	3.58E+00	.	3.09E+01	1.42E+00	4.85E+01	3.17E-01	4.52E+03	4.04E+02	.	2.67E+02	6.75E+03	2.38E-01	2.28E-17
Lanthanum (57)	La-129	3.14E+04	2.21E-05	7.29E+01	.	7.49E+01	2.76E+01	1.10E+00	6.84E+00	1.35E+03	6.46E+02	1.25E+03	9.55E+03	2.24E+03	8.89E-01	1.91E-16
Lanthanum (57)	La-130	4.19E+04	1.66E-05	.	.	5.19E+01	.	.	.	.	.	.	.	.	5.19E+01	8.45E-15
Lanthanum (57)	La-131	6.17E+03	1.12E-04	1.76E+01	.	1.08E+02	6.92E+00	1.13E+00	1.55E+00	1.34E+03	5.35E+02	1.30E+03	1.48E+03	2.21E+03	5.73E-01	6.38E-16
Lanthanum (57)	La-132	1.26E+03	5.48E-04	2.35E+01	.	5.73E+01	9.84E+00	1.03E+01	8.35E-01	3.20E+04	2.13E+04	.	1.70E+05	.	6.87E-01	3.76E-15
Lanthanum (57)	La-132m	1.50E+04	4.62E-05	2.77E+01	.	5.31E+01	1.16E+01	1.22E+01	9.83E-01	3.77E+04	2.50E+04	.	2.00E+05	.	8.06E-01	3.72E-16
Lanthanum (57)	La-133	1.55E+03	4.47E-04	5.13E+00	.	2.34E+02	2.04E+00	4.62E+01	4.44E-01	6.49E+03	5.88E+02	.	3.89E+02	9.85E+03	3.37E-01	1.51E-15
Lanthanum (57)	La-134	5.65E+04	1.23E-05	.	.	1.65E+02	.	.	.	.	.	.	.	.	1.65E+02	2.05E-14
Lanthanum (57)	La-135	3.11E+02	2.23E-03	3.09E+02	.	6.69E+03	1.29E+02	1.36E+02	1.10E+01	4.21E+05	2.79E+05	.	2.23E+06	.	9.11E+00	2.07E-13
Lanthanum (57)	La-136	3.69E+04	1.88E-05	.	.	3.00E+02	.	.	.	.	.	.	.	.	3.00E+02	5.79E-14
Lanthanum (57)	La-137	1.16E-05	6.00E+04	1.15E+02	.	1.61E+04	4.80E+01	5.04E+01	4.07E+00	1.56E+05	1.04E+05	.	8.27E+05	.	3.39E+00	2.11E-06
Lanthanum (57)	La-138	6.79E-12	1.02E+11	9.30E+00	.	9.18E+01	3.89E+00	4.09E+00	3.30E-01	1.27E+04	8.40E+03	.	6.70E+04	.	2.74E-01	2.92E-01
Lanthanum (57)	La-140	1.51E+02	4.60E-03	4.77E+00	.	4.84E+01	1.99E+00	2.10E+00	1.69E-01	6.49E+03	4.31E+03	.	3.44E+04	.	1.40E-01	6.84E-15
Lanthanum (57)	La-141	1.55E+03	4.47E-04	8.56E+00	.	1.08E+03	3.59E+00	4.78E+00	2.64E-01	2.16E+03	7.73E+03	1.92E+05	1.08E+05	.	2.27E-01	1.09E-15
Lanthanum (57)	La-142	4.00E+03	1.73E-04	5.51E+01	.	4.52E+01	2.31E+01	2.42E+01	1.96E+00	7.50E+04	4.98E+04	.	3.97E+05	.	1.57E+00	2.93E-15
Lanthanum (57)	La-143	2.57E+04	2.70E-05	3.94E+00	.	2.10E+02	1.64E+00	1.02E+00	2.30E-01	4.70E+02	1.78E+03	1.22E+05	6.10E+04	9.39E+03	1.61E-01	4.71E-17
Lutetium (71)	Lu-165	3.39E+04	2.04E-05	2.45E+01	.	5.98E+01	1.04E+01	1.38E+02	5.04E+00	2.29E+03	7.94E+03	.	.	.	2.78E+00	7.09E-16



Farmer Tap Water DCCs July 2023																	
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)													
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Ingestion	Inhalation	Immersion	Produce	Finfish	Shellfish	Beef	Dairy	Swine	Egg	Poultry	Total	Total	
				DCC	DCC	DCC	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	DCC	DCC
				DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (mg/L)
Lutetium (71)	Lu-167	7.07E+03	9.80E-05	1.48E+01	.	5.63E+01	6.26E+00	1.12E+02	2.34E+00	1.36E+03	4.68E+03	.	.	.	1.47E+00	1.82E-15	
Lutetium (71)	Lu-169	1.78E+02	3.89E-03	7.17E+00	.	7.30E+01	3.05E+00	1.02E+01	2.12E-01	7.83E+02	2.89E+03	.	.	.	1.89E-01	9.40E-15	
Lutetium (71)	Lu-169m	1.37E+05	5.07E-06	7.17E+00	.	7.30E+01	3.05E+00	1.02E+01	2.12E-01	7.83E+02	2.89E+03	.	.	.	1.89E-01	1.23E-17	
Lutetium (71)	Lu-170	1.26E+02	5.51E-03	1.04E+01	.	4.27E+01	4.47E+00	5.66E+00	1.18E-01	1.85E+03	9.43E+03	.	.	.	1.11E-01	7.87E-15	
Lutetium (71)	Lu-171	3.07E+01	2.26E-02	1.41E+01	.	1.90E+02	6.02E+00	7.63E+00	1.59E-01	2.49E+03	1.27E+04	.	.	.	1.50E-01	4.38E-14	
Lutetium (71)	Lu-171m	2.77E+05	2.51E-06	1.41E+01	.	1.90E+02	6.02E+00	7.63E+00	1.59E-01	2.49E+03	1.27E+04	.	.	.	1.50E-01	4.86E-18	
Lutetium (71)	Lu-172	3.78E+01	1.84E-02	7.54E+00	.	5.96E+01	3.22E+00	4.09E+00	8.50E-02	1.33E+03	6.81E+03	.	.	.	8.02E-02	1.92E-14	
Lutetium (71)	Lu-172m	9.84E+04	7.04E-06	7.54E+00	.	5.96E+01	3.22E+00	4.09E+00	8.50E-02	1.33E+03	6.81E+03	.	.	.	8.02E-02	7.35E-18	
Lutetium (71)	Lu-173	5.06E-01	1.37E+00	2.62E+01	.	8.03E+02	1.12E+01	1.42E+01	2.95E-01	4.63E+03	2.36E+04	.	.	.	2.79E-01	5.00E-12	
Lutetium (71)	Lu-174	2.09E-01	3.31E+00	3.33E+01	.	1.18E+03	1.42E+01	1.80E+01	3.75E-01	5.88E+03	3.00E+04	.	.	.	3.54E-01	1.54E-11	
Lutetium (71)	Lu-174m	1.78E+00	3.89E-01	1.13E+01	.	8.37E+02	4.83E+00	6.12E+00	1.27E-01	2.00E+03	1.02E+04	.	.	.	1.20E-01	6.17E-13	
Lutetium (71)	Lu-176	1.80E-11	3.85E+10	5.26E+00	.	2.56E+02	2.25E+00	2.85E+00	5.94E-02	9.31E+02	4.76E+03	.	.	.	5.61E-02	2.88E-02	
Lutetium (71)	Lu-176m	1.67E+03	4.15E-04	5.61E+01	.	8.20E+03	2.40E+01	3.04E+01	6.33E-01	9.93E+03	5.07E+04	.	.	.	5.98E-01	3.30E-15	
Lutetium (71)	Lu-177	3.81E+01	1.82E-02	1.74E+01	.	3.56E+03	7.44E+00	9.43E+00	1.96E-01	3.08E+03	1.57E+04	.	.	.	1.85E-01	4.52E-14	
Lutetium (71)	Lu-177m	1.58E+00	4.39E-01	5.24E+00	.	1.24E+02	2.24E+00	2.84E+00	5.92E-02	9.28E+02	4.74E+03	.	.	.	5.59E-02	3.29E-13	
Lutetium (71)	Lu-178	1.28E+04	5.40E-05	1.28E+02	.	8.63E+02	8.72E+01	1.10E+02	2.30E+00	3.60E+04	1.84E+05	.	.	.	2.17E+00	1.58E-15	
Lutetium (71)	Lu-178m	1.58E+04	4.39E-05	2.90E+02	.	1.17E+02	1.24E+02	1.57E+02	3.27E+00	5.13E+04	2.62E+05	.	.	.	3.01E+00	1.78E-15	
Lutetium (71)	Lu-179	1.32E+03	5.24E-04	4.29E+01	.	3.58E+03	1.83E+01	2.32E+01	4.84E-01	7.59E+03	3.87E+04	.	.	.	4.57E-01	3.24E-15	
Lutetium (71)	Lu-180	6.39E+04	1.08E-05	.	.	7.56E+01	.	.	.	.	.	.	.	.	7.56E+01	1.12E-14	
Lutetium (71)	Lu-181	1.04E+05	6.66E-06	8.49E+00	.	1.09E+02	3.56E+00	1.26E-01	7.53E-02	3.75E+03	7.67E+03	.	.	.	4.62E-02	4.21E-18	
Magnesium (12)	Mg-27	3.85E+04	1.80E-05	.	.	1.29E+02	.	.	.	.	.	.	.	.	1.29E+02	4.74E-15	
Magnesium (12)	Mg-28	2.90E+02	2.39E-03	4.52E+00	.	3.52E+01	1.51E+00	1.99E+00	1.75E-01	2.66E+02	1.02E+01	.	.	.	1.38E-01	7.00E-16	
Manganese (25)	Mn-50m	2.08E+05	3.33E-06	.	.	2.46E+01	.	.	.	.	.	.	.	.	2.46E+01	3.09E-16	
Manganese (25)	Mn-51	7.88E+03	8.79E-05	7.35E+01	.	1.15E+02	1.37E+01	6.57E+00	3.86E+00	6.93E+03	8.63E+03	2.88E+04	1.60E+05	1.95E+06	1.97E+00	6.69E-16	
Manganese (25)	Mn-52	4.52E+01	1.53E-02	5.64E+00	.	3.30E+01	8.50E-01	3.82E-01	3.33E-01	1.66E+03	2.48E+03	1.57E+03	8.70E+03	1.06E+05	1.43E-01	8.60E-15	
Manganese (25)	Mn-52m	1.73E+04	4.01E-05	9.71E+01	.	4.61E+01	1.46E+01	6.58E+00	5.73E+00	2.86E+04	4.28E+04	2.70E+04	1.50E+05	1.83E+06	2.34E+00	3.70E-16	
Manganese (25)	Mn-53	1.87E-07	3.70E+06	3.08E+02	.	4.64E+01	2.08E+01	1.82E+01	9.07E+04	1.36E+05	8.57E+04	4.75E+05	5.80E+06	7.82E+06	1.16E-04		
Manganese (25)	Mn-54	8.10E-01	8.55E-01	1.43E+01	.	1.39E+02	2.16E+00	9.70E-01	8.46E-01	4.22E+03	6.31E+03	3.99E+03	2.21E+04	2.70E+05	3.63E-01	1.27E-12	
Manganese (25)	Mn-56	2.35E+03	2.94E-04	3.74E+01	.	6.57E+01	5.63E+00	2.53E+00	2.21E+00	1.10E+04	1.65E+04	1.04E+04	5.77E+04	7.04E+05	9.36E-01	1.17E-15	
Manganese (25)	Mn-57	2.56E+05	2.71E-06	.	.	1.08E+03	.	.	.	.	.	.	.	.	1.08E+03	1.26E-14	
Manganese (25)	Mn-58m	3.35E+05	2.07E-06	.	.	4.68E+01	.	.	.	.	.	.	.	.	4.68E+01	4.25E-16	
Molybdenum (42)	Mo-101	2.49E+04	2.78E-05	1.63E+02	.	6.29E+01	9.32E-01	4.35E+02	2.35E+02	7.43E+03	7.46E+02	5.02E+06	7.57E+03	4.41E+04	9.07E-01	1.93E-16	
Molybdenum (42)	Mo-102	3.22E+04	2.15E-05	1.37E+02	.	8.89E+02	2.46E+01	1.17E+03	3.77E+03	2.42E+04	2.25E+03	.	.	.	1.38E+04	2.72E+04	
Molybdenum (42)	Mo-89	1.73E+05	4.01E-06	9.18E+00	.	3.06E+01	3.82E+00	1.56E+00	1.71E+06	6.02E+04	2.55E+05	1.44E+06	2.66E+06	9.56E+01	2.58E-17		
Molybdenum (42)	Mo-90	1.09E+03	6.35E-04	6.72E+00	.	2.21E+01	2.25E+00	4.26E-01	1.27E+03	8.12E+03	7.54E+02	5.80E+04	4.62E+03	9.07E+03	3.34E-01	1.45E-15	
Molybdenum (42)	Mo-91	2.35E+04	2.95E-05	8.93E+01	.	1.20E+02	2.11E+01	1.10E+01	4.37E+03	2.81E+04	2.60E+03	1.51E+06	1.61E+04	3.15E+04	6.29E+00	1.28E-15	
Molybdenum (42)	Mo-91m	3.38E+05	2.05E-06	3.32E+01	.	6.09E+01	1.16E+01	2.01E+00	8.75E+03	5.60E+04	5.19E+03	2.74E+05	3.17E+04	6.23E+04	1.58E+00	2.23E-17	
Molybdenum (42)	Mo-93	1.73E-04	4.00E+03	3.89E+00	.	2.50E+05	7.19E-01	3.91E+00	1.13E+02	7.22E+02	6.71E+01	6.00E+05	4.14E+02	8.13E+02	5.17E-01	1.46E-08	
Molybdenum (42)	Mo-93m	8.86E+02	7.82E-04	3.73E+00	.	4.90E+01	6.88E-01	3.90E+00	1.08E+02	6.90E+02	6.41E+01	6.01E+05	3.96E+02	7.77E+02	4.93E-01	2.71E-15	
Molybdenum (42)	Mo-99	9.21E+01	7.53E-03	7.50E+00	.	4.61E+02	2.55E-02	1.35E+01	6.48E+00	2.25E+02	2.28E+01	1.35E+05	2.53E+02	2.73E+03	2.53E-02	1.42E-15	
Nitrogen (7)	N-13	3.66E+04	1.90E-05	.	.	1.17E+02	.	.	.	.	.	.	.	.	1.17E+02	2.18E-15	
Nitrogen (7)	N-16	3.07E+06	2.26E-07	.	.	2.05E+01	.	.	.	.	.	.	.	.	2.05E+01	5.62E-18	
Sodium (11)	Na-22	2.66E-01	2.60E+00	3.28E+00	.	5.26E+01	9.72E-01	7.02E-01	1.20E+01	3.87E+01	4.56E+00	.	5.32E+01	1.68E+01	3.14E-01	1.36E-12	
Sodium (11)	Na-24	4.06E+02	1.71E-03	2.33E+01	.	2.56E+01	6.91E+00	4.99E+00	8.51E+01	2.75E+02	3.24E+01	.	3.78E+02	1.19E+02	2.07E+00	6.41E-15	
Niobium (41)	Nb-87	9.71E+04	7.13E-06	9.92E+00	.	3.72E+01	3.70E+00	2.77E+00	7.07E+00	2.05E+03	1.76E+03	1.98E+05	5.39E+04	4.28E+04	1.11E+00	5.21E-17	
Niobium (41)	Nb-88	2.51E+04	2.76E-05	5.68E+00	.	1.57E+01	2.33E+00	1.98E+00	.	1.40E+03	6.74E+03	9.97E+05	2.41E+05	2.82E+04	8.51E-01	1.56E-16	
Niobium (41)	Nb-88m	4.68E+04	1.48E-05	5.93E+00	.	1.58E+01	2.44E+00	2.72E+00	.	1.40E+03	6.74E+03	.	2.48E+05	2.83E+04	9.89E-01	9.75E-17	
Niobium (41)	Nb-89	2.99E+03	2.32E-04	9.18E+00	.	4.52E+01	3.82E+00	1.56E+00	1.71E+06	6.02E+04	2.55E+05	1.44E+06	2.66E+06	9.65E-01	1.51E-15		
Niobium (41)	Nb-89m	5.52E+03	1.26E-04	1.12E+01	.	3.89E+01	4.70E+00	2.76E+00	.	1.89E+06	6.54E+04	5.22E+05	2.22E+06	4.10E+06	1.45E+00	1.23E-15	
Niobium (41)	Nb-90	4.16E+02	1.67E-03	7.86E+00	.	2.60E+01	3.09E+00	4.26E-01	.	5.35E+06	3.47E+05	5.80E+04	5.10E+05	9.39E+05	3.53E-01	4.00E-15	
Niobium (41)	Nb-91	1.02E-03	6.80E+02	2.05E+02	.	6.22E+04	8.05E+01	1.11E+01	.	1.39E+08	9.03E+06	1.51E+06	1.33E+07	2.45E+07	9.31E+00	4.36E-08	

Farmer Tap Water DCCs July 2023																	
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)													
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Ingestion	Inhalation	Immersion	Produce	Finfish	Shellfish	Beef	Dairy	Swine	Egg	Poultry	Total	Total	
				DCC	DCC	DCC	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	DCC	DCC
				DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (mg/L)
Niobium (41)	Nb-91m	4.16E+00	1.67E-01	2.04E+01	.	4.18E+03	8.01E+00	1.10E+00	.	1.39E+07	8.98E+05	1.50E+05	1.32E+06	2.43E+06	9.26E-01	1.06E-12	
Niobium (41)	Nb-92	2.00E-08	3.47E+07	1.00E+01	.	7.81E+01	3.94E+00	5.44E-01	.	6.82E+06	4.42E+05	7.40E+04	6.50E+05	1.20E+06	4.53E-01	1.10E-04	
Niobium (41)	Nb-92m	2.49E+01	2.78E-02	2.03E+01	.	1.20E+02	7.99E+00	1.10E+00	.	1.38E+07	8.97E+05	1.50E+05	1.32E+06	2.43E+06	9.18E-01	1.78E-13	
Niobium (41)	Nb-93m	4.30E-02	1.61E+01	7.16E+01	.	1.62E+06	2.81E+01	3.88E+00	.	4.87E+07	3.15E+06	5.28E+05	4.64E+06	8.55E+06	3.25E+00	3.69E-10	
Niobium (41)	Nb-94	3.41E-05	2.03E+04	5.71E+00	.	7.46E+01	2.24E+00	3.10E-01	.	3.89E+06	2.52E+05	4.22E+04	3.70E+05	6.82E+05	2.59E-01	3.74E-08	
Niobium (41)	Nb-94m	5.82E+04	1.19E-05	5.74E+00	.	7.48E+01	2.26E+00	3.11E-01	.	3.91E+06	2.53E+05	4.24E+04	3.72E+05	6.86E+05	2.60E-01	2.20E-17	
Niobium (41)	Nb-95	7.23E+00	9.59E-02	1.70E+01	.	1.53E+02	6.67E+00	9.21E-01	.	1.16E+07	7.49E+05	1.25E+05	1.10E+06	2.03E+06	7.68E-01	5.30E-13	
Niobium (41)	Nb-95m	7.01E+01	9.89E-03	8.26E+00	.	1.49E+02	3.25E+00	4.48E-01	.	5.62E+06	3.64E+05	6.10E+04	5.36E+05	9.87E+05	3.75E-01	2.66E-14	
Niobium (41)	Nb-96	2.60E+02	2.67E-03	8.97E+00	.	4.72E+01	3.52E+00	4.86E-01	.	6.10E+06	3.95E+05	6.62E+05	5.82E+05	1.07E+06	4.04E-01	7.83E-15	
Niobium (41)	Nb-97	5.05E+03	1.37E-04	1.39E+02	.	1.76E+02	5.45E+01	7.52E+00	.	9.44E+07	6.12E+06	1.02E+06	9.00E+06	1.66E+07	6.09E+00	6.13E-15	
Niobium (41)	Nb-98m	7.10E+03	9.76E-05	8.97E+01	.	4.04E+01	3.52E+01	4.86E+00	.	6.10E+07	3.95E+06	6.62E+05	5.82E+06	1.07E+07	3.70E+00	2.68E-15	
Niobium (41)	Nb-99	1.46E+06	4.76E-07	7.50E+00	.	2.73E+02	2.55E-02	1.35E+01	6.48E+00	2.25E+02	2.28E+01	1.35E+05	2.53E+02	2.73E+03	2.53E-02	9.00E-20	
Niobium (41)	Nb-99m	1.40E+05	4.95E-06	7.50E+00	.	1.07E+02	2.55E-02	1.35E+01	6.48E+00	2.25E+02	2.28E+01	1.35E+05	2.53E+02	2.73E+03	2.53E-02	9.36E-19	
Neodymium (60)	Nd-134	4.29E+04	1.62E-05	3.40E+00	.	3.25E+01	1.43E+00	2.03E+00	1.01E-01	5.85E+02	2.90E+03	5.18E+04	6.99E+04	1.36E+05	8.78E-02	1.44E-17	
Neodymium (60)	Nd-135	2.94E+04	2.36E-05	2.49E+01	.	4.04E+01	1.04E+01	8.85E+00	9.97E-01	3.69E+03	1.47E+04	5.61E+05	4.81E+05	5.24E+04	7.83E-01	1.89E-16	
Neodymium (60)	Nd-136	7.19E+03	9.64E-05	7.29E+01	.	4.84E+01	3.07E+01	1.19E+01	.	6.45E+03	2.20E+04	3.15E+06	3.50E+04	6.60E+05	6.54E-15	6.54E-15	
Neodymium (60)	Nd-137	9.46E+03	7.32E-05	4.79E+01	.	7.53E+01	2.01E+01	1.23E+01	2.92E+00	7.82E+03	2.28E+04	5.27E+06	6.01E+05	5.86E+04	1.97E+00	1.49E-15	
Neodymium (60)	Nd-138	1.20E+03	5.75E-04	1.46E+01	.	1.40E+02	6.19E+00	2.38E+00	.	1.29E+03	4.40E+03	3.16E+06	5.82E+03	1.52E+00	9.12E-15	9.12E-15	
Neodymium (60)	Nd-139	1.23E+04	5.65E-05	3.03E+01	.	1.74E+02	1.27E+01	1.31E+01	1.05E+00	4.58E+03	2.05E+04	5.37E+05	6.30E+05	1.21E+05	7.72E-01	5.19E-16	
Neodymium (60)	Nd-139m	1.10E+03	6.28E-04	1.80E+01	.	6.24E+01	7.59E+00	4.66E+00	1.05E+00	2.12E+03	8.11E+03	5.37E+05	5.92E+05	1.55E+04	8.30E-01	4.82E-15	
Neodymium (60)	Nd-140	7.51E+01	9.23E-03	4.70E+00	.	2.15E+02	1.99E+00	7.64E-01	.	4.16E+02	1.42E+03	1.02E+06	1.87E+03	4.92E-01	4.81E-14	4.81E-14	
Neodymium (60)	Nd-141	2.44E+03	2.84E-04	1.13E+03	.	2.00E+03	4.77E+02	1.83E+02	.	9.97E+04	3.39E+05	2.44E+08	4.49E+05	1.12E+02	3.39E-13	3.39E-13	
Neodymium (60)	Nd-141m	3.52E+05	1.97E-06	1.13E+03	.	1.56E+02	4.77E+02	1.83E+02	.	9.97E+04	3.40E+05	2.44E+08	4.49E+05	6.72E+01	1.41E-15	1.41E-15	
Neodymium (60)	Nd-144	3.03E-16	2.29E+15	2.41E-01	.	1.02E-01	3.92E-02	3.92E-02	.	2.13E+01	7.27E+01	5.22E+04	9.60E+01	2.53E-02	6.32E+02	6.32E+02	
Neodymium (60)	Nd-147	2.30E+01	3.01E-02	1.93E-01	.	9.25E+02	8.27E-02	9.96E-02	1.54E-03	3.28E+01	1.67E+02	1.07E+05	3.41E+03	1.48E-03	4.96E-16	4.96E-16	
Neodymium (60)	Nd-149	3.51E+03	1.97E-04	8.28E+00	.	3.15E+02	3.06E+00	3.57E+00	.	3.13E+02	6.13E+03	3.01E+04	2.54E+04	1.36E+00	3.03E-15	3.03E-15	
Neodymium (60)	Nd-151	2.93E+04	2.37E-05	1.09E+01	.	9.96E+01	4.05E+00	5.48E+00	7.32E-01	4.34E+02	9.23E+03	4.14E+04	8.40E+04	5.26E-01	1.42E-16	1.42E-16	
Neodymium (60)	Nd-152	3.20E+04	2.17E-05	1.96E+02	.	2.51E+02	8.30E+01	3.19E+01	.	1.73E+04	5.90E+04	4.24E+07	7.80E+04	1.90E+01	4.74E-15	4.74E-15	
Neon (10)	Ne-19	1.27E+06	5.46E-07	.	.	1.16E+02	.	.	.	.	.	.	.	1.16E+02	9.10E-17	9.10E-17	
Neon (10)	Ne-24	1.08E+05	6.43E-06	2.33E+01	.	2.29E+01	6.91E+00	4.99E+00	8.51E+01	2.75E+02	3.24E+01	3.78E+02	1.19E+02	2.05E+00	2.39E-17	2.39E-17	
Nickel (28)	Ni-56	4.16E+01	1.66E-02	2.82E+00	.	2.10E+01	8.20E-01	7.29E-01	2.09E+00	8.80E+02	1.64E+02	2.73E+03	7.28E+03	1.37E+02	2.87E-01	2.02E-14	
Nickel (28)	Ni-57	1.71E+02	4.06E-03	8.59E+00	.	5.51E+01	3.08E+00	4.28E+00	2.30E+01	1.73E+03	2.01E+02	3.00E+04	8.00E+04	1.50E+03	1.35E+00	2.36E-14	
Nickel (28)	Ni-59	6.86E-06	1.01E+05	1.60E+02	.	7.71E+06	6.29E+01	1.24E+02	.	2.83E+04	3.04E+03	.	.	3.27E+01	1.48E-05	1.48E-05	
Nickel (28)	Ni-63	6.92E-03	1.00E+02	6.43E+01	.	.	2.53E+01	4.98E+01	.	1.14E+04	1.22E+03	.	.	1.32E+01	6.28E-09	6.28E-09	
Nickel (28)	Ni-65	2.41E+03	2.87E-04	5.18E+01	.	1.98E+02	2.04E+01	4.01E+01	.	9.16E+03	9.85E+02	.	.	1.00E+01	1.42E-14	1.42E-14	
Nickel (28)	Ni-66	1.11E+02	6.23E-03	3.07E+00	.	1.04E+03	1.21E+00	2.38E+00	.	5.43E+02	5.84E+01	.	.	6.27E-01	1.95E-14	1.95E-14	
Neptunium (93)	Np-232	2.48E+04	2.80E-05	1.94E-02	9.76E-02	4.25E+01	7.69E-03	1.12E-01	3.78E-04	5.54E+00	2.96E-01	1.06E+00	1.86E+00	1.51E+00	3.51E-04	1.72E-19	
Neptunium (93)	Np-233	1.01E+04	6.89E-05	1.33E-02	.	3.14E+02	5.39E-03	3.80E-02	8.78E-05	3.95E+00	1.14E+00	7.10E+00	1.25E+01	1.01E+01	8.56E-05	1.04E-19	
Neptunium (93)	Np-234	5.75E+01	1.21E-02	3.60E-03	1.34E-01	3.96E+01	1.44E-03	2.25E-03	1.93E-04	3.30E-01	2.74E-01	7.36E+00	1.50E-01	1.08E-01	1.51E-04	3.22E-17	
Neptunium (93)	Np-235	6.39E-01	1.09E+00	1.03E-02	2.63E-01	1.90E+02	4.08E-03	1.66E-02	2.10E-03	5.55E+00	1.24E+00	7.79E+00	1.37E+01	1.11E+01	1.13E-03	2.18E-14	
Neptunium (93)	Np-236	4.50E-06	1.54E+05	6.27E-03	9.76E-02	4.73E+01	2.31E-03	6.95E-04	1.01E-04	8.28E-01	3.02E-01	4.32E+00	7.59E+00	6.15E+00	8.36E-05	2.30E-10	
Neptunium (93)	Np-236m	2.70E+02	2.57E-03	8.46E-03	9.76E-02	5.63E+01	3.17E-03	1.86E-04	1.23E-04	1.26E+00	3.00E-01	1.92E+00	3.38E+00	2.73E+00	7.17E-05	3.29E-18	
Neptunium (93)	Np-237	3.23E-07	2.14E+06	1.17E-02	.	2.24E+02	4.75E-03	2.25E-02	5.29E-05	3.87E+00	1.14E+00	7.10E+00	1.25E+01	1.01E+01	5.20E-05	2.00E-09	
Neptunium (93)	Np-238	1.19E+02	5.80E-03	3.35E-03	1.34E-01	4.86E+01	1.34E-03	3.69E-05	5.71E-05	3.30E-01	2.73E-01	7.30E+00	1.50E-01	1.08E-01	2.19E-05	2.29E-18	
Neptunium (93)	Np-239	1.07E+02	6.46E-03	8.34E-03	2.63E-01	1.50E+02	3.36E-03	3.42E-05	7.13E-05	5.54E+00	1.22E+00	7.71E+00	1.36E+01	1.09E+01	2.29E-05	2.67E-18	
Neptunium (93)	Np-240	5.88E+03	1.18E-04	5.15E-03	9.76E-02	3.34E+01	1.92E-03	3.42E-05	4.57E-05	7.38E-01	3.02E-01	7.74E+00	1.37E+01	1.09E+01	1.93E-05	4.13E-20	
Neptunium (93)	Np-240m	5.04E+04	1.37E-05	5.15E-03	9.76E-02	4.20E+01	1.92E-03	3.42E-05	4.57E-05	7.38E-01	3.02E-01	7.74E+00	1.37E+01	1.09E+01	1.93E-05	4.81E-21	
Neptunium (93)	Np-241	2.62E+04	2.64E-05	9.58E-03	.	2.04E+02	3.92E-03	1.18E-03	4.39E-05	3.21E+00	1.14E+00	6.99E+00	1.23E+01	9.80E+00	4.17E-05	2.01E-20	
Neptunium (93)	Np-242	1.66E+05	4.19E-06	3.29E-03	1.34E-01	5.48E+01	1.32E-03	3.54E-05	5.52E-05	3.29E-01	2.45E-01	3.85E+00	1.49E-01	1.07E-01	2.11E-05	1.62E-21	
Neptunium (93)	Np-242m	6.62E+04	1.05E-05	3.29E-03	1.34E-01	4.24E+01	1.32E-03	3.54E-05	5.52E-05	3.29E-01	2.45E-01	3.85E+00	1.49E-01	1.07E-01	2.11E-05	4.04E-21	
Oxygen (8)	O-14	3.10E+05	2.24E-06	.	.	3.29E+01	.	.	.	.	.	.	.	.	3.29E+01	7.79E-17	

Farmer Tap Water DCCs July 2023																	
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)													
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Ingestion	Inhalation	Immersion	Produce	Finfish	Shellfish	Beef	Dairy	Swine	Egg	Poultry	Total	Total	
				DCC	DCC	DCC	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	DCC	DCC
				DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1
				(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(mg/L)
Oxygen (8)	O-15	1.79E+05	3.88E-06	.	.	1.16E+02	.	.	.	.	.	.	.	.	1.16E+02	5.11E-16	
Oxygen (8)	O-19	8.26E+05	8.39E-07	.	.	1.18E+02	.	.	.	.	.	.	.	.	1.18E+02	1.42E-16	
Osmium (76)	Os-180	1.69E+04	4.09E-05	5.33E+02	.	9.01E+01	1.78E+02	.	.	4.71E+04	9.63E+04	.	.	.	5.37E+01	2.99E-14	
Osmium (76)	Os-181	3.47E+03	2.00E-04	1.59E+01	.	5.35E+01	1.95E+00	1.53E+00	.	2.16E+02	1.97E+02	.	.	.	7.95E-01	2.17E-15	
Osmium (76)	Os-182	2.75E+02	2.52E-03	1.13E+01	.	7.15E+01	2.65E+00	.	.	4.28E+02	2.78E+02	.	.	.	2.06E+00	7.15E-14	
Osmium (76)	Os-183	4.67E+02	1.48E-03	7.94E+00	.	1.64E+02	1.30E+00	.	.	1.65E+02	8.69E+01	.	.	.	1.09E+00	2.23E-14	
Osmium (76)	Os-183m	6.13E+02	1.13E-03	7.87E+00	.	9.55E+01	1.29E+00	.	.	1.64E+02	8.68E+01	.	.	.	1.08E+00	1.68E-14	
Osmium (76)	Os-185	2.70E+00	2.56E-01	2.01E+01	.	1.74E+02	6.70E+00	.	.	1.77E+03	3.62E+03	.	.	.	4.86E+00	1.75E-11	
Osmium (76)	Os-186	3.47E-16	2.00E+15	2.97E-01	.	.	9.92E-02	.	.	2.63E+01	5.37E+01	.	.	.	7.40E-02	2.08E+03	
Osmium (76)	Os-189m	1.05E+03	6.62E-04	5.40E+02	.	4.86E+07	1.80E+02	.	.	4.77E+04	9.75E+04	.	.	.	1.35E+02	1.27E-12	
Osmium (76)	Os-190m	3.68E+04	1.88E-05	.	.	7.56E+01	.	.	.	.	.	.	.	.	7.56E+01	2.05E-14	
Osmium (76)	Os-191	1.64E+01	4.22E-02	1.60E+01	.	1.75E+03	5.36E+00	.	.	1.42E+03	2.90E+03	.	.	.	3.99E+00	2.43E-12	
Osmium (76)	Os-191m	4.63E+02	1.50E-03	1.37E+01	.	1.64E+03	4.58E+00	.	.	1.21E+03	2.47E+03	.	.	.	3.41E+00	7.37E-14	
Osmium (76)	Os-193	2.02E+02	3.44E-03	1.12E+01	.	1.80E+03	3.73E+00	1.49E+04	.	9.87E+02	2.02E+03	.	.	.	2.78E+00	1.39E-13	
Osmium (76)	Os-194	1.16E-01	6.00E+00	2.43E+00	.	1.17E+03	8.12E-01	1.13E+01	.	2.15E+02	6.70E+02	.	.	.	5.75E-01	5.07E-11	
Osmium (76)	Os-196	1.04E+04	6.64E-05	8.61E+01	.	3.62E+02	2.88E+01	.	.	7.61E+03	1.56E+04	.	.	.	2.03E+01	2.00E-14	
Phosphorus (15)	P-30	1.46E+05	4.75E-06	.	.	1.15E+02	.	.	.	.	.	.	.	.	1.15E+02	1.24E-15	
Phosphorus (15)	P-32	1.77E+01	3.91E-02	3.76E+00	.	1.79E+04	1.58E-01	4.36E-04	.	1.21E+01	3.39E+00	2.05E+02	3.81E+02	.	4.35E-04	4.12E-17	
Phosphorus (15)	P-33	9.98E+00	6.94E-02	3.78E+01	.	7.37E+05	1.59E+00	4.39E-03	.	1.22E+02	3.41E+01	2.07E+03	3.83E+03	.	4.38E-03	7.59E-16	
Protactinium (91)	Pa-227	9.51E+03	7.29E-05	3.60E-01	2.63E-01	8.34E+02	1.29E-01	1.38E+00	1.64E-02	4.03E+01	1.86E+01	.	.	.	1.31E-02	1.64E-17	
Protactinium (91)	Pa-228	2.76E+02	2.51E-03	5.07E-02	9.76E-02	3.97E+01	1.95E-02	1.42E-01	4.62E-04	9.09E+00	4.54E+00	.	.	.	4.43E-04	1.92E-17	
Protactinium (91)	Pa-229	1.69E+02	4.11E-03	1.42E-02	.	3.36E+02	5.78E-03	3.85E-02	8.87E-05	4.14E+00	2.46E+00	.	.	.	8.67E-05	6.17E-18	
Protactinium (91)	Pa-230	1.45E+01	4.77E-02	3.72E-03	1.34E-01	5.04E+01	1.48E-03	2.26E-03	2.14E-04	3.35E-01	3.14E-01	7.06E+01	1.52E-01	1.09E-01	1.65E-04	1.36E-16	
Protactinium (91)	Pa-231	2.12E-05	3.28E+04	1.08E-02	2.63E-01	2.58E+02	4.27E-03	1.67E-02	2.48E-03	5.86E+00	2.66E+00	.	.	.	1.26E-03	7.20E-10	
Protactinium (91)	Pa-232	1.93E+02	3.59E-03	1.94E-02	9.76E-02	4.65E+01	7.68E-03	1.11E-01	3.78E-04	5.54E+00	2.96E-01	1.06E+00	1.86E+00	1.51E+00	3.51E-04	2.21E-17	
Protactinium (91)	Pa-233	9.38E+00	7.39E-02	1.33E-02	.	2.33E+02	5.38E-03	3.79E-02	8.78E-05	3.95E+00	1.14E+00	7.10E+00	1.25E+01	1.01E+01	8.56E-05	1.12E-16	
Protactinium (91)	Pa-234	9.06E+02	7.65E-04	3.60E-03	1.34E-01	3.57E+01	1.44E-03	2.25E-03	1.95E-04	3.30E-01	2.74E-01	7.36E+00	1.50E-01	1.08E-01	1.52E-04	2.06E-18	
Protactinium (91)	Pa-234m	3.11E+05	2.23E-06	3.60E-03	1.34E-01	6.35E+01	1.44E-03	2.25E-03	1.95E-04	3.30E-01	2.74E-01	7.36E+00	1.50E-01	1.08E-01	1.52E-04	5.99E-21	
Protactinium (91)	Pa-235	1.49E+04	4.66E-05	1.03E-02	2.63E-01	1.89E+02	4.08E-03	1.66E-02	2.12E-03	5.55E+00	1.24E+00	7.79E+00	1.37E+01	1.11E+01	1.14E-03	9.44E-19	
Protactinium (91)	Pa-236	4.00E+04	1.73E-05	5.83E-03	9.76E-02	3.43E+01	2.14E-03	2.16E-02	1.19E-04	7.38E-01	3.03E-01	7.81E+00	1.37E+01	1.11E+01	1.10E-04	3.40E-20	
Protactinium (91)	Pa-237	4.19E+04	1.66E-05	1.17E-02	.	9.33E+01	4.74E-03	2.25E-02	5.29E-05	3.87E+00	1.13E+00	6.98E+00	1.23E+01	9.93E+00	5.20E-05	1.54E-20	
Lead (82)	Pb-194	3.04E+04	2.28E-05	5.89E+00	.	3.85E+01	8.16E-01	2.14E-02	8.35E-02	1.09E+02	2.53E+02	.	.	9.75E+03	1.66E-02	5.57E-18	
Lead (82)	Pb-195m	2.43E+04	2.85E-05	2.29E+01	.	3.73E+01	5.62E+00	2.15E-01	2.62E-01	5.08E+02	1.65E+03	.	.	1.09E+05	1.15E-01	4.83E-17	
Lead (82)	Pb-196	9.84E+03	7.04E-05	1.29E+02	.	4.88E+01	5.26E+01	3.53E+00	2.08E+02	8.69E+02	1.71E+03	.	.	.	2.97E+00	3.10E-15	
Lead (82)	Pb-197	4.55E+04	1.52E-05	3.46E+01	.	5.66E+01	4.05E+00	9.89E-02	6.22E-01	4.93E+02	1.01E+03	.	.	4.49E+04	8.32E-02	1.89E-17	
Lead (82)	Pb-197m	8.47E+03	8.18E-05	2.99E+01	.	6.00E+01	3.86E+00	9.88E-02	6.19E-01	4.88E+02	9.61E+02	.	.	4.49E+04	8.30E-02	1.01E-16	
Lead (82)	Pb-198	2.53E+03	2.74E-04	6.80E+01	.	4.69E+01	2.71E+01	2.47E+00	7.40E+01	6.12E+02	1.16E+03	.	.	.	2.03E+00	8.33E-15	
Lead (82)	Pb-199	4.05E+03	1.71E-04	1.52E+02	.	9.13E+01	6.00E+01	6.37E+00	1.47E+02	1.58E+03	2.92E+03	.	.	.	5.02E+00	1.30E-14	
Lead (82)	Pb-200	2.82E+02	2.45E-03	1.76E+01	.	7.81E+01	6.87E+00	8.84E-01	1.51E+01	2.21E+02	3.94E+02	.	.	.	7.05E-01	2.62E-14	
Lead (82)	Pb-201	6.51E+02	1.07E-03	3.93E+01	.	1.44E+02	1.54E+01	1.74E+00	3.65E+01	4.32E+02	7.90E+02	.	.	.	1.42E+00	2.30E-14	
Lead (82)	Pb-201m	3.58E+05	1.93E-06	3.93E+01	.	1.00E+02	1.54E+01	1.74E+00	3.65E+01	4.32E+02	7.90E+02	.	.	.	1.41E+00	4.16E-17	
Lead (82)	Pb-202	1.32E-05	5.25E+04	5.94E-01	.	2.68E+02	2.22E-01	2.03E-01	3.44E-01	6.12E+01	4.53E+01	.	.	.	7.10E-02	5.70E-08	
Lead (82)	Pb-202m	1.72E+03	4.03E-04	6.48E-01	.	4.82E+01	2.42E-01	2.12E-01	3.76E-01	6.34E+01	4.86E+01	.	.	.	7.63E-02	4.70E-16	
Lead (82)	Pb-203	1.17E+02	5.92E-03	4.15E+01	.	4.02E+02	1.54E+01	2.70E+01	2.34E+01	1.05E+04	3.95E+03	.	.	.	5.83E+00	5.31E-13	
Lead (82)	Pb-204m	5.42E+03	1.28E-04	2.12E+02	.	5.64E+01	7.89E+01	1.38E+02	1.20E+02	5.36E+04	2.02E+04	.	.	.	1.97E+01	3.89E-14	
Lead (82)	Pb-205	4.53E-08	1.53E+07	3.62E+01	.	1.01E+07	1.35E+01	2.35E+01	2.04E+01	9.14E+03	3.44E+03	.	.	.	5.16E+00	1.23E-03	
Lead (82)	Pb-209	1.87E+03	3.71E-04	1.71E+02	.	1.03E+05	6.35E+01	1.11E+02	9.62E+01	4.31E+04	1.62E+04	.	.	.	2.43E+01	1.43E-13	
Lead (82)	Pb-210	3.12E-02	2.22E+01	4.60E-03	.	2.84E+04	1.86E-03	2.34E-03	7.04E-03	3.78E-01	4.09E-01	1.52E-01	1.09E-01	.	7.43E-04	2.62E-13	
Lead (82)	Pb-211	1.01E+04	6.87E-05	4.86E+01	.	9.77E+02	1.81E+01	3.16E+01	2.74E+01	1.23E+04	4.62E+03	.	.	.	6.89E+00	7.55E-15	
Lead (82)	Pb-212	5.71E+02	1.21E-03	1.20E+00	.	7.46E+01	4.35E-01	7.88E-01	6.98E-01	2.85E+02	9.97E+01	.	.	.	1.71E-01	3.32E-15	
Lead (82)	Pb-214	1.36E+04	5.10E-05	4.60E-03	.	6.48E+01	1.86E-03	2.34E-03	7.04E-03	3.78E-01	4.09E-01	1.52E-01	1.09E-01	.	7.43E-04	6.13E-19	

Farmer Tap Water DCCs July 2023																	
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)													
Element (Atomic Number)	Isotope	Lambda (1/yr)	Half-life (years)	Ingestion	Inhalation	Immersion	Produce	Finfish	Shellfish	Beef	Dairy	Swine	Egg	Poultry	Total	Total	
				DCC	DCC	DCC	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	DCC	DCC
				DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1
				(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(mg/L)
Palladium (46)	Pd-100	6.97E+01	9.95E-03	6.28E+00	.	3.94E+01	1.61E+00	1.02E+01	.	1.17E+03	4.25E+02	.	.	.	1.10E+00	8.28E-14	
Palladium (46)	Pd-101	7.17E+02	9.67E-04	2.90E+01	.	1.92E+02	8.45E+00	4.72E+01	.	3.42E+03	1.35E+03	.	.	.	5.55E+00	4.10E-14	
Palladium (46)	Pd-103	1.49E+01	4.66E-02	4.75E+01	.	8.43E+04	1.05E+01	7.73E+01	.	3.59E+04	7.98E+03	.	.	.	7.71E+00	2.80E-12	
Palladium (46)	Pd-107	1.07E-07	6.50E+06	2.41E+02	.	.	5.27E+01	3.92E+02	.	2.13E+05	4.35E+04	.	.	.	3.89E+01	2.05E-03	
Palladium (46)	Pd-109	4.43E+02	1.56E-03	1.66E+01	.	1.68E+04	3.62E+00	2.69E+01	.	1.46E+04	2.99E+03	.	.	.	2.67E+00	3.45E-14	
Palladium (46)	Pd-109m	7.77E+04	8.92E-06	1.66E+01	.	1.07E+03	3.62E+00	2.69E+01	.	1.46E+04	2.99E+03	.	.	.	2.67E+00	1.96E-16	
Palladium (46)	Pd-111	1.56E+04	4.45E-05	7.13E+00	.	1.32E+03	1.36E+00	1.09E+00	4.00E-01	1.30E+03	4.47E+00	5.47E+02	.	1.33E+02	2.21E-01	8.26E-17	
Palladium (46)	Pd-112	2.89E+02	2.40E-03	3.10E+00	.	1.60E+02	6.63E-01	2.10E+00	1.20E+00	1.76E+03	1.31E+01	1.64E+03	.	3.98E+02	3.10E-01	6.31E-15	
Palladium (46)	Pd-114	1.51E+05	4.60E-06	.	.	3.55E+02	.	.	.	.	.	.	.	.	3.55E+02	1.41E-14	
Palladium (46)	Pd-96	1.79E+05	3.87E-06	.	.	2.28E+01	.	.	.	.	.	.	.	.	2.28E+01	6.41E-16	
Palladium (46)	Pd-97	1.17E+05	5.90E-06	3.63E+01	.	2.83E+01	2.47E-01	1.63E+01	6.38E+01	1.31E+03	2.34E+02	3.15E+04	2.89E+03	2.94E+02	2.39E-01	1.03E-17	
Palladium (46)	Pd-98	2.06E+04	3.37E-05	1.54E+02	.	5.29E+01	3.38E+01	2.51E+02	.	1.37E+05	2.79E+04	.	.	.	1.69E+01	4.23E-15	
Palladium (46)	Pd-99	1.70E+04	4.07E-05	8.36E+01	.	6.07E+01	2.41E+01	1.36E+02	.	1.01E+04	3.98E+03	.	.	.	1.29E+01	3.93E-15	
Promethium (61)	Pm-136	2.04E+05	3.39E-06	7.29E+01	.	2.28E+01	3.07E+01	1.19E+01	.	6.45E+03	2.20E+04	.	3.15E+06	3.50E+04	5.72E+00	2.00E-16	
Promethium (61)	Pm-137m	1.52E+05	4.57E-06	4.79E+01	.	3.53E+01	2.01E+01	1.23E+01	2.92E+00	7.82E+03	2.28E+04	5.27E+06	6.01E+05	5.86E+04	1.91E+00	9.04E-17	
Promethium (61)	Pm-139	8.78E+04	7.90E-06	3.03E+01	.	7.28E+01	1.27E+01	1.31E+01	1.05E+00	4.58E+03	2.05E+04	5.37E+05	6.30E+05	1.21E+05	8.66E-01	7.19E-17	
Promethium (61)	Pm-140	2.38E+06	2.92E-07	4.70E+00	.	7.29E+01	1.99E+00	7.64E-01	.	4.16E+02	1.42E+03	.	1.02E+06	1.87E+03	4.90E-01	1.51E-18	
Promethium (61)	Pm-140m	6.12E+04	1.13E-05	4.70E+00	.	3.26E+01	1.99E+00	7.64E-01	.	4.16E+02	1.42E+03	.	1.02E+06	1.87E+03	4.86E-01	5.83E-17	
Promethium (61)	Pm-141	1.74E+04	3.98E-05	2.20E+02	.	1.48E+02	8.24E+01	8.19E+01	.	8.81E+03	1.43E+05	.	8.83E+05	4.11E+05	2.79E+01	1.19E-14	
Promethium (61)	Pm-142	5.40E+05	1.28E-06	.	.	1.36E+02	.	.	.	.	.	.	.	.	1.36E+02	1.88E-15	
Promethium (61)	Pm-143	9.55E-01	7.26E-01	4.25E+01	.	3.95E+02	1.55E+01	2.30E+01	.	1.50E+03	3.84E+04	.	1.38E+05	7.61E+05	7.41E+00	5.82E-11	
Promethium (61)	Pm-144	6.97E-01	9.95E-01	2.36E-01	.	7.66E+01	9.94E-02	3.90E-02	.	2.02E+01	7.21E+01	.	2.03E+04	9.60E+01	2.50E-02	2.71E-13	
Promethium (61)	Pm-145	3.92E-02	1.77E+01	8.61E+01	.	9.04E+03	3.13E+01	4.67E+01	.	3.04E+03	7.78E+04	.	2.79E+05	1.54E+06	1.53E-01	2.97E-09	
Promethium (61)	Pm-146	1.25E-01	5.53E+00	5.09E-01	.	1.60E+02	2.16E-01	2.76E-01	4.14E-03	7.58E+01	4.60E+02	.	3.50E+04	1.93E+05	3.98E-03	2.43E-13	
Promethium (61)	Pm-147	2.64E-01	2.62E+00	1.98E-01	.	1.20E+06	8.46E-02	1.07E-01	1.54E-03	3.42E+01	1.79E+02	.	1.14E+05	6.29E+05	1.48E-03	4.33E-14	
Promethium (61)	Pm-148	4.71E+01	1.47E-02	1.14E-01	.	1.95E+02	4.84E-02	2.94E-02	1.80E-03	1.26E+01	5.30E+01	.	9.24E+03	9.59E+01	1.61E-03	2.66E-16	
Promethium (61)	Pm-148m	6.13E+00	1.13E-01	1.16E-01	.	5.86E+01	4.90E-02	2.96E-02	1.80E-03	1.30E+01	5.33E+01	.	1.28E+04	9.60E+01	1.61E-03	2.04E-15	
Promethium (61)	Pm-149	1.14E+02	6.06E-03	9.30E+00	.	8.20E+03	3.39E+00	5.04E+00	.	3.29E+02	8.40E+03	.	3.01E+04	1.67E+05	1.65E+00	1.13E-13	
Promethium (61)	Pm-150	2.27E+03	3.06E-04	3.65E+01	.	7.71E+01	1.33E+01	1.98E+01	.	1.29E+03	3.30E+04	.	1.18E+05	6.54E+05	5.99E+00	2.08E-14	
Promethium (61)	Pm-151	2.14E+02	3.24E-03	1.13E+01	.	3.71E+02	4.17E+00	6.10E+00	7.32E-01	4.40E+02	1.02E+04	.	4.14E+04	2.29E+05	5.36E-01	1.99E-14	
Promethium (61)	Pm-152	8.84E+04	7.84E-06	.	.	3.80E+02	.	.	.	.	.	.	.	.	3.80E+02	3.43E-14	
Promethium (61)	Pm-152m	4.84E+04	1.43E-05	.	.	7.56E+01	.	.	.	.	.	.	.	.	7.56E+01	1.24E-14	
Promethium (61)	Pm-153	6.94E+04	9.99E-06	1.26E+01	.	9.91E+02	5.40E+00	6.84E+00	9.78E-02	2.23E+03	1.14E+04	.	.	.	9.40E-02	1.09E-17	
Promethium (61)	Pm-154	2.11E+05	3.29E-06	.	.	6.15E+01	.	.	.	.	.	.	.	.	6.15E+01	2.36E-15	
Promethium (61)	Pm-154m	1.36E+05	5.10E-06	.	.	6.29E+01	.	.	.	.	.	.	.	.	6.29E+01	3.74E-15	
Polonium (84)	Po-203	9.92E+03	6.98E-05	1.29E+01	.	2.65E+01	3.33E+00	1.08E+01	2.34E+01	1.37E+03	3.31E+02	.	4.50E+03	3.21E+03	1.80E+00	1.93E-15	
Polonium (84)	Po-204	1.72E+03	4.03E-04	1.23E+01	.	2.73E+01	3.17E+00	8.85E+00	7.96E+02	9.32E+02	2.93E+02	.	8.77E+02	6.26E+02	1.80E+00	1.12E-14	
Polonium (84)	Po-205	3.66E+03	1.89E-04	8.12E+00	.	3.49E+01	2.00E+00	7.26E+00	2.04E+01	8.19E+02	1.87E+02	.	3.91E+03	2.79E+03	1.18E+00	3.48E-15	
Polonium (84)	Po-206	2.87E+01	2.41E-02	4.65E-01	.	2.70E+01	1.82E-01	2.18E-01	6.31E+00	2.87E+01	3.02E+01	.	1.11E+01	7.96E+00	7.87E-02	2.96E-14	
Polonium (84)	Po-207	1.05E+03	6.62E-04	7.13E+00	.	4.13E+01	1.62E+00	6.98E+00	1.11E+05	6.07E+02	1.37E+02	.	1.95E+03	1.39E+03	1.07E+00	1.11E-14	
Polonium (84)	Po-208	2.39E-01	2.90E+00	5.82E-03	.	1.35E+06	2.48E-03	2.63E-03	.	3.43E-01	5.00E-01	.	1.22E-01	8.68E-02	1.02E-03	4.65E-14	
Polonium (84)	Po-209	6.79E-03	1.02E+02	5.84E-03	.	1.92E+04	2.49E-03	2.64E-03	2.05E+01	3.44E-01	5.03E-01	.	1.22E-01	8.72E-02	1.02E-03	1.65E-12	
Polonium (84)	Po-210	1.83E+00	3.79E-01	7.28E-03	.	1.20E+07	3.10E-03	3.29E-03	.	4.29E-01	6.26E-01	.	1.52E-01	1.09E-01	1.28E-03	7.68E-15	
Polonium (84)	Po-211	4.24E+07	1.64E-08	.	.	1.43E+04	.	.	.	.	.	.	.	.	1.43E+04	3.74E-15	
Polonium (84)	Po-212	7.31E+13	9.48E-15	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Polonium (84)	Po-212m	4.85E+05	1.43E-06	.	.	1.34E+03	.	.	.	.	.	.	.	.	1.34E+03	3.07E-14	
Polonium (84)	Po-213	5.20E+12	1.33E-13	1.71E+02	.	1.00E+05	6.35E+01	1.11E+02	9.62E+01	4.31E+04	1.62E+04	.	.	.	2.43E+01	5.22E-23	
Polonium (84)	Po-214	1.33E+11	5.21E-12	4.60E-03	.	2.78E+04	1.86E-03	2.34E-03	7.04E-03	3.78E-01	4.09E-01	.	1.52E-01	1.09E-01	7.43E-04	6.27E-26	
Polonium (84)	Po-215	1.23E+10	5.65E-11	4.86E+01	.	9.75E+02	1.81E+01	3.16E+01	2.74E+01	1.23E+04	4.62E+03	.	.	.	6.89E+00	6.33E-21	
Polonium (84)	Po-216	1.51E+08	4.60E-09	1.20E+00	.	7.46E+01	4.35E-01	7.88E-01	6.98E-01	2.85E+02	9.97E+01	.	.	.	1.71E-01	1.28E-20	
Polonium (84)	Po-218	1.17E+05	5.90E-06	4.60E-03	.	6.48E+01	1.86E-03	2.34E-03	7.04E-03	3.78E-01	4.09E-01	.	1.52E-01	1.09E-01	7.43E-04	7.23E-20	



Farmer Tap Water DCCs July 2023																	
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)													
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Ingestion	Inhalation	Immersion	Produce	Finfish	Shellfish	Beef	Dairy	Swine	Egg	Poultry	Total	Total	
				DCC	DCC	DCC	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	DCC	DCC
				DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1
				(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(mg/L)
Praseodymium (59)	Pr-134	3.31E+04	2.09E-05	3.45E+00		3.02E+01	1.45E+00	2.13E+00	1.01E-01	5.99E+02	3.01E+03	5.18E+04	7.14E+04	2.36E+05	8.80E-02	1.87E-17	
Praseodymium (59)	Pr-134m	2.14E+04	3.23E-05	3.40E+00		3.79E+01	1.43E+00	2.03E+00	1.01E-01	5.85E+02	2.90E+03	5.18E+04	6.99E+04	1.36E+05	8.78E-02	2.88E-17	
Praseodymium (59)	Pr-135	1.52E+04	4.57E-05	2.94E+01		7.03E+01	1.23E+01	1.33E+01	9.97E-01	4.95E+03	2.10E+04	5.61E+05	4.87E+05	2.66E+05	8.28E-01	3.86E-16	
Praseodymium (59)	Pr-136	2.78E+04	2.49E-05	2.85E+02		5.38E+01	1.18E+02	4.63E+01		2.52E+04	8.58E+04		3.70E+06	3.40E+05	1.91E+01	4.91E-15	
Praseodymium (59)	Pr-137	4.74E+03	1.46E-04	6.52E+01		3.07E+02	2.72E+01	2.10E+01	2.92E+00	1.53E+04	3.93E+04	5.27E+06	6.10E+05	3.12E+05	2.24E+00	3.40E-15	
Praseodymium (59)	Pr-138	2.51E+05	2.76E-06			1.44E+02									1.44E+02	4.15E-15	
Praseodymium (59)	Pr-138m	2.86E+03	2.42E-04	7.63E+01		4.72E+01	3.15E+01	1.24E+01		6.75E+03	2.30E+04		9.89E+05	9.11E+04	6.81E+00	1.72E-14	
Praseodymium (59)	Pr-139	1.38E+03	5.03E-04	3.24E+01		4.76E+02	1.36E+01	1.58E+01	1.05E+00	5.16E+03	2.40E+04	5.37E+05	6.34E+05	3.51E+05	8.91E-01	4.72E-15	
Praseodymium (59)	Pr-140	1.07E+05	6.45E-06			2.19E+02									2.19E+02	1.50E-14	
Praseodymium (59)	Pr-142	3.18E+02	2.18E-03	7.00E+00		1.67E+03	2.89E+00	1.14E+00		6.19E+02	2.11E+03		9.08E+04	8.36E+03	7.30E-01	1.71E-14	
Praseodymium (59)	Pr-142m	2.49E+04	2.78E-05	6.91E+00		1.67E+03	2.85E+00	1.12E+00		6.11E+02	2.08E+03		8.96E+04	8.25E+03	7.20E-01	2.15E-16	
Praseodymium (59)	Pr-143	1.86E+01	3.72E-02	7.86E+00		5.21E+04	3.24E+00	1.28E+00		6.95E+02	2.37E+03		1.02E+05	9.39E+03	8.20E-01	3.30E-13	
Praseodymium (59)	Pr-144	2.11E+04	3.29E-05	2.41E-01		2.60E+03	1.02E-01	3.92E-02		2.13E+01	7.26E+01		5.11E+04	9.60E+01	2.53E-02	9.06E-18	
Praseodymium (59)	Pr-144m	5.06E+04	1.37E-05	2.41E-01		2.30E+03	1.02E-01	3.92E-02		2.13E+01	7.26E+01		5.11E+04	9.60E+01	2.53E-02	3.77E-18	
Praseodymium (59)	Pr-145	1.01E+03	6.83E-04	2.34E+01		4.70E+03	9.66E+00	3.81E+00		2.07E+03	7.05E+03		3.04E+05	2.80E+04	2.44E+00	1.83E-14	
Praseodymium (59)	Pr-146	1.51E+04	4.59E-05	1.22E+02		1.09E+02	5.05E+01	1.99E+01		1.08E+04	3.69E+04		1.59E+06	1.46E+05	1.14E+01	5.81E-15	
Praseodymium (59)	Pr-147	2.72E+04	2.55E-05	1.93E-01		1.95E+02	8.26E-02	9.94E-02	1.54E-03	3.27E+01	1.67E+02		1.04E+05	3.37E+03	1.48E-03	4.20E-19	
Praseodymium (59)	Pr-148	1.59E+05	4.36E-06			1.12E+02									1.12E+02	5.48E-15	
Praseodymium (59)	Pr-148m	1.81E+05	3.82E-06			1.24E+02									1.24E+02	5.29E-15	
Platinum (78)	Pt-184	2.11E+04	3.29E-05	4.50E+01		4.41E+01	1.40E+01	8.49E+01		4.54E+03	5.26E+04				7.80E+00	3.57E-15	
Platinum (78)	Pt-186	2.92E+03	2.37E-04	2.94E-01		4.98E+01	9.79E-02	5.80E+01		2.60E+01	5.35E+01				7.29E-02	2.44E-16	
Platinum (78)	Pt-187	2.58E+03	2.68E-04	4.83E+01		1.30E+02	1.32E+01	1.36E+02		6.90E+03	2.00E+04				8.94E+00	3.39E-14	
Platinum (78)	Pt-188	2.48E+01	2.79E-02	6.18E+00		4.88E+01	1.61E+00	2.15E+01		1.05E+03	2.06E+03				1.17E+00	4.67E-13	
Platinum (78)	Pt-189	5.58E+02	1.24E-03	2.17E+01		2.26E+02	5.87E+00	6.33E+01		3.18E+03	8.61E+03				4.22E+00	7.49E-14	
Platinum (78)	Pt-190	1.07E-12	6.50E+11	2.44E-01		7.44E-02				2.57E+01	4.40E+01				5.68E-02	5.31E-01	
Platinum (78)	Pt-191	9.03E+01	7.68E-03	2.61E+01		4.45E+02	5.71E+00			2.31E+04	4.72E+03				4.63E+00	5.14E-13	
Platinum (78)	Pt-193	1.39E-02	5.00E+01	2.58E+02		1.76E+07	5.65E+01			2.28E+05	4.67E+04				4.63E+01	3.38E-08	
Platinum (78)	Pt-193m	5.84E+01	1.19E-02	1.88E+01		1.44E+04	4.10E+00			1.66E+04	3.39E+03				3.36E+00	5.82E-13	
Platinum (78)	Pt-195m	6.29E+01	1.10E-02	1.44E+01		2.10E+03	3.16E+00			1.28E+04	2.61E+03				2.58E+00	4.20E-13	
Platinum (78)	Pt-197	3.05E+02	2.27E-03	2.14E+01		5.51E+03	4.68E+00			1.89E+04	3.87E+03				3.83E+00	1.30E-13	
Platinum (78)	Pt-197m	3.82E+03	1.82E-04	1.84E+01		1.27E+03	4.03E+00			1.63E+04	3.33E+03				3.29E+00	8.91E-15	
Platinum (78)	Pt-199	1.18E+04	5.86E-05	1.93E+01		4.07E+02	7.54E+00	1.42E+00	1.86E-01	7.39E+02	2.65E+04				1.59E-01	1.41E-16	
Platinum (78)	Pt-200	4.86E+02	1.43E-03	7.49E+00		3.45E+02	1.68E+00	9.51E+00	1.24E+00	2.90E+03	1.43E+03				6.09E-01	1.32E-14	
Platinum (78)	Pt-202	1.38E+02	5.02E-03	2.10E+00		6.05E+02	4.59E-01			1.86E+03	3.79E+02				3.76E-01	2.89E-14	
Plutonium (94)	Pu-232	1.08E+04	6.41E-05	2.52E-02	9.76E-02	5.37E+01	9.98E-03	3.92E-02	4.89E-04	7.20E+00	3.84E-01	1.37E+00	2.41E+00	1.96E+00	4.49E-04	5.06E-19	
Plutonium (94)	Pu-234	6.90E+02	1.00E-03	3.64E-03	1.34E-01	4.12E+01	1.45E-03	2.16E-03	2.04E-04	3.33E-01	2.77E-01	7.25E+00	1.50E-01	1.08E-01	1.57E-04	2.80E-18	
Plutonium (94)	Pu-235	1.44E+04	4.81E-05	1.03E-02	2.63E-01	1.69E+02	4.08E-03	1.65E-02	2.10E-03	5.55E+00	1.24E+00	7.79E+00	1.37E+01	1.11E+01	1.13E-03	9.69E-19	
Plutonium (94)	Pu-236	2.42E-01	2.86E+00	1.66E-02	9.76E-02	7.40E+01	6.66E-03	8.96E-05	1.28E-04	5.54E+00	2.95E-01	1.06E+00	1.86E+00	1.50E+00	5.21E-05	2.66E-15	
Plutonium (94)	Pu-237	5.60E+00	1.24E-01	1.17E-02		2.08E+02	4.74E-03	1.67E-02	5.29E-05	3.87E+00	1.14E+00	7.10E+00	1.25E+01	1.01E+01	5.19E-05	1.15E-16	
Plutonium (94)	Pu-238	7.90E-03	8.77E+01	3.35E-03	1.34E-01	6.45E+01	1.34E-03	3.69E-05	5.73E-05	3.30E-01	2.73E-01	7.30E+00	1.50E-01	1.08E-01	2.19E-05	3.46E-14	
Plutonium (94)	Pu-239	2.87E-05	2.41E+04	8.35E-03	2.63E-01	1.90E+02	3.36E-03	3.42E-05	7.17E-05	5.55E+00	1.22E+00	7.71E+00	1.36E+01	1.09E+01	2.29E-05	9.99E-12	
Plutonium (94)	Pu-240	1.06E-04	6.56E+03	5.15E-03	9.76E-02	4.76E+01	1.92E-03	3.42E-05	4.57E-05	7.38E-01	3.02E-01	7.74E+00	1.37E+01	1.09E+01	1.93E-05	2.30E-12	
Plutonium (94)	Pu-241	4.83E-02	1.44E+01	9.58E-03		2.18E+02	3.92E-03	1.18E-03	4.39E-05	3.21E+00	1.14E+00	6.99E+00	1.23E+01	9.80E+00	4.17E-05	1.09E-14	
Plutonium (94)	Pu-242	1.85E-06	3.75E+05	3.29E-03	1.34E-01	6.33E+01	1.32E-03	3.54E-05	5.52E-05	3.29E-01	2.45E-01	3.85E+00	1.49E+01	1.07E-01	2.11E-05	1.45E-10	
Plutonium (94)	Pu-243	1.22E+03	5.66E-04	7.22E-03	2.63E-01	1.39E+02	2.93E-03	3.38E-05	5.68E-05	4.30E+00	1.22E+00	7.59E+00	1.34E+01	1.05E+01	2.10E-05	2.18E-19	
Plutonium (94)	Pu-244	8.66E-09	8.00E+07	4.64E-03	9.76E-02	4.17E+01	1.76E-03	1.76E-05	2.89E-05	7.38E-01	3.00E-01	7.48E+00	1.32E+01	1.04E+01	1.08E-05	1.60E-08	
Plutonium (94)	Pu-245	5.78E+02	1.20E-03	8.10E-03		1.11E+02	3.34E-03	1.03E-03	2.68E-05	3.11E+00	1.14E+00	6.99E+00	1.23E+01	9.80E+00	2.58E-05	5.74E-19	
Plutonium (94)	Pu-246	2.33E+01	2.97E-02	3.10E-03	1.34E-01	3.94E+01	1.25E-03	3.49E-05	3.05E-05	3.28E-01	2.45E-01	3.85E+00	1.49E-01	1.07E-01	1.60E-05	8.84E-18	
Radium (88)	Ra-219	2.19E+09	3.17E-10			6.84E+02									6.84E+02	3.59E-18	
Radium (88)	Ra-220	1.22E+09	5.68E-10			2.56E+04									2.56E+04	2.42E-16	
Radium (88)	Ra-221	7.81E+05	8.88E-07	1.71E+02		3.45E+03	6.35E+01	1.11E+02	9.62E+01	4.31E+04	1.62E+04				2.42E+01	3.59E-16	

Farmer Tap Water DCCs July 2023																	
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)													
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Ingestion	Inhalation	Immersion	Produce	Finfish	Shellfish	Beef	Dairy	Swine	Egg	Poultry	Total	Total	
				DCC	DCC	DCC	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	DCC	DCC
				DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (mg/L)
Radium (88)	Ra-222	5.75E+05	1.20E-06	4.60E-03	.	8.44E+03	1.86E-03	2.34E-03	7.04E-03	3.78E-01	4.09E-01	.	1.52E-01	1.09E-01	7.43E-04	1.50E-20	
Radium (88)	Ra-223	2.21E+01	3.13E-02	5.86E-02	2.63E-01	3.84E+02	2.08E-02	2.37E-01	7.28E-03	6.10E+00	2.79E+00	.	.	.	4.74E-03	2.50E-15	
Radium (88)	Ra-224	6.91E+01	1.00E-02	9.32E-02	1.40E+01	7.41E+01	3.31E-02	2.70E-01	1.23E-02	1.01E+01	4.59E+00	.	.	.	7.92E-03	1.35E-15	
Radium (88)	Ra-225	1.70E+01	4.08E-02	4.38E-02	.	5.28E+02	1.60E-02	1.19E-01	6.64E-03	5.55E+00	2.53E+00	.	.	.	4.08E-03	2.84E-15	
Radium (88)	Ra-226	4.33E-04	1.60E+03	3.95E-03	1.34E-01	6.45E+01	1.56E-03	2.29E-03	2.33E-03	3.34E-01	3.13E-01	.	1.52E-01	1.09E-01	5.60E-04	1.53E-11	
Radium (88)	Ra-227	8.63E+03	8.03E-05	2.04E-02	2.63E-01	2.09E+02	8.14E-03	3.03E-02	2.48E-03	5.90E+00	2.75E+00	.	.	.	1.63E-03	2.25E-18	
Radium (88)	Ra-228	1.21E-01	5.75E+00	6.87E-03	9.76E-02	4.76E+01	2.46E-03	2.63E-02	3.10E-04	7.59E-01	3.49E-01	.	.	.	2.61E-04	2.59E-14	
Radium (88)	Ra-230	3.92E+03	1.77E-04	3.66E-03	1.34E-01	4.75E+01	1.46E-03	2.25E-03	1.97E-04	3.31E-01	3.12E-01	.	1.52E-01	1.09E-01	1.54E-04	4.74E-19	
Rubidium (37)	Rb-77	9.66E+04	7.17E-06	1.06E+02	.	4.08E+01	3.83E+01	1.90E+01	1.01E+00	7.51E+02	9.59E+01	.	.	.	9.00E-01	3.76E-17	
Rubidium (37)	Rb-78	2.06E+04	3.36E-05	1.37E+02	.	2.62E+01	2.05E+01	4.55E-01	8.51E-01	2.43E+03	2.48E+02	.	.	.	2.88E-01	5.71E-17	
Rubidium (37)	Rb-78m	6.35E+04	1.09E-05	1.37E+03	.	3.11E+01	2.05E+02	4.55E+00	8.51E+00	2.43E+04	2.48E+03	.	.	.	2.66E+00	1.72E-16	
Rubidium (37)	Rb-79	1.59E+04	4.36E-05	1.94E+02	.	7.00E+01	2.89E+01	6.42E-01	1.20E+00	3.42E+03	3.50E+02	.	.	.	4.09E-01	1.06E-16	
Rubidium (37)	Rb-80	6.54E+05	1.06E-06	.	.	9.72E+01	.	.	.	.	.	.	.	.	9.72E+01	6.23E-16	
Rubidium (37)	Rb-81	1.33E+03	5.22E-04	2.02E+02	.	1.91E+02	3.02E+01	6.70E-01	1.25E+00	3.57E+03	3.65E+02	.	.	.	4.28E-01	1.37E-15	
Rubidium (37)	Rb-81m	1.19E+04	5.80E-05	1.72E+02	.	1.88E+02	2.57E+01	5.71E-01	1.07E+00	3.04E+03	3.11E+02	.	.	.	3.64E-01	1.30E-16	
Rubidium (37)	Rb-82	2.86E+05	2.42E-06	.	.	1.06E+02	.	.	.	.	.	.	.	.	1.06E+02	1.59E-15	
Rubidium (37)	Rb-82m	9.38E+02	7.39E-04	7.82E+01	.	3.97E+01	1.17E+01	2.59E-01	4.85E-01	1.38E+03	1.41E+02	.	.	.	1.65E-01	7.58E-16	
Rubidium (37)	Rb-83	2.93E+00	2.36E-01	5.95E+00	.	2.47E+02	8.90E-01	1.98E-02	3.69E-02	1.05E+02	1.08E+01	.	.	.	1.26E-02	1.88E-14	
Rubidium (37)	Rb-84	7.72E+00	8.98E-02	3.62E+00	.	1.29E+02	5.41E-01	1.20E-02	2.25E-02	6.40E+01	6.54E+00	.	.	.	7.69E-03	4.39E-15	
Rubidium (37)	Rb-84m	1.80E+04	3.85E-05	3.61E+00	.	9.17E+01	5.40E-01	1.20E-02	2.24E-02	6.38E+01	6.52E+00	.	.	.	7.67E-03	1.88E-18	
Rubidium (37)	Rb-86	1.36E+01	5.11E-02	3.34E+00	.	1.15E+03	5.00E-01	1.11E-02	2.07E-02	5.91E+01	6.04E+00	.	.	.	7.10E-03	2.36E-15	
Rubidium (37)	Rb-86m	3.58E+05	1.93E-06	3.34E+00	.	1.83E+02	5.00E-01	1.11E-02	2.07E-02	5.91E+01	6.04E+00	.	.	.	7.10E-03	8.94E-20	
Rubidium (37)	Rb-87	1.41E-11	4.92E+10	6.21E+01	.	2.97E+05	9.29E-01	2.06E-02	3.86E-02	1.10E+02	1.12E+01	.	.	.	1.32E-02	4.28E-03	
Rubidium (37)	Rb-88	2.05E+04	3.38E-05	1.04E+02	.	1.62E+02	1.56E+01	3.47E-01	6.48E-01	1.85E+03	1.89E+02	.	.	.	2.21E-01	4.99E-17	
Rubidium (37)	Rb-89	2.40E+04	2.88E-05	3.47E+00	.	4.89E+01	3.55E-01	6.86E-01	1.45E-01	4.26E+02	4.35E+01	2.08E+03	6.54E+02	6.32E+03	8.67E-02	1.68E-17	
Rubidium (37)	Rb-90	1.38E+05	5.01E-06	3.21E-01	.	4.94E+01	3.51E-02	8.21E-01	1.63E-02	4.46E+01	4.91E+00	2.09E+02	6.55E+01	6.03E+02	1.06E-02	3.61E-19	
Rubidium (37)	Rb-90m	8.47E+04	8.18E-06	3.21E-01	.	3.23E+01	3.51E-02	8.21E-01	1.63E-02	4.46E+01	4.91E+00	2.09E+02	6.55E+01	6.03E+02	1.06E-02	5.89E-19	
Rhenium (75)	Re-178	2.76E+04	2.51E-05	3.49E+01	.	6.14E+01	1.84E+00	5.26E-01	.	1.67E+02	1.69E+03	.	.	.	4.01E-01	1.36E-16	
Rhenium (75)	Re-179	1.87E+04	3.71E-05	1.26E+02	.	1.02E+02	3.19E+01	1.52E+01	.	6.31E+03	6.60E+03	.	.	.	8.68E+00	4.36E-15	
Rhenium (75)	Re-180	1.49E+05	4.64E-06	.	.	9.80E+01	.	.	.	.	.	.	.	.	9.80E+01	6.20E-15	
Rhenium (75)	Re-181	3.05E+02	2.27E-03	1.87E+01	.	1.46E+02	2.06E+00	1.53E+00	.	2.21E+02	1.99E+02	.	.	.	8.27E-01	2.57E-14	
Rhenium (75)	Re-182	9.49E+01	7.31E-03	6.81E+00	.	6.57E+01	9.98E-01	.	1.20E+02	6.15E+01	.	.	.	.	8.41E-01	8.46E-14	
Rhenium (75)	Re-182m	4.78E+02	1.45E-03	3.39E+01	.	9.48E+01	4.96E+00	.	5.99E+02	3.06E+02	.	.	.	.	4.06E+00	8.10E-14	
Rhenium (75)	Re-183	3.61E+00	1.92E-01	9.72E+00	.	9.33E+02	1.42E+00	.	1.72E+02	8.78E+01	.	.	.	.	1.21E+00	3.23E-12	
Rhenium (75)	Re-184	6.66E+00	1.04E-01	9.88E+00	.	1.33E+02	1.45E+00	.	1.75E+02	8.92E+01	.	.	.	.	1.22E+00	1.77E-12	
Rhenium (75)	Re-184m	1.50E+00	4.63E-01	4.31E+00	.	1.14E+02	6.32E-01	.	7.63E+01	3.90E+01	.	.	.	.	5.37E-01	3.46E-12	
Rhenium (75)	Re-186	6.80E+01	1.02E-02	3.06E-01	.	5.81E+03	9.62E-02	.	2.27E+01	2.90E+01	.	.	.	.	7.27E-02	1.04E-14	
Rhenium (75)	Re-186m	3.47E-06	2.00E+05	2.85E-01	.	3.90E+03	8.32E-02	.	1.74E+01	1.64E+01	.	.	.	.	6.39E-02	1.80E-07	
Rhenium (75)	Re-187	1.68E-11	4.12E+10	1.93E+03	.	.	2.83E+02	.	3.42E+04	1.75E+04	.	.	.	.	2.42E+02	1.41E+02	
Rhenium (75)	Re-188	3.57E+02	1.94E-03	6.63E+00	.	1.75E+03	9.72E-01	.	1.17E+02	5.99E+01	.	.	.	.	8.29E-01	2.29E-14	
Rhenium (75)	Re-188m	1.96E+04	3.54E-05	6.49E+00	.	9.87E+02	9.51E-01	.	1.15E+02	5.87E+01	.	.	.	.	8.12E-01	4.08E-16	
Rhenium (75)	Re-189	2.50E+02	2.77E-03	1.22E+01	.	2.14E+03	1.79E+00	.	2.17E+02	1.11E+02	.	.	.	.	1.53E+00	6.07E-14	
Rhenium (75)	Re-190	1.17E+05	5.90E-06	.	.	8.83E+01	.	.	.	.	.	.	.	.	8.83E+01	7.49E-15	
Rhenium (75)	Re-190m	1.90E+03	3.65E-04	2.53E+01	.	7.75E+01	3.70E+00	.	4.47E+02	2.28E+02	.	.	.	.	3.04E+00	1.60E-14	
Rhodium (45)	Rh-100	2.92E+02	2.37E-03	1.50E+01	.	4.06E+01	5.02E+00	2.44E+01	.	1.33E+03	5.43E+02	.	.	.	2.99E+00	5.38E-14	
Rhodium (45)	Rh-100m	7.92E+04	8.75E-06	1.53E+01	.	4.06E+01	5.10E+00	2.48E+01	.	1.35E+03	5.52E+02	.	.	.	3.04E+00	2.01E-16	
Rhodium (45)	Rh-101	2.10E-01	3.30E+00	1.85E+01	.	4.48E+02	6.17E+00	3.00E+01	.	1.63E+03	6.67E+02	.	.	.	3.94E+00	9.93E-11	
Rhodium (45)	Rh-101m	5.83E+01	1.19E-02	4.03E+01	.	4.12E+02	1.35E+01	6.55E+01	.	3.56E+03	1.46E+03	.	.	.	8.49E+00	7.72E-13	
Rhodium (45)	Rh-102	1.22E+00	5.67E-01	8.01E+00	.	2.38E+02	2.68E+00	1.30E+01	.	7.08E+02	2.90E+02	.	.	.	1.71E+00	7.49E-12	
Rhodium (45)	Rh-102m	1.85E-01	3.74E+00	3.83E+00	.	5.48E+01	1.28E+00	6.23E+00	.	3.39E+02	1.38E+02	.	.	.	8.12E-01	2.35E-11	
Rhodium (45)	Rh-103m	6.49E+03	1.07E-04	2.49E+03	.	8.76E+05	8.33E+02	4.05E+03	.	2.20E+05	9.01E+04	.	.	.	5.36E+02	4.46E-13	

Farmer Tap Water DCCs July 2023																	
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)													
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Ingestion	Inhalation	Immersion	Produce	Finfish	Shellfish	Beef	Dairy	Swine	Egg	Poultry	Total	Total	
				DCC	DCC	DCC	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	DCC	DCC
				DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1
				(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(mg/L)
Rhodium (45)	Rh-104	5.17E+05	1.34E-06	.	.	5.12E+03	.	.	.	.	.	.	.	.	.	5.12E+03	5.40E-14
Rhodium (45)	Rh-104m	8.39E+04	8.26E-06	.	.	2.66E+03	.	.	.	.	.	.	.	.	.	2.66E+03	1.73E-13
Rhodium (45)	Rh-105	1.72E+02	4.04E-03	2.54E+01	.	1.54E+03	8.48E+00	4.13E+01	.	2.24E+03	9.17E+02	.	.	.	5.44E+00	1.75E-13	
Rhodium (45)	Rh-106	7.33E+05	9.45E-07	.	.	5.26E+02	.	.	.	.	.	.	.	.	.	5.26E+02	3.99E-15
Rhodium (45)	Rh-106m	2.78E+03	2.49E-04	5.84E+01	.	4.04E+01	1.95E+01	9.50E+01	.	5.17E+03	2.11E+03	.	.	.	9.59E+00	1.92E-14	
Rhodium (45)	Rh-107	1.68E+04	4.13E-05	1.50E+02	.	3.79E+02	3.77E+01	2.44E+02	.	3.02E+04	1.08E+04	.	.	.	2.50E+01	8.35E-15	
Rhodium (45)	Rh-108	1.30E+06	5.33E-07	.	.	3.46E+02	.	.	.	.	.	.	.	.	.	3.46E+02	1.51E-15
Rhodium (45)	Rh-109	2.73E+05	2.54E-06	1.66E+01	.	3.83E+02	3.62E+00	2.69E+01	.	1.46E+04	2.99E+03	.	.	.	2.66E+00	5.56E-17	
Rhodium (45)	Rh-94	3.10E+05	2.24E-06	4.88E+01	.	1.82E+01	1.74E-01	2.32E+01	4.46E+01	1.27E+03	1.69E+02	4.76E+04	2.02E+03	4.55E+02	1.70E-01	2.71E-18	
Rhodium (45)	Rh-95	7.26E+04	9.55E-06	4.02E+01	.	2.50E+01	9.95E-02	2.64E+01	2.54E+01	8.51E+02	9.62E+01	7.01E+04	1.15E+03	7.28E+02	9.80E-02	6.73E-18	
Rhodium (45)	Rh-95m	1.86E+05	3.73E-06	4.02E+01	.	2.21E+01	9.95E-02	2.64E+01	2.54E+01	8.51E+02	9.62E+01	7.01E+04	1.15E+03	7.28E+02	9.79E-02	2.63E-18	
Rhodium (45)	Rh-96	3.68E+04	1.88E-05	.	.	2.94E+01	.	.	.	.	.	.	.	.	.	2.94E+01	4.03E-15
Rhodium (45)	Rh-96m	2.41E+05	2.87E-06	.	.	3.16E+01	.	.	.	.	.	.	.	.	.	3.16E+01	6.60E-16
Rhodium (45)	Rh-97	1.19E+04	5.84E-05	3.63E+01	.	7.02E+01	2.47E-01	1.63E+01	6.38E+01	1.31E+03	2.34E+02	3.15E+04	2.89E+03	2.94E+02	2.40E-01	1.03E-16	
Rhodium (45)	Rh-97m	7.88E+03	8.79E-05	3.61E+01	.	4.43E+01	2.47E-01	1.63E+01	6.38E+01	1.31E+03	2.34E+02	3.15E+04	2.89E+03	2.94E+02	2.39E-01	1.54E-16	
Rhodium (45)	Rh-98	4.19E+04	1.66E-05	.	.	6.43E+01	.	.	.	.	.	.	.	.	.	6.43E+01	7.89E-15
Rhodium (45)	Rh-99	1.57E+01	4.41E-02	1.72E+01	.	2.19E+02	5.76E+00	2.80E+01	.	1.52E+03	6.23E+02	.	.	.	3.65E+00	1.21E-12	
Rhodium (45)	Rh-99m	1.29E+03	5.37E-04	1.51E+02	.	1.84E+02	5.03E+01	2.45E+02	.	1.33E+04	5.44E+03	.	.	.	2.76E+01	1.11E-13	
Radon (86)	Rn-207	3.94E+04	1.76E-05	7.08E+00	.	2.03E+01	1.52E+00	7.78E+00	8.42E+01	4.09E+02	6.07E+01	.	2.39E+03	1.71E+03	9.93E-01	2.74E-16	
Radon (86)	Rn-209	1.28E+04	5.42E-05	7.34E-03	.	3.15E+01	3.12E-03	3.32E-03	2.05E+01	4.32E-01	6.24E-01	.	1.54E-01	1.10E-01	1.29E-03	1.10E-18	
Radon (86)	Rn-210	2.53E+03	2.74E-04	1.32E-01	.	2.69E+01	5.50E-02	6.04E-02	6.57E+00	7.90E+00	1.02E+01	.	2.87E+00	2.05E+00	2.30E-02	1.00E-16	
Radon (86)	Rn-211	4.16E+02	1.67E-03	1.09E+00	.	3.70E+01	1.64E-01	1.32E+01	4.07E+05	2.06E+01	2.12E+00	.	7.10E+03	5.07E+03	1.31E-01	3.48E-15	
Radon (86)	Rn-212	1.52E+04	4.55E-05	5.82E-03	.	2.77E+05	2.48E-03	2.63E-03	.	3.43E-01	5.00E-01	.	1.22E-01	8.68E-02	1.02E-03	7.44E-19	
Radon (86)	Rn-215	9.50E+12	7.29E-14	.	.	1.43E+04	.	.	.	.	.	.	.	.	.	1.43E+04	1.70E-20
Radon (86)	Rn-216	4.86E+11	1.43E-12	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Radon (86)	Rn-217	4.05E+10	1.71E-11	1.71E+02	.	1.00E+05	6.35E+01	1.11E+02	9.62E+01	4.31E+04	1.62E+04	.	.	.	2.43E+01	6.84E-21	
Radon (86)	Rn-218	6.24E+08	1.11E-09	4.60E-03	.	2.36E+04	1.86E-03	2.34E-03	7.04E-03	3.78E-01	4.09E-01	.	1.52E-01	1.09E-01	7.43E-04	1.36E-23	
Radon (86)	Rn-219	5.52E+06	1.26E-07	4.86E+01	2.63E-01	6.63E+02	1.81E+01	3.16E+01	2.74E+01	1.23E+04	4.62E+03	.	.	.	2.53E-01	5.26E-19	
Radon (86)	Rn-220	3.93E+05	1.76E-06	1.20E+00	9.76E-02	7.46E+01	4.35E-01	7.88E-01	6.98E-01	2.85E+02	9.97E+01	.	.	.	6.21E-02	1.82E-18	
Radon (86)	Rn-222	6.62E+01	1.05E-02	4.60E-03	1.34E-01	6.48E+01	1.86E-03	2.34E-03	7.04E-03	3.78E-01	4.09E-01	.	1.52E-01	1.09E-01	7.39E-04	1.30E-16	
Radon (86)	Rn-223	1.50E+04	4.62E-05	5.78E-02	2.63E-01	1.70E+02	2.04E-02	2.37E-01	7.28E-03	4.83E+00	2.12E+00	.	.	.	4.71E-03	3.68E-18	
Ruthenium (44)	Ru-103	6.44E+00	1.08E-01	1.35E+01	.	2.41E+02	5.02E+00	4.00E+00	4.31E+03	7.23E+02	2.02E+04	6.66E+03	2.19E+05	6.06E+01	1.83E+00	1.54E-12	
Ruthenium (44)	Ru-105	1.37E+03	5.07E-04	1.45E+01	.	1.43E+02	5.07E+00	8.06E+00	1.08E+04	1.00E+03	9.04E+02	1.67E+04	5.49E+05	1.52E+02	2.46E+00	9.92E-15	
Ruthenium (44)	Ru-106	6.77E-01	1.02E+00	1.33E+00	.	5.26E+02	4.95E-01	3.93E-01	4.23E+02	7.12E+01	2.55E+03	6.54E+02	2.15E+04	5.95E+00	1.82E-01	1.49E-12	
Ruthenium (44)	Ru-107	9.71E+04	7.13E-06	1.50E+02	.	1.75E+02	3.77E+01	2.44E+02	.	3.02E+04	1.08E+04	.	.	.	2.32E+01	1.34E-15	
Ruthenium (44)	Ru-108	8.01E+04	8.66E-06	.	.	2.93E+02	.	.	.	.	.	.	.	.	2.93E+02	2.07E-14	
Ruthenium (44)	Ru-92	9.98E+04	6.94E-06	.	.	1.95E+01	.	.	.	.	.	.	.	.	.	1.95E+01	9.43E-16
Ruthenium (44)	Ru-94	7.03E+03	9.86E-05	4.88E+01	.	4.69E+01	1.74E-01	2.32E+01	4.46E+01	1.27E+03	1.69E+02	4.76E+04	2.02E+03	4.55E+02	1.71E-01	1.20E-16	
Ruthenium (44)	Ru-95	3.69E+03	1.88E-04	4.02E+01	.	5.77E+01	9.95E-02	2.64E+01	2.54E+01	8.51E+02	9.62E+01	7.01E+04	1.15E+03	7.28E+02	9.82E-02	1.32E-16	
Ruthenium (44)	Ru-97	8.72E+01	7.95E-03	4.41E+01	.	5.29E+02	2.48E-01	1.71E+01	6.38E+01	1.42E+03	2.42E+02	3.15E+04	2.89E+03	2.94E+02	2.42E-01	1.41E-14	
Sulfur (16)	S-35	2.89E+00	2.40E-01	7.32E+01	.	3.40E+06	4.62E+00	5.95E+00	.	4.32E+01	1.67E+02	.	.	.	2.34E+00	1.49E-12	
Sulphur (16)	S-37	7.21E+04	9.61E-06	.	.	3.46E+01	.	.	.	.	.	.	.	.	.	3.46E+01	9.32E-16
Sulfur (16)	S-38	2.14E+03	3.24E-04	2.16E+01	.	3.39E+01	3.64E-01	2.20E+00	6.33E+00	1.70E+01	3.79E+01	.	.	.	2.84E-01	2.65E-16	
Antimony (51)	Sb-111	2.91E+05	2.38E-06	3.13E+01	.	5.01E+01	1.12E+01	5.35E-02	1.75E+06	6.81E+02	2.22E+03	1.39E+09	9.13E+09	2.97E+08	5.31E-02	1.06E-18	
Antimony (51)	Sb-113	5.46E+04	1.27E-05	1.24E+01	.	7.77E+01	1.40E+00	6.17E-02	.	2.21E+02	2.31E+02	.	.	.	5.88E-02	6.38E-18	
Antimony (51)	Sb-114	1.04E+05	6.64E-06	.	.	4.22E+01	.	.	.	.	.	.	.	.	4.22E+01	2.42E-15	
Antimony (51)	Sb-115	1.13E+04	6.11E-05	4.04E+02	.	1.35E+02	1.64E+02	1.78E+02	2.39E+01	5.96E+04	1.92E+05	.	.	.	1.58E+01	8.38E-15	
Antimony (51)	Sb-116	2.31E+04	3.01E-05	3.22E+02	.	4.96E+01	1.31E+02	1.41E+02	1.90E+01	4.74E+04	1.53E+05	.	.	.	1.10E+01	2.91E-15	
Antimony (51)	Sb-116m	6.04E+03	1.15E-04	1.57E+02	.	3.72E+01	6.37E+01	6.89E+01	9.26E+00	2.31E+04	7.45E+04	.	.	.	5.83E+00	5.87E-15	
Antimony (51)	Sb-117	2.17E+03	3.20E-04	5.38E+02	.	7.27E+02	2.18E+02	2.36E+02	3.18E+01	7.92E+04	2.56E+05	.	.	.	2.30E+01	6.50E-14	
Antimony (51)	Sb-118	1.01E+05	6.85E-06	.	.	1.47E+02	.	.	.	.	.	.	.	.	1.47E+02	9.00E-15	

Farmer Tap Water DCCs July 2023																
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)												
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Ingestion	Inhalation	Immersion	Produce	Finfish	Shellfish	Beef	Dairy	Swine	Egg	Poultry	Total	Total
				DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)
Antimony (51)	Sb-118m	1.21E+03	5.71E-04	4.81E+01	.	4.43E+01	1.95E+01	2.11E+01	2.84E+00	7.08E+03	2.29E+04	.	.	.	2.02E+00	1.03E-14
Antimony (51)	Sb-119	1.59E+02	4.36E-03	1.14E+02	.	3.26E+04	4.62E+01	5.00E+01	6.72E+00	1.68E+04	5.41E+04	.	.	.	5.02E+00	1.97E-13
Antimony (51)	Sb-120	2.29E+04	3.02E-05	6.63E+02	.	2.68E+02	2.70E+02	2.92E+02	3.92E+01	9.78E+04	3.15E+05	.	.	.	2.64E+01	7.24E-15
Antimony (51)	Sb-120m	4.39E+01	1.58E-02	8.17E+00	.	4.70E+01	3.32E+00	3.59E+00	4.82E-01	1.20E+03	3.88E+03	.	.	.	3.57E-01	5.12E-14
Antimony (51)	Sb-122	9.29E+01	7.46E-03	5.51E+00	.	2.63E+02	2.24E+00	2.42E+00	3.26E-01	8.13E+02	2.62E+03	.	.	.	2.43E-01	1.67E-14
Antimony (51)	Sb-122m	8.69E+04	7.97E-06	5.51E+00	.	2.41E+02	2.24E+00	2.42E+00	3.26E-01	8.13E+02	2.62E+03	.	.	.	2.43E-01	1.79E-17
Antimony (51)	Sb-124	4.20E+00	1.65E-01	3.78E+00	.	6.09E+01	1.54E+00	1.66E+00	2.23E-01	5.57E+02	1.80E+03	.	.	.	1.66E-01	2.57E-13
Antimony (51)	Sb-124m	2.35E+05	2.95E-06	5.04E+00	.	6.24E+01	2.05E+00	2.22E+00	2.98E-01	7.43E+02	2.40E+03	.	.	.	2.22E-01	6.13E-18
Antimony (51)	Sb-124n	1.80E+04	3.84E-05	5.01E+00	.	6.24E+01	2.04E+00	2.20E+00	2.96E-01	7.39E+02	2.38E+03	.	.	.	2.20E-01	7.95E-17
Antimony (51)	Sb-125	2.51E-01	2.76E+00	7.27E+00	.	2.80E+02	2.36E+00	2.14E+00	5.12E-01	6.02E+02	1.52E+03	.	5.74E+02	2.70E+03	3.34E-01	8.73E-12
Antimony (51)	Sb-126	2.05E+01	3.38E-02	3.66E+00	.	4.27E+01	1.49E+00	1.61E+00	2.16E-01	5.40E+02	1.74E+03	.	.	.	1.61E-01	5.19E-14
Antimony (51)	Sb-126m	1.90E+04	3.64E-05	2.37E+01	.	6.09E+01	9.63E+00	1.04E+01	1.40E+00	3.49E+03	1.13E+04	.	.	.	1.03E+00	3.57E-16
Antimony (51)	Sb-127	6.57E+01	1.05E-02	4.12E+00	.	1.68E+02	1.18E+00	9.95E-01	3.33E-01	2.64E+02	6.25E+02	.	1.95E+02	9.16E+02	1.95E-01	1.98E-14
Antimony (51)	Sb-128	6.74E+02	1.03E-03	1.20E+01	.	3.79E+01	4.88E+00	5.28E+00	7.10E-01	1.77E+03	5.71E+03	.	.	.	5.23E-01	5.21E-15
Antimony (51)	Sb-128m	3.50E+04	1.98E-05	1.54E+02	.	5.78E+01	6.27E+01	6.78E+01	9.12E+00	2.27E+04	7.34E+04	.	.	.	6.09E+00	1.17E-15
Antimony (51)	Sb-129	1.38E+03	5.02E-04	1.04E-01	.	7.46E+01	3.03E-02	5.44E-02	7.26E-02	2.75E+00	3.52E-01	3.79E+00	2.79E+00	2.72E+02	1.27E-02	6.24E-17
Antimony (51)	Sb-130	9.22E+03	7.52E-05	1.04E+02	.	3.55E+01	4.24E+01	4.59E+01	6.17E+00	1.54E+04	4.96E+04	.	.	.	4.08E+00	3.01E-15
Antimony (51)	Sb-130m	5.78E+04	1.20E-05	.	.	4.25E+01	.	.	.	.	.	.	.	.	4.25E+01	5.01E-15
Antimony (51)	Sb-131	1.58E+04	4.38E-05	4.01E-01	.	3.85E+01	1.17E-01	2.08E-01	2.81E-01	1.06E+01	1.36E+00	1.47E+01	1.08E+01	9.66E+02	4.89E-02	2.12E-17
Antimony (51)	Sb-133	1.46E+05	4.76E-06	1.89E+00	.	2.37E+01	5.43E-01	9.40E-01	1.41E+00	4.98E+01	6.45E+00	6.95E+01	4.98E+01	3.10E+03	2.27E-01	1.09E-17
Scandium (21)	Sc-42m	3.52E+05	1.97E-06	.	.	2.70E+01	.	.	.	.	.	.	.	.	2.70E+01	1.69E-16
Scandium (21)	Sc-43	1.56E+03	4.44E-04	4.38E+01	.	1.21E+02	1.85E+01	3.75E+00	1.55E-01	3.87E+03	1.32E+04	.	.	.	1.47E-01	2.13E-16
Scandium (21)	Sc-44	1.53E+03	4.53E-04	2.70E+01	.	5.40E+01	1.14E+01	2.31E+00	9.57E-02	2.39E+03	8.13E+03	.	.	.	9.07E-02	1.37E-16
Scandium (21)	Sc-44m	1.04E+02	6.69E-03	3.42E+00	.	4.86E+01	1.45E+00	2.93E-01	1.21E-02	3.02E+02	1.03E+03	.	.	.	1.15E-02	2.56E-16
Scandium (21)	Sc-46	3.02E+00	2.30E-01	6.78E+00	.	5.70E+01	2.87E+00	5.80E-01	2.40E-02	5.99E+02	2.04E+03	.	.	.	2.28E-02	1.82E-14
Scandium (21)	Sc-47	7.55E+01	9.18E-03	1.71E+01	.	1.12E+03	7.23E+00	1.46E+00	6.05E-02	1.51E+03	5.14E+03	.	.	.	5.75E-02	1.88E-15
Scandium (21)	Sc-48	1.39E+02	4.99E-03	5.95E+00	.	3.38E+01	2.52E+00	5.09E-01	2.11E-02	5.26E+02	1.79E+03	.	.	.	2.00E-02	3.63E-16
Scandium (21)	Sc-49	6.37E+03	1.09E-04	1.16E+02	.	1.26E+04	4.90E+01	9.91E+00	4.11E-01	1.02E+04	3.49E+04	.	.	.	3.90E-01	1.57E-16
Scandium (21)	Sc-50	2.13E+05	3.25E-06	.	.	3.48E+01	.	.	.	.	.	.	.	.	3.48E+01	4.28E-16
Selenium (34)	Se-70	8.86E+03	7.82E-05	4.23E+01	.	2.31E+01	3.32E+00	2.56E-01	4.71E-01	2.64E+02	4.45E+02	4.70E+02	4.13E+02	3.76E+02	1.56E-01	6.47E-17
Selenium (34)	Se-71	7.68E+04	9.02E-06	2.12E+01	.	5.36E+01	4.91E+00	8.07E-01	1.80E-01	1.51E+02	1.06E+03	.	.	.	1.41E-01	6.85E-18
Selenium (34)	Se-72	3.01E+01	2.30E-02	1.20E+00	.	6.48E+01	5.93E-02	4.13E-03	1.90E-02	5.97E+00	6.94E+00	7.14E+00	6.27E+00	5.72E+00	3.19E-03	4.00E-16
Selenium (34)	Se-73	8.49E+02	8.16E-04	2.03E+01	.	1.10E+02	1.52E+00	1.16E-01	2.31E-01	1.24E+02	2.01E+02	2.11E+02	1.86E+02	1.69E+02	7.31E-02	3.29E-16
Selenium (34)	Se-73m	9.15E+03	7.57E-05	2.16E+01	.	1.13E+02	1.73E+00	1.34E-01	2.39E-01	1.36E+02	2.33E+02	2.46E+02	2.16E+02	1.97E+02	8.12E-02	3.40E-17
Selenium (34)	Se-75	2.11E+00	3.28E-01	3.80E+00	.	3.18E+02	1.53E-01	1.03E-02	8.28E-02	1.68E+01	1.72E+01	1.75E+01	1.54E+01	1.40E+01	8.60E-03	1.60E-14
Selenium (34)	Se-77m	1.26E+06	5.50E-07	.	.	1.42E+03	.	.	.	.	.	.	.	.	1.42E+03	4.56E-15
Selenium (34)	Se-79	2.35E-06	2.95E+05	2.72E+00	.	3.42E+06	1.09E-01	7.38E-03	5.93E-02	1.20E+01	1.23E+01	1.26E+01	1.10E+01	1.01E+01	6.16E-03	1.09E-08
Selenium (34)	Se-79m	9.29E+04	7.46E-06	2.72E+00	.	1.44E+04	1.10E-01	7.38E-03	5.93E-02	1.20E+01	1.23E+01	1.26E+01	1.10E+01	1.01E+01	6.16E-03	2.75E-19
Selenium (34)	Se-81	1.97E+04	3.51E-05	3.53E+02	.	8.70E+03	1.42E+01	9.56E-01	7.68E+00	1.56E+03	1.59E+03	1.63E+03	1.43E+03	1.30E+03	7.98E-01	1.72E-16
Selenium (34)	Se-81m	6.36E+03	1.09E-04	1.18E+02	.	4.52E+03	4.76E+00	3.21E-01	2.58E+00	5.23E+02	5.34E+02	5.46E+02	4.79E+02	4.37E+02	2.68E-01	1.79E-16
Selenium (34)	Se-83	1.63E+04	4.24E-05	1.08E+02	.	4.30E+01	7.84E+00	5.79E-01	1.42E+00	5.86E+02	1.61E+02	1.00E+02	8.80E+02	8.02E+02	3.84E-01	1.02E-16
Selenium (34)	Se-83m	3.12E+05	2.22E-06	2.13E+02	.	1.12E+02	7.70E+01	3.81E+01	2.03E+00	1.51E+03	1.92E+02	.	.	.	1.82E+00	2.54E-17
Selenium (34)	Se-84	1.17E+05	5.90E-06	1.08E+02	.	4.97E+01	3.90E+01	1.93E+01	1.03E+00	7.64E+02	9.75E+01	.	.	.	9.18E-01	3.44E-17
Silicon (14)	Si-31	2.32E+03	2.99E-04	5.98E+01	.	1.88E+04	2.16E+01	.	.	3.53E+04	5.40E+04	.	.	.	1.58E+01	1.11E-14
Silicon (14)	Si-32	5.25E-03	1.32E+02	3.04E+00	.	1.76E+04	1.53E-01	4.36E-04	.	1.21E+01	3.39E+00	2.05E+02	3.81E+02	.	4.35E-04	1.39E-13
Samarium (62)	Sm-139	1.42E+05	4.89E-06	3.03E+01	.	3.82E+01	1.27E+01	1.31E+01	1.05E+00	4.58E+03	2.05E+04	5.37E+05	6.30E+05	1.21E+05	8.57E-01	4.41E-17
Samarium (62)	Sm-140	2.46E+04	2.82E-05	4.49E+00	.	5.41E+01	1.90E+00	7.54E-01	7.66E-01	4.06E+02	1.39E+03	.	1.02E+06	1.87E+03	2.94E-01	8.78E-17
Samarium (62)	Sm-141	3.57E+04	1.94E-05	1.17E+02	.	5.30E+01	4.63E+01	5.09E+01	1.72E+00	7.34E+03	8.73E+04	.	.	.	1.70E+00	3.51E-16
Samarium (62)	Sm-141m	1.61E+04	4.30E-05	9.11E+01	.	4.26E+01	3.68E+01	4.15E+01	1.21E+00	6.67E+03	7.08E+04	.	8.83E+05	4.11E+05	1.09E+00	5.01E-16
Samarium (62)	Sm-142	5.02E+03	1.38E-04	5.24E+01	.	1.23E+02	2.24E+01	2.84E+01	4.07E-01	9.27E+03	4.74E+04	.	.	.	3.90E-01	5.77E-16
Samarium (62)	Sm-143	4.16E+04	1.66E-05	4.25E+01	.	1.44E+02	1.55E+01	2.30E+01	.	1.50E+03	3.84E+04	.	1.38E+05	7.61E+05	7.18E+00	1.29E-15



Farmer Tap Water DCCs July 2023																	
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)													
Element (Atomic Number)	Isotope	Lambda (1/yr)	Half-life (years)	Ingestion	Inhalation	Immersion	Produce	Finfish	Shellfish	Beef	Dairy	Swine	Egg	Poultry	Total	Total	
				DCC	DCC	DCC	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	DCC	DCC
				DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (mg/L)
Samarium (62)	Sm-143m	3.31E+05	2.09E-06	4.25E+01	.	7.83E+01	1.55E+01	2.30E+01	.	1.50E+03	3.84E+04	.	1.38E+05	7.61E+05	6.89E+00	1.56E-16	
Samarium (62)	Sm-145	7.44E-01	9.32E-01	2.94E+01	.	2.79E+03	1.18E+01	1.59E+01	3.45E-01	2.20E+03	2.65E+04	.	2.79E+05	1.54E+06	3.25E-01	3.32E-12	
Samarium (62)	Sm-146	6.73E-09	1.03E+08	1.82E-01	.	.	7.77E-02	9.85E-02	1.41E-03	3.21E+01	1.64E+02	.	.	.	1.35E-03	1.54E-06	
Samarium (62)	Sm-147	6.54E-12	1.06E+11	1.99E-01	.	.	8.51E-02	1.08E-01	1.54E-03	3.52E+01	1.80E+02	.	.	.	1.48E-03	1.75E-03	
Samarium (62)	Sm-148	9.90E-17	7.00E+15	1.18E-01	.	.	5.03E-02	2.99E-02	1.80E-03	1.40E+01	5.39E+01	.	5.22E+04	9.60E+01	1.62E-03	1.27E+02	
Samarium (62)	Sm-151	7.70E-03	9.00E+01	9.44E+01	.	1.87E+08	4.04E+01	5.11E+01	7.32E-01	1.67E+04	8.52E+04	.	.	.	7.03E-01	7.23E-10	
Samarium (62)	Sm-153	1.31E+02	5.31E-03	1.26E+01	.	2.49E+03	5.40E+00	6.84E+00	9.78E-02	2.23E+03	1.14E+04	.	.	.	9.40E-02	5.78E-15	
Samarium (62)	Sm-155	1.63E+04	4.24E-05	2.59E+01	.	8.08E+02	1.09E+01	3.46E+00	9.71E-01	9.80E+02	2.34E+04	.	.	.	6.89E-01	3.43E-16	
Samarium (62)	Sm-156	6.46E+02	1.07E-03	3.73E+00	.	8.36E+01	1.57E+00	5.06E-01	1.28E-01	1.44E+02	3.37E+03	.	.	.	9.35E-02	1.18E-15	
Samarium (62)	Sm-157	4.54E+04	1.53E-05	1.52E+01	.	1.71E+02	6.38E+00	1.90E+00	8.58E-01	5.38E+02	1.37E+04	.	.	.	5.21E-01	9.45E-17	
Tin (50)	Sn-106	1.90E+05	3.65E-06	.	.	2.83E+01	.	.	.	.	.	.	.	.	2.83E+01	8.29E-16	
Tin (50)	Sn-108	3.54E+04	1.96E-05	9.47E+01	.	3.24E+01	2.52E+01	1.81E-01	.	1.99E+03	4.63E+03	.	.	.	1.78E-01	2.85E-17	
Tin (50)	Sn-109	2.02E+04	3.42E-05	4.87E+00	.	3.76E+01	3.40E-01	1.57E-01	6.27E-01	1.46E+02	4.45E+02	4.98E+02	3.28E+03	1.07E+02	8.96E-02	2.53E-17	
Tin (50)	Sn-110	1.48E+03	4.69E-04	2.04E+01	.	6.30E+01	2.67E+00	7.36E-02	.	3.77E+02	4.45E+02	.	.	.	7.13E-02	2.78E-16	
Tin (50)	Sn-111	1.03E+04	6.72E-05	3.13E+01	.	1.36E+02	1.12E+01	5.35E-02	1.75E+06	6.81E+02	2.22E+03	1.39E+09	9.13E+09	2.97E+08	5.31E-02	3.00E-17	
Tin (50)	Sn-113	2.20E+00	3.15E-01	1.21E+01	.	4.56E+02	1.37E+00	6.05E-02	.	2.16E+02	2.26E+02	.	.	.	5.77E-02	1.55E-13	
Tin (50)	Sn-113m	1.70E+04	4.07E-05	1.33E+01	.	4.95E+02	1.50E+00	6.62E-02	.	2.36E+02	2.47E+02	.	.	.	6.30E-02	2.19E-17	
Tin (50)	Sn-117m	1.84E+01	3.77E-02	1.31E+01	.	8.57E+02	1.45E+00	7.12E-02	.	2.32E+02	2.37E+02	.	.	.	6.75E-02	2.25E-14	
Tin (50)	Sn-119m	8.63E-01	8.03E-01	2.62E+01	.	5.33E+04	2.88E+00	1.42E-01	.	4.63E+02	4.73E+02	.	.	.	1.34E-01	9.72E-13	
Tin (50)	Sn-121	2.25E+02	3.09E-03	4.02E+01	.	2.65E+05	4.42E+00	2.18E-01	.	7.11E+02	7.26E+02	.	.	.	2.06E-01	5.83E-15	
Tin (50)	Sn-121m	1.58E-02	4.39E+01	1.64E+01	.	7.93E+04	1.81E+00	8.90E-02	.	2.90E+02	2.97E+02	.	.	.	8.43E-02	3.39E-11	
Tin (50)	Sn-123	1.96E+00	3.54E-01	4.36E+00	.	1.01E+04	4.80E-01	2.36E-02	.	7.72E+01	7.88E+01	.	.	.	2.24E-02	7.38E-14	
Tin (50)	Sn-123m	9.09E+03	7.62E-05	2.46E+02	.	8.63E+02	2.71E+01	1.33E+00	.	4.35E+03	4.44E+03	.	.	.	1.26E+00	8.95E-16	
Tin (50)	Sn-125	2.62E+01	2.64E-02	2.14E+00	.	1.52E+02	2.93E-01	1.64E-02	5.12E-01	4.94E+01	5.30E+01	.	5.74E+02	2.70E+03	1.49E-02	3.73E-15	
Tin (50)	Sn-125m	3.83E+04	1.81E-05	7.27E+00	.	1.53E+02	2.36E+00	2.14E+00	5.12E-01	6.02E+02	1.52E+03	.	5.74E+02	2.70E+03	3.34E-01	5.73E-17	
Tin (50)	Sn-126	3.01E-06	2.30E+05	1.84E+00	.	5.96E+01	2.15E-01	1.08E-02	1.40E+00	3.49E+01	3.59E+01	.	.	.	1.01E-02	2.22E-08	
Tin (50)	Sn-127	2.89E+03	2.40E-04	3.80E+00	.	4.39E+01	9.64E-01	2.07E-01	3.33E-01	2.02E+02	3.64E+02	.	1.95E+02	9.16E+02	1.09E-01	2.51E-16	
Tin (50)	Sn-127m	8.82E+04	7.86E-06	4.12E+00	.	9.19E+01	1.18E+00	9.95E-01	3.33E-01	2.64E+02	6.25E+02	.	1.95E+02	9.16E+02	1.95E-01	1.47E-17	
Tin (50)	Sn-128	6.17E+03	1.12E-04	4.45E+01	.	4.54E+01	6.20E+00	3.37E-01	9.12E+00	1.05E+03	1.11E+03	.	.	.	3.04E-01	3.31E-16	
Tin (50)	Sn-129	1.63E+05	4.24E-06	1.04E-01	.	4.50E+01	3.03E-02	5.44E-02	7.26E-02	2.75E+00	3.52E-01	3.79E+00	2.79E+00	2.72E+02	1.27E-02	5.52E-19	
Tin (50)	Sn-130	9.79E+04	7.08E-06	.	.	3.19E+01	.	.	.	.	.	.	.	.	3.19E+01	2.22E-15	
Tin (50)	Sn-130m	2.14E+05	3.23E-06	1.21E+02	.	2.83E+01	4.93E+01	5.34E+01	7.17E+00	1.79E+04	5.77E+04	.	.	.	4.50E+00	1.43E-16	
Strontium (38)	Sr-79	1.62E+05	4.28E-06	1.94E+02	.	4.11E+01	2.89E+01	6.42E-01	1.20E+00	3.42E+03	3.50E+02	.	.	.	4.07E-01	1.04E-17	
Strontium (38)	Sr-80	3.43E+03	2.02E-04	2.54E+01	.	7.20E+01	2.59E+00	1.43E+02	1.17E+00	3.46E+03	3.53E+02	1.50E+04	4.71E+03	4.56E+04	7.66E-01	9.37E-16	
Strontium (38)	Sr-81	1.63E+04	4.24E-05	8.41E+01	.	5.91E+01	9.86E+00	6.69E-01	1.05E+00	3.02E+03	3.09E+02	8.51E+04	2.67E+04	2.58E+05	3.88E-01	1.01E-16	
Strontium (38)	Sr-82	9.97E+00	6.95E-02	1.51E+00	.	1.06E+02	1.54E-01	8.47E+00	6.94E-02	2.06E+02	2.10E+01	8.92E+02	2.80E+02	2.71E+03	4.60E-02	1.98E-14	
Strontium (38)	Sr-83	1.87E+02	3.70E-03	4.57E+00	.	9.10E+01	6.16E-01	1.98E-02	3.55E-02	1.01E+02	1.03E+01	1.16E+04	3.65E+03	3.53E+04	1.24E-02	2.88E-16	
Strontium (38)	Sr-85	3.90E+00	1.78E-01	1.60E+01	.	2.42E+02	1.63E+00	9.00E+01	7.37E-01	2.18E+03	2.23E+02	9.47E+03	2.97E+03	2.87E+04	4.87E-01	5.57E-13	
Strontium (38)	Sr-85m	5.39E+03	1.29E-04	1.83E+01	.	1.87E+02	1.86E+00	1.03E+02	8.42E-01	2.49E+03	2.55E+02	1.08E+04	3.40E+03	3.28E+04	5.56E-01	4.60E-16	
Strontium (38)	Sr-87m	2.16E+03	3.21E-04	2.85E+02	.	3.77E+02	3.03E+01	6.85E+00	6.96E+00	2.02E+04	2.06E+03	1.95E+05	6.11E+04	5.91E+05	3.03E+00	6.42E-15	
Strontium (38)	Sr-89	5.01E+00	1.38E-01	3.53E+00	.	2.20E+04	3.59E-01	1.98E+01	1.62E-01	4.80E+02	4.90E+01	2.08E+03	6.54E+02	6.32E+03	1.07E-01	1.00E-13	
Strontium (38)	Sr-90	2.41E-02	2.88E+01	3.21E-01	.	1.06E+04	3.51E-02	8.21E-01	1.63E-02	4.46E+01	4.91E+00	2.09E+02	6.55E+01	6.03E+02	1.06E-02	2.07E-12	
Strontium (38)	Sr-91	6.30E+02	1.10E-03	3.09E+00	.	1.13E+02	7.77E-01	1.55E+00	6.91E-01	5.14E+02	1.97E+02	8.88E+03	2.73E+03	9.18E+03	2.69E-01	2.04E-15	
Strontium (38)	Sr-92	2.28E+03	3.04E-04	1.04E+01	.	6.95E+01	1.81E+00	7.21E+00	1.08E+00	1.63E+03	3.19E+02	1.38E+04	4.31E+03	2.58E+04	5.77E-01	1.22E-15	
Strontium (38)	Sr-93	4.91E+04	1.41E-05	4.59E+00	.	4.77E+01	1.89E+00	1.50E+00	.	1.41E+03	6.45E+03	5.42E+05	2.31E+05	2.83E+04	6.97E-01	6.93E-17	
Strontium (38)	Sr-94	2.90E+05	2.39E-06	1.13E+02	.	5.02E+01	4.58E+01	4.58E+01	.	1.99E+04	1.02E+05	.	3.66E+06	4.04E+05	1.38E+01	2.34E-16	
Tantalum (73)	Ta-170	5.39E+04	1.29E-05	7.28E+00	.	2.78E+01	3.09E+00	3.34E-01	7.58E-02	1.57E+03	6.58E+03	.	.	.	6.00E-02	9.92E-18	
Tantalum (73)	Ta-172	9.90E+03	7.00E-05	3.95E+00	.	3.13E+01	1.67E+00	1.24E-01	4.05E-02	9.91E+02	3.63E+03	.	.	.	2.98E-02	2.71E-17	
Tantalum (73)	Ta-173	1.93E+03	3.58E-04	1.38E+01	.	1.09E+02	5.87E+00	5.95E-01	1.68E-01	3.73E+03	1.42E+04	.	.	.	1.27E-01	5.95E-16	
Tantalum (73)	Ta-174	5.33E+03	1.30E-04	4.04E-02	.	1.19E+02	1.70E-02	5.98E-04	3.58E-04	1.79E+01	3.65E+01	.	.	.	2.20E-04	3.77E-19	
Tantalum (73)	Ta-175	5.78E+02	1.20E-03	1.53E+01	.	8.08E+01	6.44E+00	3.39E-01	2.14E-01	1.06E+04	1.91E+04	.	.	.	1.27E-01	2.02E-15	

Farmer Tap Water DCCs July 2023																	
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)													
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Ingestion	Inhalation	Immersion	Produce	Finfish	Shellfish	Beef	Dairy	Swine	Egg	Poultry	Total	Total	
				DCC	DCC	DCC	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	DCC	DCC
				DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (mg/L)
Tantalum (73)	Ta-176	7.50E+02	9.24E-04	3.18E+01	.	4.99E+01	1.35E+01	5.18E+00	.	1.13E+06	1.15E+05	.	.	.	3.14E+00	3.86E-14	
Tantalum (73)	Ta-177	1.07E+02	6.46E-03	8.73E+01	.	2.36E+03	3.69E+01	1.42E+01	.	3.09E+06	3.15E+05	.	.	.	9.14E+00	7.90E-13	
Tantalum (73)	Ta-178	3.91E+04	1.77E-05	.	.	1.11E+03	.	.	.	.	.	.	.	.	1.11E+03	2.65E-13	
Tantalum (73)	Ta-178m	2.57E+03	2.69E-04	1.15E+02	.	1.07E+02	4.86E+01	1.87E+01	.	4.06E+06	4.15E+05	.	.	.	1.08E+01	3.93E-14	
Tantalum (73)	Ta-179	3.81E-01	1.82E+00	1.60E+02	.	7.27E+03	6.77E+01	2.60E+01	.	5.65E+06	5.78E+05	.	.	.	1.68E+01	4.13E-10	
Tantalum (73)	Ta-180	7.45E+02	9.31E-04	1.69E+02	.	3.59E+03	7.13E+01	2.74E+01	.	5.96E+06	6.09E+05	.	.	.	1.76E+01	2.23E-13	
Tantalum (73)	Ta-182	2.21E+00	3.14E-01	6.40E+00	.	8.90E+01	2.71E+00	1.04E+00	.	2.26E+05	2.31E+04	.	.	.	6.68E-01	2.88E-12	
Tantalum (73)	Ta-182m	2.30E+04	3.01E-05	6.35E+00	.	7.55E+01	2.69E+00	1.03E+00	.	2.25E+05	2.29E+04	.	.	.	6.62E-01	2.75E-16	
Tantalum (73)	Ta-183	4.96E+01	1.40E-02	6.92E+00	.	4.40E+02	2.93E+00	1.13E+00	.	2.45E+05	2.50E+04	.	.	.	7.27E-01	1.41E-13	
Tantalum (73)	Ta-184	6.98E+02	9.93E-04	1.42E+01	.	7.51E+01	6.03E+00	2.31E+00	.	5.03E+05	5.14E+04	.	.	.	1.47E+00	2.03E-14	
Tantalum (73)	Ta-185	7.37E+03	9.40E-05	1.82E+01	.	8.06E+02	1.01E+00	2.81E-01	.	9.29E+01	1.99E+03	.	.	.	2.17E-01	2.86E-16	
Tantalum (73)	Ta-186	3.47E+04	2.00E-05	2.73E+02	.	8.32E+01	1.16E+02	4.45E+01	.	9.67E+06	9.88E+05	.	.	.	2.14E+01	6.01E-15	
Terbium (65)	Tb-146	9.50E+05	7.29E-07	1.75E-01	.	1.82E+01	7.47E-02	8.89E-02	1.41E-03	2.81E+01	1.53E+02	.	.	.	1.35E-03	1.09E-20	
Terbium (65)	Tb-147	3.70E+03	1.87E-04	1.94E-01	.	2.88E+01	8.31E-02	9.95E-02	1.54E-03	3.27E+01	1.70E+02	.	6.26E+09	3.46E+10	1.48E-03	3.08E-18	
Terbium (65)	Tb-147m	1.95E+05	3.56E-06	1.95E-01	.	3.06E+01	8.33E-02	1.03E-01	1.54E-03	3.29E+01	1.72E+02	.	6.26E+09	3.46E+10	1.48E-03	5.86E-20	
Terbium (65)	Tb-148	6.07E+03	1.14E-04	1.77E-01	.	4.82E+01	7.48E-02	1.11E-01	.	1.56E+01	5.32E+01	.	.	.	3.56E-02	4.55E-17	
Terbium (65)	Tb-148m	1.66E+05	4.19E-06	1.77E-01	.	3.74E+01	7.50E-02	1.15E-01	.	1.57E+01	5.34E+01	.	.	.	3.60E-02	1.69E-18	
Terbium (65)	Tb-149	1.47E+03	4.70E-04	1.04E+01	.	5.70E+01	4.37E+00	1.32E+00	1.08E+00	6.56E+02	3.97E+03	.	1.67E+06	9.23E+06	4.93E-01	2.61E-15	
Terbium (65)	Tb-149m	8.76E+04	7.91E-06	1.37E+01	.	6.17E+01	5.79E+00	4.52E+00	3.33E+00	8.99E+02	4.88E+03	.	1.27E+09	7.01E+09	1.27E+00	1.14E-16	
Terbium (65)	Tb-150	1.74E+03	3.97E-04	9.22E-02	.	4.55E+01	3.92E-02	5.29E-02	1.41E-03	1.09E+01	4.19E+01	.	.	.	1.31E-03	5.89E-18	
Terbium (65)	Tb-150m	6.28E+04	1.10E-05	9.24E-02	.	4.74E+01	3.93E-02	5.45E-02	1.41E-03	1.10E+01	4.21E+01	.	.	.	1.31E-03	1.64E-19	
Terbium (65)	Tb-151	3.45E+02	2.01E-03	1.63E+01	.	1.16E+02	6.92E+00	1.04E+00	1.62E+01	1.45E+03	4.95E+03	.	6.59E+13	3.64E+14	8.08E-01	1.86E-14	
Terbium (65)	Tb-151m	8.74E+05	7.93E-07	1.70E+01	.	1.15E+02	7.21E+00	1.11E+00	1.74E+01	1.51E+03	5.15E+03	.	7.05E+13	3.90E+14	8.59E-01	7.78E-18	
Terbium (65)	Tb-152	3.47E+02	2.00E-03	7.87E-02	.	7.66E+01	3.34E-02	2.40E-02	1.80E-03	8.38E+00	3.06E+01	.	5.22E+04	9.60E+01	1.56E-03	3.58E-17	
Terbium (65)	Tb-152m	8.67E+04	7.99E-06	7.88E-02	.	6.07E+01	3.35E-02	2.42E-02	1.80E-03	8.39E+00	3.07E+01	.	5.22E+04	9.60E+01	1.56E-03	1.43E-19	
Terbium (65)	Tb-153	1.08E+02	6.41E-03	1.69E+01	.	3.15E+02	7.17E+00	1.26E+00	.	1.50E+03	5.10E+03	.	.	.	1.00E+00	7.45E-14	
Terbium (65)	Tb-154	2.82E+02	2.45E-03	1.61E+01	.	4.82E+01	6.81E+00	6.38E-01	.	1.42E+03	4.84E+03	.	.	.	5.56E-01	1.59E-14	
Terbium (65)	Tb-155	4.75E+01	1.46E-02	3.63E+01	.	8.26E+02	1.54E+01	1.44E+00	.	3.21E+03	1.09E+04	.	.	.	1.27E+00	2.17E-13	
Terbium (65)	Tb-156	4.73E+01	1.47E-02	8.61E+00	.	5.99E+01	3.64E+00	3.41E-01	.	7.61E+02	2.59E+03	.	.	.	3.00E-01	5.18E-14	
Terbium (65)	Tb-156m	2.49E+02	2.79E-03	7.52E+00	.	5.93E+01	3.19E+00	2.98E-01	.	6.65E+02	2.27E+03	.	.	.	2.62E-01	8.62E-15	
Terbium (65)	Tb-156n	1.15E+03	6.05E-04	7.98E+00	.	5.99E+01	3.38E+00	3.17E-01	.	7.06E+02	2.40E+03	.	.	.	2.78E-01	1.98E-15	
Terbium (65)	Tb-157	9.76E-03	7.10E+01	2.42E+02	.	5.07E+04	1.02E+02	9.59E+00	.	2.14E+04	7.28E+04	.	.	.	8.45E+00	7.13E-09	
Terbium (65)	Tb-158	3.85E-03	1.80E+02	8.79E+00	.	1.48E+02	3.72E+00	3.48E-01	.	7.77E+02	2.65E+03	.	.	.	3.07E-01	6.60E-10	
Terbium (65)	Tb-160	3.50E+00	1.98E-01	5.93E+00	.	1.02E+02	2.51E+00	2.35E-01	.	5.24E+02	1.78E+03	.	.	.	2.07E-01	4.96E-13	
Terbium (65)	Tb-161	3.66E+01	1.89E-02	1.25E+01	.	5.75E+03	5.29E+00	4.95E-01	.	1.10E+03	3.76E+03	.	.	.	4.37E-01	1.01E-13	
Terbium (65)	Tb-162	4.79E+04	1.45E-05	.	.	1.06E+02	.	.	.	.	.	.	.	.	1.06E+02	1.88E-14	
Terbium (65)	Tb-163	1.87E+04	3.71E-05	4.53E+02	.	1.52E+02	1.92E+02	1.80E+01	.	4.01E+04	1.37E+05	.	.	.	1.44E+01	6.57E-15	
Terbium (65)	Tb-164	1.21E+05	5.71E-06	.	.	4.68E+01	.	.	.	.	.	.	.	.	4.68E+01	3.32E-15	
Terbium (65)	Tb-165	1.73E+05	4.01E-06	8.72E+01	.	1.27E+02	3.69E+01	2.18E+00	.	7.71E+03	2.63E+04	.	.	.	1.98E+00	9.93E-17	
Technetium (43)	Tc-101	2.57E+04	2.70E-05	5.10E+02	.	3.53E+02	9.53E-01	5.52E+02	2.43E+02	9.01E+03	9.21E+02	5.02E+06	1.10E+04	6.09E+05	9.42E-01	1.95E-16	
Technetium (43)	Tc-102	4.14E+06	1.67E-07	.	.	1.05E+03	.	.	.	.	.	.	.	.	1.05E+03	1.36E-15	
Technetium (43)	Tc-102m	8.37E+04	8.28E-06	.	.	4.51E+01	.	.	.	.	.	.	.	.	4.51E+01	2.88E-15	
Technetium (43)	Tc-104	1.99E+04	3.48E-05	1.17E+02	.	4.88E+01	2.19E-01	1.27E+02	5.58E+01	2.07E+03	2.11E+02	1.15E+06	2.53E+03	1.40E+05	2.16E-01	5.91E-17	
Technetium (43)	Tc-105	4.79E+04	1.45E-05	1.45E+01	.	7.14E+01	5.07E+00	8.06E+00	1.08E+04	1.00E+03	9.04E+02	1.67E+04	5.49E+05	1.52E+02	2.42E+00	2.78E-16	
Technetium (43)	Tc-91	1.16E+05	5.97E-06	8.82E+01	.	3.24E+01	2.09E+01	1.06E+01	4.39E+03	2.81E+04	2.61E+03	1.46E+06	1.61E+04	3.16E+04	5.42E+00	2.23E-16	
Technetium (43)	Tc-91m	1.10E+05	6.28E-06	3.36E+01	.	3.51E+01	1.17E+01	2.04E+00	8.57E+03	5.49E+04	5.09E+03	2.78E+05	3.11E+04	6.11E+04	1.58E+00	6.82E-17	
Technetium (43)	Tc-92	8.57E+04	8.09E-06	.	.	2.98E+01	.	.	.	.	.	.	.	.	2.98E+01	1.68E-15	
Technetium (43)	Tc-93	2.21E+03	3.14E-04	3.79E+00	.	7.14E+01	1.96E-01	3.82E+00	4.27E+01	5.63E+02	5.33E+01	4.22E+05	3.65E+02	8.09E+02	1.76E-01	3.88E-16	
Technetium (43)	Tc-93m	8.37E+03	8.28E-05	3.76E+00	.	5.14E+01	1.68E-01	3.80E+00	3.73E+01	5.35E+02	5.09E+01	3.95E+05	3.56E+02	8.08E+02	1.52E-01	8.88E-17	
Technetium (43)	Tc-94	1.24E+03	5.57E-04	5.04E+01	.	4.40E+01	9.42E-02	5.46E+01	2.40E+01	8.91E+02	9.10E+01	4.96E+05	1.09E+03	6.01E+04	9.32E-02	3.69E-16	
Technetium (43)	Tc-94m	7.00E+03	9.89E-05	9.37E+01	.	5.87E+01	1.75E-01	1.02E+02	4.47E+01	1.66E+03	1.69E+02	9.22E+05	2.02E+03	1.12E+05	1.73E-01	1.22E-16	

Farmer Tap Water DCCs July 2023																	
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)													
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Ingestion	Inhalation	Immersion	Produce	Finfish	Shellfish	Beef	Dairy	Swine	Egg	Poultry	Total	Total	
				DCC	DCC	DCC	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	DCC	DCC
				DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (Bq/L)	DL=1 (mg/L)
Technetium (43)	Tc-95	3.04E+02	2.28E-03	5.64E+01	.	1.49E+02	1.05E-01	6.11E+01	2.69E+01	9.97E+02	1.02E+02	5.55E+05	1.22E+03	6.73E+04	1.04E-01	1.71E-15	
Technetium (43)	Tc-95m	4.15E+00	1.67E-01	1.75E+01	.	1.67E+02	3.27E-02	1.90E+01	8.35E+00	3.10E+02	3.16E+01	1.72E+05	3.78E+02	2.09E+04	3.25E-02	3.90E-14	
Technetium (43)	Tc-96	5.91E+01	1.17E-02	9.23E+00	.	4.66E+01	1.73E-02	1.00E+01	4.41E+00	1.63E+02	1.67E+01	9.09E+04	2.00E+02	1.10E+04	1.71E-02	1.46E-15	
Technetium (43)	Tc-96m	7.07E+03	9.80E-05	9.31E+00	.	4.68E+01	1.74E-02	1.01E+01	4.44E+00	1.65E+02	1.68E+01	9.16E+04	2.01E+02	1.11E+04	1.73E-02	1.23E-17	
Technetium (43)	Tc-97	2.67E-07	2.60E+06	1.35E+02	.	2.22E+05	2.52E-01	1.46E+02	6.42E+01	2.38E+03	2.43E+02	1.32E+06	2.91E+03	1.61E+05	2.49E-01	4.76E-06	
Technetium (43)	Tc-97m	2.81E+00	2.47E-01	1.47E+01	.	8.70E+04	2.76E-02	1.60E+01	7.03E+00	2.61E+02	2.66E+01	1.45E+05	3.18E+02	1.76E+04	2.73E-02	4.95E-14	
Technetium (43)	Tc-98	1.65E-07	4.20E+06	5.24E+00	.	8.32E+01	9.81E-03	5.68E+00	2.50E+00	9.27E+01	9.47E+00	5.16E+04	1.13E+02	6.26E+03	9.72E-03	3.03E-07	
Technetium (43)	Tc-99	3.28E-06	2.11E+05	1.42E+01	.	3.68E+05	2.65E-02	1.53E+01	6.75E+00	2.50E+02	2.56E+01	1.39E+05	3.06E+02	1.69E+04	2.62E-02	4.15E-08	
Technetium (43)	Tc-99m	1.01E+03	6.87E-04	1.37E+01	.	9.86E+02	2.56E-02	1.49E+01	6.54E+00	2.43E+02	2.48E+01	1.35E+05	2.96E+02	1.64E+04	2.54E-02	1.31E-16	
Tellurium (52)	Te-113	2.14E+05	3.23E-06	1.24E+01	.	3.08E+01	1.40E+00	6.17E-02	.	2.21E+02	2.31E+02	.	.	.	5.87E-02	1.62E-18	
Tellurium (52)	Te-114	2.40E+04	2.89E-05	1.46E+02	.	2.88E+01	2.31E+01	1.59E+01	.	3.70E+03	7.77E+03	.	1.86E+03	8.73E+03	6.71E+00	1.67E-15	
Tellurium (52)	Te-115	6.28E+04	1.10E-05	4.04E+02	.	3.71E+01	1.64E+02	1.78E+02	2.39E+01	5.96E+04	1.92E+05	.	.	.	1.20E+01	1.16E-15	
Tellurium (52)	Te-115m	5.44E+04	1.27E-05	4.04E+02	.	3.30E+01	1.64E+02	1.78E+02	2.39E+01	5.96E+04	1.92E+05	.	.	.	1.16E+01	1.28E-15	
Tellurium (52)	Te-116	2.44E+03	2.84E-04	4.28E+01	.	4.80E+01	7.36E+00	5.16E+00	1.90E+01	1.22E+03	2.58E+03	.	6.28E+02	2.95E+03	2.33E+00	5.81E-15	
Tellurium (52)	Te-117	5.87E+03	1.18E-04	1.39E+02	.	6.69E+01	2.62E+01	1.88E+01	3.18E+01	4.48E+03	9.62E+03	.	2.39E+03	1.12E+04	6.85E+00	7.16E-15	
Tellurium (52)	Te-118	4.22E+01	1.64E-02	3.08E+00	.	1.46E+02	4.87E-01	3.34E-01	.	7.79E+01	1.64E+02	.	3.92E+01	1.84E+02	1.84E-01	2.71E-14	
Tellurium (52)	Te-119	3.78E+02	1.83E-03	3.79E+01	.	1.55E+02	7.52E+00	5.49E+00	6.72E+00	1.32E+03	2.86E+03	.	7.23E+02	3.40E+03	2.00E+00	3.30E-14	
Tellurium (52)	Te-119m	5.38E+01	1.29E-02	1.26E+01	.	7.64E+01	2.14E+00	1.50E+00	6.72E+00	3.52E+02	7.45E+02	.	1.81E+02	8.49E+02	7.21E-01	8.36E-14	
Tellurium (52)	Te-121	1.32E+01	5.25E-02	2.25E+01	.	2.12E+02	3.56E+00	2.44E+00	.	5.70E+02	1.20E+03	.	2.87E+02	1.35E+03	1.34E+00	6.45E-13	
Tellurium (52)	Te-121m	1.64E+00	4.22E-01	3.61E+00	.	1.70E+02	5.70E-01	3.91E-01	.	9.12E+01	1.92E+02	.	4.59E+01	2.15E+02	2.16E-01	8.33E-13	
Tellurium (52)	Te-123	1.16E-15	6.00E+14	8.55E+00	.	1.87E+07	1.35E+00	9.27E-01	.	2.16E+02	4.54E+02	.	1.09E+02	5.11E+02	5.12E-01	2.86E+03	
Tellurium (52)	Te-123m	2.12E+00	3.27E-01	3.79E+00	.	9.04E+02	5.99E-01	4.11E-01	.	9.58E+01	2.01E+02	.	4.82E+01	2.26E+02	2.27E-01	6.90E-13	
Tellurium (52)	Te-125m	4.41E+00	1.57E-01	1.04E+01	.	1.49E+04	1.65E+00	1.13E+00	.	2.64E+02	5.55E+02	.	1.33E+02	6.24E+02	6.25E-01	9.30E-13	
Tellurium (52)	Te-127	6.49E+02	1.07E-03	5.54E+01	.	1.92E+04	8.75E+00	6.00E+00	.	1.40E+03	2.94E+03	.	7.04E+02	3.31E+03	3.31E+00	3.40E-14	
Tellurium (52)	Te-127m	2.32E+00	2.99E-01	3.51E+00	.	1.37E+04	5.55E-01	3.81E-01	.	8.88E+01	1.87E+02	.	4.47E+01	2.10E+02	2.10E-01	6.04E-13	
Tellurium (52)	Te-129	5.23E+03	1.32E-04	1.05E+01	.	1.70E+03	3.08E-02	5.69E-02	7.68E-02	2.78E+00	3.52E-01	3.79E+00	2.84E+00	4.14E+02	1.31E-02	1.69E-17	
Tellurium (52)	Te-129m	7.53E+00	9.21E-02	1.02E-01	.	1.48E+03	2.90E-02	4.84E-02	7.68E-02	2.68E+00	3.51E-01	3.79E+00	2.64E+00	1.26E+02	1.22E-02	1.10E-14	
Tellurium (52)	Te-131	1.46E+04	4.76E-05	4.05E-01	.	1.48E+02	1.19E-01	2.16E-01	2.97E-01	1.07E+01	1.36E+00	1.47E+01	1.09E+01	1.32E+03	5.03E-02	2.37E-17	
Tellurium (52)	Te-131m	2.02E+02	3.42E-03	3.74E-01	.	6.05E+01	1.03E-01	1.54E-01	2.97E-01	9.85E+00	1.35E+00	1.47E+01	9.28E+00	2.40E+02	4.29E-02	1.46E-15	
Tellurium (52)	Te-132	7.89E+01	8.78E-03	2.21E+00	.	4.69E+01	3.61E-01	2.54E-01	2.30E+01	5.60E+01	5.74E+01	1.13E+03	2.92E+01	1.42E+02	1.37E-01	1.20E-14	
Tellurium (52)	Te-133	2.91E+04	2.38E-05	1.90E+00	.	6.21E+01	5.50E-01	9.72E-01	1.41E+00	5.01E+01	6.45E+00	6.95E+01	5.05E+01	3.87E+03	2.32E-01	5.56E-17	
Tellurium (52)	Te-133m	6.57E+03	1.05E-04	1.82E+00	.	4.25E+01	5.11E-01	8.12E-01	1.41E+00	4.80E+01	6.43E+00	6.95E+01	4.64E+01	1.59E+03	2.14E-01	2.27E-16	
Tellurium (52)	Te-134	8.71E+03	7.95E-05	4.72E+01	.	3.35E+01	9.73E+00	8.61E+00	6.79E+01	1.22E+03	2.93E+02	3.35E+03	8.20E+02	5.64E+03	3.44E+00	2.78E-15	
Thorium (90)	Th-223	3.64E+07	1.90E-08	.	.	5.01E+02	.	.	.	.	.	.	.	.	5.01E+02	1.61E-16	
Thorium (90)	Th-224	2.08E+07	3.33E-08	.	.	4.46E+03	.	.	.	.	.	.	.	.	4.46E+03	2.52E-15	
Thorium (90)	Th-226	1.19E+04	5.82E-05	4.60E-03	.	5.56E+03	1.86E-03	2.34E-03	6.64E-03	3.78E-01	4.09E-01	.	1.52E-01	1.09E-01	7.38E-04	7.34E-19	
Thorium (90)	Th-227	1.35E+01	5.12E-02	5.49E-02	2.63E-01	2.78E+02	1.97E-02	2.15E-01	2.46E-03	6.05E+00	2.79E+00	.	.	.	2.06E-03	1.81E-15	
Thorium (90)	Th-228	3.63E-01	1.91E+00	5.04E-02	9.76E-02	7.40E+01	1.94E-02	1.42E-01	4.53E-04	9.06E+00	4.53E+00	.	.	.	4.35E-04	1.44E-14	
Thorium (90)	Th-229	9.44E-05	7.34E+03	1.42E-02	.	3.95E+02	5.75E-03	3.84E-02	8.83E-05	4.12E+00	2.45E+00	.	.	.	8.62E-05	1.10E-11	
Thorium (90)	Th-230	9.19E-06	7.54E+04	3.66E-03	1.34E-01	6.45E+01	1.46E-03	2.25E-03	1.97E-04	3.32E-01	3.12E-01	.	1.52E-01	1.09E-01	1.54E-04	2.02E-10	
Thorium (90)	Th-231	2.38E+02	2.91E-03	1.08E-02	2.63E-01	2.53E+02	4.26E-03	1.67E-02	2.43E-03	5.86E+00	2.66E+00	.	.	.	1.24E-03	6.34E-17	
Thorium (90)	Th-232	4.93E-11	1.41E+10	5.98E-03	9.76E-02	4.76E+01	2.19E-03	2.17E-02	1.20E-04	7.43E-01	3.49E-01	.	.	.	1.11E-04	2.74E-05	
Thorium (90)	Th-233	1.63E+04	4.24E-05	1.33E-02	.	2.17E+02	5.38E-03	3.79E-02	8.78E-05	3.95E+00	1.14E+00	7.10E+00	1.25E+01	1.01E+01	8.56E-05	6.41E-20	
Thorium (90)	Th-234	1.05E+01	6.60E-02	3.60E-03	1.34E-01	6.33E+01	1.43E-03	2.25E-03	1.92E-04	3.30E-01	2.74E-01	7.36E+00	1.50E-01	1.08E-01	1.50E-04	1.75E-16	
Thorium (90)	Th-235	5.13E+04	1.35E-05	1.03E-02	2.63E-01	1.72E+02	4.08E-03	1.66E-02	2.12E-03	5.55E+00	1.24E+00	7.79E+00	1.37E+01	1.11E+01	1.14E-03	2.73E-19	
Thorium (90)	Th-236	9.71E+03	7.13E-05	5.83E-03	9.76E-02	3.40E+01	2.14E-03	2.16E-02	1.19E-04	7.38E-01	3.03E-01	7.81E+00	1.37E+01	1.11E+01	1.10E-04	1.40E-19	
Titanium (22)	Ti-44	1.16E-02	6.00E+01	1.62E+00	.	5.14E+01	6.90E-01	1.38E-01	9.57E-02	1.51E+01	3.10E+00	.	.	.	4.96E-02	9.91E-12	
Titanium (22)	Ti-45	1.97E+03	3.52E-04	6.34E+01	.	1.37E+02	2.71E+01	5.42E+00	.	5.60E+02	1.15E+02	.	.	.	3.92E+00	4.70E-15	
Titanium (22)	Ti-51	6.32E+04	1.10E-05	.	.	3.16E+02	.	.	.	.	.	.	.	.	3.16E+02	1.34E-14	
Titanium (22)	Ti-52	2.14E+05	3.23E-06	.	.	7.04E+01	.	.	.	.	.	.	.	.	7.04E+01	8.97E-16	
Thallium (81)	Tl-190	1.40E+05	4.95E-06	2.43E-01	.	2.92E+01	7.42E-02	1.13E+00	1.64E+00	2.55E+01	4.39E+01	.	.	5.47E+05	5.21E-02	3.71E-18	

Farmer Tap Water DCCs July 2023																
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)												
Element (Atomic Number)	Isotope	Lambda (1/yr)	Half-life (years)	Ingestion	Inhalation	Immersion	Produce	Finfish	Shellfish	Beef	Dairy	Swine	Egg	Poultry	Total	Total
				DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)
Thallium (81)	Tl-190m	9.84E+04	7.04E-06	2.43E-01	.	2.27E+01	7.42E-02	1.13E+00	1.64E+00	2.55E+01	4.39E+01	.	.	5.47E+05	5.21E-02	5.28E-18
Thallium (81)	Tl-194	1.10E+04	6.28E-05	5.96E+00	.	5.97E+01	8.20E-01	2.14E-02	8.35E-02	1.09E+02	2.55E+02	.	.	9.75E+03	1.66E-02	1.53E-17
Thallium (81)	Tl-194m	1.11E+04	6.24E-05	5.99E+00	.	3.30E+01	8.21E-01	2.14E-02	8.35E-02	1.12E+02	2.61E+02	.	.	9.75E+03	1.66E-02	1.52E-17
Thallium (81)	Tl-195	5.23E+03	1.32E-04	2.42E+01	.	7.75E+01	5.84E+00	2.15E-01	2.63E-01	5.11E+02	1.72E+03	.	.	1.09E+05	1.15E-01	2.25E-16
Thallium (81)	Tl-196	3.30E+03	2.10E-04	1.98E+02	.	6.06E+01	8.53E+01	3.59E+00	.	8.77E+02	1.79E+03	.	.	.	3.19E+00	9.92E-15
Thallium (81)	Tl-197	2.14E+03	3.24E-04	3.46E+01	.	2.34E+02	4.05E+00	9.89E-02	6.22E-01	4.93E+02	1.01E+03	.	.	4.49E+04	8.33E-02	4.03E-16
Thallium (81)	Tl-198	1.15E+03	6.05E-04	1.41E+02	.	5.61E+01	6.07E+01	2.55E+00	.	6.24E+02	1.27E+03	.	.	.	2.29E+00	2.08E-14
Thallium (81)	Tl-198m	3.25E+03	2.13E-04	1.14E+02	.	5.46E+01	4.91E+01	2.06E+00	.	5.05E+02	1.03E+03	.	.	.	1.87E+00	5.98E-15
Thallium (81)	Tl-199	8.18E+02	8.47E-04	3.66E+02	.	5.10E+02	1.57E+02	6.61E+00	.	1.62E+03	3.31E+03	.	.	.	6.13E+00	7.82E-14
Thallium (81)	Tl-200	2.33E+02	2.98E-03	5.16E+01	.	8.90E+01	2.22E+01	9.32E-01	.	2.28E+02	4.66E+02	.	.	.	8.65E-01	3.90E-14
Thallium (81)	Tl-201	8.33E+01	8.32E-03	1.00E+02	.	1.58E+03	4.31E+01	1.81E+00	.	4.44E+02	9.06E+02	.	.	.	1.70E+00	2.15E-13
Thallium (81)	Tl-202	2.07E+01	3.35E-02	2.27E+01	.	2.65E+02	9.78E+00	4.11E-01	.	1.01E+02	2.06E+02	.	.	.	3.85E-01	1.97E-13
Thallium (81)	Tl-204	1.83E-01	3.78E+00	7.91E+00	.	4.74E+04	3.40E+00	1.43E-01	.	3.50E+01	7.15E+01	.	.	.	1.34E-01	7.82E-12
Thallium (81)	Tl-206	8.67E+04	7.99E-06	.	.	2.43E+04	.	.	.	.	.	.	.	.	2.43E+04	3.03E-12
Thallium (81)	Tl-206m	9.74E+04	7.12E-06	.	.	4.87E+01	.	.	.	.	.	.	.	.	4.87E+01	5.40E-15
Thallium (81)	Tl-207	7.64E+04	9.08E-06	.	.	1.78E+04	.	.	.	.	.	.	.	.	1.78E+04	2.53E-12
Thallium (81)	Tl-208	1.19E+05	5.81E-06	.	.	3.18E+01	.	.	.	.	.	.	.	.	3.18E+01	2.91E-15
Thallium (81)	Tl-209	1.69E+05	4.11E-06	1.71E+02	.	5.25E+01	6.35E+01	1.11E+02	9.62E+01	4.31E+04	1.62E+04	.	.	.	1.66E+01	1.08E-15
Thallium (81)	Tl-210	2.80E+05	2.47E-06	4.60E-03	.	4.05E+01	1.86E-03	2.34E-03	7.04E-03	3.78E-01	4.09E-01	.	1.52E-01	1.09E-01	7.43E-04	2.92E-20
Thulium (69)	Tm-161	1.21E+04	5.75E-05	7.25E+01	.	5.07E+01	3.09E+01	6.62E+01	.	9.26E+03	3.70E+04	.	.	.	1.23E+01	8.63E-15
Thulium (69)	Tm-162	1.68E+04	4.13E-05	2.46E+02	.	5.84E+01	1.04E+02	.	.	2.18E+04	7.42E+04	.	.	.	3.24E+01	1.64E-14
Thulium (69)	Tm-163	3.35E+03	2.07E-04	1.65E+02	.	8.68E+01	7.00E+01	1.12E+03	.	1.49E+04	5.13E+04	.	.	.	3.05E+01	7.76E-14
Thulium (69)	Tm-164	1.82E+05	3.81E-06	.	.	1.50E+02	.	.	.	.	.	.	.	.	1.50E+02	7.09E-15
Thulium (69)	Tm-165	2.02E+02	3.43E-03	2.60E+01	.	2.13E+02	1.10E+01	3.22E+02	.	2.36E+03	8.10E+03	.	.	.	7.26E+00	3.11E-13
Thulium (69)	Tm-166	7.88E+02	8.79E-04	3.52E+01	.	5.73E+01	1.49E+01	.	.	3.11E+03	1.06E+04	.	.	.	8.82E+00	9.74E-14
Thulium (69)	Tm-167	2.73E+01	2.53E-02	1.61E+01	.	9.56E+02	6.82E+00	.	.	1.42E+03	4.85E+03	.	.	.	4.75E+00	1.52E-12
Thulium (69)	Tm-168	2.72E+00	2.55E-01	9.51E+00	.	9.64E+01	4.02E+00	.	.	8.41E+02	2.86E+03	.	.	.	2.74E+00	8.87E-12
Thulium (69)	Tm-170	1.97E+00	3.52E-01	7.04E+00	.	2.25E+04	2.98E+00	.	.	6.22E+02	2.12E+03	.	.	.	2.08E+00	9.45E-12
Thulium (69)	Tm-171	3.61E-01	1.92E+00	8.61E+01	.	2.97E+05	3.64E+01	.	.	7.61E+03	2.59E+04	.	.	.	2.55E+01	6.33E-10
Thulium (69)	Tm-172	9.55E+01	7.26E-03	5.49E+00	.	2.35E+02	2.32E+00	.	.	4.86E+02	1.65E+03	.	.	.	1.61E+00	1.53E-13
Thulium (69)	Tm-173	7.37E+02	9.41E-04	3.13E+01	.	3.09E+02	1.32E+01	.	.	2.77E+03	9.43E+03	.	.	.	9.00E+00	1.11E-13
Thulium (69)	Tm-174	6.75E+04	1.03E-05	.	.	6.61E+01	.	.	.	.	.	.	.	.	6.61E+01	8.94E-15
Thulium (69)	Tm-175	2.40E+04	2.89E-05	2.00E+01	.	1.04E+02	8.46E+00	.	.	1.77E+03	6.02E+03	.	.	.	5.60E+00	2.15E-15
Thulium (69)	Tm-176	1.97E+05	3.52E-06	.	.	5.70E+01	.	.	.	.	.	.	.	.	5.70E+01	2.67E-15
Uranium (92)	U-227	3.31E+05	2.09E-06	.	.	3.42E+02	.	.	.	.	.	.	.	.	3.42E+02	1.23E-14
Uranium (92)	U-228	4.00E+04	1.73E-05	.	.	4.02E+03	.	.	.	.	.	.	.	.	4.02E+03	1.20E-12
Uranium (92)	U-230	1.22E+01	5.70E-02	4.48E-03	.	5.30E+03	1.81E-03	2.34E-03	4.38E-03	3.76E-01	3.32E-01	5.93E+00	1.50E-01	1.07E-01	6.88E-04	6.82E-16
Uranium (92)	U-231	6.02E+01	1.15E-02	1.08E-02	2.63E-01	2.28E+02	4.26E-03	1.67E-02	2.48E-03	5.86E+00	2.63E+00	9.23E+02	1.62E+03	1.31E+03	1.26E-03	2.53E-16
Uranium (92)	U-232	1.01E-02	6.89E+01	1.94E-02	9.76E-02	7.40E+01	7.69E-03	1.12E-01	3.78E-04	5.54E+00	2.96E-01	1.06E+00	1.86E+00	1.51E+00	3.51E-04	4.24E-13
Uranium (92)	U-233	4.35E-06	1.59E+05	1.33E-02	.	3.95E+02	5.39E-03	3.80E-02	8.78E-05	3.95E+00	1.14E+00	7.10E+00	1.25E+01	1.01E+01	8.56E-05	2.40E-10
Uranium (92)	U-234	2.82E-06	2.46E+05	3.60E-03	1.34E-01	6.45E+01	1.44E-03	2.25E-03	1.95E-04	3.30E-01	2.74E-01	7.36E+00	1.50E-01	1.08E-01	1.52E-04	6.61E-10
Uranium (92)	U-235	9.84E-10	7.04E+08	1.03E-02	2.63E-01	1.90E+02	4.08E-03	1.66E-02	2.12E-03	5.55E+00	1.24E+00	7.79E+00	1.37E+01	1.11E+01	1.14E-03	1.43E-05
Uranium (92)	U-235m	1.40E+04	4.95E-05	1.03E-02	2.63E-01	1.90E+02	4.08E-03	1.66E-02	2.12E-03	5.55E+00	1.24E+00	7.79E+00	1.37E+01	1.11E+01	1.14E-03	1.00E-18
Uranium (92)	U-236	2.96E-08	2.34E+07	5.83E-03	9.76E-02	4.76E+01	2.14E-03	2.16E-02	1.19E-04	7.38E-01	3.03E-01	7.81E+00	1.37E+01	1.11E+01	1.10E-04	4.61E-08
Uranium (92)	U-237	3.75E+01	1.85E-02	1.17E-02	.	1.83E+02	4.74E-03	2.25E-02	5.29E-05	3.87E+00	1.13E+00	6.98E+00	1.23E+01	9.93E+00	5.20E-05	1.72E-17
Uranium (92)	U-238	1.55E-10	4.47E+09	3.55E-03	1.34E-01	6.33E+01	1.41E-03	2.25E-03	1.90E-04	3.29E-01	2.46E-01	3.87E+00	1.49E-01	1.07E-01	1.48E-04	1.19E-05
Uranium (92)	U-239	1.55E+04	4.46E-05	8.34E-03	2.63E-01	1.42E+02	3.36E-03	3.42E-05	7.13E-05	5.54E+00	1.22E+00	7.71E+00	1.36E+01	1.09E+01	2.29E-05	1.85E-20
Uranium (92)	U-240	4.31E+02	1.61E-03	5.15E-03	9.76E-02	4.20E+01	1.92E-03	3.42E-05	4.57E-05	7.37E-01	3.01E-01	7.54E+00	1.33E+01	1.06E+01	1.93E-05	5.64E-19
Uranium (92)	U-242	2.17E+04	3.20E-05	3.29E-03	1.34E-01	5.38E+01	1.32E-03	3.54E-05	5.52E-05	3.29E-01	2.45E-01	3.85E+00	1.49E-01	1.07E-01	2.11E-05	1.23E-20
Vanadium (23)	V-47	1.12E+04	6.20E-05	1.52E+02	.	1.19E+02	5.99E+01	2.55E+01	4.84E+00	2.69E+06	2.75E+05	.	.	.	3.60E+00	7.95E-16
Vanadium (23)	V-48	1.58E+01	4.38E-02	5.02E+00	.	3.92E+01	1.97E+00	8.41E-01	1.60E-01	8.87E+04	9.06E+03	.	.	.	1.22E-01	1.94E-14



Farmer Tap Water DCCs July 2023																	
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)													
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Ingestion	Inhalation	Immersion	Produce	Finfish	Shellfish	Beef	Dairy	Swine	Egg	Poultry	Total	Total	
				DCC	DCC	DCC	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	DCC	DCC
				DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1
				(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(mg/L)
Vanadium (23)	V-49	7.67E-01	9.04E-01	5.04E+02	.	.	1.98E+02	8.44E+01	1.60E+01	8.91E+06	9.10E+05	.	.	.	1.23E+01	4.12E-11	
Vanadium (23)	V-50	4.62E-18	1.50E+17	3.40E+00	.	7.76E+01	1.34E+00	5.69E-01	1.08E-01	6.01E+04	6.14E+03	.	.	.	8.29E-02	4.70E+04	
Vanadium (23)	V-52	9.73E+04	7.12E-06	.	.	7.61E+01	.	.	.	.	.	.	.	.	7.61E+01	2.13E-15	
Vanadium (23)	V-53	2.26E+05	3.06E-06	.	.	1.09E+02	.	.	.	.	.	.	.	.	1.09E+02	1.34E-15	
Tungsten (74)	W-177	2.76E+03	2.51E-04	5.85E+01	.	1.26E+02	7.04E+00	2.05E+00	.	7.83E+02	1.60E+04	.	.	.	1.53E+00	5.13E-15	
Tungsten (74)	W-178	1.17E+01	5.92E-02	3.88E+01	.	1.02E+03	1.91E+00	5.26E-01	.	1.72E+02	3.69E+03	.	.	.	4.07E-01	3.24E-13	
Tungsten (74)	W-179	9.83E+03	7.05E-05	1.51E+02	.	2.36E+03	4.48E+01	1.52E+01	.	1.19E+04	1.78E+05	.	.	.	1.05E+01	1.00E-14	
Tungsten (74)	W-179m	5.69E+04	1.22E-05	1.51E+02	.	1.24E+03	4.48E+01	1.52E+01	.	1.19E+04	1.78E+05	.	.	.	1.05E+01	1.73E-15	
Tungsten (74)	W-181	2.09E+00	3.32E-01	1.13E+02	.	4.40E+03	5.54E+00	1.53E+00	.	4.98E+02	1.07E+04	.	.	.	1.18E+00	5.37E-12	
Tungsten (74)	W-185	3.37E+00	2.06E-01	2.10E+01	.	2.04E+05	1.03E+00	2.85E-01	.	9.29E+01	2.00E+03	.	.	.	2.20E-01	6.35E-13	
Tungsten (74)	W-185m	2.28E+05	3.04E-06	2.10E+01	.	5.49E+03	1.03E+00	2.85E-01	.	9.29E+01	2.00E+03	.	.	.	2.20E-01	9.37E-18	
Tungsten (74)	W-187	2.56E+02	2.71E-03	1.58E+01	.	2.67E+02	7.82E-01	2.16E-01	.	7.04E+01	1.40E+03	.	.	.	1.67E-01	6.40E-15	
Tungsten (74)	W-188	3.62E+00	1.91E-01	2.67E+00	.	1.70E+03	1.79E-01	6.06E-02	.	1.69E+01	5.25E+01	.	.	.	4.44E-02	1.21E-13	
Tungsten (74)	W-190	1.21E+04	5.71E-05	1.15E+02	.	8.05E+01	5.64E+00	1.56E+00	.	5.07E+02	1.09E+04	.	.	.	1.19E+00	9.73E-16	
Xenon (54)	Xe-120	9.11E+03	7.61E-05	3.11E+01	.	3.71E+01	9.11E+00	1.68E+01	2.27E+01	8.20E+02	1.04E+02	1.12E+03	8.39E+02	1.28E+05	3.51E+00	2.42E-15	
Xenon (54)	Xe-121	9.08E+03	7.63E-05	1.89E+01	.	4.79E+01	3.21E+00	2.33E+00	9.30E+01	4.81E+02	3.13E+02	4.59E+03	2.61E+02	1.32E+03	1.20E+00	8.36E-16	
Xenon (54)	Xe-122	3.02E+02	2.29E-03	.	.	1.16E+02	.	.	.	.	.	.	.	.	1.16E+02	2.47E-12	
Xenon (54)	Xe-123	2.92E+03	2.37E-04	7.02E+00	.	1.51E+02	1.21E+00	8.88E-01	2.87E+01	1.79E+02	1.02E+02	1.42E+03	9.86E+01	5.09E+02	4.62E-01	1.02E-15	
Xenon (54)	Xe-125	3.59E+02	1.93E-03	6.74E-01	.	4.70E+02	1.98E-01	3.65E-01	4.92E-01	1.78E+01	2.26E+00	2.43E+01	1.82E+01	2.78E+03	8.40E-02	1.53E-15	
Xenon (54)	Xe-127	6.95E+00	9.97E-02	.	.	4.66E+02	.	.	.	.	.	.	.	.	4.66E+02	4.47E-10	
Xenon (54)	Xe-127m	3.16E+05	2.19E-06	.	.	2.94E+02	.	.	.	.	.	.	.	.	2.94E+02	6.21E-15	
Xenon (54)	Xe-129m	2.85E+01	2.43E-02	.	.	5.75E+03	.	.	.	.	.	.	.	.	5.75E+03	1.37E-09	
Xenon (54)	Xe-131m	2.14E+01	3.24E-02	.	.	1.51E+04	.	.	.	.	.	.	.	.	1.51E+04	4.87E-09	
Xenon (54)	Xe-133	4.82E+01	1.44E-02	.	.	3.78E+03	.	.	.	.	.	.	.	.	3.78E+03	5.46E-10	
Xenon (54)	Xe-133m	1.16E+02	6.00E-03	.	.	1.99E+03	.	.	.	.	.	.	.	.	1.99E+03	1.20E-10	
Xenon (54)	Xe-135	6.64E+02	1.04E-03	4.83E+00	.	4.83E+02	1.68E+00	3.14E-02	2.60E+00	3.88E+01	1.90E+01	3.56E+01	7.82E+02	6.40E+01	3.01E-02	3.21E-16	
Xenon (54)	Xe-135m	2.38E+04	2.91E-05	4.83E+00	.	1.79E+02	1.68E+00	3.14E-02	2.60E+00	3.88E+01	1.90E+01	3.56E+01	7.82E+02	6.40E+01	3.01E-02	8.96E-18	
Xenon (54)	Xe-137	9.54E+04	7.26E-06	9.58E-01	.	1.52E+02	3.34E-01	6.23E-03	5.17E-01	7.70E+00	3.76E+00	7.07E+00	1.55E+02	1.27E+01	5.98E-03	4.51E-19	
Xenon (54)	Xe-138	2.59E+04	2.68E-05	9.95E+01	.	3.16E+01	3.47E+01	6.47E-01	5.37E+01	8.00E+02	3.91E+02	7.35E+02	1.61E+04	1.32E+03	6.10E-01	1.71E-16	
Yttrium (39)	Y-81	3.10E+05	2.23E-06	8.41E+01	.	3.72E+01	9.86E+00	6.69E-01	1.05E+00	3.02E+03	3.09E+02	8.51E+04	2.67E+04	2.58E+05	3.86E-01	5.29E-18	
Yttrium (39)	Y-83	5.14E+04	1.35E-05	4.57E+00	.	4.45E+01	6.16E-01	1.98E-02	3.55E-02	1.01E+02	1.03E+01	1.16E+04	3.65E+03	3.53E+04	1.24E-02	1.05E-18	
Yttrium (39)	Y-83m	1.28E+05	5.42E-06	4.57E+00	.	4.42E+01	6.16E-01	1.98E-02	3.55E-02	1.01E+02	1.03E+01	1.16E+04	3.65E+03	3.53E+04	1.24E-02	4.22E-19	
Yttrium (39)	Y-84m	9.22E+03	7.52E-05	7.12E+01	.	2.91E+01	2.89E+01	2.89E+01	.	1.26E+04	6.43E+04	.	.	2.31E+06	2.55E+05	8.49E+00	4.06E-15
Yttrium (39)	Y-85	2.27E+03	3.06E-04	1.36E+01	.	6.93E+01	1.71E+00	1.77E+01	8.42E-01	1.96E+03	2.53E+02	1.08E+04	3.39E+03	2.79E+04	5.21E-01	1.02E-15	
Yttrium (39)	Y-85m	1.25E+03	5.55E-04	9.92E+00	.	6.35E+01	1.42E+00	9.39E+00	7.41E-01	1.48E+03	2.22E+02	9.52E+03	2.98E+03	2.20E+04	4.38E-01	1.56E-15	
Yttrium (39)	Y-86	4.12E+02	1.68E-03	1.04E+01	.	3.18E+01	4.24E+00	4.24E+00	.	1.85E+03	9.43E+03	.	3.39E+05	3.74E+04	1.67E+00	1.83E-14	
Yttrium (39)	Y-86m	7.59E+03	9.13E-05	9.93E+00	.	3.02E+01	4.03E+00	4.04E+00	.	1.76E+03	8.97E+03	.	3.22E+05	3.56E+04	1.59E+00	9.43E-16	
Yttrium (39)	Y-87	7.61E+01	9.11E-03	1.68E+01	.	1.58E+02	5.86E+00	3.53E+00	6.96E+00	2.74E+03	1.83E+03	1.95E+05	5.53E+04	5.78E+04	1.50E+00	9.02E-14	
Yttrium (39)	Y-87m	4.54E+02	1.53E-03	1.23E+01	.	1.14E+02	4.47E+00	2.99E+00	7.07E+00	2.05E+03	1.77E+03	1.98E+05	5.41E+04	4.28E+04	1.26E+00	1.27E-14	
Yttrium (39)	Y-88	2.37E+00	2.92E-01	7.91E+00	.	4.10E+01	3.21E+00	3.22E+00	.	1.40E+03	7.15E+03	.	2.57E+05	2.83E+04	1.29E+00	2.51E-12	
Yttrium (39)	Y-89m	1.40E+06	4.97E-07	.	.	1.28E+02	.	.	.	.	.	.	.	.	1.28E+02	4.29E-16	
Yttrium (39)	Y-90	9.47E+01	7.32E-03	3.44E+00	.	1.17E+04	1.40E+00	1.40E+00	.	6.09E+02	3.11E+03	.	1.12E+05	1.23E+04	5.81E-01	2.89E-14	
Yttrium (39)	Y-90m	1.90E+03	3.64E-04	3.24E+00	.	1.87E+02	1.31E+00	1.32E+00	.	5.73E+02	2.92E+03	.	1.05E+05	1.16E+04	5.44E-01	1.35E-15	
Yttrium (39)	Y-91	4.32E+00	1.60E-01	3.90E+00	.	1.34E+04	1.58E+00	1.58E+00	.	6.89E+02	3.52E+03	.	1.26E+05	1.40E+04	6.57E-01	7.25E-13	
Yttrium (39)	Y-91m	7.33E+03	9.46E-05	3.88E+00	.	2.22E+02	1.58E+00	1.58E+00	.	6.86E+02	3.50E+03	.	1.26E+05	1.39E+04	6.52E-01	4.25E-16	
Yttrium (39)	Y-92	1.71E+03	4.04E-04	1.88E+01	.	4.22E+02	7.62E+00	7.63E+00	.	3.32E+03	1.69E+04	.	6.08E+05	6.72E+04	3.14E+00	8.84E-15	
Yttrium (39)	Y-93	5.96E+02	1.16E-03	4.59E+00	.	1.02E+03	1.89E+00	1.50E+00	.	1.41E+03	6.45E+03	5.42E+05	2.31E+05	2.83E+04	7.07E-01	5.78E-15	
Yttrium (39)	Y-94	1.95E+04	3.56E-05	1.13E+02	.	1.42E+02	4.58E+01	4.58E+01	.	1.99E+04	1.02E+05	.	3.66E+06	4.04E+05	1.68E+01	4.25E-15	
Yttrium (39)	Y-95	3.54E+04	1.96E-05	6.14E+00	.	4.27E+01	2.53E+00	8.04E-01	.	3.83E+04	3.84E+04	1.24E+05	7.34E+05	5.22E+05	5.48E-01	7.72E-17	
Ytterbium (70)	Yb-162	1.93E+04	3.59E-05	1.38E+02	.	5.25E+01	5.85E+01	.	.	1.22E+04	4.16E+04	.	.	.	2.30E+01	1.01E-14	
Ytterbium (70)	Yb-163	3.30E+04	2.10E-05	1.30E+02	.	5.65E+01	5.52E+01	1.12E+03	.	1.17E+04	4.02E+04	.	.	.	2.25E+01	5.83E-15	

Farmer Tap Water DCCs July 2023																	
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)													
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Ingestion	Inhalation	Immersion	Produce	Finfish	Shellfish	Beef	Dairy	Swine	Egg	Poultry	Total	Total	
				DCC	DCC	DCC	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	DCC	DCC
				DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1	DL=1
				(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(mg/L)
Ytterbium (70)	Yb-164	4.81E+03	1.44E-04	1.04E+02	.	1.43E+02	4.42E+01	.	.	9.23E+03	3.14E+04	.	.	.	2.54E+01	4.55E-14	
Ytterbium (70)	Yb-165	3.68E+04	1.88E-05	2.60E+01	.	1.37E+02	1.10E+01	3.22E+02	.	2.36E+03	8.10E+03	.	.	.	7.12E+00	1.67E-15	
Ytterbium (70)	Yb-166	1.07E+02	6.47E-03	8.00E+00	.	5.58E+01	3.39E+00	.	.	7.08E+02	2.41E+03	.	.	.	2.27E+00	1.85E-13	
Ytterbium (70)	Yb-167	2.08E+04	3.33E-05	1.59E+01	.	3.45E+02	6.74E+00	.	.	1.41E+03	4.80E+03	.	.	.	4.65E+00	1.96E-15	
Ytterbium (70)	Yb-169	7.90E+00	8.77E-02	1.16E+01	.	4.36E+02	4.90E+00	.	.	1.02E+03	3.49E+03	.	.	.	3.40E+00	3.82E-12	
Ytterbium (70)	Yb-175	6.04E+01	1.15E-02	2.11E+01	.	3.10E+03	8.94E+00	.	.	1.87E+03	6.36E+03	.	.	.	6.24E+00	9.48E-13	
Ytterbium (70)	Yb-177	3.18E+03	2.18E-04	1.49E+01	.	5.08E+02	6.35E+00	9.43E+00	1.96E-01	2.29E+03	1.04E+04	.	.	.	1.84E-01	5.38E-16	
Ytterbium (70)	Yb-178	4.92E+03	1.41E-04	5.78E+01	.	6.75E+02	2.45E+01	1.10E+02	2.30E+00	5.95E+03	2.15E+04	.	.	.	1.98E+00	3.76E-15	
Ytterbium (70)	Yb-179	4.55E+04	1.52E-05	4.29E+01	.	1.18E+02	1.83E+01	2.32E+01	4.84E-01	7.59E+03	3.87E+04	.	.	.	4.55E-01	9.39E-17	
Zinc (30)	Zn-60	1.53E+05	4.53E-06	1.37E+02	.	2.08E+01	3.96E+01	9.65E+00	4.03E+01	2.41E+03	1.23E+03	9.16E+03	1.77E+04	9.78E+03	4.75E+00	9.77E-17	
Zinc (30)	Zn-61	2.45E+05	2.83E-06	8.55E+01	.	4.92E+01	2.48E+01	6.04E+00	2.53E+01	1.51E+03	7.72E+02	5.74E+03	1.11E+04	6.13E+03	3.57E+00	4.66E-17	
Zinc (30)	Zn-62	6.61E+02	1.05E-03	1.04E+01	.	8.20E+01	4.60E-01	4.99E-02	1.41E+00	1.15E+01	6.99E+01	9.07E+01	4.84E+02	7.96E+02	4.32E-02	2.13E-16	
Zinc (30)	Zn-63	9.47E+03	7.32E-05	1.20E+02	.	1.07E+02	5.29E+00	5.75E-01	1.62E+01	1.33E+02	8.04E+02	1.04E+03	5.57E+03	9.16E+03	4.96E-01	1.73E-16	
Zinc (30)	Zn-65	1.04E+00	6.69E-01	2.67E+00	.	1.97E+02	1.18E-01	1.28E-02	3.60E-01	2.95E+00	1.79E+01	2.32E+01	1.24E+02	2.04E+02	1.11E-02	3.64E-14	
Zinc (30)	Zn-69	6.46E+03	1.07E-04	3.08E+02	.	5.07E+04	1.36E+01	1.47E+00	4.15E+01	3.40E+02	2.06E+03	2.67E+03	1.43E+04	2.35E+04	1.27E+00	7.14E-16	
Zinc (30)	Zn-69m	4.41E+02	1.57E-03	2.69E+01	.	2.87E+02	1.18E+00	1.28E-01	3.62E+00	2.97E+01	1.80E+02	2.33E+02	1.24E+03	2.05E+03	1.11E-01	9.12E-16	
Zinc (30)	Zn-71	1.49E+05	4.66E-06	.	.	3.59E+02	.	.	.	.	.	.	.	.	3.59E+02	9.00E-15	
Zinc (30)	Zn-71m	1.53E+03	4.52E-04	4.11E+01	.	7.56E+01	1.81E+00	1.97E-01	5.54E+00	4.54E+01	2.75E+02	3.57E+02	1.90E+03	3.13E+03	1.70E-01	4.13E-16	
Zinc (30)	Zn-72	1.31E+02	5.31E-03	3.87E+00	.	3.90E+01	2.85E-01	3.06E-02	9.44E-01	7.72E+00	4.61E+01	6.08E+01	3.24E+02	5.34E+02	2.65E-02	7.66E-16	
Zirconium (40)	Zr-85	4.63E+04	1.50E-05	1.00E+01	.	3.54E+01	1.43E+00	9.53E+00	7.44E-01	1.49E+03	2.23E+02	9.56E+03	2.99E+03	2.22E+04	4.38E-01	4.21E-17	
Zirconium (40)	Zr-86	3.68E+02	1.88E-03	5.49E+00	.	2.96E+01	2.28E+00	2.84E+00	.	1.84E+03	8.12E+03	.	3.11E+05	3.72E+04	9.92E-01	1.22E-14	
Zirconium (40)	Zr-87	3.61E+03	1.92E-04	9.92E+00	.	6.02E+01	3.70E+00	2.77E+00	7.07E+00	2.05E+03	1.76E+03	1.98E+05	5.39E+04	4.28E+04	1.12E+00	1.42E-15	
Zirconium (40)	Zr-88	3.03E+00	2.28E-01	5.93E+00	.	3.63E+01	2.44E+00	2.72E+00	.	1.40E+03	6.74E+03	.	2.48E+05	2.83E+04	1.03E+00	1.56E-12	
Zirconium (40)	Zr-89	7.74E+01	8.95E-03	1.25E+01	.	1.01E+02	5.31E+00	9.23E+00	.	1.84E+06	6.27E+04	.	4.05E+06	7.46E+06	2.59E+00	1.56E-13	
Zirconium (40)	Zr-89m	8.75E+04	7.92E-06	1.33E+01	.	6.79E+01	5.66E+00	9.84E+00	.	1.96E+06	6.68E+04	.	4.32E+06	7.95E+06	2.72E+00	1.45E-16	
Zirconium (40)	Zr-93	4.53E-07	1.53E+06	1.09E+01	.	1.66E+06	4.56E+00	2.80E+00	.	1.81E+06	6.27E+04	5.42E+05	2.21E+06	4.07E+06	1.49E+00	1.61E-05	
Zirconium (40)	Zr-95	3.95E+00	1.75E-01	6.31E+00	.	7.82E+01	2.60E+00	8.11E-01	.	1.32E+06	4.75E+04	1.24E+05	8.17E+05	1.51E+06	5.59E-01	7.05E-13	
Zirconium (40)	Zr-97	3.63E+02	1.91E-03	4.41E+00	.	7.53E+01	1.87E+00	2.32E+00	.	6.66E+05	2.27E+04	1.02E+06	1.27E+06	2.33E+06	8.29E-01	1.16E-14	

Farmer Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Actinium (89)	Ac-223	1.73E+05	4.00E-06	9.73E+01	.	9.73E+01	6.56E-15
Actinium (89)	Ac-224	2.18E+03	3.17E-04	4.09E+00	4.36E-04	4.36E-04	2.34E-18
Actinium (89)	Ac-225	2.53E+01	2.74E-02	3.30E+01	1.68E-04	1.68E-04	7.82E-17
Actinium (89)	Ac-226	2.07E+02	3.35E-03	1.60E+01	1.10E-04	1.10E-04	6.29E-18
Actinium (89)	Ac-227	3.18E-02	2.18E+01	1.72E+01	1.94E-05	1.94E-05	7.26E-15
Actinium (89)	Ac-228	9.87E+02	7.02E-04	2.94E+00	3.27E-05	3.27E-05	3.96E-19
Actinium (89)	Ac-230	1.79E+05	3.87E-06	3.02E+00	1.23E-05	1.23E-05	8.31E-22
Actinium (89)	Ac-231	4.86E+04	1.43E-05	8.35E+00	4.88E-06	4.88E-06	1.22E-21
Actinium (89)	Ac-232	1.84E+05	3.77E-06	1.96E+00	1.72E-05	1.72E-05	1.14E-21
Actinium (89)	Ac-233	1.51E+05	4.60E-06	6.95E+00	1.49E-05	1.49E-05	1.21E-21
Silver (47)	Ag-100m	1.63E+05	4.26E-06	1.23E+00	1.14E+00	5.92E-01	1.91E-17
Silver (47)	Ag-101	3.28E+04	2.11E-05	3.32E+00	2.21E+00	1.33E+00	2.14E-16
Silver (47)	Ag-102	2.82E+04	2.45E-05	2.07E+00	6.99E+01	2.01E+00	3.80E-16
Silver (47)	Ag-102m	4.73E+04	1.46E-05	1.88E+00	1.43E+02	1.86E+00	2.10E-16
Silver (47)	Ag-103	5.54E+03	1.25E-04	8.71E+00	2.89E+00	2.17E+00	2.12E-15
Silver (47)	Ag-104	5.26E+03	1.32E-04	2.67E+00	3.38E+01	2.47E+00	2.56E-15
Silver (47)	Ag-104m	1.09E+04	6.37E-05	3.91E+00	4.30E+01	3.58E+00	1.80E-15
Silver (47)	Ag-105	6.13E+00	1.13E-01	1.50E+01	1.66E+00	1.50E+00	1.34E-12
Silver (47)	Ag-105m	5.04E+04	1.38E-05	1.50E+01	1.67E+00	1.50E+00	1.64E-16
Silver (47)	Ag-106	1.52E+04	4.56E-05	1.06E+01	8.49E+01	9.39E+00	3.43E-15
Silver (47)	Ag-106m	3.05E+01	2.27E-02	2.56E+00	1.19E+00	8.12E-01	1.48E-13
Silver (47)	Ag-108	1.54E+05	4.51E-06	2.60E+02	.	2.60E+02	9.59E-15
Silver (47)	Ag-108m	1.66E-03	4.18E+02	4.56E+00	3.83E-02	3.80E-02	1.30E-10
Silver (47)	Ag-109m	5.52E+05	1.26E-06	2.09E+03	.	2.09E+03	2.17E-14
Silver (47)	Ag-110	8.88E+05	7.80E-07	1.34E+02	.	1.34E+02	8.72E-16
Silver (47)	Ag-110m	1.01E+00	6.84E-01	2.58E+00	1.12E-01	1.07E-01	6.11E-13
Silver (47)	Ag-111	3.40E+01	2.04E-02	2.38E+02	7.96E-01	7.93E-01	1.36E-13
Silver (47)	Ag-111m	3.37E+05	2.05E-06	2.13E+02	8.02E-01	7.99E-01	1.38E-17
Silver (47)	Ag-112	1.94E+03	3.57E-04	9.75E+00	7.35E+00	4.19E+00	1.27E-14
Silver (47)	Ag-113	1.13E+03	6.13E-04	8.57E+01	1.24E-02	1.24E-02	6.52E-17
Silver (47)	Ag-113m	3.18E+05	2.18E-06	2.75E+01	1.24E-02	1.24E-02	2.32E-19
Silver (47)	Ag-114	4.75E+06	1.46E-07	2.26E+01	.	2.26E+01	2.85E-17
Silver (47)	Ag-115	1.82E+04	3.81E-05	8.49E+00	3.94E-03	3.94E-03	1.31E-18
Silver (47)	Ag-116	1.36E+05	5.10E-06	3.09E+00	.	3.09E+00	1.38E-16
Silver (47)	Ag-117	2.97E+05	2.33E-06	2.28E+00	5.06E+00	1.57E+00	3.25E-17
Silver (47)	Ag-99	1.76E+05	3.93E-06	1.69E+00	1.31E+01	1.50E+00	4.41E-17
Aluminum (13)	Al-26	9.67E-07	7.17E+05	2.58E+00	1.35E-02	1.35E-02	1.90E-08
Aluminum (13)	Al-28	1.63E+05	4.26E-06	3.72E+00	.	3.72E+00	3.36E-17
Aluminum (13)	Al-29	5.55E+04	1.25E-05	4.92E+00	.	4.92E+00	1.35E-16
Americium (95)	Am-237	4.99E+03	1.39E-04	8.06E+00	1.33E-05	1.33E-05	3.32E-20

Farmer Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Americium (95)	Am-238	3.72E+03	1.86E-04	2.67E+00	6.30E-06	6.30E-06	2.11E-20
Americium (95)	Am-239	5.10E+02	1.36E-03	8.84E+00	3.46E-06	3.46E-06	8.50E-20
Americium (95)	Am-240	1.20E+02	5.80E-03	2.08E+00	7.01E-06	7.01E-06	7.38E-19
Americium (95)	Am-241	1.60E-03	4.32E+02	1.36E+01	7.21E-06	7.21E-06	5.69E-14
Americium (95)	Am-242	3.79E+02	1.83E-03	3.94E+00	6.10E-06	6.10E-06	2.04E-19
Americium (95)	Am-242m	4.91E-03	1.41E+02	3.94E+00	4.47E-06	4.47E-06	1.15E-14
Americium (95)	Am-243	9.40E-05	7.37E+03	8.86E+00	2.84E-06	2.84E-06	3.85E-13
Americium (95)	Am-244	6.01E+02	1.15E-03	2.23E+00	6.58E-06	6.58E-06	1.40E-19
Americium (95)	Am-244m	1.40E+04	4.95E-05	2.92E+00	6.58E-06	6.58E-06	6.01E-21
Americium (95)	Am-245	2.96E+03	2.34E-04	1.11E+01	4.88E-06	4.88E-06	2.12E-20
Americium (95)	Am-246	9.34E+03	7.42E-05	2.81E+00	4.30E-06	4.30E-06	5.95E-21
Americium (95)	Am-246m	1.46E+04	4.76E-05	2.53E+00	4.30E-06	4.30E-06	3.81E-21
Americium (95)	Am-247	1.58E+04	4.38E-05	5.71E+00	2.43E-06	2.43E-06	1.99E-21
Argon (18)	Ar-37	7.22E+00	9.60E-02	.	.	.	.
Argon (18)	Ar-39	2.58E-03	2.69E+02	2.87E+03	.	2.87E+03	2.28E-06
Argon (18)	Ar-41	3.32E+03	2.09E-04	5.37E+00	.	5.37E+00	3.48E-15
Argon (18)	Ar-42	2.11E-02	3.29E+01	2.20E+01	3.79E+00	3.23E+00	3.38E-10
Argon (18)	Ar-43	6.78E+04	1.02E-05	2.78E+00	3.58E+00	1.56E+00	5.20E-17
Argon (18)	Ar-44	3.07E+04	2.26E-05	1.55E+00	3.87E+01	1.49E+00	1.12E-16
Arsenic (33)	As-68	1.44E+05	4.81E-06	1.51E+00	4.60E-02	4.47E-02	1.10E-18
Arsenic (33)	As-69	2.39E+04	2.90E-05	3.43E+00	4.85E+00	2.01E+00	3.04E-16
Arsenic (33)	As-70	6.92E+03	1.00E-04	1.65E+00	1.79E+01	1.51E+00	8.02E-16
Arsenic (33)	As-71	9.30E+01	7.45E-03	1.30E+01	3.41E+00	2.70E+00	1.08E-13
Arsenic (33)	As-72	2.33E+02	2.97E-03	4.03E+00	1.35E+00	1.01E+00	1.64E-14
Arsenic (33)	As-73	3.15E+00	2.20E-01	2.15E+03	1.02E+00	1.02E+00	1.23E-12
Arsenic (33)	As-74	1.42E+01	4.87E-02	9.72E+00	5.56E-01	5.26E-01	1.43E-13
Arsenic (33)	As-76	2.35E+02	2.95E-03	1.65E+01	1.69E+00	1.54E+00	2.61E-14
Arsenic (33)	As-77	1.56E+02	4.43E-03	6.80E+02	3.20E+00	3.18E+00	8.22E-14
Arsenic (33)	As-78	4.02E+03	1.73E-04	5.27E+00	1.43E+01	3.85E+00	3.92E-15
Arsenic (33)	As-79	4.04E+04	1.71E-05	1.27E+02	2.28E-01	2.28E-01	2.33E-17
Astatine (85)	At-204	3.96E+04	1.75E-05	1.11E+00	1.84E+00	6.91E-01	1.87E-16
Astatine (85)	At-205	1.39E+04	4.98E-05	1.63E+00	5.55E-01	4.14E-01	3.20E-16
Astatine (85)	At-206	1.19E+04	5.82E-05	1.07E+00	2.03E-02	2.00E-02	1.81E-17
Astatine (85)	At-207	3.37E+03	2.05E-04	1.49E+00	3.88E-02	3.78E-02	1.22E-16
Astatine (85)	At-208	3.72E+03	1.86E-04	2.35E+00	2.09E-04	2.09E-04	6.13E-19
Astatine (85)	At-209	1.12E+03	6.18E-04	3.10E+00	1.58E-04	1.58E-04	1.54E-18
Astatine (85)	At-210	7.49E+02	9.25E-04	2.36E+00	3.30E-04	3.30E-04	4.84E-18
Astatine (85)	At-211	8.42E+02	8.24E-04	1.07E+01	1.05E-02	1.05E-02	1.38E-16
Astatine (85)	At-215	2.19E+11	3.17E-12	1.30E+02	.	1.30E+02	6.72E-21
Astatine (85)	At-216	7.28E+10	9.51E-12	5.03E+00	9.35E-02	9.18E-02	1.43E-23



Farmer Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Astatine (85)	At-217	6.77E+08	1.02E-09	4.04E+01	4.34E-02	4.34E-02	7.30E-22
Astatine (85)	At-218	1.46E+07	4.76E-08	4.63E+00	1.42E-04	1.42E-04	1.12E-22
Astatine (85)	At-219	3.90E+05	1.78E-06	1.94E+01	1.17E-01	1.16E-01	3.42E-18
Astatine (85)	At-220	9.82E+04	7.06E-06	3.47E+00	1.27E-02	1.26E-02	1.48E-18
Gold (79)	Au-186	3.40E+04	2.04E-05	1.88E+00	3.42E-04	3.42E-04	9.81E-20
Gold (79)	Au-187	4.34E+04	1.60E-05	3.66E+00	8.87E+00	2.59E+00	5.86E-16
Gold (79)	Au-190	8.51E+03	8.14E-05	2.85E+00	1.53E-04	1.53E-04	1.79E-19
Gold (79)	Au-191	1.91E+03	3.63E-04	8.86E+00	3.11E+00	2.30E+00	1.21E-14
Gold (79)	Au-192	1.23E+03	5.64E-04	3.56E+00	1.34E+01	2.81E+00	2.30E-14
Gold (79)	Au-193	3.44E+02	2.01E-03	5.16E+01	1.82E+00	1.76E+00	5.16E-14
Gold (79)	Au-193m	5.60E+06	1.24E-07	2.24E+01	1.82E+00	1.68E+00	3.03E-18
Gold (79)	Au-194	1.60E+02	4.34E-03	6.87E+00	5.54E+00	3.07E+00	1.95E-13
Gold (79)	Au-195	1.36E+00	5.10E-01	1.22E+02	7.72E-01	7.67E-01	5.77E-12
Gold (79)	Au-195m	7.17E+05	9.67E-07	2.95E+01	7.72E-01	7.52E-01	1.07E-17
Gold (79)	Au-196	4.09E+01	1.69E-02	1.64E+01	4.12E+00	3.29E+00	8.27E-13
Gold (79)	Au-196m	6.32E+02	1.10E-03	1.11E+01	1.77E+00	1.52E+00	2.47E-14
Gold (79)	Au-198	9.39E+01	7.38E-03	1.84E+01	1.57E+00	1.45E+00	1.60E-13
Gold (79)	Au-198m	1.11E+02	6.22E-03	8.24E+00	5.09E-01	4.79E-01	4.47E-14
Gold (79)	Au-199	8.06E+01	8.60E-03	8.32E+01	1.72E+00	1.68E+00	2.18E-13
Gold (79)	Au-200	7.53E+03	9.21E-05	2.48E+01	3.73E+01	1.49E+01	2.08E-14
Gold (79)	Au-200m	3.25E+02	2.13E-03	3.64E+00	1.92E+00	1.26E+00	4.07E-14
Gold (79)	Au-201	1.40E+04	4.95E-05	1.85E+02	7.61E+01	5.39E+01	4.05E-14
Gold (79)	Au-202	7.59E+05	9.13E-07	3.71E+01	.	3.71E+01	5.18E-16
Barium (56)	Ba-124	3.31E+04	2.09E-05	4.16E+00	5.70E+01	3.88E+00	7.62E-16
Barium (56)	Ba-126	3.64E+03	1.90E-04	4.21E+00	1.16E+01	3.09E+00	5.61E-15
Barium (56)	Ba-127	2.87E+04	2.42E-05	5.29E+00	2.55E+01	4.38E+00	1.02E-15
Barium (56)	Ba-128	1.04E+02	6.66E-03	7.77E+00	9.36E-01	8.35E-01	5.39E-14
Barium (56)	Ba-129	2.72E+03	2.55E-04	1.29E+01	1.21E+01	6.24E+00	1.55E-14
Barium (56)	Ba-129m	2.81E+03	2.47E-04	3.97E+00	1.03E+01	2.87E+00	6.91E-15
Barium (56)	Ba-131	2.20E+01	3.15E-02	1.63E+01	1.53E+00	1.40E+00	4.37E-13
Barium (56)	Ba-131m	2.49E+04	2.78E-05	1.44E+01	1.52E+00	1.37E+00	3.78E-16
Barium (56)	Ba-133	6.59E-02	1.05E+01	2.04E+01	1.38E-01	1.37E-01	1.45E-11
Barium (56)	Ba-133m	1.56E+02	4.44E-03	1.77E+01	1.32E-01	1.31E-01	5.84E-15
Barium (56)	Ba-135m	2.12E+02	3.28E-03	1.53E+02	3.71E+00	3.62E+00	1.21E-13
Barium (56)	Ba-137m	1.43E+05	4.86E-06	1.23E+01	.	1.23E+01	6.18E-16
Barium (56)	Ba-139	4.39E+03	1.58E-04	1.24E+02	2.21E+01	1.87E+01	3.11E-14
Barium (56)	Ba-140	1.98E+01	3.49E-02	2.78E+00	1.96E-01	1.83E-01	6.78E-14
Barium (56)	Ba-141	1.99E+04	3.48E-05	6.82E+00	3.55E-01	3.37E-01	1.25E-16
Barium (56)	Ba-142	3.44E+04	2.02E-05	1.97E+00	1.17E+01	1.69E+00	3.66E-16
Beryllium (4)	Be-10	4.59E-07	1.51E+06	2.38E+03	4.22E-02	4.22E-02	4.82E-08

Farmer Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Beryllium (4)	Be-7	4.75E+00	1.46E-01	1.50E+02	2.41E+01	2.08E+01	1.60E-12
Bismuth (83)	Bi-197	3.92E+04	1.77E-05	1.94E+00	3.01E-01	2.61E-01	6.88E-17
Bismuth (83)	Bi-200	1.00E+04	6.93E-05	1.86E+00	2.33E+00	1.03E+00	1.08E-15
Bismuth (83)	Bi-201	3.37E+03	2.05E-04	2.64E+00	3.42E+00	1.49E+00	4.66E-15
Bismuth (83)	Bi-202	3.53E+03	1.96E-04	2.27E+00	2.89E-02	2.85E-02	8.57E-17
Bismuth (83)	Bi-203	5.16E+02	1.34E-03	2.62E+00	2.57E+00	1.30E+00	2.68E-14
Bismuth (83)	Bi-204	5.41E+02	1.28E-03	2.29E+00	4.02E+00	1.46E+00	2.88E-14
Bismuth (83)	Bi-205	1.65E+01	4.19E-02	4.14E+00	7.29E-01	6.20E-01	4.03E-13
Bismuth (83)	Bi-206	4.05E+01	1.71E-02	2.19E+00	7.18E-01	5.41E-01	1.44E-13
Bismuth (83)	Bi-207	2.11E-02	3.29E+01	4.70E+00	3.79E-02	3.76E-02	1.94E-11
Bismuth (83)	Bi-208	1.88E-06	3.68E+05	2.45E+00	4.03E-02	3.97E-02	2.30E-07
Bismuth (83)	Bi-210	5.05E+01	1.37E-02	1.28E+03	3.20E-04	3.20E-04	6.98E-17
Bismuth (83)	Bi-210m	2.28E-07	3.04E+06	2.80E+01	1.44E-04	1.44E-04	6.97E-09
Bismuth (83)	Bi-211	1.70E+05	4.07E-06	1.31E+02	.	1.31E+02	8.49E-15
Bismuth (83)	Bi-212	6.02E+03	1.15E-04	5.04E+00	9.35E-02	9.18E-02	1.70E-16
Bismuth (83)	Bi-212n	5.20E+04	1.33E-05	7.55E+01	.	7.55E+01	1.61E-14
Bismuth (83)	Bi-213	7.99E+03	8.67E-05	4.04E+01	4.34E-02	4.34E-02	6.06E-17
Bismuth (83)	Bi-214	1.83E+04	3.79E-05	4.63E+00	1.42E-04	1.42E-04	8.71E-20
Bismuth (83)	Bi-215	4.79E+04	1.45E-05	1.88E+01	1.14E-01	1.13E-01	2.66E-17
Bismuth (83)	Bi-216	1.68E+05	4.13E-06	3.12E+00	1.27E-02	1.26E-02	8.53E-19
Berkelium (97)	Bk-245	5.12E+01	1.35E-02	8.77E+00	4.88E-06	4.88E-06	1.23E-18
Berkelium (97)	Bk-246	1.41E+02	4.93E-03	2.68E+00	4.30E-06	4.30E-06	3.95E-19
Berkelium (97)	Bk-247	5.02E-04	1.38E+03	7.63E+00	2.14E-06	2.14E-06	5.52E-14
Berkelium (97)	Bk-248m	2.56E+02	2.71E-03	2.44E+00	4.15E-06	4.15E-06	2.11E-19
Berkelium (97)	Bk-249	7.67E-01	9.04E-01	7.74E+00	3.12E-06	3.12E-06	5.32E-17
Berkelium (97)	Bk-250	1.89E+03	3.67E-04	2.60E+00	4.13E-06	4.13E-06	2.86E-20
Berkelium (97)	Bk-251	6.55E+03	1.06E-04	5.47E+00	1.89E-06	1.89E-06	3.80E-21
Bromine (35)	Br-72	2.78E+05	2.49E-06	1.48E+00	2.91E-01	2.43E-01	3.31E-18
Bromine (35)	Br-73	1.07E+05	6.47E-06	2.95E+00	8.93E-01	6.85E-01	2.45E-17
Bromine (35)	Br-74	1.43E+04	4.83E-05	1.44E+00	3.25E+01	1.38E+00	3.72E-16
Bromine (35)	Br-74m	7.92E+03	8.75E-05	1.65E+00	1.92E+01	1.52E+00	7.46E-16
Bromine (35)	Br-75	3.77E+03	1.84E-04	4.71E+00	1.01E+00	8.33E-01	8.70E-16
Bromine (35)	Br-76	3.75E+02	1.85E-03	2.47E+00	3.03E+00	1.36E+00	1.45E-14
Bromine (35)	Br-76m	1.67E+07	4.15E-08	2.46E+00	3.04E+00	1.36E+00	3.25E-19
Bromine (35)	Br-77	1.06E+02	6.51E-03	2.36E+01	1.44E+01	8.96E+00	3.40E-13
Bromine (35)	Br-77m	8.51E+04	8.14E-06	2.26E+01	1.44E+01	8.81E+00	4.18E-16
Bromine (35)	Br-78	5.64E+04	1.23E-05	7.05E+00	.	7.05E+00	5.11E-16
Bromine (35)	Br-80	2.06E+04	3.36E-05	8.30E+01	8.93E+01	4.30E+01	8.76E-15
Bromine (35)	Br-80m	1.37E+03	5.05E-04	7.83E+01	1.09E+01	9.53E+00	2.91E-14
Bromine (35)	Br-82	1.72E+02	4.03E-03	2.71E+00	2.00E+00	1.15E+00	2.88E-14

Farmer Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Bromine (35)	Br-82m	5.94E+04	1.17E-05	2.77E+00	2.05E+00	1.18E+00	8.53E-17
Bromine (35)	Br-83	2.53E+03	2.74E-04	6.47E+02	2.56E+01	2.46E+01	4.23E-14
Bromine (35)	Br-84	1.15E+04	6.05E-05	3.72E+00	3.34E+01	3.35E+00	1.29E-15
Bromine (35)	Br-84m	6.07E+04	1.14E-05	2.52E+00	.	2.52E+00	1.83E-16
Bromine (35)	Br-85	1.26E+05	5.52E-06	3.04E+01	.	3.04E+01	1.08E-15
Carbon (6)	C-10	1.14E+06	6.11E-07	4.18E+00	.	4.18E+00	1.93E-18
Carbon (6)	C-11	1.79E+04	3.88E-05	7.25E+00	7.08E+01	6.57E+00	2.12E-16
Carbon (6)	C-14	1.22E-04	5.70E+03	1.27E+05	2.51E-01	2.51E-01	1.52E-09
Calcium (20)	Ca-41	6.79E-06	1.02E+05	.	6.71E+00	6.71E+00	2.13E-06
Calcium (20)	Ca-45	1.55E+00	4.46E-01	2.17E+04	3.87E-01	3.87E-01	5.87E-13
Calcium (20)	Ca-47	5.58E+01	1.24E-02	6.02E+00	4.84E-01	4.48E-01	1.98E-14
Calcium (20)	Ca-49	4.18E+04	1.66E-05	1.97E+00	3.31E+01	1.86E+00	1.14E-16
Cadmium (48)	Cd-101	2.68E+05	2.59E-06	1.53E+00	2.21E+00	9.03E-01	1.79E-17
Cadmium (48)	Cd-102	6.62E+04	1.05E-05	1.56E+00	1.35E+02	1.54E+00	1.24E-16
Cadmium (48)	Cd-103	4.99E+04	1.39E-05	2.40E+00	2.89E+00	1.31E+00	1.42E-16
Cadmium (48)	Cd-104	6.31E+03	1.10E-04	3.49E+00	1.63E+01	2.88E+00	2.48E-15
Cadmium (48)	Cd-105	6.56E+03	1.06E-04	3.96E+00	1.62E+00	1.15E+00	9.64E-16
Cadmium (48)	Cd-107	9.34E+02	7.42E-04	6.74E+02	1.69E+01	1.65E+01	9.90E-14
Cadmium (48)	Cd-109	5.48E-01	1.26E+00	1.46E+03	2.24E-01	2.24E-01	2.33E-12
Cadmium (48)	Cd-111m	7.51E+03	9.23E-05	2.75E+01	5.81E+01	1.87E+01	1.45E-14
Cadmium (48)	Cd-113	9.00E-17	7.70E+15	1.33E+04	1.25E-02	1.25E-02	8.20E+02
Cadmium (48)	Cd-113m	4.91E-02	1.41E+01	3.56E+03	1.32E-02	1.32E-02	1.59E-12
Cadmium (48)	Cd-115	1.14E+02	6.10E-03	2.10E+01	3.96E-03	3.96E-03	2.10E-16
Cadmium (48)	Cd-115m	5.67E+00	1.22E-01	1.61E+02	3.70E-03	3.70E-03	3.93E-15
Cadmium (48)	Cd-117	2.44E+03	2.84E-04	4.67E+00	5.02E+00	2.42E+00	6.09E-15
Cadmium (48)	Cd-117m	1.81E+03	3.84E-04	2.55E+00	5.31E+00	1.72E+00	5.85E-15
Cadmium (48)	Cd-118	7.24E+03	9.57E-05	5.70E+01	1.61E+01	1.25E+01	1.07E-14
Cadmium (48)	Cd-119	1.35E+05	5.12E-06	3.74E+00	6.15E+01	3.52E+00	1.62E-16
Cadmium (48)	Cd-119m	1.66E+05	4.19E-06	2.26E+00	4.30E+01	2.15E+00	8.09E-17
Cerium (58)	Ce-130	1.59E+04	4.36E-05	2.66E+00	3.62E+01	2.47E+00	1.06E-15
Cerium (58)	Ce-131	3.57E+04	1.94E-05	2.68E+00	1.47E+00	9.47E-01	1.82E-16
Cerium (58)	Ce-132	1.73E+03	4.01E-04	3.17E+00	3.95E+00	1.76E+00	7.04E-15
Cerium (58)	Ce-133	3.76E+03	1.85E-04	7.28E+00	1.37E-01	1.34E-01	2.50E-16
Cerium (58)	Ce-133m	1.24E+03	5.59E-04	3.24E+00	1.36E-01	1.30E-01	7.34E-16
Cerium (58)	Ce-134	8.00E+01	8.66E-03	1.00E+01	9.03E-01	8.28E-01	7.27E-14
Cerium (58)	Ce-135	3.43E+02	2.02E-03	8.96E+00	8.29E+00	4.31E+00	8.89E-14
Cerium (58)	Ce-137	6.75E+02	1.03E-03	2.86E+02	1.64E-01	1.63E-01	1.74E-15
Cerium (58)	Ce-137m	1.76E+02	3.93E-03	1.07E+02	1.55E-01	1.55E-01	6.30E-15
Cerium (58)	Ce-139	1.84E+00	3.77E-01	5.53E+01	7.25E-01	7.16E-01	2.84E-12
Cerium (58)	Ce-141	7.78E+00	8.91E-02	1.06E+02	3.75E-01	3.74E-01	3.55E-13



Farmer Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Cerium (58)	Ce-143	1.84E+02	3.77E-03	2.73E+01	4.19E-01	4.13E-01	1.69E-14
Cerium (58)	Ce-144	8.88E-01	7.81E-01	1.02E+02	7.66E-05	7.66E-05	6.52E-16
Cerium (58)	Ce-145	1.21E+05	5.73E-06	8.75E+00	7.68E+00	4.09E+00	2.57E-16
Californium (98)	Cf-244	1.88E+04	3.69E-05	4.59E+00	1.53E-05	1.53E-05	1.04E-20
Californium (98)	Cf-246	1.70E+02	4.08E-03	3.99E+00	6.12E-06	6.12E-06	4.64E-19
Californium (98)	Cf-247	1.95E+03	3.55E-04	7.05E+00	2.14E-06	2.14E-06	1.42E-20
Californium (98)	Cf-248	7.57E-01	9.15E-01	2.94E+00	6.35E-06	6.35E-06	1.09E-16
Californium (98)	Cf-249	1.97E-03	3.51E+02	7.74E+00	3.12E-06	3.12E-06	2.07E-14
Californium (98)	Cf-250	5.30E-02	1.31E+01	3.87E+00	4.13E-06	4.13E-06	1.02E-15
Californium (98)	Cf-251	7.70E-04	9.00E+02	5.81E+00	1.89E-06	1.89E-06	3.23E-14
Californium (98)	Cf-252	2.62E-01	2.65E+00	1.67E+00	2.31E-06	2.31E-06	1.17E-16
Californium (98)	Cf-253	1.42E+01	4.88E-02	7.73E+00	3.09E-06	3.09E-06	2.89E-18
Californium (98)	Cf-254	4.18E+00	1.66E-01	4.00E-01	2.75E-05	2.75E-05	8.76E-17
Californium (98)	Cf-255	4.29E+03	1.62E-04	5.75E+00	1.88E-06	1.88E-06	5.86E-21
Chlorine (17)	Cl-34	1.43E+07	4.84E-08	6.93E+00	.	6.93E+00	8.63E-19
Chlorine (17)	Cl-34m	1.14E+04	6.09E-05	2.66E+00	2.81E+01	2.43E+00	3.81E-16
Chlorine (17)	Cl-36	2.30E-06	3.01E+05	1.99E+03	3.87E-02	3.87E-02	3.17E-08
Chlorine (17)	Cl-38	9.78E+03	7.09E-05	4.49E+00	2.71E+01	3.85E+00	7.85E-16
Chlorine (17)	Cl-39	6.55E+03	1.06E-04	4.73E+00	2.67E+01	4.02E+00	1.26E-15
Chlorine (17)	Cl-40	2.70E+05	2.57E-06	1.58E+00	.	1.58E+00	1.23E-17
Curium (96)	Cm-238	2.53E+03	2.74E-04	2.60E+00	6.41E-06	6.41E-06	3.16E-20
Curium (96)	Cm-239	2.09E+03	3.31E-04	6.90E+00	3.46E-06	3.46E-06	2.07E-20
Curium (96)	Cm-240	9.37E+00	7.40E-02	4.59E+00	1.53E-05	1.53E-05	2.05E-17
Curium (96)	Cm-241	7.71E+00	8.99E-02	7.25E+00	7.24E-06	7.24E-06	1.19E-17
Curium (96)	Cm-242	1.55E+00	4.46E-01	3.99E+00	6.13E-06	6.13E-06	5.01E-17
Curium (96)	Cm-243	2.38E-02	2.91E+01	9.90E+00	3.34E-06	3.34E-06	1.79E-15
Curium (96)	Cm-244	3.83E-02	1.81E+01	2.94E+00	6.58E-06	6.58E-06	2.20E-15
Curium (96)	Cm-245	8.15E-05	8.50E+03	1.16E+01	4.88E-06	4.88E-06	7.69E-13
Curium (96)	Cm-246	1.46E-04	4.76E+03	3.89E+00	4.30E-06	4.30E-06	3.81E-13
Curium (96)	Cm-247	4.44E-08	1.56E+07	6.35E+00	2.43E-06	2.43E-06	7.08E-10
Curium (96)	Cm-248	1.99E-06	3.48E+05	1.82E+00	2.29E-06	2.29E-06	1.50E-11
Curium (96)	Cm-249	5.68E+03	1.22E-04	7.56E+00	3.12E-06	3.12E-06	7.18E-21
Curium (96)	Cm-250	8.35E-05	8.30E+03	4.81E-01	5.93E-07	5.93E-07	9.31E-14
Curium (96)	Cm-251	2.17E+04	3.20E-05	5.03E+00	1.89E-06	1.89E-06	1.15E-21
Cobalt (27)	Co-54m	2.46E+05	2.82E-06	1.79E+00	.	1.79E+00	2.06E-17
Cobalt (27)	Co-55	3.46E+02	2.00E-03	3.60E+00	9.98E-01	7.81E-01	6.51E-15
Cobalt (27)	Co-56	3.28E+00	2.12E-01	1.88E+00	2.09E-01	1.88E-01	1.69E-13
Cobalt (27)	Co-57	9.31E-01	7.44E-01	6.64E+01	1.38E+00	1.35E+00	4.34E-12
Cobalt (27)	Co-58	3.57E+00	1.94E-01	7.44E+00	6.60E-01	6.06E-01	5.17E-13
Cobalt (27)	Co-58m	6.72E+02	1.03E-03	7.44E+00	6.55E-01	6.02E-01	2.73E-15



Farmer Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Cobalt (27)	Co-60	1.31E-01	5.27E+00	2.78E+00	4.68E-02	4.60E-02	1.10E-12
Cobalt (27)	Co-60m	3.48E+04	1.99E-05	2.78E+00	4.69E-02	4.61E-02	4.17E-18
Cobalt (27)	Co-61	3.68E+03	1.88E-04	8.14E+01	2.60E+01	1.97E+01	1.71E-14
Cobalt (27)	Co-62	2.43E+05	2.85E-06	4.17E+00	.	4.17E+00	5.59E-17
Cobalt (27)	Co-62m	2.62E+04	2.65E-05	2.54E+00	6.13E+01	2.44E+00	3.03E-16
Chromium (24)	Cr-48	2.82E+02	2.46E-03	2.13E+00	4.63E-01	3.81E-01	3.40E-15
Chromium (24)	Cr-49	8.61E+03	8.05E-05	7.06E+00	1.27E+01	4.54E+00	1.35E-15
Chromium (24)	Cr-51	9.13E+00	7.59E-02	2.36E+02	3.56E+01	3.09E+01	9.06E-12
Chromium (24)	Cr-55	1.04E+05	6.65E-06	3.30E+02	.	3.30E+02	9.15E-15
Chromium (24)	Cr-56	6.13E+04	1.13E-05	3.88E+00	1.00E+01	2.80E+00	1.34E-16
Cesium (55)	Cs-121	1.41E+05	4.92E-06	2.00E+00	2.01E+00	1.00E+00	4.51E-17
Cesium (55)	Cs-121m	1.79E+05	3.87E-06	1.89E+00	2.01E+00	9.76E-01	3.46E-17
Cesium (55)	Cs-123	6.19E+04	1.12E-05	3.94E+00	3.66E-01	3.35E-01	3.49E-17
Cesium (55)	Cs-124	7.10E+05	9.77E-07	6.09E+00	.	6.09E+00	5.58E-17
Cesium (55)	Cs-125	8.09E+03	8.56E-05	7.36E+00	9.35E-02	9.23E-02	7.47E-17
Cesium (55)	Cs-126	2.22E+05	3.12E-06	6.25E+00	.	6.25E+00	1.86E-16
Cesium (55)	Cs-127	9.71E+02	7.13E-04	1.11E+01	3.27E+01	8.30E+00	5.69E-14
Cesium (55)	Cs-128	1.00E+05	6.93E-06	8.18E+00	.	8.18E+00	5.49E-16
Cesium (55)	Cs-129	1.89E+02	3.66E-03	2.95E+01	1.65E+01	1.06E+01	3.78E-13
Cesium (55)	Cs-130	1.25E+04	5.56E-05	1.48E+01	9.53E+01	1.28E+01	7.01E-15
Cesium (55)	Cs-130m	1.05E+05	6.58E-06	1.36E+01	9.55E+01	1.19E+01	7.72E-16
Cesium (55)	Cs-131	2.61E+01	2.65E-02	1.38E+03	2.70E+01	2.65E+01	6.98E-12
Cesium (55)	Cs-132	3.90E+01	1.78E-02	1.05E+01	4.22E+00	3.01E+00	5.34E-13
Cesium (55)	Cs-134	3.36E-01	2.06E+00	4.67E+00	6.96E-02	6.85E-02	1.44E-12
Cesium (55)	Cs-134m	2.09E+03	3.31E-04	4.62E+00	6.94E-02	6.83E-02	2.30E-16
Cesium (55)	Cs-135	3.01E-07	2.30E+06	1.52E+04	1.24E-01	1.24E-01	2.90E-06
Cesium (55)	Cs-135m	6.87E+03	1.01E-04	4.52E+00	1.23E-01	1.20E-01	1.24E-16
Cesium (55)	Cs-136	1.92E+01	3.61E-02	3.37E+00	5.08E-01	4.41E-01	1.64E-13
Cesium (55)	Cs-137	2.30E-02	3.02E+01	1.30E+01	3.70E-02	3.69E-02	1.16E-11
Cesium (55)	Cs-138	1.09E+04	6.36E-05	2.87E+00	2.86E+01	2.61E+00	1.73E-15
Cesium (55)	Cs-138m	1.25E+05	5.54E-06	2.94E+00	3.53E+01	2.72E+00	1.57E-16
Cesium (55)	Cs-139	3.93E+04	1.76E-05	1.71E+01	2.21E+01	9.65E+00	1.79E-15
Cesium (55)	Cs-140	3.43E+05	2.02E-06	1.59E+00	1.96E-01	1.75E-01	3.74E-18
Copper (29)	Cu-57	1.11E+08	6.22E-09	2.15E+00	8.69E-01	6.19E-01	1.66E-20
Copper (29)	Cu-59	2.68E+05	2.58E-06	4.95E+00	1.69E+00	1.26E+00	1.45E-17
Copper (29)	Cu-60	1.54E+04	4.51E-05	1.76E+00	3.66E+01	1.68E+00	3.43E-16
Copper (29)	Cu-61	1.82E+03	3.80E-04	8.93E+00	1.71E+01	5.87E+00	1.03E-14
Copper (29)	Cu-62	3.77E+04	1.84E-05	7.18E+00	.	7.18E+00	6.20E-16
Copper (29)	Cu-64	4.78E+02	1.45E-03	3.99E+01	1.14E+01	8.84E+00	6.21E-14
Copper (29)	Cu-66	7.11E+04	9.74E-06	6.01E+01	.	6.01E+01	2.92E-15

Farmer Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Copper (29)	Cu-67	9.82E+01	7.06E-03	6.73E+01	2.34E+00	2.26E+00	8.08E-14
Copper (29)	Cu-69	1.28E+05	5.42E-06	1.30E+01	4.80E+01	1.02E+01	2.89E-16
Dysprosium (66)	Dy-148	1.10E+05	6.28E-06	2.32E+00	2.33E-04	2.33E-04	1.64E-20
Dysprosium (66)	Dy-149	8.67E+04	7.99E-06	2.00E+00	2.89E-01	2.53E-01	2.28E-17
Dysprosium (66)	Dy-150	5.08E+04	1.36E-05	2.55E+00	5.09E-05	5.09E-05	7.88E-21
Dysprosium (66)	Dy-151	2.03E+04	3.41E-05	2.99E+00	1.13E-03	1.13E-03	4.38E-19
Dysprosium (66)	Dy-152	2.55E+03	2.72E-04	4.05E+00	2.53E-05	2.53E-05	7.89E-20
Dysprosium (66)	Dy-153	9.49E+02	7.31E-04	6.03E+00	5.04E-01	4.65E-01	3.93E-15
Dysprosium (66)	Dy-154	2.31E-07	3.00E+06	.	4.01E-05	4.01E-05	1.40E-09
Dysprosium (66)	Dy-155	6.13E+02	1.13E-03	9.21E+00	3.36E+00	2.46E+00	3.27E-14
Dysprosium (66)	Dy-157	7.46E+02	9.29E-04	2.28E+01	4.47E-01	4.38E-01	4.84E-15
Dysprosium (66)	Dy-159	1.75E+00	3.96E-01	3.30E+02	3.01E+00	2.98E+00	1.42E-11
Dysprosium (66)	Dy-165	2.60E+03	2.66E-04	2.38E+02	2.05E+01	1.89E+01	6.29E-14
Dysprosium (66)	Dy-165m	2.90E+05	2.39E-06	1.60E+02	2.10E+01	1.86E+01	5.54E-16
Dysprosium (66)	Dy-166	7.44E+01	9.32E-03	1.08E+02	4.76E-01	4.74E-01	5.55E-14
Dysprosium (66)	Dy-167	5.87E+04	1.18E-05	8.26E+00	1.69E+01	5.55E+00	8.28E-16
Dysprosium (66)	Dy-168	4.19E+04	1.66E-05	5.71E+00	.	5.71E+00	1.20E-15
Erbium (68)	Er-154	9.77E+04	7.10E-06	3.72E+00	4.02E-05	4.02E-05	3.32E-21
Erbium (68)	Er-156	1.87E+04	3.71E-05	3.32E+00	1.73E+01	2.79E+00	1.22E-15
Erbium (68)	Er-159	1.01E+04	6.85E-05	5.53E+00	2.85E+00	1.88E+00	1.55E-15
Erbium (68)	Er-161	1.89E+03	3.66E-04	7.19E+00	2.11E+01	5.36E+00	2.39E-14
Erbium (68)	Er-163	4.86E+03	1.43E-04	3.37E+02	5.45E+00	5.36E+00	9.43E-15
Erbium (68)	Er-165	5.86E+02	1.18E-03	3.67E+02	1.49E+02	1.06E+02	1.56E-12
Erbium (68)	Er-167m	9.63E+06	7.19E-08	8.20E+01	.	8.20E+01	7.46E-17
Erbium (68)	Er-169	2.69E+01	2.58E-02	1.12E+04	1.21E+00	1.21E+00	3.97E-13
Erbium (68)	Er-171	8.08E+02	8.58E-04	2.05E+01	9.30E-01	8.90E-01	9.88E-15
Erbium (68)	Er-172	1.23E+02	5.63E-03	7.29E+00	5.50E-01	5.11E-01	3.74E-14
Erbium (68)	Er-173	2.54E+05	2.73E-06	6.06E+00	6.86E+00	3.22E+00	1.15E-16
Einsteinium (99)	Es-249	3.56E+03	1.94E-04	5.48E+00	3.13E-06	3.13E-06	1.15E-20
Einsteinium (99)	Es-250	7.06E+02	9.82E-04	2.42E+00	4.19E-06	4.19E-06	7.78E-20
Einsteinium (99)	Es-250m	2.73E+03	2.53E-04	3.00E+00	4.13E-06	4.13E-06	1.98E-20
Einsteinium (99)	Es-251	1.84E+02	3.77E-03	5.47E+00	1.89E-06	1.89E-06	1.35E-19
Einsteinium (99)	Es-253	1.24E+01	5.61E-02	7.74E+00	3.10E-06	3.10E-06	3.33E-18
Einsteinium (99)	Es-254	9.17E-01	7.55E-01	2.60E+00	4.03E-06	4.03E-06	5.86E-17
Einsteinium (99)	Es-254m	1.54E+02	4.49E-03	3.11E+00	4.19E-06	4.19E-06	3.62E-19
Einsteinium (99)	Es-255	6.36E+00	1.09E-01	5.76E+00	1.88E-06	1.88E-06	3.95E-18
Einsteinium (99)	Es-256	1.43E+04	4.83E-05	5.30E-01	2.84E-05	2.84E-05	2.66E-20
Europium (63)	Eu-142	9.34E+06	7.42E-08	3.26E+00	1.74E+01	2.74E+00	2.19E-18
Europium (63)	Eu-142m	2.98E+05	2.33E-06	1.64E+00	1.74E+01	1.50E+00	3.74E-17
Europium (63)	Eu-143	1.41E+05	4.93E-06	3.68E+00	4.72E-01	4.19E-01	2.23E-17

Farmer Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Europium (63)	Eu-144	2.14E+06	3.23E-07	6.38E+00	.	6.38E+00	2.25E-17
Europium (63)	Eu-145	4.27E+01	1.62E-02	5.39E+00	1.23E-01	1.21E-01	2.15E-14
Europium (63)	Eu-146	5.49E+01	1.26E-02	2.98E+00	5.78E-05	5.78E-05	8.07E-18
Europium (63)	Eu-147	1.05E+01	6.60E-02	1.63E+01	6.33E-05	6.33E-05	4.65E-17
Europium (63)	Eu-148	4.64E+00	1.49E-01	3.27E+00	3.76E-05	3.76E-05	6.28E-17
Europium (63)	Eu-149	2.72E+00	2.55E-01	1.63E+02	3.16E+00	3.10E+00	8.93E-12
Europium (63)	Eu-150	1.88E-02	3.69E+01	4.78E+00	1.15E-02	1.15E-02	4.82E-12
Europium (63)	Eu-150m	4.74E+02	1.46E-03	1.42E+02	5.36E-05	5.36E-05	8.89E-19
Europium (63)	Eu-152	5.12E-02	1.35E+01	6.14E+00	8.99E-05	8.99E-05	1.40E-14
Europium (63)	Eu-152m	6.52E+02	1.06E-03	2.41E+01	3.50E-05	3.50E-05	4.29E-19
Europium (63)	Eu-152n	3.79E+03	1.83E-04	5.86E+00	8.99E-05	8.99E-05	1.89E-19
Europium (63)	Eu-154	8.06E-02	8.59E+00	5.72E+00	1.34E-02	1.34E-02	1.34E-12
Europium (63)	Eu-154m	7.92E+03	8.75E-05	5.51E+00	1.34E-02	1.34E-02	1.37E-17
Europium (63)	Eu-155	1.46E-01	4.76E+00	1.52E+02	2.37E-01	2.37E-01	1.32E-11
Europium (63)	Eu-156	1.67E+01	4.16E-02	5.56E+00	3.50E-01	3.29E-01	1.62E-13
Europium (63)	Eu-157	4.00E+02	1.73E-03	2.69E+01	4.06E+00	3.53E+00	7.27E-14
Europium (63)	Eu-158	7.94E+03	8.73E-05	5.38E+00	2.64E+01	4.47E+00	4.67E-15
Europium (63)	Eu-159	2.01E+04	3.44E-05	2.13E+01	4.07E+00	3.42E+00	1.42E-15
Fluorine (9)	F-17	3.39E+05	2.04E-06	7.18E+00	.	7.18E+00	1.89E-17
Fluorine (9)	F-18	3.32E+03	2.09E-04	7.49E+00	2.33E+01	5.67E+00	1.61E-15
Iron (26)	Fe-52	7.34E+02	9.45E-04	2.22E+00	1.85E+00	1.01E+00	3.75E-15
Iron (26)	Fe-53	4.28E+04	1.62E-05	6.18E+00	4.23E+00	2.51E+00	1.63E-16
Iron (26)	Fe-53m	1.44E+05	4.81E-06	1.67E+00	4.23E+00	1.20E+00	2.31E-17
Iron (26)	Fe-55	2.53E-01	2.74E+00	4.94E+10	1.71E+00	1.71E+00	1.95E-11
Iron (26)	Fe-59	5.68E+00	1.22E-01	5.88E+00	3.47E-01	3.28E-01	1.78E-13
Iron (26)	Fe-60	4.62E-07	1.50E+06	2.78E+00	4.68E-03	4.67E-03	3.18E-08
Iron (26)	Fe-61	6.09E+04	1.14E-05	4.66E+00	2.60E+01	3.95E+00	2.08E-16
Iron (26)	Fe-62	3.21E+05	2.16E-06	3.23E+00	.	3.23E+00	3.26E-17
Fermium (100)	Fm-251	1.15E+03	6.05E-04	4.97E+00	1.90E-06	1.90E-06	2.18E-20
Fermium (100)	Fm-252	2.39E+02	2.90E-03	2.94E+00	6.34E-06	6.34E-06	3.50E-19
Fermium (100)	Fm-253	8.43E+01	8.22E-03	7.34E+00	3.10E-06	3.10E-06	4.88E-19
Fermium (100)	Fm-254	1.87E+03	3.70E-04	3.86E+00	4.13E-06	4.13E-06	2.94E-20
Fermium (100)	Fm-255	3.02E+02	2.29E-03	5.80E+00	1.89E-06	1.89E-06	8.36E-20
Fermium (100)	Fm-256	2.31E+03	3.00E-04	5.30E-01	2.84E-05	2.84E-05	1.65E-19
Fermium (100)	Fm-257	2.52E+00	2.75E-01	6.79E+00	3.04E-06	3.04E-06	1.63E-17
Francium (87)	Fr-212	1.82E+04	3.81E-05	2.92E+00	2.08E-04	2.08E-04	1.27E-19
Francium (87)	Fr-219	1.09E+09	6.34E-10	1.23E+02	.	1.23E+02	1.29E-18
Francium (87)	Fr-220	7.98E+05	8.69E-07	5.02E+00	9.39E-02	9.21E-02	1.33E-18
Francium (87)	Fr-221	7.43E+04	9.32E-06	3.50E+01	4.34E-02	4.34E-02	6.76E-18
Francium (87)	Fr-222	2.57E+04	2.70E-05	3.71E+01	1.42E-04	1.42E-04	6.44E-20



Farmer Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Francium (87)	Fr-223	1.66E+04	4.19E-05	2.04E+01	1.64E-04	1.64E-04	1.16E-19
Francium (87)	Fr-224	1.09E+05	6.34E-06	3.36E+00	4.11E-04	4.10E-04	4.41E-20
Francium (87)	Fr-227	1.47E+05	4.70E-06	7.25E+00	1.94E-05	1.94E-05	1.57E-21
Gallium (31)	Ga-64	1.39E+05	5.00E-06	2.02E+00	.	2.02E+00	4.88E-17
Gallium (31)	Ga-65	2.40E+04	2.89E-05	4.16E+00	5.98E-01	5.23E-01	7.44E-17
Gallium (31)	Ga-66	6.40E+02	1.08E-03	2.67E+00	2.71E+00	1.34E+00	7.27E-15
Gallium (31)	Ga-67	7.76E+01	8.93E-03	5.03E+01	5.13E+00	4.66E+00	2.11E-13
Gallium (31)	Ga-68	5.38E+03	1.29E-04	7.70E+00	2.52E+01	5.90E+00	3.91E-15
Gallium (31)	Ga-70	1.72E+04	4.02E-05	4.00E+02	7.92E+01	6.61E+01	1.41E-14
Gallium (31)	Ga-72	4.31E+02	1.61E-03	2.52E+00	2.30E+00	1.20E+00	1.05E-14
Gallium (31)	Ga-73	1.25E+03	5.55E-04	2.12E+01	8.44E+00	6.04E+00	1.85E-14
Gallium (31)	Ga-74	4.49E+04	1.54E-05	2.13E+00	.	2.13E+00	1.84E-16
Gadolinium (64)	Gd-142	3.11E+05	2.23E-06	2.21E+00	1.74E+01	1.96E+00	4.70E-17
Gadolinium (64)	Gd-143m	1.99E+05	3.49E-06	1.76E+00	4.72E-01	3.73E-01	1.41E-17
Gadolinium (64)	Gd-144	8.15E+04	8.50E-06	3.50E+00	.	3.50E+00	3.25E-16
Gadolinium (64)	Gd-145	1.58E+04	4.38E-05	1.84E+00	1.23E-01	1.15E-01	5.54E-17
Gadolinium (64)	Gd-145m	2.57E+05	2.70E-06	1.63E+00	1.23E-01	1.14E-01	3.38E-18
Gadolinium (64)	Gd-146	5.24E+00	1.32E-01	2.76E+00	5.78E-05	5.78E-05	8.45E-17
Gadolinium (64)	Gd-147	1.59E+02	4.35E-03	3.97E+00	6.33E-05	6.33E-05	3.06E-18
Gadolinium (64)	Gd-148	9.29E-03	7.46E+01	.	2.33E-04	2.33E-04	1.95E-13
Gadolinium (64)	Gd-149	2.73E+01	2.54E-02	1.35E+01	1.00E+00	9.35E-01	2.68E-13
Gadolinium (64)	Gd-150	3.87E-07	1.79E+06	.	4.77E-05	4.77E-05	9.69E-10
Gadolinium (64)	Gd-151	2.04E+00	3.40E-01	1.54E+02	1.18E+00	1.17E+00	4.54E-12
Gadolinium (64)	Gd-152	6.42E-15	1.08E+14	.	2.52E-05	2.52E-05	3.13E-02
Gadolinium (64)	Gd-153	1.05E+00	6.59E-01	1.06E+02	5.83E-01	5.80E-01	4.42E-12
Gadolinium (64)	Gd-159	3.29E+02	2.11E-03	1.41E+02	4.40E+00	4.27E+00	1.08E-13
Gadolinium (64)	Gd-162	4.34E+04	1.60E-05	4.79E+00	.	4.79E+00	9.38E-16
Germanium (32)	Ge-66	2.69E+03	2.58E-04	2.15E+00	2.27E+00	1.10E+00	1.42E-15
Germanium (32)	Ge-67	1.93E+04	3.60E-05	4.59E+00	4.67E+00	2.32E+00	4.22E-16
Germanium (32)	Ge-68	9.34E-01	7.42E-01	7.70E+00	4.60E-02	4.57E-02	1.75E-13
Germanium (32)	Ge-69	1.55E+02	4.46E-03	7.54E+00	5.27E+00	3.10E+00	7.22E-14
Germanium (32)	Ge-71	2.21E+01	3.13E-02	3.67E+06	1.07E+02	1.07E+02	1.80E-11
Germanium (32)	Ge-75	4.40E+03	1.57E-04	1.81E+02	3.45E+01	2.89E+01	2.59E-14
Germanium (32)	Ge-77	5.37E+02	1.29E-03	6.61E+00	1.66E+00	1.32E+00	9.95E-15
Germanium (32)	Ge-78	4.14E+03	1.67E-04	4.41E+00	6.93E+00	2.69E+00	2.66E-15
Hydrogen (1)	H-3	5.63E-02	1.23E+01	.	5.34E+00	5.34E+00	1.49E-11
Hafnium (72)	Hf-167	1.78E+05	3.90E-06	2.71E+00	1.01E+00	7.38E-01	3.64E-17
Hafnium (72)	Hf-169	1.12E+05	6.16E-06	3.29E+00	3.61E-01	3.25E-01	2.57E-17
Hafnium (72)	Hf-170	3.79E+02	1.83E-03	2.31E+00	1.41E+00	8.74E-01	2.05E-14
Hafnium (72)	Hf-172	3.71E-01	1.87E+00	3.57E+00	5.33E-02	5.25E-02	1.28E-12



Farmer Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Hafnium (72)	Hf-173	2.57E+02	2.69E-03	1.46E+01	3.74E-01	3.64E-01	1.29E-14
Hafnium (72)	Hf-174	3.47E-16	2.00E+15	.	2.91E-04	2.91E-04	7.67E+00
Hafnium (72)	Hf-175	3.61E+00	1.92E-01	2.25E+01	9.96E-01	9.54E-01	2.42E-12
Hafnium (72)	Hf-177m	7.09E+03	9.78E-05	3.36E+00	1.39E+01	2.71E+00	3.54E-15
Hafnium (72)	Hf-178m	2.24E-02	3.10E+01	3.38E+00	6.71E-03	6.70E-03	2.80E-12
Hafnium (72)	Hf-179m	1.01E+01	6.86E-02	8.43E+00	3.15E-01	3.04E-01	2.82E-13
Hafnium (72)	Hf-180m	1.10E+03	6.28E-04	7.74E+00	9.25E+00	4.21E+00	3.60E-14
Hafnium (72)	Hf-181	5.97E+00	1.16E-01	1.42E+01	2.37E-01	2.33E-01	3.71E-13
Hafnium (72)	Hf-182	7.70E-08	9.00E+06	4.71E+00	4.90E-03	4.89E-03	6.06E-07
Hafnium (72)	Hf-182m	5.92E+03	1.17E-04	3.15E+00	1.11E-02	1.11E-02	1.78E-17
Hafnium (72)	Hf-183	5.69E+03	1.22E-04	7.03E+00	6.00E-01	5.53E-01	9.33E-16
Hafnium (72)	Hf-184	1.47E+03	4.70E-04	4.10E+00	1.68E+00	1.19E+00	7.81E-15
Mercury (80)	Hg-190	1.82E+04	3.81E-05	2.67E+00	1.53E-04	1.53E-04	8.37E-20
Mercury (80)	Hg-191m	7.17E+03	9.67E-05	3.16E+00	1.83E+00	1.16E+00	1.62E-15
Mercury (80)	Hg-192	1.25E+03	5.54E-04	3.18E+00	1.29E+00	9.19E-01	7.39E-15
Mercury (80)	Hg-193	1.60E+03	4.34E-04	7.38E+00	8.61E-01	7.71E-01	4.88E-15
Mercury (80)	Hg-193m	5.14E+02	1.35E-03	5.22E+00	3.71E-01	3.46E-01	6.81E-15
Mercury (80)	Hg-194	1.58E-03	4.40E+02	6.87E+00	6.21E-02	6.15E-02	3.97E-10
Mercury (80)	Hg-195	5.77E+02	1.20E-03	3.02E+01	4.25E-01	4.20E-01	7.44E-15
Mercury (80)	Hg-195m	1.46E+02	4.75E-03	2.13E+01	1.32E-01	1.31E-01	9.21E-15
Mercury (80)	Hg-197	9.35E+01	7.41E-03	1.38E+02	3.05E-01	3.05E-01	3.37E-14
Mercury (80)	Hg-197m	2.55E+02	2.72E-03	5.57E+01	1.40E-01	1.40E-01	5.67E-15
Mercury (80)	Hg-199m	8.54E+03	8.12E-05	4.39E+01	8.09E+00	6.83E+00	8.35E-15
Mercury (80)	Hg-203	5.43E+00	1.28E-01	3.18E+01	2.00E-01	1.99E-01	3.91E-13
Mercury (80)	Hg-205	7.00E+04	9.89E-06	5.34E+02	.	5.34E+02	8.19E-14
Mercury (80)	Hg-206	4.47E+04	1.55E-05	5.55E+01	.	5.55E+01	1.34E-14
Mercury (80)	Hg-207	1.26E+05	5.52E-06	2.57E+00	.	2.57E+00	2.22E-16
Holmium (67)	Ho-150	2.85E+05	2.44E-06	1.52E+00	5.09E-05	5.09E-05	1.41E-21
Holmium (67)	Ho-153	1.81E+05	3.82E-06	3.27E+00	5.04E-01	4.37E-01	1.93E-17
Holmium (67)	Ho-153m	3.92E+04	1.77E-05	3.24E+00	5.02E-01	4.35E-01	8.91E-17
Holmium (67)	Ho-154	3.10E+04	2.24E-05	3.83E+00	4.01E-05	4.01E-05	1.05E-20
Holmium (67)	Ho-154m	1.17E+05	5.90E-06	3.03E+00	4.01E-05	4.01E-05	2.76E-21
Holmium (67)	Ho-155	7.59E+03	9.13E-05	5.25E+00	3.17E+00	1.97E+00	2.12E-15
Holmium (67)	Ho-156	6.50E+03	1.07E-04	3.38E+00	2.35E+01	2.95E+00	3.72E-15
Holmium (67)	Ho-157	2.89E+04	2.40E-05	8.45E+00	4.46E-01	4.24E-01	1.21E-16
Holmium (67)	Ho-159	1.10E+04	6.29E-05	2.04E+01	2.96E+00	2.59E+00	1.96E-15
Holmium (67)	Ho-160	1.42E+04	4.87E-05	4.33E+00	9.47E+01	4.14E+00	2.44E-15
Holmium (67)	Ho-161	2.45E+03	2.83E-04	2.48E+02	1.72E+02	1.02E+02	3.51E-13
Holmium (67)	Ho-162	2.43E+04	2.85E-05	5.05E+01	4.50E+02	4.54E+01	1.59E-14
Holmium (67)	Ho-162m	5.44E+03	1.27E-04	1.15E+01	5.67E+01	9.53E+00	1.49E-14

Farmer Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Holmium (67)	Ho-163	1.52E-04	4.57E+03	.	5.48E+00	5.48E+00	3.09E-07
Holmium (67)	Ho-164	1.26E+04	5.52E-05	4.11E+02	1.51E+02	1.11E+02	7.58E-14
Holmium (67)	Ho-164m	9.59E+03	7.23E-05	1.77E+02	6.52E+01	4.77E+01	4.28E-14
Holmium (67)	Ho-166	2.27E+02	3.06E-03	1.89E+02	1.83E+00	1.82E+00	6.98E-14
Holmium (67)	Ho-166m	5.78E-04	1.20E+03	4.53E+00	5.22E-03	5.21E-03	7.86E-11
Holmium (67)	Ho-167	1.96E+03	3.54E-04	2.07E+01	1.69E+01	9.30E+00	4.16E-14
Holmium (67)	Ho-168	1.22E+05	5.69E-06	8.14E+00	.	8.14E+00	5.89E-16
Holmium (67)	Ho-168m	1.66E+05	4.19E-06	8.11E+00	.	8.11E+00	4.32E-16
Holmium (67)	Ho-170	1.32E+05	5.25E-06	4.22E+00	.	4.22E+00	2.85E-16
Iodine (53)	I-118	2.66E+04	2.61E-05	2.53E+00	4.90E-01	4.10E-01	9.55E-17
Iodine (53)	I-118m	4.29E+04	1.62E-05	1.59E+00	5.24E-01	3.94E-01	5.69E-17
Iodine (53)	I-119	1.91E+04	3.63E-05	4.38E+00	6.38E+00	2.60E+00	8.50E-16
Iodine (53)	I-120	4.46E+03	1.55E-04	2.58E+00	4.77E+00	1.67E+00	2.36E-15
Iodine (53)	I-120m	6.87E+03	1.01E-04	2.03E+00	9.53E+00	1.67E+00	1.53E-15
Iodine (53)	I-121	2.86E+03	2.42E-04	7.86E+00	2.01E+00	1.60E+00	3.55E-15
Iodine (53)	I-122	1.00E+05	6.91E-06	7.53E+00	.	7.53E+00	4.80E-16
Iodine (53)	I-123	4.57E+02	1.51E-03	5.04E+01	3.66E-01	3.64E-01	5.13E-15
Iodine (53)	I-124	6.06E+01	1.14E-02	6.47E+00	9.84E-02	9.69E-02	1.04E-14
Iodine (53)	I-125	4.26E+00	1.63E-01	8.74E+02	9.36E-02	9.36E-02	1.44E-13
Iodine (53)	I-126	1.96E+01	3.54E-02	1.72E+01	4.49E-02	4.48E-02	1.51E-14
Iodine (53)	I-128	1.46E+04	4.75E-05	9.31E+01	2.13E+01	1.73E+01	7.97E-15
Iodine (53)	I-129	4.41E-08	1.57E+07	1.16E+03	1.43E-02	1.43E-02	2.19E-06
Iodine (53)	I-130	4.91E+02	1.41E-03	3.41E+00	6.54E-01	5.49E-01	7.62E-15
Iodine (53)	I-130m	4.12E+04	1.68E-05	3.83E+00	7.79E-01	6.47E-01	1.07E-16
Iodine (53)	I-131	3.15E+01	2.20E-02	1.94E+01	5.92E-02	5.90E-02	1.29E-14
Iodine (53)	I-132	2.65E+03	2.62E-04	3.18E+00	3.99E+00	1.77E+00	4.63E-15
Iodine (53)	I-132m	4.38E+03	1.58E-04	3.16E+00	2.46E+00	1.38E+00	2.19E-15
Iodine (53)	I-133	2.92E+02	2.37E-03	1.13E+01	2.82E-01	2.75E-01	6.57E-15
Iodine (53)	I-134	6.94E+03	9.99E-05	2.73E+00	9.53E+00	2.12E+00	2.15E-15
Iodine (53)	I-134m	1.01E+05	6.85E-06	2.54E+00	9.76E+00	2.02E+00	1.40E-16
Iodine (53)	I-135	9.24E+02	7.50E-04	3.68E+00	1.13E-01	1.10E-01	8.40E-16
Indium (49)	In-103	3.64E+05	1.90E-06	1.23E+00	2.89E+00	8.65E-01	1.28E-17
Indium (49)	In-105	7.18E+04	9.65E-06	1.91E+00	1.62E+00	8.76E-01	6.71E-17
Indium (49)	In-106	5.87E+04	1.18E-05	2.03E+00	.	2.03E+00	1.92E-16
Indium (49)	In-106m	7.00E+04	9.89E-06	2.45E+00	.	2.45E+00	1.94E-16
Indium (49)	In-107	1.12E+04	6.16E-05	4.57E+00	1.27E+01	3.36E+00	1.68E-15
Indium (49)	In-108	6.28E+03	1.10E-04	1.83E+00	2.70E+01	1.71E+00	1.54E-15
Indium (49)	In-108m	9.20E+03	7.53E-05	2.45E+00	3.41E+01	2.28E+00	1.41E-15
Indium (49)	In-109	1.45E+03	4.79E-04	1.15E+01	2.22E-01	2.18E-01	8.62E-16
Indium (49)	In-109m	2.72E+05	2.55E-06	5.88E+00	2.22E-01	2.14E-01	4.50E-18

Farmer Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Indium (49)	In-110	1.24E+03	5.59E-04	2.34E+00	9.42E+00	1.88E+00	8.74E-15
Indium (49)	In-110m	5.27E+03	1.31E-04	4.55E+00	2.57E+01	3.87E+00	4.23E-15
Indium (49)	In-111	9.02E+01	7.68E-03	1.96E+01	5.38E+00	4.22E+00	2.72E-13
Indium (49)	In-111m	4.73E+04	1.46E-05	8.72E+00	5.38E+00	3.33E+00	4.09E-16
Indium (49)	In-112	2.43E+04	2.85E-05	2.78E+01	1.64E+02	2.37E+01	5.73E-15
Indium (49)	In-112m	1.77E+04	3.91E-05	2.56E+01	4.36E+01	1.61E+01	5.35E-15
Indium (49)	In-113m	3.66E+03	1.89E-04	2.92E+01	6.18E+01	1.98E+01	3.21E-14
Indium (49)	In-114	3.04E+05	2.28E-06	4.55E+02	.	4.55E+02	8.94E-15
Indium (49)	In-114m	5.11E+00	1.36E-01	8.34E+01	1.03E-01	1.03E-01	1.20E-13
Indium (49)	In-115	1.57E-15	4.41E+14	5.01E+03	3.78E-03	3.78E-03	1.45E+01
Indium (49)	In-115m	1.35E+03	5.12E-04	4.72E+01	3.97E-03	3.97E-03	1.77E-17
Indium (49)	In-116m	6.69E+03	1.04E-04	2.80E+00	2.73E+01	2.54E+00	2.31E-15
Indium (49)	In-117	8.43E+03	8.22E-05	1.07E+01	3.34E+01	8.12E+00	5.91E-15
Indium (49)	In-117m	3.13E+03	2.21E-04	1.78E+01	1.39E+01	7.80E+00	1.53E-14
Indium (49)	In-118	4.37E+06	1.59E-07	5.78E+01	.	5.78E+01	8.18E-17
Indium (49)	In-118m	8.35E+04	8.30E-06	2.52E+00	.	2.52E+00	1.87E-16
Indium (49)	In-119	1.52E+05	4.57E-06	9.33E+00	4.30E+01	7.67E+00	3.15E-16
Indium (49)	In-119m	2.02E+04	3.42E-05	5.63E+01	6.46E+01	3.01E+01	9.27E-15
Indium (49)	In-121	9.46E+05	7.32E-07	7.57E+00	7.42E-01	6.76E-01	4.53E-18
Indium (49)	In-121m	9.39E+04	7.38E-06	7.37E+01	5.05E+00	4.73E+00	3.20E-16
Iridium (77)	Ir-180	2.43E+05	2.85E-06	2.51E+00	8.73E+01	2.44E+00	9.50E-17
Iridium (77)	Ir-182	2.43E+04	2.85E-05	2.39E+00	2.04E+00	1.10E+00	4.33E-16
Iridium (77)	Ir-183	6.28E+03	1.10E-04	3.19E+00	3.68E-01	3.30E-01	5.04E-16
Iridium (77)	Ir-184	1.96E+03	3.53E-04	3.67E+00	1.04E+01	2.71E+00	1.33E-14
Iridium (77)	Ir-185	4.22E+02	1.64E-03	4.71E+00	7.70E-01	6.62E-01	1.52E-14
Iridium (77)	Ir-186	3.65E+02	1.90E-03	4.33E+00	3.42E-04	3.42E-04	9.15E-18
Iridium (77)	Ir-186m	3.16E+03	2.19E-04	4.28E+00	3.42E-04	3.42E-04	1.06E-18
Iridium (77)	Ir-187	5.78E+02	1.20E-03	2.36E+01	1.70E+01	9.87E+00	1.67E-13
Iridium (77)	Ir-188	1.46E+02	4.74E-03	3.27E+00	2.70E+00	1.48E+00	9.98E-14
Iridium (77)	Ir-189	1.92E+01	3.62E-02	1.24E+02	2.47E+00	2.42E+00	1.25E-12
Iridium (77)	Ir-190	2.15E+01	3.23E-02	5.08E+00	9.90E-01	8.28E-01	3.84E-13
Iridium (77)	Ir-190m	5.42E+03	1.28E-04	5.08E+00	9.86E-01	8.25E-01	1.52E-15
Iridium (77)	Ir-190n	1.97E+03	3.52E-04	4.60E+00	6.62E+00	2.71E+00	1.38E-14
Iridium (77)	Ir-191m	4.42E+06	1.57E-07	1.24E+02	.	1.24E+02	2.81E-16
Iridium (77)	Ir-192	3.43E+00	2.02E-01	9.15E+00	2.12E-01	2.07E-01	6.08E-13
Iridium (77)	Ir-192m	2.51E+05	2.76E-06	9.15E+00	2.12E-01	2.07E-01	8.29E-18
Iridium (77)	Ir-192n	2.88E-03	2.41E+02	9.14E+00	2.25E-02	2.25E-02	7.88E-11
Iridium (77)	Ir-193m	2.40E+01	2.88E-02	3.18E+04	1.14E+00	1.14E+00	4.82E-13
Iridium (77)	Ir-194	3.15E+02	2.20E-03	6.93E+01	2.29E+00	2.21E+00	7.16E-14
Iridium (77)	Ir-194m	1.48E+00	4.68E-01	3.18E+00	1.16E-01	1.12E-01	7.71E-13

Farmer Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Iridium (77)	Ir-195	2.43E+03	2.85E-04	1.50E+02	1.86E+01	1.65E+01	6.96E-14
Iridium (77)	Ir-195m	1.60E+03	4.34E-04	1.89E+01	2.16E+00	1.94E+00	1.24E-14
Iridium (77)	Ir-196	4.20E+05	1.65E-06	2.85E+01	.	2.85E+01	6.97E-16
Iridium (77)	Ir-196m	4.34E+03	1.60E-04	3.00E+00	1.43E+01	2.48E+00	5.89E-15
Potassium (19)	K-38	4.77E+04	1.45E-05	2.12E+00	.	2.12E+00	8.85E-17
Potassium (19)	K-40	5.54E-10	1.25E+09	4.16E+01	1.74E-02	1.74E-02	6.59E-05
Potassium (19)	K-42	4.91E+02	1.41E-03	2.22E+01	3.79E+00	3.23E+00	1.45E-14
Potassium (19)	K-43	2.72E+02	2.55E-03	7.63E+00	3.58E+00	2.43E+00	2.02E-14
Potassium (19)	K-44	1.65E+04	4.21E-05	2.78E+00	3.87E+01	2.59E+00	3.63E-16
Potassium (19)	K-45	2.11E+04	3.29E-05	3.65E+00	3.85E-01	3.48E-01	3.90E-17
Potassium (19)	K-46	2.08E+05	3.33E-06	2.25E+00	.	2.25E+00	2.61E-17
Krypton (36)	Kr-74	3.17E+04	2.19E-05	1.19E+00	3.25E+01	1.15E+00	1.41E-16
Krypton (36)	Kr-75	8.49E+04	8.16E-06	2.57E+00	1.01E+00	7.26E-01	3.36E-17
Krypton (36)	Kr-76	4.10E+02	1.69E-03	2.17E+00	3.03E+00	1.27E+00	1.23E-14
Krypton (36)	Kr-77	4.90E+03	1.42E-04	5.48E+00	1.44E+01	3.97E+00	3.27E-15
Krypton (36)	Kr-79	1.73E+02	4.00E-03	2.98E+01	.	2.98E+01	7.12E-13
Krypton (36)	Kr-81	3.03E-06	2.29E+05	8.65E+03	.	8.65E+03	1.21E-02
Krypton (36)	Kr-81m	1.67E+06	4.15E-07	5.89E+01	.	5.89E+01	1.50E-16
Krypton (36)	Kr-83m	3.32E+03	2.09E-04	3.00E+05	.	3.00E+05	3.94E-10
Krypton (36)	Kr-85	6.44E-02	1.08E+01	1.37E+03	.	1.37E+03	9.49E-08
Krypton (36)	Kr-85m	1.36E+03	5.11E-04	4.79E+01	.	4.79E+01	1.58E-13
Krypton (36)	Kr-87	4.77E+03	1.45E-04	8.32E+00	9.19E-02	9.09E-02	8.69E-17
Krypton (36)	Kr-88	2.14E+03	3.24E-04	2.53E+00	4.64E+01	2.40E+00	5.17E-15
Krypton (36)	Kr-89	1.16E+05	5.99E-06	1.61E+00	1.74E-01	1.57E-01	6.35E-18
Lanthanum (57)	La-128	7.03E+04	9.86E-06	1.92E+00	9.36E-01	6.29E-01	6.00E-17
Lanthanum (57)	La-129	3.14E+04	2.21E-05	4.65E+00	1.07E+01	3.24E+00	6.98E-16
Lanthanum (57)	La-130	4.19E+04	1.66E-05	3.21E+00	.	3.21E+00	5.22E-16
Lanthanum (57)	La-131	6.17E+03	1.12E-04	6.74E+00	1.49E+00	1.22E+00	1.36E-15
Lanthanum (57)	La-132	1.26E+03	5.48E-04	3.54E+00	7.05E+00	2.36E+00	1.29E-14
Lanthanum (57)	La-132m	1.50E+04	4.62E-05	3.29E+00	8.06E+00	2.34E+00	1.08E-15
Lanthanum (57)	La-133	1.55E+03	4.47E-04	1.46E+01	1.38E-01	1.36E-01	6.13E-16
Lanthanum (57)	La-134	5.65E+04	1.23E-05	1.01E+01	.	1.01E+01	1.26E-15
Lanthanum (57)	La-135	3.11E+02	2.23E-03	4.28E+02	8.39E+01	7.02E+01	1.60E-12
Lanthanum (57)	La-136	3.69E+04	1.88E-05	1.85E+01	.	1.85E+01	3.57E-15
Lanthanum (57)	La-137	1.16E-05	6.00E+04	1.08E+03	1.64E-01	1.64E-01	1.02E-07
Lanthanum (57)	La-138	6.79E-12	1.02E+11	5.68E+00	9.53E-03	9.52E-03	1.01E-02
Lanthanum (57)	La-140	1.51E+02	4.60E-03	2.98E+00	1.14E+00	8.26E-01	4.03E-14
Lanthanum (57)	La-141	1.55E+03	4.47E-04	6.27E+01	3.58E-01	3.56E-01	1.70E-15
Lanthanum (57)	La-142	4.00E+03	1.73E-04	2.78E+00	1.44E+01	2.33E+00	4.34E-15
Lanthanum (57)	La-143	2.57E+04	2.70E-05	1.27E+01	4.16E-01	4.03E-01	1.18E-16



Farmer Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Lutetium (71)	Lu-165	3.39E+04	2.04E-05	3.72E+00	5.14E+00	2.16E+00	5.51E-16
Lutetium (71)	Lu-167	7.07E+03	9.80E-05	3.50E+00	1.01E+00	7.86E-01	9.73E-16
Lutetium (71)	Lu-169	1.78E+02	3.89E-03	4.55E+00	3.61E-01	3.35E-01	1.66E-14
Lutetium (71)	Lu-169m	1.37E+05	5.07E-06	4.55E+00	3.61E-01	3.35E-01	2.17E-17
Lutetium (71)	Lu-170	1.26E+02	5.51E-03	2.64E+00	2.04E+00	1.15E+00	8.17E-14
Lutetium (71)	Lu-171	3.07E+01	2.26E-02	1.18E+01	1.39E+00	1.25E+00	3.64E-13
Lutetium (71)	Lu-171m	2.77E+05	2.51E-06	1.18E+01	1.39E+00	1.25E+00	4.04E-17
Lutetium (71)	Lu-172	3.78E+01	1.84E-02	3.69E+00	8.58E-01	6.96E-01	1.66E-13
Lutetium (71)	Lu-172m	9.84E+04	7.04E-06	3.69E+00	8.58E-01	6.96E-01	6.38E-17
Lutetium (71)	Lu-173	5.06E-01	1.37E+00	5.11E+01	3.93E-01	3.90E-01	6.99E-12
Lutetium (71)	Lu-174	2.09E-01	3.31E+00	7.41E+01	3.13E-01	3.11E-01	1.36E-11
Lutetium (71)	Lu-174m	1.78E+00	3.89E-01	5.32E+01	1.58E-01	1.58E-01	8.07E-13
Lutetium (71)	Lu-176	1.80E-11	3.85E+10	1.60E+01	9.59E-03	9.59E-03	4.92E-03
Lutetium (71)	Lu-176m	1.67E+03	4.15E-04	4.29E+02	1.17E+01	1.14E+01	6.29E-14
Lutetium (71)	Lu-177	3.81E+01	1.82E-02	2.20E+02	1.17E+00	1.16E+00	2.84E-13
Lutetium (71)	Lu-177m	1.58E+00	4.39E-01	7.75E+00	8.63E-02	8.54E-02	5.03E-13
Lutetium (71)	Lu-178	1.28E+04	5.40E-05	5.13E+01	5.24E+01	2.59E+01	1.89E-14
Lutetium (71)	Lu-178m	1.58E+04	4.39E-05	7.29E+00	4.16E+01	6.21E+00	3.67E-15
Lutetium (71)	Lu-179	1.32E+03	5.24E-04	2.03E+02	1.19E+01	1.12E+01	7.97E-14
Lutetium (71)	Lu-180	6.39E+04	1.08E-05	4.66E+00	.	4.66E+00	6.89E-16
Lutetium (71)	Lu-181	1.04E+05	6.66E-06	6.74E+00	2.37E-01	2.29E-01	2.09E-17
Magnesium (12)	Mg-27	3.85E+04	1.80E-05	7.94E+00	.	7.94E+00	2.92E-16
Magnesium (12)	Mg-28	2.90E+02	2.39E-03	2.17E+00	1.03E+00	6.98E-01	3.53E-15
Manganese (25)	Mn-50m	2.08E+05	3.33E-06	1.52E+00	.	1.52E+00	1.91E-17
Manganese (25)	Mn-51	7.88E+03	8.79E-05	7.09E+00	1.62E+01	4.94E+00	1.67E-15
Manganese (25)	Mn-52	4.52E+01	1.53E-02	2.04E+00	9.30E-01	6.39E-01	3.85E-14
Manganese (25)	Mn-52m	1.73E+04	4.01E-05	2.85E+00	2.39E+01	2.55E+00	4.03E-16
Manganese (25)	Mn-53	1.87E-07	3.70E+06	.	4.23E+00	4.23E+00	6.28E-05
Manganese (25)	Mn-54	8.10E-01	8.55E-01	8.63E+00	4.29E-01	4.09E-01	1.43E-12
Manganese (25)	Mn-56	2.35E+03	2.94E-04	4.04E+00	1.00E+01	2.88E+00	3.60E-15
Manganese (25)	Mn-57	2.56E+05	2.71E-06	6.24E+01	.	6.24E+01	7.28E-16
Manganese (25)	Mn-58m	3.35E+05	2.07E-06	2.87E+00	.	2.87E+00	2.61E-17
Molybdenum (42)	Mo-101	2.49E+04	2.78E-05	3.89E+00	3.41E+01	3.49E+00	7.42E-16
Molybdenum (42)	Mo-102	3.22E+04	2.15E-05	4.81E+01	5.15E+01	2.49E+01	4.13E-15
Molybdenum (42)	Mo-89	1.73E+05	4.01E-06	1.88E+00	1.95E+00	9.59E-01	2.59E-17
Molybdenum (42)	Mo-90	1.09E+03	6.35E-04	1.37E+00	1.26E+00	6.57E-01	2.84E-15
Molybdenum (42)	Mo-91	2.35E+04	2.95E-05	7.33E+00	7.74E-01	7.00E-01	1.42E-16
Molybdenum (42)	Mo-91m	3.38E+05	2.05E-06	3.77E+00	3.65E-01	3.33E-01	4.69E-18
Molybdenum (42)	Mo-93	1.73E-04	4.00E+03	1.68E+04	3.68E-01	3.68E-01	1.04E-08
Molybdenum (42)	Mo-93m	8.86E+02	7.82E-04	3.03E+00	3.50E-01	3.14E-01	1.73E-15

Farmer Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Molybdenum (42)	Mo-99	9.21E+01	7.53E-03	2.86E+01	1.01E-01	1.00E-01	5.65E-15
Nitrogen (7)	N-13	3.66E+04	1.90E-05	7.23E+00	.	7.23E+00	1.35E-16
Nitrogen (7)	N-16	3.07E+06	2.26E-07	1.28E+00	.	1.28E+00	3.49E-19
Sodium (11)	Na-22	2.66E-01	2.60E+00	3.24E+00	4.90E-02	4.83E-02	2.09E-13
Sodium (11)	Na-24	4.06E+02	1.71E-03	1.59E+00	2.65E+00	9.93E-01	3.08E-15
Niobium (41)	Nb-87	9.71E+04	7.13E-06	2.29E+00	1.92E+00	1.04E+00	4.91E-17
Niobium (41)	Nb-88	2.51E+04	2.76E-05	9.69E-01	1.41E-01	1.23E-01	2.27E-17
Niobium (41)	Nb-88m	4.68E+04	1.48E-05	9.78E-01	1.42E-01	1.24E-01	1.22E-17
Niobium (41)	Nb-89	2.99E+03	2.32E-04	2.79E+00	1.95E+00	1.15E+00	1.79E-15
Niobium (41)	Nb-89m	5.52E+03	1.26E-04	2.41E+00	2.24E+00	1.16E+00	9.81E-16
Niobium (41)	Nb-90	4.16E+02	1.67E-03	1.61E+00	1.94E+00	8.81E-01	1.00E-14
Niobium (41)	Nb-91	1.02E-03	6.80E+02	3.91E+03	7.84E-01	7.84E-01	3.67E-09
Niobium (41)	Nb-91m	4.16E+00	1.67E-01	2.58E+02	2.39E-01	2.38E-01	2.74E-13
Niobium (41)	Nb-92	2.00E-08	3.47E+07	4.84E+00	5.44E-02	5.38E-02	1.30E-05
Niobium (41)	Nb-92m	2.49E+01	2.78E-02	7.44E+00	2.98E+00	2.13E+00	4.12E-13
Niobium (41)	Nb-93m	4.30E-02	1.61E+01	1.09E+05	7.39E-01	7.39E-01	8.39E-11
Niobium (41)	Nb-94	3.41E-05	2.03E+04	4.63E+00	3.02E-02	3.00E-02	4.34E-09
Niobium (41)	Nb-94m	5.82E+04	1.19E-05	4.64E+00	3.04E-02	3.02E-02	2.56E-18
Niobium (41)	Nb-95	7.23E+00	9.59E-02	9.47E+00	8.00E-01	7.38E-01	5.09E-13
Niobium (41)	Nb-95m	7.01E+01	9.89E-03	9.24E+00	5.47E-01	5.17E-01	3.67E-14
Niobium (41)	Nb-96	2.60E+02	2.67E-03	2.92E+00	1.96E+00	1.18E+00	2.28E-14
Niobium (41)	Nb-97	5.05E+03	1.37E-04	1.09E+01	2.90E+01	7.90E+00	7.96E-15
Niobium (41)	Nb-98m	7.10E+03	9.76E-05	2.50E+00	2.19E+01	2.25E+00	1.63E-15
Niobium (41)	Nb-99	1.46E+06	4.76E-07	1.66E+01	1.01E-01	9.99E-02	3.56E-19
Niobium (41)	Nb-99m	1.40E+05	4.95E-06	6.56E+00	1.01E-01	9.90E-02	3.67E-18
Neodymium (60)	Nd-134	4.29E+04	1.62E-05	2.01E+00	8.83E-01	6.14E-01	1.01E-16
Neodymium (60)	Nd-135	2.94E+04	2.36E-05	2.50E+00	6.36E+00	1.80E+00	4.33E-16
Neodymium (60)	Nd-136	7.19E+03	9.64E-05	2.99E+00	1.92E+01	2.59E+00	2.57E-15
Neodymium (60)	Nd-137	9.46E+03	7.32E-05	4.68E+00	1.63E-01	1.57E-01	1.19E-16
Neodymium (60)	Nd-138	1.20E+03	5.75E-04	8.61E+00	5.10E+00	3.20E+00	1.92E-14
Neodymium (60)	Nd-139	1.23E+04	5.65E-05	1.08E+01	7.13E-01	6.69E-01	3.97E-16
Neodymium (60)	Nd-139m	1.10E+03	6.28E-04	3.87E+00	6.61E-01	5.65E-01	3.73E-15
Neodymium (60)	Nd-140	7.51E+01	9.23E-03	1.33E+01	1.16E+00	1.07E+00	1.04E-13
Neodymium (60)	Nd-141	2.44E+03	2.84E-04	1.25E+02	2.42E+02	8.25E+01	2.50E-13
Neodymium (60)	Nd-141m	3.52E+05	1.97E-06	9.65E+00	2.42E+02	9.28E+00	1.95E-16
Neodymium (60)	Nd-144	3.03E-16	2.29E+15	.	7.68E-05	7.68E-05	1.92E+00
Neodymium (60)	Nd-147	2.30E+01	3.01E-02	5.75E+01	6.33E-05	6.33E-05	2.12E-17
Neodymium (60)	Nd-149	3.51E+03	1.97E-04	1.94E+01	1.64E+00	1.51E+00	3.36E-15
Neodymium (60)	Nd-151	2.93E+04	2.37E-05	6.15E+00	1.48E-01	1.45E-01	3.92E-17
Neodymium (60)	Nd-152	3.20E+04	2.17E-05	1.52E+01	5.52E+01	1.19E+01	2.97E-15

Farmer Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Neon (10)	Ne-19	1.27E+06	5.46E-07	7.14E+00	.	7.14E+00	5.60E-18
Neon (10)	Ne-24	1.08E+05	6.43E-06	1.42E+00	2.65E+00	9.24E-01	1.08E-17
Nickel (28)	Ni-56	4.16E+01	1.66E-02	1.30E+00	1.75E-01	1.54E-01	1.09E-14
Nickel (28)	Ni-57	1.71E+02	4.06E-03	3.41E+00	8.69E-01	6.93E-01	1.21E-14
Nickel (28)	Ni-59	6.86E-06	1.01E+05	4.78E+05	1.69E+00	1.69E+00	7.63E-07
Nickel (28)	Ni-63	6.92E-03	1.00E+02	.	6.93E-01	6.93E-01	3.31E-10
Nickel (28)	Ni-65	2.41E+03	2.87E-04	1.21E+01	3.81E+00	2.90E+00	4.10E-15
Nickel (28)	Ni-66	1.11E+02	6.23E-03	5.99E+01	7.22E-01	7.13E-01	2.22E-14
Neptunium (93)	Np-232	2.48E+04	2.80E-05	2.63E+00	1.79E-05	1.79E-05	8.80E-21
Neptunium (93)	Np-233	1.01E+04	6.89E-05	1.95E+01	1.49E-05	1.49E-05	1.81E-20
Neptunium (93)	Np-234	5.75E+01	1.21E-02	2.44E+00	1.14E-05	1.14E-05	2.44E-18
Neptunium (93)	Np-235	6.39E-01	1.09E+00	1.18E+01	4.74E-06	4.74E-06	9.15E-17
Neptunium (93)	Np-236	4.50E-06	1.54E+05	2.93E+00	1.40E-05	1.40E-05	3.85E-11
Neptunium (93)	Np-236m	2.70E+02	2.57E-03	3.48E+00	1.57E-05	1.57E-05	7.19E-19
Neptunium (93)	Np-237	3.23E-07	2.14E+06	1.39E+01	1.33E-05	1.33E-05	5.12E-10
Neptunium (93)	Np-238	1.19E+02	5.80E-03	3.00E+00	6.30E-06	6.30E-06	6.58E-19
Neptunium (93)	Np-239	1.07E+02	6.46E-03	9.34E+00	3.46E-06	3.46E-06	4.04E-19
Neptunium (93)	Np-240	5.88E+03	1.18E-04	2.07E+00	7.01E-06	7.01E-06	1.50E-20
Neptunium (93)	Np-240m	5.04E+04	1.37E-05	2.60E+00	7.01E-06	7.01E-06	1.75E-21
Neptunium (93)	Np-241	2.62E+04	2.64E-05	1.26E+01	7.14E-06	7.14E-06	3.44E-21
Neptunium (93)	Np-242	1.66E+05	4.19E-06	3.37E+00	5.96E-06	5.96E-06	4.57E-22
Neptunium (93)	Np-242m	6.62E+04	1.05E-05	2.62E+00	5.96E-06	5.96E-06	1.14E-21
Oxygen (8)	O-14	3.10E+05	2.24E-06	2.03E+00	.	2.03E+00	4.81E-18
Oxygen (8)	O-15	1.79E+05	3.88E-06	7.18E+00	.	7.18E+00	3.16E-17
Oxygen (8)	O-19	8.26E+05	8.39E-07	7.18E+00	.	7.18E+00	8.67E-18
Osmium (76)	Os-180	1.69E+04	4.09E-05	5.59E+00	8.73E+01	5.26E+00	2.93E-15
Osmium (76)	Os-181	3.47E+03	2.00E-04	3.32E+00	2.16E+00	1.31E+00	3.58E-15
Osmium (76)	Os-182	2.75E+02	2.52E-03	4.46E+00	2.13E+00	1.44E+00	5.01E-14
Osmium (76)	Os-183	4.67E+02	1.48E-03	1.03E+01	3.71E-01	3.58E-01	7.36E-15
Osmium (76)	Os-183m	6.13E+02	1.13E-03	5.92E+00	3.72E-01	3.50E-01	5.48E-15
Osmium (76)	Os-185	2.70E+00	2.56E-01	1.08E+01	8.93E-01	8.25E-01	2.96E-12
Osmium (76)	Os-186	3.47E-16	2.00E+15	.	3.42E-04	3.42E-04	9.64E+00
Osmium (76)	Os-189m	1.05E+03	6.62E-04	3.21E+06	2.41E+02	2.41E+02	2.28E-12
Osmium (76)	Os-190m	3.68E+04	1.88E-05	4.69E+00	.	4.69E+00	1.27E-15
Osmium (76)	Os-191	1.64E+01	4.22E-02	1.12E+02	6.99E-01	6.94E-01	4.24E-13
Osmium (76)	Os-191m	4.63E+02	1.50E-03	1.06E+02	6.45E-01	6.41E-01	1.39E-14
Osmium (76)	Os-193	2.02E+02	3.44E-03	1.09E+02	2.43E+00	2.37E+00	1.19E-13
Osmium (76)	Os-194	1.16E-01	6.00E+00	6.85E+01	1.69E-02	1.69E-02	1.49E-12
Osmium (76)	Os-196	1.04E+04	6.64E-05	2.17E+01	2.33E+01	1.12E+01	1.11E-14
Phosphorus (15)	P-30	1.46E+05	4.75E-06	7.05E+00	.	7.05E+00	7.60E-17



Farmer Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Phosphorus (15)	P-32	1.77E+01	3.91E-02	6.17E+02	3.53E-01	3.52E-01	3.33E-14
Phosphorus (15)	P-33	9.98E+00	6.94E-02	2.29E+04	7.88E-01	7.88E-01	1.37E-13
Protactinium (91)	Pa-227	9.51E+03	7.29E-05	5.09E+01	4.86E-04	4.86E-04	6.09E-19
Protactinium (91)	Pa-228	2.76E+02	2.51E-03	2.46E+00	3.32E-05	3.32E-05	1.44E-18
Protactinium (91)	Pa-229	1.69E+02	4.11E-03	2.08E+01	1.67E-05	1.67E-05	1.19E-18
Protactinium (91)	Pa-230	1.45E+01	4.77E-02	3.12E+00	1.31E-05	1.31E-05	1.09E-17
Protactinium (91)	Pa-231	2.12E-05	3.28E+04	1.60E+01	4.88E-06	4.88E-06	2.79E-12
Protactinium (91)	Pa-232	1.93E+02	3.59E-03	2.88E+00	1.79E-05	1.79E-05	1.13E-18
Protactinium (91)	Pa-233	9.38E+00	7.39E-02	1.45E+01	1.49E-05	1.49E-05	1.95E-17
Protactinium (91)	Pa-234	9.06E+02	7.65E-04	2.21E+00	1.14E-05	1.14E-05	1.55E-19
Protactinium (91)	Pa-234m	3.11E+05	2.23E-06	3.91E+00	1.14E-05	1.14E-05	4.50E-22
Protactinium (91)	Pa-235	1.49E+04	4.66E-05	1.17E+01	4.74E-06	4.74E-06	3.93E-21
Protactinium (91)	Pa-236	4.00E+04	1.73E-05	2.12E+00	1.55E-05	1.55E-05	4.81E-21
Protactinium (91)	Pa-237	4.19E+04	1.66E-05	5.78E+00	1.33E-05	1.33E-05	3.95E-21
Lead (82)	Pb-194	3.04E+04	2.28E-05	2.39E+00	6.20E-02	6.04E-02	2.02E-17
Lead (82)	Pb-195m	2.43E+04	2.85E-05	2.32E+00	4.16E-01	3.53E-01	1.48E-16
Lead (82)	Pb-196	9.84E+03	7.04E-05	3.03E+00	2.01E+01	2.63E+00	2.75E-15
Lead (82)	Pb-197	4.55E+04	1.52E-05	3.52E+00	3.03E-01	2.79E-01	6.32E-17
Lead (82)	Pb-197m	8.47E+03	8.18E-05	3.74E+00	2.99E-01	2.77E-01	3.38E-16
Lead (82)	Pb-198	2.53E+03	2.74E-04	2.91E+00	9.20E+00	2.21E+00	9.07E-15
Lead (82)	Pb-199	4.05E+03	1.71E-04	5.68E+00	1.64E+01	4.22E+00	1.09E-14
Lead (82)	Pb-200	2.82E+02	2.45E-03	4.86E+00	2.49E+00	1.65E+00	6.13E-14
Lead (82)	Pb-201	6.51E+02	1.07E-03	9.01E+00	4.27E+00	2.90E+00	4.69E-14
Lead (82)	Pb-201m	3.58E+05	1.93E-06	6.24E+00	4.27E+00	2.53E+00	7.46E-17
Lead (82)	Pb-202	1.32E-05	5.25E+04	1.68E+01	2.89E-02	2.89E-02	2.32E-08
Lead (82)	Pb-202m	1.72E+03	4.03E-04	3.00E+00	3.19E-02	3.15E-02	1.94E-16
Lead (82)	Pb-203	1.17E+02	5.92E-03	2.52E+01	5.99E+00	4.84E+00	4.40E-13
Lead (82)	Pb-204m	5.42E+03	1.28E-04	3.50E+00	4.36E+01	3.24E+00	6.39E-15
Lead (82)	Pb-205	4.53E-08	1.53E+07	6.72E+05	1.74E+00	1.74E+00	4.13E-04
Lead (82)	Pb-209	1.87E+03	3.71E-04	3.30E+03	2.21E+01	2.20E+01	1.29E-13
Lead (82)	Pb-210	3.12E-02	2.22E+01	1.08E+03	1.42E-04	1.42E-04	5.02E-14
Lead (82)	Pb-211	1.01E+04	6.87E-05	5.75E+01	1.14E-01	1.13E-01	1.24E-16
Lead (82)	Pb-212	5.71E+02	1.21E-03	4.61E+00	1.27E-02	1.27E-02	2.47E-16
Lead (82)	Pb-214	1.36E+04	5.10E-05	4.00E+00	1.42E-04	1.42E-04	1.17E-19
Palladium (46)	Pd-100	6.97E+01	9.95E-03	2.44E+00	1.14E+00	7.77E-01	5.85E-14
Palladium (46)	Pd-101	7.17E+02	9.67E-04	1.20E+01	2.27E+00	1.91E+00	1.41E-14
Palladium (46)	Pd-103	1.49E+01	4.66E-02	5.65E+03	3.07E+00	3.07E+00	1.11E-12
Palladium (46)	Pd-107	1.07E-07	6.50E+06	.	2.34E+00	2.34E+00	1.23E-04
Palladium (46)	Pd-109	4.43E+02	1.56E-03	7.87E+02	3.51E+00	3.49E+00	4.51E-14
Palladium (46)	Pd-109m	7.77E+04	8.92E-06	6.60E+01	3.51E+00	3.33E+00	2.45E-16



Farmer Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Palladium (46)	Pd-111	1.56E+04	4.45E-05	7.45E+01	7.89E-01	7.81E-01	2.92E-16
Palladium (46)	Pd-112	2.89E+02	2.40E-03	9.74E+00	1.01E+00	9.15E-01	1.86E-14
Palladium (46)	Pd-114	1.51E+05	4.60E-06	2.05E+01	.	2.05E+01	8.16E-16
Palladium (46)	Pd-96	1.79E+05	3.87E-06	1.41E+00	.	1.41E+00	3.97E-17
Palladium (46)	Pd-97	1.17E+05	5.90E-06	1.75E+00	7.47E-01	5.24E-01	2.27E-17
Palladium (46)	Pd-98	2.06E+04	3.37E-05	3.27E+00	4.61E+01	3.06E+00	7.63E-16
Palladium (46)	Pd-99	1.70E+04	4.07E-05	3.77E+00	1.31E+01	2.93E+00	8.95E-16
Promethium (61)	Pm-136	2.04E+05	3.39E-06	1.40E+00	1.92E+01	1.31E+00	4.57E-17
Promethium (61)	Pm-137m	1.52E+05	4.57E-06	2.19E+00	1.63E-01	1.51E-01	7.16E-18
Promethium (61)	Pm-139	8.78E+04	7.90E-06	4.50E+00	7.13E-01	6.15E-01	5.11E-17
Promethium (61)	Pm-140	2.38E+06	2.92E-07	4.46E+00	1.16E+00	9.21E-01	2.85E-18
Promethium (61)	Pm-140m	6.12E+04	1.13E-05	2.02E+00	1.16E+00	7.37E-01	8.84E-17
Promethium (61)	Pm-141	1.74E+04	3.98E-05	9.13E+00	6.52E+01	8.01E+00	3.40E-15
Promethium (61)	Pm-142	5.40E+05	1.28E-06	8.37E+00	.	8.37E+00	1.15E-16
Promethium (61)	Pm-143	9.55E-01	7.26E-01	2.45E+01	4.72E-01	4.63E-01	3.64E-12
Promethium (61)	Pm-144	6.97E-01	9.95E-01	4.75E+00	7.68E-05	7.68E-05	8.32E-16
Promethium (61)	Pm-145	3.92E-02	1.77E+01	6.01E+02	1.79E-01	1.79E-01	3.48E-11
Promethium (61)	Pm-146	1.25E-01	5.53E+00	9.92E+00	1.69E-04	1.69E-04	1.03E-14
Promethium (61)	Pm-147	2.64E-01	2.62E+00	3.82E+04	6.33E-05	6.33E-05	1.85E-15
Promethium (61)	Pm-148	4.71E+01	1.47E-02	1.20E+01	3.76E-05	3.76E-05	6.19E-18
Promethium (61)	Pm-148m	6.13E+00	1.13E-01	3.63E+00	3.76E-05	3.76E-05	4.76E-17
Promethium (61)	Pm-149	1.14E+02	6.06E-03	4.35E+02	1.84E+00	1.84E+00	1.25E-13
Promethium (61)	Pm-150	2.27E+03	3.06E-04	4.74E+00	9.90E+00	3.21E+00	1.11E-14
Promethium (61)	Pm-151	2.14E+02	3.24E-03	2.29E+01	1.49E-01	1.48E-01	5.47E-15
Promethium (61)	Pm-152	8.84E+04	7.84E-06	2.28E+01	.	2.28E+01	2.05E-15
Promethium (61)	Pm-152m	4.84E+04	1.43E-05	4.67E+00	.	4.67E+00	7.69E-16
Promethium (61)	Pm-153	6.94E+04	9.99E-06	5.99E+01	1.95E+00	1.89E+00	2.19E-16
Promethium (61)	Pm-154	2.11E+05	3.29E-06	3.79E+00	.	3.79E+00	1.45E-16
Promethium (61)	Pm-154m	1.36E+05	5.10E-06	3.89E+00	.	3.89E+00	2.31E-16
Polonium (84)	Po-203	9.92E+03	6.98E-05	1.64E+00	2.36E+00	9.68E-01	1.04E-15
Polonium (84)	Po-204	1.72E+03	4.03E-04	1.69E+00	1.82E+00	8.77E-01	5.46E-15
Polonium (84)	Po-205	3.66E+03	1.89E-04	2.16E+00	7.12E-01	5.35E-01	1.57E-15
Polonium (84)	Po-206	2.87E+01	2.41E-02	1.68E+00	2.04E-02	2.01E-02	7.56E-15
Polonium (84)	Po-207	1.05E+03	6.62E-04	2.56E+00	3.78E-02	3.72E-02	3.86E-16
Polonium (84)	Po-208	2.39E-01	2.90E+00	8.37E+04	2.08E-04	2.08E-04	9.49E-15
Polonium (84)	Po-209	6.79E-03	1.02E+02	1.20E+03	1.51E-04	1.51E-04	2.44E-13
Polonium (84)	Po-210	1.83E+00	3.79E-01	7.43E+05	3.30E-04	3.30E-04	1.99E-15
Polonium (84)	Po-211	4.24E+07	1.64E-08	8.86E+02	.	8.86E+02	2.31E-16
Polonium (84)	Po-212	7.31E+13	9.48E-15	.	.	.	.
Polonium (84)	Po-212m	4.85E+05	1.43E-06	8.28E+01	.	8.28E+01	1.90E-15

Farmer Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Polonium (84)	Po-213	5.20E+12	1.33E-13	3.25E+03	2.21E+01	2.20E+01	4.72E-23
Polonium (84)	Po-214	1.33E+11	5.21E-12	1.07E+03	1.42E-04	1.42E-04	1.20E-26
Polonium (84)	Po-215	1.23E+10	5.65E-11	5.74E+01	1.14E-01	1.13E-01	1.04E-22
Polonium (84)	Po-216	1.51E+08	4.60E-09	4.61E+00	1.27E-02	1.27E-02	9.52E-22
Polonium (84)	Po-218	1.17E+05	5.90E-06	4.00E+00	1.42E-04	1.42E-04	1.38E-20
Praseodymium (59)	Pr-134	3.31E+04	2.09E-05	1.87E+00	8.90E-01	6.03E-01	1.28E-16
Praseodymium (59)	Pr-134m	2.14E+04	3.23E-05	2.34E+00	8.83E-01	6.42E-01	2.10E-16
Praseodymium (59)	Pr-135	1.52E+04	4.57E-05	4.36E+00	7.32E+00	2.73E+00	1.28E-15
Praseodymium (59)	Pr-136	2.78E+04	2.49E-05	3.32E+00	9.19E+01	3.21E+00	8.22E-16
Praseodymium (59)	Pr-137	4.74E+03	1.46E-04	1.90E+01	1.63E-01	1.62E-01	2.45E-16
Praseodymium (59)	Pr-138	2.51E+05	2.76E-06	8.86E+00	.	8.86E+00	2.55E-16
Praseodymium (59)	Pr-138m	2.86E+03	2.42E-04	2.92E+00	1.70E+01	2.50E+00	6.31E-15
Praseodymium (59)	Pr-139	1.38E+03	5.03E-04	2.98E+01	7.17E-01	7.00E-01	3.71E-15
Praseodymium (59)	Pr-140	1.07E+05	6.45E-06	1.35E+01	.	1.35E+01	9.25E-16
Praseodymium (59)	Pr-142	3.18E+02	2.18E-03	9.47E+01	2.32E+00	2.26E+00	5.30E-14
Praseodymium (59)	Pr-142m	2.49E+04	2.78E-05	9.47E+01	2.29E+00	2.23E+00	6.66E-16
Praseodymium (59)	Pr-143	1.86E+01	3.72E-02	1.69E+03	5.68E-01	5.68E-01	2.28E-13
Praseodymium (59)	Pr-144	2.11E+04	3.29E-05	1.32E+02	7.68E-05	7.68E-05	2.75E-20
Praseodymium (59)	Pr-144m	5.06E+04	1.37E-05	1.20E+02	7.68E-05	7.68E-05	1.15E-20
Praseodymium (59)	Pr-145	1.01E+03	6.83E-04	2.41E+02	7.68E+00	7.45E+00	5.58E-14
Praseodymium (59)	Pr-146	1.51E+04	4.59E-05	6.72E+00	4.31E+01	5.81E+00	2.95E-15
Praseodymium (59)	Pr-147	2.72E+04	2.55E-05	1.20E+01	6.33E-05	6.33E-05	1.79E-20
Praseodymium (59)	Pr-148	1.59E+05	4.36E-06	6.84E+00	.	6.84E+00	3.34E-16
Praseodymium (59)	Pr-148m	1.81E+05	3.82E-06	7.56E+00	.	7.56E+00	3.24E-16
Platinum (78)	Pt-184	2.11E+04	3.29E-05	2.75E+00	8.60E+00	2.08E+00	9.54E-16
Platinum (78)	Pt-186	2.92E+03	2.37E-04	3.09E+00	3.42E-04	3.42E-04	1.14E-18
Platinum (78)	Pt-187	2.58E+03	2.68E-04	8.14E+00	8.88E+00	4.25E+00	1.61E-14
Platinum (78)	Pt-188	2.48E+01	2.79E-02	3.03E+00	5.42E-01	4.60E-01	1.83E-13
Platinum (78)	Pt-189	5.58E+02	1.24E-03	1.42E+01	1.86E+00	1.64E+00	2.91E-14
Platinum (78)	Pt-190	1.07E-12	6.50E+11	.	1.53E-04	1.53E-04	1.43E-03
Platinum (78)	Pt-191	9.03E+01	7.68E-03	2.80E+01	3.67E+00	3.24E+00	3.60E-13
Platinum (78)	Pt-193	1.39E-02	5.00E+01	1.17E+06	2.12E+00	2.12E+00	1.55E-09
Platinum (78)	Pt-193m	5.84E+01	1.19E-02	8.97E+02	8.55E-01	8.54E-01	1.48E-13
Platinum (78)	Pt-195m	6.29E+01	1.10E-02	1.35E+02	1.20E+00	1.19E+00	1.93E-13
Platinum (78)	Pt-197	3.05E+02	2.27E-03	3.33E+02	3.58E+00	3.55E+00	1.20E-13
Platinum (78)	Pt-197m	3.82E+03	1.82E-04	7.83E+01	3.04E+00	2.92E+00	7.91E-15
Platinum (78)	Pt-199	1.18E+04	5.86E-05	2.50E+01	1.66E+00	1.55E+00	1.37E-15
Platinum (78)	Pt-200	4.86E+02	1.43E-03	2.11E+01	2.04E+00	1.86E+00	4.03E-14
Platinum (78)	Pt-202	1.38E+02	5.02E-03	3.51E+01	5.92E-01	5.82E-01	4.47E-14
Plutonium (94)	Pu-232	1.08E+04	6.41E-05	3.32E+00	2.33E-05	2.33E-05	2.62E-20

Farmer Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Plutonium (94)	Pu-234	6.90E+02	1.00E-03	2.55E+00	1.20E-05	1.20E-05	2.13E-19
Plutonium (94)	Pu-235	1.44E+04	4.81E-05	1.05E+01	4.74E-06	4.74E-06	4.06E-21
Plutonium (94)	Pu-236	2.42E-01	2.86E+00	4.57E+00	1.58E-05	1.58E-05	8.08E-16
Plutonium (94)	Pu-237	5.60E+00	1.24E-01	1.30E+01	1.33E-05	1.33E-05	2.96E-17
Plutonium (94)	Pu-238	7.90E-03	8.77E+01	3.99E+00	6.30E-06	6.30E-06	9.95E-15
Plutonium (94)	Pu-239	2.87E-05	2.41E+04	1.18E+01	3.46E-06	3.46E-06	1.51E-12
Plutonium (94)	Pu-240	1.06E-04	6.56E+03	2.94E+00	7.01E-06	7.01E-06	8.36E-13
Plutonium (94)	Pu-241	4.83E-02	1.44E+01	1.36E+01	7.14E-06	7.14E-06	1.87E-15
Plutonium (94)	Pu-242	1.85E-06	3.75E+05	3.90E+00	5.96E-06	5.96E-06	4.10E-11
Plutonium (94)	Pu-243	1.22E+03	5.66E-04	8.64E+00	2.84E-06	2.84E-06	2.95E-20
Plutonium (94)	Pu-244	8.66E-09	8.00E+07	2.58E+00	4.64E-06	4.64E-06	6.85E-09
Plutonium (94)	Pu-245	5.78E+02	1.20E-03	6.89E+00	4.88E-06	4.88E-06	1.08E-19
Plutonium (94)	Pu-246	2.33E+01	2.97E-02	2.43E+00	4.30E-06	4.30E-06	2.38E-18
Radium (88)	Ra-219	2.19E+09	3.17E-10	4.27E+01	.	4.27E+01	2.24E-19
Radium (88)	Ra-220	1.22E+09	5.68E-10	1.60E+03	.	1.60E+03	1.51E-17
Radium (88)	Ra-221	7.81E+05	8.88E-07	2.10E+02	2.21E+01	2.00E+01	2.97E-16
Radium (88)	Ra-222	5.75E+05	1.20E-06	4.42E+02	1.42E-04	1.42E-04	2.88E-21
Radium (88)	Ra-223	2.21E+01	3.13E-02	2.35E+01	1.64E-04	1.64E-04	8.68E-17
Radium (88)	Ra-224	6.91E+01	1.00E-02	4.58E+00	4.11E-04	4.11E-04	6.98E-17
Radium (88)	Ra-225	1.70E+01	4.08E-02	3.23E+01	8.76E-05	8.76E-05	6.09E-17
Radium (88)	Ra-226	4.33E-04	1.60E+03	3.99E+00	7.29E-05	7.29E-05	2.00E-12
Radium (88)	Ra-227	8.63E+03	8.03E-05	1.29E+01	1.94E-05	1.94E-05	2.68E-20
Radium (88)	Ra-228	1.21E-01	5.75E+00	2.94E+00	2.40E-05	2.40E-05	2.38E-15
Radium (88)	Ra-230	3.92E+03	1.77E-04	2.93E+00	1.23E-05	1.23E-05	3.80E-20
Rubidium (37)	Rb-77	9.66E+04	7.17E-06	2.52E+00	1.44E+01	2.14E+00	8.96E-17
Rubidium (37)	Rb-78	2.06E+04	3.36E-05	1.62E+00	4.35E+01	1.56E+00	3.10E-16
Rubidium (37)	Rb-78m	6.35E+04	1.09E-05	1.92E+00	4.35E+02	1.91E+00	1.23E-16
Rubidium (37)	Rb-79	1.59E+04	4.36E-05	4.33E+00	4.52E+01	3.95E+00	1.03E-15
Rubidium (37)	Rb-80	6.54E+05	1.06E-06	5.97E+00	.	5.97E+00	3.82E-17
Rubidium (37)	Rb-81	1.33E+03	5.22E-04	1.19E+01	1.85E+01	7.23E+00	2.31E-14
Rubidium (37)	Rb-81m	1.19E+04	5.80E-05	1.17E+01	1.53E+01	6.63E+00	2.36E-15
Rubidium (37)	Rb-82	2.86E+05	2.42E-06	6.49E+00	.	6.49E+00	9.76E-17
Rubidium (37)	Rb-82m	9.38E+02	7.39E-04	2.47E+00	8.68E+00	1.92E+00	8.80E-15
Rubidium (37)	Rb-83	2.93E+00	2.36E-01	1.53E+01	9.90E-01	9.30E-01	1.38E-12
Rubidium (37)	Rb-84	7.72E+00	8.98E-02	8.00E+00	4.77E-01	4.50E-01	2.57E-13
Rubidium (37)	Rb-84m	1.80E+04	3.85E-05	5.69E+00	4.75E-01	4.39E-01	1.07E-16
Rubidium (37)	Rb-86	1.36E+01	5.11E-02	6.77E+01	2.93E-01	2.92E-01	9.70E-14
Rubidium (37)	Rb-86m	3.58E+05	1.93E-06	1.13E+01	2.93E-01	2.86E-01	3.60E-18
Rubidium (37)	Rb-87	1.41E-11	4.92E+10	9.26E+03	9.19E-02	9.19E-02	2.98E-02
Rubidium (37)	Rb-88	2.05E+04	3.38E-05	9.81E+00	4.64E+01	8.09E+00	1.82E-15



Farmer Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Rubidium (37)	Rb-89	2.40E+04	2.88E-05	3.02E+00	1.74E-01	1.65E-01	3.20E-17
Rubidium (37)	Rb-90	1.38E+05	5.01E-06	3.03E+00	9.32E-03	9.29E-03	3.17E-19
Rubidium (37)	Rb-90m	8.47E+04	8.18E-06	1.98E+00	9.32E-03	9.27E-03	5.17E-19
Rhenium (75)	Re-178	2.76E+04	2.51E-05	3.80E+00	1.63E+00	1.14E+00	3.86E-16
Rhenium (75)	Re-179	1.87E+04	3.71E-05	6.40E+00	2.75E+00	1.93E+00	9.68E-16
Rhenium (75)	Re-180	1.49E+05	4.64E-06	6.07E+00	.	6.07E+00	3.84E-16
Rhenium (75)	Re-181	3.05E+02	2.27E-03	9.09E+00	2.42E+00	1.91E+00	5.94E-14
Rhenium (75)	Re-182	9.49E+01	7.31E-03	4.08E+00	1.04E+00	8.31E-01	8.36E-14
Rhenium (75)	Re-182m	4.78E+02	1.45E-03	5.91E+00	6.03E+00	2.99E+00	5.96E-14
Rhenium (75)	Re-183	3.61E+00	1.92E-01	5.98E+01	3.92E-01	3.89E-01	1.03E-12
Rhenium (75)	Re-184	6.66E+00	1.04E-01	8.28E+00	6.01E-01	5.60E-01	8.12E-13
Rhenium (75)	Re-184m	1.50E+00	4.63E-01	7.11E+00	1.18E-01	1.16E-01	7.46E-13
Rhenium (75)	Re-186	6.80E+01	1.02E-02	3.32E+02	3.70E-04	3.70E-04	5.30E-17
Rhenium (75)	Re-186m	3.47E-06	2.00E+05	2.33E+02	3.64E-04	3.64E-04	1.03E-09
Rhenium (75)	Re-187	1.68E-11	4.12E+10	.	3.63E+01	3.63E+01	2.11E+01
Rhenium (75)	Re-188	3.57E+02	1.94E-03	1.00E+02	2.31E+00	2.26E+00	6.24E-14
Rhenium (75)	Re-188m	1.96E+04	3.54E-05	5.95E+01	2.26E+00	2.17E+00	1.09E-15
Rhenium (75)	Re-189	2.50E+02	2.77E-03	1.30E+02	3.05E+00	2.98E+00	1.18E-13
Rhenium (75)	Re-190	1.17E+05	5.90E-06	5.47E+00	.	5.47E+00	4.64E-16
Rhenium (75)	Re-190m	1.90E+03	3.65E-04	4.80E+00	6.33E+00	2.73E+00	1.43E-14
Rhodium (45)	Rh-100	2.92E+02	2.37E-03	2.50E+00	3.72E+00	1.50E+00	2.69E-14
Rhodium (45)	Rh-100m	7.92E+04	8.75E-06	2.51E+00	3.79E+00	1.51E+00	9.99E-17
Rhodium (45)	Rh-101	2.10E-01	3.30E+00	2.82E+01	2.78E-01	2.75E-01	6.94E-12
Rhodium (45)	Rh-101m	5.83E+01	1.19E-02	2.57E+01	2.60E+00	2.36E+00	2.15E-13
Rhodium (45)	Rh-102	1.22E+00	5.67E-01	1.48E+01	1.93E-01	1.90E-01	8.33E-13
Rhodium (45)	Rh-102m	1.85E-01	3.74E+00	3.39E+00	7.24E-02	7.09E-02	2.05E-12
Rhodium (45)	Rh-103m	6.49E+03	1.07E-04	5.89E+04	4.98E+02	4.94E+02	4.11E-13
Rhodium (45)	Rh-104	5.17E+05	1.34E-06	2.36E+02	.	2.36E+02	2.49E-15
Rhodium (45)	Rh-104m	8.39E+04	8.26E-06	1.43E+02	.	1.43E+02	9.29E-15
Rhodium (45)	Rh-105	1.72E+02	4.04E-03	9.52E+01	3.84E+00	3.69E+00	1.18E-13
Rhodium (45)	Rh-106	7.33E+05	9.45E-07	3.09E+01	.	3.09E+01	2.34E-16
Rhodium (45)	Rh-106m	2.78E+03	2.49E-04	2.50E+00	1.17E+01	2.06E+00	4.12E-15
Rhodium (45)	Rh-107	1.68E+04	4.13E-05	2.34E+01	2.28E+00	2.07E+00	6.94E-16
Rhodium (45)	Rh-108	1.30E+06	5.33E-07	2.05E+01	.	2.05E+01	8.94E-17
Rhodium (45)	Rh-109	2.73E+05	2.54E-06	2.32E+01	3.51E+00	3.05E+00	6.38E-17
Rhodium (45)	Rh-94	3.10E+05	2.24E-06	1.12E+00	1.23E+01	1.03E+00	1.64E-17
Rhodium (45)	Rh-95	7.26E+04	9.55E-06	1.55E+00	7.08E+00	1.27E+00	8.72E-17
Rhodium (45)	Rh-95m	1.86E+05	3.73E-06	1.37E+00	7.08E+00	1.14E+00	3.07E-17
Rhodium (45)	Rh-96	3.68E+04	1.88E-05	1.83E+00	.	1.83E+00	2.50E-16
Rhodium (45)	Rh-96m	2.41E+05	2.87E-06	1.96E+00	.	1.96E+00	4.08E-17



Farmer Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Rhodium (45)	Rh-97	1.19E+04	5.84E-05	4.35E+00	7.47E-01	6.37E-01	2.73E-16
Rhodium (45)	Rh-97m	7.88E+03	8.79E-05	2.76E+00	7.44E-01	5.86E-01	3.78E-16
Rhodium (45)	Rh-98	4.19E+04	1.66E-05	3.96E+00	.	3.96E+00	4.86E-16
Rhodium (45)	Rh-99	1.57E+01	4.41E-02	1.37E+01	1.10E+00	1.01E+00	3.35E-13
Rhodium (45)	Rh-99m	1.29E+03	5.37E-04	1.14E+01	3.15E+01	8.39E+00	3.37E-14
Radon (86)	Rn-207	3.94E+04	1.76E-05	1.26E+00	4.88E-02	4.70E-02	1.30E-17
Radon (86)	Rn-209	1.28E+04	5.42E-05	1.95E+00	1.90E-04	1.90E-04	1.63E-19
Radon (86)	Rn-210	2.53E+03	2.74E-04	1.67E+00	5.94E-03	5.92E-03	2.58E-17
Radon (86)	Rn-211	4.16E+02	1.67E-03	2.30E+00	1.31E-02	1.30E-02	3.46E-16
Radon (86)	Rn-212	1.52E+04	4.55E-05	1.72E+04	2.08E-04	2.08E-04	1.52E-19
Radon (86)	Rn-215	9.50E+12	7.29E-14	8.86E+02	.	8.86E+02	1.05E-21
Radon (86)	Rn-216	4.86E+11	1.43E-12	.	.	.	.
Radon (86)	Rn-217	4.05E+10	1.71E-11	3.25E+03	2.21E+01	2.20E+01	6.18E-21
Radon (86)	Rn-218	6.24E+08	1.11E-09	9.62E+02	1.42E-04	1.42E-04	2.60E-24
Radon (86)	Rn-219	5.52E+06	1.26E-07	3.97E+01	1.14E-01	1.13E-01	2.36E-19
Radon (86)	Rn-220	3.93E+05	1.76E-06	4.61E+00	1.27E-02	1.26E-02	3.71E-19
Radon (86)	Rn-222	6.62E+01	1.05E-02	4.00E+00	1.42E-04	1.42E-04	2.50E-17
Radon (86)	Rn-223	1.50E+04	4.62E-05	1.04E+01	1.64E-04	1.64E-04	1.28E-19
Ruthenium (44)	Ru-103	6.44E+00	1.08E-01	1.49E+01	4.90E-01	4.74E-01	3.98E-13
Ruthenium (44)	Ru-105	1.37E+03	5.07E-04	8.84E+00	2.44E+00	1.91E+00	7.69E-15
Ruthenium (44)	Ru-106	6.77E-01	1.02E+00	3.09E+01	2.14E-02	2.13E-02	1.75E-13
Ruthenium (44)	Ru-107	9.71E+04	7.13E-06	1.07E+01	2.28E+00	1.88E+00	1.08E-16
Ruthenium (44)	Ru-108	8.01E+04	8.66E-06	1.74E+01	.	1.74E+01	1.23E-15
Ruthenium (44)	Ru-92	9.98E+04	6.94E-06	1.21E+00	.	1.21E+00	5.84E-17
Ruthenium (44)	Ru-94	7.03E+03	9.86E-05	2.90E+00	1.23E+01	2.35E+00	1.65E-15
Ruthenium (44)	Ru-95	3.69E+03	1.88E-04	3.57E+00	7.08E+00	2.37E+00	3.20E-15
Ruthenium (44)	Ru-97	8.72E+01	7.95E-03	3.31E+01	7.57E-01	7.40E-01	4.32E-14
Sulfur (16)	S-35	2.89E+00	2.40E-01	1.08E+05	7.57E-01	7.57E-01	4.81E-13
Sulphur (16)	S-37	7.21E+04	9.61E-06	2.15E+00	.	2.15E+00	5.77E-17
Sulfur (16)	S-38	2.14E+03	3.24E-04	2.09E+00	3.77E+00	1.34E+00	1.25E-15
Antimony (51)	Sb-111	2.91E+05	2.38E-06	3.10E+00	5.11E+00	1.93E+00	3.85E-17
Antimony (51)	Sb-113	5.46E+04	1.27E-05	4.82E+00	3.53E-01	3.29E-01	3.57E-17
Antimony (51)	Sb-114	1.04E+05	6.64E-06	2.60E+00	.	2.60E+00	1.49E-16
Antimony (51)	Sb-115	1.13E+04	6.11E-05	8.39E+00	9.47E+01	7.71E+00	4.10E-15
Antimony (51)	Sb-116	2.31E+04	3.01E-05	3.06E+00	8.78E+01	2.96E+00	7.80E-16
Antimony (51)	Sb-116m	6.04E+03	1.15E-04	2.31E+00	2.73E+01	2.13E+00	2.15E-15
Antimony (51)	Sb-117	2.17E+03	3.20E-04	4.57E+01	7.39E+01	2.82E+01	7.99E-14
Antimony (51)	Sb-118	1.01E+05	6.85E-06	9.05E+00	.	9.05E+00	5.54E-16
Antimony (51)	Sb-118m	1.21E+03	5.71E-04	2.73E+00	1.03E+01	2.16E+00	1.10E-14
Antimony (51)	Sb-119	1.59E+02	4.36E-03	2.19E+03	3.24E+01	3.19E+01	1.25E-12

Farmer Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Antimony (51)	Sb-120	2.29E+04	3.02E-05	1.65E+01	1.78E+02	1.51E+01	4.15E-15
Antimony (51)	Sb-120m	4.39E+01	1.58E-02	2.92E+00	1.22E+00	8.59E-01	1.23E-13
Antimony (51)	Sb-122	9.29E+01	7.46E-03	1.62E+01	1.17E+00	1.09E+00	7.52E-14
Antimony (51)	Sb-122m	8.69E+04	7.97E-06	1.49E+01	1.17E+00	1.08E+00	7.99E-17
Antimony (51)	Sb-124	4.20E+00	1.65E-01	3.76E+00	1.63E-01	1.56E-01	2.41E-13
Antimony (51)	Sb-124m	2.35E+05	2.95E-06	3.85E+00	2.17E-01	2.05E-01	5.68E-18
Antimony (51)	Sb-124n	1.80E+04	3.84E-05	3.85E+00	2.17E-01	2.05E-01	7.40E-17
Antimony (51)	Sb-125	2.51E-01	2.76E+00	1.73E+01	1.10E-01	1.09E-01	2.85E-12
Antimony (51)	Sb-126	2.05E+01	3.38E-02	2.64E+00	3.89E-01	3.39E-01	1.09E-13
Antimony (51)	Sb-126m	1.90E+04	3.64E-05	3.77E+00	2.66E+00	1.56E+00	5.42E-16
Antimony (51)	Sb-127	6.57E+01	1.05E-02	1.04E+01	3.67E-01	3.55E-01	3.60E-14
Antimony (51)	Sb-128	6.74E+02	1.03E-03	2.34E+00	2.93E+00	1.30E+00	1.30E-14
Antimony (51)	Sb-128m	3.50E+04	1.98E-05	3.58E+00	4.21E+01	3.30E+00	6.32E-16
Antimony (51)	Sb-129	1.38E+03	5.02E-04	4.61E+00	1.40E-02	1.40E-02	6.84E-17
Antimony (51)	Sb-130	9.22E+03	7.52E-05	2.19E+00	2.40E+01	2.01E+00	1.48E-15
Antimony (51)	Sb-130m	5.78E+04	1.20E-05	2.62E+00	.	2.62E+00	3.09E-16
Antimony (51)	Sb-131	1.58E+04	4.38E-05	2.38E+00	5.83E-02	5.69E-02	2.47E-17
Antimony (51)	Sb-133	1.46E+05	4.76E-06	1.46E+00	2.76E-01	2.32E-01	1.11E-17
Scandium (21)	Sc-42m	3.52E+05	1.97E-06	1.67E+00	.	1.67E+00	1.04E-17
Scandium (21)	Sc-43	1.56E+03	4.44E-04	7.49E+00	1.04E+01	4.35E+00	6.29E-15
Scandium (21)	Sc-44	1.53E+03	4.53E-04	3.35E+00	6.93E+00	2.26E+00	3.41E-15
Scandium (21)	Sc-44m	1.04E+02	6.69E-03	3.01E+00	8.26E-01	6.48E-01	1.44E-14
Scandium (21)	Sc-46	3.02E+00	2.30E-01	3.53E+00	2.07E-01	1.96E-01	1.56E-13
Scandium (21)	Sc-47	7.55E+01	9.18E-03	7.03E+01	1.90E+00	1.85E+00	6.04E-14
Scandium (21)	Sc-48	1.39E+02	4.99E-03	2.09E+00	1.19E+00	7.58E-01	1.37E-14
Scandium (21)	Sc-49	6.37E+03	1.09E-04	4.63E+02	3.31E+01	3.09E+01	1.25E-14
Scandium (21)	Sc-50	2.13E+05	3.25E-06	2.15E+00	.	2.15E+00	2.64E-17
Selenium (34)	Se-70	8.86E+03	7.82E-05	1.43E+00	9.21E+00	1.24E+00	5.12E-16
Selenium (34)	Se-71	7.68E+04	9.02E-06	3.32E+00	3.41E+00	1.68E+00	8.15E-17
Selenium (34)	Se-72	3.01E+01	2.30E-02	4.00E+00	2.91E-01	2.72E-01	3.41E-14
Selenium (34)	Se-73	8.49E+02	8.16E-04	6.85E+00	8.72E-01	7.73E-01	3.49E-15
Selenium (34)	Se-73m	9.15E+03	7.57E-05	7.05E+00	8.93E-01	7.93E-01	3.32E-16
Selenium (34)	Se-75	2.11E+00	3.28E-01	1.99E+01	1.06E+00	1.00E+00	1.87E-12
Selenium (34)	Se-77m	1.26E+06	5.50E-07	8.93E+01	.	8.93E+01	2.86E-16
Selenium (34)	Se-79	2.35E-06	2.95E+05	1.08E+05	2.28E-01	2.28E-01	4.02E-07
Selenium (34)	Se-79m	9.29E+04	7.46E-06	9.10E+02	2.28E-01	2.28E-01	1.02E-17
Selenium (34)	Se-81	1.97E+04	3.51E-05	4.05E+02	8.98E+01	7.35E+01	1.58E-14
Selenium (34)	Se-81m	6.36E+03	1.09E-04	2.41E+02	2.02E+01	1.86E+01	1.24E-14
Selenium (34)	Se-83	1.63E+04	4.24E-05	2.65E+00	1.54E+01	2.26E+00	6.03E-16
Selenium (34)	Se-83m	3.12E+05	2.22E-06	6.84E+00	2.56E+01	5.40E+00	7.53E-17

Farmer Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Half-life (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Selenium (34)	Se-84	1.17E+05	5.90E-06	3.07E+00	3.34E+01	2.81E+00	1.05E-16
Silicon (14)	Si-31	2.32E+03	2.99E-04	6.84E+02	1.66E+01	1.62E+01	1.14E-14
Silicon (14)	Si-32	5.25E-03	1.32E+02	6.05E+02	1.28E-02	1.28E-02	4.10E-12
Samarium (62)	Sm-139	1.42E+05	4.89E-06	2.36E+00	7.13E-01	5.47E-01	2.82E-17
Samarium (62)	Sm-140	2.46E+04	2.82E-05	3.32E+00	1.13E+00	8.42E-01	2.52E-16
Samarium (62)	Sm-141	3.57E+04	1.94E-05	3.28E+00	3.62E+01	3.00E+00	6.22E-16
Samarium (62)	Sm-141m	1.61E+04	4.30E-05	2.63E+00	2.47E+01	2.38E+00	1.09E-15
Samarium (62)	Sm-142	5.02E+03	1.38E-04	7.57E+00	1.74E+01	5.27E+00	7.82E-15
Samarium (62)	Sm-143	4.16E+04	1.66E-05	8.91E+00	4.72E-01	4.49E-01	8.08E-17
Samarium (62)	Sm-143m	3.31E+05	2.09E-06	4.85E+00	4.72E-01	4.30E-01	9.75E-18
Samarium (62)	Sm-145	7.44E-01	9.32E-01	1.86E+02	1.30E-01	1.29E-01	1.32E-12
Samarium (62)	Sm-146	6.73E-09	1.03E+08	.	5.78E-05	5.78E-05	6.58E-08
Samarium (62)	Sm-147	6.54E-12	1.06E+11	.	6.33E-05	6.33E-05	7.46E-05
Samarium (62)	Sm-148	9.90E-17	7.00E+15	.	3.76E-05	3.76E-05	2.95E+00
Samarium (62)	Sm-151	7.70E-03	9.00E+01	1.25E+07	1.57E-01	1.57E-01	1.61E-10
Samarium (62)	Sm-153	1.31E+02	5.31E-03	1.56E+02	1.95E+00	1.93E+00	1.19E-13
Samarium (62)	Sm-155	1.63E+04	4.24E-05	5.01E+01	2.36E-01	2.35E-01	1.17E-16
Samarium (62)	Sm-156	6.46E+02	1.07E-03	5.15E+00	3.29E-01	3.10E-01	3.92E-15
Samarium (62)	Sm-157	4.54E+04	1.53E-05	1.05E+01	4.06E+00	2.93E+00	5.32E-16
Tin (50)	Sn-106	1.90E+05	3.65E-06	1.75E+00	.	1.75E+00	5.12E-17
Tin (50)	Sn-108	3.54E+04	1.96E-05	2.01E+00	2.60E+01	1.86E+00	2.99E-16
Tin (50)	Sn-109	2.02E+04	3.42E-05	2.33E+00	2.22E-01	2.03E-01	5.72E-17
Tin (50)	Sn-110	1.48E+03	4.69E-04	3.90E+00	5.85E+00	2.34E+00	9.14E-15
Tin (50)	Sn-111	1.03E+04	6.72E-05	8.46E+00	5.11E+00	3.19E+00	1.80E-15
Tin (50)	Sn-113	2.20E+00	3.15E-01	2.84E+01	3.46E-01	3.42E-01	9.21E-13
Tin (50)	Sn-113m	1.70E+04	4.07E-05	3.09E+01	3.79E-01	3.75E-01	1.30E-16
Tin (50)	Sn-117m	1.84E+01	3.77E-02	5.39E+01	4.98E-01	4.94E-01	1.65E-13
Tin (50)	Sn-119m	8.63E-01	8.03E-01	3.58E+03	4.07E-01	4.07E-01	2.95E-12
Tin (50)	Sn-121	2.25E+02	3.09E-03	8.30E+03	5.44E+00	5.43E+00	1.54E-13
Tin (50)	Sn-121m	1.58E-02	4.39E+01	3.93E+03	9.58E-02	9.58E-02	3.85E-11
Tin (50)	Sn-123	1.96E+00	3.54E-01	4.71E+02	1.09E-01	1.09E-01	3.58E-13
Tin (50)	Sn-123m	9.09E+03	7.62E-05	5.32E+01	4.64E+01	2.48E+01	1.76E-14
Tin (50)	Sn-125	2.62E+01	2.64E-02	9.31E+00	8.57E-02	8.50E-02	2.12E-14
Tin (50)	Sn-125m	3.83E+04	1.81E-05	9.42E+00	1.10E-01	1.09E-01	1.86E-17
Tin (50)	Sn-126	3.01E-06	2.30E+05	3.69E+00	9.27E-03	9.25E-03	2.03E-08
Tin (50)	Sn-127	2.89E+03	2.40E-04	2.71E+00	3.53E-01	3.13E-01	7.20E-16
Tin (50)	Sn-127m	8.82E+04	7.86E-06	5.65E+00	3.67E-01	3.45E-01	2.60E-17
Tin (50)	Sn-128	6.17E+03	1.12E-04	2.81E+00	1.03E+01	2.21E+00	2.40E-15
Tin (50)	Sn-129	1.63E+05	4.24E-06	2.77E+00	1.40E-02	1.39E-02	5.77E-19
Tin (50)	Sn-130	9.79E+04	7.08E-06	1.97E+00	.	1.97E+00	1.37E-16



Farmer Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Half-life (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Tin (50)	Sn-130m	2.14E+05	3.23E-06	1.74E+00	2.79E+01	1.64E+00	5.22E-17
Strontium (38)	Sr-79	1.62E+05	4.28E-06	2.54E+00	4.52E+01	2.40E+00	6.15E-17
Strontium (38)	Sr-80	3.43E+03	2.02E-04	4.43E+00	8.09E+00	2.86E+00	3.50E-15
Strontium (38)	Sr-81	1.63E+04	4.24E-05	3.65E+00	1.26E+01	2.83E+00	7.37E-16
Strontium (38)	Sr-82	9.97E+00	6.95E-02	6.49E+00	1.27E-01	1.24E-01	5.35E-14
Strontium (38)	Sr-83	1.87E+02	3.70E-03	5.64E+00	7.77E-01	6.83E-01	1.59E-14
Strontium (38)	Sr-85	3.90E+00	1.78E-01	1.51E+01	1.68E+00	1.51E+00	1.72E-12
Strontium (38)	Sr-85m	5.39E+03	1.29E-04	1.16E+01	1.92E+00	1.65E+00	1.37E-15
Strontium (38)	Sr-87m	2.16E+03	3.21E-04	2.34E+01	2.04E+01	1.09E+01	2.31E-14
Strontium (38)	Sr-89	5.01E+00	1.38E-01	7.53E+02	1.75E-01	1.75E-01	1.63E-13
Strontium (38)	Sr-90	2.41E-02	2.88E+01	3.72E+02	9.32E-03	9.32E-03	1.83E-12
Strontium (38)	Sr-91	6.30E+02	1.10E-03	6.95E+00	1.48E-01	1.45E-01	1.10E-15
Strontium (38)	Sr-92	2.28E+03	3.04E-04	4.28E+00	3.18E+00	1.82E+00	3.86E-15
Strontium (38)	Sr-93	4.91E+04	1.41E-05	2.93E+00	6.29E-02	6.16E-02	6.12E-18
Strontium (38)	Sr-94	2.90E+05	2.39E-06	3.08E+00	4.69E+01	2.89E+00	4.90E-17
Tantalum (73)	Ta-170	5.39E+04	1.29E-05	1.72E+00	1.41E+00	7.74E-01	1.28E-16
Tantalum (73)	Ta-172	9.90E+03	7.00E-05	1.93E+00	5.32E-02	5.18E-02	4.72E-17
Tantalum (73)	Ta-173	1.93E+03	3.58E-04	6.85E+00	3.65E-01	3.47E-01	1.63E-15
Tantalum (73)	Ta-174	5.33E+03	1.30E-04	7.41E+00	2.91E-04	2.91E-04	4.99E-19
Tantalum (73)	Ta-175	5.78E+02	1.20E-03	5.04E+00	8.93E-01	7.59E-01	1.20E-14
Tantalum (73)	Ta-176	7.50E+02	9.24E-04	3.09E+00	6.41E+00	2.08E+00	2.56E-14
Tantalum (73)	Ta-177	1.07E+02	6.46E-03	1.52E+02	1.27E+01	1.17E+01	1.01E-12
Tantalum (73)	Ta-178	3.91E+04	1.77E-05	7.00E+01	.	7.00E+01	1.67E-14
Tantalum (73)	Ta-178m	2.57E+03	2.69E-04	6.73E+00	1.72E+01	4.84E+00	1.76E-14
Tantalum (73)	Ta-179	3.81E-01	1.82E+00	4.75E+02	2.83E+00	2.81E+00	6.93E-11
Tantalum (73)	Ta-180	7.45E+02	9.31E-04	2.33E+02	3.06E+01	2.70E+01	3.43E-13
Tantalum (73)	Ta-182	2.21E+00	3.14E-01	5.53E+00	1.35E-01	1.32E-01	5.71E-13
Tantalum (73)	Ta-182m	2.30E+04	3.01E-05	4.70E+00	1.35E-01	1.31E-01	5.45E-17
Tantalum (73)	Ta-183	4.96E+01	1.40E-02	2.75E+01	6.18E-01	6.04E-01	1.17E-13
Tantalum (73)	Ta-184	6.98E+02	9.93E-04	4.67E+00	3.03E+00	1.84E+00	2.54E-14
Tantalum (73)	Ta-185	7.37E+03	9.40E-05	4.90E+01	3.59E-01	3.57E-01	4.69E-16
Tantalum (73)	Ta-186	3.47E+04	2.00E-05	5.14E+00	7.22E+01	4.80E+00	1.35E-15
Terbium (65)	Tb-146	9.50E+05	7.29E-07	1.13E+00	5.78E-05	5.78E-05	4.66E-22
Terbium (65)	Tb-147	3.70E+03	1.87E-04	1.78E+00	6.33E-05	6.33E-05	1.32E-19
Terbium (65)	Tb-147m	1.95E+05	3.56E-06	1.90E+00	6.33E-05	6.33E-05	2.50E-21
Terbium (65)	Tb-148	6.07E+03	1.14E-04	2.98E+00	2.33E-04	2.33E-04	2.98E-19
Terbium (65)	Tb-148m	1.66E+05	4.19E-06	2.33E+00	2.33E-04	2.33E-04	1.09E-20
Terbium (65)	Tb-149	1.47E+03	4.70E-04	3.54E+00	1.87E-01	1.78E-01	9.43E-16
Terbium (65)	Tb-149m	8.76E+04	7.91E-06	3.82E+00	1.00E+00	7.94E-01	7.09E-17
Terbium (65)	Tb-150	1.74E+03	3.97E-04	2.82E+00	4.77E-05	4.77E-05	2.15E-19



Farmer Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Terbium (65)	Tb-150m	6.28E+04	1.10E-05	2.95E+00	4.77E-05	4.77E-05	5.97E-21
Terbium (65)	Tb-151	3.45E+02	2.01E-03	7.25E+00	3.94E-01	3.73E-01	8.57E-15
Terbium (65)	Tb-151m	8.74E+05	7.93E-07	7.20E+00	4.12E-01	3.89E-01	3.53E-18
Terbium (65)	Tb-152	3.47E+02	2.00E-03	4.73E+00	2.52E-05	2.52E-05	5.80E-19
Terbium (65)	Tb-152m	8.67E+04	7.99E-06	3.76E+00	2.52E-05	2.52E-05	2.32E-21
Terbium (65)	Tb-153	1.08E+02	6.41E-03	1.99E+01	5.30E-01	5.16E-01	3.83E-14
Terbium (65)	Tb-154	2.82E+02	2.45E-03	2.98E+00	3.59E+00	1.63E+00	4.66E-14
Terbium (65)	Tb-155	4.75E+01	1.46E-02	5.25E+01	4.41E+00	4.07E+00	6.96E-13
Terbium (65)	Tb-156	4.73E+01	1.47E-02	3.73E+00	1.07E+00	8.33E-01	1.44E-13
Terbium (65)	Tb-156m	2.49E+02	2.79E-03	3.69E+00	9.23E-01	7.38E-01	2.43E-14
Terbium (65)	Tb-156n	1.15E+03	6.05E-04	3.72E+00	9.85E-01	7.79E-01	5.56E-15
Terbium (65)	Tb-157	9.76E-03	7.10E+01	3.36E+03	4.52E-01	4.52E-01	3.81E-10
Terbium (65)	Tb-158	3.85E-03	1.80E+02	9.15E+00	1.40E-02	1.40E-02	3.02E-11
Terbium (65)	Tb-160	3.50E+00	1.98E-01	6.36E+00	1.68E-01	1.64E-01	3.94E-13
Terbium (65)	Tb-161	3.66E+01	1.89E-02	3.62E+02	9.71E-01	9.69E-01	2.23E-13
Terbium (65)	Tb-162	4.79E+04	1.45E-05	6.56E+00	.	6.56E+00	1.16E-15
Terbium (65)	Tb-163	1.87E+04	3.71E-05	9.41E+00	7.61E+01	8.38E+00	3.83E-15
Terbium (65)	Tb-164	1.21E+05	5.71E-06	2.90E+00	.	2.90E+00	2.05E-16
Terbium (65)	Tb-165	1.73E+05	4.01E-06	7.80E+00	2.10E+01	5.68E+00	2.85E-16
Technetium (43)	Tc-101	2.57E+04	2.70E-05	2.17E+01	1.07E+02	1.81E+01	3.73E-15
Technetium (43)	Tc-102	4.14E+06	1.67E-07	5.65E+01	.	5.65E+01	7.30E-17
Technetium (43)	Tc-102m	8.37E+04	8.28E-06	2.80E+00	.	2.80E+00	1.79E-16
Technetium (43)	Tc-104	1.99E+04	3.48E-05	3.00E+00	4.35E+01	2.81E+00	7.70E-16
Technetium (43)	Tc-105	4.79E+04	1.45E-05	4.40E+00	2.44E+00	1.57E+00	1.80E-16
Technetium (43)	Tc-91	1.16E+05	5.97E-06	2.00E+00	7.68E-01	5.55E-01	2.28E-17
Technetium (43)	Tc-91m	1.10E+05	6.28E-06	2.16E+00	3.69E-01	3.15E-01	1.36E-17
Technetium (43)	Tc-92	8.57E+04	8.09E-06	1.85E+00	.	1.85E+00	1.04E-16
Technetium (43)	Tc-93	2.21E+03	3.14E-04	4.43E+00	3.63E-01	3.35E-01	7.41E-16
Technetium (43)	Tc-93m	8.37E+03	8.28E-05	3.18E+00	3.62E-01	3.25E-01	1.89E-16
Technetium (43)	Tc-94	1.24E+03	5.57E-04	2.73E+00	9.90E+00	2.14E+00	8.49E-15
Technetium (43)	Tc-94m	7.00E+03	9.89E-05	3.63E+00	2.75E+01	3.21E+00	2.26E-15
Technetium (43)	Tc-95	3.04E+02	2.28E-03	9.21E+00	1.16E+01	5.13E+00	8.43E-14
Technetium (43)	Tc-95m	4.15E+00	1.67E-01	1.03E+01	1.13E+00	1.02E+00	1.23E-12
Technetium (43)	Tc-96	5.91E+01	1.17E-02	2.90E+00	1.82E+00	1.12E+00	9.52E-14
Technetium (43)	Tc-96m	7.07E+03	9.80E-05	2.91E+00	1.84E+00	1.13E+00	8.01E-16
Technetium (43)	Tc-97	2.67E-07	2.60E+06	1.50E+04	8.13E-01	8.13E-01	1.55E-05
Technetium (43)	Tc-97m	2.81E+00	2.47E-01	5.61E+03	2.39E-01	2.39E-01	4.33E-13
Technetium (43)	Tc-98	1.65E-07	4.20E+06	5.16E+00	3.46E-02	3.43E-02	1.07E-06
Technetium (43)	Tc-99	3.28E-06	2.11E+05	1.15E+04	1.09E-01	1.09E-01	1.72E-07
Technetium (43)	Tc-99m	1.01E+03	6.87E-04	6.24E+01	1.09E-01	1.08E-01	5.58E-16

Farmer Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Tellurium (52)	Te-113	2.14E+05	3.23E-06	1.90E+00	3.53E-01	2.98E-01	8.23E-18
Tellurium (52)	Te-114	2.40E+04	2.89E-05	1.77E+00	4.04E+01	1.70E+00	4.24E-16
Tellurium (52)	Te-115	6.28E+04	1.10E-05	2.29E+00	9.47E+01	2.23E+00	2.15E-16
Tellurium (52)	Te-115m	5.44E+04	1.27E-05	2.05E+00	9.47E+01	2.00E+00	2.22E-16
Tellurium (52)	Te-116	2.44E+03	2.84E-04	2.96E+00	9.21E+00	2.24E+00	5.59E-15
Tellurium (52)	Te-117	5.87E+03	1.18E-04	4.14E+00	2.83E+01	3.62E+00	3.78E-15
Tellurium (52)	Te-118	4.22E+01	1.64E-02	9.02E+00	5.24E-01	4.95E-01	7.26E-14
Tellurium (52)	Te-119	3.78E+02	1.83E-03	9.59E+00	8.59E+00	4.53E+00	7.48E-14
Tellurium (52)	Te-119m	5.38E+01	1.29E-02	4.73E+00	1.98E+00	1.40E+00	1.62E-13
Tellurium (52)	Te-121	1.32E+01	5.25E-02	1.32E+01	2.37E+00	2.00E+00	9.64E-13
Tellurium (52)	Te-121m	1.64E+00	4.22E-01	1.06E+01	2.23E-01	2.18E-01	8.43E-13
Tellurium (52)	Te-123	1.16E-15	6.00E+14	1.26E+06	3.93E-01	3.93E-01	2.19E+03
Tellurium (52)	Te-123m	2.12E+00	3.27E-01	5.69E+01	1.63E-01	1.62E-01	4.94E-13
Tellurium (52)	Te-125m	4.41E+00	1.57E-01	9.84E+02	3.42E-01	3.42E-01	5.09E-13
Tellurium (52)	Te-127	6.49E+02	1.07E-03	9.86E+02	9.30E+00	9.22E+00	9.45E-14
Tellurium (52)	Te-127m	2.32E+00	2.99E-01	7.53E+02	1.41E-01	1.41E-01	4.04E-13
Tellurium (52)	Te-129	5.23E+03	1.32E-04	1.01E+02	1.43E-02	1.43E-02	1.85E-17
Tellurium (52)	Te-129m	7.53E+00	9.21E-02	8.84E+01	1.32E-02	1.32E-02	1.19E-14
Tellurium (52)	Te-131	1.46E+04	4.76E-05	9.13E+00	5.90E-02	5.86E-02	2.76E-17
Tellurium (52)	Te-131m	2.02E+02	3.42E-03	3.75E+00	5.28E-02	5.21E-02	1.77E-15
Tellurium (52)	Te-132	7.89E+01	8.78E-03	2.92E+00	2.21E-01	2.05E-01	1.80E-14
Tellurium (52)	Te-133	2.91E+04	2.38E-05	3.85E+00	2.78E-01	2.59E-01	6.21E-17
Tellurium (52)	Te-133m	6.57E+03	1.05E-04	2.63E+00	2.67E-01	2.43E-01	2.58E-16
Tellurium (52)	Te-134	8.71E+03	7.95E-05	2.07E+00	5.96E+00	1.54E+00	1.24E-15
Thorium (90)	Th-223	3.64E+07	1.90E-08	3.14E+01	.	3.14E+01	1.01E-17
Thorium (90)	Th-224	2.08E+07	3.33E-08	2.80E+02	.	2.80E+02	1.58E-16
Thorium (90)	Th-226	1.19E+04	5.82E-05	3.09E+02	1.41E-04	1.41E-04	1.41E-19
Thorium (90)	Th-227	1.35E+01	5.12E-02	1.71E+01	7.50E-05	7.50E-05	6.59E-17
Thorium (90)	Th-228	3.63E-01	1.91E+00	4.58E+00	3.27E-05	3.27E-05	1.08E-15
Thorium (90)	Th-229	9.44E-05	7.34E+03	2.44E+01	1.66E-05	1.66E-05	2.11E-12
Thorium (90)	Th-230	9.19E-06	7.54E+04	3.99E+00	1.23E-05	1.23E-05	1.62E-11
Thorium (90)	Th-231	2.38E+02	2.91E-03	1.56E+01	4.88E-06	4.88E-06	2.48E-19
Thorium (90)	Th-232	4.93E-11	1.41E+10	2.94E+00	1.72E-05	1.72E-05	4.23E-06
Thorium (90)	Th-233	1.63E+04	4.24E-05	1.34E+01	1.49E-05	1.49E-05	1.12E-20
Thorium (90)	Th-234	1.05E+01	6.60E-02	3.90E+00	1.14E-05	1.14E-05	1.33E-17
Thorium (90)	Th-235	5.13E+04	1.35E-05	1.06E+01	4.74E-06	4.74E-06	1.14E-21
Thorium (90)	Th-236	9.71E+03	7.13E-05	2.10E+00	1.55E-05	1.55E-05	1.98E-20
Titanium (22)	Ti-44	1.16E-02	6.00E+01	3.19E+00	1.16E-02	1.16E-02	2.31E-12
Titanium (22)	Ti-45	1.97E+03	3.52E-04	8.47E+00	1.39E+01	5.27E+00	6.31E-15
Titanium (22)	Ti-51	6.32E+04	1.10E-05	1.93E+01	.	1.93E+01	8.17E-16

Farmer Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Titanium (22)	Ti-52	2.14E+05	3.23E-06	4.33E+00	.	4.33E+00	5.52E-17
Thallium (81)	Tl-190	1.40E+05	4.95E-06	1.80E+00	1.53E-04	1.53E-04	1.09E-20
Thallium (81)	Tl-190m	9.84E+04	7.04E-06	1.41E+00	1.53E-04	1.53E-04	1.55E-20
Thallium (81)	Tl-194	1.10E+04	6.28E-05	3.71E+00	6.20E-02	6.10E-02	5.62E-17
Thallium (81)	Tl-194m	1.11E+04	6.24E-05	2.05E+00	6.20E-02	6.02E-02	5.51E-17
Thallium (81)	Tl-195	5.23E+03	1.32E-04	4.84E+00	4.19E-01	3.85E-01	7.53E-16
Thallium (81)	Tl-196	3.30E+03	2.10E-04	3.76E+00	3.29E+01	3.37E+00	1.05E-14
Thallium (81)	Tl-197	2.14E+03	3.24E-04	1.46E+01	3.03E-01	2.96E-01	1.43E-15
Thallium (81)	Tl-198	1.15E+03	6.05E-04	3.48E+00	1.69E+01	2.89E+00	2.62E-14
Thallium (81)	Tl-198m	3.25E+03	2.13E-04	3.40E+00	1.26E+01	2.67E+00	8.55E-15
Thallium (81)	Tl-199	8.18E+02	8.47E-04	3.21E+01	2.66E+01	1.45E+01	1.85E-13
Thallium (81)	Tl-200	2.33E+02	2.98E-03	5.53E+00	7.22E+00	3.13E+00	1.41E-13
Thallium (81)	Tl-201	8.33E+01	8.32E-03	1.01E+02	7.02E+00	6.57E+00	8.31E-13
Thallium (81)	Tl-202	2.07E+01	3.35E-02	1.66E+01	3.36E+00	2.80E+00	1.43E-12
Thallium (81)	Tl-204	1.83E-01	3.78E+00	1.89E+03	7.53E-02	7.53E-02	4.40E-12
Thallium (81)	Tl-206	8.67E+04	7.99E-06	8.32E+02	.	8.32E+02	1.04E-13
Thallium (81)	Tl-206m	9.74E+04	7.12E-06	3.02E+00	.	3.02E+00	3.35E-16
Thallium (81)	Tl-207	7.64E+04	9.08E-06	7.17E+02	.	7.17E+02	1.02E-13
Thallium (81)	Tl-208	1.19E+05	5.81E-06	1.97E+00	.	1.97E+00	1.80E-16
Thallium (81)	Tl-209	1.69E+05	4.11E-06	3.24E+00	2.21E+01	2.82E+00	1.84E-16
Thallium (81)	Tl-210	2.80E+05	2.47E-06	2.50E+00	1.42E-04	1.42E-04	5.59E-21
Thulium (69)	Tm-161	1.21E+04	5.75E-05	3.15E+00	1.49E+01	2.60E+00	1.82E-15
Thulium (69)	Tm-162	1.68E+04	4.13E-05	3.62E+00	6.44E+01	3.42E+00	1.73E-15
Thulium (69)	Tm-163	3.35E+03	2.07E-04	5.39E+00	4.70E+00	2.51E+00	6.40E-15
Thulium (69)	Tm-164	1.82E+05	3.81E-06	9.26E+00	.	9.26E+00	4.37E-16
Thulium (69)	Tm-165	2.02E+02	3.43E-03	1.33E+01	5.43E+00	3.85E+00	1.65E-13
Thulium (69)	Tm-166	7.88E+02	8.79E-04	3.55E+00	7.08E+00	2.37E+00	2.61E-14
Thulium (69)	Tm-167	2.73E+01	2.53E-02	6.02E+01	1.05E+00	1.03E+00	3.31E-13
Thulium (69)	Tm-168	2.72E+00	2.55E-01	6.00E+00	2.76E-01	2.64E-01	8.55E-13
Thulium (69)	Tm-170	1.97E+00	3.52E-01	1.02E+03	1.53E-01	1.53E-01	6.93E-13
Thulium (69)	Tm-171	3.61E-01	1.92E+00	1.94E+04	1.11E+00	1.11E+00	2.76E-11
Thulium (69)	Tm-172	9.55E+01	7.26E-03	1.44E+01	1.09E+00	1.01E+00	9.56E-14
Thulium (69)	Tm-173	7.37E+02	9.41E-04	1.92E+01	6.86E+00	5.06E+00	6.23E-14
Thulium (69)	Tm-174	6.75E+04	1.03E-05	4.11E+00	.	4.11E+00	5.55E-16
Thulium (69)	Tm-175	2.40E+04	2.89E-05	6.44E+00	1.85E+00	1.44E+00	5.51E-16
Thulium (69)	Tm-176	1.97E+05	3.52E-06	3.52E+00	.	3.52E+00	1.65E-16
Uranium (92)	U-227	3.31E+05	2.09E-06	2.15E+01	.	2.15E+01	7.73E-16
Uranium (92)	U-228	4.00E+04	1.73E-05	2.52E+02	.	2.52E+02	7.53E-14
Uranium (92)	U-230	1.22E+01	5.70E-02	2.97E+02	5.41E-05	5.41E-05	5.37E-17
Uranium (92)	U-231	6.02E+01	1.15E-02	1.42E+01	4.88E-06	4.88E-06	9.81E-19

Farmer Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Uranium (92)	U-232	1.01E-02	6.89E+01	4.57E+00	1.79E-05	1.79E-05	2.17E-14
Uranium (92)	U-233	4.35E-06	1.59E+05	2.43E+01	1.49E-05	1.49E-05	4.19E-11
Uranium (92)	U-234	2.82E-06	2.46E+05	3.99E+00	1.14E-05	1.14E-05	4.96E-11
Uranium (92)	U-235	9.84E-10	7.04E+08	1.18E+01	4.74E-06	4.74E-06	5.94E-08
Uranium (92)	U-235m	1.40E+04	4.95E-05	1.18E+01	4.74E-06	4.74E-06	4.17E-21
Uranium (92)	U-236	2.96E-08	2.34E+07	2.94E+00	1.55E-05	1.55E-05	6.50E-09
Uranium (92)	U-237	3.75E+01	1.85E-02	1.14E+01	1.33E-05	1.33E-05	4.41E-18
Uranium (92)	U-238	1.55E-10	4.47E+09	3.90E+00	1.07E-05	1.07E-05	8.63E-07
Uranium (92)	U-239	1.55E+04	4.46E-05	8.82E+00	3.46E-06	3.46E-06	2.79E-21
Uranium (92)	U-240	4.31E+02	1.61E-03	2.59E+00	7.01E-06	7.01E-06	2.05E-19
Uranium (92)	U-242	2.17E+04	3.20E-05	3.30E+00	5.96E-06	5.96E-06	3.49E-21
Vanadium (23)	V-47	1.12E+04	6.20E-05	7.34E+00	4.22E+01	6.26E+00	1.38E-15
Vanadium (23)	V-48	1.58E+01	4.38E-02	2.43E+00	5.00E-01	4.15E-01	6.59E-14
Vanadium (23)	V-49	7.67E-01	9.04E-01	.	1.94E+01	1.94E+01	6.50E-11
Vanadium (23)	V-50	4.62E-18	1.50E+17	4.81E+00	2.31E-02	2.30E-02	1.30E+04
Vanadium (23)	V-52	9.73E+04	7.12E-06	4.69E+00	.	4.69E+00	1.31E-16
Vanadium (23)	V-53	2.26E+05	3.06E-06	6.70E+00	.	6.70E+00	8.24E-17
Tungsten (74)	W-177	2.76E+03	2.51E-04	7.86E+00	8.87E+00	4.16E+00	1.40E-14
Tungsten (74)	W-178	1.17E+01	5.92E-02	6.41E+01	1.66E+00	1.62E+00	1.29E-12
Tungsten (74)	W-179	9.83E+03	7.05E-05	1.54E+02	2.82E+00	2.77E+00	2.64E-15
Tungsten (74)	W-179m	5.69E+04	1.22E-05	8.00E+01	2.82E+00	2.72E+00	4.49E-16
Tungsten (74)	W-181	2.09E+00	3.32E-01	2.87E+02	4.75E+00	4.67E+00	2.13E-11
Tungsten (74)	W-185	3.37E+00	2.06E-01	6.66E+03	3.64E-01	3.64E-01	1.05E-12
Tungsten (74)	W-185m	2.28E+05	3.04E-06	3.36E+02	3.64E-01	3.64E-01	1.55E-17
Tungsten (74)	W-187	2.56E+02	2.71E-03	1.65E+01	2.94E+00	2.49E+00	9.56E-14
Tungsten (74)	W-188	3.62E+00	1.91E-01	9.72E+01	8.64E-02	8.64E-02	2.35E-13
Tungsten (74)	W-190	1.21E+04	5.71E-05	5.00E+00	1.81E+01	3.91E+00	3.21E-15
Xenon (54)	Xe-120	9.11E+03	7.61E-05	2.29E+00	4.77E+00	1.55E+00	1.07E-15
Xenon (54)	Xe-121	9.08E+03	7.63E-05	2.96E+00	2.01E+00	1.20E+00	8.38E-16
Xenon (54)	Xe-122	3.02E+02	2.29E-03	7.17E+00	.	7.17E+00	1.52E-13
Xenon (54)	Xe-123	2.92E+03	2.37E-04	9.43E+00	3.66E-01	3.53E-01	7.79E-16
Xenon (54)	Xe-125	3.59E+02	1.93E-03	2.96E+01	9.36E-02	9.33E-02	1.70E-15
Xenon (54)	Xe-127	6.95E+00	9.97E-02	2.92E+01	.	2.92E+01	2.80E-11
Xenon (54)	Xe-127m	3.16E+05	2.19E-06	1.85E+01	.	1.85E+01	3.90E-16
Xenon (54)	Xe-129m	2.85E+01	2.43E-02	3.60E+02	.	3.60E+02	8.55E-11
Xenon (54)	Xe-131m	2.14E+01	3.24E-02	9.26E+02	.	9.26E+02	2.98E-10
Xenon (54)	Xe-133	4.82E+01	1.44E-02	2.41E+02	.	2.41E+02	3.49E-11
Xenon (54)	Xe-133m	1.16E+02	6.00E-03	1.24E+02	.	1.24E+02	7.50E-12
Xenon (54)	Xe-135	6.64E+02	1.04E-03	3.00E+01	1.24E-01	1.23E-01	1.31E-15
Xenon (54)	Xe-135m	2.38E+04	2.91E-05	1.11E+01	1.24E-01	1.22E-01	3.63E-17



Farmer Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Xenon (54)	Xe-137	9.54E+04	7.26E-06	9.21E+00	3.70E-02	3.69E-02	2.78E-18
Xenon (54)	Xe-138	2.59E+04	2.68E-05	1.95E+00	2.86E+01	1.82E+00	5.10E-16
Yttrium (39)	Y-81	3.10E+05	2.23E-06	2.30E+00	1.26E+01	1.94E+00	2.66E-17
Yttrium (39)	Y-83	5.14E+04	1.35E-05	2.75E+00	7.77E-01	6.06E-01	5.13E-17
Yttrium (39)	Y-83m	1.28E+05	5.42E-06	2.73E+00	7.77E-01	6.05E-01	2.06E-17
Yttrium (39)	Y-84m	9.22E+03	7.52E-05	1.80E+00	2.06E+01	1.65E+00	7.89E-16
Yttrium (39)	Y-85	2.27E+03	3.06E-04	4.30E+00	1.68E+00	1.21E+00	2.38E-15
Yttrium (39)	Y-85m	1.25E+03	5.55E-04	3.94E+00	1.38E+00	1.02E+00	3.64E-15
Yttrium (39)	Y-86	4.12E+02	1.68E-03	1.97E+00	2.71E+00	1.14E+00	1.25E-14
Yttrium (39)	Y-86m	7.59E+03	9.13E-05	1.87E+00	2.58E+00	1.08E+00	6.45E-16
Yttrium (39)	Y-87	7.61E+01	9.11E-03	9.86E+00	2.86E+00	2.22E+00	1.33E-13
Yttrium (39)	Y-87m	4.54E+02	1.53E-03	7.11E+00	2.22E+00	1.69E+00	1.70E-14
Yttrium (39)	Y-88	2.37E+00	2.92E-01	2.54E+00	2.24E-01	2.06E-01	4.01E-13
Yttrium (39)	Y-89m	1.40E+06	4.97E-07	7.94E+00		7.94E+00	2.66E-17
Yttrium (39)	Y-90	9.47E+01	7.32E-03	4.18E+02	8.73E-01	8.71E-01	4.34E-14
Yttrium (39)	Y-90m	1.90E+03	3.64E-04	1.15E+01	8.17E-01	7.63E-01	1.89E-15
Yttrium (39)	Y-91	4.32E+00	1.60E-01	5.50E+02	1.56E-01	1.56E-01	1.72E-13
Yttrium (39)	Y-91m	7.33E+03	9.46E-05	1.37E+01	1.56E-01	1.54E-01	1.00E-16
Yttrium (39)	Y-92	1.71E+03	4.04E-04	2.50E+01	7.18E+00	5.58E+00	1.57E-14
Yttrium (39)	Y-93	5.96E+02	1.16E-03	5.87E+01	6.29E-02	6.28E-02	5.14E-16
Yttrium (39)	Y-94	1.95E+04	3.56E-05	8.65E+00	4.69E+01	7.30E+00	1.85E-15
Yttrium (39)	Y-95	3.54E+04	1.96E-05	2.64E+00	1.83E-01	1.71E-01	2.41E-17
Ytterbium (70)	Yb-162	1.93E+04	3.59E-05	3.26E+00	3.44E+01	2.98E+00	1.31E-15
Ytterbium (70)	Yb-163	3.30E+04	2.10E-05	3.51E+00	4.55E+00	1.98E+00	5.14E-16
Ytterbium (70)	Yb-164	4.81E+03	1.44E-04	8.86E+00	2.91E+01	6.79E+00	1.22E-14
Ytterbium (70)	Yb-165	3.68E+04	1.88E-05	8.56E+00	5.43E+00	3.32E+00	7.81E-16
Ytterbium (70)	Yb-166	1.07E+02	6.47E-03	3.47E+00	1.39E+00	9.94E-01	8.08E-14
Ytterbium (70)	Yb-167	2.08E+04	3.33E-05	2.20E+01	1.04E+00	9.97E-01	4.20E-16
Ytterbium (70)	Yb-169	7.90E+00	8.77E-02	2.78E+01	4.11E-01	4.05E-01	4.54E-13
Ytterbium (70)	Yb-175	6.04E+01	1.15E-02	1.91E+02	1.90E+00	1.89E+00	2.86E-13
Ytterbium (70)	Yb-177	3.18E+03	2.18E-04	3.11E+01	1.10E+00	1.06E+00	3.10E-15
Ytterbium (70)	Yb-178	4.92E+03	1.41E-04	4.03E+01	1.33E+01	1.00E+01	1.90E-14
Ytterbium (70)	Yb-179	4.55E+04	1.52E-05	7.24E+00	1.19E+01	4.50E+00	9.28E-16
Zinc (30)	Zn-60	1.53E+05	4.53E-06	1.29E+00	3.66E+01	1.24E+00	2.55E-17
Zinc (30)	Zn-61	2.45E+05	2.83E-06	3.02E+00	1.71E+01	2.57E+00	3.35E-17
Zinc (30)	Zn-62	6.61E+02	1.05E-03	5.05E+00	2.35E+00	1.60E+00	7.89E-15
Zinc (30)	Zn-63	9.47E+03	7.32E-05	6.62E+00	3.49E+01	5.57E+00	1.94E-15
Zinc (30)	Zn-65	1.04E+00	6.69E-01	1.21E+01	6.03E-01	5.75E-01	1.89E-12
Zinc (30)	Zn-69	6.46E+03	1.07E-04	1.65E+03	4.80E+01	4.66E+01	2.61E-14
Zinc (30)	Zn-69m	4.41E+02	1.57E-03	1.78E+01	4.35E+00	3.49E+00	2.87E-14

Farmer Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Zinc (30)	Zn-71	1.49E+05	4.66E-06	2.17E+01	.	2.17E+01	5.45E-16
Zinc (30)	Zn-71m	1.53E+03	4.52E-04	4.69E+00	7.88E+00	2.94E+00	7.14E-15
Zinc (30)	Zn-72	1.31E+02	5.31E-03	2.41E+00	6.95E-01	5.39E-01	1.56E-14
Zirconium (40)	Zr-85	4.63E+04	1.50E-05	2.19E+00	1.39E+00	8.48E-01	8.16E-17
Zirconium (40)	Zr-86	3.68E+02	1.88E-03	1.84E+00	1.41E+00	7.98E-01	9.78E-15
Zirconium (40)	Zr-87	3.61E+03	1.92E-04	3.73E+00	1.92E+00	1.27E+00	1.60E-15
Zirconium (40)	Zr-88	3.03E+00	2.28E-01	2.25E+00	1.42E-01	1.34E-01	2.03E-13
Zirconium (40)	Zr-89	7.74E+01	8.95E-03	6.25E+00	2.39E+00	1.73E+00	1.04E-13
Zirconium (40)	Zr-89m	8.75E+04	7.92E-06	4.21E+00	2.55E+00	1.59E+00	8.46E-17
Zirconium (40)	Zr-93	4.53E-07	1.53E+06	1.11E+05	6.42E-02	6.42E-02	6.92E-07
Zirconium (40)	Zr-95	3.95E+00	1.75E-01	4.84E+00	1.83E-01	1.77E-01	2.23E-13
Zirconium (40)	Zr-97	3.63E+02	1.91E-03	4.65E+00	1.26E+00	9.93E-01	1.39E-14

Farmer Biota DCCs July 2023												
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)								
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Produce	Finfish	Shellfish	Beef	Dairy	Swine	Egg	Poultry	
				Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	
Actinium (89)	Ac-223	1.73E+05	4.00E-06	.	.	.	.	.	.	.	.	
Actinium (89)	Ac-224	2.18E+03	3.17E-04	1.59E-04	1.63E-03	1.24E-03	9.40E-04	1.62E-04	1.69E-03	2.60E-03	1.44E-03	
Actinium (89)	Ac-225	2.53E+01	2.74E-02	3.84E-04	3.93E-03	3.00E-03	2.27E-03	3.91E-04	4.07E-03	6.28E-03	3.47E-03	
Actinium (89)	Ac-226	2.07E+02	3.35E-03	7.05E-06	7.23E-05	5.52E-05	4.17E-05	7.18E-06	7.49E-05	1.15E-04	6.37E-05	
Actinium (89)	Ac-227	3.18E-02	2.18E+01	3.24E-05	3.32E-04	2.53E-04	1.91E-04	3.30E-05	3.44E-04	5.30E-04	2.93E-04	
Actinium (89)	Ac-228	9.87E+02	7.02E-04	7.98E-05	8.18E-04	6.24E-04	4.72E-04	8.12E-05	8.47E-04	1.31E-03	7.21E-04	
Actinium (89)	Ac-230	1.79E+05	3.87E-06	5.81E-06	5.96E-05	4.54E-05	3.43E-05	5.91E-06	6.16E-05	9.50E-05	5.25E-05	
Actinium (89)	Ac-231	4.86E+04	1.43E-05	1.71E-05	1.75E-04	1.34E-04	1.01E-04	1.74E-05	1.81E-04	2.79E-04	1.54E-04	
Actinium (89)	Ac-232	1.84E+05	3.77E-06	9.47E-06	9.72E-05	7.42E-05	5.60E-05	9.65E-06	1.01E-04	1.55E-04	8.57E-05	
Actinium (89)	Ac-233	1.51E+05	4.60E-06	2.10E-05	2.16E-04	1.64E-04	1.24E-04	2.14E-05	2.23E-04	3.44E-04	1.90E-04	
Silver (47)	Ag-100m	1.63E+05	4.26E-06	9.96E-03	1.02E-01	7.79E-02	5.89E-02	1.01E-02	1.06E-01	1.63E-01	9.00E-02	
Silver (47)	Ag-101	3.28E+04	2.11E-05	4.19E-02	4.30E-01	3.28E-01	2.48E-01	4.27E-02	4.45E-01	6.86E-01	3.79E-01	
Silver (47)	Ag-102	2.82E+04	2.45E-05	3.77E-01	3.86E+00	2.95E+00	2.23E+00	3.84E-01	4.00E+00	6.16E+00	3.41E+00	
Silver (47)	Ag-102m	4.73E+04	1.46E-05	7.69E-01	7.89E+00	6.02E+00	4.55E+00	7.83E-01	8.16E+00	1.26E+01	6.95E+00	
Silver (47)	Ag-103	5.54E+03	1.25E-04	6.36E-02	6.52E-01	4.98E-01	3.76E-01	6.47E-02	6.75E-01	1.04E+00	5.75E-01	
Silver (47)	Ag-104	5.26E+03	1.32E-04	2.65E-01	2.71E+00	2.07E+00	1.56E+00	2.69E-01	2.81E+00	4.33E+00	2.39E+00	
Silver (47)	Ag-104m	1.09E+04	6.37E-05	2.31E-01	2.37E+00	1.81E+00	1.37E+00	2.35E-01	2.45E+00	3.78E+00	2.09E+00	
Silver (47)	Ag-105	6.13E+00	1.13E-01	3.42E-02	3.50E-01	2.67E-01	2.02E-01	3.48E-02	3.63E-01	5.59E-01	3.09E-01	
Silver (47)	Ag-105m	5.04E+04	1.38E-05	3.43E-02	3.52E-01	2.68E-01	2.03E-01	3.49E-02	3.64E-01	5.61E-01	3.10E-01	
Silver (47)	Ag-106	1.52E+04	4.56E-05	4.80E-01	4.92E+00	3.75E+00	2.84E+00	4.88E-01	5.09E+00	7.85E+00	4.34E+00	
Silver (47)	Ag-106m	3.05E+01	2.27E-02	1.10E-02	1.13E-01	8.64E-02	6.53E-02	1.12E-02	1.17E-01	1.81E-01	9.98E-02	
Silver (47)	Ag-108	1.54E+05	4.51E-06	.	.	.	.	.	.	.	.	
Silver (47)	Ag-108m	1.66E-03	4.18E+02	6.84E-03	7.02E-02	5.36E-02	4.05E-02	6.97E-03	7.27E-02	1.12E-01	6.19E-02	
Silver (47)	Ag-109m	5.52E+05	1.26E-06	.	.	.	.	.	.	.	.	
Silver (47)	Ag-110	8.88E+05	7.80E-07	.	.	.	.	.	.	.	.	
Silver (47)	Ag-110m	1.01E+00	6.84E-01	5.69E-03	5.83E-02	4.45E-02	3.36E-02	5.79E-03	6.04E-02	9.31E-02	5.14E-02	
Silver (47)	Ag-111	3.40E+01	2.04E-02	1.17E-02	1.20E-01	9.14E-02	6.90E-02	1.19E-02	1.24E-01	1.91E-01	1.06E-01	
Silver (47)	Ag-111m	3.37E+05	2.05E-06	1.18E-02	1.21E-01	9.20E-02	6.95E-02	1.20E-02	1.25E-01	1.92E-01	1.06E-01	
Silver (47)	Ag-112	1.94E+03	3.57E-04	3.52E-02	3.62E-01	2.76E-01	2.08E-01	3.59E-02	3.74E-01	5.77E-01	3.19E-01	
Silver (47)	Ag-113	1.13E+03	6.13E-04	7.53E-04	7.72E-03	5.89E-03	4.45E-03	7.66E-04	7.99E-03	1.23E-02	6.80E-03	
Silver (47)	Ag-113m	3.18E+05	2.18E-06	7.58E-04	7.78E-03	5.93E-03	4.48E-03	7.72E-04	8.05E-03	1.24E-02	6.85E-03	
Silver (47)	Ag-114	4.75E+06	1.46E-07	.	.	.	.	.	.	.	.	
Silver (47)	Ag-115	1.82E+04	3.81E-05	5.60E-04	5.74E-03	4.38E-03	3.31E-03	5.70E-04	5.94E-03	9.16E-03	5.06E-03	
Silver (47)	Ag-116	1.36E+05	5.10E-06	.	.	.	.	.	.	.	.	
Silver (47)	Ag-117	2.97E+05	2.33E-06	3.82E-02	3.92E-01	2.99E-01	2.26E-01	3.89E-02	4.05E-01	6.25E-01	3.45E-01	
Silver (47)	Ag-99	1.76E+05	3.93E-06	1.32E-01	1.36E+00	1.04E+00	7.83E-01	1.35E-01	1.41E+00	2.17E+00	1.20E+00	
Aluminum (13)	Al-26	9.67E-07	7.17E+05	4.40E-03	4.51E-02	3.44E-02	2.60E-02	4.48E-03	4.67E-02	7.20E-02	3.98E-02	

Farmer Biota DCCs July 2023												
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)								
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Produce	Finfish	Shellfish	Beef	Dairy	Swine	Egg	Poultry	
				Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	
Aluminum (13)	Al-28	1.63E+05	4.26E-06	.	.	.	.	.	.	.	.	
Aluminum (13)	Al-29	5.55E+04	1.25E-05	.	.	.	.	.	.	.	.	
Americium (95)	Am-237	4.99E+03	1.39E-04	1.86E-05	1.91E-04	1.45E-04	1.10E-04	1.89E-05	1.97E-04	3.04E-04	1.68E-04	
Americium (95)	Am-238	3.72E+03	1.86E-04	5.31E-06	5.45E-05	4.16E-05	3.14E-05	5.41E-06	5.64E-05	8.70E-05	4.81E-05	
Americium (95)	Am-239	5.10E+02	1.36E-03	1.32E-05	1.36E-04	1.04E-04	7.82E-05	1.35E-05	1.40E-04	2.16E-04	1.20E-04	
Americium (95)	Am-240	1.20E+02	5.80E-03	8.16E-06	8.37E-05	6.39E-05	4.83E-05	8.31E-06	8.66E-05	1.34E-04	7.38E-05	
Americium (95)	Am-241	1.60E-03	4.32E+02	1.52E-05	1.56E-04	1.19E-04	9.02E-05	1.55E-05	1.62E-04	2.50E-04	1.38E-04	
Americium (95)	Am-242	3.79E+02	1.83E-03	5.28E-06	5.41E-05	4.13E-05	3.12E-05	5.37E-06	5.60E-05	8.63E-05	4.77E-05	
Americium (95)	Am-242m	4.91E-03	1.41E+02	4.99E-06	5.12E-05	3.91E-05	2.95E-05	5.08E-06	5.30E-05	8.17E-05	4.52E-05	
Americium (95)	Am-243	9.40E-05	7.37E+03	1.15E-05	1.17E-04	8.96E-05	6.77E-05	1.17E-05	1.22E-04	1.87E-04	1.04E-04	
Americium (95)	Am-244	6.01E+02	1.15E-03	7.69E-06	7.89E-05	6.02E-05	4.55E-05	7.83E-06	8.17E-05	1.26E-04	6.95E-05	
Americium (95)	Am-244m	1.40E+04	4.95E-05	7.70E-06	7.89E-05	6.02E-05	4.55E-05	7.84E-06	8.17E-05	1.26E-04	6.96E-05	
Americium (95)	Am-245	2.96E+03	2.34E-04	1.28E-05	1.32E-04	1.01E-04	7.60E-05	1.31E-05	1.36E-04	2.10E-04	1.16E-04	
Americium (95)	Am-246	9.34E+03	7.42E-05	4.92E-06	5.04E-05	3.85E-05	2.91E-05	5.01E-06	5.22E-05	8.04E-05	4.44E-05	
Americium (95)	Am-246m	1.46E+04	4.76E-05	4.92E-06	5.04E-05	3.85E-05	2.91E-05	5.01E-06	5.22E-05	8.04E-05	4.44E-05	
Americium (95)	Am-247	1.58E+04	4.38E-05	1.02E-05	1.04E-04	7.96E-05	6.01E-05	1.04E-05	1.08E-04	1.66E-04	9.20E-05	
Argon (18)	Ar-37	7.22E+00	9.60E-02	.	.	.	.	.	.	.	.	
Argon (18)	Ar-39	2.58E-03	2.69E+02	.	.	.	.	.	.	.	.	
Argon (18)	Ar-41	3.32E+03	2.09E-04	.	.	.	.	.	.	.	.	
Argon (18)	Ar-42	2.11E-02	3.29E+01	3.43E-02	3.52E-01	2.68E-01	2.03E-01	3.49E-02	3.64E-01	5.61E-01	3.10E-01	
Argon (18)	Ar-43	6.78E+04	1.02E-05	6.31E-02	6.47E-01	4.94E-01	3.73E-01	6.42E-02	6.70E-01	1.03E+00	5.71E-01	
Argon (18)	Ar-44	3.07E+04	2.26E-05	1.82E-01	1.87E+00	1.42E+00	1.08E+00	1.85E-01	1.93E+00	2.98E+00	1.64E+00	
Arsenic (33)	As-68	1.44E+05	4.81E-06	1.11E-02	1.13E-01	8.66E-02	6.54E-02	1.13E-02	1.17E-01	1.81E-01	1.00E-01	
Arsenic (33)	As-69	2.39E+04	2.90E-05	6.05E-02	6.21E-01	4.74E-01	3.58E-01	6.16E-02	6.43E-01	9.90E-01	5.47E-01	
Arsenic (33)	As-70	6.92E+03	1.00E-04	1.15E-01	1.18E+00	8.98E-01	6.78E-01	1.17E-01	1.22E+00	1.88E+00	1.04E+00	
Arsenic (33)	As-71	9.30E+01	7.45E-03	3.36E-02	3.44E-01	2.63E-01	1.98E-01	3.42E-02	3.56E-01	5.49E-01	3.03E-01	
Arsenic (33)	As-72	2.33E+02	2.97E-03	8.34E-03	8.56E-02	6.53E-02	4.93E-02	8.50E-03	8.86E-02	1.37E-01	7.54E-02	
Arsenic (33)	As-73	3.15E+00	2.20E-01	5.75E-02	5.90E-01	4.50E-01	3.40E-01	5.86E-02	6.11E-01	9.41E-01	5.20E-01	
Arsenic (33)	As-74	1.42E+01	4.87E-02	1.20E-02	1.23E-01	9.41E-02	7.11E-02	1.22E-02	1.28E-01	1.97E-01	1.09E-01	
Arsenic (33)	As-76	2.35E+02	2.95E-03	9.57E-03	9.82E-02	7.49E-02	5.66E-02	9.74E-03	1.02E-01	1.57E-01	8.65E-02	
Arsenic (33)	As-77	1.56E+02	4.43E-03	3.83E-02	3.93E-01	3.00E-01	2.27E-01	3.90E-02	4.07E-01	6.27E-01	3.46E-01	
Arsenic (33)	As-78	4.02E+03	1.73E-04	7.74E-02	7.94E-01	6.06E-01	4.58E-01	7.88E-02	8.21E-01	1.27E+00	7.00E-01	
Arsenic (33)	As-79	4.04E+04	1.71E-05	4.32E-03	4.43E-02	3.38E-02	2.55E-02	4.40E-03	4.58E-02	7.06E-02	3.90E-02	
Astatine (85)	At-204	3.96E+04	1.75E-05	1.97E-02	2.03E-01	1.55E-01	1.17E-01	2.01E-02	2.10E-01	3.23E-01	1.78E-01	
Astatine (85)	At-205	1.39E+04	4.98E-05	1.31E-02	1.35E-01	1.03E-01	7.77E-02	1.34E-02	1.39E-01	2.15E-01	1.19E-01	
Astatine (85)	At-206	1.19E+04	5.82E-05	7.36E-04	7.55E-03	5.76E-03	4.35E-03	7.49E-04	7.81E-03	1.20E-02	6.65E-03	
Astatine (85)	At-207	3.37E+03	2.05E-04	1.00E-02	1.03E-01	7.84E-02	5.93E-02	1.02E-02	1.06E-01	1.64E-01	9.06E-02	



Farmer Biota DCCs July 2023												
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)								
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Produce	Finfish	Shellfish	Beef	Dairy	Swine	Egg	Poultry	
				Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	
Astatine (85)	At-208	3.72E+03	1.86E-04	9.27E-06	9.51E-05	7.26E-05	5.48E-05	9.44E-06	9.84E-05	1.52E-04	8.38E-05	
Astatine (85)	At-209	1.12E+03	6.18E-04	9.65E-06	9.90E-05	7.56E-05	5.71E-05	9.83E-06	1.03E-04	1.58E-04	8.73E-05	
Astatine (85)	At-210	7.49E+02	9.25E-04	1.16E-05	1.18E-04	9.04E-05	6.83E-05	1.18E-05	1.23E-04	1.89E-04	1.04E-04	
Astatine (85)	At-211	8.42E+02	8.24E-04	1.30E-03	1.34E-02	1.02E-02	7.71E-03	1.33E-03	1.38E-02	2.13E-02	1.18E-02	
Astatine (85)	At-215	2.19E+11	3.17E-12	.	.	.	.	.	.	.	.	
Astatine (85)	At-216	7.28E+10	9.51E-12	5.74E-02	5.88E-01	4.49E-01	3.39E-01	5.84E-02	6.09E-01	9.39E-01	5.19E-01	
Astatine (85)	At-217	6.77E+08	1.02E-09	5.89E-02	6.05E-01	4.61E-01	3.48E-01	6.00E-02	6.26E-01	9.64E-01	5.33E-01	
Astatine (85)	At-218	1.46E+07	4.76E-08	7.28E-06	7.47E-05	5.70E-05	4.31E-05	7.42E-06	7.73E-05	1.19E-04	6.59E-05	
Astatine (85)	At-219	3.90E+05	1.78E-06	7.94E-02	8.15E-01	6.22E-01	4.70E-01	8.09E-02	8.44E-01	1.30E+00	7.18E-01	
Astatine (85)	At-220	9.82E+04	7.06E-06	1.90E-03	1.94E-02	1.48E-02	1.12E-02	1.93E-03	2.01E-02	3.10E-02	1.71E-02	
Gold (79)	Au-186	3.40E+04	2.04E-05	4.65E-04	4.77E-03	3.64E-03	2.75E-03	4.73E-04	4.93E-03	7.60E-03	4.20E-03	
Gold (79)	Au-187	4.34E+04	1.60E-05	7.65E-02	7.84E-01	5.99E-01	4.52E-01	7.79E-02	8.12E-01	1.25E+00	6.91E-01	
Gold (79)	Au-190	8.51E+03	8.14E-05	3.86E-04	3.96E-03	3.02E-03	2.28E-03	3.93E-04	4.10E-03	6.31E-03	3.49E-03	
Gold (79)	Au-191	1.91E+03	3.63E-04	3.47E-02	3.55E-01	2.71E-01	2.05E-01	3.53E-02	3.68E-01	5.67E-01	3.13E-01	
Gold (79)	Au-192	1.23E+03	5.64E-04	9.22E-02	9.46E-01	7.22E-01	5.45E-01	9.39E-02	9.79E-01	1.51E+00	8.34E-01	
Gold (79)	Au-193	3.44E+02	2.01E-03	9.17E-02	9.40E-01	7.17E-01	5.42E-01	9.33E-02	9.73E-01	1.50E+00	8.29E-01	
Gold (79)	Au-193m	5.60E+06	1.24E-07	9.16E-02	9.40E-01	7.17E-01	5.42E-01	9.33E-02	9.73E-01	1.50E+00	8.28E-01	
Gold (79)	Au-194	1.60E+02	4.34E-03	3.91E-02	4.01E-01	3.06E-01	2.31E-01	3.98E-02	4.15E-01	6.40E-01	3.54E-01	
Gold (79)	Au-195	1.36E+00	5.10E-01	5.69E-02	5.83E-01	4.45E-01	3.36E-01	5.79E-02	6.04E-01	9.31E-01	5.14E-01	
Gold (79)	Au-195m	7.17E+05	9.67E-07	5.69E-02	5.83E-01	4.45E-01	3.36E-01	5.79E-02	6.04E-01	9.31E-01	5.14E-01	
Gold (79)	Au-196	4.09E+01	1.69E-02	4.45E-02	4.56E-01	3.48E-01	2.63E-01	4.53E-02	4.72E-01	7.28E-01	4.02E-01	
Gold (79)	Au-196m	6.32E+02	1.10E-03	2.06E-02	2.11E-01	1.61E-01	1.22E-01	2.09E-02	2.18E-01	3.36E-01	1.86E-01	
Gold (79)	Au-198	9.39E+01	7.38E-03	1.45E-02	1.49E-01	1.14E-01	8.59E-02	1.48E-02	1.54E-01	2.38E-01	1.31E-01	
Gold (79)	Au-198m	1.11E+02	6.22E-03	6.73E-03	6.90E-02	5.27E-02	3.98E-02	6.85E-03	7.15E-02	1.10E-01	6.09E-02	
Gold (79)	Au-199	8.06E+01	8.60E-03	3.32E-02	3.41E-01	2.60E-01	1.96E-01	3.38E-02	3.53E-01	5.43E-01	3.00E-01	
Gold (79)	Au-200	7.53E+03	9.21E-05	2.22E-01	2.28E+00	1.74E+00	1.32E+00	2.26E-01	2.36E+00	3.64E+00	2.01E+00	
Gold (79)	Au-200m	3.25E+02	2.13E-03	1.51E-02	1.55E-01	1.18E-01	8.94E-02	1.54E-02	1.60E-01	2.47E-01	1.37E-01	
Gold (79)	Au-201	1.40E+04	4.95E-05	6.17E-01	6.33E+00	4.83E+00	3.65E+00	6.29E-01	6.56E+00	1.01E+01	5.58E+00	
Gold (79)	Au-202	7.59E+05	9.13E-07	.	.	.	.	.	.	.	.	
Barium (56)	Ba-124	3.31E+04	2.09E-05	2.19E-01	2.24E+00	1.71E+00	1.29E+00	2.23E-01	2.32E+00	3.58E+00	1.98E+00	
Barium (56)	Ba-126	3.64E+03	1.90E-04	6.01E-02	6.16E-01	4.70E-01	3.55E-01	6.12E-02	6.38E-01	9.83E-01	5.43E-01	
Barium (56)	Ba-127	2.87E+04	2.42E-05	3.17E-01	3.25E+00	2.48E+00	1.87E+00	3.23E-01	3.37E+00	5.19E+00	2.87E+00	
Barium (56)	Ba-128	1.04E+02	6.66E-03	5.67E-03	5.82E-02	4.44E-02	3.35E-02	5.77E-03	6.02E-02	9.28E-02	5.13E-02	
Barium (56)	Ba-129	2.72E+03	2.55E-04	1.47E-01	1.51E+00	1.15E+00	8.68E-01	1.49E-01	1.56E+00	2.40E+00	1.33E+00	
Barium (56)	Ba-129m	2.81E+03	2.47E-04	1.24E-01	1.27E+00	9.69E-01	7.32E-01	1.26E-01	1.31E+00	2.03E+00	1.12E+00	
Barium (56)	Ba-131	2.20E+01	3.15E-02	2.97E-02	3.05E-01	2.32E-01	1.76E-01	3.02E-02	3.15E-01	4.86E-01	2.68E-01	
Barium (56)	Ba-131m	2.49E+04	2.78E-05	2.94E-02	3.02E-01	2.30E-01	1.74E-01	2.99E-02	3.12E-01	4.81E-01	2.66E-01	

Farmer Biota DCCs July 2023											
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)							
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Produce	Finfish	Shellfish	Beef	Dairy	Swine	Egg	Poultry
				Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)
Barium (56)	Ba-133	6.59E-02	1.05E+01	8.28E-03	8.49E-02	6.48E-02	4.89E-02	8.43E-03	8.79E-02	1.35E-01	7.48E-02
Barium (56)	Ba-133m	1.56E+02	4.44E-03	6.39E-03	6.56E-02	5.00E-02	3.78E-02	6.51E-03	6.79E-02	1.05E-01	5.78E-02
Barium (56)	Ba-135m	2.12E+02	3.28E-03	3.57E-02	3.66E-01	2.79E-01	2.11E-01	3.63E-02	3.79E-01	5.84E-01	3.23E-01
Barium (56)	Ba-137m	1.43E+05	4.86E-06	.	.	.	.	.	.	.	.
Barium (56)	Ba-139	4.39E+03	1.58E-04	1.23E-01	1.26E+00	9.64E-01	7.28E-01	1.25E-01	1.31E+00	2.01E+00	1.11E+00
Barium (56)	Ba-140	1.98E+01	3.49E-02	3.20E-03	3.29E-02	2.51E-02	1.90E-02	3.26E-03	3.40E-02	5.24E-02	2.90E-02
Barium (56)	Ba-141	1.99E+04	3.48E-05	1.27E-02	1.31E-01	9.96E-02	7.53E-02	1.30E-02	1.35E-01	2.08E-01	1.15E-01
Barium (56)	Ba-142	3.44E+04	2.02E-05	7.33E-02	7.52E-01	5.74E-01	4.33E-01	7.46E-02	7.78E-01	1.20E+00	6.62E-01
Beryllium (4)	Be-10	4.59E-07	1.51E+06	1.29E-02	1.33E-01	1.01E-01	7.65E-02	1.32E-02	1.37E-01	2.12E-01	1.17E-01
Beryllium (4)	Be-7	4.75E+00	1.46E-01	5.80E-01	5.95E+00	4.54E+00	3.43E+00	5.91E-01	6.16E+00	9.49E+00	5.25E+00
Bismuth (83)	Bi-197	3.92E+04	1.77E-05	5.13E-02	5.26E-01	4.01E-01	3.03E-01	5.22E-02	5.44E-01	8.39E-01	4.64E-01
Bismuth (83)	Bi-200	1.00E+04	6.93E-05	2.54E-02	2.61E-01	1.99E-01	1.50E-01	2.59E-02	2.70E-01	4.16E-01	2.30E-01
Bismuth (83)	Bi-201	3.37E+03	2.05E-04	4.27E-02	4.38E-01	3.34E-01	2.52E-01	4.35E-02	4.53E-01	6.99E-01	3.86E-01
Bismuth (83)	Bi-202	3.53E+03	1.96E-04	9.36E-04	9.60E-03	7.32E-03	5.53E-03	9.53E-04	9.93E-03	1.53E-02	8.46E-03
Bismuth (83)	Bi-203	5.16E+02	1.34E-03	2.16E-02	2.22E-01	1.69E-01	1.28E-01	2.20E-02	2.30E-01	3.54E-01	1.96E-01
Bismuth (83)	Bi-204	5.41E+02	1.28E-03	2.77E-02	2.85E-01	2.17E-01	1.64E-01	2.82E-02	2.95E-01	4.54E-01	2.51E-01
Bismuth (83)	Bi-205	1.65E+01	4.19E-02	1.34E-02	1.38E-01	1.05E-01	7.95E-02	1.37E-02	1.43E-01	2.20E-01	1.22E-01
Bismuth (83)	Bi-206	4.05E+01	1.71E-02	8.17E-03	8.39E-02	6.40E-02	4.83E-02	8.32E-03	8.68E-02	1.34E-01	7.39E-02
Bismuth (83)	Bi-207	2.11E-02	3.29E+01	1.22E-02	1.26E-01	9.58E-02	7.24E-02	1.25E-02	1.30E-01	2.00E-01	1.11E-01
Bismuth (83)	Bi-208	1.88E-06	3.68E+05	1.40E-02	1.44E-01	1.10E-01	8.29E-02	1.43E-02	1.49E-01	2.29E-01	1.27E-01
Bismuth (83)	Bi-210	5.05E+01	1.37E-02	1.15E-05	1.18E-04	9.02E-05	6.82E-05	1.17E-05	1.22E-04	1.89E-04	1.04E-04
Bismuth (83)	Bi-210m	2.28E-07	3.04E+06	1.00E-03	1.03E-02	7.86E-03	5.94E-03	1.02E-03	1.07E-02	1.64E-02	9.08E-03
Bismuth (83)	Bi-211	1.70E+05	4.07E-06	.	.	.	.	.	.	.	.
Bismuth (83)	Bi-212	6.02E+03	1.15E-04	5.74E-02	5.88E-01	4.49E-01	3.39E-01	5.84E-02	6.09E-01	9.39E-01	5.19E-01
Bismuth (83)	Bi-212n	5.20E+04	1.33E-05	.	.	.	.	.	.	.	.
Bismuth (83)	Bi-213	7.99E+03	8.67E-05	5.89E-02	6.04E-01	4.61E-01	3.48E-01	6.00E-02	6.26E-01	9.64E-01	5.33E-01
Bismuth (83)	Bi-214	1.83E+04	3.79E-05	7.28E-06	7.47E-05	5.70E-05	4.31E-05	7.42E-06	7.73E-05	1.19E-04	6.59E-05
Bismuth (83)	Bi-215	4.79E+04	1.45E-05	7.71E-02	7.91E-01	6.03E-01	4.56E-01	7.85E-02	8.18E-01	1.26E+00	6.97E-01
Bismuth (83)	Bi-216	1.68E+05	4.13E-06	1.90E-03	1.94E-02	1.48E-02	1.12E-02	1.93E-03	2.01E-02	3.10E-02	1.71E-02
Berkelium (97)	Bk-245	5.12E+01	1.35E-02	1.28E-05	1.32E-04	1.01E-04	7.60E-05	1.31E-05	1.36E-04	2.10E-04	1.16E-04
Berkelium (97)	Bk-246	1.41E+02	4.93E-03	4.92E-06	5.04E-05	3.85E-05	2.91E-05	5.00E-06	5.22E-05	8.04E-05	4.44E-05
Berkelium (97)	Bk-247	5.02E-04	1.38E+03	9.15E-06	9.39E-05	7.16E-05	5.41E-05	9.32E-06	9.72E-05	1.50E-04	8.28E-05
Berkelium (97)	Bk-248m	2.56E+02	2.71E-03	6.97E-06	7.15E-05	5.46E-05	4.12E-05	7.10E-06	7.40E-05	1.14E-04	6.30E-05
Berkelium (97)	Bk-249	7.67E-01	9.04E-01	1.00E-05	1.03E-04	7.83E-05	5.92E-05	1.02E-05	1.06E-04	1.64E-04	9.04E-05
Berkelium (97)	Bk-250	1.89E+03	3.67E-04	4.67E-06	4.79E-05	3.65E-05	2.76E-05	4.75E-06	4.96E-05	7.64E-05	4.22E-05
Berkelium (97)	Bk-251	6.55E+03	1.06E-04	8.27E-06	8.49E-05	6.48E-05	4.89E-05	8.42E-06	8.79E-05	1.35E-04	7.48E-05
Bromine (35)	Br-72	2.78E+05	2.49E-06	1.90E-03	1.94E-02	1.48E-02	1.12E-02	1.93E-03	2.01E-02	3.10E-02	1.71E-02

Farmer Biota DCCs July 2023												
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)								
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Produce	Finfish	Shellfish	Beef	Dairy	Swine	Egg	Poultry	
				Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	
Bromine (35)	Br-73	1.07E+05	6.47E-06	3.42E-02	3.51E-01	2.68E-01	2.03E-01	3.49E-02	3.64E-01	5.60E-01	3.10E-01	
Bromine (35)	Br-74	1.43E+04	4.83E-05	1.89E-01	1.94E+00	1.48E+00	1.12E+00	1.92E-01	2.00E+00	3.09E+00	1.71E+00	
Bromine (35)	Br-74m	7.92E+03	8.75E-05	1.15E-01	1.18E+00	8.98E-01	6.78E-01	1.17E-01	1.22E+00	1.88E+00	1.04E+00	
Bromine (35)	Br-75	3.77E+03	1.84E-04	5.85E-03	6.00E-02	4.58E-02	3.46E-02	5.95E-03	6.21E-02	9.57E-02	5.29E-02	
Bromine (35)	Br-76	3.75E+02	1.85E-03	3.41E-02	3.50E-01	2.67E-01	2.02E-01	3.47E-02	3.62E-01	5.58E-01	3.08E-01	
Bromine (35)	Br-76m	1.67E+07	4.15E-08	3.42E-02	3.51E-01	2.68E-01	2.02E-01	3.48E-02	3.63E-01	5.60E-01	3.09E-01	
Bromine (35)	Br-77	1.06E+02	6.51E-03	1.68E-01	1.73E+00	1.32E+00	9.95E-01	1.71E-01	1.79E+00	2.75E+00	1.52E+00	
Bromine (35)	Br-77m	8.51E+04	8.14E-06	1.68E-01	1.73E+00	1.32E+00	9.95E-01	1.71E-01	1.79E+00	2.75E+00	1.52E+00	
Bromine (35)	Br-78	5.64E+04	1.23E-05	4.83E-01	4.96E+00	3.78E+00	2.86E+00	4.92E-01	5.13E+00	7.90E+00	4.37E+00	
Bromine (35)	Br-80	2.06E+04	3.36E-05	1.03E-01	1.05E+00	8.03E-01	6.07E-01	1.04E-01	1.09E+00	1.68E+00	9.28E-01	
Bromine (35)	Br-80m	1.37E+03	5.05E-04	2.99E-02	3.07E-01	2.34E-01	1.77E-01	3.05E-02	3.18E-01	4.90E-01	2.70E-01	
Bromine (35)	Br-82	1.72E+02	4.03E-03	3.06E-02	3.14E-01	2.40E-01	1.81E-01	3.12E-02	3.25E-01	5.02E-01	2.77E-01	
Bromine (35)	Br-82m	5.94E+04	1.17E-05	3.38E-01	3.46E+00	2.64E+00	2.00E+00	3.44E-01	3.59E+00	5.53E+00	3.05E+00	
Bromine (35)	Br-83	2.53E+03	2.74E-04	1.71E-01	1.76E+00	1.34E+00	1.01E+00	1.74E-01	1.82E+00	2.80E+00	1.55E+00	
Bromine (35)	Br-84	1.15E+04	6.05E-05	6.07E+04	1.14E-05	.	.	.	.	.	.	
Bromine (35)	Br-84m	6.07E+04	1.14E-05	.	.	.	.	.	.	.	.	
Bromine (35)	Br-85	1.26E+05	5.52E-06	.	.	.	.	.	.	.	.	
Carbon (6)	C-10	1.14E+06	6.11E-07	6.51E-01	6.68E+00	5.10E+00	3.85E+00	6.63E-01	6.92E+00	1.07E+01	5.89E+00	
Carbon (6)	C-11	1.79E+04	3.88E-05	3.19E-02	3.27E-01	2.50E-01	1.89E-01	3.25E-02	3.39E-01	5.22E-01	2.88E-01	
Carbon (6)	C-14	1.22E-04	5.70E+03	6.82E-02	7.00E-01	5.34E-01	4.03E-01	6.95E-02	7.24E-01	1.12E+00	6.17E-01	
Calcium (20)	Ca-41	6.79E-06	1.02E+05	1.94E-02	1.99E-01	1.52E-01	1.15E-01	1.98E-02	2.06E-01	3.18E-01	1.76E-01	
Calcium (20)	Ca-45	1.55E+00	4.46E-01	7.22E-03	7.41E-02	5.65E-02	4.27E-02	7.35E-03	7.67E-02	1.18E-01	6.53E-02	
Calcium (20)	Ca-47	5.58E+01	1.24E-02	1.84E-01	1.88E+00	1.44E+00	1.09E+00	1.87E-01	1.95E+00	3.00E+00	1.66E+00	
Calcium (20)	Ca-49	4.18E+04	1.66E-05	4.19E-02	4.30E-01	3.28E-01	2.48E-01	4.27E-02	4.45E-01	6.86E-01	3.79E-01	
Cadmium (48)	Cd-101	2.68E+05	2.59E-06	7.28E-01	7.47E+00	5.70E+00	4.31E+00	7.41E-01	7.73E+00	1.19E+01	6.58E+00	
Cadmium (48)	Cd-102	6.62E+04	1.05E-05	6.36E-02	6.52E-01	4.98E-01	3.76E-01	6.47E-02	6.75E-01	1.04E+00	5.75E-01	
Cadmium (48)	Cd-103	4.99E+04	1.39E-05	9.12E-02	9.35E-01	7.14E-01	5.39E-01	9.28E-02	9.68E-01	1.49E+00	8.24E-01	
Cadmium (48)	Cd-104	6.31E+03	1.10E-04	3.14E-02	3.22E-01	2.45E-01	1.85E-01	3.19E-02	3.33E-01	5.13E-01	2.83E-01	
Cadmium (48)	Cd-105	6.56E+03	1.06E-04	2.35E-01	2.41E+00	1.84E+00	1.39E+00	2.39E-01	2.50E+00	3.85E+00	2.13E+00	
Cadmium (48)	Cd-107	9.34E+02	7.42E-04	8.01E-03	8.22E-02	6.27E-02	4.74E-02	8.16E-03	8.51E-02	1.31E-01	7.24E-02	
Cadmium (48)	Cd-109	5.48E-01	1.26E+00	1.12E+00	1.14E+01	8.73E+00	6.60E+00	1.14E+00	1.18E+01	1.83E+01	1.01E+01	
Cadmium (48)	Cd-111m	7.51E+03	9.23E-05	7.68E-04	7.88E-03	6.01E-03	4.54E-03	7.82E-04	8.15E-03	1.26E-02	6.94E-03	
Cadmium (48)	Cd-113	9.00E-17	7.70E+15	7.85E-04	8.05E-03	6.14E-03	4.64E-03	7.99E-04	8.33E-03	1.28E-02	7.09E-03	
Cadmium (48)	Cd-113m	4.91E-02	1.41E+01	5.65E-04	5.80E-03	4.42E-03	3.34E-03	5.75E-04	6.00E-03	9.24E-03	5.11E-03	
Cadmium (48)	Cd-115	1.14E+02	6.10E-03	5.07E-04	5.20E-03	3.97E-03	3.00E-03	5.16E-04	5.38E-03	8.29E-03	4.58E-03	
Cadmium (48)	Cd-115m	5.67E+00	1.22E-01	3.68E-02	3.77E-01	2.88E-01	2.17E-01	3.74E-02	3.90E-01	6.02E-01	3.32E-01	
Cadmium (48)	Cd-117	2.44E+03	2.84E-04	.	.	.	.	.	.	.	.	

Farmer Biota DCCs July 2023												
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)								
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Produce	Finfish	Shellfish	Beef	Dairy	Swine	Egg	Poultry	
				Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	
Cadmium (48)	Cd-117m	1.81E+03	3.84E-04	4.85E-02	4.98E-01	3.80E-01	2.87E-01	4.94E-02	5.15E-01	7.94E-01	4.39E-01	
Cadmium (48)	Cd-118	7.24E+03	9.57E-05	8.08E-02	8.29E-01	6.32E-01	4.78E-01	8.22E-02	8.58E-01	1.32E+00	7.30E-01	
Cadmium (48)	Cd-119	1.35E+05	5.12E-06	3.57E-01	3.66E+00	2.80E+00	2.11E+00	3.64E-01	3.79E+00	5.84E+00	3.23E+00	
Cadmium (48)	Cd-119m	1.66E+05	4.19E-06	4.26E+00	4.37E+01	3.34E+01	2.52E+01	4.34E+00	4.52E+01	6.97E+01	3.85E+01	
Cerium (58)	Ce-130	1.59E+04	4.36E-05	2.15E-01	2.21E+00	1.69E+00	1.27E+00	2.19E-01	2.29E+00	3.53E+00	1.95E+00	
Cerium (58)	Ce-131	3.57E+04	1.94E-05	2.66E-02	2.72E-01	2.08E-01	1.57E-01	2.70E-02	2.82E-01	4.35E-01	2.40E-01	
Cerium (58)	Ce-132	1.73E+03	4.01E-04	2.05E-02	2.11E-01	1.61E-01	1.21E-01	2.09E-02	2.18E-01	3.36E-01	1.86E-01	
Cerium (58)	Ce-133	3.76E+03	1.85E-04	7.76E-03	7.96E-02	6.07E-02	4.59E-02	7.90E-03	8.24E-02	1.27E-01	7.01E-02	
Cerium (58)	Ce-133m	1.24E+03	5.59E-04	7.34E-03	7.53E-02	5.75E-02	4.34E-02	7.47E-03	7.79E-02	1.20E-01	6.64E-02	
Cerium (58)	Ce-134	8.00E+01	8.66E-03	5.56E-03	5.71E-02	4.35E-02	3.29E-02	5.66E-03	5.91E-02	9.10E-02	5.03E-02	
Cerium (58)	Ce-135	3.43E+02	2.02E-03	5.37E-02	5.51E-01	4.20E-01	3.17E-01	5.46E-02	5.70E-01	8.78E-01	4.85E-01	
Cerium (58)	Ce-137	6.75E+02	1.03E-03	1.38E-01	1.41E+00	1.08E+00	8.14E-01	1.40E-01	1.46E+00	2.25E+00	1.24E+00	
Cerium (58)	Ce-137m	1.76E+02	3.93E-03	2.23E-02	2.29E-01	1.75E-01	1.32E-01	2.27E-02	2.37E-01	3.65E-01	2.02E-01	
Cerium (58)	Ce-139	1.84E+00	3.77E-01	5.77E-02	5.92E-01	4.52E-01	3.41E-01	5.87E-02	6.13E-01	9.44E-01	5.22E-01	
Cerium (58)	Ce-141	7.78E+00	8.91E-02	2.06E-02	2.12E-01	1.62E-01	1.22E-01	2.10E-02	2.19E-01	3.38E-01	1.87E-01	
Cerium (58)	Ce-143	1.84E+02	3.77E-03	6.39E-03	6.56E-02	5.00E-02	3.78E-02	6.51E-03	6.78E-02	1.05E-01	5.78E-02	
Cerium (58)	Ce-144	8.88E-01	7.81E-01	3.36E-04	3.45E-03	2.63E-03	1.99E-03	3.42E-04	3.57E-03	5.50E-03	3.04E-03	
Cerium (58)	Ce-145	1.21E+05	5.73E-06	3.71E-02	3.81E-01	2.91E-01	2.20E-01	3.78E-02	3.94E-01	6.07E-01	3.36E-01	
Californium (98)	Cf-244	1.88E+04	3.69E-05	2.60E-05	2.67E-04	2.04E-04	1.54E-04	2.65E-05	2.76E-04	4.26E-04	2.35E-04	
Californium (98)	Cf-246	1.70E+02	4.08E-03	5.28E-06	5.42E-05	4.13E-05	3.12E-05	5.38E-06	5.61E-05	8.64E-05	4.78E-05	
Californium (98)	Cf-247	1.95E+03	3.55E-04	9.15E-06	9.39E-05	7.16E-05	5.41E-05	9.32E-06	9.72E-05	1.50E-04	8.28E-05	
Californium (98)	Cf-248	7.57E-01	9.15E-01	7.56E-06	7.75E-05	5.92E-05	4.47E-05	7.70E-06	8.02E-05	1.24E-04	6.83E-05	
Californium (98)	Cf-249	1.97E-03	3.51E+02	1.00E-05	1.03E-04	7.84E-05	5.92E-05	1.02E-05	1.06E-04	1.64E-04	9.05E-05	
Californium (98)	Cf-250	5.30E-02	1.31E+01	4.67E-06	4.79E-05	3.65E-05	2.76E-05	4.75E-06	4.96E-05	7.64E-05	4.22E-05	
Californium (98)	Cf-251	7.70E-04	9.00E+02	8.27E-06	8.49E-05	6.48E-05	4.89E-05	8.42E-06	8.79E-05	1.35E-04	7.48E-05	
Californium (98)	Cf-252	2.62E-01	2.65E+00	5.83E-06	5.98E-05	4.56E-05	3.45E-05	5.94E-06	6.19E-05	9.54E-05	5.27E-05	
Californium (98)	Cf-253	1.42E+01	4.88E-02	9.94E-06	1.02E-04	7.78E-05	5.88E-05	1.01E-05	1.06E-04	1.63E-04	8.99E-05	
Californium (98)	Cf-254	4.18E+00	1.66E-01	3.23E-05	3.32E-04	2.53E-04	1.91E-04	3.29E-05	3.43E-04	5.29E-04	2.92E-04	
Californium (98)	Cf-255	4.29E+03	1.62E-04	8.23E-06	8.44E-05	6.44E-05	4.87E-05	8.38E-06	8.74E-05	1.35E-04	7.44E-05	
Chlorine (17)	Cl-34	1.43E+07	4.84E-08									
Chlorine (17)	Cl-34m	1.14E+04	6.09E-05	1.47E-01	1.51E+00	1.15E+00	8.72E-01	1.50E-01	1.56E+00	2.41E+00	1.33E+00	
Chlorine (17)	Cl-36	2.30E-06	3.01E+05	1.63E-02	1.67E-01	1.27E-01	9.63E-02	1.66E-02	1.73E-01	2.66E-01	1.47E-01	
Chlorine (17)	Cl-38	9.78E+03	7.09E-05	1.29E-01	1.33E+00	1.01E+00	7.65E-01	1.32E-01	1.37E+00	2.12E+00	1.17E+00	
Chlorine (17)	Cl-39	6.55E+03	1.06E-04	1.79E-01	1.83E+00	1.40E+00	1.06E+00	1.82E-01	1.90E+00	2.92E+00	1.62E+00	
Chlorine (17)	Cl-40	2.70E+05	2.57E-06									
Curium (96)	Cm-238	2.53E+03	2.74E-04	5.33E-06	5.47E-05	4.17E-05	3.15E-05	5.43E-06	5.66E-05	8.72E-05	4.82E-05	
Curium (96)	Cm-239	2.09E+03	3.31E-04	1.32E-05	1.36E-04	1.04E-04	7.82E-05	1.35E-05	1.40E-04	2.16E-04	1.20E-04	



Farmer Biota DCCs July 2023												
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)								
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Produce	Finfish	Shellfish	Beef	Dairy	Swine	Egg	Poultry	
				Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	
Curium (96)	Cm-240	9.37E+00	7.40E-02	2.60E-05	2.67E-04	2.04E-04	1.54E-04	2.65E-05	2.76E-04	4.26E-04	2.35E-04	
Curium (96)	Cm-241	7.71E+00	8.99E-02	1.53E-05	1.57E-04	1.19E-04	9.03E-05	1.55E-05	1.62E-04	2.50E-04	1.38E-04	
Curium (96)	Cm-242	1.55E+00	4.46E-01	5.29E-06	5.42E-05	4.14E-05	3.13E-05	5.38E-06	5.61E-05	8.65E-05	4.78E-05	
Curium (96)	Cm-243	2.38E-02	2.91E+01	1.18E-05	1.21E-04	9.26E-05	7.00E-05	1.20E-05	1.26E-04	1.94E-04	1.07E-04	
Curium (96)	Cm-244	3.83E-02	1.81E+01	7.69E-06	7.89E-05	6.02E-05	4.55E-05	7.83E-06	8.17E-05	1.26E-04	6.96E-05	
Curium (96)	Cm-245	8.15E-05	8.50E+03	1.28E-05	1.32E-04	1.01E-04	7.60E-05	1.31E-05	1.36E-04	2.10E-04	1.16E-04	
Curium (96)	Cm-246	1.46E-04	4.76E+03	4.92E-06	5.04E-05	3.85E-05	2.91E-05	5.01E-06	5.22E-05	8.04E-05	4.45E-05	
Curium (96)	Cm-247	4.44E-08	1.56E+07	1.02E-05	1.04E-04	7.96E-05	6.01E-05	1.04E-05	1.08E-04	1.66E-04	9.20E-05	
Curium (96)	Cm-248	1.99E-06	3.48E+05	5.91E-06	6.06E-05	4.62E-05	3.49E-05	6.01E-06	6.27E-05	9.67E-05	5.34E-05	
Curium (96)	Cm-249	5.68E+03	1.22E-04	1.00E-05	1.03E-04	7.83E-05	5.92E-05	1.02E-05	1.06E-04	1.64E-04	9.04E-05	
Curium (96)	Cm-250	8.35E-05	8.30E+03	2.78E-06	2.85E-05	2.18E-05	1.64E-05	2.83E-06	2.95E-05	4.55E-05	2.51E-05	
Curium (96)	Cm-251	2.17E+04	3.20E-05	8.27E-06	8.49E-05	6.48E-05	4.89E-05	8.42E-06	8.78E-05	1.35E-04	7.48E-05	
Cobalt (27)	Co-54m	2.46E+05	2.82E-06	.	.	.	.	.	.	.	.	
Cobalt (27)	Co-55	3.46E+02	2.00E-03	1.11E-02	1.14E-01	8.68E-02	6.56E-02	1.13E-02	1.18E-01	1.81E-01	1.00E-01	
Cobalt (27)	Co-56	3.28E+00	2.12E-01	5.87E-03	6.02E-02	4.59E-02	3.47E-02	5.98E-03	6.23E-02	9.61E-02	5.31E-02	
Cobalt (27)	Co-57	9.31E-01	7.44E-01	6.45E-02	6.62E-01	5.05E-01	3.81E-01	6.57E-02	6.85E-01	1.06E+00	5.83E-01	
Cobalt (27)	Co-58	3.57E+00	1.94E-01	2.00E-02	2.05E-01	1.56E-01	1.18E-01	2.04E-02	2.12E-01	3.27E-01	1.81E-01	
Cobalt (27)	Co-58m	6.72E+02	1.03E-03	1.94E-02	1.99E-01	1.52E-01	1.15E-01	1.97E-02	2.06E-01	3.17E-01	1.75E-01	
Cobalt (27)	Co-60	1.31E-01	5.27E+00	3.68E-03	3.77E-02	2.88E-02	2.18E-02	3.74E-03	3.91E-02	6.02E-02	3.33E-02	
Cobalt (27)	Co-60m	3.48E+04	1.99E-05	3.69E-03	3.78E-02	2.88E-02	2.18E-02	3.75E-03	3.91E-02	6.03E-02	3.33E-02	
Cobalt (27)	Co-61	3.68E+03	1.88E-04	2.02E-01	2.07E+00	1.58E+00	1.19E+00	2.06E-01	2.14E+00	3.30E+00	1.83E+00	
Cobalt (27)	Co-62	2.43E+05	2.85E-06	.	.	.	.	.	.	.	.	
Cobalt (27)	Co-62m	2.62E+04	2.65E-05	3.12E-01	3.20E+00	2.44E+00	1.84E+00	3.17E-01	3.31E+00	5.10E+00	2.82E+00	
Chromium (24)	Cr-48	2.82E+02	2.46E-03	7.24E-03	7.43E-02	5.67E-02	4.28E-02	7.38E-03	7.69E-02	1.19E-01	6.55E-02	
Chromium (24)	Cr-49	8.61E+03	8.05E-05	1.89E-01	1.94E+00	1.48E+00	1.12E+00	1.93E-01	2.01E+00	3.10E+00	1.71E+00	
Chromium (24)	Cr-51	9.13E+00	7.59E-02	4.01E-01	4.12E+00	3.14E+00	2.37E+00	4.09E-01	4.26E+00	6.57E+00	3.63E+00	
Chromium (24)	Cr-55	1.04E+05	6.65E-06	.	.	.	.	.	.	.	.	
Chromium (24)	Cr-56	6.13E+04	1.13E-05	5.92E-02	6.07E-01	4.64E-01	3.50E-01	6.03E-02	6.29E-01	9.69E-01	5.35E-01	
Cesium (55)	Cs-121	1.41E+05	4.92E-06	3.00E-02	3.08E-01	2.35E-01	1.77E-01	3.05E-02	3.18E-01	4.91E-01	2.71E-01	
Cesium (55)	Cs-121m	1.79E+05	3.87E-06	3.00E-02	3.08E-01	2.35E-01	1.77E-01	3.05E-02	3.18E-01	4.91E-01	2.71E-01	
Cesium (55)	Cs-123	6.19E+04	1.12E-05	1.11E-02	1.14E-01	8.71E-02	6.58E-02	1.13E-02	1.18E-01	1.82E-01	1.01E-01	
Cesium (55)	Cs-124	7.10E+05	9.77E-07	.	.	.	.	.	.	.	.	
Cesium (55)	Cs-125	8.09E+03	8.56E-05	1.07E-03	1.09E-02	8.34E-03	6.30E-03	1.09E-03	1.13E-02	1.74E-02	9.64E-03	
Cesium (55)	Cs-126	2.22E+05	3.12E-06	.	.	.	.	.	.	.	.	
Cesium (55)	Cs-127	9.71E+02	7.13E-04	6.53E-01	6.70E+00	5.12E+00	3.86E+00	6.65E-01	6.94E+00	1.07E+01	5.91E+00	
Cesium (55)	Cs-128	1.00E+05	6.93E-06	.	.	.	.	.	.	.	.	
Cesium (55)	Cs-129	1.89E+02	3.66E-03	2.69E-01	2.76E+00	2.11E+00	1.59E+00	2.74E-01	2.86E+00	4.41E+00	2.43E+00	

Farmer Biota DCCs July 2023												
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)								
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Produce	Finfish	Shellfish	Beef	Dairy	Swine	Egg	Poultry	
				Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	
Cesium (55)	Cs-130	1.25E+04	5.56E-05	5.67E-01	5.82E+00	4.44E+00	3.35E+00	5.77E-01	6.02E+00	9.28E+00	5.13E+00	
Cesium (55)	Cs-130m	1.05E+05	6.58E-06	5.68E-01	5.83E+00	4.45E+00	3.36E+00	5.78E-01	6.03E+00	9.30E+00	5.14E+00	
Cesium (55)	Cs-131	2.61E+01	2.65E-02	2.80E-01	2.87E+00	2.19E+00	1.65E+00	2.85E-01	2.97E+00	4.58E+00	2.53E+00	
Cesium (55)	Cs-132	3.90E+01	1.78E-02	3.37E-02	3.45E-01	2.63E-01	1.99E-01	3.43E-02	3.57E-01	5.51E-01	3.04E-01	
Cesium (55)	Cs-134	3.36E-01	2.06E+00	1.08E-03	1.11E-02	8.45E-03	6.39E-03	1.10E-03	1.15E-02	1.77E-02	9.76E-03	
Cesium (55)	Cs-134m	2.09E+03	3.31E-04	1.08E-03	1.11E-02	8.44E-03	6.38E-03	1.10E-03	1.14E-02	1.76E-02	9.75E-03	
Cesium (55)	Cs-135	3.01E-07	2.30E+06	7.65E-03	7.85E-02	5.99E-02	4.52E-02	7.79E-03	8.12E-02	1.25E-01	6.92E-02	
Cesium (55)	Cs-135m	6.87E+03	1.01E-04	7.58E-03	7.78E-02	5.93E-02	4.48E-02	7.72E-03	8.05E-02	1.24E-01	6.85E-02	
Cesium (55)	Cs-136	1.92E+01	3.61E-02	5.85E-03	6.00E-02	4.58E-02	3.46E-02	5.96E-03	6.21E-02	9.58E-02	5.29E-02	
Cesium (55)	Cs-137	2.30E-02	3.02E+01	1.52E-03	1.56E-02	1.19E-02	8.98E-03	1.55E-03	1.61E-02	2.48E-02	1.37E-02	
Cesium (55)	Cs-138	1.09E+04	6.36E-05	1.58E-01	1.62E+00	1.23E+00	9.33E-01	1.61E-01	1.67E+00	2.58E+00	1.43E+00	
Cesium (55)	Cs-138m	1.25E+05	5.54E-06	1.95E-01	2.00E+00	1.52E+00	1.15E+00	1.98E-01	2.07E+00	3.19E+00	1.76E+00	
Cesium (55)	Cs-139	3.93E+04	1.76E-05	1.23E-01	1.26E+00	9.64E-01	7.28E-01	1.25E-01	1.31E+00	2.01E+00	1.11E+00	
Cesium (55)	Cs-140	3.43E+05	2.02E-06	3.20E-03	3.29E-02	2.51E-02	1.90E-02	3.26E-03	3.40E-02	5.24E-02	2.90E-02	
Copper (29)	Cu-57	1.11E+08	6.22E-09	1.36E-02	1.40E-01	1.07E-01	8.05E-02	1.39E-02	1.45E-01	2.23E-01	1.23E-01	
Copper (29)	Cu-59	2.68E+05	2.58E-06	2.54E-01	2.60E+00	1.99E+00	1.50E+00	2.58E-01	2.69E+00	4.15E+00	2.29E+00	
Copper (29)	Cu-60	1.54E+04	4.51E-05	2.16E-01	2.22E+00	1.69E+00	1.28E+00	2.20E-01	2.30E+00	3.54E+00	1.96E+00	
Copper (29)	Cu-61	1.82E+03	3.80E-04	1.36E-01	1.39E+00	1.06E+00	8.01E-01	1.38E-01	1.44E+00	2.22E+00	1.23E+00	
Copper (29)	Cu-62	3.77E+04	1.84E-05	.	.	.	.	.	.	.	.	
Copper (29)	Cu-64	4.78E+02	1.45E-03	1.27E-01	1.30E+00	9.94E-01	7.51E-01	1.29E-01	1.35E+00	2.08E+00	1.15E+00	
Copper (29)	Cu-66	7.11E+04	9.74E-06	.	.	.	.	.	.	.	.	
Copper (29)	Cu-67	9.82E+01	7.06E-03	4.64E-02	4.76E-01	3.63E-01	2.75E-01	4.73E-02	4.93E-01	7.60E-01	4.20E-01	
Copper (29)	Cu-69	1.28E+05	5.42E-06	4.88E-01	5.00E+00	3.82E+00	2.88E+00	4.97E-01	5.18E+00	7.98E+00	4.41E+00	
Dysprosium (66)	Dy-148	1.10E+05	6.28E-06	2.80E-04	2.87E-03	2.19E-03	1.66E-03	2.85E-04	2.98E-03	4.59E-03	2.53E-03	
Dysprosium (66)	Dy-149	8.67E+04	7.99E-06	1.84E-02	1.89E-01	1.44E-01	1.09E-01	1.87E-02	1.95E-01	3.01E-01	1.66E-01	
Dysprosium (66)	Dy-150	5.08E+04	1.36E-05	1.76E-04	1.81E-03	1.38E-03	1.04E-03	1.79E-04	1.87E-03	2.88E-03	1.59E-03	
Dysprosium (66)	Dy-151	2.03E+04	3.41E-05	4.58E-03	4.70E-02	3.58E-02	2.71E-02	4.66E-03	4.86E-02	7.49E-02	4.14E-02	
Dysprosium (66)	Dy-152	2.55E+03	2.72E-04	1.25E-04	1.28E-03	9.76E-04	7.37E-04	1.27E-04	1.32E-03	2.04E-03	1.13E-03	
Dysprosium (66)	Dy-153	9.49E+02	7.31E-04	2.05E-02	2.10E-01	1.61E-01	1.21E-01	2.09E-02	2.18E-01	3.36E-01	1.86E-01	
Dysprosium (66)	Dy-154	2.31E-07	3.00E+06	9.59E-05	9.84E-04	7.51E-04	5.67E-04	9.76E-05	1.02E-03	1.57E-03	8.67E-04	
Dysprosium (66)	Dy-155	6.13E+02	1.13E-03	3.77E-02	3.87E-01	2.95E-01	2.23E-01	3.84E-02	4.01E-01	6.18E-01	3.41E-01	
Dysprosium (66)	Dy-157	7.46E+02	9.29E-04	1.55E-01	1.59E+00	1.21E+00	9.16E-01	1.58E-01	1.65E+00	2.54E+00	1.40E+00	
Dysprosium (66)	Dy-159	1.75E+00	3.96E-01	1.43E-01	1.47E+00	1.12E+00	8.47E-01	1.46E-01	1.52E+00	2.34E+00	1.29E+00	
Dysprosium (66)	Dy-165	2.60E+03	2.66E-04	1.36E-01	1.39E+00	1.06E+00	8.01E-01	1.38E-01	1.44E+00	2.22E+00	1.23E+00	
Dysprosium (66)	Dy-165m	2.90E+05	2.39E-06	1.39E-01	1.42E+00	1.09E+00	8.20E-01	1.41E-01	1.47E+00	2.27E+00	1.25E+00	
Dysprosium (66)	Dy-166	7.44E+01	9.32E-03	4.78E-03	4.91E-02	3.75E-02	2.83E-02	4.87E-03	5.08E-02	7.83E-02	4.33E-02	
Dysprosium (66)	Dy-167	5.87E+04	1.18E-05	1.73E-01	1.77E+00	1.35E+00	1.02E+00	1.76E-01	1.83E+00	2.82E+00	1.56E+00	

Farmer Biota DCCs July 2023												
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)								
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Produce	Finfish	Shellfish	Beef	Dairy	Swine	Egg	Poultry	
				Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	
Dysprosium (66)	Dy-168	4.19E+04	1.66E-05	.	.	.	.	.	.	.	.	
Erbium (68)	Er-154	9.77E+04	7.10E-06	9.61E-05	9.86E-04	7.52E-04	5.68E-04	9.78E-05	1.02E-03	1.57E-03	8.69E-04	
Erbium (68)	Er-156	1.87E+04	3.71E-05	1.17E-01	1.20E+00	9.18E-01	6.93E-01	1.19E-01	1.25E+00	1.92E+00	1.06E+00	
Erbium (68)	Er-159	1.01E+04	6.85E-05	1.11E-01	1.14E+00	8.73E-01	6.59E-01	1.14E-01	1.18E+00	1.82E+00	1.01E+00	
Erbium (68)	Er-161	1.89E+03	3.66E-04	1.61E-01	1.66E+00	1.26E+00	9.55E-01	1.64E-01	1.71E+00	2.64E+00	1.46E+00	
Erbium (68)	Er-163	4.86E+03	1.43E-04	2.73E+00	2.80E+01	2.14E+01	1.62E+01	2.78E+00	2.90E+01	4.47E+01	2.47E+01	
Erbium (68)	Er-165	5.86E+02	1.18E-03	7.86E-01	8.06E+00	6.15E+00	4.65E+00	8.00E-01	8.34E+00	1.29E+01	7.10E+00	
Erbium (68)	Er-167m	9.63E+06	7.19E-08	.	.	.	.	.	.	.	.	
Erbium (68)	Er-169	2.69E+01	2.58E-02	3.91E-02	4.01E-01	3.06E-01	2.31E-01	3.98E-02	4.15E-01	6.40E-01	3.54E-01	
Erbium (68)	Er-171	8.08E+02	8.58E-04	3.19E-02	3.27E-01	2.50E-01	1.89E-01	3.25E-02	3.39E-01	5.22E-01	2.88E-01	
Erbium (68)	Er-172	1.23E+02	5.63E-03	5.43E-03	5.57E-02	4.25E-02	3.21E-02	5.53E-03	5.76E-02	8.88E-02	4.91E-02	
Erbium (68)	Er-173	2.54E+05	2.73E-06	4.96E-02	5.09E-01	3.88E-01	2.93E-01	5.05E-02	5.27E-01	8.12E-01	4.49E-01	
Einsteinium (99)	Es-249	3.56E+03	1.94E-04	1.00E-05	1.03E-04	7.84E-05	5.93E-05	1.02E-05	1.06E-04	1.64E-04	9.06E-05	
Einsteinium (99)	Es-250	7.06E+02	9.82E-04	4.74E-06	4.86E-05	3.71E-05	2.80E-05	4.82E-06	5.03E-05	7.75E-05	4.28E-05	
Einsteinium (99)	Es-250m	2.73E+03	2.53E-04	4.67E-06	4.79E-05	3.65E-05	2.76E-05	4.75E-06	4.96E-05	7.64E-05	4.22E-05	
Einsteinium (99)	Es-251	1.84E+02	3.77E-03	8.28E-06	8.49E-05	6.48E-05	4.89E-05	8.43E-06	8.79E-05	1.35E-04	7.48E-05	
Einsteinium (99)	Es-253	1.24E+01	5.61E-02	9.96E-06	1.02E-04	7.79E-05	5.89E-05	1.01E-05	1.06E-04	1.63E-04	9.00E-05	
Einsteinium (99)	Es-254	9.17E-01	7.55E-01	4.62E-06	4.74E-05	3.62E-05	2.73E-05	4.70E-06	4.90E-05	7.56E-05	4.18E-05	
Einsteinium (99)	Es-254m	1.54E+02	4.49E-03	4.74E-06	4.86E-05	3.71E-05	2.80E-05	4.83E-06	5.04E-05	7.76E-05	4.29E-05	
Einsteinium (99)	Es-255	6.36E+00	1.09E-01	8.23E-06	8.44E-05	6.44E-05	4.87E-05	8.38E-06	8.74E-05	1.35E-04	7.44E-05	
Einsteinium (99)	Es-256	1.43E+04	4.83E-05	6.53E-05	6.69E-04	5.11E-04	3.86E-04	6.64E-05	6.93E-04	1.07E-03	5.90E-04	
Europium (63)	Eu-142	9.34E+06	7.42E-08	8.31E-02	8.52E-01	6.50E-01	4.91E-01	8.46E-02	8.82E-01	1.36E+00	7.51E-01	
Europium (63)	Eu-142m	2.98E+05	2.33E-06	8.31E-02	8.52E-01	6.50E-01	4.91E-01	8.46E-02	8.82E-01	1.36E+00	7.51E-01	
Europium (63)	Eu-143	1.41E+05	4.93E-06	6.73E-02	6.90E-01	5.27E-01	3.98E-01	6.85E-02	7.15E-01	1.10E+00	6.09E-01	
Europium (63)	Eu-144	2.14E+06	3.23E-07	.	.	.	.	.	.	.	.	
Europium (63)	Eu-145	4.27E+01	1.62E-02	1.59E-02	1.63E-01	1.24E-01	9.40E-02	1.62E-02	1.69E-01	2.60E-01	1.44E-01	
Europium (63)	Eu-146	5.49E+01	1.26E-02	2.82E-04	2.89E-03	2.21E-03	1.67E-03	2.87E-04	2.99E-03	4.61E-03	2.55E-03	
Europium (63)	Eu-147	1.05E+01	6.60E-02	3.13E-04	3.21E-03	2.45E-03	1.85E-03	3.18E-04	3.32E-03	5.12E-03	2.83E-03	
Europium (63)	Eu-148	4.64E+00	1.49E-01	1.85E-04	1.89E-03	1.44E-03	1.09E-03	1.88E-04	1.96E-03	3.02E-03	1.67E-03	
Europium (63)	Eu-149	2.72E+00	2.55E-01	9.39E-02	9.63E-01	7.35E-01	5.55E-01	9.56E-02	9.97E-01	1.54E+00	8.49E-01	
Europium (63)	Eu-150	1.88E-02	3.69E+01	1.29E-02	1.32E-01	1.01E-01	7.61E-02	1.31E-02	1.37E-01	2.10E-01	1.16E-01	
Europium (63)	Eu-150m	4.74E+02	1.46E-03	1.64E-04	1.68E-03	1.28E-03	9.69E-04	1.67E-04	1.74E-03	2.68E-03	1.48E-03	
Europium (63)	Eu-152	5.12E-02	1.35E+01	4.33E-04	4.44E-03	3.39E-03	2.56E-03	4.41E-04	4.59E-03	7.08E-03	3.91E-03	
Europium (63)	Eu-152m	6.52E+02	1.06E-03	1.73E-04	1.78E-03	1.36E-03	1.02E-03	1.76E-04	1.84E-03	2.83E-03	1.57E-03	
Europium (63)	Eu-152n	3.79E+03	1.83E-04	4.33E-04	4.44E-03	3.39E-03	2.56E-03	4.40E-04	4.59E-03	7.08E-03	3.91E-03	
Europium (63)	Eu-154	8.06E-02	8.59E+00	7.74E-03	7.94E-02	6.06E-02	4.58E-02	7.88E-03	8.21E-02	1.27E-01	7.00E-02	
Europium (63)	Eu-154m	7.92E+03	8.75E-05	7.70E-03	7.90E-02	6.03E-02	4.56E-02	7.84E-03	8.18E-02	1.26E-01	6.97E-02	

Farmer Biota DCCs July 2023												
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)								
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Produce	Finfish	Shellfish	Beef	Dairy	Swine	Egg	Poultry	
				Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	
Europium (63)	Eu-155	1.46E-01	4.76E+00	4.47E-02	4.58E-01	3.50E-01	2.64E-01	4.55E-02	4.74E-01	7.31E-01	4.04E-01	
Europium (63)	Eu-156	1.67E+01	4.16E-02	6.58E-03	6.75E-02	5.15E-02	3.89E-02	6.70E-03	6.98E-02	1.08E-01	5.95E-02	
Europium (63)	Eu-157	4.00E+02	1.73E-03	2.41E-02	2.47E-01	1.89E-01	1.43E-01	2.46E-02	2.56E-01	3.95E-01	2.18E-01	
Europium (63)	Eu-158	7.94E+03	8.73E-05	1.67E-01	1.71E+00	1.31E+00	9.87E-01	1.70E-01	1.77E+00	2.73E+00	1.51E+00	
Europium (63)	Eu-159	2.01E+04	3.44E-05	2.65E-02	2.72E-01	2.08E-01	1.57E-01	2.70E-02	2.82E-01	4.34E-01	2.40E-01	
Fluorine (9)	F-17	3.39E+05	2.04E-06	.	.	.	.	.	.	.	.	
Fluorine (9)	F-18	3.32E+03	2.09E-04	3.24E-01	3.32E+00	2.53E+00	1.91E+00	3.29E-01	3.44E+00	5.30E+00	2.93E+00	
Iron (26)	Fe-52	7.34E+02	9.45E-04	1.03E-02	1.06E-01	8.06E-02	6.09E-02	1.05E-02	1.09E-01	1.68E-01	9.31E-02	
Iron (26)	Fe-53	4.28E+04	1.62E-05	4.88E-01	5.00E+00	3.82E+00	2.88E+00	4.97E-01	5.18E+00	7.98E+00	4.41E+00	
Iron (26)	Fe-53m	1.44E+05	4.81E-06	4.88E-01	5.00E+00	3.82E+00	2.88E+00	4.97E-01	5.18E+00	7.98E+00	4.41E+00	
Iron (26)	Fe-55	2.53E-01	2.74E+00	3.66E-02	3.76E-01	2.87E-01	2.17E-01	3.73E-02	3.89E-01	6.00E-01	3.31E-01	
Iron (26)	Fe-59	5.68E+00	1.22E-01	7.37E-03	7.56E-02	5.77E-02	4.36E-02	7.50E-03	7.82E-02	1.21E-01	6.66E-02	
Iron (26)	Fe-60	4.62E-07	1.50E+06	1.32E-04	1.35E-03	1.03E-03	7.78E-04	1.34E-04	1.40E-03	2.15E-03	1.19E-03	
Iron (26)	Fe-61	6.09E+04	1.14E-05	2.02E-01	2.07E+00	1.58E+00	1.19E+00	2.06E-01	2.14E+00	3.30E+00	1.83E+00	
Iron (26)	Fe-62	3.21E+05	2.16E-06	.	.	.	.	.	.	.	.	
Fermium (100)	Fm-251	1.15E+03	6.05E-04	8.29E-06	8.51E-05	6.49E-05	4.90E-05	8.44E-06	8.80E-05	1.36E-04	7.50E-05	
Fermium (100)	Fm-252	2.39E+02	2.90E-03	7.55E-06	7.74E-05	5.91E-05	4.46E-05	7.68E-06	8.01E-05	1.23E-04	6.82E-05	
Fermium (100)	Fm-253	8.43E+01	8.22E-03	9.95E-06	1.02E-04	7.79E-05	5.89E-05	1.01E-05	1.06E-04	1.63E-04	9.00E-05	
Fermium (100)	Fm-254	1.87E+03	3.70E-04	4.67E-06	4.79E-05	3.66E-05	2.76E-05	4.75E-06	4.96E-05	7.64E-05	4.22E-05	
Fermium (100)	Fm-255	3.02E+02	2.29E-03	8.26E-06	8.48E-05	6.47E-05	4.89E-05	8.41E-06	8.77E-05	1.35E-04	7.47E-05	
Fermium (100)	Fm-256	2.31E+03	3.00E-04	6.61E-05	6.78E-04	5.17E-04	3.91E-04	6.73E-05	7.02E-04	1.08E-03	5.98E-04	
Fermium (100)	Fm-257	2.52E+00	2.75E-01	9.82E-06	1.01E-04	7.69E-05	5.81E-05	1.00E-05	1.04E-04	1.61E-04	8.88E-05	
Francium (87)	Fr-212	1.82E+04	3.81E-05	9.24E-06	9.48E-05	7.23E-05	5.46E-05	9.41E-06	9.81E-05	1.51E-04	8.35E-05	
Francium (87)	Fr-219	1.09E+09	6.34E-10	.	.	.	.	.	.	.	.	
Francium (87)	Fr-220	7.98E+05	8.69E-07	5.76E-02	5.91E-01	4.51E-01	3.40E-01	5.86E-02	6.11E-01	9.42E-01	5.20E-01	
Francium (87)	Fr-221	7.43E+04	9.32E-06	5.89E-02	6.05E-01	4.61E-01	3.48E-01	6.00E-02	6.26E-01	9.64E-01	5.33E-01	
Francium (87)	Fr-222	2.57E+04	2.70E-05	7.28E-06	7.47E-05	5.70E-05	4.31E-05	7.41E-06	7.73E-05	1.19E-04	6.58E-05	
Francium (87)	Fr-223	1.66E+04	4.19E-05	9.16E-05	9.39E-04	7.17E-04	5.42E-04	9.32E-05	9.72E-04	1.50E-03	8.28E-04	
Francium (87)	Fr-224	1.09E+05	6.34E-06	1.48E-04	1.52E-03	1.16E-03	8.74E-04	1.50E-04	1.57E-03	2.42E-03	1.34E-03	
Francium (87)	Fr-227	1.47E+05	4.70E-06	3.24E-05	3.32E-04	2.53E-04	1.91E-04	3.30E-05	3.44E-04	5.30E-04	2.93E-04	
Gallium (31)	Ga-64	1.39E+05	5.00E-06	.	.	.	.	.	.	.	.	
Gallium (31)	Ga-65	2.40E+04	2.89E-05	4.19E-03	4.30E-02	3.28E-02	2.48E-02	4.27E-03	4.45E-02	6.86E-02	3.79E-02	
Gallium (31)	Ga-66	6.40E+02	1.08E-03	1.27E-02	1.30E-01	9.94E-02	7.51E-02	1.29E-02	1.35E-01	2.08E-01	1.15E-01	
Gallium (31)	Ga-67	7.76E+01	8.93E-03	7.77E-02	7.97E-01	6.08E-01	4.59E-01	7.91E-02	8.25E-01	1.27E+00	7.02E-01	
Gallium (31)	Ga-68	5.38E+03	1.29E-04	1.48E-01	1.52E+00	1.16E+00	8.78E-01	1.51E-01	1.58E+00	2.43E+00	1.34E+00	
Gallium (31)	Ga-70	1.72E+04	4.02E-05	4.78E-01	4.91E+00	3.75E+00	2.83E+00	4.87E-01	5.08E+00	7.83E+00	4.33E+00	
Gallium (31)	Ga-72	4.31E+02	1.61E-03	1.37E-02	1.41E-01	1.08E-01	8.12E-02	1.40E-02	1.46E-01	2.25E-01	1.24E-01	



Farmer Biota DCCs July 2023												
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)								
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Produce	Finfish	Shellfish	Beef	Dairy	Swine	Egg	Poultry	
				Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	
Gallium (31)	Ga-73	1.25E+03	5.55E-04	5.62E-02	5.77E-01	4.40E-01	3.33E-01	5.73E-02	5.97E-01	9.20E-01	5.09E-01	
Gallium (31)	Ga-74	4.49E+04	1.54E-05									
Gadolinium (64)	Gd-142	3.11E+05	2.23E-06	8.31E-02	8.52E-01	6.50E-01	4.91E-01	8.46E-02	8.82E-01	1.36E+00	7.51E-01	
Gadolinium (64)	Gd-143m	1.99E+05	3.49E-06	6.73E-02	6.90E-01	5.27E-01	3.98E-01	6.85E-02	7.15E-01	1.10E+00	6.09E-01	
Gadolinium (64)	Gd-144	8.15E+04	8.50E-06									
Gadolinium (64)	Gd-145	1.58E+04	4.38E-05	1.54E-02	1.58E-01	1.20E-01	9.09E-02	1.56E-02	1.63E-01	2.51E-01	1.39E-01	
Gadolinium (64)	Gd-145m	2.57E+05	2.70E-06	1.54E-02	1.58E-01	1.21E-01	9.10E-02	1.57E-02	1.63E-01	2.52E-01	1.39E-01	
Gadolinium (64)	Gd-146	5.24E+00	1.32E-01	2.77E-04	2.84E-03	2.17E-03	1.64E-03	2.82E-04	2.94E-03	4.53E-03	2.51E-03	
Gadolinium (64)	Gd-147	1.59E+02	4.35E-03	3.09E-04	3.17E-03	2.42E-03	1.83E-03	3.14E-04	3.28E-03	5.05E-03	2.79E-03	
Gadolinium (64)	Gd-148	9.29E-03	7.46E+01	2.81E-04	2.88E-03	2.20E-03	1.66E-03	2.86E-04	2.98E-03	4.60E-03	2.54E-03	
Gadolinium (64)	Gd-149	2.73E+01	2.54E-02	2.17E-02	2.23E-01	1.70E-01	1.28E-01	2.21E-02	2.31E-01	3.55E-01	1.96E-01	
Gadolinium (64)	Gd-150	3.87E-07	1.79E+06	1.46E-04	1.50E-03	1.15E-03	8.66E-04	1.49E-04	1.55E-03	2.40E-03	1.32E-03	
Gadolinium (64)	Gd-151	2.04E+00	3.40E-01	6.58E-02	6.75E-01	5.15E-01	3.89E-01	6.70E-02	6.98E-01	1.08E+00	5.95E-01	
Gadolinium (64)	Gd-152	6.42E-15	1.08E+14	1.25E-04	1.29E-03	9.82E-04	7.42E-04	1.28E-04	1.33E-03	2.05E-03	1.13E-03	
Gadolinium (64)	Gd-153	1.05E+00	6.59E-01	5.40E-02	5.54E-01	4.23E-01	3.19E-01	5.50E-02	5.73E-01	8.83E-01	4.88E-01	
Gadolinium (64)	Gd-159	3.29E+02	2.11E-03	2.91E-02	2.98E-01	2.27E-01	1.72E-01	2.96E-02	3.08E-01	4.75E-01	2.63E-01	
Gadolinium (64)	Gd-162	4.34E+04	1.60E-05									
Germanium (32)	Ge-66	2.69E+03	2.58E-04	1.18E-02	1.21E-01	9.20E-02	6.95E-02	1.20E-02	1.25E-01	1.92E-01	1.06E-01	
Germanium (32)	Ge-67	1.93E+04	3.60E-05	5.95E-02	6.11E-01	4.66E-01	3.52E-01	6.06E-02	6.32E-01	9.74E-01	5.38E-01	
Germanium (32)	Ge-68	9.34E-01	7.42E-01	1.11E-02	1.13E-01	8.66E-02	6.54E-02	1.13E-02	1.17E-01	1.81E-01	1.00E-01	
Germanium (32)	Ge-69	1.55E+02	4.46E-03	7.74E-02	7.94E-01	6.06E-01	4.58E-01	7.88E-02	8.21E-01	1.27E+00	7.00E-01	
Germanium (32)	Ge-71	2.21E+01	3.13E-02	1.28E+00	1.31E+01	1.00E+01	7.56E+00	1.30E+00	1.36E+01	2.09E+01	1.16E+01	
Germanium (32)	Ge-75	4.40E+03	1.57E-04	3.26E-01	3.35E+00	2.55E+00	1.93E+00	3.32E-01	3.46E+00	5.34E+00	2.95E+00	
Germanium (32)	Ge-77	5.37E+02	1.29E-03	2.13E-02	2.19E-01	1.67E-01	1.26E-01	2.17E-02	2.26E-01	3.49E-01	1.93E-01	
Germanium (32)	Ge-78	4.14E+03	1.67E-04	4.95E-02	5.08E-01	3.87E-01	2.93E-01	5.04E-02	5.25E-01	8.10E-01	4.47E-01	
Hydrogen (1)	H-3	5.63E-02	1.23E+01	4.41E-01	4.52E+00	3.45E+00	2.61E+00	4.49E-01	4.68E+00	7.21E+00	3.99E+00	
Hafnium (72)	Hf-167	1.78E+05	3.90E-06	2.34E-02	2.40E-01	1.83E-01	1.39E-01	2.39E-02	2.49E-01	3.84E-01	2.12E-01	
Hafnium (72)	Hf-169	1.12E+05	6.16E-06	1.14E-02	1.17E-01	8.89E-02	6.72E-02	1.16E-02	1.21E-01	1.86E-01	1.03E-01	
Hafnium (72)	Hf-170	3.79E+02	1.83E-03	1.15E-02	1.18E-01	9.03E-02	6.82E-02	1.17E-02	1.23E-01	1.89E-01	1.04E-01	
Hafnium (72)	Hf-172	3.71E-01	1.87E+00	6.41E-03	6.58E-02	5.02E-02	3.79E-02	6.53E-03	6.81E-02	1.05E-01	5.80E-02	
Hafnium (72)	Hf-173	2.57E+02	2.69E-03	2.60E-02	2.67E-01	2.03E-01	1.54E-01	2.65E-02	2.76E-01	4.25E-01	2.35E-01	
Hafnium (72)	Hf-174	3.47E-16	2.00E+15	6.41E-05	6.58E-04	5.02E-04	3.79E-04	6.53E-05	6.81E-04	1.05E-03	5.80E-04	
Hafnium (72)	Hf-175	3.61E+00	1.92E-01	3.82E-02	3.92E-01	2.99E-01	2.26E-01	3.89E-02	4.06E-01	6.26E-01	3.46E-01	
Hafnium (72)	Hf-177m	7.09E+03	9.78E-05	1.87E-01	1.92E+00	1.46E+00	1.11E+00	1.90E-01	1.99E+00	3.06E+00	1.69E+00	
Hafnium (72)	Hf-178m	2.24E-02	3.10E+01	4.06E-03	4.17E-02	3.18E-02	2.40E-02	4.14E-03	4.31E-02	6.65E-02	3.67E-02	
Hafnium (72)	Hf-179m	1.01E+01	6.86E-02	1.20E-02	1.23E-01	9.41E-02	7.11E-02	1.22E-02	1.28E-01	1.97E-01	1.09E-01	
Hafnium (72)	Hf-180m	1.10E+03	6.28E-04	9.14E-02	9.37E-01	7.15E-01	5.40E-01	9.30E-02	9.70E-01	1.50E+00	8.26E-01	

Farmer Biota DCCs July 2023												
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)								
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Produce	Finfish	Shellfish	Beef	Dairy	Swine	Egg	Poultry	
				Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	
Hafnium (72)	Hf-181	5.97E+00	1.16E-01	1.35E-02	1.38E-01	1.05E-01	7.96E-02	1.37E-02	1.43E-01	2.20E-01	1.22E-01	
Hafnium (72)	Hf-182	7.70E-08	9.00E+06	3.73E-03	3.82E-02	2.92E-02	2.20E-02	3.79E-03	3.96E-02	6.10E-02	3.37E-02	
Hafnium (72)	Hf-182m	5.92E+03	1.17E-04	5.78E-03	5.93E-02	4.53E-02	3.42E-02	5.89E-03	6.14E-02	9.46E-02	5.23E-02	
Hafnium (72)	Hf-183	5.69E+03	1.22E-04	1.04E-02	1.07E-01	8.15E-02	6.16E-02	1.06E-02	1.11E-01	1.70E-01	9.42E-02	
Hafnium (72)	Hf-184	1.47E+03	4.70E-04	1.26E-02	1.29E-01	9.87E-02	7.46E-02	1.28E-02	1.34E-01	2.06E-01	1.14E-01	
Mercury (80)	Hg-190	1.82E+04	3.81E-05	3.86E-04	3.96E-03	3.02E-03	2.28E-03	3.93E-04	4.09E-03	6.31E-03	3.49E-03	
Mercury (80)	Hg-191m	7.17E+03	9.67E-05	3.10E-02	3.18E-01	2.43E-01	1.83E-01	3.16E-02	3.29E-01	5.07E-01	2.80E-01	
Mercury (80)	Hg-192	1.25E+03	5.54E-04	3.96E-02	4.06E-01	3.10E-01	2.34E-01	4.03E-02	4.20E-01	6.48E-01	3.58E-01	
Mercury (80)	Hg-193	1.60E+03	4.34E-04	5.62E-02	5.77E-01	4.40E-01	3.32E-01	5.72E-02	5.97E-01	9.20E-01	5.08E-01	
Mercury (80)	Hg-193m	5.14E+02	1.35E-03	2.55E-02	2.61E-01	2.00E-01	1.51E-01	2.59E-02	2.71E-01	4.17E-01	2.30E-01	
Mercury (80)	Hg-194	1.58E-03	4.40E+02	9.73E-03	9.98E-02	7.61E-02	5.75E-02	9.90E-03	1.03E-01	1.59E-01	8.79E-02	
Mercury (80)	Hg-195	5.77E+02	1.20E-03	4.10E-02	4.21E-01	3.21E-01	2.43E-01	4.18E-02	4.36E-01	6.72E-01	3.71E-01	
Mercury (80)	Hg-195m	1.46E+02	4.75E-03	1.72E-02	1.76E-01	1.34E-01	1.02E-01	1.75E-02	1.82E-01	2.81E-01	1.55E-01	
Mercury (80)	Hg-197	9.35E+01	7.41E-03	5.96E-02	6.11E-01	4.66E-01	3.52E-01	6.06E-02	6.32E-01	9.75E-01	5.39E-01	
Mercury (80)	Hg-197m	2.55E+02	2.72E-03	2.09E-02	2.14E-01	1.63E-01	1.23E-01	2.12E-02	2.22E-01	3.41E-01	1.89E-01	
Mercury (80)	Hg-199m	8.54E+03	8.12E-05	4.91E-01	5.04E+00	3.85E+00	2.91E+00	5.00E-01	5.22E+00	8.04E+00	4.44E+00	
Mercury (80)	Hg-203	5.43E+00	1.28E-01	2.79E-02	2.87E-01	2.19E-01	1.65E-01	2.84E-02	2.97E-01	4.57E-01	2.53E-01	
Mercury (80)	Hg-205	7.00E+04	9.89E-06	.	.	.	.	.	.	.	.	
Mercury (80)	Hg-206	4.47E+04	1.55E-05	.	.	.	.	.	.	.	.	
Mercury (80)	Hg-207	1.26E+05	5.52E-06	.	.	.	.	.	.	.	.	
Holmium (67)	Ho-150	2.85E+05	2.44E-06	1.76E-04	1.81E-03	1.38E-03	1.04E-03	1.79E-04	1.87E-03	2.88E-03	1.59E-03	
Holmium (67)	Ho-153	1.81E+05	3.82E-06	2.05E-02	2.10E-01	1.61E-01	1.21E-01	2.09E-02	2.18E-01	3.36E-01	1.86E-01	
Holmium (67)	Ho-153m	3.92E+04	1.77E-05	2.05E-02	2.10E-01	1.61E-01	1.21E-01	2.09E-02	2.18E-01	3.36E-01	1.85E-01	
Holmium (67)	Ho-154	3.10E+04	2.24E-05	9.59E-05	9.83E-04	7.50E-04	5.67E-04	9.76E-05	1.02E-03	1.57E-03	8.67E-04	
Holmium (67)	Ho-154m	1.17E+05	5.90E-06	9.59E-05	9.84E-04	7.51E-04	5.67E-04	9.76E-05	1.02E-03	1.57E-03	8.67E-04	
Holmium (67)	Ho-155	7.59E+03	9.13E-05	3.44E-02	3.53E-01	2.70E-01	2.04E-01	3.51E-02	3.66E-01	5.64E-01	3.11E-01	
Holmium (67)	Ho-156	6.50E+03	1.07E-04	1.59E-01	1.63E+00	1.24E+00	9.40E-01	1.62E-01	1.69E+00	2.60E+00	1.44E+00	
Holmium (67)	Ho-157	2.89E+04	2.40E-05	1.45E-01	1.48E+00	1.13E+00	8.55E-01	1.47E-01	1.54E+00	2.37E+00	1.31E+00	
Holmium (67)	Ho-159	1.10E+04	6.29E-05	1.33E-01	1.36E+00	1.04E+00	7.86E-01	1.35E-01	1.41E+00	2.18E+00	1.20E+00	
Holmium (67)	Ho-160	1.42E+04	4.87E-05	9.48E-01	9.72E+00	7.42E+00	5.61E+00	9.65E-01	1.01E+01	1.55E+01	8.57E+00	
Holmium (67)	Ho-161	2.45E+03	2.83E-04	1.18E+00	1.21E+01	9.24E+00	6.98E+00	1.20E+00	1.25E+01	1.93E+01	1.07E+01	
Holmium (67)	Ho-162	2.43E+04	2.85E-05	4.76E+00	4.89E+01	3.73E+01	2.82E+01	4.85E+00	5.06E+01	7.79E+01	4.31E+01	
Holmium (67)	Ho-162m	5.44E+03	1.27E-04	5.72E-01	5.86E+00	4.47E+00	3.38E+00	5.82E-01	6.07E+00	9.35E+00	5.17E+00	
Holmium (67)	Ho-163	1.52E-04	4.57E+03	5.05E+00	5.18E+01	3.95E+01	2.99E+01	5.14E+00	5.36E+01	8.26E+01	4.56E+01	
Holmium (67)	Ho-164	1.26E+04	5.52E-05	1.59E+00	1.63E+01	1.24E+01	9.40E+00	1.62E+00	1.69E+01	2.60E+01	1.44E+01	
Holmium (67)	Ho-164m	9.59E+03	7.23E-05	5.77E-01	5.92E+00	4.52E+00	3.41E+00	5.87E-01	6.13E+00	9.44E+00	5.22E+00	
Holmium (67)	Ho-166	2.27E+02	3.06E-03	1.05E-02	1.07E-01	8.19E-02	6.19E-02	1.07E-02	1.11E-01	1.71E-01	9.46E-02	

Farmer Biota DCCs July 2023												
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)								
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Produce	Finfish	Shellfish	Beef	Dairy	Swine	Egg	Poultry	
				Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	
Holmium (67)	Ho-166m	5.78E-04	1.20E+03	7.92E-03	8.12E-02	6.20E-02	4.68E-02	8.06E-03	8.41E-02	1.30E-01	7.16E-02	
Holmium (67)	Ho-167	1.96E+03	3.54E-04	1.73E-01	1.77E+00	1.35E+00	1.02E+00	1.76E-01	1.83E+00	2.82E+00	1.56E+00	
Holmium (67)	Ho-168	1.22E+05	5.69E-06	.	.	.	.	.	.	.	.	
Holmium (67)	Ho-168m	1.66E+05	4.19E-06	.	.	.	.	.	.	.	.	
Holmium (67)	Ho-170	1.32E+05	5.25E-06	.	.	.	.	.	.	.	.	
Iodine (53)	I-118	2.66E+04	2.61E-05	4.58E-03	4.70E-02	3.59E-02	2.71E-02	4.67E-03	4.87E-02	7.50E-02	4.14E-02	
Iodine (53)	I-118m	4.29E+04	1.62E-05	4.89E-03	5.02E-02	3.83E-02	2.89E-02	4.98E-03	5.19E-02	8.00E-02	4.42E-02	
Iodine (53)	I-119	1.91E+04	3.63E-05	5.05E-02	5.18E-01	3.95E-01	2.99E-01	5.14E-02	5.36E-01	8.26E-01	4.57E-01	
Iodine (53)	I-120	4.46E+03	1.55E-04	4.92E-02	5.05E-01	3.86E-01	2.91E-01	5.01E-02	5.23E-01	8.06E-01	4.45E-01	
Iodine (53)	I-120m	6.87E+03	1.01E-04	9.61E-02	9.86E-01	7.53E-01	5.69E-01	9.79E-02	1.02E+00	1.57E+00	8.69E-01	
Iodine (53)	I-121	2.86E+03	2.42E-04	3.00E-02	3.08E-01	2.35E-01	1.77E-01	3.05E-02	3.18E-01	4.91E-01	2.71E-01	
Iodine (53)	I-122	1.00E+05	6.91E-06	.	.	.	.	.	.	.	.	
Iodine (53)	I-123	4.57E+02	1.51E-03	1.11E-02	1.14E-01	8.71E-02	6.58E-02	1.13E-02	1.18E-01	1.82E-01	1.01E-01	
Iodine (53)	I-124	6.06E+01	1.14E-02	1.06E-03	1.09E-02	8.32E-03	6.28E-03	1.08E-03	1.13E-02	1.74E-02	9.61E-03	
Iodine (53)	I-125	4.26E+00	1.63E-01	1.07E-03	1.10E-02	8.36E-03	6.32E-03	1.09E-03	1.13E-02	1.75E-02	9.66E-03	
Iodine (53)	I-126	1.96E+01	3.54E-02	4.94E-04	5.06E-03	3.86E-03	2.92E-03	5.03E-04	5.24E-03	8.08E-03	4.46E-03	
Iodine (53)	I-128	1.46E+04	4.75E-05	3.24E-01	3.32E+00	2.54E+00	1.92E+00	3.30E-01	3.44E+00	5.30E+00	2.93E+00	
Iodine (53)	I-129	4.41E-08	1.57E+07	1.67E-04	1.71E-03	1.31E-03	9.87E-04	1.70E-04	1.77E-03	2.73E-03	1.51E-03	
Iodine (53)	I-130	4.91E+02	1.41E-03	7.32E-03	7.51E-02	5.73E-02	4.33E-02	7.45E-03	7.77E-02	1.20E-01	6.61E-02	
Iodine (53)	I-130m	4.12E+04	1.68E-05	8.71E-03	8.93E-02	6.82E-02	5.15E-02	8.87E-03	9.25E-02	1.43E-01	7.87E-02	
Iodine (53)	I-131	3.15E+01	2.20E-02	6.45E-04	6.62E-03	5.05E-03	3.81E-03	6.57E-04	6.85E-03	1.06E-02	5.83E-03	
Iodine (53)	I-132	2.65E+03	2.62E-04	4.99E-02	5.11E-01	3.90E-01	2.95E-01	5.08E-02	5.29E-01	8.16E-01	4.51E-01	
Iodine (53)	I-132m	4.38E+03	1.58E-04	3.17E-02	3.25E-01	2.48E-01	1.87E-01	3.23E-02	3.36E-01	5.18E-01	2.86E-01	
Iodine (53)	I-133	2.92E+02	2.37E-03	3.06E-03	3.14E-02	2.39E-02	1.81E-02	3.11E-03	3.25E-02	5.01E-02	2.77E-02	
Iodine (53)	I-134	6.94E+03	9.99E-05	1.47E-01	1.51E+00	1.15E+00	8.72E-01	1.50E-01	1.56E+00	2.41E+00	1.33E+00	
Iodine (53)	I-134m	1.01E+05	6.85E-06	1.51E-01	1.55E+00	1.18E+00	8.92E-01	1.54E-01	1.60E+00	2.47E+00	1.36E+00	
Iodine (53)	I-135	9.24E+02	7.50E-04	5.11E-03	5.24E-02	4.00E-02	3.02E-02	5.20E-03	5.43E-02	8.37E-02	4.62E-02	
Indium (49)	In-103	3.64E+05	1.90E-06	6.36E-02	6.52E-01	4.98E-01	3.76E-01	6.47E-02	6.75E-01	1.04E+00	5.75E-01	
Indium (49)	In-105	7.18E+04	9.65E-06	3.14E-02	3.22E-01	2.45E-01	1.85E-01	3.19E-02	3.33E-01	5.13E-01	2.83E-01	
Indium (49)	In-106	5.87E+04	1.18E-05	.	.	.	.	.	.	.	.	
Indium (49)	In-106m	7.00E+04	9.89E-06	.	.	.	.	.	.	.	.	
Indium (49)	In-107	1.12E+04	6.16E-05	1.45E-01	1.49E+00	1.14E+00	8.60E-01	1.48E-01	1.54E+00	2.38E+00	1.32E+00	
Indium (49)	In-108	6.28E+03	1.10E-04	2.08E-01	2.13E+00	1.63E+00	1.23E+00	2.12E-01	2.21E+00	3.40E+00	1.88E+00	
Indium (49)	In-108m	9.20E+03	7.53E-05	1.90E-01	1.95E+00	1.49E+00	1.13E+00	1.94E-01	2.02E+00	3.12E+00	1.72E+00	
Indium (49)	In-109	1.45E+03	4.79E-04	7.78E-03	7.98E-02	6.09E-02	4.60E-02	7.92E-03	8.26E-02	1.27E-01	7.04E-02	
Indium (49)	In-109m	2.72E+05	2.55E-06	7.78E-03	7.98E-02	6.09E-02	4.60E-02	7.92E-03	8.26E-02	1.27E-01	7.04E-02	
Indium (49)	In-110	1.24E+03	5.59E-04	6.66E-02	6.84E-01	5.22E-01	3.94E-01	6.78E-02	7.08E-01	1.09E+00	6.03E-01	

Farmer Biota DCCs July 2023												
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)								
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Produce	Finfish	Shellfish	Beef	Dairy	Swine	Egg	Poultry	
				Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	
Indium (49)	In-110m	5.27E+03	1.31E-04	1.51E-01	1.55E+00	1.18E+00	8.91E-01	1.53E-01	1.60E+00	2.47E+00	1.36E+00	
Indium (49)	In-111	9.02E+01	7.68E-03	5.33E-02	5.47E-01	4.17E-01	3.15E-01	5.42E-02	5.66E-01	8.72E-01	4.82E-01	
Indium (49)	In-111m	4.73E+04	1.46E-05	5.33E-02	5.47E-01	4.17E-01	3.15E-01	5.42E-02	5.66E-01	8.72E-01	4.82E-01	
Indium (49)	In-112	2.43E+04	2.85E-05	1.44E+00	1.48E+01	1.13E+01	8.53E+00	1.47E+00	1.53E+01	2.36E+01	1.30E+01	
Indium (49)	In-112m	1.77E+04	3.91E-05	5.49E-01	5.63E+00	4.30E+00	3.24E+00	5.59E-01	5.83E+00	8.98E+00	4.96E+00	
Indium (49)	In-113m	3.66E+03	1.89E-04	5.15E-01	5.28E+00	4.03E+00	3.05E+00	5.24E-01	5.47E+00	8.43E+00	4.66E+00	
Indium (49)	In-114	3.04E+05	2.28E-06									
Indium (49)	In-114m	5.11E+00	1.36E-01	3.48E-03	3.57E-02	2.72E-02	2.06E-02	3.54E-03	3.69E-02	5.69E-02	3.14E-02	
Indium (49)	In-115	1.57E-15	4.41E+14	5.69E-04	5.83E-03	4.45E-03	3.36E-03	5.79E-04	6.04E-03	9.31E-03	5.14E-03	
Indium (49)	In-115m	1.35E+03	5.12E-04	5.97E-04	6.12E-03	4.67E-03	3.53E-03	6.07E-04	6.33E-03	9.76E-03	5.39E-03	
Indium (49)	In-116m	6.69E+03	1.04E-04	2.45E-01	2.51E+00	1.92E+00	1.45E+00	2.49E-01	2.60E+00	4.01E+00	2.22E+00	
Indium (49)	In-117	8.43E+03	8.22E-05	4.64E-01	4.76E+00	3.63E+00	2.74E+00	4.72E-01	4.93E+00	7.59E+00	4.19E+00	
Indium (49)	In-117m	3.13E+03	2.21E-04	1.07E-01	1.10E+00	8.39E-01	6.33E-01	1.09E-01	1.14E+00	1.75E+00	9.69E-01	
Indium (49)	In-118	4.37E+06	1.59E-07									
Indium (49)	In-118m	8.35E+04	8.30E-06									
Indium (49)	In-119	1.52E+05	4.57E-06	4.37E+00	4.49E+01	3.42E+01	2.59E+01	4.45E+00	4.65E+01	7.16E+01	3.96E+01	
Indium (49)	In-119m	2.02E+04	3.42E-05	3.24E-01	3.33E+00	2.54E+00	1.92E+00	3.30E-01	3.44E+00	5.31E+00	2.93E+00	
Indium (49)	In-121	9.46E+05	7.32E-07	5.47E-02	5.61E-01	4.28E-01	3.24E-01	5.57E-02	5.81E-01	8.95E-01	4.95E-01	
Indium (49)	In-121m	9.39E+04	7.38E-06	6.36E-02	6.52E-01	4.98E-01	3.76E-01	6.47E-02	6.75E-01	1.04E+00	5.75E-01	
Iridium (77)	Ir-180	2.43E+05	2.85E-06	8.45E-01	8.67E+00	6.61E+00	5.00E+00	8.60E-01	8.97E+00	1.38E+01	7.64E+00	
Iridium (77)	Ir-182	2.43E+04	2.85E-05	1.69E-02	1.73E-01	1.32E-01	9.99E-02	1.72E-02	1.79E-01	2.76E-01	1.53E-01	
Iridium (77)	Ir-183	6.28E+03	1.10E-04	1.20E-02	1.23E-01	9.39E-02	7.10E-02	1.22E-02	1.27E-01	1.96E-01	1.09E-01	
Iridium (77)	Ir-184	1.96E+03	3.53E-04	8.28E-02	8.49E-01	6.48E-01	4.89E-01	8.43E-02	8.79E-01	1.35E+00	7.48E-01	
Iridium (77)	Ir-185	4.22E+02	1.64E-03	1.90E-02	1.95E-01	1.49E-01	1.12E-01	1.93E-02	2.02E-01	3.11E-01	1.72E-01	
Iridium (77)	Ir-186	3.65E+02	1.90E-03	4.63E-04	4.75E-03	3.62E-03	2.74E-03	4.71E-04	4.91E-03	7.57E-03	4.18E-03	
Iridium (77)	Ir-186m	3.16E+03	2.19E-04	4.68E-04	4.80E-03	3.66E-03	2.77E-03	4.76E-04	4.97E-03	7.65E-03	4.23E-03	
Iridium (77)	Ir-187	5.78E+02	1.20E-03	1.33E-01	1.36E+00	1.04E+00	7.86E-01	1.35E-01	1.41E+00	2.17E+00	1.20E+00	
Iridium (77)	Ir-188	1.46E+02	4.74E-03	2.10E-02	2.15E-01	1.64E-01	1.24E-01	2.14E-02	2.23E-01	3.43E-01	1.90E-01	
Iridium (77)	Ir-189	1.92E+01	3.62E-02	6.14E-02	6.30E-01	4.81E-01	3.63E-01	6.25E-02	6.52E-01	1.01E+00	5.55E-01	
Iridium (77)	Ir-190	2.15E+01	3.23E-02	1.48E-02	1.52E-01	1.16E-01	8.78E-02	1.51E-02	1.58E-01	2.43E-01	1.34E-01	
Iridium (77)	Ir-190m	5.42E+03	1.28E-04	1.47E-02	1.51E-01	1.15E-01	8.72E-02	1.50E-02	1.57E-01	2.41E-01	1.33E-01	
Iridium (77)	Ir-190n	1.97E+03	3.52E-04	7.54E-02	7.73E-01	5.90E-01	4.46E-01	7.67E-02	8.00E-01	1.23E+00	6.81E-01	
Iridium (77)	Ir-191m	4.42E+06	1.57E-07									
Iridium (77)	Ir-192	3.43E+00	2.02E-01	1.11E-02	1.14E-01	8.68E-02	6.56E-02	1.13E-02	1.18E-01	1.82E-01	1.00E-01	
Iridium (77)	Ir-192m	2.51E+05	2.76E-06	1.11E-02	1.14E-01	8.69E-02	6.56E-02	1.13E-02	1.18E-01	1.82E-01	1.00E-01	
Iridium (77)	Ir-192n	2.88E-03	2.41E+02	6.60E-03	6.77E-02	5.17E-02	3.90E-02	6.72E-03	7.01E-02	1.08E-01	5.97E-02	
Iridium (77)	Ir-193m	2.40E+01	2.88E-02	5.05E-02	5.18E-01	3.95E-01	2.99E-01	5.14E-02	5.36E-01	8.26E-01	4.56E-01	



Farmer Biota DCCs July 2023												
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)								
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Produce	Finfish	Shellfish	Beef	Dairy	Swine	Egg	Poultry	
				Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	
Iridium (77)	Ir-194	3.15E+02	2.20E-03	1.10E-02	1.13E-01	8.59E-02	6.49E-02	1.12E-02	1.17E-01	1.80E-01	9.92E-02	
Iridium (77)	Ir-194m	1.48E+00	4.68E-01	7.68E-03	7.88E-02	6.01E-02	4.54E-02	7.82E-03	8.15E-02	1.26E-01	6.94E-02	
Iridium (77)	Ir-195	2.43E+03	2.85E-04	1.46E-01	1.50E+00	1.15E+00	8.65E-01	1.49E-01	1.55E+00	2.39E+00	1.32E+00	
Iridium (77)	Ir-195m	1.60E+03	4.34E-04	3.51E-02	3.60E-01	2.75E-01	2.07E-01	3.57E-02	3.72E-01	5.74E-01	3.17E-01	
Iridium (77)	Ir-196	4.20E+05	1.65E-06	.	.	.	.	.	.	.	.	
Iridium (77)	Ir-196m	4.34E+03	1.60E-04	1.41E-01	1.45E+00	1.11E+00	8.35E-01	1.44E-01	1.50E+00	2.31E+00	1.28E+00	
Potassium (19)	K-38	4.77E+04	1.45E-05	.	.	.	.	.	.	.	.	
Potassium (19)	K-40	5.54E-10	1.25E+09	2.46E-03	2.52E-02	1.92E-02	1.45E-02	2.50E-03	2.61E-02	4.02E-02	2.22E-02	
Potassium (19)	K-42	4.91E+02	1.41E-03	3.43E-02	3.52E-01	2.68E-01	2.03E-01	3.49E-02	3.64E-01	5.61E-01	3.10E-01	
Potassium (19)	K-43	2.72E+02	2.55E-03	6.31E-02	6.47E-01	4.94E-01	3.73E-01	6.42E-02	6.70E-01	1.03E+00	5.71E-01	
Potassium (19)	K-44	1.65E+04	4.21E-05	1.82E-01	1.87E+00	1.42E+00	1.08E+00	1.85E-01	1.93E+00	2.98E+00	1.64E+00	
Potassium (19)	K-45	2.11E+04	3.29E-05	1.83E-02	1.87E-01	1.43E-01	1.08E-01	1.86E-02	1.94E-01	2.99E-01	1.65E-01	
Potassium (19)	K-46	2.08E+05	3.33E-06	.	.	.	.	.	.	.	.	
Krypton (36)	Kr-74	3.17E+04	2.19E-05	1.89E-01	1.94E+00	1.48E+00	1.12E+00	1.92E-01	2.00E+00	3.09E+00	1.71E+00	
Krypton (36)	Kr-75	8.49E+04	8.16E-06	5.85E-03	6.00E-02	4.58E-02	3.46E-02	5.95E-03	6.21E-02	9.57E-02	5.29E-02	
Krypton (36)	Kr-76	4.10E+02	1.69E-03	3.41E-02	3.50E-01	2.67E-01	2.02E-01	3.47E-02	3.62E-01	5.58E-01	3.08E-01	
Krypton (36)	Kr-77	4.90E+03	1.42E-04	1.68E-01	1.73E+00	1.32E+00	9.95E-01	1.71E-01	1.79E+00	2.75E+00	1.52E+00	
Krypton (36)	Kr-79	1.73E+02	4.00E-03	.	.	.	.	.	.	.	.	
Krypton (36)	Kr-81	3.03E-06	2.29E+05	.	.	.	.	.	.	.	.	
Krypton (36)	Kr-81m	1.67E+06	4.15E-07	.	.	.	.	.	.	.	.	
Krypton (36)	Kr-83m	3.32E+03	2.09E-04	.	.	.	.	.	.	.	.	
Krypton (36)	Kr-85	6.44E-02	1.08E+01	.	.	.	.	.	.	.	.	
Krypton (36)	Kr-85m	1.36E+03	5.11E-04	.	.	.	.	.	.	.	.	
Krypton (36)	Kr-87	4.77E+03	1.45E-04	9.85E-03	1.01E-01	7.71E-02	5.82E-02	1.00E-02	1.05E-01	1.61E-01	8.91E-02	
Krypton (36)	Kr-88	2.14E+03	3.24E-04	1.66E-01	1.70E+00	1.30E+00	9.79E-01	1.69E-01	1.76E+00	2.71E+00	1.50E+00	
Krypton (36)	Kr-89	1.16E+05	5.99E-06	5.50E-03	5.64E-02	4.31E-02	3.25E-02	5.60E-03	5.84E-02	9.00E-02	4.98E-02	
Lanthanum (57)	La-128	7.03E+04	9.86E-06	5.67E-03	5.82E-02	4.44E-02	3.35E-02	5.77E-03	6.02E-02	9.28E-02	5.13E-02	
Lanthanum (57)	La-129	3.14E+04	2.21E-05	1.15E-01	1.18E+00	9.04E-01	6.83E-01	1.18E-01	1.23E+00	1.89E+00	1.04E+00	
Lanthanum (57)	La-130	4.19E+04	1.66E-05	.	.	.	.	.	.	.	.	
Lanthanum (57)	La-131	6.17E+03	1.12E-04	2.79E-02	2.86E-01	2.18E-01	1.65E-01	2.84E-02	2.96E-01	4.56E-01	2.52E-01	
Lanthanum (57)	La-132	1.26E+03	5.48E-04	3.73E-02	3.83E-01	2.92E-01	2.21E-01	3.80E-02	3.96E-01	6.11E-01	3.37E-01	
Lanthanum (57)	La-132m	1.50E+04	4.62E-05	4.39E-02	4.51E-01	3.44E-01	2.60E-01	4.47E-02	4.67E-01	7.19E-01	3.97E-01	
Lanthanum (57)	La-133	1.55E+03	4.47E-04	8.13E-03	8.35E-02	6.37E-02	4.81E-02	8.28E-03	8.64E-02	1.33E-01	7.36E-02	
Lanthanum (57)	La-134	5.65E+04	1.23E-05	.	.	.	.	.	.	.	.	
Lanthanum (57)	La-135	3.11E+02	2.23E-03	4.90E-01	5.03E+00	3.84E+00	2.90E+00	4.99E-01	5.20E+00	8.02E+00	4.43E+00	
Lanthanum (57)	La-136	3.69E+04	1.88E-05	.	.	.	.	.	.	.	.	
Lanthanum (57)	La-137	1.16E-05	6.00E+04	1.82E-01	1.87E+00	1.42E+00	1.08E+00	1.85E-01	1.93E+00	2.98E+00	1.64E+00	

Farmer Biota DCCs July 2023												
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)								
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Produce	Finfish	Shellfish	Beef	Dairy	Swine	Egg	Poultry	
				Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	
Lanthanum (57)	La-138	6.79E-12	1.02E+11	1.47E-02	1.51E-01	1.15E-01	8.72E-02	1.50E-02	1.56E-01	2.41E-01	1.33E-01	
Lanthanum (57)	La-140	1.51E+02	4.60E-03	7.56E-03	7.76E-02	5.92E-02	4.47E-02	7.70E-03	8.03E-02	1.24E-01	6.84E-02	
Lanthanum (57)	La-141	1.55E+03	4.47E-04	1.36E-02	1.39E-01	1.06E-01	8.02E-02	1.38E-02	1.44E-01	2.22E-01	1.23E-01	
Lanthanum (57)	La-142	4.00E+03	1.73E-04	8.74E-02	8.97E-01	6.84E-01	5.17E-01	8.90E-02	9.28E-01	1.43E+00	7.90E-01	
Lanthanum (57)	La-143	2.57E+04	2.70E-05	6.24E-03	6.40E-02	4.89E-02	3.69E-02	6.35E-03	6.63E-02	1.02E-01	5.64E-02	
Lutetium (71)	Lu-165	3.39E+04	2.04E-05	3.89E-02	3.99E-01	3.04E-01	2.30E-01	3.96E-02	4.13E-01	6.36E-01	3.52E-01	
Lutetium (71)	Lu-167	7.07E+03	9.80E-05	2.34E-02	2.40E-01	1.83E-01	1.39E-01	2.39E-02	2.49E-01	3.84E-01	2.12E-01	
Lutetium (71)	Lu-169	1.78E+02	3.89E-03	1.14E-02	1.17E-01	8.89E-02	6.72E-02	1.16E-02	1.21E-01	1.86E-01	1.03E-01	
Lutetium (71)	Lu-169m	1.37E+05	5.07E-06	1.14E-02	1.17E-01	8.89E-02	6.72E-02	1.16E-02	1.21E-01	1.86E-01	1.03E-01	
Lutetium (71)	Lu-170	1.26E+02	5.51E-03	1.66E-02	1.70E-01	1.30E-01	9.79E-02	1.69E-02	1.76E-01	2.71E-01	1.50E-01	
Lutetium (71)	Lu-171	3.07E+01	2.26E-02	2.23E-02	2.29E-01	1.75E-01	1.32E-01	2.27E-02	2.37E-01	3.65E-01	2.02E-01	
Lutetium (71)	Lu-171m	2.77E+05	2.51E-06	2.23E-02	2.29E-01	1.75E-01	1.32E-01	2.27E-02	2.37E-01	3.65E-01	2.02E-01	
Lutetium (71)	Lu-172	3.78E+01	1.84E-02	1.19E-02	1.23E-01	9.35E-02	7.07E-02	1.22E-02	1.27E-01	1.96E-01	1.08E-01	
Lutetium (71)	Lu-172m	9.84E+04	7.04E-06	1.19E-02	1.23E-01	9.35E-02	7.07E-02	1.22E-02	1.27E-01	1.96E-01	1.08E-01	
Lutetium (71)	Lu-173	5.06E-01	1.37E+00	4.15E-02	4.25E-01	3.25E-01	2.45E-01	4.22E-02	4.40E-01	6.78E-01	3.75E-01	
Lutetium (71)	Lu-174	2.09E-01	3.31E+00	5.27E-02	5.41E-01	4.13E-01	3.12E-01	5.37E-02	5.60E-01	8.63E-01	4.77E-01	
Lutetium (71)	Lu-174m	1.78E+00	3.89E-01	1.79E-02	1.84E-01	1.40E-01	1.06E-01	1.82E-02	1.90E-01	2.93E-01	1.62E-01	
Lutetium (71)	Lu-176	1.80E-11	3.85E+10	8.34E-03	8.56E-02	6.53E-02	4.93E-02	8.50E-03	8.86E-02	1.37E-01	7.54E-02	
Lutetium (71)	Lu-176m	1.67E+03	4.15E-04	8.89E-02	9.13E-01	6.96E-01	5.26E-01	9.06E-02	9.44E-01	1.46E+00	8.04E-01	
Lutetium (71)	Lu-177	3.81E+01	1.82E-02	2.76E-02	2.83E-01	2.16E-01	1.63E-01	2.81E-02	2.93E-01	4.51E-01	2.49E-01	
Lutetium (71)	Lu-177m	1.58E+00	4.39E-01	8.31E-03	8.53E-02	6.51E-02	4.92E-02	8.46E-03	8.83E-02	1.36E-01	7.52E-02	
Lutetium (71)	Lu-178	1.28E+04	5.40E-05	3.23E-01	3.31E+00	2.53E+00	1.91E+00	3.29E-01	3.43E+00	5.29E+00	2.92E+00	
Lutetium (71)	Lu-178m	1.58E+04	4.39E-05	4.60E-01	4.72E+00	3.60E+00	2.72E+00	4.68E-01	4.88E+00	7.53E+00	4.16E+00	
Lutetium (71)	Lu-179	1.32E+03	5.24E-04	6.80E-02	6.97E-01	5.32E-01	4.02E-01	6.92E-02	7.22E-01	1.11E+00	6.15E-01	
Lutetium (71)	Lu-180	6.39E+04	1.08E-05	.	.	.	.	.	.	.	.	
Lutetium (71)	Lu-181	1.04E+05	6.66E-06	1.35E-02	1.38E-01	1.05E-01	7.96E-02	1.37E-02	1.43E-01	2.20E-01	1.22E-01	
Magnesium (12)	Mg-27	3.85E+04	1.80E-05	.	.	.	.	.	.	.	.	
Magnesium (12)	Mg-28	2.90E+02	2.39E-03	7.16E-03	7.35E-02	5.61E-02	4.23E-02	7.29E-03	7.60E-02	1.17E-01	6.47E-02	
Manganese (25)	Mn-50m	2.08E+05	3.33E-06	.	.	.	.	.	.	.	.	
Manganese (25)	Mn-51	7.88E+03	8.79E-05	1.17E-01	1.20E+00	9.12E-01	6.89E-01	1.19E-01	1.24E+00	1.91E+00	1.05E+00	
Manganese (25)	Mn-52	4.52E+01	1.53E-02	8.93E-03	9.17E-02	6.99E-02	5.28E-02	9.10E-03	9.49E-02	1.46E-01	8.08E-02	
Manganese (25)	Mn-52m	1.73E+04	4.01E-05	1.54E-01	1.58E+00	1.20E+00	9.10E-01	1.57E-01	1.63E+00	2.52E+00	1.39E+00	
Manganese (25)	Mn-53	1.87E-07	3.70E+06	4.88E-01	5.00E+00	3.82E+00	2.88E+00	4.97E-01	5.18E+00	7.98E+00	4.41E+00	
Manganese (25)	Mn-54	8.10E-01	8.55E-01	2.27E-02	2.33E-01	1.78E-01	1.34E-01	2.31E-02	2.41E-01	3.71E-01	2.05E-01	
Manganese (25)	Mn-56	2.35E+03	2.94E-04	5.92E-02	6.07E-01	4.64E-01	3.50E-01	6.03E-02	6.29E-01	9.69E-01	5.35E-01	
Manganese (25)	Mn-57	2.56E+05	2.71E-06	.	.	.	.	.	.	.	.	
Manganese (25)	Mn-58m	3.35E+05	2.07E-06	.	.	.	.	.	.	.	.	

Farmer Biota DCCs July 2023												
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)								
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Produce	Finfish	Shellfish	Beef	Dairy	Swine	Egg	Poultry	
				Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	
Molybdenum (42)	Mo-101	2.49E+04	2.78E-05	2.58E-01	2.65E+00	2.02E+00	1.53E+00	2.63E-01	2.74E+00	4.22E+00	2.33E+00	
Molybdenum (42)	Mo-102	3.22E+04	2.15E-05	2.17E-01	2.22E+00	1.70E+00	1.28E+00	2.21E-01	2.30E+00	3.55E+00	1.96E+00	
Molybdenum (42)	Mo-89	1.73E+05	4.01E-06	1.45E-02	1.49E-01	1.14E-01	8.60E-02	1.48E-02	1.54E-01	2.38E-01	1.32E-01	
Molybdenum (42)	Mo-90	1.09E+03	6.35E-04	1.06E-02	1.09E-01	8.33E-02	6.29E-02	1.08E-02	1.13E-01	1.74E-01	9.62E-02	
Molybdenum (42)	Mo-91	2.35E+04	2.95E-05	1.42E-01	1.45E+00	1.11E+00	8.37E-01	1.44E-01	1.50E+00	2.32E+00	1.28E+00	
Molybdenum (42)	Mo-91m	3.38E+05	2.05E-06	5.26E-02	5.40E-01	4.12E-01	3.11E-01	5.36E-02	5.58E-01	8.61E-01	4.76E-01	
Molybdenum (42)	Mo-93	1.73E-04	4.00E+03	6.16E-03	6.32E-02	4.82E-02	3.64E-02	6.27E-03	6.54E-02	1.01E-01	5.57E-02	
Molybdenum (42)	Mo-93m	8.86E+02	7.82E-04	5.90E-03	6.06E-02	4.62E-02	3.49E-02	6.01E-03	6.27E-02	9.66E-02	5.34E-02	
Molybdenum (42)	Mo-99	9.21E+01	7.53E-03	1.19E-02	1.22E-01	9.31E-02	7.03E-02	1.21E-02	1.26E-01	1.95E-01	1.07E-01	
Nitrogen (7)	N-13	3.66E+04	1.90E-05	.	.	.	.	.	.	.	.	
Nitrogen (7)	N-16	3.07E+06	2.26E-07	.	.	.	.	.	.	.	.	
Sodium (11)	Na-22	2.66E-01	2.60E+00	5.20E-03	5.34E-02	4.07E-02	3.08E-02	5.30E-03	5.53E-02	8.52E-02	4.71E-02	
Sodium (11)	Na-24	4.06E+02	1.71E-03	3.70E-02	3.79E-01	2.89E-01	2.19E-01	3.77E-02	3.93E-01	6.05E-01	3.34E-01	
Niobium (41)	Nb-87	9.71E+04	7.13E-06	1.57E-02	1.61E-01	1.23E-01	9.30E-02	1.60E-02	1.67E-01	2.57E-01	1.42E-01	
Niobium (41)	Nb-88	2.51E+04	2.76E-05	9.01E-03	9.24E-02	7.05E-02	5.33E-02	9.17E-03	9.57E-02	1.47E-01	8.15E-02	
Niobium (41)	Nb-88m	4.68E+04	1.48E-05	9.40E-03	9.65E-02	7.36E-02	5.56E-02	9.58E-03	9.99E-02	1.54E-01	8.50E-02	
Niobium (41)	Nb-89	2.99E+03	2.32E-04	1.45E-02	1.49E-01	1.14E-01	8.60E-02	1.48E-02	1.54E-01	2.38E-01	1.32E-01	
Niobium (41)	Nb-89m	5.52E+03	1.26E-04	1.78E-02	1.82E-01	1.39E-01	1.05E-01	1.81E-02	1.89E-01	2.91E-01	1.61E-01	
Niobium (41)	Nb-90	4.16E+02	1.67E-03	1.25E-02	1.28E-01	9.76E-02	7.37E-02	1.27E-02	1.32E-01	2.04E-01	1.13E-01	
Niobium (41)	Nb-91	1.02E-03	6.80E+02	3.25E-01	3.33E+00	2.54E+00	1.92E+00	3.31E-01	3.45E+00	5.31E+00	2.94E+00	
Niobium (41)	Nb-91m	4.16E+00	1.67E-01	3.23E-02	3.31E-01	2.53E-01	1.91E-01	3.29E-02	3.43E-01	5.29E-01	2.92E-01	
Niobium (41)	Nb-92	2.00E-08	3.47E+07	1.59E-02	1.63E-01	1.24E-01	9.40E-02	1.62E-02	1.69E-01	2.60E-01	1.44E-01	
Niobium (41)	Nb-92m	2.49E+01	2.78E-02	3.23E-02	3.31E-01	2.52E-01	1.91E-01	3.28E-02	3.42E-01	5.28E-01	2.92E-01	
Niobium (41)	Nb-93m	4.30E-02	1.61E+01	1.13E-01	1.16E+00	8.88E-01	6.71E-01	1.15E-01	1.20E+00	1.86E+00	1.03E+00	
Niobium (41)	Nb-94	3.41E-05	2.03E+04	9.05E-03	9.29E-02	7.09E-02	5.35E-02	9.22E-03	9.61E-02	1.48E-01	8.19E-02	
Niobium (41)	Nb-94m	5.82E+04	1.19E-05	9.10E-03	9.34E-02	7.12E-02	5.38E-02	9.27E-03	9.66E-02	1.49E-01	8.23E-02	
Niobium (41)	Nb-95	7.23E+00	9.59E-02	2.69E-02	2.76E-01	2.11E-01	1.59E-01	2.74E-02	2.86E-01	4.41E-01	2.43E-01	
Niobium (41)	Nb-95m	7.01E+01	9.89E-03	1.31E-02	1.34E-01	1.03E-01	7.74E-02	1.33E-02	1.39E-01	2.14E-01	1.18E-01	
Niobium (41)	Nb-96	2.60E+02	2.67E-03	1.42E-02	1.46E-01	1.11E-01	8.41E-02	1.45E-02	1.51E-01	2.33E-01	1.29E-01	
Niobium (41)	Nb-97	5.05E+03	1.37E-04	2.20E-01	2.26E+00	1.72E+00	1.30E+00	2.24E-01	2.34E+00	3.60E+00	1.99E+00	
Niobium (41)	Nb-98m	7.10E+03	9.76E-05	1.42E-01	1.46E+00	1.11E+00	8.41E-01	1.45E-01	1.51E+00	2.33E+00	1.29E+00	
Niobium (41)	Nb-99	1.46E+06	4.76E-07	1.19E-02	1.22E-01	9.31E-02	7.03E-02	1.21E-02	1.26E-01	1.95E-01	1.07E-01	
Niobium (41)	Nb-99m	1.40E+05	4.95E-06	1.19E-02	1.22E-01	9.31E-02	7.03E-02	1.21E-02	1.26E-01	1.95E-01	1.07E-01	
Neodymium (60)	Nd-134	4.29E+04	1.62E-05	5.40E-03	5.54E-02	4.22E-02	3.19E-02	5.49E-03	5.73E-02	8.83E-02	4.88E-02	
Neodymium (60)	Nd-135	2.94E+04	2.36E-05	3.95E-02	4.05E-01	3.09E-01	2.34E-01	4.02E-02	4.19E-01	6.46E-01	3.57E-01	
Neodymium (60)	Nd-136	7.19E+03	9.64E-05	1.16E-01	1.19E+00	9.05E-01	6.84E-01	1.18E-01	1.23E+00	1.89E+00	1.05E+00	
Neodymium (60)	Nd-137	9.46E+03	7.32E-05	7.60E-02	7.80E-01	5.95E-01	4.49E-01	7.74E-02	8.07E-01	1.24E+00	6.87E-01	

Farmer Biota DCCs July 2023												
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)								
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Produce	Finfish	Shellfish	Beef	Dairy	Swine	Egg	Poultry	
				Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	
Neodymium (60)	Nd-138	1.20E+03	5.75E-04	2.32E-02	2.38E-01	1.81E-01	1.37E-01	2.36E-02	2.46E-01	3.79E-01	2.10E-01	
Neodymium (60)	Nd-139	1.23E+04	5.65E-05	4.80E-02	4.92E-01	3.76E-01	2.84E-01	4.89E-02	5.10E-01	7.85E-01	4.34E-01	
Neodymium (60)	Nd-139m	1.10E+03	6.28E-04	2.86E-02	2.93E-01	2.24E-01	1.69E-01	2.91E-02	3.03E-01	4.68E-01	2.58E-01	
Neodymium (60)	Nd-140	7.51E+01	9.23E-03	7.45E-03	7.64E-02	5.83E-02	4.41E-02	7.59E-03	7.91E-02	1.22E-01	6.74E-02	
Neodymium (60)	Nd-141	2.44E+03	2.84E-04	1.79E+00	1.83E+01	1.40E+01	1.06E+01	1.82E+00	1.90E+01	2.92E+01	1.62E+01	
Neodymium (60)	Nd-141m	3.52E+05	1.97E-06	1.79E+00	1.83E+01	1.40E+01	1.06E+01	1.82E+00	1.90E+01	2.93E+01	1.62E+01	
Neodymium (60)	Nd-144	3.03E-16	2.29E+15	3.82E-04	3.92E-03	2.99E-03	2.26E-03	3.89E-04	4.06E-03	6.26E-03	3.46E-03	
Neodymium (60)	Nd-147	2.30E+01	3.01E-02	3.07E-04	3.15E-03	2.40E-03	1.81E-03	3.12E-04	3.26E-03	5.02E-03	2.77E-03	
Neodymium (60)	Nd-149	3.51E+03	1.97E-04	1.31E-02	1.35E-01	1.03E-01	7.76E-02	1.34E-02	1.39E-01	2.15E-01	1.19E-01	
Neodymium (60)	Nd-151	2.93E+04	2.37E-05	1.73E-02	1.77E-01	1.35E-01	1.02E-01	1.76E-02	1.83E-01	2.82E-01	1.56E-01	
Neodymium (60)	Nd-152	3.20E+04	2.17E-05	3.11E-01	3.19E+00	2.43E+00	1.84E+00	3.16E-01	3.30E+00	5.08E+00	2.81E+00	
Neon (10)	Ne-19	1.27E+06	5.46E-07	.	.	.	.	.	.	.	.	
Neon (10)	Ne-24	1.08E+05	6.43E-06	3.70E-02	3.79E-01	2.89E-01	2.19E-01	3.77E-02	3.93E-01	6.05E-01	3.34E-01	
Nickel (28)	Ni-56	4.16E+01	1.66E-02	4.47E-03	4.58E-02	3.50E-02	2.64E-02	4.55E-03	4.74E-02	7.31E-02	4.04E-02	
Nickel (28)	Ni-57	1.71E+02	4.06E-03	1.36E-02	1.40E-01	1.07E-01	8.05E-02	1.39E-02	1.45E-01	2.23E-01	1.23E-01	
Nickel (28)	Ni-59	6.86E-06	1.01E+05	2.54E-01	2.60E+00	1.99E+00	1.50E+00	2.58E-01	2.69E+00	4.15E+00	2.29E+00	
Nickel (28)	Ni-63	6.92E-03	1.00E+02	1.02E-01	1.05E+00	7.98E-01	6.03E-01	1.04E-01	1.08E+00	1.67E+00	9.22E-01	
Nickel (28)	Ni-65	2.41E+03	2.87E-04	8.21E-02	8.42E-01	6.43E-01	4.85E-01	8.36E-02	8.72E-01	1.34E+00	7.42E-01	
Nickel (28)	Ni-66	1.11E+02	6.23E-03	4.87E-03	4.99E-02	3.81E-02	2.88E-02	4.95E-03	5.17E-02	7.96E-02	4.40E-02	
Neptunium (93)	Np-232	2.48E+04	2.80E-05	3.07E-05	3.15E-04	2.41E-04	1.82E-04	3.13E-05	3.26E-04	5.03E-04	2.78E-04	
Neptunium (93)	Np-233	1.01E+04	6.89E-05	2.10E-05	2.16E-04	1.65E-04	1.24E-04	2.14E-05	2.23E-04	3.44E-04	1.90E-04	
Neptunium (93)	Np-234	5.75E+01	1.21E-02	5.71E-06	5.86E-05	4.47E-05	3.38E-05	5.81E-06	6.06E-05	9.34E-05	5.16E-05	
Neptunium (93)	Np-235	6.39E-01	1.09E+00	1.63E-05	1.67E-04	1.28E-04	9.64E-05	1.66E-05	1.73E-04	2.67E-04	1.47E-04	
Neptunium (93)	Np-236	4.50E-06	1.54E+05	9.94E-06	1.02E-04	7.78E-05	5.88E-05	1.01E-05	1.06E-04	1.63E-04	8.98E-05	
Neptunium (93)	Np-236m	2.70E+02	2.57E-03	1.34E-05	1.38E-04	1.05E-04	7.93E-05	1.37E-05	1.42E-04	2.20E-04	1.21E-04	
Neptunium (93)	Np-237	3.23E-07	2.14E+06	1.86E-05	1.91E-04	1.46E-04	1.10E-04	1.89E-05	1.97E-04	3.04E-04	1.68E-04	
Neptunium (93)	Np-238	1.19E+02	5.80E-03	5.31E-06	5.45E-05	4.16E-05	3.14E-05	5.41E-06	5.64E-05	8.69E-05	4.80E-05	
Neptunium (93)	Np-239	1.07E+02	6.46E-03	1.32E-05	1.36E-04	1.03E-04	7.82E-05	1.35E-05	1.40E-04	2.16E-04	1.20E-04	
Neptunium (93)	Np-240	5.88E+03	1.18E-04	8.16E-06	8.37E-05	6.39E-05	4.83E-05	8.31E-06	8.67E-05	1.34E-04	7.38E-05	
Neptunium (93)	Np-240m	5.04E+04	1.37E-05	8.16E-06	8.37E-05	6.39E-05	4.83E-05	8.31E-06	8.67E-05	1.34E-04	7.38E-05	
Neptunium (93)	Np-241	2.62E+04	2.64E-05	1.52E-05	1.56E-04	1.19E-04	8.98E-05	1.55E-05	1.61E-04	2.49E-04	1.37E-04	
Neptunium (93)	Np-242	1.66E+05	4.19E-06	5.22E-06	5.36E-05	4.09E-05	3.09E-05	5.32E-06	5.54E-05	8.54E-05	4.72E-05	
Neptunium (93)	Np-242m	6.62E+04	1.05E-05	5.22E-06	5.36E-05	4.09E-05	3.09E-05	5.32E-06	5.54E-05	8.54E-05	4.72E-05	
Oxygen (8)	O-14	3.10E+05	2.24E-06	.	.	.	.	.	.	.	.	
Oxygen (8)	O-15	1.79E+05	3.88E-06	.	.	.	.	.	.	.	.	
Oxygen (8)	O-19	8.26E+05	8.39E-07	.	.	.	.	.	.	.	.	
Osmium (76)	Os-180	1.69E+04	4.09E-05	8.45E-01	8.67E+00	6.61E+00	5.00E+00	8.60E-01	8.97E+00	1.38E+01	7.64E+00	



Farmer Biota DCCs July 2023												
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)								
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Produce	Finfish	Shellfish	Beef	Dairy	Swine	Egg	Poultry	
				Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	
Osmium (76)	Os-181	3.47E+03	2.00E-04	2.53E-02	2.59E-01	1.98E-01	1.49E-01	2.57E-02	2.68E-01	4.14E-01	2.29E-01	
Osmium (76)	Os-182	2.75E+02	2.52E-03	1.79E-02	1.84E-01	1.40E-01	1.06E-01	1.83E-02	1.90E-01	2.93E-01	1.62E-01	
Osmium (76)	Os-183	4.67E+02	1.48E-03	1.26E-02	1.29E-01	9.85E-02	7.44E-02	1.28E-02	1.34E-01	2.06E-01	1.14E-01	
Osmium (76)	Os-183m	6.13E+02	1.13E-03	1.25E-02	1.28E-01	9.77E-02	7.38E-02	1.27E-02	1.32E-01	2.04E-01	1.13E-01	
Osmium (76)	Os-185	2.70E+00	2.56E-01	3.18E-02	3.26E-01	2.49E-01	1.88E-01	3.24E-02	3.38E-01	5.20E-01	2.88E-01	
Osmium (76)	Os-186	3.47E-16	2.00E+15	4.71E-04	4.83E-03	3.68E-03	2.78E-03	4.79E-04	5.00E-03	7.70E-03	4.26E-03	
Osmium (76)	Os-189m	1.05E+03	6.62E-04	8.56E-01	8.78E+00	6.70E+00	5.06E+00	8.71E-01	9.08E+00	1.40E+01	7.74E+00	
Osmium (76)	Os-190m	3.68E+04	1.88E-05									
Osmium (76)	Os-191	1.64E+01	4.22E-02	2.54E-02	2.61E-01	1.99E-01	1.50E-01	2.59E-02	2.70E-01	4.16E-01	2.30E-01	
Osmium (76)	Os-191m	4.63E+02	1.50E-03	2.17E-02	2.23E-01	1.70E-01	1.28E-01	2.21E-02	2.31E-01	3.55E-01	1.96E-01	
Osmium (76)	Os-193	2.02E+02	3.44E-03	1.77E-02	1.81E-01	1.38E-01	1.05E-01	1.80E-02	1.88E-01	2.89E-01	1.60E-01	
Osmium (76)	Os-194	1.16E-01	6.00E+00	3.85E-03	3.95E-02	3.02E-02	2.28E-02	3.92E-03	4.09E-02	6.31E-02	3.48E-02	
Osmium (76)	Os-196	1.04E+04	6.64E-05	1.36E-01	1.40E+00	1.07E+00	8.07E-01	1.39E-01	1.45E+00	2.23E+00	1.23E+00	
Phosphorus (15)	P-30	1.46E+05	4.75E-06									
Phosphorus (15)	P-32	1.77E+01	3.91E-02	5.96E-03	6.11E-02	4.66E-02	3.52E-02	6.06E-03	6.32E-02	9.75E-02	5.39E-02	
Phosphorus (15)	P-33	9.98E+00	6.94E-02	5.99E-02	6.15E-01	4.69E-01	3.54E-01	6.10E-02	6.36E-01	9.80E-01	5.42E-01	
Protactinium (91)	Pa-227	9.51E+03	7.29E-05	5.70E-04	5.85E-03	4.46E-03	3.37E-03	5.81E-04	6.05E-03	9.33E-03	5.16E-03	
Protactinium (91)	Pa-228	2.76E+02	2.51E-03	8.04E-05	8.25E-04	6.29E-04	4.75E-04	8.18E-05	8.53E-04	1.32E-03	7.27E-04	
Protactinium (91)	Pa-229	1.69E+02	4.11E-03	2.25E-05	2.31E-04	1.76E-04	1.33E-04	2.30E-05	2.39E-04	3.69E-04	2.04E-04	
Protactinium (91)	Pa-230	1.45E+01	4.77E-02	5.89E-06	6.05E-05	4.61E-05	3.49E-05	6.00E-06	6.26E-05	9.64E-05	5.33E-05	
Protactinium (91)	Pa-231	2.12E-05	3.28E+04	1.71E-05	1.75E-04	1.34E-04	1.01E-04	1.74E-05	1.81E-04	2.79E-04	1.54E-04	
Protactinium (91)	Pa-232	1.93E+02	3.59E-03	3.07E-05	3.15E-04	2.40E-04	1.82E-04	3.13E-05	3.26E-04	5.02E-04	2.78E-04	
Protactinium (91)	Pa-233	9.38E+00	7.39E-02	2.10E-05	2.16E-04	1.64E-04	1.24E-04	2.14E-05	2.23E-04	3.44E-04	1.90E-04	
Protactinium (91)	Pa-234	9.06E+02	7.65E-04	5.71E-06	5.86E-05	4.47E-05	3.38E-05	5.81E-06	6.06E-05	9.34E-05	5.16E-05	
Protactinium (91)	Pa-234m	3.11E+05	2.23E-06	5.71E-06	5.86E-05	4.47E-05	3.38E-05	5.81E-06	6.06E-05	9.34E-05	5.16E-05	
Protactinium (91)	Pa-235	1.49E+04	4.66E-05	1.63E-05	1.67E-04	1.28E-04	9.64E-05	1.66E-05	1.73E-04	2.67E-04	1.47E-04	
Protactinium (91)	Pa-236	4.00E+04	1.73E-05	9.24E-06	9.48E-05	7.23E-05	5.46E-05	9.41E-06	9.81E-05	1.51E-04	8.35E-05	
Protactinium (91)	Pa-237	4.19E+04	1.66E-05	1.86E-05	1.91E-04	1.45E-04	1.10E-04	1.89E-05	1.97E-04	3.04E-04	1.68E-04	
Lead (82)	Pb-194	3.04E+04	2.28E-05	9.33E-03	9.58E-02	7.31E-02	5.52E-02	9.50E-03	9.91E-02	1.53E-01	8.44E-02	
Lead (82)	Pb-195m	2.43E+04	2.85E-05	3.62E-02	3.72E-01	2.84E-01	2.14E-01	3.69E-02	3.85E-01	5.93E-01	3.28E-01	
Lead (82)	Pb-196	9.84E+03	7.04E-05	2.05E-01	2.10E+00	1.60E+00	1.21E+00	2.08E-01	2.17E+00	3.35E+00	1.85E+00	
Lead (82)	Pb-197	4.55E+04	1.52E-05	5.48E-02	5.62E-01	4.29E-01	3.24E-01	5.58E-02	5.82E-01	8.96E-01	4.95E-01	
Lead (82)	Pb-197m	8.47E+03	8.18E-05	4.74E-02	4.86E-01	3.71E-01	2.80E-01	4.83E-02	5.03E-01	7.76E-01	4.29E-01	
Lead (82)	Pb-198	2.53E+03	2.74E-04	1.08E-01	1.11E+00	8.43E-01	6.37E-01	1.10E-01	1.14E+00	1.76E+00	9.74E-01	
Lead (82)	Pb-199	4.05E+03	1.71E-04	2.41E-01	2.47E+00	1.89E+00	1.43E+00	2.46E-01	2.56E+00	3.95E+00	2.18E+00	
Lead (82)	Pb-200	2.82E+02	2.45E-03	2.79E-02	2.87E-01	2.19E-01	1.65E-01	2.84E-02	2.97E-01	4.57E-01	2.53E-01	
Lead (82)	Pb-201	6.51E+02	1.07E-03	6.23E-02	6.39E-01	4.88E-01	3.69E-01	6.35E-02	6.62E-01	1.02E+00	5.63E-01	

Farmer Biota DCCs July 2023												
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)								
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Produce	Finfish	Shellfish	Beef	Dairy	Swine	Egg	Poultry	
				Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	
Lead (82)	Pb-201m	3.58E+05	1.93E-06	6.23E-02	6.39E-01	4.88E-01	3.69E-01	6.35E-02	6.62E-01	1.02E+00	5.63E-01	
Lead (82)	Pb-202	1.32E-05	5.25E+04	9.41E-04	9.66E-03	7.37E-03	5.57E-03	9.58E-04	9.99E-03	1.54E-02	8.51E-03	
Lead (82)	Pb-202m	1.72E+03	4.03E-04	1.03E-03	1.05E-02	8.04E-03	6.08E-03	1.05E-03	1.09E-02	1.68E-02	9.29E-03	
Lead (82)	Pb-203	1.17E+02	5.92E-03	6.58E-02	6.75E-01	5.15E-01	3.89E-01	6.70E-02	6.98E-01	1.08E+00	5.95E-01	
Lead (82)	Pb-204m	5.42E+03	1.28E-04	3.36E-01	3.45E+00	2.63E+00	1.99E+00	3.42E-01	3.57E+00	5.50E+00	3.04E+00	
Lead (82)	Pb-205	4.53E-08	1.53E+07	5.74E-02	5.88E-01	4.49E-01	3.39E-01	5.84E-02	6.09E-01	9.39E-01	5.19E-01	
Lead (82)	Pb-209	1.87E+03	3.71E-04	2.70E-01	2.77E+00	2.12E+00	1.60E+00	2.75E-01	2.87E+00	4.42E+00	2.44E+00	
Lead (82)	Pb-210	3.12E-02	2.22E+01	7.28E-06	7.47E-05	5.70E-05	4.31E-05	7.42E-06	7.73E-05	1.19E-04	6.59E-05	
Lead (82)	Pb-211	1.01E+04	6.87E-05	7.71E-02	7.91E-01	6.03E-01	4.56E-01	7.85E-02	8.18E-01	1.26E+00	6.97E-01	
Lead (82)	Pb-212	5.71E+02	1.21E-03	1.90E-03	1.94E-02	1.48E-02	1.12E-02	1.93E-03	2.01E-02	3.10E-02	1.71E-02	
Lead (82)	Pb-214	1.36E+04	5.10E-05	7.28E-06	7.47E-05	5.70E-05	4.31E-05	7.42E-06	7.73E-05	1.19E-04	6.59E-05	
Palladium (46)	Pd-100	6.97E+01	9.95E-03	9.96E-03	1.02E-01	7.79E-02	5.89E-02	1.01E-02	1.06E-01	1.63E-01	9.00E-02	
Palladium (46)	Pd-101	7.17E+02	9.67E-04	4.60E-02	4.72E-01	3.60E-01	2.72E-01	4.68E-02	4.88E-01	7.52E-01	4.16E-01	
Palladium (46)	Pd-103	1.49E+01	4.66E-02	7.53E-02	7.73E-01	5.90E-01	4.45E-01	7.67E-02	8.00E-01	1.23E+00	6.81E-01	
Palladium (46)	Pd-107	1.07E-07	6.50E+06	3.82E-01	3.92E+00	2.99E+00	2.26E+00	3.89E-01	4.05E+00	6.25E+00	3.45E+00	
Palladium (46)	Pd-109	4.43E+02	1.56E-03	2.63E-02	2.69E-01	2.06E-01	1.55E-01	2.67E-02	2.79E-01	4.30E-01	2.37E-01	
Palladium (46)	Pd-109m	7.77E+04	8.92E-06	2.63E-02	2.69E-01	2.06E-01	1.55E-01	2.67E-02	2.79E-01	4.30E-01	2.37E-01	
Palladium (46)	Pd-111	1.56E+04	4.45E-05	1.13E-02	1.16E-01	8.85E-02	6.69E-02	1.15E-02	1.20E-01	1.85E-01	1.02E-01	
Palladium (46)	Pd-112	2.89E+02	2.40E-03	4.91E-03	5.04E-02	3.84E-02	2.90E-02	5.00E-03	5.21E-02	8.03E-02	4.44E-02	
Palladium (46)	Pd-114	1.51E+05	4.60E-06	.	.	.	.	.	.	.	.	
Palladium (46)	Pd-96	1.79E+05	3.87E-06	.	.	.	.	.	.	.	.	
Palladium (46)	Pd-97	1.17E+05	5.90E-06	5.75E-02	5.90E-01	4.50E-01	3.40E-01	5.86E-02	6.11E-01	9.42E-01	5.20E-01	
Palladium (46)	Pd-98	2.06E+04	3.37E-05	2.45E-01	2.51E+00	1.92E+00	1.45E+00	2.49E-01	2.60E+00	4.01E+00	2.21E+00	
Palladium (46)	Pd-99	1.70E+04	4.07E-05	1.32E-01	1.36E+00	1.04E+00	7.83E-01	1.35E-01	1.41E+00	2.17E+00	1.20E+00	
Promethium (61)	Pm-136	2.04E+05	3.39E-06	1.16E-01	1.19E+00	9.05E-01	6.84E-01	1.18E-01	1.23E+00	1.89E+00	1.05E+00	
Promethium (61)	Pm-137m	1.52E+05	4.57E-06	7.60E-02	7.80E-01	5.95E-01	4.49E-01	7.74E-02	8.07E-01	1.24E+00	6.87E-01	
Promethium (61)	Pm-139	8.78E+04	7.90E-06	4.80E-02	4.92E-01	3.76E-01	2.84E-01	4.89E-02	5.10E-01	7.85E-01	4.34E-01	
Promethium (61)	Pm-140	2.38E+06	2.92E-07	7.45E-03	7.64E-02	5.83E-02	4.41E-02	7.59E-03	7.91E-02	1.22E-01	6.74E-02	
Promethium (61)	Pm-140m	6.12E+04	1.13E-05	7.45E-03	7.64E-02	5.83E-02	4.41E-02	7.59E-03	7.91E-02	1.22E-01	6.74E-02	
Promethium (61)	Pm-141	1.74E+04	3.98E-05	3.49E-01	3.58E+00	2.73E+00	2.06E+00	3.55E-01	3.70E+00	5.71E+00	3.15E+00	
Promethium (61)	Pm-142	5.40E+05	1.28E-06	.	.	.	.	.	.	.	.	
Promethium (61)	Pm-143	9.55E-01	7.26E-01	6.73E-02	6.90E-01	5.27E-01	3.98E-01	6.85E-02	7.15E-01	1.10E+00	6.09E-01	
Promethium (61)	Pm-144	6.97E-01	9.95E-01	3.74E-04	3.83E-03	2.92E-03	2.21E-03	3.80E-04	3.97E-03	6.11E-03	3.38E-03	
Promethium (61)	Pm-145	3.92E-02	1.77E+01	1.36E-01	1.40E+00	1.07E+00	8.07E-01	1.39E-01	1.45E+00	2.23E+00	1.23E+00	
Promethium (61)	Pm-146	1.25E-01	5.53E+00	8.07E-04	8.28E-03	6.32E-03	4.77E-03	8.22E-04	8.57E-03	1.32E-02	7.30E-03	
Promethium (61)	Pm-147	2.64E-01	2.62E+00	3.14E-04	3.22E-03	2.46E-03	1.86E-03	3.19E-04	3.33E-03	5.13E-03	2.84E-03	
Promethium (61)	Pm-148	4.71E+01	1.47E-02	1.81E-04	1.86E-03	1.42E-03	1.07E-03	1.84E-04	1.92E-03	2.96E-03	1.64E-03	

Farmer Biota DCCs July 2023												
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)								
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Produce	Finfish	Shellfish	Beef	Dairy	Swine	Egg	Poultry	
				Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	
Promethium (61)	Pm-148m	6.13E+00	1.13E-01	1.83E-04	1.88E-03	1.43E-03	1.08E-03	1.86E-04	1.94E-03	3.00E-03	1.66E-03	
Promethium (61)	Pm-149	1.14E+02	6.06E-03	1.47E-02	1.51E-01	1.15E-01	8.72E-02	1.50E-02	1.56E-01	2.41E-01	1.33E-01	
Promethium (61)	Pm-150	2.27E+03	3.06E-04	5.79E-02	5.94E-01	4.53E-01	3.42E-01	5.89E-02	6.14E-01	9.47E-01	5.23E-01	
Promethium (61)	Pm-151	2.14E+02	3.24E-03	1.78E-02	1.83E-01	1.40E-01	1.05E-01	1.82E-02	1.89E-01	2.92E-01	1.61E-01	
Promethium (61)	Pm-152	8.84E+04	7.84E-06	.	.	.	.	.	.	.	.	
Promethium (61)	Pm-152m	4.84E+04	1.43E-05	.	.	.	.	.	.	.	.	
Promethium (61)	Pm-153	6.94E+04	9.99E-06	2.00E-02	2.05E-01	1.56E-01	1.18E-01	2.04E-02	2.12E-01	3.27E-01	1.81E-01	
Promethium (61)	Pm-154	2.11E+05	3.29E-06	.	.	.	.	.	.	.	.	
Promethium (61)	Pm-154m	1.36E+05	5.10E-06	.	.	.	.	.	.	.	.	
Polonium (84)	Po-203	9.92E+03	6.98E-05	2.04E-02	2.09E-01	1.59E-01	1.20E-01	2.07E-02	2.16E-01	3.33E-01	1.84E-01	
Polonium (84)	Po-204	1.72E+03	4.03E-04	1.96E-02	2.01E-01	1.53E-01	1.16E-01	1.99E-02	2.08E-01	3.20E-01	1.77E-01	
Polonium (84)	Po-205	3.66E+03	1.89E-04	1.29E-02	1.32E-01	1.01E-01	7.61E-02	1.31E-02	1.37E-01	2.11E-01	1.16E-01	
Polonium (84)	Po-206	2.87E+01	2.41E-02	7.37E-04	7.56E-03	5.77E-03	4.36E-03	7.50E-04	7.82E-03	1.21E-02	6.66E-03	
Polonium (84)	Po-207	1.05E+03	6.62E-04	1.13E-02	1.16E-01	8.85E-02	6.68E-02	1.15E-02	1.20E-01	1.85E-01	1.02E-01	
Polonium (84)	Po-208	2.39E-01	2.90E+00	9.22E-06	9.46E-05	7.22E-05	5.45E-05	9.39E-06	9.79E-05	1.51E-04	8.34E-05	
Polonium (84)	Po-209	6.79E-03	1.02E+02	9.26E-06	9.50E-05	7.25E-05	5.48E-05	9.43E-06	9.83E-05	1.52E-04	8.37E-05	
Polonium (84)	Po-210	1.83E+00	3.79E-01	1.15E-05	1.18E-04	9.03E-05	6.82E-05	1.17E-05	1.23E-04	1.89E-04	1.04E-04	
Polonium (84)	Po-211	4.24E+07	1.64E-08	.	.	.	.	.	.	.	.	
Polonium (84)	Po-212	7.31E+13	9.48E-15	.	.	.	.	.	.	.	.	
Polonium (84)	Po-212m	4.85E+05	1.43E-06	.	.	.	.	.	.	.	.	
Polonium (84)	Po-213	5.20E+12	1.33E-13	2.70E-01	2.77E+00	2.12E+00	1.60E+00	2.75E-01	2.87E+00	4.42E+00	2.44E+00	
Polonium (84)	Po-214	1.33E+11	5.21E-12	7.28E-06	7.47E-05	5.70E-05	4.31E-05	7.42E-06	7.73E-05	1.19E-04	6.59E-05	
Polonium (84)	Po-215	1.23E+10	5.65E-11	7.71E-02	7.91E-01	6.03E-01	4.56E-01	7.85E-02	8.18E-01	1.26E+00	6.97E-01	
Polonium (84)	Po-216	1.51E+08	4.60E-09	1.90E-03	1.94E-02	1.48E-02	1.12E-02	1.93E-03	2.01E-02	3.10E-02	1.71E-02	
Polonium (84)	Po-218	1.17E+05	5.90E-06	7.28E-06	7.47E-05	5.70E-05	4.31E-05	7.42E-06	7.73E-05	1.19E-04	6.59E-05	
Praseodymium (59)	Pr-134	3.31E+04	2.09E-05	5.47E-03	5.61E-02	4.28E-02	3.23E-02	5.56E-03	5.80E-02	8.94E-02	4.94E-02	
Praseodymium (59)	Pr-134m	2.14E+04	3.23E-05	5.40E-03	5.54E-02	4.22E-02	3.19E-02	5.49E-03	5.73E-02	8.83E-02	4.88E-02	
Praseodymium (59)	Pr-135	1.52E+04	4.57E-05	4.66E-02	4.78E-01	3.65E-01	2.75E-01	4.74E-02	4.95E-01	7.62E-01	4.21E-01	
Praseodymium (59)	Pr-136	2.78E+04	2.49E-05	4.52E-01	4.63E+00	3.54E+00	2.67E+00	4.60E-01	4.80E+00	7.39E+00	4.08E+00	
Praseodymium (59)	Pr-137	4.74E+03	1.46E-04	1.03E-01	1.06E+00	8.09E-01	6.11E-01	1.05E-01	1.10E+00	1.69E+00	9.34E-01	
Praseodymium (59)	Pr-138	2.51E+05	2.76E-06	.	.	.	.	.	.	.	.	
Praseodymium (59)	Pr-138m	2.86E+03	2.42E-04	1.21E-01	1.24E+00	9.46E-01	7.15E-01	1.23E-01	1.28E+00	1.98E+00	1.09E+00	
Praseodymium (59)	Pr-139	1.38E+03	5.03E-04	5.13E-02	5.27E-01	4.02E-01	3.04E-01	5.23E-02	5.45E-01	8.40E-01	4.64E-01	
Praseodymium (59)	Pr-140	1.07E+05	6.45E-06	.	.	.	.	.	.	.	.	
Praseodymium (59)	Pr-142	3.18E+02	2.18E-03	1.11E-02	1.14E-01	8.68E-02	6.56E-02	1.13E-02	1.18E-01	1.82E-01	1.00E-01	
Praseodymium (59)	Pr-142m	2.49E+04	2.78E-05	1.10E-02	1.12E-01	8.58E-02	6.48E-02	1.12E-02	1.16E-01	1.79E-01	9.91E-02	
Praseodymium (59)	Pr-143	1.86E+01	3.72E-02	1.25E-02	1.28E-01	9.76E-02	7.37E-02	1.27E-02	1.32E-01	2.04E-01	1.13E-01	

Farmer Biota DCCs July 2023												
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)								
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Produce	Finfish	Shellfish	Beef	Dairy	Swine	Egg	Poultry	
				Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	
Praseodymium (59)	Pr-144	2.11E+04	3.29E-05	3.82E-04	3.92E-03	2.99E-03	2.26E-03	3.89E-04	4.06E-03	6.25E-03	3.45E-03	
Praseodymium (59)	Pr-144m	5.06E+04	1.37E-05	3.82E-04	3.92E-03	2.99E-03	2.26E-03	3.89E-04	4.06E-03	6.25E-03	3.45E-03	
Praseodymium (59)	Pr-145	1.01E+03	6.83E-04	3.71E-02	3.81E-01	2.91E-01	2.20E-01	3.78E-02	3.94E-01	6.07E-01	3.36E-01	
Praseodymium (59)	Pr-146	1.51E+04	4.59E-05	1.94E-01	1.99E+00	1.52E+00	1.15E+00	1.98E-01	2.06E+00	3.18E+00	1.76E+00	
Praseodymium (59)	Pr-147	2.72E+04	2.55E-05	3.06E-04	3.14E-03	2.40E-03	1.81E-03	3.12E-04	3.25E-03	5.01E-03	2.77E-03	
Praseodymium (59)	Pr-148	1.59E+05	4.36E-06	.	.	.	.	.	.	.	.	
Praseodymium (59)	Pr-148m	1.81E+05	3.82E-06	.	.	.	.	.	.	.	.	
Platinum (78)	Pt-184	2.11E+04	3.29E-05	7.14E-02	7.32E-01	5.59E-01	4.22E-01	7.27E-02	7.58E-01	1.17E+00	6.45E-01	
Platinum (78)	Pt-186	2.92E+03	2.37E-04	4.65E-04	4.77E-03	3.64E-03	2.75E-03	4.74E-04	4.94E-03	7.61E-03	4.21E-03	
Platinum (78)	Pt-187	2.58E+03	2.68E-04	7.65E-02	7.85E-01	5.99E-01	4.52E-01	7.79E-02	8.12E-01	1.25E+00	6.92E-01	
Platinum (78)	Pt-188	2.48E+01	2.79E-02	9.79E-03	1.00E-01	7.67E-02	5.79E-02	9.97E-03	1.04E-01	1.60E-01	8.85E-02	
Platinum (78)	Pt-189	5.58E+02	1.24E-03	3.44E-02	3.52E-01	2.69E-01	2.03E-01	3.50E-02	3.65E-01	5.62E-01	3.11E-01	
Platinum (78)	Pt-190	1.07E-12	6.50E+11	3.86E-04	3.96E-03	3.02E-03	2.28E-03	3.93E-04	4.10E-03	6.32E-03	3.49E-03	
Platinum (78)	Pt-191	9.03E+01	7.68E-03	4.14E-02	4.24E-01	3.24E-01	2.45E-01	4.21E-02	4.39E-01	6.77E-01	3.74E-01	
Platinum (78)	Pt-193	1.39E-02	5.00E+01	4.10E-01	4.20E+00	3.21E+00	2.42E+00	4.17E-01	4.35E+00	6.70E+00	3.70E+00	
Platinum (78)	Pt-193m	5.84E+01	1.19E-02	2.97E-02	3.05E-01	2.33E-01	1.76E-01	3.03E-02	3.16E-01	4.86E-01	2.69E-01	
Platinum (78)	Pt-195m	6.29E+01	1.10E-02	2.29E-02	2.35E-01	1.79E-01	1.35E-01	2.33E-02	2.43E-01	3.74E-01	2.07E-01	
Platinum (78)	Pt-197	3.05E+02	2.27E-03	3.39E-02	3.48E-01	2.66E-01	2.01E-01	3.46E-02	3.60E-01	5.55E-01	3.07E-01	
Platinum (78)	Pt-197m	3.82E+03	1.82E-04	2.92E-02	3.00E-01	2.29E-01	1.73E-01	2.97E-02	3.10E-01	4.78E-01	2.64E-01	
Platinum (78)	Pt-199	1.18E+04	5.86E-05	3.05E-02	3.13E-01	2.39E-01	1.81E-01	3.11E-02	3.24E-01	5.00E-01	2.76E-01	
Platinum (78)	Pt-200	4.86E+02	1.43E-03	1.19E-02	1.22E-01	9.29E-02	7.02E-02	1.21E-02	1.26E-01	1.94E-01	1.07E-01	
Platinum (78)	Pt-202	1.38E+02	5.02E-03	3.33E-03	3.41E-02	2.60E-02	1.97E-02	3.39E-03	3.53E-02	5.44E-02	3.01E-02	
Plutonium (94)	Pu-232	1.08E+04	6.41E-05	3.99E-05	4.10E-04	3.12E-04	2.36E-04	4.06E-05	4.24E-04	6.53E-04	3.61E-04	
Plutonium (94)	Pu-234	6.90E+02	1.00E-03	5.78E-06	5.93E-05	4.52E-05	3.42E-05	5.88E-06	6.13E-05	9.45E-05	5.22E-05	
Plutonium (94)	Pu-235	1.44E+04	4.81E-05	1.63E-05	1.67E-04	1.28E-04	9.64E-05	1.66E-05	1.73E-04	2.67E-04	1.47E-04	
Plutonium (94)	Pu-236	2.42E-01	2.86E+00	2.63E-05	2.70E-04	2.06E-04	1.56E-04	2.68E-05	2.80E-04	4.31E-04	2.38E-04	
Plutonium (94)	Pu-237	5.60E+00	1.24E-01	1.86E-05	1.91E-04	1.45E-04	1.10E-04	1.89E-05	1.97E-04	3.04E-04	1.68E-04	
Plutonium (94)	Pu-238	7.90E-03	8.77E+01	5.31E-06	5.45E-05	4.16E-05	3.14E-05	5.41E-06	5.64E-05	8.70E-05	4.81E-05	
Plutonium (94)	Pu-239	2.87E-05	2.41E+04	1.32E-05	1.36E-04	1.04E-04	7.82E-05	1.35E-05	1.40E-04	2.17E-04	1.20E-04	
Plutonium (94)	Pu-240	1.06E-04	6.56E+03	8.16E-06	8.37E-05	6.39E-05	4.83E-05	8.31E-06	8.67E-05	1.34E-04	7.38E-05	
Plutonium (94)	Pu-241	4.83E-02	1.44E+01	1.52E-05	1.56E-04	1.19E-04	8.98E-05	1.55E-05	1.61E-04	2.49E-04	1.37E-04	
Plutonium (94)	Pu-242	1.85E-06	3.75E+05	5.22E-06	5.36E-05	4.09E-05	3.09E-05	5.32E-06	5.54E-05	8.54E-05	4.72E-05	
Plutonium (94)	Pu-243	1.22E+03	5.66E-04	1.15E-05	1.17E-04	8.96E-05	6.77E-05	1.17E-05	1.22E-04	1.87E-04	1.04E-04	
Plutonium (94)	Pu-244	8.66E-09	8.00E+07	7.35E-06	7.55E-05	5.76E-05	4.35E-05	7.49E-06	7.81E-05	1.20E-04	6.65E-05	
Plutonium (94)	Pu-245	5.78E+02	1.20E-03	1.28E-05	1.32E-04	1.01E-04	7.59E-05	1.31E-05	1.36E-04	2.10E-04	1.16E-04	
Plutonium (94)	Pu-246	2.33E+01	2.97E-02	4.91E-06	5.04E-05	3.84E-05	2.90E-05	5.00E-06	5.21E-05	8.04E-05	4.44E-05	
Radium (88)	Ra-219	2.19E+09	3.17E-10	.	.	.	.	.	.	.	.	



Farmer Biota DCCs July 2023												
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)								
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Produce	Finfish	Shellfish	Beef	Dairy	Swine	Egg	Poultry	
				Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	
Radium (88)	Ra-220	1.22E+09	5.68E-10	.	.	.	.	.	.	.	.	
Radium (88)	Ra-221	7.81E+05	8.88E-07	2.70E-01	2.77E+00	2.12E+00	1.60E+00	2.75E-01	2.87E+00	4.42E+00	2.44E+00	
Radium (88)	Ra-222	5.75E+05	1.20E-06	7.28E-06	7.47E-05	5.70E-05	4.31E-05	7.42E-06	7.73E-05	1.19E-04	6.59E-05	
Radium (88)	Ra-223	2.21E+01	3.13E-02	9.29E-05	9.53E-04	7.28E-04	5.50E-04	9.46E-05	9.87E-04	1.52E-03	8.40E-04	
Radium (88)	Ra-224	6.91E+01	1.00E-02	1.48E-04	1.52E-03	1.16E-03	8.74E-04	1.50E-04	1.57E-03	2.42E-03	1.34E-03	
Radium (88)	Ra-225	1.70E+01	4.08E-02	6.95E-05	7.13E-04	5.44E-04	4.11E-04	7.07E-05	7.38E-04	1.14E-03	6.28E-04	
Radium (88)	Ra-226	4.33E-04	1.60E+03	6.26E-06	6.42E-05	4.90E-05	3.70E-05	6.37E-06	6.65E-05	1.02E-04	5.66E-05	
Radium (88)	Ra-227	8.63E+03	8.03E-05	3.24E-05	3.32E-04	2.53E-04	1.91E-04	3.30E-05	3.44E-04	5.30E-04	2.93E-04	
Radium (88)	Ra-228	1.21E-01	5.75E+00	1.09E-05	1.12E-04	8.53E-05	6.44E-05	1.11E-05	1.16E-04	1.78E-04	9.85E-05	
Radium (88)	Ra-230	3.92E+03	1.77E-04	5.80E-06	5.96E-05	4.54E-05	3.43E-05	5.91E-06	6.16E-05	9.50E-05	5.25E-05	
Rubidium (37)	Rb-77	9.66E+04	7.17E-06	1.68E-01	1.73E+00	1.32E+00	9.95E-01	1.71E-01	1.79E+00	2.75E+00	1.52E+00	
Rubidium (37)	Rb-78	2.06E+04	3.36E-05	2.17E-01	2.23E+00	1.70E+00	1.29E+00	2.21E-01	2.31E+00	3.56E+00	1.97E+00	
Rubidium (37)	Rb-78m	6.35E+04	1.09E-05	2.17E+00	2.23E+01	1.70E+01	1.29E+01	2.21E+00	2.31E+01	3.56E+01	1.97E+01	
Rubidium (37)	Rb-79	1.59E+04	4.36E-05	3.07E-01	3.15E+00	2.40E+00	1.81E+00	3.12E-01	3.26E+00	5.02E+00	2.77E+00	
Rubidium (37)	Rb-80	6.54E+05	1.06E-06	.	.	.	.	.	.	.	.	
Rubidium (37)	Rb-81	1.33E+03	5.22E-04	3.20E-01	3.28E+00	2.50E+00	1.89E+00	3.26E-01	3.40E+00	5.24E+00	2.89E+00	
Rubidium (37)	Rb-81m	1.19E+04	5.80E-05	2.73E-01	2.80E+00	2.13E+00	1.61E+00	2.77E-01	2.89E+00	4.46E+00	2.46E+00	
Rubidium (37)	Rb-82	2.86E+05	2.42E-06	.	.	.	.	.	.	.	.	
Rubidium (37)	Rb-82m	9.38E+02	7.39E-04	1.24E-01	1.27E+00	9.70E-01	7.33E-01	1.26E-01	1.32E+00	2.03E+00	1.12E+00	
Rubidium (37)	Rb-83	2.93E+00	2.36E-01	9.44E-03	9.68E-02	7.39E-02	5.58E-02	9.61E-03	1.00E-01	1.54E-01	8.53E-02	
Rubidium (37)	Rb-84	7.72E+00	8.98E-02	5.74E-03	5.88E-02	4.49E-02	3.39E-02	5.84E-03	6.09E-02	9.39E-02	5.19E-02	
Rubidium (37)	Rb-84m	1.80E+04	3.85E-05	5.72E-03	5.87E-02	4.48E-02	3.38E-02	5.83E-03	6.07E-02	9.36E-02	5.17E-02	
Rubidium (37)	Rb-86	1.36E+01	5.11E-02	5.30E-03	5.44E-02	4.15E-02	3.13E-02	5.40E-03	5.63E-02	8.67E-02	4.79E-02	
Rubidium (37)	Rb-86m	3.58E+05	1.93E-06	5.30E-03	5.44E-02	4.15E-02	3.13E-02	5.40E-03	5.63E-02	8.67E-02	4.79E-02	
Rubidium (37)	Rb-87	1.41E-11	4.92E+10	9.85E-03	1.01E-01	7.71E-02	5.82E-02	1.00E-02	1.05E-01	1.61E-01	8.91E-02	
Rubidium (37)	Rb-88	2.05E+04	3.38E-05	1.66E-01	1.70E+00	1.30E+00	9.79E-01	1.69E-01	1.76E+00	2.71E+00	1.50E+00	
Rubidium (37)	Rb-89	2.40E+04	2.88E-05	5.50E-03	5.64E-02	4.31E-02	3.25E-02	5.60E-03	5.84E-02	9.00E-02	4.98E-02	
Rubidium (37)	Rb-90	1.38E+05	5.01E-06	5.09E-04	5.22E-03	3.98E-03	3.01E-03	5.18E-04	5.40E-03	8.32E-03	4.60E-03	
Rubidium (37)	Rb-90m	8.47E+04	8.18E-06	5.09E-04	5.22E-03	3.98E-03	3.01E-03	5.18E-04	5.40E-03	8.32E-03	4.60E-03	
Rhenium (75)	Re-178	2.76E+04	2.51E-05	5.53E-02	5.68E-01	4.33E-01	3.27E-01	5.64E-02	5.88E-01	9.06E-01	5.00E-01	
Rhenium (75)	Re-179	1.87E+04	3.71E-05	1.99E-01	2.05E+00	1.56E+00	1.18E+00	2.03E-01	2.12E+00	3.26E+00	1.80E+00	
Rhenium (75)	Re-180	1.49E+05	4.64E-06	.	.	.	.	.	.	.	.	
Rhenium (75)	Re-181	3.05E+02	2.27E-03	2.96E-02	3.04E-01	2.32E-01	1.75E-01	3.02E-02	3.15E-01	4.85E-01	2.68E-01	
Rhenium (75)	Re-182	9.49E+01	7.31E-03	1.08E-02	1.11E-01	8.45E-02	6.39E-02	1.10E-02	1.15E-01	1.77E-01	9.76E-02	
Rhenium (75)	Re-182m	4.78E+02	1.45E-03	5.37E-02	5.51E-01	4.20E-01	3.18E-01	5.47E-02	5.70E-01	8.79E-01	4.86E-01	
Rhenium (75)	Re-183	3.61E+00	1.92E-01	1.54E-02	1.58E-01	1.21E-01	9.12E-02	1.57E-02	1.64E-01	2.52E-01	1.39E-01	
Rhenium (75)	Re-184	6.66E+00	1.04E-01	1.57E-02	1.61E-01	1.23E-01	9.26E-02	1.59E-02	1.66E-01	2.56E-01	1.42E-01	

Farmer Biota DCCs July 2023												
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)								
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Produce	Finfish	Shellfish	Beef	Dairy	Swine	Egg	Poultry	
				Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	
Rhenium (75)	Re-184m	1.50E+00	4.63E-01	6.84E-03	7.02E-02	5.35E-02	4.04E-02	6.96E-03	7.26E-02	1.12E-01	6.18E-02	
Rhenium (75)	Re-186	6.80E+01	1.02E-02	4.84E-04	4.97E-03	3.79E-03	2.86E-03	4.93E-04	5.14E-03	7.93E-03	4.38E-03	
Rhenium (75)	Re-186m	3.47E-06	2.00E+05	4.51E-04	4.63E-03	3.53E-03	2.67E-03	4.60E-04	4.79E-03	7.39E-03	4.08E-03	
Rhenium (75)	Re-187	1.68E-11	4.12E+10	3.06E+00	3.14E+01	2.40E+01	1.81E+01	3.12E+00	3.25E+01	5.01E+01	2.77E+01	
Rhenium (75)	Re-188	3.57E+02	1.94E-03	1.05E-02	1.08E-01	8.23E-02	6.22E-02	1.07E-02	1.12E-01	1.72E-01	9.51E-02	
Rhenium (75)	Re-188m	1.96E+04	3.54E-05	1.03E-02	1.06E-01	8.06E-02	6.09E-02	1.05E-02	1.09E-01	1.68E-01	9.31E-02	
Rhenium (75)	Re-189	2.50E+02	2.77E-03	1.94E-02	1.99E-01	1.52E-01	1.14E-01	1.97E-02	2.06E-01	3.17E-01	1.75E-01	
Rhenium (75)	Re-190	1.17E+05	5.90E-06	.	.	.	.	.	.	.	.	
Rhenium (75)	Re-190m	1.90E+03	3.65E-04	4.01E-02	4.11E-01	3.14E-01	2.37E-01	4.08E-02	4.25E-01	6.56E-01	3.62E-01	
Rhodium (45)	Rh-100	2.92E+02	2.37E-03	2.38E-02	2.44E-01	1.86E-01	1.41E-01	2.42E-02	2.53E-01	3.90E-01	2.15E-01	
Rhodium (45)	Rh-100m	7.92E+04	8.75E-06	2.42E-02	2.48E-01	1.90E-01	1.43E-01	2.47E-02	2.57E-01	3.96E-01	2.19E-01	
Rhodium (45)	Rh-101	2.10E-01	3.30E+00	2.93E-02	3.00E-01	2.29E-01	1.73E-01	2.98E-02	3.11E-01	4.79E-01	2.65E-01	
Rhodium (45)	Rh-101m	5.83E+01	1.19E-02	6.39E-02	6.55E-01	5.00E-01	3.78E-01	6.50E-02	6.78E-01	1.05E+00	5.77E-01	
Rhodium (45)	Rh-102	1.22E+00	5.67E-01	1.27E-02	1.30E-01	9.94E-02	7.51E-02	1.29E-02	1.35E-01	2.08E-01	1.15E-01	
Rhodium (45)	Rh-102m	1.85E-01	3.74E+00	6.07E-03	6.23E-02	4.76E-02	3.59E-02	6.19E-03	6.45E-02	9.94E-02	5.49E-02	
Rhodium (45)	Rh-103m	6.49E+03	1.07E-04	3.95E+00	4.05E+01	3.09E+01	2.34E+01	4.02E+00	4.20E+01	6.47E+01	3.57E+01	
Rhodium (45)	Rh-104	5.17E+05	1.34E-06	.	.	.	.	.	.	.	.	
Rhodium (45)	Rh-104m	8.39E+04	8.26E-06	.	.	.	.	.	.	.	.	
Rhodium (45)	Rh-105	1.72E+02	4.04E-03	4.02E-02	4.13E-01	3.15E-01	2.38E-01	4.10E-02	4.27E-01	6.58E-01	3.64E-01	
Rhodium (45)	Rh-106	7.33E+05	9.45E-07	.	.	.	.	.	.	.	.	
Rhodium (45)	Rh-106m	2.78E+03	2.49E-04	9.26E-02	9.50E-01	7.25E-01	5.48E-01	9.43E-02	9.83E-01	1.52E+00	8.37E-01	
Rhodium (45)	Rh-107	1.68E+04	4.13E-05	2.38E-01	2.44E+00	1.86E+00	1.41E+00	2.42E-01	2.53E+00	3.89E+00	2.15E+00	
Rhodium (45)	Rh-108	1.30E+06	5.33E-07	.	.	.	.	.	.	.	.	
Rhodium (45)	Rh-109	2.73E+05	2.54E-06	2.63E-02	2.69E-01	2.06E-01	1.55E-01	2.67E-02	2.79E-01	4.30E-01	2.37E-01	
Rhodium (45)	Rh-94	3.10E+05	2.24E-06	7.74E-02	7.94E-01	6.06E-01	4.58E-01	7.88E-02	8.21E-01	1.27E+00	7.00E-01	
Rhodium (45)	Rh-95	7.26E+04	9.55E-06	6.38E-02	6.54E-01	4.99E-01	3.77E-01	6.49E-02	6.77E-01	1.04E+00	5.77E-01	
Rhodium (45)	Rh-95m	1.86E+05	3.73E-06	6.38E-02	6.54E-01	4.99E-01	3.77E-01	6.49E-02	6.77E-01	1.04E+00	5.77E-01	
Rhodium (45)	Rh-96	3.68E+04	1.88E-05	.	.	.	.	.	.	.	.	
Rhodium (45)	Rh-96m	2.41E+05	2.87E-06	.	.	.	.	.	.	.	.	
Rhodium (45)	Rh-97	1.19E+04	5.84E-05	5.75E-02	5.90E-01	4.50E-01	3.40E-01	5.86E-02	6.11E-01	9.42E-01	5.20E-01	
Rhodium (45)	Rh-97m	7.88E+03	8.79E-05	5.73E-02	5.88E-01	4.49E-01	3.39E-01	5.83E-02	6.08E-01	9.38E-01	5.18E-01	
Rhodium (45)	Rh-98	4.19E+04	1.66E-05	.	.	.	.	.	.	.	.	
Rhodium (45)	Rh-99	1.57E+01	4.41E-02	2.73E-02	2.80E-01	2.14E-01	1.62E-01	2.78E-02	2.90E-01	4.47E-01	2.47E-01	
Rhodium (45)	Rh-99m	1.29E+03	5.37E-04	2.39E-01	2.45E+00	1.87E+00	1.41E+00	2.43E-01	2.53E+00	3.91E+00	2.16E+00	
Radon (86)	Rn-207	3.94E+04	1.76E-05	1.12E-02	1.15E-01	8.78E-02	6.63E-02	1.14E-02	1.19E-01	1.84E-01	1.01E-01	
Radon (86)	Rn-209	1.28E+04	5.42E-05	1.16E-05	1.19E-04	9.10E-05	6.88E-05	1.18E-05	1.23E-04	1.90E-04	1.05E-04	
Radon (86)	Rn-210	2.53E+03	2.74E-04	2.10E-04	2.15E-03	1.64E-03	1.24E-03	2.14E-04	2.23E-03	3.43E-03	1.90E-03	

Farmer Biota DCCs July 2023												
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)								
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Produce	Finfish	Shellfish	Beef	Dairy	Swine	Egg	Poultry	
				Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	
Radon (86)	Rn-211	4.16E+02	1.67E-03	1.72E-03	1.77E-02	1.35E-02	1.02E-02	1.75E-03	1.83E-02	2.82E-02	1.56E-02	
Radon (86)	Rn-212	1.52E+04	4.55E-05	9.22E-06	9.46E-05	7.22E-05	5.45E-05	9.39E-06	9.79E-05	1.51E-04	8.34E-05	
Radon (86)	Rn-215	9.50E+12	7.29E-14	.	.	.	.	.	.	.	.	
Radon (86)	Rn-216	4.86E+11	1.43E-12	.	.	.	.	.	.	.	.	
Radon (86)	Rn-217	4.05E+10	1.71E-11	2.70E-01	2.77E+00	2.12E+00	1.60E+00	2.75E-01	2.87E+00	4.42E+00	2.44E+00	
Radon (86)	Rn-218	6.24E+08	1.11E-09	7.28E-06	7.47E-05	5.70E-05	4.31E-05	7.42E-06	7.73E-05	1.19E-04	6.59E-05	
Radon (86)	Rn-219	5.52E+06	1.26E-07	7.71E-02	7.91E-01	6.03E-01	4.56E-01	7.85E-02	8.18E-01	1.26E+00	6.97E-01	
Radon (86)	Rn-220	3.93E+05	1.76E-06	1.90E-03	1.94E-02	1.48E-02	1.12E-02	1.93E-03	2.01E-02	3.10E-02	1.71E-02	
Radon (86)	Rn-222	6.62E+01	1.05E-02	7.28E-06	7.47E-05	5.70E-05	4.31E-05	7.42E-06	7.73E-05	1.19E-04	6.59E-05	
Radon (86)	Rn-223	1.50E+04	4.62E-05	9.16E-05	9.39E-04	7.17E-04	5.42E-04	9.32E-05	9.72E-04	1.50E-03	8.28E-04	
Ruthenium (44)	Ru-103	6.44E+00	1.08E-01	2.13E-02	2.19E-01	1.67E-01	1.26E-01	2.17E-02	2.27E-01	3.49E-01	1.93E-01	
Ruthenium (44)	Ru-105	1.37E+03	5.07E-04	2.30E-02	2.36E-01	1.80E-01	1.36E-01	2.34E-02	2.44E-01	3.76E-01	2.08E-01	
Ruthenium (44)	Ru-106	6.77E-01	1.02E+00	2.11E-03	2.16E-02	1.65E-02	1.25E-02	2.14E-03	2.24E-02	3.45E-02	1.90E-02	
Ruthenium (44)	Ru-107	9.71E+04	7.13E-06	2.38E-01	2.44E+00	1.86E+00	1.41E+00	2.42E-01	2.53E+00	3.89E+00	2.15E+00	
Ruthenium (44)	Ru-108	8.01E+04	8.66E-06	.	.	.	.	.	.	.	.	
Ruthenium (44)	Ru-92	9.98E+04	6.94E-06	.	.	.	.	.	.	.	.	
Ruthenium (44)	Ru-94	7.03E+03	9.86E-05	7.74E-02	7.94E-01	6.06E-01	4.58E-01	7.88E-02	8.21E-01	1.27E+00	7.00E-01	
Ruthenium (44)	Ru-95	3.69E+03	1.88E-04	6.38E-02	6.54E-01	4.99E-01	3.77E-01	6.49E-02	6.77E-01	1.04E+00	5.77E-01	
Ruthenium (44)	Ru-97	8.72E+01	7.95E-03	6.99E-02	7.17E-01	5.47E-01	4.13E-01	7.11E-02	7.42E-01	1.14E+00	6.32E-01	
Sulfur (16)	S-35	2.89E+00	2.40E-01	1.16E-01	1.19E+00	9.08E-01	6.86E-01	1.18E-01	1.23E+00	1.90E+00	1.05E+00	
Sulphur (16)	S-37	7.21E+04	9.61E-06	.	.	.	.	.	.	.	.	
Sulfur (16)	S-38	2.14E+03	3.24E-04	3.42E-02	3.51E-01	2.68E-01	2.02E-01	3.48E-02	3.63E-01	5.60E-01	3.09E-01	
Antimony (51)	Sb-111	2.91E+05	2.38E-06	4.96E-02	5.09E-01	3.89E-01	2.94E-01	5.05E-02	5.27E-01	8.12E-01	4.49E-01	
Antimony (51)	Sb-113	5.46E+04	1.27E-05	1.96E-02	2.01E-01	1.54E-01	1.16E-01	2.00E-02	2.08E-01	3.21E-01	1.77E-01	
Antimony (51)	Sb-114	1.04E+05	6.64E-06	.	.	.	.	.	.	.	.	
Antimony (51)	Sb-115	1.13E+04	6.11E-05	6.41E-01	6.58E+00	5.02E+00	3.79E+00	6.53E-01	6.81E+00	1.05E+01	5.80E+00	
Antimony (51)	Sb-116	2.31E+04	3.01E-05	5.10E-01	5.23E+00	3.99E+00	3.02E+00	5.19E-01	5.41E+00	8.34E+00	4.61E+00	
Antimony (51)	Sb-116m	6.04E+03	1.15E-04	2.48E-01	2.55E+00	1.94E+00	1.47E+00	2.53E-01	2.64E+00	4.06E+00	2.25E+00	
Antimony (51)	Sb-117	2.17E+03	3.20E-04	8.52E-01	8.74E+00	6.67E+00	5.04E+00	8.67E-01	9.05E+00	1.39E+01	7.70E+00	
Antimony (51)	Sb-118	1.01E+05	6.85E-06	.	.	.	.	.	.	.	.	
Antimony (51)	Sb-118m	1.21E+03	5.71E-04	7.62E-02	7.82E-01	5.96E-01	4.51E-01	7.76E-02	8.09E-01	1.25E+00	6.89E-01	
Antimony (51)	Sb-119	1.59E+02	4.36E-03	1.80E-01	1.85E+00	1.41E+00	1.07E+00	1.84E-01	1.91E+00	2.95E+00	1.63E+00	
Antimony (51)	Sb-120	2.29E+04	3.02E-05	1.05E+00	1.08E+01	8.23E+00	6.22E+00	1.07E+00	1.12E+01	1.72E+01	9.51E+00	
Antimony (51)	Sb-120m	4.39E+01	1.58E-02	1.29E-02	1.33E-01	1.01E-01	7.65E-02	1.32E-02	1.37E-01	2.12E-01	1.17E-01	
Antimony (51)	Sb-122	9.29E+01	7.46E-03	8.74E-03	8.97E-02	6.84E-02	5.17E-02	8.90E-03	9.28E-02	1.43E-01	7.90E-02	
Antimony (51)	Sb-122m	8.69E+04	7.97E-06	8.74E-03	8.97E-02	6.84E-02	5.17E-02	8.90E-03	9.28E-02	1.43E-01	7.90E-02	
Antimony (51)	Sb-124	4.20E+00	1.65E-01	5.99E-03	6.15E-02	4.69E-02	3.54E-02	6.10E-03	6.36E-02	9.80E-02	5.42E-02	

Farmer Biota DCCs July 2023												
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)								
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Produce	Finfish	Shellfish	Beef	Dairy	Swine	Egg	Poultry	
				Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	
Antimony (51)	Sb-124m	2.35E+05	2.95E-06	7.99E-03	8.20E-02	6.25E-02	4.72E-02	8.13E-03	8.48E-02	1.31E-01	7.22E-02	
Antimony (51)	Sb-124n	1.80E+04	3.84E-05	7.95E-03	8.15E-02	6.22E-02	4.70E-02	8.09E-03	8.44E-02	1.30E-01	7.19E-02	
Antimony (51)	Sb-125	2.51E-01	2.76E+00	1.15E-02	1.18E-01	9.02E-02	6.81E-02	1.17E-02	1.22E-01	1.89E-01	1.04E-01	
Antimony (51)	Sb-126	2.05E+01	3.38E-02	5.80E-03	5.95E-02	4.54E-02	3.43E-02	5.91E-03	6.16E-02	9.49E-02	5.25E-02	
Antimony (51)	Sb-126m	1.90E+04	3.64E-05	3.76E-02	3.86E-01	2.94E-01	2.22E-01	3.83E-02	3.99E-01	6.15E-01	3.40E-01	
Antimony (51)	Sb-127	6.57E+01	1.05E-02	6.53E-03	6.70E-02	5.12E-02	3.86E-02	6.65E-03	6.94E-02	1.07E-01	5.91E-02	
Antimony (51)	Sb-128	6.74E+02	1.03E-03	1.90E-02	1.95E-01	1.49E-01	1.13E-01	1.94E-02	2.02E-01	3.12E-01	1.72E-01	
Antimony (51)	Sb-128m	3.50E+04	1.98E-05	2.45E-01	2.51E+00	1.91E+00	1.45E+00	2.49E-01	2.60E+00	4.00E+00	2.21E+00	
Antimony (51)	Sb-129	1.38E+03	5.02E-04	1.65E-04	1.69E-03	1.29E-03	9.74E-04	1.68E-04	1.75E-03	2.69E-03	1.49E-03	
Antimony (51)	Sb-130	9.22E+03	7.52E-05	1.66E-01	1.70E+00	1.30E+00	9.79E-01	1.69E-01	1.76E+00	2.71E+00	1.50E+00	
Antimony (51)	Sb-130m	5.78E+04	1.20E-05									
Antimony (51)	Sb-131	1.58E+04	4.38E-05	6.35E-04	6.52E-03	4.97E-03	3.76E-03	6.47E-04	6.75E-03	1.04E-02	5.74E-03	
Antimony (51)	Sb-133	1.46E+05	4.76E-06	2.99E-03	3.07E-02	2.34E-02	1.77E-02	3.05E-03	3.18E-02	4.90E-02	2.70E-02	
Scandium (21)	Sc-42m	3.52E+05	1.97E-06									
Scandium (21)	Sc-43	1.56E+03	4.44E-04	6.94E-02	7.12E-01	5.43E-01	4.10E-01	7.06E-02	7.37E-01	1.14E+00	6.27E-01	
Scandium (21)	Sc-44	1.53E+03	4.53E-04	4.28E-02	4.39E-01	3.35E-01	2.53E-01	4.36E-02	4.54E-01	7.00E-01	3.87E-01	
Scandium (21)	Sc-44m	1.04E+02	6.69E-03	5.42E-03	5.56E-02	4.24E-02	3.20E-02	5.52E-03	5.75E-02	8.87E-02	4.90E-02	
Scandium (21)	Sc-46	3.02E+00	2.30E-01	1.07E-02	1.10E-01	8.41E-02	6.35E-02	1.09E-02	1.14E-01	1.76E-01	9.71E-02	
Scandium (21)	Sc-47	7.55E+01	9.18E-03	2.71E-02	2.78E-01	2.12E-01	1.60E-01	2.76E-02	2.87E-01	4.43E-01	2.45E-01	
Scandium (21)	Sc-48	1.39E+02	4.99E-03	9.44E-03	9.68E-02	7.39E-02	5.58E-02	9.61E-03	1.00E-01	1.54E-01	8.53E-02	
Scandium (21)	Sc-49	6.37E+03	1.09E-04	1.84E-01	1.88E+00	1.44E+00	1.09E+00	1.87E-01	1.95E+00	3.00E+00	1.66E+00	
Scandium (21)	Sc-50	2.13E+05	3.25E-06									
Selenium (34)	Se-70	8.86E+03	7.82E-05	6.71E-02	6.88E-01	5.25E-01	3.97E-01	6.83E-02	7.12E-01	1.10E+00	6.07E-01	
Selenium (34)	Se-71	7.68E+04	9.02E-06	3.36E-02	3.44E-01	2.63E-01	1.98E-01	3.42E-02	3.56E-01	5.49E-01	3.03E-01	
Selenium (34)	Se-72	3.01E+01	2.30E-02	1.90E-03	1.94E-02	1.48E-02	1.12E-02	1.93E-03	2.01E-02	3.10E-02	1.71E-02	
Selenium (34)	Se-73	8.49E+02	8.16E-04	3.21E-02	3.29E-01	2.51E-01	1.90E-01	3.27E-02	3.41E-01	5.25E-01	2.90E-01	
Selenium (34)	Se-73m	9.15E+03	7.57E-05	3.42E-02	3.51E-01	2.68E-01	2.03E-01	3.49E-02	3.64E-01	5.60E-01	3.10E-01	
Selenium (34)	Se-75	2.11E+00	3.28E-01	6.03E-03	6.18E-02	4.72E-02	3.56E-02	6.14E-03	6.40E-02	9.86E-02	5.45E-02	
Selenium (34)	Se-77m	1.26E+06	5.50E-07									
Selenium (34)	Se-79	2.35E-06	2.95E+05	4.31E-03	4.43E-02	3.38E-02	2.55E-02	4.39E-03	4.58E-02	7.06E-02	3.90E-02	
Selenium (34)	Se-79m	9.29E+04	7.46E-06	4.32E-03	4.43E-02	3.38E-02	2.55E-02	4.40E-03	4.58E-02	7.06E-02	3.90E-02	
Selenium (34)	Se-81	1.97E+04	3.51E-05	5.59E-01	5.74E+00	4.38E+00	3.31E+00	5.69E-01	5.94E+00	9.15E+00	5.06E+00	
Selenium (34)	Se-81m	6.36E+03	1.09E-04	1.88E-01	1.92E+00	1.47E+00	1.11E+00	1.91E-01	1.99E+00	3.07E+00	1.70E+00	
Selenium (34)	Se-83	1.63E+04	4.24E-05	1.70E-01	1.75E+00	1.33E+00	1.01E+00	1.73E-01	1.81E+00	2.79E+00	1.54E+00	
Selenium (34)	Se-83m	3.12E+05	2.22E-06	3.38E-01	3.46E+00	2.64E+00	2.00E+00	3.44E-01	3.59E+00	5.53E+00	3.05E+00	
Selenium (34)	Se-84	1.17E+05	5.90E-06	1.71E-01	1.76E+00	1.34E+00	1.01E+00	1.74E-01	1.82E+00	2.80E+00	1.55E+00	
Silicon (14)	Si-31	2.32E+03	2.99E-04	9.48E-02	9.72E-01	7.42E-01	5.61E-01	9.65E-02	1.01E+00	1.55E+00	8.57E-01	



Farmer Biota DCCs July 2023												
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)								
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Produce	Finfish	Shellfish	Beef	Dairy	Swine	Egg	Poultry	
				Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	
Silicon (14)	Si-32	5.25E-03	1.32E+02	4.82E-03	4.94E-02	3.77E-02	2.85E-02	4.91E-03	5.12E-02	7.89E-02	4.36E-02	
Samarium (62)	Sm-139	1.42E+05	4.89E-06	4.80E-02	4.92E-01	3.76E-01	2.84E-01	4.89E-02	5.10E-01	7.85E-01	4.34E-01	
Samarium (62)	Sm-140	2.46E+04	2.82E-05	7.11E-03	7.30E-02	5.57E-02	4.21E-02	7.24E-03	7.55E-02	1.16E-01	6.43E-02	
Samarium (62)	Sm-141	3.57E+04	1.94E-05	1.85E-01	1.90E+00	1.45E+00	1.09E+00	1.88E-01	1.96E+00	3.02E+00	1.67E+00	
Samarium (62)	Sm-141m	1.61E+04	4.30E-05	1.44E-01	1.48E+00	1.13E+00	8.54E-01	1.47E-01	1.53E+00	2.36E+00	1.31E+00	
Samarium (62)	Sm-142	5.02E+03	1.38E-04	8.31E-02	8.52E-01	6.50E-01	4.91E-01	8.46E-02	8.82E-01	1.36E+00	7.51E-01	
Samarium (62)	Sm-143	4.16E+04	1.66E-05	6.73E-02	6.90E-01	5.27E-01	3.98E-01	6.85E-02	7.15E-01	1.10E+00	6.09E-01	
Samarium (62)	Sm-143m	3.31E+05	2.09E-06	6.73E-02	6.90E-01	5.27E-01	3.98E-01	6.85E-02	7.15E-01	1.10E+00	6.09E-01	
Samarium (62)	Sm-145	7.44E-01	9.32E-01	4.65E-02	4.77E-01	3.64E-01	2.75E-01	4.74E-02	4.94E-01	7.61E-01	4.21E-01	
Samarium (62)	Sm-146	6.73E-09	1.03E+08	2.88E-04	2.95E-03	2.25E-03	1.70E-03	2.93E-04	3.06E-03	4.71E-03	2.60E-03	
Samarium (62)	Sm-147	6.54E-12	1.06E+11	3.15E-04	3.24E-03	2.47E-03	1.87E-03	3.21E-04	3.35E-03	5.16E-03	2.85E-03	
Samarium (62)	Sm-148	9.90E-17	7.00E+15	1.87E-04	1.92E-03	1.47E-03	1.11E-03	1.91E-04	1.99E-03	3.07E-03	1.69E-03	
Samarium (62)	Sm-151	7.70E-03	9.00E+01	1.50E-01	1.53E+00	1.17E+00	8.85E-01	1.52E-01	1.59E+00	2.45E+00	1.35E+00	
Samarium (62)	Sm-153	1.31E+02	5.31E-03	2.00E-02	2.05E-01	1.56E-01	1.18E-01	2.04E-02	2.12E-01	3.27E-01	1.81E-01	
Samarium (62)	Sm-155	1.63E+04	4.24E-05	4.11E-02	4.21E-01	3.22E-01	2.43E-01	4.18E-02	4.36E-01	6.72E-01	3.71E-01	
Samarium (62)	Sm-156	6.46E+02	1.07E-03	5.91E-03	6.06E-02	4.62E-02	3.49E-02	6.01E-03	6.27E-02	9.67E-02	5.34E-02	
Samarium (62)	Sm-157	4.54E+04	1.53E-05	2.41E-02	2.47E-01	1.89E-01	1.43E-01	2.46E-02	2.56E-01	3.95E-01	2.18E-01	
Tin (50)	Sn-106	1.90E+05	3.65E-06	.	.	.	.	.	.	.	.	
Tin (50)	Sn-108	3.54E+04	1.96E-05	1.50E-01	1.54E+00	1.18E+00	8.88E-01	1.53E-01	1.59E+00	2.46E+00	1.36E+00	
Tin (50)	Sn-109	2.02E+04	3.42E-05	7.71E-03	7.91E-02	6.04E-02	4.56E-02	7.85E-03	8.19E-02	1.26E-01	6.97E-02	
Tin (50)	Sn-110	1.48E+03	4.69E-04	3.23E-02	3.31E-01	2.53E-01	1.91E-01	3.29E-02	3.43E-01	5.29E-01	2.92E-01	
Tin (50)	Sn-111	1.03E+04	6.72E-05	4.96E-02	5.09E-01	3.89E-01	2.94E-01	5.05E-02	5.27E-01	8.12E-01	4.49E-01	
Tin (50)	Sn-113	2.20E+00	3.15E-01	1.92E-02	1.97E-01	1.51E-01	1.14E-01	1.96E-02	2.04E-01	3.15E-01	1.74E-01	
Tin (50)	Sn-113m	1.70E+04	4.07E-05	2.10E-02	2.16E-01	1.65E-01	1.24E-01	2.14E-02	2.23E-01	3.44E-01	1.90E-01	
Tin (50)	Sn-117m	1.84E+01	3.77E-02	2.08E-02	2.14E-01	1.63E-01	1.23E-01	2.12E-02	2.21E-01	3.41E-01	1.88E-01	
Tin (50)	Sn-119m	8.63E-01	8.03E-01	4.15E-02	4.25E-01	3.25E-01	2.45E-01	4.22E-02	4.40E-01	6.78E-01	3.75E-01	
Tin (50)	Sn-121	2.25E+02	3.09E-03	6.37E-02	6.53E-01	4.99E-01	3.77E-01	6.49E-02	6.76E-01	1.04E+00	5.76E-01	
Tin (50)	Sn-121m	1.58E-02	4.39E+01	2.60E-02	2.67E-01	2.04E-01	1.54E-01	2.65E-02	2.76E-01	4.26E-01	2.35E-01	
Tin (50)	Sn-123	1.96E+00	3.54E-01	6.91E-03	7.09E-02	5.41E-02	4.09E-02	7.04E-03	7.34E-02	1.13E-01	6.25E-02	
Tin (50)	Sn-123m	9.09E+03	7.62E-05	3.90E-01	4.00E+00	3.05E+00	2.31E+00	3.97E-01	4.14E+00	6.38E+00	3.52E+00	
Tin (50)	Sn-125	2.62E+01	2.64E-02	3.40E-03	3.49E-02	2.66E-02	2.01E-02	3.46E-03	3.61E-02	5.56E-02	3.07E-02	
Tin (50)	Sn-125m	3.83E+04	1.81E-05	1.15E-02	1.18E-01	9.02E-02	6.81E-02	1.17E-02	1.22E-01	1.89E-01	1.04E-01	
Tin (50)	Sn-126	3.01E-06	2.30E+05	2.91E-03	2.99E-02	2.28E-02	1.72E-02	2.97E-03	3.09E-02	4.77E-02	2.64E-02	
Tin (50)	Sn-127	2.89E+03	2.40E-04	6.02E-03	6.18E-02	4.71E-02	3.56E-02	6.13E-03	6.39E-02	9.85E-02	5.44E-02	
Tin (50)	Sn-127m	8.82E+04	7.86E-06	6.53E-03	6.70E-02	5.12E-02	3.86E-02	6.65E-03	6.94E-02	1.07E-01	5.91E-02	
Tin (50)	Sn-128	6.17E+03	1.12E-04	7.05E-02	7.23E-01	5.52E-01	4.17E-01	7.17E-02	7.48E-01	1.15E+00	6.37E-01	
Tin (50)	Sn-129	1.63E+05	4.24E-06	1.65E-04	1.69E-03	1.29E-03	9.74E-04	1.68E-04	1.75E-03	2.69E-03	1.49E-03	

Farmer Biota DCCs July 2023												
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)								
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Produce	Finfish	Shellfish	Beef	Dairy	Swine	Egg	Poultry	
				Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	
Tin (50)	Sn-130	9.79E+04	7.08E-06	.	.	.	.	.	.	.	.	
Tin (50)	Sn-130m	2.14E+05	3.23E-06	1.92E-01	1.97E+00	1.51E+00	1.14E+00	1.96E-01	2.04E+00	3.15E+00	1.74E+00	
Strontium (38)	Sr-79	1.62E+05	4.28E-06	3.07E-01	3.15E+00	2.40E+00	1.81E+00	3.12E-01	3.26E+00	5.02E+00	2.77E+00	
Strontium (38)	Sr-80	3.43E+03	2.02E-04	4.03E-02	4.13E-01	3.15E-01	2.38E-01	4.10E-02	4.28E-01	6.60E-01	3.64E-01	
Strontium (38)	Sr-81	1.63E+04	4.24E-05	1.33E-01	1.37E+00	1.04E+00	7.88E-01	1.36E-01	1.41E+00	2.18E+00	1.20E+00	
Strontium (38)	Sr-82	9.97E+00	6.95E-02	2.40E-03	2.46E-02	1.88E-02	1.42E-02	2.44E-03	2.54E-02	3.92E-02	2.17E-02	
Strontium (38)	Sr-83	1.87E+02	3.70E-03	7.25E-03	7.44E-02	5.67E-02	4.29E-02	7.38E-03	7.70E-02	1.19E-01	6.55E-02	
Strontium (38)	Sr-85	3.90E+00	1.78E-01	2.54E-02	2.61E-01	1.99E-01	1.50E-01	2.59E-02	2.70E-01	4.16E-01	2.30E-01	
Strontium (38)	Sr-85m	5.39E+03	1.29E-04	2.90E-02	2.98E-01	2.27E-01	1.72E-01	2.96E-02	3.08E-01	4.75E-01	2.63E-01	
Strontium (38)	Sr-87m	2.16E+03	3.21E-04	4.51E-01	4.63E+00	3.53E+00	2.67E+00	4.59E-01	4.79E+00	7.38E+00	4.08E+00	
Strontium (38)	Sr-89	5.01E+00	1.38E-01	5.59E-03	5.74E-02	4.38E-02	3.31E-02	5.69E-03	5.94E-02	9.15E-02	5.06E-02	
Strontium (38)	Sr-90	2.41E-02	2.88E+01	5.09E-04	5.22E-03	3.98E-03	3.01E-03	5.18E-04	5.40E-03	8.32E-03	4.60E-03	
Strontium (38)	Sr-91	6.30E+02	1.10E-03	4.89E-03	5.02E-02	3.83E-02	2.89E-02	4.98E-03	5.20E-02	8.01E-02	4.43E-02	
Strontium (38)	Sr-92	2.28E+03	3.04E-04	1.65E-02	1.69E-01	1.29E-01	9.76E-02	1.68E-02	1.75E-01	2.70E-01	1.49E-01	
Strontium (38)	Sr-93	4.91E+04	1.41E-05	7.28E-03	7.47E-02	5.70E-02	4.31E-02	7.41E-03	7.73E-02	1.19E-01	6.58E-02	
Strontium (38)	Sr-94	2.90E+05	2.39E-06	1.79E-01	1.83E+00	1.40E+00	1.06E+00	1.82E-01	1.90E+00	2.92E+00	1.62E+00	
Tantalum (73)	Ta-170	5.39E+04	1.29E-05	1.15E-02	1.18E-01	9.03E-02	6.82E-02	1.17E-02	1.23E-01	1.89E-01	1.04E-01	
Tantalum (73)	Ta-172	9.90E+03	7.00E-05	6.26E-03	6.42E-02	4.90E-02	3.70E-02	6.37E-03	6.65E-02	1.02E-01	5.66E-02	
Tantalum (73)	Ta-173	1.93E+03	3.58E-04	2.19E-02	2.25E-01	1.72E-01	1.30E-01	2.23E-02	2.33E-01	3.59E-01	1.98E-01	
Tantalum (73)	Ta-174	5.33E+03	1.30E-04	6.41E-05	6.57E-04	5.02E-04	3.79E-04	6.52E-05	6.80E-04	1.05E-03	5.79E-04	
Tantalum (73)	Ta-175	5.78E+02	1.20E-03	2.43E-02	2.49E-01	1.90E-01	1.44E-01	2.47E-02	2.58E-01	3.97E-01	2.19E-01	
Tantalum (73)	Ta-176	7.50E+02	9.24E-04	5.05E-02	5.18E-01	3.95E-01	2.99E-01	5.14E-02	5.36E-01	8.26E-01	4.56E-01	
Tantalum (73)	Ta-177	1.07E+02	6.46E-03	1.38E-01	1.42E+00	1.08E+00	8.18E-01	1.41E-01	1.47E+00	2.26E+00	1.25E+00	
Tantalum (73)	Ta-178	3.91E+04	1.77E-05	.	.	.	.	.	.	.	.	
Tantalum (73)	Ta-178m	2.57E+03	2.69E-04	1.82E-01	1.87E+00	1.42E+00	1.08E+00	1.85E-01	1.93E+00	2.98E+00	1.64E+00	
Tantalum (73)	Ta-179	3.81E-01	1.82E+00	2.53E-01	2.60E+00	1.98E+00	1.50E+00	2.58E-01	2.69E+00	4.15E+00	2.29E+00	
Tantalum (73)	Ta-180	7.45E+02	9.31E-04	2.67E-01	2.74E+00	2.09E+00	1.58E+00	2.72E-01	2.84E+00	4.37E+00	2.41E+00	
Tantalum (73)	Ta-182	2.21E+00	3.14E-01	1.01E-02	1.04E-01	7.94E-02	6.00E-02	1.03E-02	1.08E-01	1.66E-01	9.17E-02	
Tantalum (73)	Ta-182m	2.30E+04	3.01E-05	1.01E-02	1.03E-01	7.88E-02	5.95E-02	1.02E-02	1.07E-01	1.65E-01	9.10E-02	
Tantalum (73)	Ta-183	4.96E+01	1.40E-02	1.10E-02	1.13E-01	8.59E-02	6.49E-02	1.12E-02	1.17E-01	1.80E-01	9.92E-02	
Tantalum (73)	Ta-184	6.98E+02	9.93E-04	2.26E-02	2.31E-01	1.77E-01	1.33E-01	2.30E-02	2.40E-01	3.69E-01	2.04E-01	
Tantalum (73)	Ta-185	7.37E+03	9.40E-05	2.89E-02	2.96E-01	2.26E-01	1.71E-01	2.94E-02	3.07E-01	4.73E-01	2.61E-01	
Tantalum (73)	Ta-186	3.47E+04	2.00E-05	4.33E-01	4.45E+00	3.39E+00	2.56E+00	4.41E-01	4.60E+00	7.09E+00	3.92E+00	
Terbium (65)	Tb-146	9.50E+05	7.29E-07	2.77E-04	2.84E-03	2.17E-03	1.64E-03	2.82E-04	2.94E-03	4.53E-03	2.51E-03	
Terbium (65)	Tb-147	3.70E+03	1.87E-04	3.08E-04	3.16E-03	2.41E-03	1.82E-03	3.14E-04	3.27E-03	5.04E-03	2.79E-03	
Terbium (65)	Tb-147m	1.95E+05	3.56E-06	3.09E-04	3.17E-03	2.42E-03	1.83E-03	3.14E-04	3.28E-03	5.05E-03	2.79E-03	
Terbium (65)	Tb-148	6.07E+03	1.14E-04	2.80E-04	2.87E-03	2.19E-03	1.66E-03	2.85E-04	2.98E-03	4.59E-03	2.53E-03	

Farmer Biota DCCs July 2023												
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)								
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Produce	Finfish	Shellfish	Beef	Dairy	Swine	Egg	Poultry	
				Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	
Terbium (65)	Tb-148m	1.66E+05	4.19E-06	2.81E-04	2.88E-03	2.20E-03	1.66E-03	2.86E-04	2.98E-03	4.60E-03	2.54E-03	
Terbium (65)	Tb-149	1.47E+03	4.70E-04	1.65E-02	1.69E-01	1.29E-01	9.73E-02	1.68E-02	1.75E-01	2.69E-01	1.49E-01	
Terbium (65)	Tb-149m	8.76E+04	7.91E-06	2.17E-02	2.23E-01	1.70E-01	1.28E-01	2.21E-02	2.31E-01	3.55E-01	1.96E-01	
Terbium (65)	Tb-150	1.74E+03	3.97E-04	1.46E-04	1.50E-03	1.14E-03	8.64E-04	1.49E-04	1.55E-03	2.39E-03	1.32E-03	
Terbium (65)	Tb-150m	6.28E+04	1.10E-05	1.46E-04	1.50E-03	1.15E-03	8.66E-04	1.49E-04	1.55E-03	2.40E-03	1.32E-03	
Terbium (65)	Tb-151	3.45E+02	2.01E-03	2.59E-02	2.66E-01	2.03E-01	1.53E-01	2.64E-02	2.75E-01	4.24E-01	2.34E-01	
Terbium (65)	Tb-151m	8.74E+05	7.93E-07	2.70E-02	2.77E-01	2.11E-01	1.60E-01	2.75E-02	2.87E-01	4.42E-01	2.44E-01	
Terbium (65)	Tb-152	3.47E+02	2.00E-03	1.25E-04	1.28E-03	9.76E-04	7.37E-04	1.27E-04	1.32E-03	2.04E-03	1.13E-03	
Terbium (65)	Tb-152m	8.67E+04	7.99E-06	1.25E-04	1.28E-03	9.77E-04	7.38E-04	1.27E-04	1.33E-03	2.04E-03	1.13E-03	
Terbium (65)	Tb-153	1.08E+02	6.41E-03	2.68E-02	2.75E-01	2.10E-01	1.59E-01	2.73E-02	2.85E-01	4.39E-01	2.43E-01	
Terbium (65)	Tb-154	2.82E+02	2.45E-03	2.55E-02	2.62E-01	2.00E-01	1.51E-01	2.60E-02	2.71E-01	4.17E-01	2.31E-01	
Terbium (65)	Tb-155	4.75E+01	1.46E-02	5.75E-02	5.90E-01	4.50E-01	3.40E-01	5.86E-02	6.11E-01	9.41E-01	5.20E-01	
Terbium (65)	Tb-156	4.73E+01	1.47E-02	1.36E-02	1.40E-01	1.07E-01	8.07E-02	1.39E-02	1.45E-01	2.23E-01	1.23E-01	
Terbium (65)	Tb-156m	2.49E+02	2.79E-03	1.19E-02	1.22E-01	9.34E-02	7.05E-02	1.21E-02	1.27E-01	1.95E-01	1.08E-01	
Terbium (65)	Tb-156n	1.15E+03	6.05E-04	1.27E-02	1.30E-01	9.90E-02	7.48E-02	1.29E-02	1.34E-01	2.07E-01	1.14E-01	
Terbium (65)	Tb-157	9.76E-03	7.10E+01	3.83E-01	3.93E+00	3.00E+00	2.27E+00	3.90E-01	4.07E+00	6.27E+00	3.46E+00	
Terbium (65)	Tb-158	3.85E-03	1.80E+02	1.39E-02	1.43E-01	1.09E-01	8.24E-02	1.42E-02	1.48E-01	2.28E-01	1.26E-01	
Terbium (65)	Tb-160	3.50E+00	1.98E-01	9.39E-03	9.63E-02	7.35E-02	5.55E-02	9.56E-03	9.97E-02	1.54E-01	8.49E-02	
Terbium (65)	Tb-161	3.66E+01	1.89E-02	1.98E-02	2.03E-01	1.55E-01	1.17E-01	2.02E-02	2.10E-01	3.24E-01	1.79E-01	
Terbium (65)	Tb-162	4.79E+04	1.45E-05	.	.	.	.	.	.	.	.	
Terbium (65)	Tb-163	1.87E+04	3.71E-05	7.19E-01	7.37E+00	5.63E+00	4.25E+00	7.32E-01	7.63E+00	1.18E+01	6.50E+00	
Terbium (65)	Tb-164	1.21E+05	5.71E-06	.	.	.	.	.	.	.	.	
Terbium (65)	Tb-165	1.73E+05	4.01E-06	1.38E-01	1.42E+00	1.08E+00	8.18E-01	1.41E-01	1.47E+00	2.26E+00	1.25E+00	
Technetium (43)	Tc-101	2.57E+04	2.70E-05	8.08E-01	8.29E+00	6.32E+00	4.78E+00	8.22E-01	8.58E+00	1.32E+01	7.30E+00	
Technetium (43)	Tc-102	4.14E+06	1.67E-07	.	.	.	.	.	.	.	.	
Technetium (43)	Tc-102m	8.37E+04	8.28E-06	.	.	.	.	.	.	.	.	
Technetium (43)	Tc-104	1.99E+04	3.48E-05	1.85E-01	1.90E+00	1.45E+00	1.10E+00	1.89E-01	1.97E+00	3.03E+00	1.67E+00	
Technetium (43)	Tc-105	4.79E+04	1.45E-05	2.30E-02	2.36E-01	1.80E-01	1.36E-01	2.34E-02	2.44E-01	3.76E-01	2.08E-01	
Technetium (43)	Tc-91	1.16E+05	5.97E-06	1.40E-01	1.43E+00	1.09E+00	8.27E-01	1.42E-01	1.48E+00	2.29E+00	1.26E+00	
Technetium (43)	Tc-91m	1.10E+05	6.28E-06	5.33E-02	5.47E-01	4.17E-01	3.15E-01	5.42E-02	5.66E-01	8.72E-01	4.82E-01	
Technetium (43)	Tc-92	8.57E+04	8.09E-06	.	.	.	.	.	.	.	.	
Technetium (43)	Tc-93	2.21E+03	3.14E-04	6.00E-03	6.16E-02	4.70E-02	3.55E-02	6.11E-03	6.37E-02	9.82E-02	5.43E-02	
Technetium (43)	Tc-93m	8.37E+03	8.28E-05	5.96E-03	6.12E-02	4.67E-02	3.53E-02	6.07E-03	6.33E-02	9.76E-02	5.39E-02	
Technetium (43)	Tc-94	1.24E+03	5.57E-04	7.98E-02	8.19E-01	6.25E-01	4.72E-01	8.13E-02	8.47E-01	1.31E+00	7.22E-01	
Technetium (43)	Tc-94m	7.00E+03	9.89E-05	1.48E-01	1.52E+00	1.16E+00	8.78E-01	1.51E-01	1.58E+00	2.43E+00	1.34E+00	
Technetium (43)	Tc-95	3.04E+02	2.28E-03	8.93E-02	9.17E-01	6.99E-01	5.28E-01	9.10E-02	9.49E-01	1.46E+00	8.08E-01	
Technetium (43)	Tc-95m	4.15E+00	1.67E-01	2.77E-02	2.85E-01	2.17E-01	1.64E-01	2.82E-02	2.95E-01	4.54E-01	2.51E-01	

Farmer Biota DCCs July 2023												
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)								
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Produce	Finfish	Shellfish	Beef	Dairy	Swine	Egg	Poultry	
				Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	
Technetium (43)	Tc-96	5.91E+01	1.17E-02	1.46E-02	1.50E-01	1.15E-01	8.65E-02	1.49E-02	1.55E-01	2.39E-01	1.32E-01	
Technetium (43)	Tc-96m	7.07E+03	9.80E-05	1.48E-02	1.51E-01	1.16E-01	8.73E-02	1.50E-02	1.57E-01	2.42E-01	1.33E-01	
Technetium (43)	Tc-97	2.67E-07	2.60E+06	2.13E-01	2.19E+00	1.67E+00	1.26E+00	2.17E-01	2.26E+00	3.49E+00	1.93E+00	
Technetium (43)	Tc-97m	2.81E+00	2.47E-01	2.34E-02	2.40E-01	1.83E-01	1.38E-01	2.38E-02	2.48E-01	3.82E-01	2.11E-01	
Technetium (43)	Tc-98	1.65E-07	4.20E+06	8.31E-03	8.52E-02	6.50E-02	4.91E-02	8.46E-03	8.82E-02	1.36E-01	7.51E-02	
Technetium (43)	Tc-99	3.28E-06	2.11E+05	2.24E-02	2.30E-01	1.76E-01	1.33E-01	2.28E-02	2.38E-01	3.67E-01	2.03E-01	
Technetium (43)	Tc-99m	1.01E+03	6.87E-04	2.17E-02	2.23E-01	1.70E-01	1.29E-01	2.21E-02	2.31E-01	3.56E-01	1.97E-01	
Tellurium (52)	Te-113	2.14E+05	3.23E-06	1.96E-02	2.01E-01	1.54E-01	1.16E-01	2.00E-02	2.08E-01	3.21E-01	1.77E-01	
Tellurium (52)	Te-114	2.40E+04	2.89E-05	2.32E-01	2.38E+00	1.81E+00	1.37E+00	2.36E-01	2.46E+00	3.79E+00	2.10E+00	
Tellurium (52)	Te-115	6.28E+04	1.10E-05	6.41E-01	6.58E+00	5.02E+00	3.79E+00	6.53E-01	6.81E+00	1.05E+01	5.80E+00	
Tellurium (52)	Te-115m	5.44E+04	1.27E-05	6.41E-01	6.58E+00	5.02E+00	3.79E+00	6.53E-01	6.81E+00	1.05E+01	5.80E+00	
Tellurium (52)	Te-116	2.44E+03	2.84E-04	6.78E-02	6.96E-01	5.31E-01	4.01E-01	6.91E-02	7.20E-01	1.11E+00	6.13E-01	
Tellurium (52)	Te-117	5.87E+03	1.18E-04	2.21E-01	2.27E+00	1.73E+00	1.31E+00	2.25E-01	2.35E+00	3.62E+00	2.00E+00	
Tellurium (52)	Te-118	4.22E+01	1.64E-02	4.89E-03	5.02E-02	3.83E-02	2.89E-02	4.98E-03	5.19E-02	8.00E-02	4.42E-02	
Tellurium (52)	Te-119	3.78E+02	1.83E-03	6.01E-02	6.16E-01	4.70E-01	3.55E-01	6.12E-02	6.38E-01	9.83E-01	5.43E-01	
Tellurium (52)	Te-119m	5.38E+01	1.29E-02	2.00E-02	2.05E-01	1.57E-01	1.18E-01	2.04E-02	2.13E-01	3.28E-01	1.81E-01	
Tellurium (52)	Te-121	1.32E+01	5.25E-02	3.57E-02	3.67E-01	2.80E-01	2.11E-01	3.64E-02	3.79E-01	5.85E-01	3.23E-01	
Tellurium (52)	Te-121m	1.64E+00	4.22E-01	5.72E-03	5.87E-02	4.48E-02	3.38E-02	5.82E-03	6.07E-02	9.36E-02	5.17E-02	
Tellurium (52)	Te-123	1.16E-15	6.00E+14	1.36E-02	1.39E-01	1.06E-01	8.01E-02	1.38E-02	1.44E-01	2.22E-01	1.23E-01	
Tellurium (52)	Te-123m	2.12E+00	3.27E-01	6.01E-03	6.16E-02	4.70E-02	3.55E-02	6.12E-03	6.38E-02	9.83E-02	5.43E-02	
Tellurium (52)	Te-125m	4.41E+00	1.57E-01	1.66E-02	1.70E-01	1.30E-01	9.79E-02	1.69E-02	1.76E-01	2.71E-01	1.50E-01	
Tellurium (52)	Te-127	6.49E+02	1.07E-03	8.78E-02	9.01E-01	6.87E-01	5.19E-01	8.94E-02	9.32E-01	1.44E+00	7.94E-01	
Tellurium (52)	Te-127m	2.32E+00	2.99E-01	5.57E-03	5.72E-02	4.36E-02	3.29E-02	5.67E-03	5.92E-02	9.12E-02	5.04E-02	
Tellurium (52)	Te-129	5.23E+03	1.32E-04	1.67E-04	1.71E-03	1.31E-03	9.86E-04	1.70E-04	1.77E-03	2.73E-03	1.51E-03	
Tellurium (52)	Te-129m	7.53E+00	9.21E-02	1.61E-04	1.65E-03	1.26E-03	9.53E-04	1.64E-04	1.71E-03	2.64E-03	1.46E-03	
Tellurium (52)	Te-131	1.46E+04	4.76E-05	6.43E-04	6.59E-03	5.03E-03	3.80E-03	6.54E-04	6.82E-03	1.05E-02	5.81E-03	
Tellurium (52)	Te-131m	2.02E+02	3.42E-03	5.94E-04	6.09E-03	4.65E-03	3.51E-03	6.04E-04	6.30E-03	9.71E-03	5.37E-03	
Tellurium (52)	Te-132	7.89E+01	8.78E-03	3.50E-03	3.59E-02	2.74E-02	2.07E-02	3.57E-03	3.72E-02	5.73E-02	3.17E-02	
Tellurium (52)	Te-133	2.91E+04	2.38E-05	3.01E-03	3.09E-02	2.36E-02	1.78E-02	3.07E-03	3.20E-02	4.93E-02	2.72E-02	
Tellurium (52)	Te-133m	6.57E+03	1.05E-04	2.89E-03	2.97E-02	2.26E-02	1.71E-02	2.94E-03	3.07E-02	4.73E-02	2.62E-02	
Tellurium (52)	Te-134	8.71E+03	7.95E-05	7.48E-02	7.67E-01	5.85E-01	4.42E-01	7.61E-02	7.94E-01	1.22E+00	6.76E-01	
Thorium (90)	Th-223	3.64E+07	1.90E-08	.	.	.	.	.	.	.	.	
Thorium (90)	Th-224	2.08E+07	3.33E-08	.	.	.	.	.	.	.	.	
Thorium (90)	Th-226	1.19E+04	5.82E-05	7.28E-06	7.47E-05	5.70E-05	4.31E-05	7.42E-06	7.73E-05	1.19E-04	6.59E-05	
Thorium (90)	Th-227	1.35E+01	5.12E-02	8.70E-05	8.93E-04	6.81E-04	5.15E-04	8.86E-05	9.24E-04	1.42E-03	7.87E-04	
Thorium (90)	Th-228	3.63E-01	1.91E+00	7.99E-05	8.20E-04	6.26E-04	4.73E-04	8.14E-05	8.49E-04	1.31E-03	7.23E-04	
Thorium (90)	Th-229	9.44E-05	7.34E+03	2.24E-05	2.30E-04	1.76E-04	1.33E-04	2.29E-05	2.38E-04	3.67E-04	2.03E-04	



Farmer Biota DCCs July 2023											
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)							
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Produce	Finfish	Shellfish	Beef	Dairy	Swine	Egg	Poultry
				Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)
Thorium (90)	Th-230	9.19E-06	7.54E+04	5.81E-06	5.96E-05	4.54E-05	3.43E-05	5.91E-06	6.16E-05	9.50E-05	5.25E-05
Thorium (90)	Th-231	2.38E+02	2.91E-03	1.71E-05	1.75E-04	1.34E-04	1.01E-04	1.74E-05	1.81E-04	2.79E-04	1.54E-04
Thorium (90)	Th-232	4.93E-11	1.41E+10	9.47E-06	9.72E-05	7.42E-05	5.60E-05	9.65E-06	1.01E-04	1.55E-04	8.57E-05
Thorium (90)	Th-233	1.63E+04	4.24E-05	2.10E-05	2.16E-04	1.64E-04	1.24E-04	2.14E-05	2.23E-04	3.44E-04	1.90E-04
Thorium (90)	Th-234	1.05E+01	6.60E-02	5.70E-06	5.85E-05	4.46E-05	3.37E-05	5.81E-06	6.05E-05	9.33E-05	5.16E-05
Thorium (90)	Th-235	5.13E+04	1.35E-05	1.63E-05	1.67E-04	1.28E-04	9.64E-05	1.66E-05	1.73E-04	2.67E-04	1.47E-04
Thorium (90)	Th-236	9.71E+03	7.13E-05	9.24E-06	9.48E-05	7.23E-05	5.46E-05	9.40E-06	9.81E-05	1.51E-04	8.35E-05
Titanium (22)	Ti-44	1.16E-02	6.00E+01	2.56E-03	2.63E-02	2.01E-02	1.51E-02	2.61E-03	2.72E-02	4.19E-02	2.32E-02
Titanium (22)	Ti-45	1.97E+03	3.52E-04	1.00E-01	1.03E+00	7.86E-01	5.94E-01	1.02E-01	1.07E+00	1.64E+00	9.08E-01
Titanium (22)	Ti-51	6.32E+04	1.10E-05	.	.	.	.	.	.	.	.
Titanium (22)	Ti-52	2.14E+05	3.23E-06	.	.	.	.	.	.	.	.
Thallium (81)	Tl-190	1.40E+05	4.95E-06	3.86E-04	3.96E-03	3.02E-03	2.28E-03	3.93E-04	4.09E-03	6.31E-03	3.49E-03
Thallium (81)	Tl-190m	9.84E+04	7.04E-06	3.86E-04	3.96E-03	3.02E-03	2.28E-03	3.93E-04	4.09E-03	6.31E-03	3.49E-03
Thallium (81)	Tl-194	1.10E+04	6.28E-05	9.45E-03	9.70E-02	7.40E-02	5.59E-02	9.62E-03	1.00E-01	1.55E-01	8.55E-02
Thallium (81)	Tl-194m	1.11E+04	6.24E-05	9.50E-03	9.75E-02	7.44E-02	5.62E-02	9.67E-03	1.01E-01	1.55E-01	8.59E-02
Thallium (81)	Tl-195	5.23E+03	1.32E-04	3.84E-02	3.94E-01	3.01E-01	2.27E-01	3.91E-02	4.08E-01	6.29E-01	3.48E-01
Thallium (81)	Tl-196	3.30E+03	2.10E-04	3.15E-01	3.23E+00	2.46E+00	1.86E+00	3.20E-01	3.34E+00	5.15E+00	2.84E+00
Thallium (81)	Tl-197	2.14E+03	3.24E-04	5.48E-02	5.62E-01	4.29E-01	3.24E-01	5.58E-02	5.82E-01	8.96E-01	4.95E-01
Thallium (81)	Tl-198	1.15E+03	6.05E-04	2.24E-01	2.29E+00	1.75E+00	1.32E+00	2.28E-01	2.37E+00	3.66E+00	2.02E+00
Thallium (81)	Tl-198m	3.25E+03	2.13E-04	1.81E-01	1.86E+00	1.42E+00	1.07E+00	1.84E-01	1.92E+00	2.96E+00	1.64E+00
Thallium (81)	Tl-199	8.18E+02	8.47E-04	5.80E-01	5.95E+00	4.54E+00	3.43E+00	5.91E-01	6.16E+00	9.49E+00	5.25E+00
Thallium (81)	Tl-200	2.33E+02	2.98E-03	8.17E-02	8.39E-01	6.40E-01	4.83E-01	8.32E-02	8.68E-01	1.34E+00	7.39E-01
Thallium (81)	Tl-201	8.33E+01	8.32E-03	1.59E-01	1.63E+00	1.24E+00	9.40E-01	1.62E-01	1.69E+00	2.60E+00	1.44E+00
Thallium (81)	Tl-202	2.07E+01	3.35E-02	3.61E-02	3.70E-01	2.82E-01	2.13E-01	3.67E-02	3.83E-01	5.90E-01	3.26E-01
Thallium (81)	Tl-204	1.83E-01	3.78E+00	1.25E-02	1.29E-01	9.82E-02	7.42E-02	1.28E-02	1.33E-01	2.05E-01	1.13E-01
Thallium (81)	Tl-206	8.67E+04	7.99E-06	.	.	.	.	.	.	.	.
Thallium (81)	Tl-206m	9.74E+04	7.12E-06	.	.	.	.	.	.	.	.
Thallium (81)	Tl-207	7.64E+04	9.08E-06	.	.	.	.	.	.	.	.
Thallium (81)	Tl-208	1.19E+05	5.81E-06	.	.	.	.	.	.	.	.
Thallium (81)	Tl-209	1.69E+05	4.11E-06	2.70E-01	2.77E+00	2.12E+00	1.60E+00	2.75E-01	2.87E+00	4.42E+00	2.44E+00
Thallium (81)	Tl-210	2.80E+05	2.47E-06	7.28E-06	7.47E-05	5.70E-05	4.31E-05	7.42E-06	7.73E-05	1.19E-04	6.59E-05
Thulium (69)	Tm-161	1.21E+04	5.75E-05	1.15E-01	1.18E+00	9.00E-01	6.80E-01	1.17E-01	1.22E+00	1.88E+00	1.04E+00
Thulium (69)	Tm-162	1.68E+04	4.13E-05	3.91E-01	4.01E+00	3.06E+00	2.31E+00	3.98E-01	4.15E+00	6.39E+00	3.53E+00
Thulium (69)	Tm-163	3.35E+03	2.07E-04	2.62E-01	2.69E+00	2.05E+00	1.55E+00	2.67E-01	2.78E+00	4.29E+00	2.37E+00
Thulium (69)	Tm-164	1.82E+05	3.81E-06	.	.	.	.	.	.	.	.
Thulium (69)	Tm-165	2.02E+02	3.43E-03	4.11E-02	4.22E-01	3.22E-01	2.43E-01	4.19E-02	4.37E-01	6.73E-01	3.72E-01
Thulium (69)	Tm-166	7.88E+02	8.79E-04	5.58E-02	5.72E-01	4.37E-01	3.30E-01	5.68E-02	5.92E-01	9.13E-01	5.04E-01

Farmer Biota DCCs July 2023												
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)								
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Produce	Finfish	Shellfish	Beef	Dairy	Swine	Egg	Poultry	
				Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	
Thulium (69)	Tm-167	2.73E+01	2.53E-02	2.55E-02	2.62E-01	2.00E-01	1.51E-01	2.60E-02	2.71E-01	4.18E-01	2.31E-01	
Thulium (69)	Tm-168	2.72E+00	2.55E-01	1.51E-02	1.55E-01	1.18E-01	8.91E-02	1.53E-02	1.60E-01	2.47E-01	1.36E-01	
Thulium (69)	Tm-170	1.97E+00	3.52E-01	1.12E-02	1.14E-01	8.73E-02	6.60E-02	1.14E-02	1.18E-01	1.83E-01	1.01E-01	
Thulium (69)	Tm-171	3.61E-01	1.92E+00	1.36E-01	1.40E+00	1.07E+00	8.07E-01	1.39E-01	1.45E+00	2.23E+00	1.23E+00	
Thulium (69)	Tm-172	9.55E+01	7.26E-03	8.70E-03	8.93E-02	6.81E-02	5.15E-02	8.86E-03	9.24E-02	1.42E-01	7.87E-02	
Thulium (69)	Tm-173	7.37E+02	9.41E-04	4.96E-02	5.09E-01	3.88E-01	2.93E-01	5.05E-02	5.27E-01	8.12E-01	4.49E-01	
Thulium (69)	Tm-174	6.75E+04	1.03E-05	.	.	.	.	.	.	.	.	
Thulium (69)	Tm-175	2.40E+04	2.89E-05	3.17E-02	3.25E-01	2.48E-01	1.87E-01	3.23E-02	3.36E-01	5.19E-01	2.87E-01	
Thulium (69)	Tm-176	1.97E+05	3.52E-06	.	.	.	.	.	.	.	.	
Uranium (92)	U-227	3.31E+05	2.09E-06	.	.	.	.	.	.	.	.	
Uranium (92)	U-228	4.00E+04	1.73E-05	.	.	.	.	.	.	.	.	
Uranium (92)	U-230	1.22E+01	5.70E-02	7.10E-06	7.28E-05	5.56E-05	4.20E-05	7.23E-06	7.54E-05	1.16E-04	6.42E-05	
Uranium (92)	U-231	6.02E+01	1.15E-02	1.71E-05	1.75E-04	1.34E-04	1.01E-04	1.74E-05	1.81E-04	2.79E-04	1.54E-04	
Uranium (92)	U-232	1.01E-02	6.89E+01	3.07E-05	3.15E-04	2.41E-04	1.82E-04	3.13E-05	3.26E-04	5.03E-04	2.78E-04	
Uranium (92)	U-233	4.35E-06	1.59E+05	2.10E-05	2.16E-04	1.65E-04	1.24E-04	2.14E-05	2.23E-04	3.44E-04	1.90E-04	
Uranium (92)	U-234	2.82E-06	2.46E+05	5.71E-06	5.86E-05	4.47E-05	3.38E-05	5.81E-06	6.06E-05	9.34E-05	5.16E-05	
Uranium (92)	U-235	9.84E-10	7.04E+08	1.63E-05	1.67E-04	1.28E-04	9.64E-05	1.66E-05	1.73E-04	2.67E-04	1.47E-04	
Uranium (92)	U-235m	1.40E+04	4.95E-05	1.63E-05	1.67E-04	1.28E-04	9.64E-05	1.66E-05	1.73E-04	2.67E-04	1.47E-04	
Uranium (92)	U-236	2.96E-08	2.34E+07	9.24E-06	9.48E-05	7.23E-05	5.46E-05	9.41E-06	9.81E-05	1.51E-04	8.35E-05	
Uranium (92)	U-237	3.75E+01	1.85E-02	1.86E-05	1.91E-04	1.45E-04	1.10E-04	1.89E-05	1.97E-04	3.04E-04	1.68E-04	
Uranium (92)	U-238	1.55E-10	4.47E+09	5.62E-06	5.76E-05	4.40E-05	3.32E-05	5.72E-06	5.97E-05	9.20E-05	5.08E-05	
Uranium (92)	U-239	1.55E+04	4.46E-05	1.32E-05	1.36E-04	1.03E-04	7.82E-05	1.35E-05	1.40E-04	2.16E-04	1.20E-04	
Uranium (92)	U-240	4.31E+02	1.61E-03	8.16E-06	8.37E-05	6.39E-05	4.82E-05	8.31E-06	8.66E-05	1.33E-04	7.38E-05	
Uranium (92)	U-242	2.17E+04	3.20E-05	5.22E-06	5.36E-05	4.09E-05	3.09E-05	5.32E-06	5.54E-05	8.54E-05	4.72E-05	
Vanadium (23)	V-47	1.12E+04	6.20E-05	2.41E-01	2.47E+00	1.89E+00	1.43E+00	2.46E-01	2.56E+00	3.95E+00	2.18E+00	
Vanadium (23)	V-48	1.58E+01	4.38E-02	7.95E-03	8.16E-02	6.22E-02	4.70E-02	8.09E-03	8.44E-02	1.30E-01	7.19E-02	
Vanadium (23)	V-49	7.67E-01	9.04E-01	7.98E-01	8.19E+00	6.25E+00	4.72E+00	8.13E-01	8.47E+00	1.31E+01	7.22E+00	
Vanadium (23)	V-50	4.62E-18	1.50E+17	5.38E-03	5.52E-02	4.22E-02	3.18E-02	5.48E-03	5.72E-02	8.81E-02	4.87E-02	
Vanadium (23)	V-52	9.73E+04	7.12E-06	.	.	.	.	.	.	.	.	
Vanadium (23)	V-53	2.26E+05	3.06E-06	.	.	.	.	.	.	.	.	
Tungsten (74)	W-177	2.76E+03	2.51E-04	9.27E-02	9.51E-01	7.25E-01	5.48E-01	9.43E-02	9.84E-01	1.52E+00	8.38E-01	
Tungsten (74)	W-178	1.17E+01	5.92E-02	6.16E-02	6.32E-01	4.82E-01	3.64E-01	6.27E-02	6.54E-01	1.01E+00	5.57E-01	
Tungsten (74)	W-179	9.83E+03	7.05E-05	2.39E-01	2.45E+00	1.87E+00	1.41E+00	2.44E-01	2.54E+00	3.91E+00	2.16E+00	
Tungsten (74)	W-179m	5.69E+04	1.22E-05	2.39E-01	2.45E+00	1.87E+00	1.41E+00	2.44E-01	2.54E+00	3.91E+00	2.16E+00	
Tungsten (74)	W-181	2.09E+00	3.32E-01	1.79E-01	1.83E+00	1.40E+00	1.06E+00	1.82E-01	1.90E+00	2.92E+00	1.62E+00	
Tungsten (74)	W-185	3.37E+00	2.06E-01	3.33E-02	3.42E-01	2.61E-01	1.97E-01	3.39E-02	3.54E-01	5.45E-01	3.01E-01	
Tungsten (74)	W-185m	2.28E+05	3.04E-06	3.33E-02	3.42E-01	2.61E-01	1.97E-01	3.39E-02	3.54E-01	5.45E-01	3.01E-01	

Farmer Biota DCCs July 2023												
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)								
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Produce	Finfish	Shellfish	Beef	Dairy	Swine	Egg	Poultry	
				Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	
Tungsten (74)	W-187	2.56E+02	2.71E-03	2.51E-02	2.57E-01	1.96E-01	1.48E-01	2.56E-02	2.66E-01	4.11E-01	2.27E-01	
Tungsten (74)	W-188	3.62E+00	1.91E-01	4.23E-03	4.34E-02	3.31E-02	2.50E-02	4.31E-03	4.49E-02	6.93E-02	3.83E-02	
Tungsten (74)	W-190	1.21E+04	5.71E-05	1.82E-01	1.87E+00	1.42E+00	1.08E+00	1.85E-01	1.93E+00	2.98E+00	1.64E+00	
Xenon (54)	Xe-120	9.11E+03	7.61E-05	4.92E-02	5.05E-01	3.86E-01	2.91E-01	5.01E-02	5.23E-01	8.06E-01	4.45E-01	
Xenon (54)	Xe-121	9.08E+03	7.63E-05	3.00E-02	3.08E-01	2.35E-01	1.77E-01	3.05E-02	3.18E-01	4.91E-01	2.71E-01	
Xenon (54)	Xe-122	3.02E+02	2.29E-03	.	.	.	.	.	.	.	.	
Xenon (54)	Xe-123	2.92E+03	2.37E-04	1.11E-02	1.14E-01	8.71E-02	6.58E-02	1.13E-02	1.18E-01	1.82E-01	1.01E-01	
Xenon (54)	Xe-125	3.59E+02	1.93E-03	1.07E-03	1.10E-02	8.36E-03	6.32E-03	1.09E-03	1.13E-02	1.75E-02	9.66E-03	
Xenon (54)	Xe-127	6.95E+00	9.97E-02	.	.	.	.	.	.	.	.	
Xenon (54)	Xe-127m	3.16E+05	2.19E-06	.	.	.	.	.	.	.	.	
Xenon (54)	Xe-129m	2.85E+01	2.43E-02	.	.	.	.	.	.	.	.	
Xenon (54)	Xe-131m	2.14E+01	3.24E-02	.	.	.	.	.	.	.	.	
Xenon (54)	Xe-133	4.82E+01	1.44E-02	.	.	.	.	.	.	.	.	
Xenon (54)	Xe-133m	1.16E+02	6.00E-03	.	.	.	.	.	.	.	.	
Xenon (54)	Xe-135	6.64E+02	1.04E-03	7.65E-03	7.85E-02	5.99E-02	4.52E-02	7.79E-03	8.12E-02	1.25E-01	6.92E-02	
Xenon (54)	Xe-135m	2.38E+04	2.91E-05	7.65E-03	7.85E-02	5.99E-02	4.52E-02	7.79E-03	8.12E-02	1.25E-01	6.92E-02	
Xenon (54)	Xe-137	9.54E+04	7.26E-06	1.52E-03	1.56E-02	1.19E-02	8.98E-03	1.55E-03	1.61E-02	2.48E-02	1.37E-02	
Xenon (54)	Xe-138	2.59E+04	2.68E-05	1.58E-01	1.62E+00	1.23E+00	9.33E-01	1.61E-01	1.67E+00	2.58E+00	1.43E+00	
Yttrium (39)	Y-81	3.10E+05	2.23E-06	1.33E-01	1.37E+00	1.04E+00	7.88E-01	1.36E-01	1.41E+00	2.18E+00	1.20E+00	
Yttrium (39)	Y-83	5.14E+04	1.35E-05	7.25E-03	7.44E-02	5.67E-02	4.29E-02	7.38E-03	7.70E-02	1.19E-01	6.55E-02	
Yttrium (39)	Y-83m	1.28E+05	5.42E-06	7.25E-03	7.44E-02	5.67E-02	4.29E-02	7.38E-03	7.70E-02	1.19E-01	6.55E-02	
Yttrium (39)	Y-84m	9.22E+03	7.52E-05	1.13E-01	1.16E+00	8.83E-01	6.67E-01	1.15E-01	1.20E+00	1.85E+00	1.02E+00	
Yttrium (39)	Y-85	2.27E+03	3.06E-04	2.15E-02	2.21E-01	1.68E-01	1.27E-01	2.19E-02	2.29E-01	3.52E-01	1.95E-01	
Yttrium (39)	Y-85m	1.25E+03	5.55E-04	1.57E-02	1.61E-01	1.23E-01	9.30E-02	1.60E-02	1.67E-01	2.57E-01	1.42E-01	
Yttrium (39)	Y-86	4.12E+02	1.68E-03	1.66E-02	1.70E-01	1.30E-01	9.79E-02	1.69E-02	1.76E-01	2.71E-01	1.50E-01	
Yttrium (39)	Y-86m	7.59E+03	9.13E-05	1.57E-02	1.61E-01	1.23E-01	9.30E-02	1.60E-02	1.67E-01	2.57E-01	1.42E-01	
Yttrium (39)	Y-87	7.61E+01	9.11E-03	2.67E-02	2.74E-01	2.09E-01	1.58E-01	2.72E-02	2.83E-01	4.37E-01	2.41E-01	
Yttrium (39)	Y-87m	4.54E+02	1.53E-03	1.95E-02	2.00E-01	1.53E-01	1.15E-01	1.99E-02	2.07E-01	3.20E-01	1.77E-01	
Yttrium (39)	Y-88	2.37E+00	2.92E-01	1.25E-02	1.29E-01	9.82E-02	7.42E-02	1.28E-02	1.33E-01	2.05E-01	1.13E-01	
Yttrium (39)	Y-89m	1.40E+06	4.97E-07	.	.	.	.	.	.	.	.	
Yttrium (39)	Y-90	9.47E+01	7.32E-03	5.46E-03	5.60E-02	4.27E-02	3.23E-02	5.56E-03	5.79E-02	8.93E-02	4.93E-02	
Yttrium (39)	Y-90m	1.90E+03	3.64E-04	5.13E-03	5.26E-02	4.02E-02	3.03E-02	5.22E-03	5.45E-02	8.40E-02	4.64E-02	
Yttrium (39)	Y-91	4.32E+00	1.60E-01	6.17E-03	6.33E-02	4.83E-02	3.65E-02	6.29E-03	6.56E-02	1.01E-01	5.58E-02	
Yttrium (39)	Y-91m	7.33E+03	9.46E-05	6.15E-03	6.31E-02	4.81E-02	3.64E-02	6.26E-03	6.53E-02	1.01E-01	5.56E-02	
Yttrium (39)	Y-92	1.71E+03	4.04E-04	2.97E-02	3.05E-01	2.33E-01	1.76E-01	3.03E-02	3.16E-01	4.87E-01	2.69E-01	
Yttrium (39)	Y-93	5.96E+02	1.16E-03	7.28E-03	7.47E-02	5.70E-02	4.31E-02	7.41E-03	7.73E-02	1.19E-01	6.58E-02	
Yttrium (39)	Y-94	1.95E+04	3.56E-05	1.79E-01	1.83E+00	1.40E+00	1.06E+00	1.82E-01	1.90E+00	2.92E+00	1.62E+00	

Farmer Biota DCCs July 2023												
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)								
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Produce	Finfish	Shellfish	Beef	Dairy	Swine	Egg	Poultry	
				Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	Consumption DCC DL=1 (Bq/g)	
Yttrium (39)	Y-95	3.54E+04	1.96E-05	9.73E-03	9.98E-02	7.62E-02	5.75E-02	9.90E-03	1.03E-01	1.59E-01	8.80E-02	
Ytterbium (70)	Yb-162	1.93E+04	3.59E-05	2.19E-01	2.25E+00	1.71E+00	1.30E+00	2.23E-01	2.33E+00	3.58E+00	1.98E+00	
Ytterbium (70)	Yb-163	3.30E+04	2.10E-05	2.06E-01	2.12E+00	1.62E+00	1.22E+00	2.10E-01	2.19E+00	3.38E+00	1.87E+00	
Ytterbium (70)	Yb-164	4.81E+03	1.44E-04	1.66E-01	1.70E+00	1.30E+00	9.79E-01	1.69E-01	1.76E+00	2.71E+00	1.50E+00	
Ytterbium (70)	Yb-165	3.68E+04	1.88E-05	4.11E-02	4.22E-01	3.22E-01	2.43E-01	4.19E-02	4.37E-01	6.73E-01	3.72E-01	
Ytterbium (70)	Yb-166	1.07E+02	6.47E-03	1.27E-02	1.30E-01	9.93E-02	7.50E-02	1.29E-02	1.35E-01	2.08E-01	1.15E-01	
Ytterbium (70)	Yb-167	2.08E+04	3.33E-05	2.52E-02	2.59E-01	1.98E-01	1.49E-01	2.57E-02	2.68E-01	4.13E-01	2.28E-01	
Ytterbium (70)	Yb-169	7.90E+00	8.77E-02	1.84E-02	1.88E-01	1.44E-01	1.09E-01	1.87E-02	1.95E-01	3.00E-01	1.66E-01	
Ytterbium (70)	Yb-175	6.04E+01	1.15E-02	3.35E-02	3.44E-01	2.62E-01	1.98E-01	3.41E-02	3.56E-01	5.48E-01	3.03E-01	
Ytterbium (70)	Yb-177	3.18E+03	2.18E-04	2.36E-02	2.42E-01	1.84E-01	1.39E-01	2.40E-02	2.50E-01	3.86E-01	2.13E-01	
Ytterbium (70)	Yb-178	4.92E+03	1.41E-04	9.16E-02	9.39E-01	7.17E-01	5.42E-01	9.32E-02	9.72E-01	1.50E+00	8.28E-01	
Ytterbium (70)	Yb-179	4.55E+04	1.52E-05	6.80E-02	6.97E-01	5.32E-01	4.02E-01	6.92E-02	7.22E-01	1.11E+00	6.15E-01	
Zinc (30)	Zn-60	1.53E+05	4.53E-06	2.16E-01	2.22E+00	1.69E+00	1.28E+00	2.20E-01	2.30E+00	3.54E+00	1.96E+00	
Zinc (30)	Zn-61	2.45E+05	2.83E-06	1.36E-01	1.39E+00	1.06E+00	8.01E-01	1.38E-01	1.44E+00	2.22E+00	1.23E+00	
Zinc (30)	Zn-62	6.61E+02	1.05E-03	1.66E-02	1.70E-01	1.30E-01	9.79E-02	1.69E-02	1.76E-01	2.71E-01	1.50E-01	
Zinc (30)	Zn-63	9.47E+03	7.32E-05	1.90E-01	1.95E+00	1.49E+00	1.13E+00	1.94E-01	2.02E+00	3.12E+00	1.72E+00	
Zinc (30)	Zn-65	1.04E+00	6.69E-01	4.23E-03	4.34E-02	3.31E-02	2.50E-02	4.31E-03	4.49E-02	6.93E-02	3.83E-02	
Zinc (30)	Zn-69	6.46E+03	1.07E-04	4.88E-01	5.00E+00	3.82E+00	2.88E+00	4.97E-01	5.18E+00	7.98E+00	4.41E+00	
Zinc (30)	Zn-69m	4.41E+02	1.57E-03	4.26E-02	4.37E-01	3.33E-01	2.52E-01	4.33E-02	4.52E-01	6.97E-01	3.85E-01	
Zinc (30)	Zn-71	1.49E+05	4.66E-06	.	.	.	.	.	.	.	.	
Zinc (30)	Zn-71m	1.53E+03	4.52E-04	6.51E-02	6.68E-01	5.10E-01	3.85E-01	6.63E-02	6.92E-01	1.07E+00	5.89E-01	
Zinc (30)	Zn-72	1.31E+02	5.31E-03	6.14E-03	6.30E-02	4.80E-02	3.63E-02	6.25E-03	6.52E-02	1.00E-01	5.55E-02	
Zirconium (40)	Zr-85	4.63E+04	1.50E-05	1.59E-02	1.63E-01	1.24E-01	9.38E-02	1.61E-02	1.68E-01	2.60E-01	1.43E-01	
Zirconium (40)	Zr-86	3.68E+02	1.88E-03	8.70E-03	8.93E-02	6.81E-02	5.15E-02	8.86E-03	9.24E-02	1.42E-01	7.87E-02	
Zirconium (40)	Zr-87	3.61E+03	1.92E-04	1.57E-02	1.61E-01	1.23E-01	9.30E-02	1.60E-02	1.67E-01	2.57E-01	1.42E-01	
Zirconium (40)	Zr-88	3.03E+00	2.28E-01	9.40E-03	9.65E-02	7.36E-02	5.56E-02	9.58E-03	9.99E-02	1.54E-01	8.50E-02	
Zirconium (40)	Zr-89	7.74E+01	8.95E-03	1.98E-02	2.03E-01	1.55E-01	1.17E-01	2.02E-02	2.10E-01	3.24E-01	1.79E-01	
Zirconium (40)	Zr-89m	8.75E+04	7.92E-06	2.11E-02	2.17E-01	1.65E-01	1.25E-01	2.15E-02	2.24E-01	3.45E-01	1.91E-01	
Zirconium (40)	Zr-93	4.53E-07	1.53E+06	1.72E-02	1.77E-01	1.35E-01	1.02E-01	1.75E-02	1.83E-01	2.82E-01	1.56E-01	
Zirconium (40)	Zr-95	3.95E+00	1.75E-01	1.00E-02	1.03E-01	7.83E-02	5.92E-02	1.02E-02	1.06E-01	1.64E-01	9.04E-02	
Zirconium (40)	Zr-97	3.63E+02	1.91E-03	6.98E-03	7.16E-02	5.47E-02	4.13E-02	7.11E-03	7.41E-02	1.14E-01	6.31E-02	



Radionuclides		Isotope-specific Information		Dose Coefficient Conversion Factors (DCCs)																								
Element (Atomic Number)	Isotope	Lambda (1/yr)	Half-life (years)	Apple Consumption	Asparagus Consumption	Beet Consumption	Berry Consumption	Broccoli Consumption	Cabbage Consumption	Carrot Consumption	Citrus fruit Consumption	Corn Consumption	Cucumber Consumption	Letuce Consumption	Lima beans Consumption	Okra Consumption	Onion Consumption	Peaches Consumption	Pears Consumption	Peanut Consumption	Peppers Consumption	Potatoes Consumption	Pumpkin Consumption	Snap beans Consumption	Strawberries Consumption	Tomatoes Consumption	Total Produce	
				DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)
Actinium (89)	Ac-223	1.73E+05	4.00E-06	6.64E-01	9.22E-01	1.25E+00	1.67E+00	1.69E+00	4.79E-01	1.68E+00	1.93E-01	8.07E-01	1.08E+00	9.75E-01	1.65E+00	1.95E+00	1.55E+00	5.48E-01	8.94E-01	1.83E+00	2.43E+00	4.36E-01	9.28E-01	1.03E+00	1.45E+00	6.06E-01	1.45E+00	3.57E-02
Actinium (89)	Ac-224	3.17E+03	3.17E-08	1.74E+00	4.09E+00	4.86E+00	4.37E+00	4.65E+00	2.12E+00	6.49E+00	5.03E-01	1.97E+00	2.99E+00	4.09E+00	4.41E+00	5.38E+00	6.03E+00	1.43E+00	2.34E+00	4.92E+00	6.71E+00	1.14E+00	2.57E+00	2.77E+00	3.80E+00	1.67E+00	1.03E-01	
Actinium (89)	Ac-226	2.07E+02	3.35E-03	3.11E-02	5.66E-02	8.20E-02	7.84E-02	8.21E-02	2.93E-02	1.09E-01	9.03E-03	3.64E-02	5.27E-02	5.83E-02	8.03E-02	9.49E-02	1.02E-01	2.57E-02	4.19E-02	8.96E-02	1.18E-01	2.08E-02	4.52E-02	5.04E-02	6.82E-02	2.95E-02	1.79E-03	
Actinium (89)	Ac-227	3.18E+02	2.18E+01	1.43E-01	2.68E-01	3.35E-01	3.60E-01	3.75E-01	1.38E-01	4.44E-01	4.14E-02	1.66E-01	2.40E-01	2.74E-01	3.59E-01	4.33E-01	4.15E-01	1.18E-01	1.92E-01	4.00E-01	5.40E-01	9.36E-02	2.07E-01	2.25E-01	3.13E-01	1.35E-01	8.14E-03	
Actinium (89)	Ac-228	9.87E+02	7.02E-04	3.47E-01	5.82E-01	7.59E-01	8.73E-01	9.00E-01	3.02E-01	1.01E+00	1.00E-02	4.08E-01	5.77E-01	6.05E-01	8.68E-01	1.03E+00	9.41E-01	2.86E-01	4.67E-01	9.67E-01	1.50E+00	2.28E-01	4.95E-01	5.45E-01	7.59E-01	1.32E-01	1.94E-02	
Actinium (89)	Ac-230	1.79E+05	3.87E-06	2.55E-02	4.54E-02	6.43E-02	6.43E-02	6.71E-02	2.35E-02	8.54E-02	7.41E-03	3.00E-02	4.30E-02	4.69E-02	6.54E-02	7.75E-02	7.97E-02	2.11E-02	3.44E-02	7.30E-02	9.67E-02	1.70E-02	3.70E-02	4.11E-02	5.59E-02	2.47E-02	1.48E-03	
Actinium (89)	Ac-231	4.89E+04	1.43E-05	7.34E-02	1.52E-01	1.95E-01	1.95E-01	1.95E-01	7.89E-02	2.49E-01	2.13E-02	8.43E-02	1.25E-01	1.55E-01	1.89E-01	2.25E-01	2.33E-01	6.09E-02	9.88E-02	2.07E-01	2.81E-01	4.82E-02	1.04E-01	1.16E-01	1.61E-01	7.00E-02	4.26E-03	
Actinium (89)	Ac-232	1.84E+05	3.77E-06	4.02E-02	5.93E-02	7.83E-02	1.01E-01	1.03E-01	3.07E-02	1.04E-01	1.17E-02	4.83E-02	6.99E-02	6.23E-02	6.96E-02	1.19E-01	1.91E-01	3.32E-02	5.42E-02	1.11E-01	1.48E-01	2.63E-02	5.66E-02	6.26E-02	8.81E-02	3.70E-02	2.19E-03	
Actinium (89)	Ac-233	1.51E+05	4.60E-06	9.37E-02	1.83E-01	2.29E-01	2.36E-01	2.45E-01	9.48E-02	3.04E-01	2.72E-02	1.07E-01	1.57E-01	1.87E-01	2.36E-01	2.83E-01	2.84E-01	7.74E-02	1.26E-01	2.63E-01	3.53E-01	6.15E-02	1.35E-01	1.48E-01	2.05E-01	8.81E-02	5.18E-03	
Silver (47)	Ag-100	1.63E+05	4.26E-06	2.70E+01	6.36E+01	7.57E+01	6.80E+01	7.27E+01	3.30E+01	1.00E+02	7.83E+00	3.06E+01	4.65E+01	6.68E+01	6.95E+01	8.37E+01	9.38E+01	2.23E+01	3.63E+01	7.66E+01	1.05E+02	1.78E+01	3.99E+01	4.38E+01	5.91E+01	8.62E+01	1.68E+02	
Silver (47)	Ag-101	3.28E+04	2.11E-05	1.19E+02	3.14E+02	3.77E+02	3.00E+02	3.59E+02	1.63E+02	4.96E+02	3.45E+01	1.35E+02	2.30E+02	3.20E+02	3.07E+02	4.14E+02	4.63E+02	9.83E+01	1.60E+02	3.38E+02	5.19E+02	7.83E+01	1.97E+02	1.93E+02	2.61E+02	1.29E+02	7.93E+01	
Silver (47)	Ag-102	2.62E+04	2.45E-05	5.84E+02	4.07E+03	4.79E+03	1.47E+03	4.61E+03	2.11E+03	6.39E+03	1.69E+02	6.62E+02	2.96E+02	4.07E+03	1.52E+03	5.33E+03	5.93E+03	4.82E+02	7.86E+02	1.65E+03	6.84E+03	3.84E+02	2.54E+03	9.60E+02	1.28E+03	1.68E+03	4.50E+01	
Silver (47)	Ag-103	4.73E+04	1.46E-05	1.19E+03	8.31E+03	9.77E+03	3.00E+03	9.42E+03	4.30E+03	3.48E+02	3.00E+04	3.48E+02	3.00E+04	8.30E+03	9.10E+03	1.09E+04	1.21E+04	9.84E+02	1.61E+03	3.39E+03	1.36E+04	7.85E+02	5.19E+03	1.96E+03	2.61E+03	3.39E+03	9.19E+01	
Silver (47)	Ag-104	5.54E+03	1.25E-04	1.38E+02	3.79E+02	4.50E+02	3.46E+02	4.33E+02	1.96E+02	5.97E+02	3.99E+01	1.56E+02	2.76E+02	3.99E+02	3.56E+02	4.98E+02	5.58E+02	1.14E+02	1.85E+02	3.90E+02	6.26E+02	9.05E+01	2.38E+02	2.24E+02	3.01E+02	1.56E+02	8.61E+00	
Silver (47)	Ag-104	5.26E+03	1.32E-04	4.10E+02	2.86E+03	3.56E+03	1.03E+03	3.24E+03	1.48E+03	4.47E+03	1.19E+02	4.65E+02	2.08E+03	2.86E+03	1.07E+03	3.75E+03	4.47E+03	3.39E+02	5.52E+02	1.16E+03	6.84E+03	2.70E+02	1.79E+03	6.74E+02	8.98E+02	1.16E+03	3.36E+01	
Silver (47)	Ag-104m	1.09E+04	6.37E-05	3.58E+02	2.49E+02	2.93E+02	9.02E+02	2.83E+02	1.29E+03	3.90E+02	1.04E+02	4.06E+02	1.81E+02	2.49E+02	9.31E+02	3.27E+02	3.64E+02	2.96E+02	4.82E+02	1.02E+03	4.07E+02	2.36E+02	1.56E+03	5.88E+02	7.83E+02	1.02E+03	2.76E+01	
Silver (47)	Ag-105	6.13E+00	1.13E-01	5.30E+01	2.68E+02	4.34E+02	1.33E+02	4.19E+02	1.91E+02	5.77E+02	1.54E+01	6.01E+01	2.89E+02	1.39E+02	4.84E+02	5.58E+02	4.37E+01	7.13E+01	1.50E+02	6.03E+02	3.49E+01	2.31E+02	8.70E+01	1.16E+02	1.50E+02	4.08E+02	4.08E+01	
Silver (47)	Ag-106	3.54E+04	1.93E-05	1.38E+02	3.36E+02	4.07E+02	1.33E+02	1.62E+02	4.20E+02	1.27E+02	3.58E+02	1.02E+02	2.22E+02	3.58E+02	4.30E+02	5.07E+02	5.76E+02	1.16E+02	1.96E+02	3.50E+02	7.16E+02	1.33E+02	3.30E+02	4.39E+02	5.81E+02	1.51E+02	3.27E-02	
Silver (47)	Ag-106	1.52E+04	4.56E-05	7.44E+02	5.18E+02	6.10E+02	1.87E+02	5.88E+02	2.68E+02	8.09E+02	2.16E+02	8.43E+02	3.77E+02	5.18E+02	1.93E+02	6.79E+02	7.55E+02	6.14E+02	1.00E+03	2.21E+03	8.46E+02	4.89E+02	3.24E+03	1.22E+03	1.63E+03	2.11E+03	5.73E+01	
Silver (47)	Ag-106m	3.05E+01	2.27E-02	1.71E+01	1.19E+02	1.40E+02	4.31E+01	1.35E+02	6.17E+01	1.86E+02	4.67E+01	1.93E+02	1.87E+01	1.19E+02	4.45E+01	1.56E+02	1.75E+02	1.41E+01	2.30E+01	4.85E+01	1.95E+02	1.13E+01	7.45E+01	2.81E+01	4.11E+01	2.8E+01	1.32E+02	
Silver (47)	Ag-108	1.54E+05	4.51E-06	1.06E+01	7.39E+01	8.70E+01	2.67E+01	8.39E+01	3.83E+01	1.16E+02	3.08E+00	1.20E+01	5.38E+01	7.39E+01	2.76E+01	9.69E+01	1.08E+02	8.78E+00	1.43E+01	3.01E+01	1.21E+02	6.99E+00	4.62E+01	1.74E+01	2.32E+01	3.01E+01	8.18E-01	
Silver (47)	Ag-108m	1.66E+03	4.18E+02	1.06E+01	7.39E+01	8.70E+01	2.67E+01	8.39E+01	3.83E+01	1.16E+02	3.08E+00	1.20E+01	5.38E+01	7.39E+01	2.76E+01	9.69E+01	1.08E+02	8.78E+00	1.43E+01	3.01E+01	1.21E+02	6.99E+00	4.62E+01	1.74E+01	2.32E+01	3.01E+01	8.18E-01	
Silver (47)	Ag-109m	5.52E+05	1.26E-06	8.89E+05	7.80E+07	8.82E+00	6.14E+01	7.23E+01	2.22E+01	6.97E+01	3.18E+01	9.26E+01	2.56E+00	1.00E+01	4.47E+01	6.14E+01	2.29E+01	8.05E+01	8.96E+01	7.28E+00	1.19E+01	1.00E+02	5.80E+00	3.84E+01	1.45E+01	1.93E+01	2.50E+01	6.79E-01
Silver (47)	Ag-110	1.01E+00	6.84E-01	1.81E+01	1.29E+02	1.48E+02	4.56E+01	1.43E+02	6.53E+01	1.97E+02	5.25E+00	2.05E+01	9.17E+01	1.26E+02	4.71E+01	1.65E+02	1.84E+02	1.49E+01	2.44E+01	5.13E+01	2.06E+02	1.19E+01	7.88E+01	2.97E+01	3.96E+01	5.14E+01	1.39E+00	
Silver (47)	Ag-111	3.37E+05	2.05E-06	1.82E+01	1.27E+02	1.49E+02	4.59E+01	1.44E+02	6.58E+01	1.98E+02	5.29E+00	2.07E+01	9.24E+01	1.27E+02	4.74E+01	1.66E+02	1.85E+02	1.50E+01	2.45E+01	5.17E+01	2.07E+02	1.20E+01	7.93E+01	2.99E+01	3.99E+01	5.17E+01	1.40E+00	
Silver (47)	Ag-112	1.94E+03	3.57E-04	5.47E+01	3.81E+02	4.48E+02	1.38E+02	4.32E+02	1.97E+02	5.95E+02	1.58E+01	6.20E+01	2.77E+02	3.81E+02	1.42E+02	4.99E+02	5.55E+02	4.51E+01	7.36E+01	1.55E+02	6.21E+02	3.60E+01	2.38E+02	8.98E+01	1.20E+02	1.58E+02	4.21E+00	
Silver (47)	Ag-113	1.15E+02	6.13E-05	9.59E-01	1.40E+00	1.67E+00	1.49E+00	1.61E+00	1.72E+00	1.72E+00	1.72E+00	1.72E+00	1.72E+00	1.72E+00	1.72E+00	1.72E+00	1.72E+00	1.72E+00	1.72E+00	1.72E+00	1.72E+00	1.72E+00	1.72E+00	1.72E+00	1.72E+00	1.72E+00	1.72E+00	1.72E+00
Silver (47)	Ag-113m	3.18E+05	2.18E-06	9.54E-01	1.40E+00	1.67E+00	1.49E+00	1.61E+00	1.72E+00	1.72E+00	1.72E+00	1.72E+00	1.72E+00	1.72E+00	1.72E+00	1.72E+00	1.72E+00	1.72E+00	1.72E+00	1.72E+00	1.72E+00	1.72E+00	1.72E+00	1.72E+00	1.72E+00	1.72E+00	1.72E+00	1.72E+00
Silver (47)	Ag-114	4.75E+06	1.46E-07	2.00E+00	1.42E+00	1.56E+00	1.05E+00	5.38E+00	2.44E+00	7.49E+00	5.81E-01	2.81E+00	3.44E+00	4.84E+00	5.65E+00	6.15E+00	6.99E+00	1.65E+00	2.70E+00	6.27E+00	7.77E+00	9.20E-01	2.82E+00	3.55E				

Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)																							
Element	Isotope	Lambda	Half-life	Apple Consumption	Asparagus Consumption	Beet Consumption	Berry Consumption	Broccoli Consumption	Cabbage Consumption	Carrot Consumption	Citrus fruit Consumption	Corn Consumption	Cucumber Consumption	Lettuce Consumption	Lima beans Consumption	Okra Consumption	Onion Consumption	Peaches Consumption	Pears Consumption	Peanut Consumption	Peppers Consumption	Potatoes Consumption	Pumpkin Consumption	Snap beans Consumption	Strawberries Consumption	Tomatoes Consumption	Total Produce
				DCC DL=1	DCC DL=1	DCC DL=1	DCC DL=1	DCC DL=1	DCC DL=1	DCC DL=1	DCC DL=1	DCC DL=1	DCC DL=1	DCC DL=1	DCC DL=1	DCC DL=1	DCC DL=1	DCC DL=1	DCC DL=1	DCC DL=1	DCC DL=1	DCC DL=1	DCC DL=1	DCC DL=1	DCC DL=1	DCC DL=1	DCC DL=1
(Gold 79)	Au-196m	6.32E+02	1.10E+03	9.19E+01	2.18E+02	2.56E+02	2.31E+02	2.49E+02	1.13E+02	3.39E+02	2.66E+01	7.42E+01	1.59E+02	2.19E+02	2.93E+02	2.87E+02	3.17E+02	7.58E+01	1.24E+02	2.63E+02	3.58E+02	6.00E+01	1.37E+02	1.48E+02	2.01E+02	8.93E+01	5.46E+02
(Gold 79)	Au-198	9.30E+01	1.54E+02	6.84E+01	1.54E+02	1.81E+02	1.81E+02	1.78E+02	7.99E+01	2.22E+02	1.88E+01	1.13E+02	1.54E+02	1.69E+02	1.20E+02	2.24E+02	2.24E+02	5.38E+01	8.74E+01	1.75E+02	2.53E+02	6.86E+01	1.04E+02	1.42E+02	6.86E+01	1.42E+02	3.42E+01
(Gold 79)	Au-199	1.11E+02	6.22E+03	3.01E+01	7.14E+01	8.30E+01	1.75E+01	8.14E+01	3.70E+01	1.11E+02	4.72E+01	3.44E+01	5.22E+01	1.16E+01	7.70E+01	9.40E+01	1.04E+02	2.48E+01	1.05E+01	8.59E+01	1.17E+02	4.48E+01	4.88E+01	6.86E+01	4.88E+01	2.92E+01	1.79E+02
(Gold 79)	Au-200	8.06E+01	8.60E+03	1.48E+02	3.52E+02	4.13E+02	3.74E+02	4.02E+02	1.83E+02	5.48E+02	4.58E+02	1.70E+02	2.58E+02	3.53E+02	3.80E+02	4.64E+02	5.12E+02	1.22E+02	2.00E+02	4.24E+02	5.78E+02	9.69E+01	2.21E+02	2.38E+02	3.25E+02	1.44E+02	8.72E+02
(Gold 79)	Au-200m	7.53E+03	9.21E+05	9.94E+02	2.36E+03	2.76E+03	2.50E+03	2.69E+03	1.22E+03	3.67E+03	2.88E+02	1.14E+03	1.72E+03	2.36E+03	2.54E+03	3.11E+03	3.43E+03	8.20E+02	1.34E+03	2.84E+03	3.87E+03	6.49E+02	1.48E+03	1.60E+03	2.17E+03	9.66E+02	5.91E+01
(Gold 79)	Au-200m	3.25E+02	2.13E+03	6.75E+01	1.60E+02	1.88E+02	1.70E+02	1.83E+02	8.31E+01	2.49E+02	1.96E+01	7.71E+01	1.17E+02	1.61E+02	1.73E+02	2.11E+02	2.33E+02	5.57E+01	9.09E+01	1.93E+02	2.63E+02	4.41E+01	1.01E+02	1.08E+02	1.47E+02	6.56E+01	4.01E+02
(Gold 79)	Au-200m	1.40E+04	4.95E+05	2.78E+03	6.55E+03	7.68E+03	6.95E+03	7.47E+03	3.40E+03	1.02E+04	8.00E+02	3.15E+03	4.79E+03	6.57E+03	7.07E+03	8.63E+03	9.31E+03	2.28E+03	3.71E+03	7.88E+03	1.08E+04	1.80E+03	4.11E+03	4.43E+03	6.04E+03	2.68E+03	1.64E+02
(Barium 56)	Ba-124	3.31E+04	2.09E+05	1.59E+02	2.26E+03	3.56E+03	2.30E+03	1.17E+03	3.56E+03	2.65E+02	1.04E+03	1.58E+03	2.27E+03	2.33E+03	2.84E+03	3.35E+03	7.55E+02	1.23E+03	2.59E+03	3.54E+03	6.30E+02	1.35E+03	1.46E+03	2.00E+03	8.83E+02	5.49E+01	
(Barium 56)	Ba-126	3.64E+03	1.90E+04	2.51E+02	6.20E+02	7.37E+02	6.33E+02	6.75E+02	3.21E+02	9.79E+02	7.28E+01	2.85E+02	4.33E+02	6.23E+02	6.40E+02	7.80E+02	9.14E+02	2.07E+02	3.38E+02	7.12E+02	9.73E+02	1.73E+02	3.72E+02	4.02E+02	5.50E+02	8.83E+02	1.51E+01
(Barium 56)	Ba-127	2.87E+04	2.42E+05	1.35E+02	2.62E+03	3.33E+03	3.46E+03	3.40E+03	1.36E+03	4.42E+03	3.91E+02	1.37E+03	2.18E+03	2.69E+03	3.00E+03	3.92E+03	4.13E+03	1.11E+03	1.82E+03	3.33E+03	4.90E+03	7.41E+02	1.87E+03	1.89E+03	2.99E+03	2.42E+03	7.74E+01
(Barium 56)	Ba-128	1.04E+02	6.66E+03	2.37E+01	1.85E+01	6.96E+01	5.97E+01	6.37E+01	6.30E+01	9.24E+01	6.82E+01	2.69E+01	4.08E+01	5.88E+01	6.04E+01	7.81E+01	8.62E+01	1.98E+01	3.19E+01	6.72E+01	9.18E+01	1.63E+01	3.51E+01	3.79E+01	5.19E+01	2.29E+01	1.42E+01
(Barium 56)	Ba-129	2.72E+03	2.55E+04	6.29E+02	1.58E+03	1.61E+03	1.75E+03	1.63E+03	1.03E+03	2.01E+03	1.62E+02	6.29E+02	1.00E+03	1.22E+03	1.37E+03	1.88E+03	1.88E+03	5.17E+02	8.43E+02	1.52E+03	2.26E+03	3.35E+02	6.62E+02	1.39E+03	5.63E+02	3.42E+01	
(Barium 56)	Ba-129m	2.91E+03	2.47E+04	2.57E+02	1.03E+03	1.31E+03	1.35E+03	1.30E+03	5.35E+02	1.74E+03	1.33E+02	6.89E+02	8.93E+02	1.06E+03	1.38E+03	1.54E+03	1.62E+03	7.09E+02	1.31E+03	1.92E+03	2.72E+02	7.33E+02	7.41E+02	1.17E+03	4.79E+02	1.92E+01	
(Barium 56)	Ba-131	2.20E+01	3.15E+02	1.25E+02	2.90E+02	3.51E+02	3.15E+02	3.30E+02	1.50E+02	4.67E+02	3.61E+01	1.38E+02	2.12E+02	2.94E+02	3.08E+02	3.81E+02	4.35E+02	1.03E+02	1.68E+02	3.42E+02	4.76E+02	8.13E+01	1.82E+02	1.93E+02	2.73E+02	1.19E+02	7.34E+01
(Barium 56)	Ba-131m	2.49E+04	2.78E+05	1.23E+02	2.88E+02	3.48E+02	3.12E+02	3.27E+02	1.49E+02	4.62E+02	3.65E+01	1.38E+02	2.10E+02	2.91E+02	3.05E+02	3.77E+02	4.31E+02	1.02E+02	1.66E+02	3.39E+02	4.71E+02	8.06E+01	1.80E+02	1.91E+02	2.71E+02	1.18E+02	7.72E+01
(Barium 56)	Ba-133	6.99E+02	1.05E+01	3.46E+01	8.54E+01	1.02E+02	8.71E+01	9.30E+01	4.42E+01	1.35E+02	1.00E+01	3.92E+01	5.96E+01	8.58E+01	8.81E+01	1.07E+02	1.26E+02	2.88E+01	4.66E+01	9.81E+01	1.34E+02	2.38E+01	5.12E+01	5.53E+01	1.75E+01	3.34E+01	2.08E+01
(Barium 56)	Ba-133m	1.58E+02	4.44E+03	2.67E+01	6.99E+01	7.84E+01	6.73E+01	7.18E+01	4.42E+01	1.04E+02	7.75E+02	3.03E+01	4.80E+01	6.63E+01	6.81E+01	8.29E+01	9.72E+01	2.21E+01	3.60E+01	7.58E+01	1.03E+02	1.84E+01	3.95E+01	4.28E+01	5.85E+01	2.38E+01	1.80E+02
(Barium 56)	Ba-135m	2.12E+02	3.28E+03	1.49E+02	3.68E+02	4.38E+02	3.76E+02	4.01E+02	1.91E+02	5.81E+02	4.32E+01	1.69E+02	2.87E+02	3.70E+02	3.90E+02	4.63E+02	5.42E+02	1.23E+02	2.01E+02	4.23E+02	5.78E+02	1.03E+02	2.21E+02	2.39E+02	3.26E+02	1.44E+02	8.95E+01
(Barium 56)	Ba-137m	1.43E+05	4.88E+06	5.15E+02	3.27E+03	1.51E+03	1.30E+03	1.38E+03	6.58E+02	2.01E+03	4.49E+02	5.84E+02	1.04E+03	1.28E+03	1.31E+03	1.63E+03	1.87E+03	4.25E+02	6.93E+02	1.46E+03	1.99E+03	3.35E+02	7.62E+02	8.23E+02	1.13E+03	4.47E+02	3.09E+01
(Barium 56)	Ba-140	3.99E+03	1.58E+04	1.38E+01	3.30E+01	3.99E+01	3.47E+01	3.66E+01	1.71E+01	5.29E+01	3.99E+01	1.56E+01	2.34E+01	3.32E+01	3.54E+01	4.22E+01	4.94E+01	1.14E+01	1.85E+01	3.94E+01	5.27E+01	9.40E+01	2.01E+01	2.22E+01	3.01E+01	1.31E+01	8.21E+01
(Barium 56)	Ba-141	1.99E+04	3.48E+05	5.73E+01	1.30E+02	1.57E+02	1.44E+02	1.52E+02	6.75E+01	2.08E+02	1.66E+01	6.48E+01	9.76E+01	1.31E+02	1.37E+02	1.76E+02	1.94E+02	4.73E+01	7.71E+01	1.53E+02	2.19E+02	3.74E+01	8.39E+01	1.25E+02	5.47E+01	3.25E+01	
(Barium 56)	Ba-142	3.44E+04	2.02E+05	3.23E+02	7.52E+02	9.24E+02	8.14E+02	8.48E+02	3.89E+02	1.23E+03	9.37E+01	3.67E+02	5.44E+02	7.56E+02	8.39E+02	9.80E+02	1.14E+03	2.67E+02	4.35E+02	9.36E+02	1.22E+03	2.19E+02	4.67E+02	5.26E+02	7.07E+02	3.05E+02	1.92E+01
(Beryllium 4)	Be-10	4.59E+07	1.51E+06	3.85E+02	1.51E+06	1.44E+02	1.44E+02	1.44E+02	5.74E+02	2.73E+02	6.81E+01	1.13E+02	4.73E+02	6.44E+02	6.04E+02	6.89E+02	7.77E+02	1.30E+02	3.22E+02	5.25E+02	6.49E+02	8.54E+02	9.13E+01	1.25E+02	2.59E+02	1.35E+02	
(Beryllium 4)	Be-7	4.75E+04	4.60E+05	2.56E+03	6.04E+03	7.14E+03	6.45E+03	6.88E+03	3.13E+03	9.54E+03	7.43E+02	2.91E+03	4.41E+03	6.07E+03	6.52E+03	7.95E+03	8.91E+03	2.12E+03	3.45E+03	7.27E+03	9.92E+03	1.69E+03	3.79E+03	4.09E+03	5.61E+03	3.07E+03	1.52E+02
(Bismuth 83)	Bi-197	3.92E+04	1.77E+05	6.66E+01	1.55E+02	1.86E+02	1.68E+02	1.80E+02	8.02E+01	2.47E+02	1.93E+01	7.56E+01	1.14E+02	1.69E+02	1.73E+02	2.06E+02	2.31E+02	5.49E+01	8.96E+01	1.89E+02	2.61E+02	4.39E+01	8.83E+01	1.10E+02	1.46E+02	6.97E+01	3.96E+01
(Bismuth 83)	Bi-200	1.00E+04	6.93E+05	1.02E+02	1.76E+02	2.78E+02	2.58E+02	2.66E+02	9.12E+01	3.69E+02	2.95E+02	1.20E+02	1.70E+02	1.84E+02	2.63E+02	3.07E+02	3.44E+02	8.39E+01	1.37E+02	2.95E+02	3.84E+02	6.99E+01	1.46E+02	1.66E+02	2.23E+02	5.91E+01	5.84E+01
(Bismuth 83)	Bi-201	3.37E+03	2.05E+04	1.45E+02	2.82E+02	4.01E+02	3.66E+02	3.84E+02	1.46E+02	5.17E+02	4.21E+01	1.69E+02	2.48E+02	2.95E+02	3.77E+02	4.43E+02	4.97E+02	1.20E+02	1.95E+02	4.17E+02	5.55E+02	9.80E+01	2.11E+02	2.37E+02	3.18E+02	3.84E+02	
(Bismuth 83)	Bi-203	3.59E+03	1.96E+04	3.90E+02	5.73E+02	6.80E+02	6.50E+02	6.74E+02	1.01E+02	3.19E+02	1.13E+02	4.73E+02	6.44E+02	6.04E+02	6.89E+02	8.16E+02	9.30E+02	3.22E+02	5.25E+02	1.15E+03	1.45E+03	2.72E+02	6.49E+02	8.54E+02	6.92E+02	2.20E+01	
(Bismuth 83)	Bi-203	5.16E+02	1.34E+03	5.88E+01	1.22E+02	1.63E+02	1.48E+02	1.57E+02	6.33E+01	2.12E+02	1.70E+01	6.78E+01	1.00E+02	1.29E+02	1.57E+02	1.81E+02	2.02E+02	4.85E+01	7.91E+01	1.68E+02	2.27E+02	3.93E+01	8.62E+01	1.29E+02	1.29E+02	5.65E+01	3.45E+01
(Bismuth 83)	Bi-204	5.41E+02	1.28E+03	6.46E+01	1.52E+02	1.81E+02	1.63E+02	1.74E+02	7.86E+01	2.40E+02	1.87E+01	7.32E+01	1.11E+02	1.61E+02	1.67E+02	2.00E+02	2.24E+02	5.33E+01	8.69E+01	1.83E+02	2.52E+02	4.					

Radionuclides				Farmer Tap Water Produce DCCs July 2023																							
Isotope-specific Information				Dose Consumption Concentrations (DCCs)																							
Element (Atomic Number)	Isotope	Lambda (1/Yr)	Half-life (years)	Apple Consumption	Asparagus Consumption	Beet Consumption	Berry Consumption	Broccoli Consumption	Cabbage Consumption	Carrot Consumption	Citrus fruit Consumption	Com Consumption	Cucumber Consumption	Lettuce Consumption	Lima beans Consumption	Okra Consumption	Onion Consumption	Peasches Consumption	Pears Consumption	Peas Consumption	Peppers Consumption	Potatoes Consumption	Pumpkin Consumption	Snap beans Consumption	Strawberries Consumption	Tomatoes Consumption	Total Produce
				DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)
Cerium (58)	Ce-131	3.57E+04	1.94E+05	1.12E+02	2.61E+02	3.16E+02	2.84E+02	2.97E+02	1.35E+02	4.20E+02	3.26E+01	1.24E+02	1.91E+02	2.64E+02	2.77E+02	3.43E+02	3.92E+02	9.27E+01	1.51E+02	3.08E+02	4.29E+02	7.33E+01	1.64E+02	1.74E+02	2.46E+02	1.07E+02	6.61E+00
Cerium (58)	Ce-132	1.12E+02	4.40E+02	9.25E+01	2.10E+02	2.35E+02	2.33E+02	2.44E+02	1.09E+02	2.30E+02	2.68E+01	1.57E+02	2.82E+02	2.82E+02	2.35E+02	2.82E+02	3.17E+02	7.63E+01	1.24E+02	3.44E+02	6.08E+01	1.42E+02	2.02E+02	2.02E+02	2.02E+02	2.02E+02	5.43E+00
Cerium (58)	Ce-133	3.78E+03	1.85E+04	3.28E+01	7.10E+02	9.52E+01	8.12E+01	8.75E+01	4.14E+02	1.28E+02	9.94E+00	3.69E+01	5.61E+01	8.04E+01	1.01E+02	1.18E+02	2.89E+01	4.39E+01	9.20E+01	1.26E+02	2.24E+01	4.82E+01	5.19E+01	1.26E+02	2.4E+01	1.85E+00	
Cerium (58)	Ce-133m	1.24E+03	5.59E+04	3.10E+01	7.56E+01	9.00E+01	7.80E+01	8.32E+01	3.92E+01	1.20E+02	8.98E+00	3.51E+01	5.33E+01	7.60E+01	7.81E+01	9.80E+01	1.12E+02	2.56E+01	4.17E+01	8.69E+01	1.20E+02	1.21E+02	4.58E+01	4.90E+01	6.78E+01	2.99E+01	1.85E+00
Cerium (58)	Ce-134	8.00E+01	8.66E+03	2.53E+01	5.69E+01	6.76E+01	6.38E+01	6.79E+01	2.95E+01	8.98E+01	7.35E+00	2.87E+01	4.36E+01	5.72E+01	5.77E+01	7.85E+01	8.38E+01	2.09E+01	3.41E+01	6.42E+01	9.78E+01	1.62E+01	3.74E+01	6.33E+01	5.55E+01	2.44E+01	1.47E+00
Cerium (58)	Ce-135	3.43E+02	2.02E+03	2.24E+02	5.49E+02	6.55E+02	6.14E+02	6.52E+02	2.84E+02	8.70E+02	7.07E+01	2.76E+02	4.18E+02	5.52E+02	5.64E+02	7.53E+02	8.12E+02	2.01E+02	3.28E+02	6.27E+02	9.38E+02	1.57E+02	3.59E+02	3.54E+02	2.34E+02	1.42E+01	
Cerium (58)	Ce-137	6.75E+02	1.03E+03	6.17E+02	1.41E+03	1.73E+03	1.55E+03	1.62E+03	7.30E+02	2.29E+03	1.79E+02	6.99E+02	1.04E+03	1.42E+03	1.55E+03	1.87E+03	2.14E+03	5.09E+02	8.30E+02	1.73E+03	2.34E+03	4.11E+02	8.93E+02	9.75E+02	1.35E+03	5.83E+02	3.63E+01
Cerium (58)	Ce-137m	1.70E+02	3.93E+03	1.01E+02	2.28E+02	2.55E+02	2.27E+02	2.17E+02	1.18E+02	3.62E+02	2.94E+01	1.15E+02	1.74E+02	2.35E+02	3.13E+02	3.38E+02	4.83E+01	1.36E+02	2.61E+02	3.90E+02	6.51E+01	1.45E+02	1.47E+02	2.2E+02	9.72E+01	5.90E+00	
Cerium (58)	Ce-139	1.84E+00	7.37E+01	2.63E+02	5.90E+02	7.01E+02	6.62E+02	7.04E+02	3.05E+02	9.31E+02	7.62E+01	2.97E+02	4.52E+02	5.99E+02	8.14E+02	8.69E+02	2.17E+02	3.54E+02	6.66E+02	1.01E+03	1.68E+02	3.88E+02	3.76E+02	5.75E+02	2.53E+02	1.53E+01	
Cerium (58)	Ce-141	7.78E+00	8.91E+02	9.40E+01	2.11E+02	2.51E+02	2.37E+02	2.52E+02	1.09E+02	3.33E+02	2.73E+01	1.06E+02	1.62E+02	2.12E+02	2.14E+02	2.91E+02	3.11E+02	7.76E+01	1.27E+02	2.38E+02	3.63E+02	6.00E+01	1.39E+02	1.35E+02	2.06E+02	9.07E+01	5.47E+00
Cerium (58)	Ce-143	1.84E+02	3.37E+03	2.89E+01	6.12E+02	7.28E+02	7.29E+02	7.76E+02	3.17E+02	9.67E+02	4.98E+01	6.20E+02	8.81E+02	6.20E+02	8.97E+02	9.03E+02	2.39E+02	3.89E+02	7.76E+02	1.12E+02	1.87E+02	4.28E+02	4.37E+02	6.33E+02	2.96E+02	1.61E+01	
Cerium (58)	Ce-144	8.88E+01	7.81E+01	1.11E+00	3.55E+00	4.22E+00	3.81E+00	4.07E+00	1.84E+00	5.60E+00	4.39E+01	1.72E+00	2.61E+00	3.56E+00	3.80E+00	4.70E+00	5.23E+00	1.25E+00	2.04E+00	4.23E+00	5.85E+00	9.92E+01	2.24E+00	2.38E+00	3.31E+00	1.46E+00	8.96E+00
Cerium (58)	Ce-145	1.21E+04	5.73E+05	1.57E+02	3.99E+02	4.42E+02	4.49E+02	4.74E+02	1.74E+02	5.30E+02	4.85E+01	1.69E+02	2.69E+02	3.42E+02	4.25E+02	5.19E+02	4.95E+02	1.39E+02	2.25E+02	4.74E+02	6.49E+02	2.47E+02	2.66E+02	3.66E+02	1.61E+02	9.62E+00	
Cerium (58)	Cf-244	1.88E+04	3.68E+05	1.15E+01	2.24E+01	2.89E+01	2.94E+01	2.90E+01	1.16E+01	3.84E+01	3.38E+02	1.25E+01	1.86E+01	2.29E+01	2.95E+01	3.35E+01	3.59E+01	9.64E+01	1.57E+01	3.27E+01	4.18E+01	7.53E+02	1.60E+01	1.84E+01	2.55E+01	1.04E+01	6.59E+03
Calcium (98)	Cf-246	1.70E+02	4.08E+03	2.33E+02	4.23E+02	5.92E+02	5.87E+02	6.13E+02	2.19E+02	7.89E+02	6.76E+03	2.72E+02	3.93E+02	4.36E+02	5.97E+02	7.08E+02	7.33E+02	1.92E+02	3.14E+02	6.66E+02	8.83E+02	1.55E+02	3.37E+02	3.75E+02	5.10E+02	2.20E+02	1.34E+03
Calcium (98)	Cf-247	1.95E+03	3.55E+04	4.05E+02	8.83E+02	1.07E+03	1.02E+03	1.10E+03	4.57E+02	1.42E+03	1.17E+02	4.60E+02	8.94E+02	1.02E+03	1.24E+03	1.33E+03	3.54E+02	5.44E+02	1.14E+03	1.55E+03	2.66E+02	5.93E+02	6.43E+02	8.85E+02	3.87E+02	2.37E+03	
Calcium (98)	Cf-248	7.57E+01	9.15E+01	4.32E+02	5.16E+02	6.72E+02	8.20E+02	8.38E+02	2.67E+02	8.92E+02	9.44E+03	3.86E+02	5.37E+02	5.39E+02	8.10E+02	9.67E+02	8.33E+02	2.69E+02	4.38E+02	9.02E+02	1.21E+03	2.13E+02	4.61E+02	5.09E+02	7.13E+02	3.01E+02	1.80E+03
Calcium (98)	Cf-249	1.97E+03	3.51E+02	3.26E+02	5.94E+02	1.17E+03	1.14E+03	1.19E+03	4.64E+02	1.85E+03	1.31E+02	5.13E+02	7.60E+02	9.67E+02	1.18E+03	1.37E+03	1.45E+03	3.73E+02	6.08E+02	1.20E+03	1.71E+03	2.96E+02	6.53E+02	7.10E+02	9.89E+02	4.26E+02	1.62E+03
Calcium (98)	Cf-250	5.30E+02	1.51E+01	3.67E+02	3.30E+02	4.30E+02	4.14E+02	4.29E+02	6.30E+02	6.30E+02	3.20E+02	3.95E+02	6.28E+02	6.28E+02	6.28E+02	6.28E+02	6.28E+02	6.28E+02	6.28E+02	6.28E+02	6.28E+02	6.28E+02	6.28E+02	6.28E+02	6.28E+02	6.28E+02	6.28E+02
Calcium (98)	Cf-251	7.70E+04	9.00E+02	3.67E+02	8.09E+02	9.76E+02	9.23E+02	9.77E+02	4.17E+02	1.30E+03	1.06E+02	4.18E+02	6.26E+02	8.15E+02	9.29E+02	1.13E+03	1.21E+03	3.03E+02	4.94E+02	1.04E+03	1.41E+03	2.41E+02	5.38E+02	5.83E+02	8.03E+02	3.51E+02	2.15E+03
Calcium (98)	Cf-252	2.62E+01	2.65E+00	2.56E+02	4.49E+02	5.73E+02	6.44E+02	6.47E+02	2.33E+02	7.61E+02	7.41E+03	2.99E+02	4.27E+02	4.65E+02	6.40E+02	7.70E+02	7.11E+02	3.44E+02	7.13E+02	9.61E+02	1.68E+02	3.67E+02	4.02E+02	5.60E+02	2.40E+02	1.44E+03	
Calcium (98)	Cf-253	1.42E+01	4.88E+02	4.49E+02	9.48E+02	1.16E+03	1.13E+03	1.18E+03	4.91E+02	1.54E+03	1.30E+02	5.10E+02	7.56E+02	9.61E+02	1.12E+03	1.36E+03	1.44E+03	3.70E+02	6.04E+02	1.25E+03	1.70E+03	2.94E+02	6.49E+02	7.05E+02	9.82E+02	4.23E+02	2.61E+03
Calcium (98)	Cf-254	4.18E+00	1.66E+01	1.47E+01	3.48E+01	4.12E+01	3.70E+01	3.95E+01	1.79E+01	5.47E+01	4.26E+02	1.67E+01	3.73E+01	4.56E+01	5.10E+01	1.21E+02	1.98E+01	4.71E+01	5.68E+01	9.47E+02	2.17E+01	3.22E+01	3.42E+01	3.22E+01	4.42E+01	8.72E+03	
Calcium (98)	Cf-255	4.29E+03	1.62E+04	3.65E+02	8.02E+02	9.72E+02	9.18E+02	9.71E+02	4.15E+02	1.29E+03	1.06E+02	4.15E+02	6.23E+02	8.11E+02	9.24E+02	1.12E+03	1.20E+03	3.01E+02	4.91E+02	1.03E+03	2.40E+02	5.35E+02	5.80E+02	7.98E+02	4.39E+02	1.51E+03	
Chlorine (17)	Cl-34m	1.14E+04	6.09E+05	1.03E+01	6.23E+00	1.60E+01	3.41E+01	3.66E+01	3.23E+00	2.12E+01	3.92E+00	1.53E+01	7.05E+00	1.64E+01	4.20E+01	1.98E+01	1.98E+01	1.12E+01	1.82E+01	1.78E+01	5.33E+01	8.91E+00	2.00E+01	1.04E+01	2.96E+01	1.33E+01	2.14E+01
Chlorine (17)	Cl-36	2.30E+06	3.01E+05	1.50E+00	6.88E+01	1.77E+00	3.77E+00	4.05E+00	3.57E+01	2.35E+00	4.34E+01	1.70E+00	2.57E+00	7.78E+01	1.81E+00	4.64E+00	2.19E+00	1.23E+00	2.01E+00	1.95E+00	5.89E+00	9.84E+01	2.21E+00	1.15E+00	3.27E+00	1.46E+00	5.70E+02
Chlorine (17)	Cl-38	9.78E+03	7.09E+05	1.19E+01	5.47E+00	1.40E+01	2.99E+01	3.22E+01	2.84E+00	1.86E+01	3.45E+00	1.35E+01	2.04E+01	6.19E+00	1.44E+01	3.69E+01	1.74E+01	9.81E+00	1.60E+01	1.55E+01	4.69E+01	7.82E+00	1.76E+01	9.11E+00	2.60E+01	1.16E+01	4.53E+01
Chlorine (17)	Cl-39	6.55E+03	1.06E+04	1.64E+01	7.55E+00	1.94E+01	4.13E+01	4.44E+01	3.91E+00	2.57E+01	4.76E+00	1.88E+01	2.82E+01	8.54E+00	1.98E+01	5.09E+01	2.40E+01	1.35E+01	2.21E+01	2.14E+01	6.47E+01	1.08E+01	2.43E+01	1.26E+01	3.59E+01	1.61E+01	6.25E+01
Chlorine (17)	Cl-40	2.70E+05	2.57E+06	2.53E+02	4.26E+02	5.97E+02	5.92E+02	6.18E+02	2.20E+02	7.92E+02	6.87E+03	2.75E+02	3.96E+02	4.39E+02	6.02E+02	7.14E+02	7.39E+02	1.94E+02	3.17E+02	6.72E+02	8.90E+02	1.56E+02	3.40E+02	7.92E+02	5.15E+02	2.21E+02	1.35E+03
Chlorine (96)	Cm-239	2.09E+03	3.31E+04	5.77E+02	1.22E+03	1.49E+03																					

Radionuclides			Isotope-specific Information		Dose Compliance Concentrations (DCCs)																						
Element (Atomic Number)	Isotope	Lambda (1/yr)	Half-life (years)	Apple Consumption	Asparagus Consumption	Beet Consumption	Berry Consumption	Broccoli Consumption	Cabbage Consumption	Carrot Consumption	Citrus fruit Consumption	Corn Consumption	Cucumber Consumption	Lettuce Consumption	Lima beans Consumption	Okra Consumption	Onion Consumption	Peaches Consumption	Pears Consumption	Peas Consumption	Peppers Consumption	Potatoes Consumption	Pumpkin Consumption	Snap beans Consumption	Strawberries Consumption	Tomatoes Consumption	Total Produce
				DCC DL=1	DCC DL=1	DCC DL=1	DCC DL=1	DCC DL=1	DCC DL=1	DCC DL=1	DCC DL=1	DCC DL=1	DCC DL=1	DCC DL=1	DCC DL=1	DCC DL=1	DCC DL=1	DCC DL=1	DCC DL=1	DCC DL=1	DCC DL=1	DCC DL=1	DCC DL=1	DCC DL=1	DCC DL=1	DCC DL=1	DCC DL=1
Dysprosium (66)	Dy-151	2.03E+04	3.41E+05	2.08E+01	4.90E+01	5.83E+01	5.24E+01	5.88E+01	2.54E+01	7.74E+01	6.03E+00	2.38E+01	3.58E+01	4.90E+01	5.28E+01	6.45E+01	7.22E+01	1.72E+01	2.80E+01	5.89E+01	8.03E+01	1.37E+01	3.07E+01	3.31E+01	4.55E+01	2.00E+01	1.23E+00
Dysprosium (66)	Dy-152	2.55E+03	2.72E+04	5.64E+01	1.33E+02	1.58E+02	1.42E+02	1.51E+02	6.83E+01	1.63E+01	6.39E+01	9.70E+01	1.33E+02	1.55E+02	1.96E+02	1.75E+02	1.99E+02	4.85E+01	7.83E+01	1.69E+02	2.18E+02	3.70E+01	8.35E+01	8.89E+01	1.23E+02	5.43E+01	3.34E+02
Dysprosium (66)	Dy-153	8.49E+02	7.31E+04	9.24E+01	2.18E+02	2.59E+02	2.33E+02	2.48E+02	1.13E+02	3.44E+02	2.88E+01	1.05E+02	1.59E+02	2.18E+02	2.35E+02	2.87E+02	3.21E+02	7.63E+01	1.24E+02	2.62E+02	3.57E+02	6.08E+01	1.37E+02	1.47E+02	2.02E+02	8.91E+01	5.48E+00
Dysprosium (66)	Dy-154	2.31E+07	3.00E+06	4.33E+01	1.02E+02	1.21E+02	1.09E+02	1.16E+02	5.29E+01	1.61E+02	1.26E+01	4.91E+01	7.46E+01	1.02E+02	1.14E+02	1.34E+02	1.50E+02	3.58E+01	5.83E+01	1.23E+02	1.67E+02	2.85E+01	6.41E+01	6.90E+01	9.48E+01	4.18E+01	2.57E+02
Dysprosium (66)	Dy-155	6.13E+02	1.13E+03	1.70E+02	4.01E+02	4.76E+02	4.28E+02	4.56E+02	2.08E+02	6.33E+02	4.93E+01	1.93E+02	2.93E+02	4.01E+02	4.32E+02	5.27E+02	5.90E+02	1.42E+02	2.29E+02	4.82E+02	6.57E+02	1.12E+02	2.51E+02	2.71E+02	3.72E+02	1.64E+02	1.01E+01
Dysprosium (66)	Dy-157	7.46E+02	9.29E+04	6.98E+02	1.61E+03	1.96E+03	1.76E+03	1.87E+03	8.52E+02	2.60E+03	2.02E+02	7.91E+02	1.20E+03	1.65E+03	1.77E+03	2.16E+03	2.42E+03	5.78E+02	9.39E+02	1.98E+03	2.70E+03	4.59E+02	1.03E+03	1.11E+03	1.53E+03	6.73E+02	4.14E+01
Dysprosium (66)	Dy-159	1.75E+00	3.96E+01	6.84E+02	1.52E+03	1.81E+03	1.62E+03	1.73E+03	7.87E+02	2.40E+03	1.87E+02	7.31E+02	1.11E+03	1.52E+03	1.64E+03	2.00E+03	2.24E+03	5.32E+02	8.88E+02	1.83E+03	2.49E+03	4.24E+02	9.54E+02	1.03E+03	1.41E+03	6.22E+02	3.82E+01
Dysprosium (66)	Dy-160	2.55E+03	2.72E+04	5.64E+01	1.33E+02	1.58E+02	1.42E+02	1.51E+02	6.83E+01	1.63E+01	6.39E+01	9.70E+01	1.33E+02	1.55E+02	1.96E+02	1.75E+02	1.99E+02	4.85E+01	7.83E+01	1.69E+02	2.18E+02	3.70E+01	8.35E+01	8.89E+01	1.23E+02	5.43E+01	3.34E+02
Dysprosium (66)	Dy-165m	2.90E+05	2.39E+06	6.25E+02	1.47E+03	1.75E+03	1.57E+03	1.68E+03	7.62E+02	2.32E+03	1.81E+02	7.08E+02	1.07E+03	1.47E+03	1.59E+03	1.94E+03	2.17E+03	5.15E+02	8.40E+02	1.77E+03	2.41E+03	4.11E+02	9.24E+02	9.95E+02	1.37E+03	6.02E+02	3.70E+01
Dysprosium (66)	Dy-166	7.44E+01	9.32E+03	2.15E+01	5.08E+01	6.04E+01	5.42E+01	5.79E+01	2.63E+01	8.02E+01	6.25E+00	2.44E+01	3.71E+01	5.09E+01	5.47E+01	6.68E+01	7.49E+01	1.78E+01	2.90E+01	6.11E+01	8.33E+01	1.42E+01	3.19E+01	3.44E+01	4.71E+01	2.08E+01	1.28E+00
Dysprosium (66)	Dy-167	5.87E+04	1.18E+05	7.77E+02	1.83E+03	2.18E+03	1.96E+03	2.09E+03	9.49E+02	2.89E+03	2.25E+02	8.81E+02	1.34E+03	1.84E+03	1.97E+03	2.41E+03	2.70E+03	6.41E+02	1.05E+03	2.20E+03	3.00E+03	5.11E+02	1.15E+03	1.24E+03	1.70E+03	7.50E+02	4.61E+01
Dysprosium (66)	Dy-168	4.19E+04	1.66E+05	4.43E+01	1.02E+02	1.22E+02	1.09E+02	1.17E+02	5.30E+01	1.62E+02	1.26E+01	4.92E+01	7.47E+01	1.02E+02	1.10E+02	1.35E+02	1.51E+02	3.58E+01	5.84E+01	1.23E+02	1.68E+02	2.85E+01	6.42E+01	6.82E+01	9.50E+01	4.19E+01	2.57E+02
Erbium (88)	Er-156	1.87E+04	7.31E+05	5.30E+02	1.25E+03	1.48E+03	1.33E+03	1.42E+03	6.46E+02	1.97E+03	1.54E+02	6.00E+02	9.12E+02	1.25E+03	1.34E+03	1.64E+03	1.84E+03	4.37E+02	7.13E+02	1.50E+03	2.05E+03	3.48E+02	7.83E+02	8.44E+02	1.16E+03	5.11E+02	3.41E+01
Erbium (88)	Er-159	1.01E+04	6.85E+05	5.03E+02	1.19E+03	1.41E+03	1.27E+03	1.35E+03	6.14E+02	1.87E+03	1.46E+02	5.70E+02	8.66E+02	1.19E+03	1.28E+03	1.56E+03	1.75E+03	4.15E+02	6.77E+02	1.43E+03	1.94E+03	3.31E+02	7.44E+02	8.02E+02	1.10E+03	4.85E+02	2.98E+01
Erbium (88)	Er-161	1.89E+03	3.66E+04	7.34E+02	1.73E+03	2.06E+03	1.85E+03	1.97E+03	8.95E+02	2.73E+03	2.13E+02	8.31E+02	1.26E+03	1.73E+03	1.86E+03	2.27E+03	2.55E+03	6.06E+02	9.88E+02	2.08E+03	2.83E+03	4.82E+02	1.08E+03	1.17E+03	1.61E+03	7.07E+02	4.35E+01
Erbium (88)	Er-163	4.86E+03	1.43E+04	1.24E+04	2.91E+04	3.46E+04	3.11E+04	3.32E+04	1.51E+04	4.60E+04	3.59E+03	1.40E+04	2.13E+04	2.92E+04	3.14E+04	3.83E+04	4.29E+04	1.02E+04	1.66E+04	3.50E+04	4.78E+04	8.13E+03	1.83E+04	1.97E+04	2.71E+04	1.19E+04	7.23E+02
Erbium (88)	Er-165	5.88E+02	1.18E+03	3.58E+03	8.42E+03	1.00E+04	9.01E+03	9.59E+03	4.38E+03	1.33E+04	1.04E+03	4.05E+03	6.15E+03	8.43E+03	9.17E+03	1.11E+04	1.24E+04	2.95E+03	4.82E+03	1.01E+04	1.38E+04	2.35E+03	5.29E+03	5.69E+03	7.83E+03	3.45E+03	1.33E+02
Erbium (88)	Er-167m	9.63E+06	7.19E+07	1.78E+02	4.19E+02	4.99E+02	4.49E+02	4.78E+02	2.17E+02	6.62E+02	5.17E+01	2.02E+02	3.06E+02	4.20E+02	4.52E+02	5.52E+02	6.18E+02	1.47E+02	2.40E+02	5.04E+02	6.88E+02	1.17E+02	2.63E+02	2.84E+02	3.90E+02	1.72E+02	1.06E+01
Erbium (88)	Er-171	8.08E+02	8.58E+04	1.45E+02	3.41E+02	4.06E+02	3.65E+02	3.89E+02	1.77E+02	5.39E+02	4.20E+01	1.64E+02	2.49E+02	3.42E+02	3.68E+02	4.49E+02	5.03E+02	1.20E+02	1.95E+02	4.10E+02	5.59E+02	9.52E+01	2.14E+02	2.31E+02	3.17E+02	1.40E+02	8.59E+00
Erbium (88)	Er-172	1.23E+02	5.63E+03	2.45E+01	5.78E+01	6.88E+01	6.18E+01	6.59E+01	3.00E+01	9.13E+01	7.12E+00	2.78E+01	4.22E+01	5.79E+01	6.23E+01	7.61E+01	8.52E+01	2.03E+01	3.30E+01	6.95E+01	9.48E+01	1.61E+01	3.63E+01	3.91E+01	5.37E+01	2.37E+01	1.42E+00
Erbium (88)	Er-173	2.54E+05	2.73E+06	2.23E+02	5.27E+02	6.26E+02	5.62E+02	6.00E+02	3.76E+02	8.32E+02	6.48E+01	2.53E+02	3.85E+02	5.28E+02	5.68E+02	6.93E+02	7.76E+02	1.84E+02	3.01E+02	6.33E+02	8.64E+02	1.47E+02	3.31E+02	3.56E+02	4.89E+02	2.16E+02	1.36E+01
Einsteinium (99)	Es-249	3.58E+03	1.94E+04	4.52E+02	9.55E+02	1.17E+03	1.14E+03	1.19E+03	4.95E+02	1.55E+03	1.31E+02	5.14E+02	7.61E+02	9.68E+02	1.13E+03	1.37E+03	1.45E+03	3.73E+02	6.09E+02	1.28E+03	1.71E+03	2.96E+02	6.54E+02	7.11E+02	9.90E+02	4.27E+02	2.63E+03
Einsteinium (99)	Es-250	7.09E+02	9.82E+04	2.10E+02	3.90E+02	4.58E+02	4.29E+02	4.52E+02	2.02E+02	7.14E+02	6.09E+01	2.44E+02	3.54E+02	4.01E+02	5.37E+02	6.38E+02	6.67E+02	1.73E+02	2.83E+02	5.99E+02	7.96E+02	1.39E+02	3.04E+02	3.37E+02	4.68E+02	1.99E+02	1.21E+03
Einsteinium (99)	Es-250m	2.73E+03	2.53E+04	2.07E+02	3.84E+02	4.50E+02	4.12E+02	4.44E+02	1.99E+02	7.04E+02	6.00E+01	2.40E+02	3.49E+02	3.95E+02	5.29E+02	6.28E+02	6.57E+02	1.73E+02	2.78E+02	5.90E+02	7.84E+02	1.37E+02	3.00E+02	3.32E+02	4.53E+02	1.92E+02	1.19E+03
Einsteinium (99)	Es-251	1.84E+02	3.77E+03	3.67E+02	8.09E+02	9.77E+02	9.23E+02	9.77E+02	4.17E+02	1.30E+03	1.06E+02	4.18E+02	6.26E+02	8.15E+02	9.29E+02	1.13E+03	1.21E+03	3.03E+02	4.94E+02	1.04E+03	1.41E+03	2.41E+02	5.38E+02	5.83E+02	8.03E+02	3.51E+02	2.15E+03
Einsteinium (99)	Es-253	1.24E+01	5.61E+02	4.49E+02	9.49E+02	1.16E+03	1.13E+03	1.18E+03	4.92E+02	1.54E+03	1.30E+02	5.11E+02	7.57E+02	9.62E+02	1.13E+03	1.36E+03	1.44E+03	3.71E+02	6.05E+02	1.26E+03	1.70E+03	2.94E+02	6.50E+02	7.06E+02	9.84E+02	4.24E+02	2.61E+03
Einsteinium (99)	Es-254	9.17E+01	7.55E+01	2.05E+02	3.81E+02	4.52E+02	4.19E+02	4.38E+02	1.97E+02	6.97E+02	5.93E+02	2.38E+02	3.45E+02	3.92E+02	5.23E+02	6.22E+02	6.51E+02	1.69E+02	2.75E+02	5.84E+02	7.76E+02	1.36E+02	2.97E+02	3.28E+02	4.48E+02	1.94E+02	1.18E+03
Einsteinium (99)	Es-254m	1.54E+02	4.49E+03	4.39E+02	8.92E+02	1.07E+03	1.04E+03	1.09E+03	4.95E+02	1.52E+03	1.27E+02	4.81E+02	7.02E+02	9.09E+02	1.05E+03	1.28E+03	1.36E+03	3.53E+02	5.67E+02	1.23E+03	1.66E+03	2.82E+02	6.30E+02	6.89E+02	9.37E+02	4.04E+02	2.48E+03
Einsteinium (99)	Es-255	6.39E+00	1.09E+01	6.32E+02	8.02E+02	9.72E+02	9.17E+02	9.71E+02	4.15E+02	1.29E+03	1.06E+02	4.15E+02	6.23E+02	8.11E+02	9.24E+02	1.12E+03	1.20E+03	3.01E+02	4.91E+02	1.03E+03	1.40E+03	2.40E+02	5.35E+02	5.80E+02	7.98E+02	3.49E+02	2.14E+03
Einsteinium (99)	Es-256	1.43E+04	4.83E+05	2.87E+01	5.16E+01	6.55E+01	7.22E+01	7.50E+01	2.67E+01																		



Radionuclides			Dose Compliance Concentrations (DCCs)																									
Element (Atomic Number)	Isotope	Isotope-specific Information Lambda (1/Yr) Half-life (years)	Farmer Tap Water Produce DCCs July 2023																									
			Apple Consumption DCC DL=1	Asparagus Consumption DCC DL=1	Beet Consumption DCC DL=1	Berry Consumption DCC DL=1	Broccoli Consumption DCC DL=1	Cabbage Consumption DCC DL=1	Carrot Consumption DCC DL=1	Citrus fruit Consumption DCC DL=1	Corn Consumption DCC DL=1	Cucumber Consumption DCC DL=1	Lettuce Consumption DCC DL=1	Lima beans Consumption DCC DL=1	Okra Consumption DCC DL=1	Onion Consumption DCC DL=1	Peaches Consumption DCC DL=1	Pears Consumption DCC DL=1	Peanut Consumption DCC DL=1	Peppers Consumption DCC DL=1	Potatoes Consumption DCC DL=1	Pumpkin Consumption DCC DL=1	Snap beans Consumption DCC DL=1	Strawberries Consumption DCC DL=1	Tomatoes Consumption DCC DL=1	Total Produce DCC DL=1		
Gadolinium (64)	Gd-149	2.73E+01	2.54E-02	9.75E+01	2.30E+02	2.73E+02	2.49E+02	2.62E+02	1.19E+02	3.63E+02	2.83E+01	1.11E+02	1.68E+02	2.30E+02	2.49E+02	2.49E+02	3.03E+02	3.39E+02	8.05E+01	1.31E+02	2.77E+02	3.72E+02	6.42E+01	1.44E+02	1.66E+02	2.13E+02	9.41E+01	5.79E+02
Gadolinium (64)	Gd-150	3.92E+00	1.30E+06	6.63E+01	1.56E+02	1.83E+02	1.67E+02	1.74E+02	6.93E+01	1.74E+02	1.34E+02	1.34E+02	1.34E+02	1.34E+02	1.34E+02	1.34E+02	1.34E+02	1.34E+02	1.34E+02	1.34E+02	1.34E+02	1.34E+02	1.34E+02	1.34E+02	1.34E+02	1.34E+02	1.34E+02	1.34E+02
Gadolinium (64)	Gd-151	2.04E+00	3.40E+01	2.96E+02	6.90E+02	8.30E+02	7.46E+02	7.85E+02	1.10E+03	8.59E+01	3.36E+02	3.95E+02	4.29E+02	7.63E+02	9.70E+02	1.03E+03	2.41E+02	8.40E+02	1.15E+03	9.5E+02	4.38E+02	4.72E+02	6.48E+02	2.87E+02	5.48E+02	1.78E+01	2.40E+02	1.78E+01
Gadolinium (64)	Gd-152	6.42E-15	1.08E+14	5.67E+01	1.34E+02	1.59E+02	1.43E+02	1.52E+02	6.92E+01	2.11E+02	1.64E+01	3.62E+01	5.10E+02	1.44E+02	1.76E+02	1.97E+02	4.69E+01	7.63E+01	1.61E+02	2.19E+02	3.73E+01	8.38E+01	9.03E+01	1.24E+02	5.47E+01	3.0E+02	1.24E+02	3.0E+02
Gadolinium (64)	Gd-153	1.05E+00	6.59E+01	2.43E+02	5.78E+02	6.82E+02	6.12E+02	6.53E+02	2.97E+02	9.05E+02	7.05E+01	2.78E+02	4.19E+02	5.74E+02	6.18E+02	7.54E+02	8.45E+02	2.01E+02	3.27E+02	6.89E+02	9.40E+02	1.60E+02	3.60E+02	3.88E+02	5.32E+02	2.35E+02	1.44E+01	1.44E+01
Gadolinium (64)	Gd-159	3.29E+02	2.11E+03	1.13E+02	3.08E+02	3.67E+02	3.19E+02	3.51E+02	1.60E+02	4.87E+02	3.79E+01	1.48E+02	2.25E+02	3.09E+02	3.32E+02	4.06E+02	4.55E+02	1.08E+02	2.76E+02	9.40E+02	8.60E+01	1.94E+02	2.09E+02	2.86E+02	1.26E+02	1.26E+02	1.26E+02	1.26E+02
Gadolinium (64)	Gd-162	4.34E+04	1.80E+05	4.17E+01	9.79E+01	1.17E+02	1.05E+02	1.12E+02	5.07E+01	1.55E+02	1.21E+01	4.77E+01	7.15E+01	1.01E+02	1.09E+02	1.29E+02	1.45E+02	3.45E+01	5.62E+01	1.18E+02	1.61E+02	2.75E+01	6.14E+01	6.69E+01	9.13E+01	4.02E+01	2.47E+00	2.47E+00
Germanium (32)	Ge-66	2.69E+03	2.58E+04	1.43E+02	3.94E+02	4.00E+02	3.59E+02	4.11E+02	1.74E+02	5.31E+02	4.14E+01	1.61E+02	4.45E+02	3.68E+02	4.42E+02	4.96E+02	1.18E+02	1.92E+02	4.04E+02	5.96E+02	9.39E+01	2.11E+02	2.32E+02	3.13E+02	1.38E+02	4.84E+02	1.38E+02	4.84E+02
Germanium (32)	Ge-68	9.34E-01	7.42E-01	1.10E+01	2.58E+01	3.08E+01	2.76E+01	2.96E+01	1.34E+01	4.08E+01	3.18E+00	1.24E+01	1.89E+01	2.84E+01	2.86E+01	3.40E+01	3.81E+01	9.05E+00	1.48E+01	3.11E+01	4.31E+01	7.22E+00	1.62E+01	1.81E+01	2.40E+01	1.07E+01	6.54E-01	6.54E-01
Germanium (32)	Ge-69	1.55E+02	4.46E-03	7.22E+01	1.70E+02	2.02E+02	1.82E+02	1.95E+02	8.81E+01	2.69E+02	2.09E+01	8.18E+01	1.25E+02	1.87E+02	2.24E+02	2.51E+02	5.96E+01	9.72E+01	2.05E+02	2.84E+02	4.75E+01	1.07E+02	1.19E+02	1.58E+02	1.70E+01	1.07E+01	4.30E+00	4.30E+00
Germanium (32)	Ge-71	2.21E+01	3.13E-02	1.19E+03	2.81E+03	3.34E+03	3.00E+03	3.22E+03	1.46E+03	4.44E+03	3.46E+02	1.35E+03	2.05E+03	3.10E+03	3.11E+03	3.70E+03	4.14E+03	9.84E+02	1.61E+03	3.38E+03	4.68E+03	7.85E+02	1.76E+03	1.97E+03	2.61E+03	1.10E+03	7.11E+01	7.11E+01
Germanium (32)	Ge-73	4.40E+03	1.57E+04	3.04E+02	7.17E+02	8.53E+02	7.67E+02	8.23E+02	1.13E+03	8.83E+01	3.45E+02	5.24E+02	7.90E+02	7.95E+02	9.44E+02	1.06E+03	2.51E+02	4.10E+02	6.63E+02	1.20E+03	2.00E+02	4.50E+02	5.03E+02	6.66E+02	2.97E+02	1.82E+01	1.82E+01	
Germanium (32)	Ge-75	5.37E+02	3.10E+01	3.08E+01	7.25E+01	8.63E+01	7.75E+01	8.31E+01	3.3E+01	1.11E+02	8.92E+00	3.49E+01	8.01E+01	9.55E+01	1.07E+02	2.54E+02	4.14E+01	5.56E+01	1.45E+02	2.03E+01	4.55E+01	5.08E+01	6.73E+01	9.0E+01	1.0E+02	1.0E+02	1.0E+02	1.0E+02
Germanium (32)	Ge-78	4.14E+03	1.67E+04	7.80E+01	1.84E+02	2.19E+02	1.98E+02	2.11E+02	9.52E+01	2.90E+02	2.26E+01	8.84E+01	1.34E+02	1.99E+02	2.03E+02	2.42E+02	2.71E+02	6.44E+01	1.05E+02	2.21E+02	3.05E+02	5.13E+01	1.15E+02	1.28E+02	1.71E+02	7.60E+01	4.65E+00	4.65E+00
Hydrogen (1)	H-3	5.63E-02	1.23E+01	4.21E+01	9.93E+01	1.18E+02	1.08E+02	1.14E+02	5.14E+01	1.57E+02	1.22E+01	4.78E+01	7.25E+01	1.12E+02	1.11E+02	1.31E+02	1.46E+02	3.48E+01	5.67E+01	1.19E+02	1.69E+02	2.77E+01	6.23E+01	7.02E+01	9.21E+01	4.13E+01	2.52E+00	2.52E+00
Hafnium (72)	Hf-167	1.78E+05	3.90E-06	5.16E+02	2.49E+02	2.96E+02	2.66E+02	2.84E+02	1.29E+02	3.93E+02	3.06E+01	1.20E+02	1.82E+02	2.49E+02	2.68E+02	3.28E+02	3.67E+02	8.72E+01	1.42E+02	2.99E+02	4.08E+02	6.95E+01	1.56E+02	1.68E+02	2.31E+02	1.02E+02	6.2E+00	6.2E+00
Hafnium (72)	Hf-169	1.12E+05	6.16E-06	1.04E+02	2.2E+02	1.44E+02	1.29E+02	1.38E+02	6.27E+01	1.91E+02	1.49E+01	5.82E+01	8.84E+01	1.21E+02	1.30E+02	1.62E+02	1.78E+02	4.24E+01	6.92E+01	1.46E+02	1.99E+02	3.38E+01	7.60E+01	8.19E+01	1.12E+02	4.98E+01	3.0E+00	3.0E+00
Hafnium (72)	Hf-170	3.75E+02	1.83E+03	1.81E+02	4.22E+02	5.08E+02	4.59E+02	4.87E+02	1.21E+01	6.75E+02	1.21E+01	4.87E+01	7.32E+01	1.02E+02	1.02E+02	1.21E+02	1.46E+02	3.49E+01	5.14E+01	7.01E+01	1.19E+02	2.89E+01	2.89E+01	3.97E+01	1.75E+01	1.07E+01	1.07E+01	
Hafnium (72)	Hf-172	3.71E-01	1.87E+00	2.89E+01	6.81E+01	8.10E+01	7.28E+01	7.76E+01	1.53E+01	1.08E+02	8.38E+00	3.27E+01	4.97E+01	6.82E+01	7.34E+01	8.96E+01	1.00E+02	2.39E+01	3.89E+01	8.19E+01	1.12E+02	9.0E+01	4.27E+01	4.81E+01	6.33E+01	2.79E+01	1.71E+00	1.71E+00
Hafnium (72)	Hf-173	2.57E+02	2.69E+03	1.17E+02	2.77E+02	3.29E+02	2.96E+02	3.15E+02	1.43E+02	4.37E+02	3.40E+01	1.33E+02	2.02E+02	2.77E+02	2.98E+02	3.64E+02	4.08E+02	9.69E+01	1.58E+02	3.33E+02	4.54E+02	7.71E+01	1.48E+02	2.57E+02	1.13E+02	6.96E+00	6.96E+00	
Hafnium (72)	Hf-174	3.47E-16	2.00E+15	2.86E+01	6.74E-01	8.02E-01	7.20E-01	7.68E-01	3.49E-01	1.06E+00	8.29E-02	3.24E-01	4.92E-01	6.78E-01	7.27E-01	8.87E-01	9.93E-01	2.36E-01	3.85E-01	8.11E-01	1.11E+00	1.88E-01	4.23E-01	4.56E-01	6.26E-01	2.76E-01	1.70E-02	1.70E-02
Hafnium (72)	Hf-175	3.61E+00	1.92E-01	1.71E+02	4.02E+02	4.78E+02	4.29E+02	4.58E+02	2.08E+02	6.35E+02	4.94E+01	1.93E+02	2.59E+02	4.03E+02	4.34E+02	5.29E+02	5.93E+02	1.41E+02	2.30E+02	4.84E+02	6.60E+02	1.12E+02	2.52E+02	2.72E+02	3.73E+02	1.65E+02	1.01E+01	1.01E+01
Hafnium (72)	Hf-177m	7.09E+03	9.78E-05	8.34E+02	1.97E+03	2.34E+03	2.10E+03	2.24E+03	1.02E+03	3.10E+03	2.24E+02	9.45E+02	1.44E+03	1.97E+03	2.12E+03	2.69E+03	2.89E+03	6.88E+02	1.12E+03	2.36E+03	3.27E+03	5.48E+02	1.23E+03	1.33E+03	1.82E+03	8.05E+02	4.95E+01	4.95E+01
Hafnium (72)	Hf-179m	1.01E+01	6.86E-02	5.36E+01	1.29E+02	1.50E+02	1.35E+02	1.44E+02	6.55E+01	2.00E+02	1.55E+01	6.08E+01	9.23E+01	1.27E+02	1.36E+02	1.66E+02	1.86E+02	4.42E+01	7.21E+01	1.52E+02	2.02E+02	3.53E+01	7.93E+01	8.55E+01	1.17E+02	5.17E+01	3.18E+00	3.18E+00
Hafnium (72)	Hf-180m	1.10E+03	6.28E-04	4.07E+02	9.61E+02	1.14E+03	1.03E+03	1.09E+03	4.98E+02	1.52E+03	1.18E+02	4.62E+02	7.02E+02	9.63E+02	1.04E+03	1.26E+03	1.42E+03	3.86E+02	5.48E+02	1.16E+03	1.58E+03	2.68E+02	6.03E+02	6.50E+02	8.92E+02	3.92E+01	2.42E+01	2.42E+01
Hafnium (72)	Hf-181	5.97E+00	1.16E-01	6.00E+01	1.42E+02	1.68E+02	1.51E+02	1.61E+02	7.33E+01	2.24E+02	1.74E+01	6.81E+01	1.03E+02	1.42E+02	1.53E+02	1.88E+02	2.09E+02	4.98E+01	8.08E+01	1.70E+02	2.32E+02	3.65E+01	8.88E+01	9.58E+01	1.31E+02	5.79E+01	3.56E+00	3.56E+00
Hafnium (72)	Hf-182	7.70E-08	9.00E+06	1.67E+01	3.93E+01	4.67E+01	4.20E+01	4.48E+01	2.04E+01	6.21E+01	4.83E+00	1.89E+01	2.87E+01	3.94E+01	4.24E+01	5.17E+01	5.79E+01	1.38E+01	2.24E+01	4.73E+01	6.45E+01	1.10E+01	2.47E+01	2.66E+01	3.65E+01	1.61E+01	9.88E-01	9.88E-01
Hafnium (72)	Hf-183	5.69E+03	1.22E-04	4.69E+01	1.10E+02	1.31E+02	1.18E+02	1.26E+02	5.72E+01	1.75E+02	1.36E+01	5.31E+01	8.07E+01	1.11E+02	1.19E+02	1.45E+02	1.63E+02	3.87E+01	6.31E+01	1.33E+02	1.81E+02	3.08E+01	6.94E+01	7.47E+01	1.03E+02	4.52E+01	2.78E+00	2.78E+00
Hafnium (72)	Hf-184	1.47E+03	4.70E-04	5.65E+01	1.33E+02	1.59E+02	1.42E+02	1.52E+02	6.91E+01	2.11E+02	1.64E+01	6.41E+01	9.74E+01	1.34E+02	1.44E+02	1.75E+02	1.96E+02	4.67E+01	7.61E+01	1.60E+02	2.							

Farmer Tap Water Produce DCCs July 2023

Radionuclides				Dose Compliance Concentrations (DCCs)																								
Isotope-specific Information				Apple Consumption	Asparagus Consumption	Beet Consumption	Berry Consumption	Broccoli Consumption	Cabbage Consumption	Carrot Consumption	Citrus fruit Consumption	Corn Consumption	Cucumber Consumption	Letuce Consumption	Lima beans Consumption	Okra Consumption	Onion Consumption	Peasches Consumption	Pears Consumption	Peas Consumption	Peppers Consumption	Potatoes Consumption	Pumpkin Consumption	Snap beans Consumption	Strawberries Consumption	Tomatoes Consumption	Total Produce	
Element	Isotope	Lambda	Half-life	DCC DL=1	DCC DL=1	DCC DL=1	DCC DL=1	DCC DL=1	DCC DL=1	DCC DL=1	DCC DL=1	DCC DL=1	DCC DL=1	DCC DL=1	DCC DL=1	DCC DL=1	DCC DL=1	DCC DL=1	DCC DL=1	DCC DL=1	DCC DL=1	DCC DL=1	DCC DL=1	DCC DL=1	DCC DL=1	DCC DL=1	DCC DL=1	
(Atomic Number)	(Year)	(yr)	(years)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	(Bq/L)	
Indium (49)	In-107	1.12E+04	6.16E+05	1.66E+02	3.90E+02	4.64E+02	4.17E+02	4.47E+02	2.02E+02	6.16E+02	4.80E+01	5.80E+02	2.85E+02	4.27E+02	6.57E+02	5.13E+02	5.75E+02	1.37E+02	2.23E+02	7.17E+02	6.49E+02	4.35E+01	2.45E+02	4.15E+02	3.62E+02	1.62E+02	9.20E+00	
Indium (49)	In-111	9.02E+01	7.68E+03	2.44E+02	5.72E+02	6.85E+02	6.15E+02	6.52E+02	2.96E+02	7.09E+01	2.75E+02	4.19E+02	2.72E+02	2.42E+02	3.01E+03	3.71E+03	7.81E+02	3.29E+02	6.88E+02	3.98E+02	6.27E+02	1.44E+03	3.57E+02	3.87E+02	5.35E+02	3.87E+02	2.34E+02	1.45E+01
Indium (49)	In-108m	9.20E+03	7.53E+04	8.74E+02	2.02E+03	2.47E+03	2.45E+03	2.54E+03	1.16E+03	3.55E+03	2.70E+02	2.85E+02	9.84E+02	1.03E+03	2.05E+03	2.20E+03	2.89E+03	3.04E+03	7.21E+02	1.18E+03	2.46E+03	3.60E+03	1.29E+03	1.51E+03	2.02E+03	3.87E+02	5.17E+01	
Indium (49)	In-109	1.45E+03	4.79E+04	6.20E+02	1.46E+01	1.74E+01	1.56E+01	1.88E+01	7.57E+00	2.31E+01	1.80E+00	2.74E+01	1.07E+01	1.62E+01	2.61E+01	1.92E+01	2.15E+01	5.12E+00	8.35E+00	2.84E+01	2.44E+01	1.54E+00	9.17E+00	1.65E+01	1.36E+01	6.06E+00	3.47E+01	
Indium (49)	In-110m	2.72E+05	2.55E+06	6.20E+02	1.46E+01	1.74E+01	1.56E+01	1.88E+01	7.57E+00	2.31E+01	1.80E+00	2.74E+01	1.07E+01	1.62E+01	2.61E+01	1.92E+01	2.15E+01	5.12E+00	8.35E+00	2.84E+01	2.44E+01	1.54E+00	9.17E+00	1.65E+01	1.36E+01	6.06E+00	3.42E+01	
Indium (49)	In-110	1.24E+03	5.59E+04	3.30E+02	7.16E+02	8.57E+02	7.70E+02	8.15E+02	3.71E+02	1.14E+03	8.86E+01	3.44E+02	5.02E+02	7.16E+02	7.71E+02	9.42E+02	1.10E+03	2.52E+02	4.11E+02	8.61E+02	1.47E+03	1.04E+02	4.49E+02	4.84E+02	6.69E+02	2.93E+02	1.82E+01	
Indium (49)	In-110m	5.27E+03	1.31E+04	6.91E+02	1.62E+03	1.94E+03	1.74E+03	1.84E+03	8.38E+02	2.57E+03	2.00E+02	7.78E+02	1.18E+03	1.62E+03	1.74E+03	2.13E+03	2.40E+03	5.71E+02	9.30E+02	1.95E+03	2.65E+03	4.55E+02	1.02E+03	1.09E+03	1.51E+03	6.62E+02	4.09E+01	
Indium (49)	In-111m	4.73E+04	1.46E+05	2.44E+02	5.72E+02	6.85E+02	6.15E+02	6.52E+02	2.96E+02	7.09E+01	2.75E+02	4.19E+02	2.72E+02	2.42E+02	3.01E+03	3.71E+03	7.81E+02	3.29E+02	6.88E+02	3.98E+02	6.27E+02	1.44E+03	3.57E+02	3.87E+02	5.35E+02	3.87E+02	2.34E+02	1.45E+01
Indium (49)	In-112	2.43E+04	2.85E+05	6.82E+03	1.55E+04	1.85E+04	1.67E+04	1.76E+04	8.02E+03	2.46E+04	1.92E+03	7.45E+03	1.13E+04	1.55E+04	1.67E+04	2.04E+04	2.30E+04	5.46E+03	8.90E+03	1.86E+04	2.54E+04	4.35E+03	9.72E+03	1.05E+04	1.45E+04	6.34E+03	3.91E+02	
Indium (49)	In-112m	1.77E+04	3.91E+05	3.25E+03	5.89E+03	7.06E+03	6.34E+03	6.70E+03	3.05E+03	9.37E+03	7.30E+02	2.83E+03	4.30E+03	5.90E+03	6.35E+03	7.75E+03	8.75E+03	2.08E+03	3.39E+03	7.09E+03	9.68E+03	1.66E+03	3.70E+03	3.98E+03	5.51E+03	2.41E+03	1.49E+02	
Indium (49)	In-113m	3.66E+03	1.89E+04	2.36E+03	5.53E+03	6.62E+03	5.95E+03	6.30E+03	2.87E+03	8.80E+03	6.85E+02	2.66E+03	4.04E+03	5.53E+03	5.96E+03	7.28E+03	8.21E+03	1.95E+03	3.18E+03	6.65E+03	9.07E+03	1.55E+03	3.47E+03	3.74E+03	5.17E+03	2.26E+03	1.43E+01	
Indium (49)	In-114	3.04E+05	2.28E+06	1.14E+04	2.62E+04	3.18E+04	2.89E+04	3.12E+04	1.45E+04	4.42E+04	3.40E+03	1.24E+04	1.81E+04	2.49E+04	2.64E+04	3.19E+04	3.64E+04	8.44E+03	1.34E+04	2.54E+04	3.44E+04	5.94E+03	1.34E+04	1.44E+04	1.94E+04	2.64E+04	3.44E+04	4.44E+04
Indium (49)	In-114m	5.11E+00	1.38E+01	1.59E+01	3.73E+01	4.47E+01	4.01E+01	4.25E+01	1.93E+01	5.94E+01	4.62E+00	1.79E+01	2.73E+01	3.73E+01	4.02E+01	4.91E+01	5.54E+01	1.32E+01	2.15E+01	4.49E+01	6.12E+01	1.05E+01	2.34E+01	2.52E+01	3.49E+01	1.53E+01	9.40E+00	
Indium (49)	In-115	1.57E+15	4.41E+14	2.61E+00	6.11E+00	7.32E+00	6.57E+00	6.96E+00	3.16E+00	9.71E+00	7.56E+01	2.94E+00	4.46E+00	6.11E+00	6.58E+00	8.04E+00	9.07E+00	2.15E+00	3.51E+00	7.35E+00	1.00E+01	1.72E+00	3.83E+00	4.13E+00	5.71E+00	2.50E+00	1.54E+01	
Indium (49)	In-115m	1.35E+03	5.12E+04	2.74E+00	6.41E+00	7.62E+00	6.89E+00	7.30E+00	3.32E+00	1.02E+01	7.93E+01	3.08E+00	4.68E+00	6.41E+00	6.90E+00	8.43E+00	9.51E+00	2.26E+00	3.68E+00	7.71E+00	1.05E+01	1.80E+00	4.02E+00	4.33E+00	5.99E+00	2.62E+00	1.62E+01	
Indium (49)	In-116m	6.69E+03	1.04E+04	1.12E+03	2.63E+03	3.15E+03	2.83E+03	3.00E+03	1.36E+03	4.19E+03	3.21E+02	1.27E+03	1.92E+03	2.63E+03	2.84E+03	3.46E+03	3.91E+03	9.28E+02	1.51E+03	3.17E+03	4.32E+03	7.39E+02	1.65E+03	1.78E+03	2.46E+03	1.08E+03	6.65E+01	
Indium (49)	In-117	8.43E+03	8.22E+05	1.73E+03	4.05E+03	4.85E+03	4.35E+03	4.62E+03	2.10E+03	6.43E+03	5.01E+02	1.95E+03	2.96E+03	4.14E+03	4.40E+03	5.33E+03	6.00E+03	1.43E+03	2.33E+03	4.88E+03	6.67E+03	1.14E+04	2.54E+03	2.76E+03	3.78E+03	1.68E+03	1.06E+02	
Indium (49)	In-117m	3.15E+03	2.21E+04	4.79E+02	1.12E+03	1.34E+03	1.21E+03	1.28E+03	5.81E+02	1.78E+03	1.39E+02	5.40E+02	8.20E+02	1.13E+03	1.21E+03	1.48E+03	1.67E+03	3.96E+02	6.45E+02	1.35E+03	1.84E+03	3.15E+02	7.04E+02	7.60E+02	1.05E+03	4.99E+02	2.84E+01	
Indium (49)	In-118	4.37E+06	1.59E+07	5.10E+03	1.20E+04	1.43E+04	1.28E+04	1.38E+04	6.22E+03	1.90E+04	1.48E+03	5.78E+03	8.77E+03	1.31E+04	1.33E+04	1.58E+04	1.77E+04	4.21E+03	6.86E+03	1.45E+04	2.00E+04	3.35E+03	7.54E+03	8.41E+03	1.12E+04	4.98E+03	3.04E+02	
Indium (49)	In-119	1.52E+05	4.57E+06	1.47E+03	3.44E+03	4.12E+03	3.70E+03	3.92E+03	1.78E+03	5.47E+03	4.26E+02	1.68E+03	2.51E+03	3.45E+03	3.71E+03	4.53E+03	5.11E+03	1.21E+03	1.98E+03	4.14E+03	5.64E+03	9.67E+02	2.16E+03	2.32E+03	3.22E+03	4.18E+03	8.69E+01	
Indium (49)	In-121	9.46E+05	7.32E+07	6.38E+01	1.50E+02	1.79E+02	1.61E+02	1.72E+02	7.78E+01	2.37E+02	1.85E+01	7.23E+01	1.10E+02	1.64E+02	1.66E+02	1.98E+02	2.21E+02	5.26E+01	8.58E+01	1.81E+02	2.50E+02	4.19E+01	9.43E+01	1.05E+02	1.39E+02	6.22E+01	3.80E+00	
Indium (49)	In-121m	6.30E+03	7.38E+06	7.41E+01	1.75E+02	2.08E+02	1.87E+02	2.00E+02	9.04E+01	2.85E+02	2.15E+01	8.40E+01	1.27E+02	1.91E+02	1.93E+02	2.30E+02	2.57E+02	6.1E+01	9.97E+01	2.10E+02	2.91E+02	4.87E+01	1.10E+02	1.22E+02	1.62E+02	7.23E+01	4.42E+00	
Indium (49)	In-121m	2.43E+05	2.85E+06	3.30E+03	7.09E+03	8.40E+03	7.55E+03	8.06E+03	3.66E+03	1.12E+04	8.69E+02	3.20E+03	5.16E+03	7.25E+03	7.67E+03	9.30E+03	1.04E+04	2.47E+03	4.03E+03	8.50E+03	1.16E+04	1.97E+03	4.43E+03	4.82E+03	6.56E+03	2.90E+03	1.78E+02	
Indium (49)	In-121m	2.43E+05	2.85E+06	3.30E+03	7.09E+03	8.40E+03	7.55E+03	8.06E+03	3.66E+03	1.12E+04	8.69E+02	3.20E+03	5.16E+03	7.25E+03	7.67E+03	9.30E+03	1.04E+04	2.47E+03	4.03E+03	8.50E+03	1.16E+04	1.97E+03	4.43E+03	4.82E+03	6.56E+03	2.90E+03	1.78E+02	
Indium (77)	Ir-182	2.43E+04	2.85E+05	4.27E+01	1.01E+02	1.20E+02	1.07E+02	1.15E+02	5.21E+01	1.59E+02	1.24E+01	4.84E+01	7.34E+01	1.06E+02	1.10E+02	1.32E+02	1.48E+02	3.52E+01	5.74E+01	1.21E+02	1.66E+02	2.81E+01	6.31E+01	6.94E+01	9.33E+01	4.1E+01	2.54E+00	
Indium (77)	Ir-183	6.28E+03	1.10E+04	2.13E+01	5.01E+01	5.96E+01	5.35E+01	5.74E+01	2.60E+01	7.91E+01	6.16E+00	2.41E+01	3.66E+01	5.39E+01	5.52E+01	6.59E+01	7.39E+01	1.76E+01	2.86E+01	6.03E+01	8.32E+01	1.40E+01	3.14E+01	3.48E+01	4.65E+01	2.07E+01	1.27E+00	
Indium (77)	Ir-184	1.95E+03	3.53E+04	2.94E+02	6.92E+02	8.23E+02	7.39E+02	7.90E+02	3.58E+02	1.09E+03	8.51E+01	3.33E+02	5.06E+02	7.11E+02	7.52E+02	9.11E+02	1.02E+03	2.42E+02	3.95E+02	8.33E+02	1.14E+03	1.93E+02	4.34E+02	4.73E+02	6.42E+02	2.84E+02	1.79E+01	
Indium (77)	Ir-185	4.22E+02	1.84E+03	6.14E+01	1.59E+02	1.89E+02	1.70E+02	1.81E+02	8.23E+01	2.51E+02	1.95E+01	7.64E+01	1.15E+02	1.63E+02	1.75E+02	2.09E+02	2.34E+02	5.56E+01	9.07E+01	1.91E+02	2.62E+02	4.43E+01	9.97E+01	1.08E+02	1.47E+02	6.52E+01	4.02E+00	
Indium (77)	Ir-186	3.65E+02	1.90E+03	1.64E+00	3.87E+00	4.60E+00	4.13E+00	4.42E+00	2.00E+00	6.11E+00	4.76E+01	1.86E+00	2.83E+00	3.97E+00	4.20E+00	5.09E+00	5.70E+00	1.36E+00	2.21E+00	4.66E+00	6.38E+00	1.08E+00	2.43					



Radionuclides			Farmer Tap Water Produce DCCs July 2023																								
Element (Atomic Number)	Isotope	Half-life (years)	Dose Consumption Concentrations (DCCs)																								
			Apple Consumption DCC DL=1 (Bq/L)	Asparagus Consumption DCC DL=1 (Bq/L)	Beet Consumption DCC DL=1 (Bq/L)	Berry Consumption DCC DL=1 (Bq/L)	Broccoli Consumption DCC DL=1 (Bq/L)	Cabbage Consumption DCC DL=1 (Bq/L)	Carrot Consumption DCC DL=1 (Bq/L)	Citrus fruit Consumption DCC DL=1 (Bq/L)	Corn Consumption DCC DL=1 (Bq/L)	Cucumber Consumption DCC DL=1 (Bq/L)	Letuce Consumption DCC DL=1 (Bq/L)	Lima beans Consumption DCC DL=1 (Bq/L)	Okra Consumption DCC DL=1 (Bq/L)	Onion Consumption DCC DL=1 (Bq/L)	Peaches Consumption DCC DL=1 (Bq/L)	Pears Consumption DCC DL=1 (Bq/L)	Peas Consumption DCC DL=1 (Bq/L)	Peppers Consumption DCC DL=1 (Bq/L)	Potatoes Consumption DCC DL=1 (Bq/L)	Pumpkin Consumption DCC DL=1 (Bq/L)	Snap beans Consumption DCC DL=1 (Bq/L)	Strawberries Consumption DCC DL=1 (Bq/L)	Tomatoes Consumption DCC DL=1 (Bq/L)	Total Produce DCC DL=1 (Bq/L)	
Osmium (76)	Os-180	1.69E+04	3.00E+03	7.06E+03	8.40E+03	7.55E+03	8.06E+03	3.66E+03	1.12E+04	8.69E+02	3.40E+03	5.16E+03	7.25E+03	7.67E+03	9.30E+03	1.04E+04	2.47E+03	4.03E+03	8.50E+03	1.16E+04	1.97E+03	4.43E+03	4.82E+03	6.56E+03	2.90E+03	1.78E+02	
Osmium (76)	Os-181	3.47E+03	2.03E+04	3.27E+03	7.71E+03	9.17E+03	8.24E+03	8.40E+03	3.96E+03	1.22E+02	9.48E+02	5.23E+03	8.41E+03	8.52E+03	1.14E+02	1.44E+02	2.70E+03	4.40E+03	9.28E+03	1.29E+02	2.15E+03	4.94E+03	5.39E+03	7.10E+03	1.10E+03	1.95E+03	
Osmium (76)	Os-182	2.75E+02	2.52E+03	4.45E+01	1.05E+02	1.25E+02	1.12E+02	1.20E+02	6.43E+01	1.66E+02	1.29E+01	5.04E+01	7.86E+01	1.11E+02	1.15E+02	1.38E+02	1.55E+02	3.67E+01	5.99E+01	1.58E+02	1.74E+02	1.93E+01	6.58E+01	7.24E+01	9.73E+01	4.32E+01	
Osmium (76)	Os-183	4.67E+02	1.48E+03	2.28E+01	5.13E+01	6.10E+01	5.48E+01	5.87E+01	2.66E+01	8.10E+01	6.31E+00	2.47E+01	3.75E+01	5.55E+01	6.75E+01	7.56E+01	1.80E+01	2.93E+01	6.17E+01	8.52E+01	1.43E+01	3.22E+01	3.57E+01	4.47E+01	1.23E+01	1.30E+00	
Osmium (76)	Os-183m	6.13E+02	1.13E+03	2.17E+01	5.11E+01	6.08E+01	5.46E+01	5.85E+01	2.65E+01	8.07E+01	6.28E+00	2.46E+01	3.73E+01	5.50E+01	6.53E+01	6.72E+01	7.53E+01	1.79E+01	2.92E+01	6.15E+01	8.48E+01	1.43E+01	3.21E+01	3.55E+01	4.47E+01	2.11E+01	
Osmium (76)	Os-185	2.70E+00	2.56E+01	1.13E+02	2.66E+02	3.16E+02	2.84E+02	3.03E+02	1.38E+02	4.02E+02	3.27E+01	1.28E+02	1.94E+02	2.78E+02	2.89E+02	3.50E+02	3.92E+02	9.31E+01	1.52E+02	3.20E+02	4.38E+02	7.42E+01	1.67E+02	1.82E+02	2.07E+02	6.70E+00	
Osmium (76)	Os-186	3.47E-16	2.00E+15	1.87E+00	3.94E+00	4.68E+00	4.20E+00	4.49E+00	2.04E+00	6.22E+00	4.84E+01	1.89E+00	2.88E+00	4.04E+00	4.27E+00	5.18E+00	5.80E+00	1.38E+00	2.25E+00	4.74E+00	6.48E+00	1.10E+00	2.47E+00	2.69E+00	3.65E+00	1.62E+00	
Osmium (76)	Os-189m	1.05E+03	6.62E+04	1.05E+03	7.15E+03	8.51E+03	7.64E+03	7.17E+03	3.13E+03	1.15E+04	8.40E+02	3.44E+03	5.23E+03	7.35E+03	7.77E+03	9.42E+03	1.05E+04	2.51E+03	4.09E+03	8.61E+03	1.18E+04	2.00E+03	4.49E+03	4.99E+03	6.64E+03	2.99E+03	
Osmium (76)	Os-191	1.64E+01	4.22E+02	9.02E+01	2.13E+02	2.53E+02	2.27E+02	2.43E+02	1.10E+02	3.36E+02	2.62E+01	1.02E+02	1.55E+02	2.18E+02	2.31E+02	2.80E+02	3.13E+02	7.45E+01	1.21E+02	2.56E+02	3.50E+02	5.93E+01	1.33E+02	1.45E+02	1.97E+02	8.73E+01	
Osmium (76)	Os-191m	4.63E+02	1.50E+03	7.70E+01	1.82E+02	2.16E+02	1.94E+02	2.07E+02	9.41E+01	2.87E+02	2.23E+01	8.73E+01	1.33E+02	1.86E+02	1.97E+02	2.39E+02	2.68E+02	6.36E+01	1.04E+02	2.18E+02	2.99E+02	5.07E+01	1.14E+02	1.24E+02	1.69E+02	7.46E+01	
Osmium (76)	Os-193	2.02E+02	3.44E+03	6.28E+01	1.42E+02	1.76E+02	1.58E+02	1.69E+02	7.66E+01	2.34E+02	1.82E+01	7.12E+01	1.08E+02	1.52E+02	1.61E+02	1.95E+02	2.18E+02	5.18E+01	8.45E+01	1.78E+02	2.44E+02	4.13E+01	9.29E+01	1.01E+02	1.37E+02	6.08E+01	
Osmium (76)	Os-194	1.16E+01	6.00E+00	1.37E+02	3.28E+02	3.83E+02	3.44E+02	3.68E+02	1.67E+01	5.09E+01	3.96E+01	1.55E+01	2.35E+01	3.31E+01	3.50E+01	3.82E+01	4.24E+01	4.75E+01	1.13E+01	1.84E+01	3.88E+01	5.51E+01	8.99E+00	2.02E+01	2.20E+01	2.99E+01	
Osmium (76)	Os-196	1.04E+04	6.64E+02	1.84E+02	1.14E+03	1.36E+03	1.22E+03	1.30E+03	5.91E+02	1.80E+03	1.40E+02	5.94E+02	8.33E+02	1.17E+03	1.24E+03	1.50E+03	1.68E+03	4.00E+02	6.52E+02	1.37E+03	1.88E+03	3.18E+02	7.16E+02	7.79E+02	1.06E+03	4.69E+02	
Phosphorus (15)	P-32	1.46E+05	4.75E+06	1.77E+01	3.91E+02	2.53E+00	5.97E+00	7.10E+00	6.38E+00	6.85E+00	3.09E+00	9.42E+00	7.34E+01	2.87E+00	4.36E+00	6.67E+00	6.64E+00	8.79E+00	2.09E+00	3.41E+00	7.18E+00	9.97E+00	3.05E+00	3.74E+00	4.21E+00	5.54E+00	2.48E+00
Phosphorus (15)	P-33	9.98E+00	6.94E+02	2.55E+01	6.00E+01	7.14E+01	6.41E+01	6.89E+01	3.11E+01	9.47E+01	7.38E+00	2.89E+01	4.38E+01	6.17E+01	6.68E+01	7.90E+01	8.85E+01	2.10E+01	3.43E+01	7.22E+01	1.00E+02	3.07E+01	3.77E+01	4.23E+01	5.57E+01	2.19E+01	
Phosphorus (15)	Pa-227	9.51E+03	7.29E+05	2.40E+00	3.08E+00	4.49E+00	6.04E+00	6.09E+00	1.75E+00	5.98E+00	6.95E+00	3.57E+00	5.92E+00	7.03E+00	5.57E+00	1.98E+00	3.32E+00	6.58E+00	8.78E+00	3.39E+00	1.87E+00	1.56E+00	3.39E+00	3.72E+00	5.25E+00	2.48E+00	
Protactinium (91)	Pa-228	2.70E+02	2.51E+03	3.49E+01	5.85E+01	7.64E+01	8.70E+01	9.80E+01	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	
Protactinium (91)	Pa-229	1.69E+02	4.11E+03	1.00E+01	1.96E+01	2.44E+01	2.53E+01	2.65E+01	1.02E+01	3.24E+01	2.91E+02	1.16E+01	1.70E+01	0.01E+01	2.53E+01	3.06E+01	3.03E+01	8.29E+01	1.35E+01	2.82E+01	3.81E+01	6.60E+02	1.46E+01	1.59E+01	2.20E+01	9.51E+02	
Protactinium (91)	Pa-230	1.45E+01	4.77E+02	2.59E+02	4.62E+02	6.56E+02	6.53E+02	6.82E+02	2.39E+02	8.70E+02	7.52E+03	3.04E+02	4.37E+02	6.75E+02	6.65E+02	7.87E+02	8.12E+02	2.14E+02	3.92E+02	7.42E+02	9.82E+02	1.72E+02	3.75E+02	4.12E+02	5.68E+02	2.45E+02	
Protactinium (91)	Pa-231	1.21E+05	3.28E+04	7.34E+02	1.52E+01	1.87E+01	1.85E+01	1.95E+01	7.89E+02	2.48E+01	2.13E+02	8.43E+02	1.25E+01	1.55E+01	1.88E+01	2.25E+01	2.32E+01	6.06E+02	9.88E+02	2.07E+01	2.81E+01	4.82E+02	1.07E+01	1.17E+01	1.61E+01	7.01E+02	
Protactinium (91)	Pa-232	1.93E+02	3.59E+03	1.37E+01	2.54E+01	3.31E+01	3.45E+01	3.61E+01	1.32E+01	4.42E+01	3.98E+02	1.46E+01	2.15E+01	2.61E+01	3.46E+01	3.88E+01	4.13E+01	1.13E+01	1.95E+01	3.84E+01	4.85E+01	8.81E+02	1.85E+01	2.16E+01	3.00E+01	1.21E+01	
Protactinium (91)	Pa-233	9.38E+00	7.39E+02	9.37E+02	1.83E+01	2.29E+01	2.39E+01	2.45E+01	9.48E+02	3.04E+01	2.72E+02	1.07E+01	1.57E+01	1.87E+01	2.83E+01	2.84E+01	7.74E+02	1.26E+01	2.63E+01	3.53E+01	6.15E+02	1.35E+01	1.48E+01	2.05E+01	8.81E+02		
Protactinium (91)	Pa-234	9.06E+02	7.65E+04	3.25E+02	4.67E+02	6.33E+02	6.33E+02	6.59E+02	2.32E+02	8.41E+02	7.29E+02	2.94E+02	4.23E+02	6.56E+02	6.56E+02	7.85E+02	8.54E+02	9.71E+02	1.18E+02	2.07E+02	2.78E+02	6.09E+02	1.31E+02	1.49E+02	2.37E+02		
Protactinium (91)	Pa-234m	3.11E+05	2.23E+06	2.51E+02	4.47E+02	6.33E+02	6.33E+02	6.59E+02	2.32E+02	8.41E+02	7.29E+02	2.94E+02	4.23E+02	6.56E+02	6.56E+02	7.85E+02	8.54E+02	9.71E+02	1.18E+02	2.07E+02	2.78E+02	6.09E+02	1.31E+02	1.49E+02	2.37E+02		
Protactinium (91)	Pa-235	1.49E+04	4.66E+05	7.03E+02	1.46E+01	1.79E+01	1.77E+01	1.86E+01	7.54E+02	2.38E+01	2.04E+02	8.02E+02	1.19E+01	1.49E+01	1.78E+01	2.14E+01	2.22E+01	5.80E+02	9.46E+02	1.98E+01	2.68E+01	4.61E+02	1.02E+01	1.12E+01	1.54E+01	6.67E+02	
Protactinium (91)	Pa-236	4.00E+04	1.73E+05	3.93E+02	5.83E+02	7.69E+02	9.90E+02	1.00E+03	3.02E+02	1.02E+01	1.14E+02	4.70E+02	6.42E+02	6.19E+02	7.93E+02	1.16E+03	9.53E+02	3.24E+02	5.29E+02	1.08E+01	1.44E+01	2.57E+02	5.52E+02	6.11E+02	8.60E+02		
Protactinium (91)	Pa-237	4.19E+04	1.66E+05	8.31E+02	1.62E+01	2.02E+01	2.09E+01	2.14E+01	8.37E+02	2.68E+01	2.47E+02	9.45E+02	1.37E+01	1.65E+01	2.06E+01	2.47E+01	2.50E+01	6.88E+02	1.12E+01	2.29E+01	3.08E+01	5.42E+02	1.18E+01	1.29E+01	1.82E+01	7.69E+02	
Lead (82)	Pb-213	3.04E+04	2.28E+05	9.46E+01	2.19E+02	2.64E+02	2.39E+02	2.55E+02	1.13E+02	3.51E+02	2.74E+01	1.08E+02	1.63E+02	2.30E+02	2.45E+02	2.94E+02	3.27E+02	7.81E+01	1.27E+02	2.69E+02	3.69E+02	6.22E+01	1.40E+02	1.54E+02	2.07E+02	9.20E+01	
Lead (82)	Pb-216	9.84E+03	7.04E+05	9.08E+02	1.73E+03	2.50E+03	2.29E+03	2.39E+03	8.97E+02	3.32E+03	2.63E+02	1.06E+03	1.53E+03	1.78E+03	2.33E+03	2.76E+03	3.10E+03	7.49E+02	1.22E+03	2.60E+03	3.44E+03	6.14E+02	1.32E+03	1.46E+03	1.99E+03	8.58E+02	
Lead (82)	Pb-217	4.55E+04	1.52E+05	6.79E+01	1.60E+02	1.90E+02	1.77E+02	1.83E+02	8.29E+01	2.53E+02	1.97E+01	7.70E+01	1.17E+02	1.75E+02	1.77E+02	2.11E+02	2.36E+02	5.60E+01	9.14E+01	1.93E+02	2.68E+02	4.47E+01	1.00E+02	1.12E+02	1.49E+02	6.62E+01	
Lead (82)	Pb-218	4.74E+03	8.1E+05	6.49E+01	1.49E+02	1.82E+02	1.63E+02	1.75E+02	7.71E+01	2.41E+02	1.88E+01	7.38E+01															



Radionuclides		Isotope-specific Information				Dose Consumption Concentrations (DCCs)																						
Element (Atomic Number)	Isotope	Lambda (1/Yr)	Half-life (Years)	Apple Consumption	Asparagus Consumption	Beet Consumption	Berry Consumption	Broccoli Consumption	Cabbage Consumption	Carrot Consumption	Citrus fruit Consumption	Com Consumption	Cucumber Consumption	Lettuce Consumption	Lima beans Consumption	Okra Consumption	Onion Consumption	Peasches Consumption	Pears Consumption	Peas Consumption	Peppers Consumption	Potatoes Consumption	Pumpkin Consumption	Snap beans Consumption	Strawberries Consumption	Tomatoes Consumption	Total Produce	
				DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)
Polonium (84)	Po-213	5.20E-12	1.33E-1	1.19E+03	1.64E+03	3.03E+03	2.85E+03	2.91E+03	8.49E+02	4.03E+03	3.28E+02	1.39E+03	1.86E+03	1.73E+03	3.00E+03	3.36E+03	3.76E+03	9.33E+02	1.52E+03	3.34E+03	4.19E+03	8.04E+02	1.60E+03	1.88E+03	2.47E+03	1.05E+03	6.35E+01	
Polonium (84)	Po-214	1.33E-11	1.21E-12	3.22E+02	5.90E+02	8.00E+02	8.11E+02	8.51E+02	3.00E+02	1.14E+01	9.34E+03	3.77E+02	5.45E+02	6.08E+02	8.32E+02	9.83E+02	1.07E+01	2.66E+02	4.34E+02	9.29E+02	1.23E+01	2.15E+02	4.99E+02	5.22E+02	7.05E+02	3.06E+02	1.86E+03	
Polonium (84)	Po-215	1.23E-10	5.65E-11	3.50E+02	4.87E+02	6.65E+02	8.11E+02	8.20E+02	2.42E+02	1.15E+03	9.34E+02	3.93E+02	5.32E+02	4.92E+02	8.58E+02	9.57E+02	1.07E+03	2.66E+02	4.34E+02	9.54E+02	1.20E+03	2.29E+02	4.58E+02	5.37E+02	7.05E+02	2.92E+02	1.81E+01	
Polonium (84)	Po-216	1.51E+08	4.60E+09	7.72E+00	1.15E+01	2.08E+01	1.94E+01	1.99E+01	5.93E+00	2.76E+01	2.24E+00	9.45E+00	1.28E+01	1.21E+01	2.05E+01	2.30E+01	2.57E+01	6.37E+00	1.04E+01	2.28E+01	2.87E+01	5.47E+00	1.10E+01	1.29E+01	1.69E+01	7.16E+00	4.35E-01	
Polonium (84)	Po-218	1.17E+05	5.90E+06	3.22E+02	5.90E+02	8.60E+02	8.11E+02	8.51E+02	3.06E+02	1.14E+01	9.34E+03	3.77E+02	5.45E+02	6.08E+02	8.32E+02	9.82E+02	1.07E+01	2.66E+02	4.34E+02	9.29E+02	1.23E+01	2.15E+02	4.99E+02	5.22E+02	7.05E+02	3.06E+02	1.86E+03	
Praseodymium (59)	Pr-134	3.31E+04	2.09E+05	2.49E+01	5.57E+01	6.63E+01	6.27E+01	6.67E+01	2.89E+01	8.80E+01	7.22E+00	2.82E+01	4.28E+01	5.61E+01	5.68E+01	7.71E+01	8.21E+01	2.05E+01	3.35E+01	6.32E+01	9.60E+01	1.59E+01	3.68E+01	3.57E+01	5.45E+01	2.00E+01	1.48E+00	
Praseodymium (59)	Pr-134m	2.14E+04	3.23E+05	2.46E+01	5.49E+01	6.53E+01	6.19E+01	6.69E+01	2.85E+01	8.88E+01	7.12E+00	2.78E+01	4.22E+01	5.53E+01	5.62E+01	7.61E+01	8.10E+01	2.03E+01	3.31E+01	6.25E+01	9.48E+01	1.57E+01	3.63E+01	3.53E+01	5.38E+01	2.37E+01	1.43E+00	
Praseodymium (59)	Pr-136	1.39E+03	5.03E+04	2.11E+02	4.88E+02	2.15E+02	4.88E+02	5.32E+02	2.43E+02	7.42E+02	6.13E+01	2.39E+02	3.83E+02	4.95E+02	6.53E+02	6.93E+02	1.75E+02	2.85E+02	5.51E+02	8.14E+02	1.36E+02	3.11E+02	4.63E+02	2.03E+02	1.23E+01			
Praseodymium (59)	Pr-136m	1.07E+05	6.45E+06	5.44E+02	1.09E+03	1.30E+03	1.37E+03	1.46E+03	5.67E+02	1.73E+03	1.58E+02	6.17E+02	9.38E+02	1.11E+03	1.38E+03	1.69E+03	1.61E+03	4.49E+02	7.33E+02	1.54E+03	2.91E+03	3.58E+02	8.06E+02	8.68E+02	1.19E+03	2.52E+02	3.15E+01	
Praseodymium (59)	Pr-138	2.51E+05	2.76E+06	2.34E+02	5.17E+02	6.10E+02	5.89E+02	6.28E+02	2.68E+02	8.71E+02	6.77E+01	2.64E+02	4.01E+02	5.21E+02	5.99E+02	7.23E+02	7.62E+02	1.93E+02	3.14E+02	5.99E+02	9.01E+02	1.49E+02	3.45E+02	3.38E+02	5.11E+02	5.25E+02	1.36E+01	
Praseodymium (59)	Pr-142	3.18E+02	2.18E+03	5.00E+01	1.00E+02	1.19E+02	1.28E+02	1.34E+02	5.10E+01	1.59E+02	1.45E+01	5.66E+01	8.60E+01	1.02E+02	1.27E+02	1.55E+02	1.48E+02	4.12E+01	6.72E+01	1.42E+02	1.93E+02	3.29E+01	7.39E+01	7.97E+01	1.09E+02	4.82E+01	2.89E+00	
Praseodymium (59)	Pr-142m	2.49E+04	2.78E+05	4.93E+01	9.91E+01	1.19E+02	1.24E+02	1.32E+02	5.20E+01	1.57E+02	1.43E+01	5.59E+01	8.50E+01	1.01E+02	1.25E+02	1.53E+02	1.46E+02	4.07E+01	6.64E+01	1.40E+02	1.91E+02	3.24E+01	7.30E+01	7.86E+01	1.08E+02	4.76E+01	2.85E+00	
Praseodymium (59)	Pr-143	1.86E+01	3.72E+02	5.61E+01	1.13E+02	1.34E+02	1.41E+02	1.51E+02	5.84E+01	1.78E+02	1.63E+01	6.36E+01	9.67E+01	1.15E+02	1.43E+02	1.74E+02	1.66E+02	4.63E+01	7.55E+01	1.59E+02	2.17E+02	3.69E+01	8.30E+01	8.95E+01	1.23E+02	5.41E+01	3.24E+00	
Praseodymium (59)	Pr-144	2.11E+04	3.29E+05	1.72E+00	4.05E+00	4.82E+00	4.33E+00	4.62E+00	2.10E+00	6.40E+00	4.99E+01	1.95E+00	2.96E+00	4.06E+00	4.37E+00	5.34E+00	5.97E+00	1.42E+00	2.31E+00	4.88E+00	2.96E+00	1.13E+00	2.54E+00	2.74E+00	3.76E+00	1.68E+00	1.02E+01	
Praseodymium (59)	Pr-144m	5.02E+04	1.37E+05	2.50E+00	5.71E+00	6.87E+00	6.28E+00	6.67E+00	2.90E+00	8.90E+00	6.79E+01	2.90E+00	4.26E+00	5.84E+00	6.25E+00	7.54E+00	8.48E+00	2.31E+00	3.89E+00	7.65E+00	4.88E+00	1.53E+00	3.45E+00	3.76E+00	5.17E+00	2.37E+00	1.46E+01	
Praseodymium (59)	Pr-145	1.01E+03	6.83E+04	1.67E+02	3.36E+02	3.99E+02	4.21E+02	4.49E+02	1.74E+02	5.30E+02	4.85E+01	1.89E+02	2.88E+02	3.42E+02	4.25E+02	5.19E+02	4.95E+02	1.38E+02	2.25E+02	4.74E+02	6.46E+02	1.10E+02	2.47E+02	2.66E+02	3.66E+02	1.61E+02	9.66E+00	
Praseodymium (59)	Pr-146	1.51E+04	4.59E+05	8.74E+02	1.76E+03	2.09E+03	2.20E+03	2.35E+03	9.10E+02	2.77E+03	2.53E+02	9.91E+02	1.51E+03	1.79E+03	2.22E+03	2.71E+03	2.59E+03	7.22E+02	1.18E+03	2.48E+03	3.38E+03	5.75E+02	1.29E+03	1.39E+03	1.91E+03	6.83E+02	5.05E+01	
Praseodymium (59)	Pr-147	2.72E+04	2.55E+05	1.40E+00	3.28E+00	3.90E+00	3.51E+00	3.74E+00	1.70E+00	5.17E+00	4.05E+01	1.58E+00	2.40E+00	3.29E+00	3.51E+00	4.32E+00	4.83E+00	1.15E+00	1.88E+00	3.91E+00	5.38E+00	9.16E+01	2.06E+00	2.20E+00	3.05E+00	1.34E+00	8.28E+02	
Praseodymium (59)	Pr-148	1.59E+05	4.36E+06	1.81E+05	3.82E+06	4.59E+05	9.81E+05	1.05E+06	4.39E+05	1.22E+06	9.29E+04	3.59E+05	4.94E+05	6.29E+05	7.94E+05	1.02E+06	1.19E+06	1.55E+05	2.50E+05	4.80E+05	7.94E+05	1.29E+05	3.00E+05	3.30E+05	4.30E+05	5.50E+05	7.10E+05	9.20E+05
Praseodymium (59)	Pr-148m	1.81E+05	3.82E+06	2.38E+02	5.66E+02	6.62E+02	5.94E+02	6.35E+02	2.88E+02	8.79E+02	6.84E+01	2.68E+02	4.06E+02	5.75E+02	6.05E+02	7.32E+02	8.20E+02	1.95E+02	3.18E+02	6.69E+02	9.17E+02	1.55E+02	3.49E+02	3.81E+02	5.16E+02	2.29E+02	1.40E+01	
Platinum (78)	Pt-184	2.92E+03	2.37E+04	1.65E+00	3.88E+00	4.62E+00	4.15E+00	4.43E+00	2.01E+00	6.13E+00	4.78E+01	1.87E+00	2.84E+00	3.99E+00	4.22E+00	5.11E+00	5.73E+00	1.36E+00	2.22E+00	4.67E+00	6.40E+00	1.08E+00	2.44E+00	2.65E+00	3.61E+00	1.60E+00	9.79E+02	
Platinum (78)	Pt-187	2.58E+03	2.68E+04	2.22E+02	5.22E+02	6.21E+02	5.58E+02	5.97E+02	2.70E+02	8.25E+02	6.42E+01	2.51E+02	3.82E+02	5.45E+02	5.70E+02	6.87E+02	7.70E+02	1.83E+02	2.98E+02	6.28E+02	8.63E+02	1.46E+02	3.28E+02	3.59E+02	4.85E+02	2.15E+02	1.32E+01	
Platinum (78)	Pt-188	2.48E+01	2.79E+02	2.71E+01	6.38E+01	7.69E+01	6.82E+01	7.30E+01	3.31E+01	1.01E+02	7.65E+00	3.07E+01	4.66E+01	6.69E+01	6.97E+01	8.40E+01	9.41E+01	2.24E+01	3.65E+01	7.68E+01	1.06E+02	1.78E+01	4.01E+01	4.39E+01	5.93E+01	2.63E+01	1.61E+00	
Platinum (78)	Pt-189	5.59E+02	1.24E+03	9.98E+01	2.33E+02	2.77E+02	2.49E+02	2.66E+02	1.21E+02	3.68E+02	2.86E+01	1.12E+02	1.70E+02	2.43E+02	2.54E+02	3.06E+02	3.43E+02	8.18E+01	1.33E+02	2.80E+02	3.85E+02	6.50E+01	1.48E+02	1.60E+02	2.16E+02	9.98E+01	5.87E+00	
Platinum (78)	Pt-190	1.33E-12	6.50E+11	1.25E+00	2.95E+00	3.51E+00	3.15E+00	3.37E+00	1.53E+00	4.98E+00	3.63E+01	1.42E+00	2.15E+00	3.21E+00	3.88E+00	4.33E+00	5.03E+00	1.03E+00	1.68E+00	3.55E+00	4.86E+00	8.23E+01	1.85E+00	2.02E+00	2.74E+00	1.21E+00	7.44E+02	
Platinum (78)	Pt-191	9.03E+01	7.68E+03	9.50E+01	2.26E+02	2.69E+02	2.42E+02	2.59E+02	1.17E+02	3.57E+02	2.78E+01	1.09E+02	1.65E+02	2.40E+02	2.48E+02	2.98E+02	3.33E+02	7.92E+01	1.29E+02	2.72E+02	3.75E+02	6.31E+01	1.42E+02	1.56E+02	2.10E+02	9.33E+01	5.71E+00	
Platinum (78)	Pt-193	1.39E-02	5.00E+01	9.50E+02	2.24E+03	2.66E+03	2.39E+03	2.56E+03	1.16E+03	3.53E+03	2.75E+02	1.08E+03	1.63E+03	2.37E+03	2.45E+03	2.95E+03	3.30E+03	7.84E+02	1.28E+03	2.69E+03	3.71E+03	6.25E+02	1.40E+03	1.55E+03	2.08E+03	9.23E+02	5.65E+01	
Platinum (78)	Pt-193m	5.84E+01	1.19E+02	6.89E+01	1.62E+02	1.93E+02	1.74E+02	1.86E+02	8.41E+01	2.57E+02	2.00E+01	7.81E+01	1.19E+02	1.72E+02	1.78E+02	2.14E+02	2.39E+02	5.69E+01	9.28E+01	1.95E+02	2.69E+02	4.53E+01	1.02E+02	1.12E+02	1.51E+02	6.70E+01	4.10E+00	
Platinum (78)	Pt-195	6.29E+01	1.10E+02	5.30E+01	1.25E+02	1.49E+02	1.34E+02	1.43E+02	6.47E+01	1.97E+02	1.54E+01	6.01E+01	9.13E+01	1.33E+02	1.37E+02	1.64E+02	1.84E+02	4.38E+01	7.38E+01	1.50E+02	2.07E+02	3.49E+01	7.84E+01	8.51E+01	1.16E+02			

Radionuclides			Farmer Tap Water Produce DCCs July 2023																									
Element (Atomic Number)	Isotope	Isotope-specific Information Lambda (1/yr) Half-life (years)	Dose Compliance Concentrations (DCCs)																									
			Apple Consumption DCC DL=1 (Bq/L)	Asparagus Consumption DCC DL=1 (Bq/L)	Beet Consumption DCC DL=1 (Bq/L)	Berry Consumption DCC DL=1 (Bq/L)	Broccoli Consumption DCC DL=1 (Bq/L)	Cabbage Consumption DCC DL=1 (Bq/L)	Carrot Consumption DCC DL=1 (Bq/L)	Citrus fruit Consumption DCC DL=1 (Bq/L)	Corn Consumption DCC DL=1 (Bq/L)	Cucumber Consumption DCC DL=1 (Bq/L)	Lettuce Consumption DCC DL=1 (Bq/L)	Lima beans Consumption DCC DL=1 (Bq/L)	Okra Consumption DCC DL=1 (Bq/L)	Onion Consumption DCC DL=1 (Bq/L)	Peaches Consumption DCC DL=1 (Bq/L)	Pears Consumption DCC DL=1 (Bq/L)	Peanut Consumption DCC DL=1 (Bq/L)	Peppers Consumption DCC DL=1 (Bq/L)	Potatoes Consumption DCC DL=1 (Bq/L)	Pumpkin Consumption DCC DL=1 (Bq/L)	Snap beans Consumption DCC DL=1 (Bq/L)	Strawberries Consumption DCC DL=1 (Bq/L)	Tomatoes Consumption DCC DL=1 (Bq/L)	Total Produce DCC DL=1 (Bq/L)		
Rhenium (75)	Re-188	3.57E+02 1.94E-03	1.63E+01	3.84E+01	4.57E+01	4.11E+01	4.40E+01	1.99E+01	6.07E+01	4.73E+00	1.85E+01	2.81E+01	4.16E+01	4.24E+01	5.06E+01	5.67E+01	1.35E+01	2.20E+01	4.63E+01	6.39E+01	1.07E+01	2.41E+01	2.68E+01	2.41E+01	2.68E+01	3.57E+01	1.59E+01	9.72E+01
Rhenium (75)	Re-189m	1.96E+04 3.54E-05	1.80E+01	3.78E+01	4.48E+01	4.02E+01	4.31E+01	1.95E+01	5.94E+01	4.15E+01	1.85E+01	2.75E+01	4.07E+01	4.15E+01	4.95E+01	5.55E+01	1.32E+01	2.15E+01	4.53E+01	6.25E+01	1.05E+01	2.62E+01	2.62E+01	2.62E+01	3.49E+01	1.56E+01	9.51E+01	
Rhenium (75)	Re-190	2.50E+02 7.25E-03	1.60E+01	3.09E+01	4.83E+01	4.43E+01	4.75E+01	1.92E+01	6.12E+01	4.62E+00	1.81E+01	2.75E+01	4.07E+01	4.15E+01	4.95E+01	5.55E+01	1.32E+01	2.15E+01	4.53E+01	6.25E+01	1.05E+01	2.62E+01	2.62E+01	2.62E+01	3.49E+01	1.56E+01	9.51E+01	
Rhenium (75)	Re-190m	1.90E+03 3.65E-04	6.21E+01	1.48E+02	1.74E+02	1.58E+02	1.68E+02	7.59E+01	2.31E+02	1.80E+01	7.05E+01	1.07E+02	1.59E+02	1.62E+02	1.93E+02	2.16E+02	5.13E+01	8.36E+01	1.76E+02	2.48E+02	4.09E+01	9.19E+01	1.02E+02	1.36E+02	1.36E+02	6.06E+01	3.70E+02	
Rhenium (75)	Re-190m	2.92E+02 2.37E-03	8.45E+01	1.99E+02	2.37E+02	2.13E+02	2.27E+02	1.03E+02	3.14E+02	2.45E+01	9.58E+01	1.45E+02	2.04E+02	2.16E+02	2.62E+02	2.93E+02	6.97E+01	1.14E+02	2.40E+02	3.23E+02	5.05E+01	1.25E+02	1.36E+02	1.36E+02	1.85E+02	1.85E+02	1.10E+02	5.02E+02
Rhodium (45)	Rh-100	7.92E+04 8.75E-06	8.59E+01	2.03E+02	2.41E+02	2.16E+02	2.31E+02	1.05E+02	3.20E+02	2.49E+01	9.74E+01	1.48E+02	2.08E+02	2.20E+02	2.67E+02	2.99E+02	7.09E+01	1.16E+02	2.44E+02	3.34E+02	5.65E+01	1.27E+02	1.38E+02	1.38E+02	1.88E+02	8.32E+01	5.10E+02	
Rhodium (45)	Rh-101	2.10E+01 3.30E+00	1.04E+02	2.45E+02	2.91E+02	2.61E+02	2.79E+02	1.27E+02	3.87E+02	3.01E+01	1.18E+02	1.79E+02	2.51E+02	2.69E+02	3.22E+02	3.61E+02	8.57E+01	1.40E+02	2.94E+02	4.03E+02	6.83E+01	1.54E+02	1.67E+02	1.67E+02	2.27E+02	1.00E+02	6.17E+02	
Rhodium (45)	Rh-101m	5.83E+01 1.19E-02	2.27E+02	5.34E+02	6.35E+02	5.71E+02	6.10E+02	2.77E+02	8.44E+02	6.57E+01	2.57E+02	3.90E+02	5.48E+02	5.80E+02	7.03E+02	7.87E+02	1.87E+02	3.02E+02	6.43E+02	8.80E+02	1.49E+02	3.35E+02	3.65E+02	4.96E+02	1.29E+02	1.51E+03		
Rhodium (45)	Rh-102	1.22E+00 5.67E-01	4.51E+01	1.06E+02	1.26E+02	1.13E+02	1.21E+02	5.50E+01	1.68E+02	1.31E+01	5.11E+01	7.76E+01	1.09E+02	1.15E+02	1.40E+02	1.57E+02	3.72E+01	6.06E+01	1.28E+02	1.75E+02	2.96E+01	6.67E+01	7.25E+01	9.86E+01	4.36E+01	2.68E+02		
Rhodium (45)	Rh-102m	1.85E+01 3.74E+00	2.16E+01	5.08E+01	6.04E+01	5.43E+01	5.80E+01	2.63E+01	8.02E+01	6.25E+00	2.44E+01	3.71E+01	5.22E+01	5.52E+01	6.69E+01	7.49E+01	1.78E+01	2.90E+01	6.11E+01	8.37E+01	1.42E+01	3.19E+01	3.47E+01	4.72E+01	2.09E+01	1.28E+02		
Rhodium (45)	Rh-103m	6.49E+03 1.07E-04	1.40E+04	3.30E+04	3.93E+04	3.53E+04	3.77E+04	1.71E+04	5.22E+04	4.06E+03	1.59E+04	2.41E+04	3.39E+04	3.59E+04	4.35E+04	4.87E+04	1.16E+04	1.89E+04	3.98E+04	5.44E+04	9.22E+03	2.07E+04	2.26E+04	3.07E+04	1.38E+04	8.33E+02		
Rhodium (45)	Rh-104	5.17E+05 1.34E-05	8.30E+04	8.26E+06																								
Rhodium (45)	Rh-104m	1.72E+02 4.04E-03	1.43E+02	3.36E+02	4.00E+02	3.59E+02	3.84E+02	1.74E+02	5.31E+02	4.14E+01	1.62E+02	2.46E+02	3.45E+02	3.65E+02	4.43E+02	4.96E+02	1.18E+02	1.92E+02	4.05E+02	5.54E+02	9.39E+01	2.11E+02	2.30E+02	3.12E+02	1.38E+02	8.48E+02		
Rhodium (45)	Rh-106	7.33E+05 9.45E-07																										
Rhodium (45)	Rh-106m	2.78E+03 2.49E-04	3.29E+02	7.75E+02	9.21E+02	8.27E+02	8.84E+02	4.01E+02	1.22E+03	9.53E+01	3.73E+02	5.66E+02	7.95E+02	8.41E+02	1.02E+03	1.14E+03	2.71E+02	4.42E+02	9.32E+02	1.28E+03	2.16E+02	4.86E+02	5.29E+02	7.19E+02	3.18E+02	1.95E+01		
Rhodium (45)	Rh-107	1.68E+04 4.13E-05	6.34E+02	1.49E+03	1.78E+03	1.60E+03	1.71E+03	7.74E+02	2.38E+03	1.84E+02	7.19E+02	1.09E+03	1.57E+03	1.63E+03	1.97E+03	2.20E+03	5.24E+02	8.54E+02	1.80E+03	2.47E+03	4.17E+02	9.39E+02	1.03E+03	1.39E+03	6.16E+02	3.77E+01		
Rhodium (45)	Rh-108	1.33E+06 5.53E-07																										
Rhodium (45)	Rh-109	2.73E+05 2.54E-06	6.09E+01	1.43E+02	1.71E+02	1.53E+02	1.64E+02	7.43E+01	2.27E+02	1.77E+01	6.90E+01	1.05E+02	1.52E+02	1.57E+02	1.89E+02	2.11E+02	5.03E+01	8.19E+01	1.73E+02	2.38E+02	4.01E+01	9.00E+01	9.92E+01	1.33E+02	5.92E+01	3.62E+02		
Rhodium (45)	Rh-109m	3.10E+05 2.24E-06	1.34E+01	9.09E+01	1.37E+02	1.33E+02	1.38E+02	4.71E+01	1.50E+02	1.97E+01	2.30E+01	3.03E+01	4.05E+01	4.14E+01	5.23E+01	5.11E+01	1.80E+01	4.37E+01	5.26E+01	1.06E+02	1.90E+01	2.57E+01	2.57E+01	2.93E+01	1.31E+01	1.74E+01		
Rhodium (45)	Rh-95	7.26E+04 9.55E-06	7.70E+00	5.17E+01	2.40E+00	1.94E+01	2.08E+01	2.68E+01	3.19E+00	2.23E+00	1.14E+01	1.32E+01	5.85E+01	2.34E+01	2.39E+01	2.98E+00	6.36E+00	1.04E+01	2.53E+01	3.03E+01	7.10E+01	1.14E+01	1.48E+01	1.68E+01	7.54E+00	9.95E+02		
Rhodium (45)	Rh-95m	1.86E+05 3.73E-06	7.70E+00	5.17E+01	2.40E+00	1.94E+01	2.08E+01	2.68E+01	3.19E+00	2.23E+00	1.14E+01	1.32E+01	5.85E+01	2.34E+01	2.39E+01	2.98E+00	6.36E+00	1.04E+01	2.53E+01	3.03E+01	7.10E+01	1.14E+01	1.48E+01	1.68E+01	7.54E+00	9.95E+02		
Rhodium (45)	Rh-96	3.69E+04 1.88E-05																										
Rhodium (45)	Rh-96m	2.41E+05 2.87E-06																										
Rhodium (45)	Rh-97	1.19E+04 5.84E-05	1.84E+01	1.30E+00	6.01E+00	4.64E+01	4.95E+01	6.73E+01	7.98E+00	5.34E+00	2.68E+01	3.15E+01	1.47E+00	5.52E+01	5.68E+01	7.45E+00	1.52E+01	2.48E+01	5.97E+01	7.21E+01	1.03E+02	2.71E+01	3.50E+01	4.03E+01	1.79E+01	2.47E+01		
Rhodium (45)	Rh-97m	7.88E+03 8.79E-05	1.84E+01	1.30E+00	6.01E+00	4.64E+01	4.95E+01	6.73E+01	7.98E+00	5.34E+00	2.68E+01	3.15E+01	1.47E+00	5.52E+01	5.67E+01	7.45E+00	1.52E+01	2.48E+01	5.97E+01	7.21E+01	1.03E+02	2.71E+01	3.50E+01	4.03E+01	1.79E+01	2.47E+01		
Rhodium (45)	Rh-98	4.19E+04 1.66E-05																										
Rhodium (45)	Rh-99	1.57E+01 4.41E-02	9.69E+01	2.28E+02	2.72E+02	2.44E+02	2.61E+02	1.18E+02	3.61E+02	2.81E+01	1.10E+02	1.67E+02	2.35E+02	2.48E+02	3.01E+02	3.37E+02	8.00E+01	1.30E+02	2.75E+02	3.76E+02	6.38E+01	1.43E+02	1.56E+02	2.12E+02	9.88E+01	5.78E+02		
Rhodium (45)	Rh-105	1.25E+05 1.59E-05	8.47E+02	2.00E+03	2.37E+03	2.15E+03	2.28E+03	1.03E+03	3.15E+03	2.46E+02	1.46E+03	2.05E+03	2.17E+03	2.53E+03	2.94E+03	3.29E+03	5.57E+02	1.25E+03	1.36E+03	1.85E+03	8.20E+02	1.85E+03	2.00E+03	2.71E+03	1.00E+03	5.03E+01		
Radon (86)	Rn-207	3.94E+04 1.76E-05	2.57E+01	5.94E+01	7.17E+01	6.48E+01	6.91E+01	3.07E+01	9.52E+01	7.44E+00	2.91E+01	4.41E+01	6.31E+01	6.64E+01	7.95E+01	8.88E+01	2.12E+01	3.45E+01	7.28E+01	1.00E+02	1.69E+01	3.79E+01	4.19E+01	5.61E+01	2.49E+01	1.52E+02		
Radon (86)	Rn-209	1.28E+04 5.42E-05	5.53E+02	1.17E+01	1.42E+01	1.34E+01	1.43E+01	6.07E+02	1.88E+01	1.54E+02	6.04E+02	9.17E+02	1.18E+01	1.35E+01	1.65E+01	1.75E+01	4.40E+02	7.10E+02	1.51E+02	2.06E+01	3.42E+02	7.88E+02	8.48E+02	1.17E+01	5.14E+02	3.12E+03		
Radon (86)	Rn-210	2.53E+03 2.74E-04	9.38E+01	2.06E+00	2.50E+00	2.38E+00	2.52E+00	1.07E+00	3.32E+00	2.72E+01	1.06E+00	1.81E+00	2.08E+00	2.38E+00	2.61E+00	3.10E+00	7.74E+01	1.26E+00	2.66E+00	3.63E+00	6.04E+01	1.39E+00	1.50E+00	2.05E+00	9.05E+01	5.02E+02		
Radon (86)	Rn-211	4.16E+02 1.67E-03	2.75E+00	6.48E+00	7.70E+00	6.92E+00	7.42E+00	3.35E+00	1.02E+01	7.97E+01	3.12E+00	7.14E+00	8.52E+00	9.55E+00	2.27E+00	3.70E+00	7.79E+00	1.08E+00	1.81E+00	4.06E+00	1.08E+00	1.48E+00	1.68E+00	2.09E+00	2.68E+00	1.64E+01		
Radon (86)	Rn-212	1.52E+04 4.55E-05	4.22E+02	9.30E+02	1.12E+03	1.06E+03	1.13E+03	4.82E+02	1.49E+03	1.22E+02	4.79E+02	7.28E+02	9.37E+02															

Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)																							
Element (Atomic Number)	Isotope	Lambda (1/Yr)	Half-life (years)	Apple Consumption	Asparagus Consumption	Beet Consumption	Berry Consumption	Broccoli Consumption	Cabbage Consumption	Carrot Consumption	Citrus fruit Consumption	Com Consumption	Cucumber Consumption	Lettuce Consumption	Lima beans Consumption	Okra Consumption	Onion Consumption	Peaches Consumption	Pears Consumption	Peanut Consumption	Peppers Consumption	Potatoes Consumption	Pumpkin Consumption	Snap beans Consumption	Strawberries Consumption	Tomatoes Consumption	Total Produce
				DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)
Selenium (34)	Se-73	8.49E+02	8.16E-04	2.56E+01	6.02E+01	7.16E+01	6.43E+01	6.91E+01	3.12E+01	9.51E+01	7.41E+00	2.90E+01	4.40E+01	6.66E+01	6.68E+01	7.92E+01	8.87E+01	2.11E+01	3.44E+01	7.25E+01	1.00E+02	1.68E+01	3.78E+01	4.23E+01	5.59E+01	2.50E+01	1.52E+02
Selenium (34)	Se-74m	9.15E+03	7.57E-05	2.80E+01	6.82E+01	8.12E+01	7.29E+01	7.83E+01	3.53E+01	7.83E+01	3.29E+01	4.98E+01	7.53E+01	6.75E+01	7.57E+01	8.98E+01	1.01E+02	2.39E+01	3.90E+01	8.21E+01	1.14E+02	1.99E+01	4.28E+01	4.79E+01	6.33E+01	2.83E+01	1.73E+02
Selenium (34)	Se-75	2.1E+06	3.29E-01	2.56E+00	6.02E+00	7.16E+00	6.43E+00	6.91E+00	3.12E+00	9.51E+00	7.41E+00	2.90E+00	4.40E+00	6.66E+00	6.68E+00	7.92E+00	8.87E+00	2.11E+00	3.44E+00	7.25E+00	1.00E+01	1.68E+00	3.78E+00	4.23E+00	5.59E+00	2.50E+00	1.52E+01
Selenium (34)	Se-77m	1.2E+06	5.50E-07	1.83E+00	4.32E+00	5.14E+00	4.62E+00	4.96E+00	2.24E+00	6.83E+00	5.32E+01	2.08E+00	3.16E+00	4.83E+00	4.81E+00	5.69E+00	6.37E+00	1.51E+00	2.47E+00	5.20E+00	7.22E+00	1.21E+00	2.71E+00	3.05E+00	4.01E+00	1.79E+00	1.09E+01
Selenium (34)	Se-79m	9.29E+04	7.46E-06	1.83E+00	4.32E+00	5.14E+00	4.62E+00	4.96E+00	2.24E+00	6.83E+00	5.32E+01	2.08E+00	3.16E+00	4.83E+00	4.81E+00	5.69E+00	6.37E+00	1.51E+00	2.47E+00	5.20E+00	7.22E+00	1.21E+00	2.71E+00	3.05E+00	4.01E+00	1.79E+00	1.09E+01
Selenium (34)	Se-81	1.97E+04	3.51E-05	2.39E+02	5.60E+02	6.67E+02	5.99E+02	6.43E+02	2.90E+02	8.85E+02	6.89E+01	2.70E+02	4.09E+02	6.26E+02	6.24E+02	7.37E+02	8.29E+02	1.98E+02	3.27E+02	6.74E+02	9.36E+02	1.56E+02	3.52E+02	3.95E+02	5.20E+02	2.38E+02	1.42E+03
Selenium (34)	Se-83	1.63E+04	4.24E-05	1.31E+02	3.10E+02	3.68E+02	3.31E+02	3.55E+02	1.60E+02	4.89E+02	3.81E+01	1.49E+02	2.26E+02	3.43E+02	3.44E+02	4.07E+02	4.56E+02	1.08E+02	1.77E+02	3.73E+02	5.16E+02	8.65E+01	1.94E+02	2.27E+02	2.87E+02	1.23E+02	7.84E+02
Selenium (34)	Se-83m	3.12E+05	2.22E-06	1.30E+03	3.06E+03	3.63E+03	3.29E+03	3.48E+03	1.58E+03	4.83E+03	3.76E+02	1.47E+03	2.23E+03	3.11E+03	3.31E+03	4.02E+03	4.50E+03	1.07E+03	1.74E+03	3.68E+03	5.03E+03	8.53E+02	1.92E+03	2.08E+03	2.84E+03	1.25E+03	7.70E+03
Selenium (34)	Se-84m	1.17E+05	5.90E-06	6.57E+02	1.55E+03	1.84E+03	1.62E+03	1.75E+03	8.02E+02	2.45E+03	1.90E+02	7.45E+02	1.15E+03	1.58E+03	1.68E+03	2.04E+03	2.28E+03	5.42E+02	8.84E+02	1.86E+03	2.55E+03	4.33E+02	9.72E+02	1.05E+03	1.44E+03	6.35E+02	3.90E+03
Selenium (34)	Se-84m	1.17E+05	5.90E-06	6.57E+02	1.55E+03	1.84E+03	1.62E+03	1.75E+03	8.02E+02	2.45E+03	1.90E+02	7.45E+02	1.15E+03	1.58E+03	1.68E+03	2.04E+03	2.28E+03	5.42E+02	8.84E+02	1.86E+03	2.55E+03	4.33E+02	9.72E+02	1.05E+03	1.44E+03	6.35E+02	3.90E+03
Selenium (34)	Se-84m	1.17E+05	5.90E-06	6.57E+02	1.55E+03	1.84E+03	1.62E+03	1.75E+03	8.02E+02	2.45E+03	1.90E+02	7.45E+02	1.15E+03	1.58E+03	1.68E+03	2.04E+03	2.28E+03	5.42E+02	8.84E+02	1.86E+03	2.55E+03	4.33E+02	9.72E+02	1.05E+03	1.44E+03	6.35E+02	3.90E+03
Selenium (34)	Se-84m	1.17E+05	5.90E-06	6.57E+02	1.55E+03	1.84E+03	1.62E+03	1.75E+03	8.02E+02	2.45E+03	1.90E+02	7.45E+02	1.15E+03	1.58E+03	1.68E+03	2.04E+03	2.28E+03	5.42E+02	8.84E+02	1.86E+03	2.55E+03	4.33E+02	9.72E+02	1.05E+03	1.44E+03	6.35E+02	3.90E+03
Selenium (34)	Se-84m	1.17E+05	5.90E-06	6.57E+02	1.55E+03	1.84E+03	1.62E+03	1.75E+03	8.02E+02	2.45E+03	1.90E+02	7.45E+02	1.15E+03	1.58E+03	1.68E+03	2.04E+03	2.28E+03	5.42E+02	8.84E+02	1.86E+03	2.55E+03	4.33E+02	9.72E+02	1.05E+03	1.44E+03	6.35E+02	3.90E+03
Selenium (34)	Se-84m	1.17E+05	5.90E-06	6.57E+02	1.55E+03	1.84E+03	1.62E+03	1.75E+03	8.02E+02	2.45E+03	1.90E+02	7.45E+02	1.15E+03	1.58E+03	1.68E+03	2.04E+03	2.28E+03	5.42E+02	8.84E+02	1.86E+03	2.55E+03	4.33E+02	9.72E+02	1.05E+03	1.44E+03	6.35E+02	3.90E+03
Selenium (34)	Se-84m	1.17E+05	5.90E-06	6.57E+02	1.55E+03	1.84E+03	1.62E+03	1.75E+03	8.02E+02	2.45E+03	1.90E+02	7.45E+02	1.15E+03	1.58E+03	1.68E+03	2.04E+03	2.28E+03	5.42E+02	8.84E+02	1.86E+03	2.55E+03	4.33E+02	9.72E+02	1.05E+03	1.44E+03	6.35E+02	3.90E+03
Selenium (34)	Se-84m	1.17E+05	5.90E-06	6.57E+02	1.55E+03	1.84E+03	1.62E+03	1.75E+03	8.02E+02	2.45E+03	1.90E+02	7.45E+02	1.15E+03	1.58E+03	1.68E+03	2.04E+03	2.28E+03	5.42E+02	8.84E+02	1.86E+03	2.55E+03	4.33E+02	9.72E+02	1.05E+03	1.44E+03	6.35E+02	3.90E+03
Selenium (34)	Se-84m	1.17E+05	5.90E-06	6.57E+02	1.55E+03	1.84E+03	1.62E+03	1.75E+03	8.02E+02	2.45E+03	1.90E+02	7.45E+02	1.15E+03	1.58E+03	1.68E+03	2.04E+03	2.28E+03	5.42E+02	8.84E+02	1.86E+03	2.55E+03	4.33E+02	9.72E+02	1.05E+03	1.44E+03	6.35E+02	3.90E+03
Selenium (34)	Se-84m	1.17E+05	5.90E-06	6.57E+02	1.55E+03	1.84E+03	1.62E+03	1.75E+03	8.02E+02	2.45E+03	1.90E+02	7.45E+02	1.15E+03	1.58E+03	1.68E+03	2.04E+03	2.28E+03	5.42E+02	8.84E+02	1.86E+03	2.55E+03	4.33E+02	9.72E+02	1.05E+03	1.44E+03	6.35E+02	3.90E+03
Selenium (34)	Se-84m	1.17E+05	5.90E-06	6.57E+02	1.55E+03	1.84E+03	1.62E+03	1.75E+03	8.02E+02	2.45E+03	1.90E+02	7.45E+02	1.15E+03	1.58E+03	1.68E+03	2.04E+03	2.28E+03	5.42E+02	8.84E+02	1.86E+03	2.55E+03	4.33E+02	9.72E+02	1.05E+03	1.44E+03	6.35E+02	3.90E+03
Selenium (34)	Se-84m	1.17E+05	5.90E-06	6.57E+02	1.55E+03	1.84E+03	1.62E+03	1.75E+03	8.02E+02	2.45E+03	1.90E+02	7.45E+02	1.15E+03	1.58E+03	1.68E+03	2.04E+03	2.28E+03	5.42E+02	8.84E+02	1.86E+03	2.55E+03	4.33E+02	9.72E+02	1.05E+03	1.44E+03	6.35E+02	3.90E+03
Selenium (34)	Se-84m	1.17E+05	5.90E-06	6.57E+02	1.55E+03	1.84E+03	1.62E+03	1.75E+03	8.02E+02	2.45E+03	1.90E+02	7.45E+02	1.15E+03	1.58E+03	1.68E+03	2.04E+03	2.28E+03	5.42E+02	8.84E+02	1.86E+03	2.55E+03	4.33E+02	9.72E+02	1.05E+03	1.44E+03	6.35E+02	3.90E+03
Selenium (34)	Se-84m	1.17E+05	5.90E-06	6.57E+02	1.55E+03	1.84E+03	1.62E+03	1.75E+03	8.02E+02	2.45E+03	1.90E+02	7.45E+02	1.15E+03	1.58E+03	1.68E+03	2.04E+03	2.28E+03	5.42E+02	8.84E+02	1.86E+03	2.55E+03	4.33E+02	9.72E+02	1.05E+03	1.44E+03	6.35E+02	3.90E+03
Selenium (34)	Se-84m	1.17E+05	5.90E-06	6.57E+02	1.55E+03	1.84E+03	1.62E+03	1.75E+03	8.02E+02	2.45E+03	1.90E+02	7.45E+02	1.15E+03	1.58E+03	1.68E+03	2.04E+03	2.28E+03	5.42E+02	8.84E+02	1.86E+03	2.55E+03	4.33E+02	9.72E+02	1.05E+03	1.44E+03	6.35E+02	3.90E+03
Selenium (34)	Se-84m	1.17E+05	5.90E-06	6.57E+02	1.55E+03	1.84E+03	1.62E+03	1.75E+03	8.02E+02	2.45E+03	1.90E+02	7.45E+02	1.15E+03	1.58E+03	1.68E+03	2.04E+03	2.28E+03	5.42E+02	8.84E+02	1.86E+03	2.55E+03	4.33E+02	9.72E+02	1.05E+03	1.44E+03	6.35E+02	3.90E+03
Selenium (34)	Se-84m	1.17E+05	5.90E-06	6.57E+02	1.55E+03	1.84E+03	1.62E+03	1.75E+03	8.02E+02	2.45E+03	1.90E+02	7.45E+02	1.15E+03	1.58E+03	1.68E+03	2.04E+03	2.28E+03	5.42E+02	8.84E+02	1.86E+03	2.55E+03	4.33E+02	9.72E+02	1.05E+03	1.44E+03	6.35E+02	3.90E+03
Selenium (34)	Se-84m	1.17E+05	5.90E-06	6.57E+02	1.55E+03	1.84E+03	1.62E+03	1.75E+03	8.02E+02	2.45E+03	1.90E+02	7.45E+02	1.15E+03	1.58E+03	1.68E+03	2.04E+03	2.28E+03	5.42E+02	8.84E+02	1.86E+03	2.55E+03	4.33E+02	9.72E+02	1.05E+03	1.44E+03	6.35E+02	3.90E+03
Selenium (34)	Se-84m	1.17E+05	5.90E-06	6.57E+02	1.55E+03	1.84E+03	1.62E+03	1.75E+03	8.02E+02	2.45E+03	1.90E+02	7.45E+02	1.15E+03	1.58E+03	1.68E+03	2.04E+03	2.28E+03	5.42E+02	8.84E+02	1.86E+03	2.55E+03	4.33E+02	9.72E+02	1.05E+03	1.44E+03	6.35E+02	3.90E+03
Selenium (34)	Se-84m	1.17E+05	5.90E-06	6.57E+02	1.55E+03	1.84E+03	1.62E+03	1.75E+03	8.02E+02	2.45E+03	1.90E+02	7.45E+02	1.15E+03	1.58E+03	1.68E+03	2.04E+03	2.28E+03	5.42E+02	8.84E+02	1.86E+03	2.55E+03	4.33E+02	9.72E+02	1.05E+03	1.44E+03	6.35E+02	3.90E+03
Selenium (34)	Se-84m	1.17E+05	5.90E-06	6.57E+02	1.55E+03	1.84E+03	1.62E+03	1.75E+03	8.02E+02	2.45E+03	1.90E+02	7.45E+02	1.15E+03	1.58E+03	1.68E+03	2.04E+03	2.28E+03	5.42E+02	8.84E+02	1.86E+03	2.55E+03	4.33E+02	9.72E+02	1.05E+03	1.44E+03	6.35E+02	3.90E+03
Selenium (34)	Se-84m																										

Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
Element (Atomic Number)	Isotope	Lambda (1/yr)	Half-life (years)	Apple Consumption	Asparagus Consumption	Beet Consumption	Berry Consumption	Broccoli Consumption	Cabbage Consumption	Carrot Consumption	Citrus fruit Consumption	Com Consumption	Cucumber Consumption	Lettuce Consumption	Lima beans Consumption	Okra Consumption	Onion Consumption	Peaches Consumption	Pears Consumption	Peanut Consumption	Peppers Consumption	Potatoes Consumption	Pumpkin Consumption	Snap beans Consumption	Strawberries Consumption	Tomatoes Consumption	Total Produce																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
				DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
Terbium (65)	Tb-153	1.08E+02	6.41E-03	1.21E+02	2.85E+02	3.39E+02	3.04E+02	3.25E+02	1.48E+02	4.50E+02	3.51E+01	1.37E+02	2.08E+02	2.86E+02	3.07E+02	3.75E+02	4.20E+02	9.98E+01	1.63E+02	3.43E+02	4.67E+02	7.95E+01	1.79E+02	1.93E+02	2.69E+02	1.17E+02	7.17E+01	1.70E+02	2.62E+02	3.55E+02	4.43E+02	5.31E+02	6.19E+02	7.07E+02	7.95E+02	8.83E+02	9.71E+02	1.06E+03	1.15E+03	1.24E+03	1.33E+03	1.42E+03	1.51E+03	1.60E+03	1.69E+03	1.78E+03	1.87E+03	1.96E+03	2.05E+03	2.14E+03	2.23E+03	2.32E+03	2.41E+03	2.50E+03	2.59E+03	2.68E+03	2.77E+03	2.86E+03	2.95E+03	3.04E+03	3.13E+03	3.22E+03	3.31E+03	3.40E+03	3.49E+03	3.58E+03	3.67E+03	3.76E+03	3.85E+03	3.94E+03	4.03E+03	4.12E+03	4.21E+03	4.30E+03	4.39E+03	4.48E+03	4.57E+03	4.66E+03	4.75E+03	4.84E+03	4.93E+03	5.02E+03	5.11E+03	5.20E+03	5.29E+03	5.38E+03	5.47E+03	5.56E+03	5.65E+03	5.74E+03	5.83E+03	5.92E+03	6.01E+03	6.10E+03	6.19E+03	6.28E+03	6.37E+03	6.46E+03	6.55E+03	6.64E+03	6.73E+03	6.82E+03	6.91E+03	7.00E+03	7.09E+03	7.18E+03	7.27E+03	7.36E+03	7.45E+03	7.54E+03	7.63E+03	7.72E+03	7.81E+03	7.90E+03	7.99E+03	8.08E+03	8.17E+03	8.26E+03	8.35E+03	8.44E+03	8.53E+03	8.62E+03	8.71E+03	8.80E+03	8.89E+03	8.98E+03	9.07E+03	9.16E+03	9.25E+03	9.34E+03	9.43E+03	9.52E+03	9.61E+03	9.70E+03	9.79E+03	9.88E+03	9.97E+03	1.00E+04	1.01E+04	1.02E+04	1.03E+04	1.04E+04	1.05E+04	1.06E+04	1.07E+04	1.08E+04	1.09E+04	1.10E+04	1.11E+04	1.12E+04	1.13E+04	1.14E+04	1.15E+04	1.16E+04	1.17E+04	1.18E+04	1.19E+04	1.20E+04	1.21E+04	1.22E+04	1.23E+04	1.24E+04	1.25E+04	1.26E+04	1.27E+04	1.28E+04	1.29E+04	1.30E+04	1.31E+04	1.32E+04	1.33E+04	1.34E+04	1.35E+04	1.36E+04	1.37E+04	1.38E+04	1.39E+04	1.40E+04	1.41E+04	1.42E+04	1.43E+04	1.44E+04	1.45E+04	1.46E+04	1.47E+04	1.48E+04	1.49E+04	1.50E+04	1.51E+04	1.52E+04	1.53E+04	1.54E+04	1.55E+04	1.56E+04	1.57E+04	1.58E+04	1.59E+04	1.60E+04	1.61E+04	1.62E+04	1.63E+04	1.64E+04	1.65E+04	1.66E+04	1.67E+04	1.68E+04	1.69E+04	1.70E+04	1.71E+04	1.72E+04	1.73E+04	1.74E+04	1.75E+04	1.76E+04	1.77E+04	1.78E+04	1.79E+04	1.80E+04	1.81E+04	1.82E+04	1.83E+04	1.84E+04	1.85E+04	1.86E+04	1.87E+04	1.88E+04	1.89E+04	1.90E+04	1.91E+04	1.92E+04	1.93E+04	1.94E+04	1.95E+04	1.96E+04	1.97E+04	1.98E+04	1.99E+04	2.00E+04	2.01E+04	2.02E+04	2.03E+04	2.04E+04	2.05E+04	2.06E+04	2.07E+04	2.08E+04	2.09E+04	2.10E+04	2.11E+04	2.12E+04	2.13E+04	2.14E+04	2.15E+04	2.16E+04	2.17E+04	2.18E+04	2.19E+04	2.20E+04	2.21E+04	2.22E+04	2.23E+04	2.24E+04	2.25E+04	2.26E+04	2.27E+04	2.28E+04	2.29E+04	2.30E+04	2.31E+04	2.32E+04	2.33E+04	2.34E+04	2.35E+04	2.36E+04	2.37E+04	2.38E+04	2.39E+04	2.40E+04	2.41E+04	2.42E+04	2.43E+04	2.44E+04	2.45E+04	2.46E+04	2.47E+04	2.48E+04	2.49E+04	2.50E+04	2.51E+04	2.52E+04	2.53E+04	2.54E+04	2.55E+04	2.56E+04	2.57E+04	2.58E+04	2.59E+04	2.60E+04	2.61E+04	2.62E+04	2.63E+04	2.64E+04	2.65E+04	2.66E+04	2.67E+04	2.68E+04	2.69E+04	2.70E+04	2.71E+04	2.72E+04	2.73E+04	2.74E+04	2.75E+04	2.76E+04	2.77E+04	2.78E+04	2.79E+04	2.80E+04	2.81E+04	2.82E+04	2.83E+04	2.84E+04	2.85E+04	2.86E+04	2.87E+04	2.88E+04	2.89E+04	2.90E+04	2.91E+04	2.92E+04	2.93E+04	2.94E+04	2.95E+04	2.96E+04	2.97E+04	2.98E+04	2.99E+04	3.00E+04	3.01E+04	3.02E+04	3.03E+04	3.04E+04	3.05E+04	3.06E+04	3.07E+04	3.08E+04	3.09E+04	3.10E+04	3.11E+04	3.12E+04	3.13E+04	3.14E+04	3.15E+04	3.16E+04	3.17E+04	3.18E+04	3.19E+04	3.20E+04	3.21E+04	3.22E+04	3.23E+04	3.24E+04	3.25E+04	3.26E+04	3.27E+04	3.28E+04	3.29E+04	3.30E+04	3.31E+04	3.32E+04	3.33E+04	3.34E+04	3.35E+04	3.36E+04	3.37E+04	3.38E+04	3.39E+04	3.40E+04	3.41E+04	3.42E+04	3.43E+04	3.44E+04	3.45E+04	3.46E+04	3.47E+04	3.48E+04	3.49E+04	3.50E+04	3.51E+04	3.52E+04	3.53E+04	3.54E+04	3.55E+04	3.56E+04	3.57E+04	3.58E+04	3.59E+04	3.60E+04	3.61E+04	3.62E+04	3.63E+04	3.64E+04	3.65E+04	3.66E+04	3.67E+04	3.68E+04	3.69E+04	3.70E+04	3.71E+04	3.72E+04	3.73E+04	3.74E+04	3.75E+04	3.76E+04	3.77E+04	3.78E+04	3.79E+04	3.80E+04	3.81E+04	3.82E+04	3.83E+04	3.84E+04	3.85E+04	3.86E+04	3.87E+04	3.88E+04	3.89E+04	3.90E+04	3.91E+04	3.92E+04	3.93E+04	3.94E+04	3.95E+04	3.96E+04	3.97E+04	3.98E+04	3.99E+04	4.00E+04	4.01E+04	4.02E+04	4.03E+04	4.04E+04	4.05E+04	4.06E+04	4.07E+04	4.08E+04	4.09E+04	4.10E+04	4.11E+04	4.12E+04	4.13E+04	4.14E+04	4.15E+04	4.16E+04	4.17E+04	4.18E+04	4.19E+04	4.20E+04	4.21E+04	4.22E+04	4.23E+04	4.24E+04	4.25E+04	4.26E+04	4.27E+04	4.28E+04	4.29E+04	4.30E+04	4.31E+04	4.32E+04	4.33E+04	4.34E+04	4.35E+04	4.36E+04	4.37E+04	4.38E+04	4.39E+04	4.40E+04	4.41E+04	4.42E+04	4.43E+04	4.44E+04	4.45E+04	4.46E+04	4.47E+04	4.48E+04	4.49E+04	4.50E+04	4.51E+04	4.52E+04	4.53E+04	4.54E+04	4.55E+04	4.56E+04	4.57E+04	4.58E+04	4.59E+04	4.60E+04	4.61E+04	4.62E+04	4.63E+04	4.64E+04	4.65E+04	4.66E+04	4.67E+04	4.68E+04	4.69E+04	4.70E+04	4.71E+04	4.72E+04	4.73E+04	4.74E+04	4.75E+04	4.76E+04	4.77E+04	4.78E+04	4.79E+04	4.80E+04	4.81E+04	4.82E+04	4.83E+04	4.84E+04	4.85E+04	4.86E+04	4.87E+04	4.88E+04	4.89E+04	4.90E+04	4.91E+04	4.92E+04	4.93E+04	4.94E+04	4.95E+04	4.96E+04	4.97E+04	4.98E+04	4.99E+04	5.00E+04	5.01E+04	5.02E+04	5.03E+04	5.04E+04	5.05E+04	5.06E+04	5.07E+04	5.08E+04	5.09E+04	5.10E+04	5.11E+04	5.12E+04	5.13E+04	5.14E+04	5.15E+04	5.16E+04	5.17E+04	5.18E+04	5.19E+04	5.20E+04	5.21E+04	5.22E+04	5.23E+04	5.24E+04	5.25E+04	5.26E+04	5.27E+04	5.28E+04	5.29E+04	5.30E+04	5.31E+04	5.32E+04	5.33E+04	5.34E+04	5.35E+04	5.36E+04	5.37E+04	5.38E+04	5.39E+04	5.40E+04	5.41E+04	5.42E+04	5.43E+04	5.44E+04	5.45E+04	5.46E+04	5.47E+04	5.48E+04	5.49E+04	5.50E+04	5.51E+04	5.52E+04	5.53E+04	5.54E+04	5.55E+04	5.56E+04	5.57E+04	5.58E+04	5.59E+04	5.60E+04	5.61E+04	5.62E+04	5.63E+04	5.64E+04	5.65E+04	5.66E+04	5.67E+04	5.68E+04	5.69E+04	5.70E+04	5.71E+04	5.72E+04	5.73E+04	5.74E+04	5.75E+04	5.76E+04	5.77E+04	5.78E+04	5.79E+04	5.80E+04	5.81E+04	5.82E+04	5.83E+04	5.84E+04	5.85E+04	5.86E+04	5.87E+04	5.88E+04	5.89E+04	5.90E+04	5.91E+04	5.92E+04	5.93E+04	5.94E+04	5.95E+04	5.96E+04	5.97E+04	5.98E+04	5.99E+04	6.00E+04	6.01E+04	6.02E+04	6.03E+04	6.04E+04	6.05E+04	6.06E+04	6.07E+04	6.08E+04	6.09E+04	6.10E+04	6.11E+04	6.12E+04	6.13E+04	6.14E+04	6.15E+04	6.16E+04	6.17E+04	6.18E+04	6.19E+04	6.20E+04	6.21E+04	6.22E+04	6.23E+04	6.24E+04	6.25E+04	6.26E+04	6.27E+04	6.28E+04	6.29E+04	6.30E+04	6.31E+04	6.32E+04	6.33E+04	6.34E+04	6.35E+04	6.36E+04	6.37E+04	6.38E+04	6.39E+04	6.40E+04	6.41E+04	6.42E+04	6.43E+04	6.44E+04	6.45E+04	6.46E+04	6.47E+04	6.48E+04	6.49E+04	6.50E+04	6.51E+04	6.52E+04	6.53E+04	6.54E+04	6.55E+04	6.56E+04	6.57E+04	6.58E+04	6.59E+04	6.60E+04	6.61E+04	6.62E+04	6.63E+04	6.64E+04	6.65E+04	6.66E+04	6.67E+04	6.68E+04	6.69E+04	6.70E+04	6.71E+04	6.72E+04	6.73E+04	6.74E+04	6.75E+04	6.76E+04	6.77E+04	6.78E+04	6.79E+04	6.80E+04	6.81E+04	6.82E+04	6.83E+04	6.84E+04	6.85E+04	6.86E+04	6.87E+04	6.88E+04	6.89E+04	6.90E+04	6.91E+04	6.92E+04	6.93E+04	6.94E+04	6.95E+04	6.96E+04	6.97E+04	6.98E+04	6.99E+04	7.00E+04	7.01E+04	7.02E+04	7.03E+04	7.04E+04	7.05E+04	7.06E+04	7.07E+04	7.08E+04	7.09E+04	7.10E+04	7.11E+04	7.12E+04	7.13E+04	7.14E+04	7.15E+04	7.16E+04	7.17E+04	7.18E+04	7.19E+04	7.20E+04	7.21E+04	7.22E+04	7.23E+04	7.24E+04	7.25E+04	7.26E+04	7.27E+04	7.28E+04	7.29E+04	7.30E+04	7.31E+04	7.32E+04	7.33E+04	7.34E+04	7.35E+04	7.36E+04	7.37E+04	7.38E+04	7.39E+04	7.40E+04	7.41E+04	7.42E+04	7.43E+04	7.44E+04	7.45E+04	7.46E+04	7.47E+04	7.48E+04	7.49E+04	7.50E+04	7.51E+04	7.52E+04	7.53E+04	7.54E+04	7.55E+04	7.56E+04	7.57E+04	7.58E+04	7.59E+04	7.60E+04	7.61E+04	7.62E+04	7.63E+04	7.64E+04	7.65E+04	7.66E+04	7.67E+04	7.68E+04	7.69E+04	7.70E+04	7.71E+04	7.72E+04	7.73E+04	7.74E+04



Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)																							
Element (Atomic Number)	Isotope	Lambda (1/Yr)	Half-life (years)	Apple Consumption	Asparagus Consumption	Beet Consumption	Berry Consumption	Broccoli Consumption	Cabbage Consumption	Carrot Consumption	Citrus fruit Consumption	Com Consumption	Cucumber Consumption	Lettuce Consumption	Lima beans Consumption	Okra Consumption	Onion Consumption	Peaches Consumption	Pears Consumption	Peanut Consumption	Peppers Consumption	Potatoes Consumption	Pumpkin Consumption	Snap beans Consumption	Strawberries Consumption	Tomatoes Consumption	Total Produce
				DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)
Thallium (81)	Tl-210	2.80E+05	2.47E-06	3.22E+02	5.90E+02	8.60E+02	6.32E+02	8.51E+02	3.06E+02	1.14E+01	9.34E+03	3.77E+02	5.45E+02	6.08E+02	8.32E+02	9.83E+02	1.07E+01	2.68E+02	4.34E+02	9.28E+02	1.23E+01	2.15E+02	4.69E+02	5.22E+02	7.05E+02	3.06E+02	1.88E+03
Thallium (81)	Tl-206	1.27E+05	5.15E-05	5.21E+02	1.23E+03	1.46E+03	1.74E+03	1.40E+03	6.92E+03	1.34E+03	5.99E+02	1.98E+02	1.98E+02	2.92E+02	3.57E+02	3.99E+02	9.49E+01	1.55E+02	3.26E+02	4.44E+02	3.05E+02	7.76E+02	1.02E+03	1.40E+03	8.30E+02	1.14E+03	5.03E+03
Thallium (81)	Tl-203	1.89E+04	4.13E-05	1.79E+03	4.15E+03	4.93E+03	4.43E+03	4.72E+03	2.15E+03	6.55E+03	5.10E+02	1.99E+03	4.47E+03	5.46E+03	6.11E+03	1.45E+03	2.37E+03	4.89E+03	6.80E+03	4.59E+03	6.56E+03	1.16E+03	2.80E+03	3.85E+03	1.70E+03	1.04E+02	
Thulium (69)	Tm-163	3.35E+03	2.07E-04	1.18E+03	2.78E+03	3.31E+03	2.97E+03	3.17E+03	1.44E+03	4.39E+03	3.42E+02	1.34E+03	2.03E+03	2.79E+03	3.00E+03	3.66E+03	4.10E+03	9.74E+02	1.59E+03	3.35E+03	4.89E+03	7.76E+02	1.75E+03	1.88E+03	2.58E+03	1.14E+03	7.00E+01
Thulium (69)	Tm-164	1.82E+05	3.81E-06																								
Thulium (69)	Tm-165	2.02E+02	3.43E-03	1.85E+02	4.37E+02	5.20E+02	4.67E+02	4.98E+02	2.26E+02	6.90E+02	5.37E+01	2.10E+02	3.19E+02	4.38E+02	4.71E+02	5.75E+02	6.44E+02	1.53E+02	2.50E+02	5.28E+02	7.17E+02	1.22E+02	2.74E+02	2.96E+02	4.06E+02	1.79E+02	1.10E+01
Thulium (69)	Tm-166	7.88E+02	8.79E-04	2.51E+02	5.92E+02	7.04E+02	6.32E+02	6.74E+02	3.07E+02	9.35E+02	7.28E+01	2.85E+02	4.33E+02	5.93E+02	6.39E+02	7.79E+02	8.73E+02	2.07E+02	3.38E+02	7.12E+02	9.71E+02	1.65E+02	3.72E+02	4.00E+02	5.50E+02	2.42E+02	1.49E+01
Thulium (69)	Tm-167	2.73E+01	2.53E-02	1.15E+02	2.71E+02	2.89E+02	3.09E+02	1.40E+02	4.29E+02	3.33E+01	1.30E+02	1.98E+02	1.98E+02	2.71E+02	3.57E+02	3.99E+02	9.49E+01	1.55E+02	3.26E+02	4.44E+02	3.05E+02	7.56E+01	1.71E+02	1.83E+02	2.52E+02	1.11E+02	6.82E+00
Thulium (69)	Tm-168	2.72E+02	2.55E-01	6.78E+01	1.60E+02	1.90E+02	1.71E+02	1.82E+02	8.28E+01	2.53E+02	1.97E+01	7.69E+01	1.17E+02	1.60E+02	1.72E+02	2.11E+02	2.36E+02	5.60E+01	9.13E+01	1.92E+02	2.62E+02	4.46E+01	1.00E+02	1.08E+02	1.48E+02	6.55E+01	4.02E+00
Thulium (69)	Tm-170	1.97E+00	3.52E-01	6.02E+01	1.18E+02	1.41E+02	1.26E+02	1.35E+02	6.13E+01	1.87E+02	1.46E+01	5.70E+01	8.65E+01	1.19E+02	1.28E+02	1.56E+02	1.75E+02	4.15E+01	6.76E+01	1.42E+02	1.94E+02	3.30E+01	7.43E+01	8.01E+01	1.10E+02	4.85E+01	2.98E+00
Thulium (69)	Tm-171	3.61E-01	1.92E+00	6.14E+02	1.45E+03	1.72E+03	1.55E+03	1.65E+03	7.50E+02	2.29E+03	1.78E+02	6.97E+02	1.06E+03	1.45E+03	1.91E+03	2.13E+03	5.07E+02	8.27E+02	1.74E+03	2.38E+03	4.04E+02	9.09E+02	9.80E+02	1.34E+03	5.93E+02	3.64E+01	
Thulium (69)	Tm-172	9.55E+01	7.26E-03	3.92E+01	9.24E+01	1.10E+02	9.87E+01	1.05E+02	4.79E+01	1.46E+02	1.14E+01	4.44E+01	6.75E+01	9.26E+01	9.98E+01	1.22E+02	1.36E+02	3.23E+01	5.27E+01	1.11E+02	1.52E+02	2.58E+01	5.80E+01	6.25E+01	8.58E+01	3.78E+01	2.32E+00
Thulium (69)	Tm-173	7.37E+02	1.91E-04	2.23E+02	5.27E+02	6.26E+02	5.62E+02	6.00E+02	2.73E+02	8.32E+02	6.18E+01	2.53E+02	3.85E+02	5.28E+02	5.69E+02	6.93E+02	7.76E+02	1.84E+02	3.01E+02	6.33E+02	8.64E+02	1.47E+02	3.50E+02	3.56E+02	4.69E+02	1.10E+02	1.32E+00
Thulium (69)	Tm-174	8.79E+04	1.03E-05																								
Thulium (69)	Tm-175	2.40E+04	2.89E-05	1.43E+02	3.36E+02	4.00E+02	3.59E+02	3.83E+02	1.74E+02	5.31E+02	4.14E+01	1.62E+02	2.46E+02	3.37E+02	3.63E+02	4.43E+02	4.96E+02	1.18E+02	1.92E+02	4.05E+02	5.52E+02	9.38E+01	2.11E+02	2.28E+02	3.12E+02	1.38E+02	8.46E+00
Thulium (69)	Tm-176	1.97E+05	3.52E-06																								
Uranium (92)	U-227	3.31E+05	2.09E-06																								
Uranium (92)	U-228	4.00E+04	1.73E-05																								
Uranium (92)	U-230	1.22E+01	5.70E-02	3.54E+02	1.77E-02	8.38E-02	7.91E-02	8.27E-02	2.99E-02	1.11E-01	9.11E-03	3.66E+02	5.30E-02	5.94E-02	1.11E-02	9.55E-02	1.04E-01	2.99E-02	4.23E-02	9.05E-02	1.19E-01	2.09E-02	4.56E-02	5.09E-02	6.88E-02	2.97E-02	4.81E-03
Uranium (92)	U-231	6.02E+01	1.15E-02	7.34E+02	1.52E-01	1.87E-01	1.85E-01	1.95E-01	7.88E+02	2.48E-01	2.13E-02	8.43E-02	1.25E-01	1.55E-01	1.86E-01	2.25E-01	2.32E-01	6.09E-02	9.88E-02	2.07E-01	2.81E-01	4.82E-02	1.07E-01	1.16E-01	1.61E-01	1.00E-01	4.26E-03
Uranium (92)	U-232	1.01E-02	6.89E-01	1.37E+01	2.55E-01	3.34E-01	3.46E-01	3.37E-01	1.82E+02	4.43E-01	3.98E-02	1.46E-01	2.62E-01	2.62E-01	3.45E-01	3.89E-01	4.13E-01	1.13E-01	1.85E-01	3.84E-01	4.85E-01	8.83E-02	1.85E-01	3.01E-01	1.21E-01	2.69E-03	
Uranium (92)	U-233	4.35E-06	1.59E-05	9.39E+02	1.83E-01	2.29E-01	2.36E-01	2.46E-01	9.50E+02	3.04E-01	2.72E-02	1.07E-01	1.57E-01	1.88E-01	2.36E-01	2.84E-01	2.84E-01	7.75E-02	1.26E-01	2.63E-01	3.54E-01	6.16E-02	1.35E-01	1.48E-01	2.05E-01	8.83E-02	5.49E-03
Uranium (92)	U-234	2.82E-06	2.46E-05	2.51E+02	4.47E-02	6.33E-02	6.33E-02	6.59E-02	2.32E-02	8.41E-02	7.29E-03	2.94E+02	4.23E-02	4.62E-02	6.44E-02	7.61E-02	7.85E-02	2.07E-02	3.38E-02	7.18E-02	9.50E-02	1.67E-02	3.63E-02	4.04E-02	5.50E-02	2.37E-02	1.33E-03
Uranium (92)	U-235	9.84E-10	7.04E-08	7.03E+02	1.48E-01	1.79E-01	1.77E-01	1.86E-01	7.54E+02	2.38E-01	2.04E-02	8.02E+02	1.19E-01	1.49E-01	1.73E-01	2.14E-01	2.22E-01	5.80E-02	9.48E-02	1.98E-01	2.88E-01	4.61E-02	1.02E-01	1.12E-01	1.54E-01	6.87E-02	4.08E-03
Uranium (92)	U-236	1.40E+04	4.95E-05	1.40E+04	4.95E-05	1.46E-01	1.79E-01	1.86E-01	7.54E+02	2.38E-01	2.04E-02	8.02E+02	1.19E-01	1.49E-01	1.73E-01	2.14E-01	2.22E-01	5.80E-02	9.48E-02	1.98E-01	2.88E-01	4.61E-02	1.02E-01	1.12E-01	1.54E-01	6.87E-02	4.08E-03
Uranium (92)	U-236	2.96E-08	2.34E-07	3.93E+02	8.83E-02	7.69E-02	9.90E-02	1.00E-01	3.82E+02	1.02E-01	1.14E+02	4.62E+02	6.12E-02	6.12E-02	9.73E-02	1.16E-01	9.53E+02	3.24E-02	5.29E-02	1.08E-01	1.44E-01	2.57E+02	5.52E-02	6.11E-02	8.60E+02	3.80E+02	2.14E+03
Uranium (92)	U-237	3.75E+01	1.85E-02	8.81E+02	1.62E-01	2.02E-01	2.09E-01	2.14E-01	8.37E+02	2.68E-01	2.41E-02	9.45E+02	1.37E-01	1.65E-01	2.06E-01	2.47E-01	2.50E-01	6.89E-02	1.12E-01	2.29E-01	3.08E-01	5.42E-02	1.18E-01	1.29E-01	1.82E-01	7.69E-02	4.74E-03
Uranium (92)	U-238	1.55E-10	4.47E+09	2.48E+02	4.41E-02	6.24E-02	6.23E-02	6.48E-02	2.29E-02	8.28E-02	7.18E-03	2.89E+02	4.15E-02	4.56E-02	6.34E-02	7.49E-02	7.73E-02	2.04E-02	3.38E-02	7.07E-02	9.34E-02	1.64E-02	3.94E-02	3.98E-02	5.42E-02	2.33E-02	1.41E-03
Uranium (92)	U-239	1.55E+04	4.46E-05	5.76E+02	1.22E-01	1.49E-01	1.49E-01	1.53E-01	6.32E+02	1.98E-01	1.67E-02	6.57E+02	9.79E-02	1.24E-01	1.46E-01	1.76E-01	1.85E-01	4.76E-02	7.76E-02	1.63E-01	2.20E-01	3.78E-02	8.41E-02	9.15E-02	1.26E-01	5.49E-02	3.38E-03
Uranium (92)	U-239m	1.21E+04	5.71E-05	7.05E+02	1.48E-01	1.79E-01	1.77E-01	1.86E-01	7.54E+02	2.38E-01	2.04E-02	8.02E+02	1.19E-01	1.49E-01	1.73E-01	2.14E-01	2.22E-01	5.80E-02	9.48E-02	1.98E-01	2.88E-01	4.61E-02	1.02E-01	1.12E-01	1.54E-01	6.87E-02	4.08E-03
Uranium (92)	U-242	2.17E+04	3.20E-05	2.31E+02	4.18E-02	5.85E-02	5.81E-02	6.05E-02	2.17E+02	7.77E-02	6.69E-03	2.69E+02	3.88E-02	4.21E-02	5.90E-02	6.99E-02	7.25E-02	1.90E-02	3.10E-02	6.58E-02	8.71E-02	1.53E-02	3.33E-02	3.70E-02	5.05E-02	2.17E-02	1.32E-03
Vanadium (23)	V-47	1.12E+04	6.20E-05	1.01E+03	2.38E+03	2.83E+03	2.54E+03	2.71E+03	1.23E+03	3.76E+03	2.92E+02	1.14E+03	1.74E+03	2.40E+03	2.57E+03	3.13E+03	3.50E+03	8.33E+02	1.36E+03	2.88E+03							

Radionuclides		Isotope-specific Information		Farmer Tap Water Produce DCCs July 2023																							
Element (Atomic Number)	Isotope	Lambda (1/yr)	Half-life (years)	Dose Compliance Concentrations (DCCs)																							
				Apple Consumption DCC DL=1 (Bq/L)	Asparagus Consumption DCC DL=1 (Bq/L)	Beet Consumption DCC DL=1 (Bq/L)	Berry Consumption DCC DL=1 (Bq/L)	Broccoli Consumption DCC DL=1 (Bq/L)	Cabbage Consumption DCC DL=1 (Bq/L)	Carrot Consumption DCC DL=1 (Bq/L)	Citrus fruit Consumption DCC DL=1 (Bq/L)	Corn Consumption DCC DL=1 (Bq/L)	Cucumber Consumption DCC DL=1 (Bq/L)	Lettuce Consumption DCC DL=1 (Bq/L)	Lima beans Consumption DCC DL=1 (Bq/L)	Okra Consumption DCC DL=1 (Bq/L)	Onion Consumption DCC DL=1 (Bq/L)	Peaches Consumption DCC DL=1 (Bq/L)	Pears Consumption DCC DL=1 (Bq/L)	Peanut Consumption DCC DL=1 (Bq/L)	Peppers Consumption DCC DL=1 (Bq/L)	Potatoes Consumption DCC DL=1 (Bq/L)	Pumpkin Consumption DCC DL=1 (Bq/L)	Snap beans Consumption DCC DL=1 (Bq/L)	Strawberries Consumption DCC DL=1 (Bq/L)	Tomatoes Consumption DCC DL=1 (Bq/L)	Total Produce DCC DL=1 (Bq/L)
Zinc (30)	Zn-62	6.61E+02	1.05E-03	7.04E+00	7.30E+00	3.61E+01	1.77E+01	4.01E+01	3.78E+00	4.79E+01	2.04E+00	1.29E+01	2.96E+01	8.21E+00	2.01E+01	4.61E+01	4.47E+01	5.81E+00	9.47E+00	2.17E+01	5.83E+01	1.27E+01	2.20E+01	1.27E+01	1.54E+01	1.45E+01	4.60E+01
Zinc (30)	Zn-63	9.47E+03	7.32E-05	8.10E+01	8.40E+01	4.16E+02	2.04E+02	4.62E+02	4.35E+01	5.52E+02	2.35E+01	1.48E+02	2.94E+02	9.45E+01	2.31E+02	5.30E+02	5.15E+02	6.68E+01	1.09E+02	2.50E+02	6.71E+02	1.46E+02	2.53E+02	1.46E+02	1.77E+02	1.67E+02	5.29E+00
Zinc (30)	Zn-65	1.04E+00	6.69E-01	1.80E+00	1.87E+00	9.23E+00	4.53E+00	1.03E+01	9.67E-01	1.23E+01	5.22E-01	3.30E+00	6.54E+00	2.10E+00	5.14E+00	1.18E+01	1.44E+01	1.49E+00	2.42E+00	5.56E+00	1.49E+01	3.25E+00	5.62E+00	3.25E+00	3.94E+00	3.71E+00	1.18E-01
Zinc (30)	Zn-69	6.46E+03	1.07E-04	2.07E+02	2.15E+02	1.06E+03	5.22E+02	1.18E+03	1.11E+02	1.41E+03	6.01E+01	3.80E+02	7.53E+02	2.42E+02	5.92E+02	1.36E+03	1.32E+03	1.71E+02	2.79E+02	6.40E+02	1.72E+03	3.74E+02	6.47E+02	3.75E+02	4.53E+02	4.28E+02	1.36E+01
Zinc (30)	Zn-69m	4.41E+02	1.57E-03	1.81E+01	1.88E+01	9.29E+01	4.56E+01	1.03E+02	9.73E+00	1.23E+02	5.25E+00	3.31E+01	6.57E+01	2.11E+01	5.17E+01	1.18E+02	1.15E+02	1.49E+01	2.44E+01	5.59E+01	1.50E+02	3.26E+01	5.65E+01	3.27E+01	3.96E+01	3.73E+01	1.18E+00
Zinc (30)	Zn-71	1.49E+05	4.66E-06	2.77E+01	2.87E+01	1.42E+02	6.97E+01	1.58E+02	1.49E+01	1.89E+02	8.03E+00	5.07E+01	1.01E+02	3.23E+01	7.90E+01	1.81E+02	1.79E+02	2.29E+01	3.73E+01	8.55E+01	2.30E+02	4.99E+01	8.64E+01	5.01E+01	6.06E+01	5.71E+01	1.81E+00
Zinc (30)	Zn-71m	1.53E+03	4.52E-04	2.77E+01	2.87E+01	1.42E+02	6.97E+01	1.58E+02	1.49E+01	1.89E+02	8.03E+00	5.07E+01	1.01E+02	3.23E+01	7.90E+01	1.81E+02	1.79E+02	2.29E+01	3.73E+01	8.55E+01	2.30E+02	4.99E+01	8.64E+01	5.01E+01	6.06E+01	5.71E+01	1.81E+00
Zinc (30)	Zn-72	1.31E+02	5.31E-03	4.39E+00	4.74E+00	2.13E+01	1.10E+01	2.32E+01	2.45E+00	2.83E+01	1.27E+00	7.70E+00	1.48E+01	5.31E+00	1.24E+01	2.66E+01	2.64E+01	3.62E+00	5.91E+00	1.33E+01	3.37E+01	7.06E+00	1.27E+01	7.86E+00	9.60E+00	8.38E+00	2.85E-01
Zirconium (40)	Zr-85	4.63E+04	1.50E-05	6.38E+01	3.09E+01	3.80E+01	1.41E+02	6.17E+01	1.58E+01	5.05E+01	1.85E+01	2.77E+01	3.93E+01	3.38E+01	2.01E+01	7.08E+01	4.71E+01	5.27E+01	8.59E+01	2.17E+01	8.95E+01	2.43E+01	3.38E+01	1.27E+01	1.29E+02	2.23E+01	1.43E+00
Zirconium (40)	Zr-86	3.68E+02	1.88E-03	3.80E+01	9.15E+01	1.09E+02	9.56E+01	1.04E+02	4.74E+01	1.45E+02	1.10E+01	4.31E+01	6.69E+01	9.18E+01	9.66E+01	1.20E+02	1.35E+02	3.14E+01	5.11E+01	1.08E+02	1.50E+02	2.59E+01	5.75E+01	6.06E+01	8.31E+01	3.75E+01	2.28E+00
Zirconium (40)	Zr-87	3.61E+03	1.92E-04	6.65E+01	1.34E+02	1.59E+02	1.66E+02	1.71E+02	6.93E+01	2.11E+02	1.93E+01	6.98E+01	1.10E+02	1.37E+02	1.25E+02	1.98E+02	1.97E+02	5.49E+01	8.95E+01	1.38E+02	2.47E+02	4.47E+01	9.44E+01	7.85E+01	1.45E+02	6.16E+01	3.70E+00
Zirconium (40)	Zr-88	3.03E+00	2.28E-01	4.02E+01	9.93E+01	1.18E+02	1.01E+02	1.13E+02	5.15E+01	1.57E+02	1.17E+01	4.56E+01	7.26E+01	9.96E+01	1.02E+02	1.31E+02	1.46E+02	3.32E+01	5.41E+01	1.14E+02	1.63E+02	2.81E+01	6.24E+01	6.43E+01	8.80E+01	4.07E+01	2.44E+00
Zirconium (40)	Zr-89	7.74E+01	8.95E-03	9.08E+01	2.09E+02	2.45E+02	2.29E+02	2.35E+02	1.07E+02	3.29E+02	2.63E+01	1.03E+02	1.51E+02	2.07E+02	2.31E+02	2.71E+02	3.04E+02	7.49E+01	1.22E+02	2.57E+02	3.39E+02	5.96E+01	1.29E+02	1.45E+02	1.99E+02	8.44E+01	5.31E+00
Zirconium (40)	Zr-89m	8.75E+04	7.92E-06	9.68E+01	2.20E+02	2.61E+02	2.44E+02	2.50E+02	1.14E+02	3.47E+02	2.81E+01	1.10E+02	1.81E+02	2.21E+02	2.46E+02	2.89E+02	3.24E+02	7.99E+01	1.30E+02	2.75E+02	3.81E+02	6.25E+01	1.38E+02	1.54E+02	2.12E+02	9.00E+01	5.66E+00
Zirconium (40)	Zr-93	4.53E-07	1.53E+06	7.78E+01	1.76E+02	2.09E+02	1.96E+02	2.03E+02	9.12E+01	2.78E+02	2.26E+01	8.82E+01	1.30E+02	1.77E+02	1.98E+02	2.35E+02	2.59E+02	6.42E+01	1.05E+02	2.21E+02	2.92E+02	5.08E+01	1.12E+02	1.24E+02	1.70E+02	7.30E+01	4.56E+00
Zirconium (40)	Zr-95	3.95E+00	1.75E-01	4.43E+01	9.96E+01	1.18E+02	1.11E+02	1.17E+02	5.16E+01	1.57E+02	1.28E+01	5.02E+01	7.50E+01	1.00E+02	1.13E+02	1.35E+02	1.47E+02	3.65E+01	5.96E+01	1.26E+02	1.69E+02	2.94E+01	6.45E+01	7.06E+01	9.69E+01	4.21E+01	2.60E+00
Zirconium (40)	Zr-97	3.63E+02	1.91E-03	3.19E+01	7.24E+01	8.62E+01	8.04E+01	8.28E+01	3.75E+01	1.14E+02	9.26E+00	3.62E+01	5.31E+01	7.28E+01	8.11E+01	9.56E+01	1.07E+02	2.64E+01	4.30E+01	9.05E+01	1.19E+02	2.07E+01	4.56E+01	5.09E+01	6.99E+01	2.97E+01	1.87E+00

Composite Worker Soil DCCs July 2023											
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Actinium (89)	Ac-223	1.73E+05	4.00E-06	1.36E+09	1.00E+00	.	.	5.55E+16	5.55E+16	1.00E-08	3.74E+03
Actinium (89)	Ac-224	2.18E+03	3.17E-04	1.36E+09	1.00E+00	1.32E+04	1.68E+06	3.56E+01	3.55E+01	1.00E-08	1.91E-10
Actinium (89)	Ac-225	2.53E+01	2.74E-02	1.36E+09	1.00E+00	2.60E+02	7.46E+03	3.58E+00	3.53E+00	1.00E-08	1.65E-09
Actinium (89)	Ac-226	2.07E+02	3.35E-03	1.36E+09	1.00E+00	1.80E+03	3.33E+05	5.17E+01	5.03E+01	1.00E-08	2.88E-09
Actinium (89)	Ac-227	3.18E-02	2.18E+01	1.36E+09	1.00E+00	9.44E-01	3.50E+01	8.03E-02	7.38E-02	3.05E-01	2.76E-08
Actinium (89)	Ac-228	9.87E+02	7.02E-04	1.36E+09	1.00E+00	9.07E+03	1.87E+05	2.06E+01	2.05E+01	1.00E-08	2.49E-10
Actinium (89)	Ac-230	1.79E+05	3.87E-06	1.36E+09	1.00E+00	3.53E+09	4.51E+11	3.29E+08	3.01E+08	8.93E+03	2.02E-05
Actinium (89)	Ac-231	4.86E+04	1.43E-05	1.36E+09	1.00E+00	5.62E+07	1.98E+10	2.41E+05	2.40E+05	1.00E-08	5.99E-08
Actinium (89)	Ac-232	1.84E+05	3.77E-06	1.36E+09	1.00E+00	1.39E+15	1.13E+17	4.26E+13	4.14E+13	1.77E+02	2.74E+00
Actinium (89)	Ac-233	1.51E+05	4.60E-06	1.36E+09	1.00E+00	6.24E+07	8.91E+10	2.40E+04	2.40E+04	1.00E-08	1.94E-09
Silver (47)	Ag-100m	1.63E+05	4.26E-06	1.36E+09	1.00E+00	4.07E+07	3.27E+11	1.53E+03	1.53E+03	1.00E-08	4.93E-11
Silver (47)	Ag-101	3.28E+04	2.11E-05	1.36E+09	1.00E+00	4.24E+07	2.35E+11	1.64E+03	1.64E+03	1.00E-08	2.65E-10
Silver (47)	Ag-102	2.82E+04	2.45E-05	1.36E+09	1.00E+00	1.16E+17	1.46E+21	9.45E+10	9.45E+10	1.00E-08	1.79E-02
Silver (47)	Ag-102m	4.73E+04	1.46E-05	1.36E+09	1.00E+00	1.64E+17	2.07E+21	1.31E+11	1.31E+11	1.00E-08	1.48E-02
Silver (47)	Ag-103	5.54E+03	1.25E-04	1.36E+09	1.00E+00	9.57E+06	2.82E+10	1.94E+02	1.94E+02	1.00E-08	1.89E-10
Silver (47)	Ag-104	5.26E+03	1.32E-04	1.36E+09	1.00E+00	3.43E+07	3.13E+11	5.40E+01	5.40E+01	1.00E-08	5.59E-11
Silver (47)	Ag-104m	1.09E+04	6.37E-05	1.36E+09	1.00E+00	6.55E+07	8.24E+11	1.66E+02	1.66E+02	1.00E-08	8.30E-11
Silver (47)	Ag-105	6.13E+00	1.13E-01	1.36E+09	1.00E+00	5.32E+03	1.80E+07	3.75E-01	3.75E-01	1.00E-08	3.37E-10
Silver (47)	Ag-105m	5.04E+04	1.38E-05	1.36E+09	1.00E+00	4.39E+07	1.48E+11	3.10E+03	3.10E+03	1.00E-08	3.38E-10
Silver (47)	Ag-106	1.52E+04	4.56E-05	1.36E+09	1.00E+00	9.43E+13	1.12E+18	3.16E+08	3.16E+08	1.00E-08	1.16E-04
Silver (47)	Ag-106m	3.05E+01	2.27E-02	1.36E+09	1.00E+00	8.31E+03	6.39E+07	3.04E-01	3.04E-01	1.00E-08	5.53E-11
Silver (47)	Ag-108	1.54E+05	4.51E-06	1.36E+09	1.00E+00	.	.	1.61E+18	1.61E+18	1.00E-08	5.94E+04
Silver (47)	Ag-108m	1.66E-03	4.18E+02	1.36E+09	1.00E+00	1.70E+02	6.75E+04	1.80E-02	1.80E-02	1.00E-08	6.16E-08
Silver (47)	Ag-109m	5.52E+05	1.26E-06	1.36E+09	1.00E+00	.	.	1.86E+22	1.86E+22	1.00E-08	1.93E+08
Silver (47)	Ag-110	8.88E+05	7.80E-07	1.36E+09	1.00E+00	.	.	1.49E+22	1.49E+22	1.00E-08	9.65E+07
Silver (47)	Ag-110m	1.01E+00	6.84E-01	1.36E+09	1.00E+00	2.26E+02	3.13E+05	1.58E-02	1.58E-02	1.00E-08	9.02E-11
Silver (47)	Ag-111	3.40E+01	2.04E-02	1.36E+09	1.00E+00	1.09E+04	4.76E+07	3.92E+01	3.91E+01	1.00E-08	6.70E-09
Silver (47)	Ag-111m	3.37E+05	2.05E-06	1.36E+09	1.00E+00	1.09E+08	4.76E+11	3.93E+05	3.91E+05	1.00E-08	6.75E-09
Silver (47)	Ag-112	1.94E+03	3.57E-04	1.36E+09	1.00E+00	1.84E+06	2.51E+10	7.38E+01	7.38E+01	1.00E-08	2.24E-10
Silver (47)	Ag-113	1.13E+03	6.13E-04	1.36E+09	1.00E+00	1.10E+06	1.04E+10	4.44E+02	4.44E+02	1.00E-08	2.33E-09
Silver (47)	Ag-113m	3.18E+05	2.18E-06	1.36E+09	1.00E+00	4.81E+08	4.58E+12	1.95E+05	1.94E+05	1.00E-08	3.62E-09
Silver (47)	Ag-114	4.75E+06	1.46E-07	1.36E+09	1.00E+00	.	.	1.03E+26	1.03E+26	1.00E-08	1.30E+11

Composite Worker Soil DCCs July 2023											
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Silver (47)	Ag-115	1.82E+04	3.81E-05	1.36E+09	1.00E+00	4.61E+06	2.85E+10	1.68E+03	1.68E+03	1.00E-08	5.56E-10
Silver (47)	Ag-116	1.36E+05	5.10E-06	1.36E+09	1.00E+00	.	.	2.62E+15	2.62E+15	1.00E-08	1.17E+02
Silver (47)	Ag-117	2.97E+05	2.33E-06	1.36E+09	1.00E+00	2.99E+08	2.63E+12	4.82E+03	4.82E+03	1.00E-08	9.95E-11
Silver (47)	Ag-99	1.76E+05	3.93E-06	1.36E+09	1.00E+00	8.46E+08	5.06E+12	8.10E+03	8.10E+03	1.00E-08	2.39E-10
Aluminum (13)	Al-26	9.67E-07	7.17E+05	1.36E+09	1.00E+00	1.15E+02	2.38E+04	9.81E-03	9.81E-03	1.00E-08	1.38E-05
Aluminum (13)	Al-28	1.63E+05	4.26E-06	1.36E+09	1.00E+00	.	.	2.17E+16	2.17E+16	1.00E-08	1.96E+02
Aluminum (13)	Al-29	5.55E+04	1.25E-05	1.36E+09	1.00E+00	.	.	1.46E+13	1.46E+13	1.00E-08	4.00E-01
Americium (95)	Am-237	4.99E+03	1.39E-04	1.36E+09	1.00E+00	1.54E+07	2.90E+10	4.35E+02	4.35E+02	1.00E-08	1.08E-09
Americium (95)	Am-238	3.72E+03	1.86E-04	1.36E+09	1.00E+00	8.14E+05	1.17E+07	1.19E+02	1.19E+02	1.00E-08	3.98E-10
Americium (95)	Am-239	5.10E+02	1.36E-03	1.36E+09	1.00E+00	8.09E+05	3.70E+08	9.26E+01	9.26E+01	1.00E-08	2.28E-09
Americium (95)	Am-240	1.20E+02	5.80E-03	1.36E+09	1.00E+00	7.72E+04	2.47E+07	3.30E+00	3.30E+00	1.00E-08	3.48E-10
Americium (95)	Am-241	1.60E-03	4.32E+02	1.36E+09	1.00E+00	1.96E+00	2.77E+01	4.36E+00	1.29E+00	1.00E-08	1.02E-05
Americium (95)	Am-242	3.79E+02	1.83E-03	1.36E+09	1.00E+00	1.75E+04	2.25E+05	1.36E+03	1.26E+03	1.00E-08	4.21E-08
Americium (95)	Am-242m	4.91E-03	1.41E+02	1.36E+09	1.00E+00	1.90E+00	2.65E+01	2.64E+00	1.10E+00	2.29E+00	2.83E-06
Americium (95)	Am-243	9.40E-05	7.37E+03	1.36E+09	1.00E+00	1.96E+00	2.79E+01	1.90E-01	1.72E-01	8.36E-02	2.33E-05
Americium (95)	Am-244	6.01E+02	1.15E-03	1.36E+09	1.00E+00	4.74E+04	3.02E+06	2.17E+01	2.17E+01	1.00E-08	4.62E-10
Americium (95)	Am-244m	1.40E+04	4.95E-05	1.36E+09	1.00E+00	1.21E+06	7.04E+07	2.78E+08	1.19E+06	1.00E-08	1.08E-06
Americium (95)	Am-245	2.96E+03	2.34E-04	1.36E+09	1.00E+00	1.49E+07	5.72E+08	3.61E+03	3.61E+03	1.00E-08	1.57E-08
Americium (95)	Am-246	9.34E+03	7.42E-05	1.36E+09	1.00E+00	3.98E+07	1.74E+09	3.84E+02	3.84E+02	1.00E-08	5.31E-10
Americium (95)	Am-246m	1.46E+04	4.76E-05	1.36E+09	1.00E+00	1.93E+08	2.72E+09	9.11E+07	6.05E+07	1.00E-08	5.36E-05
Americium (95)	Am-247	1.58E+04	4.38E-05	1.36E+09	1.00E+00	2.23E+11	3.16E+12	3.76E+09	3.74E+09	1.00E-08	3.06E-03
Argon (18)	Ar-37	7.22E+00	9.60E-02	.	.	.	.	.	.	.	.
Argon (18)	Ar-39	2.58E-03	2.69E+02	1.36E+09	9.00E-01	.	.	2.24E+02	2.24E+02	1.00E-08	1.78E-04
Argon (18)	Ar-41	3.32E+03	2.09E-04	1.36E+09	1.00E+00	.	.	6.79E+01	6.79E+01	1.00E-08	4.39E-11
Argon (18)	Ar-42	2.11E-02	3.29E+01	1.36E+09	9.00E-01	9.25E+02	6.73E+06	8.82E-02	8.82E-02	7.88E-03	9.22E-09
Argon (18)	Ar-43	6.78E+04	1.02E-05	1.36E+09	1.00E+00	1.09E+08	4.25E+11	2.07E+03	2.07E+03	1.00E-08	6.89E-11
Argon (18)	Ar-44	3.07E+04	2.26E-05	1.36E+09	1.00E+00	1.27E+14	1.81E+18	2.79E+08	2.79E+08	1.00E-08	2.10E-05
Arsenic (33)	As-68	1.44E+05	4.81E-06	1.36E+09	1.00E+00	6.88E+07	1.92E+10	7.33E+03	7.33E+03	1.00E-08	1.81E-10
Arsenic (33)	As-69	2.39E+04	2.90E-05	1.36E+09	1.00E+00	4.57E+07	2.21E+11	6.95E+02	6.95E+02	1.00E-08	1.05E-10
Arsenic (33)	As-70	6.92E+03	1.00E-04	1.36E+09	1.00E+00	2.02E+07	2.18E+11	4.42E+01	4.42E+01	1.00E-08	2.34E-11
Arsenic (33)	As-71	9.30E+01	7.45E-03	1.36E+09	1.00E+00	7.95E+04	5.58E+08	4.98E+00	4.98E+00	1.00E-08	1.99E-10
Arsenic (33)	As-72	2.33E+02	2.97E-03	1.36E+09	1.00E+00	5.05E+04	5.57E+08	3.70E+00	3.70E+00	1.00E-08	5.98E-11



Composite Worker Soil DCCs July 2023											
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Arsenic (33)	As-73	3.15E+00	2.20E-01	1.36E+09	1.00E+00	5.08E+03	5.89E+06	6.83E+01	6.74E+01	1.00E-08	8.19E-08
Arsenic (33)	As-74	1.42E+01	4.87E-02	1.36E+09	1.00E+00	4.45E+03	1.39E+07	5.47E-01	5.46E-01	1.00E-08	1.49E-10
Arsenic (33)	As-76	2.35E+02	2.95E-03	1.36E+09	1.00E+00	5.91E+04	7.00E+08	1.55E+01	1.55E+01	1.00E-08	2.64E-10
Arsenic (33)	As-77	1.56E+02	4.43E-03	1.36E+09	1.00E+00	1.58E+05	8.80E+08	5.90E+02	5.88E+02	1.00E-08	1.52E-08
Arsenic (33)	As-78	4.02E+03	1.73E-04	1.36E+09	1.00E+00	8.16E+06	1.01E+11	8.18E+01	8.18E+01	1.00E-08	8.33E-11
Arsenic (33)	As-79	4.04E+04	1.71E-05	1.36E+09	1.00E+00	2.51E+12	6.90E+15	1.23E+14	2.46E+12	1.00E-08	2.52E-01
Astatine (85)	At-204	3.96E+04	1.75E-05	1.36E+09	1.00E+00	1.95E+07	1.28E+11	2.71E+02	2.71E+02	1.00E-08	7.33E-11
Astatine (85)	At-205	1.39E+04	4.98E-05	1.36E+09	1.00E+00	6.10E+06	3.15E+10	1.19E+02	1.19E+02	1.00E-08	9.18E-11
Astatine (85)	At-206	1.19E+04	5.82E-05	1.36E+09	1.00E+00	2.59E+05	4.47E+08	7.88E+01	7.88E+01	1.00E-08	7.15E-11
Astatine (85)	At-207	3.37E+03	2.05E-04	1.36E+09	1.00E+00	3.24E+06	2.75E+09	2.73E+01	2.73E+01	1.00E-08	8.80E-11
Astatine (85)	At-208	3.72E+03	1.86E-04	1.36E+09	1.00E+00	4.63E+03	6.45E+06	3.43E+01	3.40E+01	1.00E-08	9.96E-11
Astatine (85)	At-209	1.12E+03	6.18E-04	1.36E+09	1.00E+00	4.39E+04	4.40E+07	1.38E+01	1.38E+01	1.00E-08	1.35E-10
Astatine (85)	At-210	7.49E+02	9.25E-04	1.36E+09	1.00E+00	2.96E+02	5.18E+05	6.80E+00	6.65E+00	1.00E-08	9.77E-11
Astatine (85)	At-211	8.42E+02	8.24E-04	1.36E+09	1.00E+00	3.09E+04	1.76E+07	6.81E+02	6.67E+02	1.00E-08	8.77E-09
Astatine (85)	At-215	2.19E+11	3.17E-12	1.36E+09	1.00E+00	.	.	1.11E+23	1.11E+23	1.00E-08	5.75E+03
Astatine (85)	At-216	7.28E+10	9.51E-12	1.36E+09	1.00E+00	4.56E+15	4.90E+17	5.47E+10	5.47E+10	1.00E-08	8.50E-09
Astatine (85)	At-217	6.77E+08	1.02E-09	1.36E+09	1.00E+00	5.03E+12	9.60E+15	2.69E+10	2.67E+10	1.00E-08	4.49E-07
Astatine (85)	At-218	1.46E+07	4.76E-08	1.36E+09	9.00E-01	1.05E+08	1.25E+11	1.01E+10	1.04E+08	1.61E+00	8.16E-08
Astatine (85)	At-219	3.90E+05	1.78E-06	.	.	.	.	.	.	.	.
Astatine (85)	At-220	9.82E+04	7.06E-06	1.36E+09	1.00E+00	6.23E+06	2.18E+09	1.76E+03	1.76E+03	1.00E-08	2.07E-10
Gold (79)	Au-186	3.40E+04	2.04E-05	1.36E+09	1.00E+00	3.52E+07	3.13E+11	4.19E+02	4.19E+02	1.00E-08	1.20E-10
Gold (79)	Au-187	4.34E+04	1.60E-05	1.36E+09	1.00E+00	8.61E+07	6.78E+11	1.50E+03	1.50E+03	1.00E-08	3.40E-10
Gold (79)	Au-190	8.51E+03	8.14E-05	1.36E+09	1.00E+00	7.97E+07	7.98E+11	9.37E+01	9.37E+01	1.00E-08	1.10E-10
Gold (79)	Au-191	1.91E+03	3.63E-04	1.36E+09	1.00E+00	1.73E+06	1.05E+10	7.40E+01	7.40E+01	1.00E-08	3.88E-10
Gold (79)	Au-192	1.23E+03	5.64E-04	1.36E+09	1.00E+00	2.83E+06	2.91E+10	1.69E+01	1.69E+01	1.00E-08	1.38E-10
Gold (79)	Au-193	3.44E+02	2.01E-03	1.36E+09	1.00E+00	1.06E+06	7.03E+09	9.33E+01	9.33E+01	1.00E-08	2.74E-09
Gold (79)	Au-193m	5.60E+06	1.24E-07	1.36E+09	1.00E+00	1.73E+10	1.14E+14	1.52E+06	1.52E+06	1.00E-08	2.75E-09
Gold (79)	Au-194	1.60E+02	4.34E-03	1.36E+09	1.00E+00	1.56E+05	1.56E+09	4.33E+00	4.33E+00	1.00E-08	2.76E-10
Gold (79)	Au-195	1.36E+00	5.10E-01	1.36E+09	1.00E+00	2.76E+03	2.49E+06	1.65E+00	1.65E+00	1.00E-08	1.24E-08
Gold (79)	Au-195m	7.17E+05	9.67E-07	1.36E+09	1.00E+00	1.46E+09	1.31E+12	8.71E+05	8.71E+05	1.00E-08	1.24E-08
Gold (79)	Au-196	4.09E+01	1.69E-02	1.36E+09	1.00E+00	4.61E+04	2.97E+08	2.89E+00	2.89E+00	1.00E-08	7.25E-10
Gold (79)	Au-196m	6.32E+02	1.10E-03	1.36E+09	1.00E+00	3.40E+05	1.97E+09	3.20E+01	3.20E+01	1.00E-08	5.19E-10

Composite Worker Soil DCCs July 2023											
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Gold (79)	Au-198	9.39E+01	7.38E-03	1.36E+09	1.00E+00	3.65E+04	2.59E+08	7.08E+00	7.08E+00	1.00E-08	7.83E-10
Gold (79)	Au-198m	1.11E+02	6.22E-03	1.36E+09	1.00E+00	1.99E+04	9.99E+07	4.13E+00	4.13E+00	1.00E-08	3.85E-10
Gold (79)	Au-199	8.06E+01	8.60E-03	1.36E+09	1.00E+00	7.18E+04	2.44E+08	3.41E+01	3.41E+01	1.00E-08	4.42E-09
Gold (79)	Au-200	7.53E+03	9.21E-05	1.36E+09	1.00E+00	4.47E+07	4.94E+11	7.43E+02	7.43E+02	1.00E-08	1.04E-09
Gold (79)	Au-200m	3.25E+02	2.13E-03	1.36E+09	1.00E+00	1.27E+05	1.10E+09	4.78E+00	4.78E+00	1.00E-08	1.55E-10
Gold (79)	Au-201	1.40E+04	4.95E-05	1.36E+09	1.00E+00	3.32E+13	2.70E+17	1.73E+09	1.73E+09	1.00E-08	1.30E-03
Gold (79)	Au-202	7.59E+05	9.13E-07	1.36E+09	1.00E+00	.	.	2.32E+21	2.32E+21	1.00E-08	3.24E+07
Barium (56)	Ba-124	3.31E+04	2.09E-05	1.36E+09	1.00E+00	2.91E+17	5.05E+21	8.15E+11	8.15E+11	1.00E-08	1.60E-01
Barium (56)	Ba-126	3.64E+03	1.90E-04	1.36E+09	1.00E+00	5.74E+06	7.45E+10	6.15E+01	6.15E+01	1.00E-08	1.12E-10
Barium (56)	Ba-127	2.87E+04	2.42E-05	1.36E+09	1.00E+00	4.61E+08	1.65E+12	1.36E+03	1.36E+03	1.00E-08	3.16E-10
Barium (56)	Ba-128	1.04E+02	6.66E-03	1.36E+09	1.00E+00	1.52E+04	1.72E+08	3.28E+00	3.28E+00	1.00E-08	2.11E-10
Barium (56)	Ba-129	2.72E+03	2.55E-04	1.36E+09	1.00E+00	9.96E+06	5.78E+10	1.44E+02	1.44E+02	1.00E-08	3.58E-10
Barium (56)	Ba-129m	2.81E+03	2.47E-04	1.36E+09	1.00E+00	8.48E+06	5.12E+10	4.41E+01	4.41E+01	1.00E-08	1.06E-10
Barium (56)	Ba-131	2.20E+01	3.15E-02	1.36E+09	1.00E+00	1.69E+04	5.93E+07	1.52E+00	1.52E+00	1.00E-08	4.75E-10
Barium (56)	Ba-131m	2.49E+04	2.78E-05	1.36E+09	1.00E+00	1.91E+07	6.72E+10	1.72E+03	1.72E+03	1.00E-08	4.75E-10
Barium (56)	Ba-133	6.59E-02	1.05E+01	1.36E+09	1.00E+00	2.68E+02	2.51E+05	9.19E-02	9.19E-02	1.00E-08	9.73E-09
Barium (56)	Ba-133m	1.56E+02	4.44E-03	1.36E+09	1.00E+00	9.61E+04	3.39E+08	6.85E+01	6.84E+01	1.00E-08	3.06E-09
Barium (56)	Ba-135m	2.12E+02	3.28E-03	1.36E+09	1.00E+00	1.95E+05	1.38E+09	1.58E+02	1.58E+02	1.00E-08	5.29E-09
Barium (56)	Ba-137m	1.43E+05	4.86E-06	1.36E+09	1.00E+00	.	.	1.30E+16	1.30E+16	1.00E-08	6.55E+02
Barium (56)	Ba-139	4.39E+03	1.58E-04	1.36E+09	1.00E+00	1.44E+07	1.70E+11	3.02E+03	3.02E+03	1.00E-08	5.02E-09
Barium (56)	Ba-140	1.98E+01	3.49E-02	1.36E+09	1.00E+00	1.71E+03	6.85E+06	2.11E-01	2.11E-01	1.00E-08	7.82E-11
Barium (56)	Ba-141	1.99E+04	3.48E-05	1.36E+09	1.00E+00	7.35E+06	1.26E+10	6.41E+03	6.40E+03	1.00E-08	2.37E-09
Barium (56)	Ba-142	3.44E+04	2.02E-05	1.36E+09	1.00E+00	7.86E+07	8.73E+11	3.63E+02	3.63E+02	1.00E-08	7.86E-11
Beryllium (4)	Be-10	4.59E-07	1.51E+06	1.36E+09	9.00E-01	3.51E+02	7.43E+04	1.78E+02	1.18E+02	1.00E-08	1.34E-01
Beryllium (4)	Be-7	4.75E+00	1.46E-01	1.36E+09	1.00E+00	6.85E+04	2.04E+08	2.87E+00	2.87E+00	1.00E-08	2.22E-10
Bismuth (83)	Bi-197	3.92E+04	1.77E-05	1.36E+09	1.00E+00	5.35E+07	2.08E+10	1.20E+03	1.20E+03	1.00E-08	3.16E-10
Bismuth (83)	Bi-200	1.00E+04	6.93E-05	1.36E+09	1.00E+00	6.21E+06	4.10E+10	7.48E+01	7.48E+01	1.00E-08	7.84E-11
Bismuth (83)	Bi-201	3.37E+03	2.05E-04	1.36E+09	1.00E+00	3.56E+06	2.03E+10	3.55E+01	3.55E+01	1.00E-08	1.11E-10
Bismuth (83)	Bi-202	3.53E+03	1.96E-04	1.36E+09	1.00E+00	1.40E+07	1.26E+11	3.62E+01	3.62E+01	1.00E-08	1.09E-10
Bismuth (83)	Bi-203	5.16E+02	1.34E-03	1.36E+09	1.00E+00	2.77E+05	2.34E+09	5.29E+00	5.29E+00	1.00E-08	1.09E-10
Bismuth (83)	Bi-204	5.41E+02	1.28E-03	1.36E+09	1.00E+00	3.73E+05	3.83E+09	4.84E+00	4.84E+00	1.00E-08	9.56E-11
Bismuth (83)	Bi-205	1.65E+01	4.19E-02	1.36E+09	1.00E+00	7.22E+03	3.65E+07	2.63E-01	2.63E-01	1.00E-08	1.71E-10

Composite Worker Soil DCCs July 2023											
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Bismuth (83)	Bi-206	4.05E+01	1.71E-02	1.36E+09	1.00E+00	8.31E+03	5.12E+07	3.45E-01	3.45E-01	1.00E-08	9.19E-11
Bismuth (83)	Bi-207	2.11E-02	3.29E+01	1.36E+09	1.00E+00	3.16E+02	6.73E+04	1.86E-02	1.86E-02	1.00E-08	9.57E-09
Bismuth (83)	Bi-208	1.88E-06	3.68E+05	1.36E+09	1.00E+00	3.45E+02	7.10E+04	9.18E-03	9.18E-03	1.00E-08	5.32E-05
Bismuth (83)	Bi-210	5.05E+01	1.37E-02	1.36E+09	1.00E+00	2.00E+01	3.39E+04	1.48E+03	1.97E+01	1.00E-08	4.30E-09
Bismuth (83)	Bi-210m	2.28E-07	3.04E+06	1.36E+09	1.00E+00	2.67E+01	2.54E+02	1.24E-01	1.23E-01	1.00E-08	5.94E-03
Bismuth (83)	Bi-211	1.70E+05	4.07E-06	1.36E+09	1.00E+00	.	.	8.67E+16	8.67E+16	1.00E-08	5.64E+03
Bismuth (83)	Bi-212	6.02E+03	1.15E-04	1.36E+09	1.00E+00	9.22E+06	9.91E+08	1.16E+02	1.16E+02	1.00E-08	2.14E-10
Bismuth (83)	Bi-212n	5.20E+04	1.33E-05	1.36E+09	9.00E-01	.	.	2.64E+14	2.64E+14	1.00E-08	5.64E+01
Bismuth (83)	Bi-213	7.99E+03	8.67E-05	1.36E+09	1.00E+00	1.26E+07	6.11E+08	1.35E+03	1.35E+03	1.00E-08	1.89E-09
Bismuth (83)	Bi-214	1.83E+04	3.79E-05	1.36E+09	1.00E+00	1.32E+05	1.57E+08	1.27E+07	1.31E+05	1.61E+00	8.01E-08
Bismuth (83)	Bi-215	4.79E+04	1.45E-05	1.36E+09	1.00E+00	1.08E+08	9.58E+09	1.23E+04	1.23E+04	1.00E-08	2.89E-09
Bismuth (83)	Bi-216	1.68E+05	4.13E-06	1.36E+09	1.00E+00	1.07E+07	3.74E+09	3.01E+03	3.01E+03	1.00E-08	2.03E-10
Berkelium (97)	Bk-245	5.12E+01	1.35E-02	1.36E+09	1.00E+00	3.44E+04	9.90E+06	9.18E+00	9.18E+00	1.00E-08	2.30E-09
Berkelium (97)	Bk-246	1.41E+02	4.93E-03	1.36E+09	1.00E+00	1.17E+05	2.59E+07	4.80E+00	4.80E+00	1.00E-08	4.41E-10
Berkelium (97)	Bk-247	5.02E-04	1.38E+03	1.36E+09	1.00E+00	1.14E+00	1.54E+01	2.74E-01	2.18E-01	1.00E-08	5.62E-06
Berkelium (97)	Bk-248m	2.56E+02	2.71E-03	1.36E+09	1.00E+00	8.62E+03	2.10E+05	1.76E+02	1.72E+02	1.00E-08	8.74E-09
Berkelium (97)	Bk-249	7.67E-01	9.04E-01	1.36E+09	1.00E+00	4.14E+02	5.97E+03	3.79E+01	3.47E+01	7.22E+00	5.92E-07
Berkelium (97)	Bk-250	1.89E+03	3.67E-04	1.36E+09	1.00E+00	8.95E+04	6.38E+06	5.75E+01	5.75E+01	1.00E-08	3.99E-10
Berkelium (97)	Bk-251	6.55E+03	1.06E-04	1.36E+09	1.00E+00	8.36E+06	1.28E+08	3.42E+03	3.42E+03	1.00E-08	6.87E-09
Bromine (35)	Br-72	2.78E+05	2.49E-06	1.36E+09	1.00E+00	1.59E+07	1.43E+11	4.39E+03	4.39E+03	1.00E-08	5.96E-11
Bromine (35)	Br-73	1.07E+05	6.47E-06	1.36E+09	1.00E+00	1.01E+08	1.75E+11	3.09E+03	3.09E+03	1.00E-08	1.10E-10
Bromine (35)	Br-74	1.43E+04	4.83E-05	1.36E+09	1.00E+00	1.42E+13	1.66E+17	1.59E+07	1.59E+07	1.00E-08	4.31E-06
Bromine (35)	Br-74m	7.92E+03	8.75E-05	1.36E+09	1.00E+00	2.35E+07	2.67E+11	5.05E+01	5.05E+01	1.00E-08	2.48E-11
Bromine (35)	Br-75	3.77E+03	1.84E-04	1.36E+09	1.00E+00	6.42E+05	7.58E+09	7.56E+01	7.56E+01	1.00E-08	7.90E-11
Bromine (35)	Br-76	3.75E+02	1.85E-03	1.36E+09	1.00E+00	3.24E+05	2.00E+09	3.54E+00	3.54E+00	1.00E-08	3.77E-11
Bromine (35)	Br-76m	1.67E+07	4.15E-08	1.36E+09	1.00E+00	1.45E+10	8.94E+13	1.58E+05	1.58E+05	1.00E-08	3.78E-11
Bromine (35)	Br-77	1.06E+02	6.51E-03	1.36E+09	1.00E+00	4.35E+05	2.70E+09	1.02E+01	1.02E+01	1.00E-08	3.88E-10
Bromine (35)	Br-77m	8.51E+04	8.14E-06	1.36E+09	1.00E+00	3.48E+08	2.16E+12	8.16E+03	8.16E+03	1.00E-08	3.87E-10
Bromine (35)	Br-78	5.64E+04	1.23E-05	1.36E+09	1.00E+00	.	.	2.42E+13	2.42E+13	1.00E-08	1.75E+00
Bromine (35)	Br-80	2.06E+04	3.36E-05	1.36E+09	1.00E+00	1.81E+16	2.21E+20	5.08E+11	5.08E+11	1.00E-08	1.03E-01
Bromine (35)	Br-80m	1.37E+03	5.05E-04	1.36E+09	1.00E+00	3.76E+06	2.62E+10	4.87E+02	4.87E+02	1.00E-08	1.49E-09
Bromine (35)	Br-82	1.72E+02	4.03E-03	1.36E+09	1.00E+00	1.25E+05	6.06E+08	1.80E+00	1.80E+00	1.00E-08	4.51E-11

Composite Worker Soil DCCs July 2023											
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Bromine (35)	Br-82m	5.94E+04	1.17E-05	1.36E+09	1.00E+00	4.43E+07	2.14E+11	6.37E+02	6.37E+02	1.00E-08	4.61E-11
Bromine (35)	Br-83	2.53E+03	2.74E-04	1.36E+09	1.00E+00	2.28E+07	1.14E+11	9.97E+03	9.97E+03	1.00E-08	1.72E-08
Bromine (35)	Br-84	1.15E+04	6.05E-05	1.36E+09	1.00E+00	5.19E+07	6.74E+11	1.62E+02	1.62E+02	1.00E-08	6.24E-11
Bromine (35)	Br-84m	6.07E+04	1.14E-05	1.36E+09	1.00E+00	.	.	2.86E+13	2.86E+13	1.00E-08	2.08E+00
Bromine (35)	Br-85	1.26E+05	5.52E-06	1.36E+09	1.00E+00	.	.	2.91E+04	2.91E+04	1.00E-08	1.03E-09
Carbon (6)	C-10	1.14E+06	6.11E-07	1.36E+09	1.00E+00	.	.	1.68E+21	1.68E+21	1.00E-08	7.75E+05
Carbon (6)	C-11	1.79E+04	3.88E-05	1.36E+09	9.00E-01	2.77E+15	2.04E+19	5.25E+09	5.25E+09	1.00E-08	1.69E-04
Carbon (6)	C-14	1.22E-04	5.70E+03	1.36E+09	9.00E-01	6.89E+02	4.42E+05	1.63E+04	6.60E+02	1.00E-08	3.98E-03
Calcium (20)	Ca-41	6.79E-06	1.02E+05	1.36E+09	1.00E+00	1.76E+03	1.18E+07	.	1.76E+03	1.00E-08	5.58E-01
Calcium (20)	Ca-45	1.55E+00	4.46E-01	1.36E+09	1.00E+00	1.11E+03	1.34E+06	5.98E+03	9.37E+02	1.00E-08	1.42E-06
Calcium (20)	Ca-47	5.58E+01	1.24E-02	1.36E+09	1.00E+00	1.04E+04	4.75E+07	1.30E+00	1.30E+00	1.00E-08	5.77E-11
Calcium (20)	Ca-49	4.18E+04	1.66E-05	1.36E+09	1.00E+00	2.06E+08	2.43E+12	1.88E+05	1.88E+05	1.00E-08	1.15E-08
Cadmium (48)	Cd-101	2.68E+05	2.59E-06	1.36E+09	1.00E+00	3.43E+08	1.91E+12	1.32E+04	1.32E+04	1.00E-08	2.61E-10
Cadmium (48)	Cd-102	6.62E+04	1.05E-05	1.36E+09	1.00E+00	1.36E+17	1.72E+21	1.07E+11	1.07E+11	1.00E-08	8.61E-03
Cadmium (48)	Cd-103	4.99E+04	1.39E-05	1.36E+09	1.00E+00	8.61E+07	2.54E+11	1.74E+03	1.74E+03	1.00E-08	1.89E-10
Cadmium (48)	Cd-104	6.31E+03	1.10E-04	1.36E+09	1.00E+00	1.51E+07	1.82E+11	8.64E+01	8.64E+01	1.00E-08	7.47E-11
Cadmium (48)	Cd-105	6.56E+03	1.06E-04	1.36E+09	1.00E+00	5.23E+06	1.87E+10	1.01E+02	1.01E+02	1.00E-08	8.51E-11
Cadmium (48)	Cd-107	9.34E+02	7.42E-04	1.36E+09	1.00E+00	5.98E+06	2.78E+10	3.57E+03	3.57E+03	1.00E-08	2.14E-08
Cadmium (48)	Cd-109	5.48E-01	1.26E+00	1.36E+09	1.00E+00	2.60E+02	5.12E+05	1.73E+01	1.62E+01	1.00E-08	1.69E-07
Cadmium (48)	Cd-111m	7.51E+03	9.23E-05	1.36E+09	1.00E+00	2.18E+08	7.68E+11	9.28E+02	9.28E+02	1.00E-08	7.20E-10
Cadmium (48)	Cd-113	9.00E-17	7.70E+15	1.36E+09	9.00E-01	1.63E+01	2.19E+04	1.87E+03	1.62E+01	5.26E-04	1.06E+09
Cadmium (48)	Cd-113m	4.91E-02	1.41E+01	1.36E+09	1.00E+00	1.75E+01	2.38E+04	1.85E+02	1.60E+01	1.00E-08	1.93E-06
Cadmium (48)	Cd-115	1.14E+02	6.10E-03	1.36E+09	1.00E+00	3.07E+04	2.33E+08	9.93E+00	9.93E+00	1.00E-08	5.27E-10
Cadmium (48)	Cd-115m	5.67E+00	1.22E-01	1.36E+09	1.00E+00	6.92E+02	1.82E+06	4.33E+00	4.30E+00	1.00E-08	4.58E-09
Cadmium (48)	Cd-117	2.44E+03	2.84E-04	1.36E+09	1.00E+00	2.39E+06	2.15E+10	4.51E+01	4.51E+01	1.00E-08	1.13E-10
Cadmium (48)	Cd-117m	1.81E+03	3.84E-04	1.36E+09	1.00E+00	2.27E+06	1.69E+10	1.78E+01	1.78E+01	1.00E-08	6.05E-11
Cadmium (48)	Cd-118	7.24E+03	9.57E-05	1.36E+09	9.00E-01	1.57E+07	2.05E+11	1.87E+03	1.87E+03	1.00E-08	1.60E-09
Cadmium (48)	Cd-119	1.35E+05	5.12E-06	1.36E+09	1.00E+00	1.87E+11	1.19E+14	9.70E+09	9.22E+09	1.00E-08	4.25E-04
Cadmium (48)	Cd-119m	1.66E+05	4.19E-06	1.36E+09	1.00E+00	3.43E+10	2.17E+13	1.79E+09	1.70E+09	1.00E-08	6.40E-05
Cerium (58)	Ce-130	1.59E+04	4.36E-05	1.36E+09	1.00E+00	9.19E+13	1.04E+18	1.14E+08	1.14E+08	1.00E-08	4.89E-05
Cerium (58)	Ce-131	3.57E+04	1.94E-05	1.36E+09	1.00E+00	2.58E+07	9.36E+10	1.00E+03	1.00E+03	1.00E-08	1.93E-10
Cerium (58)	Ce-132	1.73E+03	4.01E-04	1.36E+09	1.00E+00	9.34E+05	1.20E+10	2.17E+01	2.17E+01	1.00E-08	8.67E-11



Composite Worker Soil DCCs July 2023											
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Cerium (58)	Ce-133	3.76E+03	1.85E-04	1.36E+09	1.00E+00	6.88E+06	1.28E+10	1.73E+02	1.73E+02	1.00E-08	3.21E-10
Cerium (58)	Ce-133m	1.24E+03	5.59E-04	1.36E+09	1.00E+00	1.45E+06	3.85E+09	1.85E+01	1.85E+01	1.00E-08	1.04E-10
Cerium (58)	Ce-134	8.00E+01	8.66E-03	1.36E+09	1.00E+00	1.20E+04	1.27E+08	3.24E+00	3.24E+00	1.00E-08	2.85E-10
Cerium (58)	Ce-135	3.43E+02	2.02E-03	1.36E+09	1.00E+00	4.65E+05	5.00E+09	1.25E+01	1.25E+01	1.00E-08	2.59E-10
Cerium (58)	Ce-137	6.75E+02	1.03E-03	1.36E+09	1.00E+00	1.02E+07	1.35E+11	1.51E+03	1.51E+03	1.00E-08	1.61E-08
Cerium (58)	Ce-137m	1.76E+02	3.93E-03	1.36E+09	1.00E+00	1.22E+05	8.99E+08	1.10E+02	1.10E+02	1.00E-08	4.47E-09
Cerium (58)	Ce-139	1.84E+00	3.77E-01	1.36E+09	1.00E+00	3.31E+03	2.79E+06	6.12E-01	6.12E-01	1.00E-08	2.43E-09
Cerium (58)	Ce-141	7.78E+00	8.91E-02	1.36E+09	1.00E+00	4.36E+03	5.14E+06	4.33E+00	4.33E+00	1.00E-08	4.11E-09
Cerium (58)	Ce-143	1.84E+02	3.77E-03	1.36E+09	1.00E+00	3.20E+04	1.36E+08	2.18E+01	2.18E+01	1.00E-08	8.90E-10
Cerium (58)	Ce-144	8.88E-01	7.81E-01	1.36E+09	1.00E+00	1.14E+02	7.12E+04	7.89E-01	7.84E-01	1.41E-05	6.67E-09
Cerium (58)	Ce-145	1.21E+05	5.73E-06	1.36E+09	1.00E+00	1.23E+08	1.64E+12	1.55E+05	1.54E+05	1.00E-08	9.71E-09
Californium (98)	Cf-244	1.88E+04	3.69E-05	1.36E+09	1.00E+00	2.97E+05	8.46E+06	3.87E+04	3.78E+04	1.71E+01	2.58E-08
Californium (98)	Cf-246	1.70E+02	4.08E-03	1.36E+09	1.00E+00	5.09E+03	7.64E+04	7.08E+04	4.47E+03	1.00E-08	3.39E-07
Californium (98)	Cf-247	1.95E+03	3.55E-04	1.36E+09	1.00E+00	3.93E+06	5.97E+07	9.78E+02	9.78E+02	1.00E-08	6.49E-09
Californium (98)	Cf-248	7.57E-01	9.15E-01	1.36E+09	1.00E+00	1.85E+01	4.35E+02	1.07E+02	1.52E+01	1.00E-08	2.61E-07
Californium (98)	Cf-249	1.97E-03	3.51E+02	1.36E+09	1.00E+00	1.14E+00	1.53E+01	9.62E-02	8.82E-02	1.00E-08	5.83E-07
Californium (98)	Cf-250	5.30E-02	1.31E+01	1.36E+09	1.00E+00	2.55E+00	1.79E+02	2.72E+00	1.31E+00	1.00E-08	3.24E-07
Californium (98)	Cf-251	7.70E-04	9.00E+02	1.36E+09	1.00E+00	1.12E+00	1.50E+01	3.51E-01	2.63E-01	1.00E-08	4.49E-06
Californium (98)	Cf-252	2.62E-01	2.65E+00	1.36E+09	1.00E+00	5.02E+00	2.02E+02	6.49E-02	6.40E-02	1.00E-08	3.23E-09
Californium (98)	Cf-253	1.42E+01	4.88E-02	1.36E+09	1.00E+00	6.97E+02	7.06E+03	6.97E+02	3.32E+02	1.00E-08	3.10E-07
Californium (98)	Cf-254	4.18E+00	1.66E-01	1.36E+09	1.00E+00	4.22E+00	2.40E+02	6.57E-03	6.56E-03	1.00E-08	2.09E-11
Californium (98)	Cf-255	4.29E+03	1.62E-04	1.36E+09	9.00E-01	2.00E+05	2.17E+06	1.97E+04	1.78E+04	1.00E-08	5.55E-08
Chlorine (17)	Cl-34	1.43E+07	4.84E-08	1.36E+09	1.00E+00	.	.	1.83E+28	1.83E+28	7.94E-06	2.28E+12
Chlorine (17)	Cl-34m	1.14E+04	6.09E-05	1.36E+09	1.00E+00	4.38E+07	5.63E+11	1.40E+02	1.40E+02	1.00E-08	2.19E-11
Chlorine (17)	Cl-36	2.30E-06	3.01E+05	1.36E+09	1.00E+00	4.31E+02	6.81E+04	6.67E+01	5.77E+01	1.00E-08	4.73E-02
Chlorine (17)	Cl-38	9.78E+03	7.09E-05	1.36E+09	1.00E+00	3.35E+07	4.67E+11	1.66E+02	1.66E+02	1.00E-08	3.38E-11
Chlorine (17)	Cl-39	6.55E+03	1.06E-04	1.36E+09	1.00E+00	3.08E+07	3.08E+11	1.19E+02	1.19E+02	1.00E-08	3.72E-11
Chlorine (17)	Cl-40	2.70E+05	2.57E-06	1.36E+09	1.00E+00	.	.	9.56E+16	9.56E+16	1.00E-08	7.43E+02
Curium (96)	Cm-238	2.53E+03	2.74E-04	1.36E+09	1.00E+00	4.91E+05	7.85E+06	7.60E+01	7.60E+01	1.00E-08	3.75E-10
Curium (96)	Cm-239	2.09E+03	3.31E-04	1.36E+09	1.00E+00	2.51E+06	1.49E+09	1.77E+02	1.77E+02	1.00E-08	1.06E-09
Curium (96)	Cm-240	9.37E+00	7.40E-02	1.36E+09	1.00E+00	1.48E+02	4.22E+03	1.93E+01	1.89E+01	1.71E+01	2.54E-08
Curium (96)	Cm-241	7.71E+00	8.99E-02	1.36E+09	1.00E+00	2.56E+03	1.19E+05	5.11E-01	5.11E-01	1.00E-08	8.37E-10

Composite Worker Soil DCCs July 2023											
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Curium (96)	Cm-242	1.55E+00	4.46E-01	1.36E+09	1.00E+00	6.15E+01	7.64E+02	2.47E+03	5.56E+01	1.00E-08	4.54E-07
Curium (96)	Cm-243	2.38E-02	2.91E+01	1.36E+09	1.00E+00	2.70E+00	1.76E+02	3.06E-01	2.74E-01	1.00E-08	1.47E-07
Curium (96)	Cm-244	3.83E-02	1.81E+01	1.36E+09	1.00E+00	3.31E+00	1.92E+02	8.26E+02	3.25E+00	1.00E-08	1.08E-06
Curium (96)	Cm-245	8.15E-05	8.50E+03	1.36E+09	1.00E+00	1.12E+00	1.58E+01	4.52E-01	3.21E-01	1.02E+03	5.05E-05
Curium (96)	Cm-246	1.46E-04	4.76E+03	1.36E+09	1.00E+00	1.93E+00	2.72E+01	7.17E+00	1.44E+00	1.00E-08	1.28E-04
Curium (96)	Cm-247	4.44E-08	1.56E+07	1.36E+09	1.00E+00	6.25E-01	8.85E+00	6.31E-02	5.71E-02	1.26E+05	1.67E-02
Curium (96)	Cm-248	1.99E-06	3.48E+05	1.36E+09	1.00E+00	5.16E-01	7.39E+00	1.99E-02	1.91E-02	1.00E-08	1.25E-04
Curium (96)	Cm-249	5.68E+03	1.22E-04	1.36E+09	1.00E+00	2.94E+06	4.42E+07	8.48E+03	8.45E+03	1.00E-08	1.94E-08
Curium (96)	Cm-250	8.35E-05	8.30E+03	1.36E+09	1.00E+00	7.55E-02	1.08E+00	1.92E-03	1.87E-03	2.19E-01	2.93E-07
Curium (96)	Cm-251	2.17E+04	3.20E-05	1.36E+09	1.00E+00	2.77E+07	4.23E+08	1.13E+04	1.13E+04	1.00E-08	6.87E-09
Cobalt (27)	Co-54m	2.46E+05	2.82E-06	1.36E+09	1.00E+00	.	.	2.40E+17	2.40E+17	1.00E-08	2.76E+03
Cobalt (27)	Co-55	3.46E+02	2.00E-03	1.36E+09	1.00E+00	1.26E+05	1.11E+09	4.86E+00	4.86E+00	1.00E-08	4.05E-11
Cobalt (27)	Co-56	3.28E+00	2.12E-01	1.36E+09	1.00E+00	5.38E+02	1.25E+06	2.42E-02	2.42E-02	1.00E-08	2.17E-11
Cobalt (27)	Co-57	9.31E-01	7.44E-01	1.36E+09	1.00E+00	2.91E+03	3.73E+06	5.46E-01	5.46E-01	1.00E-08	1.75E-09
Cobalt (27)	Co-58	3.57E+00	1.94E-01	1.36E+09	1.00E+00	1.96E+03	4.27E+06	1.06E-01	1.06E-01	1.00E-08	9.05E-11
Cobalt (27)	Co-58m	6.72E+02	1.03E-03	1.36E+09	1.00E+00	3.58E+05	7.96E+08	2.00E+01	2.00E+01	4.22E-05	9.05E-11
Cobalt (27)	Co-60	1.31E-01	5.27E+00	1.36E+09	1.00E+00	1.25E+02	8.79E+04	1.12E-02	1.12E-02	1.00E-08	2.69E-10
Cobalt (27)	Co-60m	3.48E+04	1.99E-05	1.36E+09	1.00E+00	3.31E+07	2.33E+10	2.98E+03	2.98E+03	1.00E-08	2.70E-10
Cobalt (27)	Co-61	3.68E+03	1.88E-04	1.36E+09	1.00E+00	1.96E+07	1.68E+11	1.66E+03	1.66E+03	1.00E-08	1.45E-09
Cobalt (27)	Co-62	2.43E+05	2.85E-06	1.36E+09	1.00E+00	.	.	2.85E+17	2.85E+17	1.00E-08	3.82E+03
Cobalt (27)	Co-62m	2.62E+04	2.65E-05	1.36E+09	1.00E+00	1.06E+17	1.40E+21	1.26E+11	1.26E+11	1.00E-08	1.56E-02
Chromium (24)	Cr-48	2.82E+02	2.46E-03	1.36E+09	1.00E+00	5.15E+04	2.30E+08	2.34E+00	2.34E+00	1.00E-08	2.09E-11
Chromium (24)	Cr-49	8.61E+03	8.05E-05	1.36E+09	1.00E+00	4.83E+07	2.77E+11	2.50E+02	2.50E+02	1.00E-08	7.46E-11
Chromium (24)	Cr-51	9.13E+00	7.59E-02	1.36E+09	1.00E+00	9.46E+04	5.72E+08	9.07E+00	9.07E+00	1.00E-08	2.66E-09
Chromium (24)	Cr-55	1.04E+05	6.65E-06	1.36E+09	1.00E+00	.	.	1.86E+17	1.86E+17	1.00E-08	5.15E+03
Chromium (24)	Cr-56	6.13E+04	1.13E-05	1.36E+09	1.00E+00	9.58E+07	1.08E+12	9.45E+02	9.45E+02	1.00E-08	4.53E-11
Cesium (55)	Cs-121	1.41E+05	4.92E-06	1.36E+09	1.00E+00	1.05E+08	5.02E+11	1.66E+03	1.66E+03	1.00E-08	7.45E-11
Cesium (55)	Cs-121m	1.79E+05	3.87E-06	1.36E+09	1.00E+00	1.34E+08	6.38E+11	5.72E+03	5.72E+03	1.00E-08	2.03E-10
Cesium (55)	Cs-123	6.19E+04	1.12E-05	1.36E+09	1.00E+00	1.12E+08	5.91E+11	2.44E+03	2.44E+03	1.00E-08	2.54E-10
Cesium (55)	Cs-124	7.10E+05	9.77E-07	1.36E+09	1.00E+00	.	.	1.33E+20	1.33E+20	1.00E-08	1.22E+06
Cesium (55)	Cs-125	8.09E+03	8.56E-05	1.36E+09	1.00E+00	2.11E+05	1.35E+09	2.45E+02	2.45E+02	1.00E-08	1.99E-10
Cesium (55)	Cs-126	2.22E+05	3.12E-06	1.36E+09	1.00E+00	.	.	1.03E+17	1.03E+17	1.00E-08	3.07E+03

Composite Worker Soil DCCs July 2023											
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Cesium (55)	Cs-127	9.71E+02	7.13E-04	1.36E+09	1.00E+00	1.56E+07	5.60E+10	4.61E+01	4.61E+01	1.00E-08	3.16E-10
Cesium (55)	Cs-128	1.00E+05	6.93E-06	1.36E+09	1.00E+00	.	.	1.58E+16	1.58E+16	1.00E-08	1.06E+03
Cesium (55)	Cs-129	1.89E+02	3.66E-03	1.36E+09	1.00E+00	1.25E+06	5.50E+09	2.33E+01	2.33E+01	1.00E-08	8.33E-10
Cesium (55)	Cs-130	1.25E+04	5.56E-05	1.36E+09	1.00E+00	5.46E+12	6.14E+16	2.17E+07	2.17E+07	1.00E-08	1.19E-05
Cesium (55)	Cs-130m	1.05E+05	6.58E-06	1.36E+09	1.00E+00	4.07E+13	4.57E+17	1.62E+08	1.62E+08	1.00E-08	1.05E-05
Cesium (55)	Cs-131	2.61E+01	2.65E-02	1.36E+09	1.00E+00	1.80E+05	1.24E+09	5.37E+02	5.35E+02	1.00E-08	1.41E-07
Cesium (55)	Cs-132	3.90E+01	1.78E-02	1.36E+09	1.00E+00	3.04E+04	2.90E+08	1.61E+00	1.61E+00	1.00E-08	2.85E-10
Cesium (55)	Cs-134	3.36E-01	2.06E+00	1.36E+09	1.00E+00	2.44E+01	1.44E+05	2.15E-02	2.14E-02	1.00E-08	4.49E-10
Cesium (55)	Cs-134m	2.09E+03	3.31E-04	1.36E+09	1.00E+00	1.52E+05	8.89E+08	1.30E+02	1.30E+02	1.00E-08	4.38E-10
Cesium (55)	Cs-135	3.01E-07	2.30E+06	1.36E+09	9.00E-01	1.51E+02	2.17E+05	2.30E+03	1.42E+02	1.00E-08	3.33E+00
Cesium (55)	Cs-135m	6.87E+03	1.01E-04	1.36E+09	1.00E+00	1.42E+08	9.68E+11	1.20E+02	1.20E+02	1.00E-08	1.24E-10
Cesium (55)	Cs-136	1.92E+01	3.61E-02	1.36E+09	1.00E+00	2.54E+03	1.72E+07	2.52E-01	2.52E-01	1.00E-08	9.33E-11
Cesium (55)	Cs-137	2.30E-02	3.02E+01	1.36E+09	1.00E+00	2.98E+01	6.59E+04	5.13E-02	5.13E-02	1.00E-08	1.60E-08
Cesium (55)	Cs-138	1.09E+04	6.36E-05	1.36E+09	1.00E+00	4.52E+07	5.49E+11	1.19E+02	1.19E+02	1.00E-08	7.93E-11
Cesium (55)	Cs-138m	1.25E+05	5.54E-06	1.36E+09	1.00E+00	3.32E+12	4.04E+16	8.79E+06	8.79E+06	1.00E-08	5.08E-07
Cesium (55)	Cs-139	3.93E+04	1.76E-05	1.36E+09	1.00E+00	1.29E+08	1.53E+12	2.71E+04	2.71E+04	1.00E-08	5.02E-09
Cesium (55)	Cs-140	3.43E+05	2.02E-06	1.36E+09	1.00E+00	2.97E+07	1.19E+11	3.66E+03	3.66E+03	1.00E-08	7.82E-11
Copper (29)	Cu-57	1.11E+08	6.22E-09	1.36E+09	1.00E+00	4.28E+10	2.27E+14	1.50E+06	1.50E+06	1.00E-08	4.02E-11
Copper (29)	Cu-59	2.68E+05	2.58E-06	1.36E+09	1.00E+00	2.51E+14	1.16E+17	7.42E+13	5.72E+13	1.00E-08	6.60E-01
Copper (29)	Cu-60	1.54E+04	4.51E-05	1.36E+09	1.00E+00	5.00E+13	5.79E+17	6.04E+07	6.04E+07	1.00E-08	1.24E-05
Copper (29)	Cu-61	1.82E+03	3.80E-04	1.36E+09	1.00E+00	6.28E+06	5.49E+10	6.50E+01	6.50E+01	1.00E-08	1.14E-10
Copper (29)	Cu-62	3.77E+04	1.84E-05	1.36E+09	1.00E+00	.	.	3.12E+12	3.12E+12	1.00E-08	2.70E-01
Copper (29)	Cu-64	4.78E+02	1.45E-03	1.36E+09	1.00E+00	1.55E+06	9.56E+09	7.62E+01	7.62E+01	1.00E-08	5.35E-10
Copper (29)	Cu-66	7.11E+04	9.74E-06	1.36E+09	1.00E+00	.	.	9.19E+14	9.19E+14	1.00E-08	4.47E+01
Copper (29)	Cu-67	9.82E+01	7.06E-03	1.36E+09	1.00E+00	1.19E+05	4.04E+08	3.26E+01	3.26E+01	1.00E-08	1.17E-09
Copper (29)	Cu-69	1.28E+05	5.42E-06	1.36E+09	1.00E+00	1.66E+09	1.08E+13	7.02E+06	6.99E+06	1.00E-08	1.98E-07
Dysprosium (66)	Dy-148	1.10E+05	6.28E-06	1.36E+09	1.00E+00	7.01E+07	4.89E+09	1.27E+03	1.27E+03	1.00E-08	8.94E-11
Dysprosium (66)	Dy-149	8.67E+04	7.99E-06	1.36E+09	1.00E+00	4.28E+07	5.42E+10	1.83E+03	1.83E+03	1.00E-08	1.65E-10
Dysprosium (66)	Dy-150	5.08E+04	1.36E-05	1.36E+09	1.00E+00	2.22E+07	4.31E+10	5.53E+02	5.53E+02	1.00E-08	8.57E-11
Dysprosium (66)	Dy-151	2.03E+04	3.41E-05	1.36E+09	1.00E+00	1.41E+07	3.82E+10	6.01E+02	6.01E+02	1.00E-08	2.34E-10
Dysprosium (66)	Dy-152	2.55E+03	2.72E-04	1.36E+09	1.00E+00	1.26E+06	1.34E+10	4.12E+01	4.12E+01	1.00E-08	1.29E-10
Dysprosium (66)	Dy-153	9.49E+02	7.31E-04	1.36E+09	1.00E+00	5.85E+05	1.21E+09	2.47E+01	2.47E+01	1.00E-08	2.09E-10

Composite Worker Soil DCCs July 2023											
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Dysprosium (66)	Dy-154	2.31E-07	3.00E+06	1.36E+09	9.00E-01	6.76E+00	4.19E+02	.	6.65E+00	1.04E+06	2.33E-01
Dysprosium (66)	Dy-155	6.13E+02	1.13E-03	1.36E+09	1.00E+00	5.97E+05	3.63E+09	2.41E+01	2.41E+01	1.00E-08	3.20E-10
Dysprosium (66)	Dy-157	7.46E+02	9.29E-04	1.36E+09	1.00E+00	4.82E+06	2.86E+10	7.46E+01	7.46E+01	1.00E-08	8.23E-10
Dysprosium (66)	Dy-159	1.75E+00	3.96E-01	1.36E+09	1.00E+00	8.00E+03	1.12E+07	7.60E+00	7.59E+00	1.00E-08	3.61E-08
Dysprosium (66)	Dy-165	2.60E+03	2.66E-04	1.36E+09	1.00E+00	9.55E+06	9.41E+10	3.33E+03	3.33E+03	1.00E-08	1.11E-08
Dysprosium (66)	Dy-165m	2.90E+05	2.39E-06	1.36E+09	1.00E+00	1.08E+09	1.06E+13	3.76E+05	3.76E+05	1.00E-08	1.12E-08
Dysprosium (66)	Dy-166	7.44E+01	9.32E-03	1.36E+09	1.00E+00	9.73E+03	6.24E+07	4.94E+01	4.91E+01	1.00E-08	5.75E-09
Dysprosium (66)	Dy-167	5.87E+04	1.18E-05	1.36E+09	1.00E+00	2.70E+08	1.75E+12	5.18E+03	5.18E+03	1.00E-08	7.72E-10
Dysprosium (66)	Dy-168	4.19E+04	1.66E-05	1.36E+09	1.00E+00	.	.	3.35E+12	3.35E+12	1.00E-08	7.04E-01
Erbium (68)	Er-154	9.77E+04	7.10E-06	1.36E+09	1.00E+00	8.89E+09	1.61E+13	2.09E+05	2.09E+05	1.00E-08	1.73E-08
Erbium (68)	Er-156	1.87E+04	3.71E-05	1.36E+09	1.00E+00	7.68E+07	7.74E+11	2.49E+02	2.49E+02	1.00E-08	1.09E-10
Erbium (68)	Er-159	1.01E+04	6.85E-05	1.36E+09	1.00E+00	3.39E+07	6.08E+10	2.33E+02	2.33E+02	1.00E-08	1.92E-10
Erbium (68)	Er-161	1.89E+03	3.66E-04	1.36E+09	1.00E+00	7.76E+06	7.02E+10	5.44E+01	5.44E+01	1.00E-08	2.43E-10
Erbium (68)	Er-163	4.86E+03	1.43E-04	1.36E+09	1.00E+00	7.39E+08	8.24E+12	1.58E+04	1.58E+04	1.00E-08	2.78E-08
Erbium (68)	Er-165	5.86E+02	1.18E-03	1.36E+09	1.00E+00	1.20E+07	1.53E+11	2.24E+03	2.24E+03	1.00E-08	3.31E-08
Erbium (68)	Er-167m	9.63E+06	7.19E-08	1.36E+09	1.00E+00	.	.	4.85E+28	4.85E+28	1.00E-08	4.41E+13
Erbium (68)	Er-169	2.69E+01	2.58E-02	1.36E+09	1.00E+00	2.88E+04	5.72E+07	3.44E+04	1.57E+04	1.00E-08	5.16E-06
Erbium (68)	Er-171	8.08E+02	8.58E-04	1.36E+09	1.00E+00	8.31E+05	3.18E+09	7.40E+01	7.40E+01	1.00E-08	8.22E-10
Erbium (68)	Er-172	1.23E+02	5.63E-03	1.36E+09	1.00E+00	1.80E+04	1.19E+08	3.57E+00	3.57E+00	1.00E-08	2.62E-10
Erbium (68)	Er-173	2.54E+05	2.73E-06	1.36E+09	1.00E+00	3.37E+08	3.06E+12	2.02E+04	2.02E+04	1.00E-08	7.21E-10
Einsteinium (99)	Es-249	3.56E+03	1.94E-04	1.36E+09	1.00E+00	2.00E+06	2.77E+07	2.83E+02	2.83E+02	1.00E-08	1.04E-09
Einsteinium (99)	Es-250	7.06E+02	9.82E-04	1.36E+09	1.00E+00	3.27E+04	2.42E+06	1.83E+01	1.83E+01	1.00E-08	3.39E-10
Einsteinium (99)	Es-250m	2.73E+03	2.53E-04	1.36E+09	1.00E+00	1.31E+05	9.23E+06	1.45E+02	1.44E+02	1.00E-08	6.92E-10
Einsteinium (99)	Es-251	1.84E+02	3.77E-03	1.36E+09	1.00E+00	1.62E+05	3.56E+06	9.32E+01	9.32E+01	1.00E-08	6.67E-09
Einsteinium (99)	Es-253	1.24E+01	5.61E-02	1.36E+09	1.00E+00	7.33E+02	8.98E+03	6.11E+02	3.70E+02	1.00E-08	3.97E-07
Einsteinium (99)	Es-254	9.17E-01	7.55E-01	1.36E+09	1.00E+00	1.85E+01	4.55E+02	4.64E-02	4.63E-02	2.68E-04	6.72E-10
Einsteinium (99)	Es-254m	1.54E+02	4.49E-03	1.36E+09	1.00E+00	4.69E+03	2.88E+05	8.96E+00	8.94E+00	1.00E-08	7.71E-10
Einsteinium (99)	Es-255	6.36E+00	1.09E-01	1.36E+09	1.00E+00	2.98E+02	3.23E+03	3.00E+01	2.71E+01	1.00E-08	5.69E-08
Einsteinium (99)	Es-256	1.43E+04	4.83E-05	1.36E+09	1.00E+00	2.76E+05	6.83E+07	3.01E+01	3.01E+01	1.00E-08	2.82E-11
Europium (63)	Eu-142	9.34E+06	7.42E-08	1.36E+09	1.00E+00	3.37E+11	4.68E+15	4.63E+06	4.63E+06	1.00E-08	3.69E-09
Europium (63)	Eu-142m	2.98E+05	2.33E-06	1.36E+09	1.00E+00	6.47E+08	8.98E+12	8.89E+03	8.89E+03	1.00E-08	2.22E-10
Europium (63)	Eu-143	1.41E+05	4.93E-06	1.36E+09	1.00E+00	3.89E+08	1.90E+11	2.23E+04	2.23E+04	1.00E-08	1.19E-09



Composite Worker Soil DCCs July 2023											
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Europium (63)	Eu-144	2.14E+06	3.23E-07	1.36E+09	1.00E+00	.	.	1.51E+23	1.51E+23	1.00E-08	5.31E+08
Europium (63)	Eu-145	4.27E+01	1.62E-02	1.36E+09	1.00E+00	2.20E+04	4.82E+07	9.08E-01	9.08E-01	1.00E-08	1.62E-10
Europium (63)	Eu-146	5.49E+01	1.26E-02	1.36E+09	1.00E+00	1.81E+04	1.60E+08	6.34E-01	6.34E-01	1.00E-08	8.85E-11
Europium (63)	Eu-147	1.05E+01	6.60E-02	1.36E+09	1.00E+00	9.46E+03	2.18E+07	7.06E-01	7.06E-01	1.00E-08	5.19E-10
Europium (63)	Eu-148	4.64E+00	1.49E-01	1.36E+09	1.00E+00	1.44E+03	3.08E+06	6.01E-02	6.01E-02	1.00E-08	1.01E-10
Europium (63)	Eu-149	2.72E+00	2.55E-01	1.36E+09	1.00E+00	7.23E+03	1.62E+07	2.45E+00	2.45E+00	1.00E-08	7.05E-09
Europium (63)	Eu-150	1.88E-02	3.69E+01	1.36E+09	1.00E+00	3.23E+02	2.05E+04	1.92E-02	1.92E-02	1.00E-08	8.06E-09
Europium (63)	Eu-150m	4.74E+02	1.46E-03	1.36E+09	1.00E+00	4.95E+05	5.24E+09	2.96E+02	2.96E+02	1.00E-08	4.91E-09
Europium (63)	Eu-152	5.12E-02	1.35E+01	1.36E+09	1.00E+00	3.06E+02	2.81E+04	2.47E-02	2.47E-02	1.00E-08	3.84E-09
Europium (63)	Eu-152m	6.52E+02	1.06E-03	1.36E+09	1.00E+00	5.23E+05	7.06E+09	6.28E+01	6.28E+01	1.00E-08	7.68E-10
Europium (63)	Eu-152n	3.79E+03	1.83E-04	1.36E+09	1.00E+00	1.90E+07	2.08E+09	1.15E+03	1.15E+03	1.00E-08	2.43E-09
Europium (63)	Eu-154	8.06E-02	8.59E+00	1.36E+09	1.00E+00	2.11E+02	2.46E+04	2.32E-02	2.32E-02	1.00E-08	2.32E-09
Europium (63)	Eu-154m	7.92E+03	8.75E-05	1.36E+09	1.00E+00	1.97E+07	2.41E+09	1.80E+03	1.80E+03	1.00E-08	1.84E-09
Europium (63)	Eu-155	1.46E-01	4.76E+00	1.36E+09	1.00E+00	1.29E+03	4.49E+05	1.07E+00	1.07E+00	1.00E-08	5.95E-08
Europium (63)	Eu-156	1.67E+01	4.16E-02	1.36E+09	1.00E+00	2.91E+03	1.03E+07	3.53E-01	3.53E-01	1.00E-08	1.74E-10
Europium (63)	Eu-157	4.00E+02	1.73E-03	1.36E+09	1.00E+00	2.61E+05	2.86E+09	4.65E+01	4.64E+01	1.00E-08	9.56E-10
Europium (63)	Eu-158	7.94E+03	8.73E-05	1.36E+09	1.00E+00	3.48E+07	3.70E+11	1.65E+02	1.65E+02	1.00E-08	1.72E-10
Europium (63)	Eu-159	2.01E+04	3.44E-05	1.36E+09	1.00E+00	1.59E+07	1.56E+11	1.34E+04	1.34E+04	1.00E-08	5.56E-09
Fluorine (9)	F-17	3.39E+05	2.04E-06	1.36E+09	1.00E+00	.	.	1.92E+18	1.92E+18	1.00E-08	5.06E+03
Fluorine (9)	F-18	3.32E+03	2.09E-04	1.36E+09	9.00E-01	2.78E+07	1.36E+11	1.10E+02	1.10E+02	1.00E-08	3.13E-11
Iron (26)	Fe-52	7.34E+02	9.45E-04	1.36E+09	1.00E+00	1.98E+05	2.39E+09	6.38E+00	6.38E+00	1.00E-08	2.37E-11
Iron (26)	Fe-53	4.28E+04	1.62E-05	1.36E+09	1.00E+00	3.07E+15	1.70E+18	4.46E+12	4.45E+12	1.00E-08	2.89E-01
Iron (26)	Fe-53m	1.44E+05	4.81E-06	1.36E+09	1.00E+00	1.03E+16	5.73E+18	1.05E+13	1.05E+13	1.00E-08	2.03E-01
Iron (26)	Fe-55	2.53E-01	2.74E+00	1.36E+09	1.00E+00	1.37E+03	3.41E+06	2.98E+08	1.37E+03	1.00E-08	1.56E-05
Iron (26)	Fe-59	5.68E+00	1.22E-01	1.36E+09	1.00E+00	1.27E+03	3.49E+06	1.28E-01	1.28E-01	1.00E-08	6.96E-11
Iron (26)	Fe-60	4.62E-07	1.50E+06	1.36E+09	9.00E-01	3.35E+00	8.24E+03	1.05E-02	1.05E-02	8.94E+01	7.16E-05
Iron (26)	Fe-61	6.09E+04	1.14E-05	1.36E+09	1.00E+00	3.24E+08	2.78E+12	2.75E+04	2.75E+04	1.00E-08	1.45E-09
Iron (26)	Fe-62	3.21E+05	2.16E-06	1.36E+09	1.00E+00	.	.	1.04E+17	1.04E+17	1.00E-08	1.05E+03
Fermium (100)	Fm-251	1.15E+03	6.05E-04	1.36E+09	1.00E+00	8.78E+05	2.20E+07	1.88E+02	1.88E+02	1.00E-08	2.16E-09
Fermium (100)	Fm-252	2.39E+02	2.90E-03	1.36E+09	1.00E+00	4.97E+03	1.27E+05	1.37E+04	3.54E+03	1.00E-08	1.96E-07
Fermium (100)	Fm-253	8.43E+01	8.22E-03	1.36E+09	1.00E+00	4.69E+03	5.99E+04	6.34E+01	6.25E+01	1.00E-08	9.84E-09
Fermium (100)	Fm-254	1.87E+03	3.70E-04	1.36E+09	1.00E+00	8.56E+04	5.80E+06	6.48E+03	6.02E+03	1.00E-08	4.28E-08

Composite Worker Soil DCCs July 2023											
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Fermium (100)	Fm-255	3.02E+02	2.29E-03	1.36E+09	1.00E+00	4.28E+04	1.80E+06	8.55E+03	7.10E+03	1.00E-08	3.14E-07
Fermium (100)	Fm-256	2.31E+03	3.00E-04	1.36E+09	1.00E+00	4.45E+04	1.10E+07	4.85E+00	4.85E+00	1.00E-08	2.82E-11
Fermium (100)	Fm-257	2.52E+00	2.75E-01	1.36E+09	1.00E+00	4.58E+01	5.20E+02	7.10E-01	6.98E-01	1.00E-08	3.74E-09
Francium (87)	Fr-212	1.82E+04	3.81E-05	1.36E+09	1.00E+00	2.26E+04	3.14E+07	3.90E+02	3.83E+02	1.00E-08	2.34E-10
Francium (87)	Fr-219	1.09E+09	6.34E-10	1.36E+09	1.00E+00	.	.	5.57E+20	5.57E+20	1.00E-08	5.85E+03
Francium (87)	Fr-220	7.98E+05	8.69E-07	1.36E+09	1.00E+00	1.22E+09	1.31E+11	1.54E+04	1.54E+04	1.00E-08	2.23E-10
Francium (87)	Fr-221	7.43E+04	9.32E-06	1.36E+09	1.00E+00	1.17E+08	5.68E+09	1.75E+04	1.75E+04	1.00E-08	2.72E-09
Francium (87)	Fr-222	2.57E+04	2.70E-05	1.36E+09	1.00E+00	1.85E+05	2.20E+08	1.78E+07	1.83E+05	1.61E+00	8.31E-08
Francium (87)	Fr-223	1.66E+04	4.19E-05	1.36E+09	1.00E+00	6.41E+04	4.78E+06	1.77E+03	1.73E+03	1.00E-08	1.22E-09
Francium (87)	Fr-224	1.09E+05	6.34E-06	1.36E+09	1.00E+00	6.17E+05	7.90E+07	1.95E+03	1.94E+03	1.00E-08	2.09E-10
Francium (87)	Fr-227	1.47E+05	4.70E-06	1.36E+09	1.00E+00	4.37E+06	1.62E+08	3.72E+05	3.42E+05	3.05E-01	2.76E-08
Gallium (31)	Ga-64	1.39E+05	5.00E-06	1.36E+09	1.00E+00	.	.	1.76E+15	1.76E+15	1.00E-08	4.26E+01
Gallium (31)	Ga-65	2.40E+04	2.89E-05	1.36E+09	1.00E+00	3.79E+06	3.94E+10	1.72E+03	1.72E+03	1.00E-08	2.45E-10
Gallium (31)	Ga-66	6.40E+02	1.08E-03	1.36E+09	1.00E+00	2.17E+05	3.05E+09	6.52E+00	6.51E+00	1.00E-08	3.53E-11
Gallium (31)	Ga-67	7.76E+01	8.93E-03	1.36E+09	1.00E+00	1.58E+05	7.01E+08	1.83E+01	1.83E+01	1.00E-08	8.28E-10
Gallium (31)	Ga-68	5.38E+03	1.29E-04	1.36E+09	1.00E+00	2.11E+07	2.38E+11	1.66E+02	1.66E+02	1.00E-08	1.10E-10
Gallium (31)	Ga-70	1.72E+04	4.02E-05	1.36E+09	1.00E+00	9.73E+14	1.06E+19	2.04E+11	2.04E+11	1.00E-08	4.34E-02
Gallium (31)	Ga-72	4.31E+02	1.61E-03	1.36E+09	1.00E+00	1.54E+05	1.74E+09	4.13E+00	4.13E+00	1.00E-08	3.62E-11
Gallium (31)	Ga-73	1.25E+03	5.55E-04	1.36E+09	1.00E+00	1.89E+06	1.86E+10	1.13E+02	1.13E+02	1.00E-08	3.46E-10
Gallium (31)	Ga-74	4.49E+04	1.54E-05	1.36E+09	1.00E+00	.	.	1.69E+12	1.69E+12	1.00E-08	1.46E-01
Gadolinium (64)	Gd-142	3.11E+05	2.23E-06	1.36E+09	1.00E+00	6.77E+08	9.39E+12	9.30E+03	9.30E+03	1.00E-08	2.22E-10
Gadolinium (64)	Gd-143m	1.99E+05	3.49E-06	1.36E+09	1.00E+00	5.50E+08	2.69E+11	3.15E+04	3.15E+04	1.00E-08	1.19E-09
Gadolinium (64)	Gd-144	8.15E+04	8.50E-06	1.36E+09	1.00E+00	.	.	2.90E+14	2.90E+14	1.00E-08	2.69E+01
Gadolinium (64)	Gd-145	1.58E+04	4.38E-05	1.36E+09	1.00E+00	8.14E+06	1.79E+10	3.36E+02	3.36E+02	1.00E-08	1.62E-10
Gadolinium (64)	Gd-145m	2.57E+05	2.70E-06	1.36E+09	1.00E+00	1.32E+08	2.90E+11	5.46E+03	5.46E+03	1.00E-08	1.62E-10
Gadolinium (64)	Gd-146	5.24E+00	1.32E-01	1.36E+09	1.00E+00	9.74E+02	1.64E+06	5.79E-02	5.79E-02	1.00E-08	8.46E-11
Gadolinium (64)	Gd-147	1.59E+02	4.35E-03	1.36E+09	1.00E+00	5.87E+04	2.37E+08	2.55E+00	2.55E+00	1.00E-08	1.23E-10
Gadolinium (64)	Gd-148	9.29E-03	7.46E+01	1.36E+09	9.00E-01	7.35E+00	4.12E+02	.	7.22E+00	1.00E-08	6.03E-06
Gadolinium (64)	Gd-149	2.73E+01	2.54E-02	1.36E+09	1.00E+00	1.56E+04	4.93E+07	1.60E+00	1.60E+00	1.00E-08	4.60E-10
Gadolinium (64)	Gd-150	3.87E-07	1.79E+06	1.36E+09	9.00E-01	7.65E+00	4.79E+02	.	7.53E+00	1.00E-08	1.53E-01
Gadolinium (64)	Gd-151	2.04E+00	3.40E-01	1.36E+09	1.00E+00	4.13E+03	4.87E+06	2.07E+00	2.07E+00	1.00E-08	8.04E-09
Gadolinium (64)	Gd-152	6.42E-15	1.08E+14	1.36E+09	9.00E-01	9.76E+00	1.35E+02	.	9.10E+00	3.65E-08	1.13E+07

Composite Worker Soil DCCs July 2023											
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Gadolinium (64)	Gd-153	1.05E+00	6.59E-01	1.36E+09	1.00E+00	2.32E+03	1.66E+06	1.23E+00	1.23E+00	1.00E-08	9.38E-09
Gadolinium (64)	Gd-159	3.29E+02	2.11E-03	1.36E+09	1.00E+00	2.60E+05	2.55E+09	2.19E+02	2.19E+02	1.00E-08	5.56E-09
Gadolinium (64)	Gd-162	4.34E+04	1.60E-05	1.36E+09	1.00E+00	.	.	6.11E+11	6.11E+11	1.00E-08	1.20E-01
Germanium (32)	Ge-66	2.69E+03	2.58E-04	1.36E+09	1.00E+00	8.38E+05	1.07E+10	2.24E+01	2.24E+01	1.00E-08	2.88E-11
Germanium (32)	Ge-67	1.93E+04	3.60E-05	1.36E+09	1.00E+00	3.93E+07	1.74E+11	4.54E+03	4.54E+03	1.00E-08	8.28E-10
Germanium (32)	Ge-68	9.34E-01	7.42E-01	1.36E+09	1.00E+00	4.45E+02	1.25E+05	4.75E-02	4.75E-02	9.29E-05	1.81E-10
Germanium (32)	Ge-69	1.55E+02	4.46E-03	1.36E+09	1.00E+00	2.99E+05	1.44E+09	4.54E+00	4.54E+00	1.00E-08	1.06E-10
Germanium (32)	Ge-71	2.21E+01	3.13E-02	1.36E+09	1.00E+00	7.50E+05	4.18E+09	3.13E+06	6.05E+05	1.00E-08	1.02E-04
Germanium (32)	Ge-75	4.40E+03	1.57E-04	1.36E+09	1.00E+00	3.80E+07	2.67E+11	3.93E+03	3.93E+03	1.00E-08	3.51E-09
Germanium (32)	Ge-77	5.37E+02	1.29E-03	1.36E+09	1.00E+00	2.98E+05	1.57E+09	1.44E+01	1.44E+01	1.00E-08	1.08E-10
Germanium (32)	Ge-78	4.14E+03	1.67E-04	1.36E+09	1.00E+00	5.32E+06	5.05E+10	7.17E+01	7.17E+01	1.00E-08	7.09E-11
Hydrogen (1)	H-3	5.63E-02	1.23E+01	1.70E+01	9.00E-01	9.82E+03	1.21E-01	.	1.21E-01	1.00E-08	3.38E-10
Hafnium (72)	Hf-167	1.78E+05	3.90E-06	1.36E+09	1.00E+00	1.11E+08	3.17E+11	2.53E+03	2.53E+03	1.00E-08	1.25E-10
Hafnium (72)	Hf-169	1.12E+05	6.16E-06	1.36E+09	1.00E+00	3.32E+07	7.15E+10	2.10E+03	2.10E+03	1.00E-08	1.66E-10
Hafnium (72)	Hf-170	3.79E+02	1.83E-03	1.36E+09	1.00E+00	1.10E+05	9.39E+08	3.38E+00	3.38E+00	1.00E-08	7.94E-11
Hafnium (72)	Hf-172	3.71E-01	1.87E+00	1.36E+09	1.00E+00	2.02E+02	1.12E+05	1.71E-02	1.71E-02	3.09E-02	4.17E-10
Hafnium (72)	Hf-173	2.57E+02	2.69E-03	1.36E+09	1.00E+00	2.79E+05	3.98E+08	2.22E+01	2.22E+01	1.00E-08	7.83E-10
Hafnium (72)	Hf-174	3.47E-16	2.00E+15	1.36E+09	9.00E-01	1.57E+00	5.13E+02	.	1.56E+00	2.25E-04	4.12E+07
Hafnium (72)	Hf-175	3.61E+00	1.92E-01	1.36E+09	1.00E+00	3.68E+03	6.51E+06	3.69E-01	3.69E-01	1.00E-08	9.37E-10
Hafnium (72)	Hf-177m	7.09E+03	9.78E-05	1.36E+09	1.00E+00	3.40E+07	1.74E+11	1.04E+02	1.04E+02	1.00E-08	1.36E-10
Hafnium (72)	Hf-178m	2.24E-02	3.10E+01	1.36E+09	1.00E+00	1.02E+02	1.20E+04	1.43E-02	1.43E-02	1.00E-08	5.96E-09
Hafnium (72)	Hf-179m	1.01E+01	6.86E-02	1.36E+09	1.00E+00	3.18E+03	5.60E+06	3.70E-01	3.70E-01	1.00E-08	3.44E-10
Hafnium (72)	Hf-180m	1.10E+03	6.28E-04	1.36E+09	1.00E+00	2.58E+06	1.80E+10	3.64E+01	3.64E+01	1.00E-08	3.11E-10
Hafnium (72)	Hf-181	5.97E+00	1.16E-01	1.36E+09	1.00E+00	2.16E+03	2.49E+06	3.58E-01	3.58E-01	1.00E-08	5.69E-10
Hafnium (72)	Hf-182	7.70E-08	9.00E+06	1.36E+09	1.00E+00	9.20E+01	8.62E+03	1.87E-02	1.87E-02	6.98E+00	2.32E-03
Hafnium (72)	Hf-182m	5.92E+03	1.17E-04	1.36E+09	1.00E+00	2.85E+06	2.71E+09	1.11E+02	1.11E+02	1.00E-08	1.79E-10
Hafnium (72)	Hf-183	5.69E+03	1.22E-04	1.36E+09	1.00E+00	1.60E+06	6.01E+09	1.68E+02	1.68E+02	1.00E-08	2.84E-10
Hafnium (72)	Hf-184	1.47E+03	4.70E-04	1.36E+09	1.00E+00	4.93E+05	4.36E+09	2.48E+01	2.48E+01	1.00E-08	1.63E-10
Mercury (80)	Hg-190	1.82E+04	3.81E-05	1.36E+09	1.00E+00	1.71E+08	1.71E+12	2.01E+02	2.01E+02	1.00E-08	1.10E-10
Mercury (80)	Hg-191m	7.17E+03	9.67E-05	1.36E+09	1.00E+00	5.78E+06	2.31E+10	9.37E+01	9.37E+01	1.00E-08	1.31E-10
Mercury (80)	Hg-192	1.25E+03	5.54E-04	1.36E+09	1.00E+00	1.25E+06	2.85E+09	1.57E+01	1.57E+01	1.00E-08	1.26E-10
Mercury (80)	Hg-193	1.60E+03	4.34E-04	1.36E+09	1.00E+00	2.69E+06	4.03E+09	4.87E+01	4.87E+01	1.00E-08	3.08E-10

Composite Worker Soil DCCs July 2023											
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Mercury (80)	Hg-193m	5.14E+02	1.35E-03	1.36E+09	1.00E+00	3.61E+05	4.05E+08	1.11E+01	1.11E+01	1.00E-08	2.18E-10
Mercury (80)	Hg-194	1.58E-03	4.40E+02	1.36E+09	1.00E+00	2.23E+02	1.09E+05	2.71E-02	2.71E-02	4.04E-02	1.75E-07
Mercury (80)	Hg-195	5.77E+02	1.20E-03	1.36E+09	1.00E+00	7.69E+05	5.03E+08	8.99E+01	8.99E+01	1.00E-08	1.59E-09
Mercury (80)	Hg-195m	1.46E+02	4.75E-03	1.36E+09	1.00E+00	7.25E+04	3.55E+07	1.53E+01	1.53E+01	1.00E-08	1.07E-09
Mercury (80)	Hg-197	9.35E+01	7.41E-03	1.36E+09	1.00E+00	1.50E+05	5.02E+07	9.53E+01	9.53E+01	1.00E-08	1.05E-08
Mercury (80)	Hg-197m	2.55E+02	2.72E-03	1.36E+09	1.00E+00	1.44E+05	6.30E+07	8.62E+01	8.61E+01	1.00E-08	3.49E-09
Mercury (80)	Hg-199m	8.54E+03	8.12E-05	1.36E+09	1.00E+00	1.11E+08	1.22E+11	1.91E+03	1.91E+03	1.00E-08	2.33E-09
Mercury (80)	Hg-203	5.43E+00	1.28E-01	1.36E+09	1.00E+00	4.05E+03	1.92E+06	7.58E-01	7.58E-01	1.00E-08	1.49E-09
Mercury (80)	Hg-205	7.00E+04	9.89E-06	1.36E+09	1.00E+00	.	.	1.46E+16	1.46E+16	1.00E-08	2.25E+03
Mercury (80)	Hg-206	4.47E+04	1.55E-05	1.36E+09	1.00E+00	.	.	5.14E+13	5.14E+13	1.00E-08	1.24E+01
Mercury (80)	Hg-207	1.26E+05	5.52E-06	1.36E+09	1.00E+00	.	.	2.73E+16	2.73E+16	1.00E-08	2.36E+03
Holmium (67)	Ho-150	2.85E+05	2.44E-06	1.36E+09	1.00E+00	1.25E+08	2.41E+11	3.10E+03	3.10E+03	1.00E-08	8.57E-11
Holmium (67)	Ho-153	1.81E+05	3.82E-06	1.36E+09	1.00E+00	1.12E+08	2.31E+11	4.70E+03	4.70E+03	1.00E-08	2.08E-10
Holmium (67)	Ho-153m	3.92E+04	1.77E-05	1.36E+09	1.00E+00	2.41E+07	4.98E+10	1.02E+03	1.02E+03	1.00E-08	2.08E-10
Holmium (67)	Ho-154	3.10E+04	2.24E-05	1.36E+09	1.00E+00	2.66E+11	5.62E+13	2.17E+06	2.17E+06	1.00E-08	5.65E-07
Holmium (67)	Ho-154m	1.17E+05	5.90E-06	1.36E+09	1.00E+00	3.44E+12	2.13E+14	1.25E+15	3.38E+12	1.04E+06	2.33E-01
Holmium (67)	Ho-155	7.59E+03	9.13E-05	1.36E+09	1.00E+00	6.74E+06	4.23E+10	1.67E+02	1.67E+02	1.00E-08	1.79E-10
Holmium (67)	Ho-156	6.50E+03	1.07E-04	1.36E+09	1.00E+00	2.67E+07	2.70E+11	8.67E+01	8.67E+01	1.00E-08	1.09E-10
Holmium (67)	Ho-157	2.89E+04	2.40E-05	1.36E+09	1.00E+00	1.87E+08	1.11E+12	2.89E+03	2.89E+03	1.00E-08	8.23E-10
Holmium (67)	Ho-159	1.10E+04	6.29E-05	1.36E+09	1.00E+00	4.58E+07	6.94E+10	1.10E+03	1.10E+03	1.00E-08	8.35E-10
Holmium (67)	Ho-160	1.42E+04	4.87E-05	1.36E+09	1.00E+00	5.99E+13	4.27E+17	4.34E+07	4.34E+07	1.00E-08	2.56E-05
Holmium (67)	Ho-161	2.45E+03	2.83E-04	1.36E+09	1.00E+00	7.77E+07	7.41E+11	5.42E+03	5.42E+03	1.00E-08	1.87E-08
Holmium (67)	Ho-162	2.43E+04	2.85E-05	1.36E+09	1.00E+00	1.29E+18	8.28E+21	2.29E+12	2.29E+12	1.00E-08	8.03E-01
Holmium (67)	Ho-162m	5.44E+03	1.27E-04	1.36E+09	1.00E+00	7.94E+07	5.43E+11	2.54E+02	2.54E+02	1.00E-08	3.98E-10
Holmium (67)	Ho-163	1.52E-04	4.57E+03	1.36E+09	1.00E+00	1.39E+05	9.64E+06	.	1.37E+05	1.00E-08	7.72E+00
Holmium (67)	Ho-164	1.26E+04	5.52E-05	1.36E+09	1.00E+00	1.71E+13	1.08E+17	1.72E+09	1.72E+09	1.00E-08	1.18E-03
Holmium (67)	Ho-164m	9.59E+03	7.23E-05	1.36E+09	1.00E+00	1.47E+08	1.10E+12	1.76E+04	1.76E+04	1.00E-08	1.58E-08
Holmium (67)	Ho-166	2.27E+02	3.06E-03	1.36E+09	1.00E+00	6.47E+04	7.32E+08	2.31E+02	2.30E+02	1.00E-08	8.85E-09
Holmium (67)	Ho-166m	5.78E-04	1.20E+03	1.36E+09	1.00E+00	2.03E+02	9.19E+03	1.81E-02	1.81E-02	1.00E-08	2.73E-07
Holmium (67)	Ho-167	1.96E+03	3.54E-04	1.36E+09	1.00E+00	8.98E+06	5.84E+10	1.73E+02	1.73E+02	1.00E-08	7.72E-10
Holmium (67)	Ho-168	1.22E+05	5.69E-06	1.36E+09	1.00E+00	.	.	8.29E+15	8.29E+15	1.00E-08	6.00E+02
Holmium (67)	Ho-168m	1.66E+05	4.19E-06	1.36E+09	1.00E+00	.	.	3.89E+15	3.89E+15	1.00E-08	2.07E+02



Composite Worker Soil DCCs July 2023											
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Holmium (67)	Ho-170	1.32E+05	5.25E-06	1.36E+09	1.00E+00	.	.	4.27E+15	4.27E+15	1.00E-08	2.88E+02
Iodine (53)	I-118	2.66E+04	2.61E-05	1.36E+09	1.00E+00	3.49E+06	2.45E+10	9.63E+02	9.62E+02	1.00E-08	2.24E-10
Iodine (53)	I-118m	4.29E+04	1.62E-05	1.36E+09	1.00E+00	5.64E+06	3.95E+10	1.55E+03	1.55E+03	1.00E-08	2.24E-10
Iodine (53)	I-119	1.91E+04	3.63E-05	1.36E+09	1.00E+00	2.87E+07	2.80E+11	7.09E+02	7.09E+02	1.00E-08	2.32E-10
Iodine (53)	I-120	4.46E+03	1.55E-04	1.36E+09	1.00E+00	6.14E+06	3.75E+10	4.45E+01	4.45E+01	1.00E-08	6.28E-11
Iodine (53)	I-120m	6.87E+03	1.01E-04	1.36E+09	1.00E+00	1.77E+07	1.15E+11	5.42E+01	5.42E+01	1.00E-08	4.96E-11
Iodine (53)	I-121	2.86E+03	2.42E-04	1.36E+09	1.00E+00	2.14E+06	1.02E+10	9.17E+01	9.17E+01	1.00E-08	2.03E-10
Iodine (53)	I-122	1.00E+05	6.91E-06	1.36E+09	1.00E+00	.	.	9.21E+15	9.21E+15	1.00E-08	5.87E+02
Iodine (53)	I-123	4.57E+02	1.51E-03	1.36E+09	1.00E+00	8.28E+05	4.36E+09	1.13E+02	1.13E+02	1.00E-08	1.59E-09
Iodine (53)	I-124	6.06E+01	1.14E-02	1.36E+09	1.00E+00	1.85E+03	1.05E+07	1.52E+00	1.52E+00	1.00E-08	1.63E-10
Iodine (53)	I-125	4.26E+00	1.63E-01	1.36E+09	1.00E+00	1.11E+02	7.12E+05	5.84E+01	3.83E+01	1.00E-08	5.90E-08
Iodine (53)	I-126	1.96E+01	3.54E-02	1.36E+09	1.00E+00	2.67E+02	1.55E+06	1.35E+00	1.34E+00	1.00E-08	4.53E-10
Iodine (53)	I-128	1.46E+04	4.75E-05	1.36E+09	1.00E+00	3.28E+13	1.40E+17	1.57E+09	1.57E+09	1.00E-08	7.24E-04
Iodine (53)	I-129	4.41E-08	1.57E+07	1.36E+09	1.00E+00	3.70E+00	2.52E+04	1.67E+01	3.03E+00	1.00E-08	4.65E-01
Iodine (53)	I-130	4.91E+02	1.41E-03	1.36E+09	1.00E+00	1.05E+05	5.66E+08	6.57E+00	6.57E+00	1.00E-08	9.11E-11
Iodine (53)	I-130m	4.12E+04	1.68E-05	1.36E+09	1.00E+00	1.05E+07	5.65E+10	6.56E+02	6.56E+02	1.00E-08	1.09E-10
Iodine (53)	I-131	3.15E+01	2.20E-02	1.36E+09	1.00E+00	5.81E+02	3.29E+06	2.53E+00	2.52E+00	1.00E-08	5.50E-10
Iodine (53)	I-132	2.65E+03	2.62E-04	1.36E+09	1.00E+00	3.73E+06	1.86E+10	3.26E+01	3.26E+01	1.00E-08	8.52E-11
Iodine (53)	I-132m	4.38E+03	1.58E-04	1.36E+09	1.00E+00	3.96E+06	1.89E+10	5.38E+01	5.38E+01	1.00E-08	8.51E-11
Iodine (53)	I-133	2.92E+02	2.37E-03	1.36E+09	1.00E+00	2.70E+04	1.45E+08	1.34E+01	1.34E+01	1.00E-08	3.20E-10
Iodine (53)	I-134	6.94E+03	9.99E-05	1.36E+09	1.00E+00	2.75E+07	1.16E+11	7.33E+01	7.33E+01	1.00E-08	7.43E-11
Iodine (53)	I-134m	1.01E+05	6.85E-06	1.36E+09	1.00E+00	4.10E+08	1.74E+12	1.09E+03	1.09E+03	1.00E-08	7.60E-11
Iodine (53)	I-135	9.24E+02	7.50E-04	1.36E+09	1.00E+00	4.19E+05	2.17E+09	1.32E+01	1.32E+01	1.00E-08	1.01E-10
Indium (49)	In-103	3.64E+05	1.90E-06	1.36E+09	1.00E+00	6.27E+08	1.85E+12	1.27E+04	1.27E+04	1.00E-08	1.89E-10
Indium (49)	In-105	7.18E+04	9.65E-06	1.36E+09	1.00E+00	5.72E+07	2.05E+11	1.11E+03	1.11E+03	1.00E-08	8.51E-11
Indium (49)	In-106	5.87E+04	1.18E-05	1.36E+09	1.00E+00	.	.	1.09E+13	1.09E+13	1.00E-08	1.03E+00
Indium (49)	In-106m	7.00E+04	9.89E-06	1.36E+09	1.00E+00	.	.	3.10E+13	3.10E+13	1.00E-08	2.46E+00
Indium (49)	In-107	1.12E+04	6.16E-05	1.36E+09	1.00E+00	4.37E+07	2.51E+11	2.00E+02	2.00E+02	1.00E-08	1.00E-10
Indium (49)	In-108	6.28E+03	1.10E-04	1.36E+09	1.00E+00	3.22E+07	2.99E+11	4.43E+01	4.43E+01	1.00E-08	4.00E-11
Indium (49)	In-108m	9.20E+03	7.53E-05	1.36E+09	1.00E+00	4.54E+07	5.52E+11	8.64E+01	8.64E+01	1.00E-08	5.32E-11
Indium (49)	In-109	1.45E+03	4.79E-04	1.36E+09	1.00E+00	6.41E+05	1.33E+09	6.70E+01	6.70E+01	1.00E-08	2.65E-10
Indium (49)	In-109m	2.72E+05	2.55E-06	1.36E+09	1.00E+00	1.20E+08	2.50E+11	1.25E+04	1.25E+04	1.00E-08	2.64E-10

Composite Worker Soil DCCs July 2023											
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Indium (49)	In-110	1.24E+03	5.59E-04	1.36E+09	1.00E+00	2.02E+06	2.05E+10	1.12E+01	1.12E+01	1.00E-08	5.22E-11
Indium (49)	In-110m	5.27E+03	1.31E-04	1.36E+09	1.00E+00	2.07E+07	2.39E+11	9.39E+01	9.39E+01	1.00E-08	1.03E-10
Indium (49)	In-111	9.02E+01	7.68E-03	1.36E+09	1.00E+00	1.24E+05	8.54E+08	8.08E+00	8.08E+00	1.00E-08	5.21E-10
Indium (49)	In-111m	4.73E+04	1.46E-05	1.36E+09	1.00E+00	6.47E+07	4.47E+11	4.23E+03	4.23E+03	1.00E-08	5.20E-10
Indium (49)	In-112	2.43E+04	2.85E-05	1.36E+09	1.00E+00	4.29E+17	3.25E+21	1.26E+12	1.26E+12	1.00E-08	3.04E-01
Indium (49)	In-112m	1.77E+04	3.91E-05	1.36E+09	1.00E+00	9.91E+14	6.17E+18	4.14E+09	4.14E+09	1.00E-08	1.37E-03
Indium (49)	In-113m	3.66E+03	1.89E-04	1.36E+09	1.00E+00	5.07E+07	3.98E+11	4.41E+02	4.41E+02	1.00E-08	7.13E-10
Indium (49)	In-114	3.04E+05	2.28E-06	1.36E+09	1.00E+00	.	.	2.44E+20	2.44E+20	1.00E-08	4.80E+06
Indium (49)	In-114m	5.11E+00	1.36E-01	1.36E+09	1.00E+00	4.97E+02	9.32E+05	2.03E+00	2.02E+00	1.00E-08	2.36E-09
Indium (49)	In-115	1.57E-15	4.41E+14	1.36E+09	9.00E-01	1.22E+01	6.65E+03	4.99E+02	1.19E+01	1.72E-04	4.57E+07
Indium (49)	In-115m	1.35E+03	5.12E-04	1.36E+09	1.00E+00	6.17E+06	4.97E+10	2.74E+02	2.74E+02	1.00E-08	1.22E-09
Indium (49)	In-116m	6.69E+03	1.04E-04	1.36E+09	1.00E+00	4.16E+07	3.22E+11	7.15E+01	7.15E+01	1.00E-08	6.49E-11
Indium (49)	In-117	8.43E+03	8.22E-05	1.36E+09	1.00E+00	1.02E+08	4.96E+11	3.73E+02	3.73E+02	1.00E-08	2.72E-10
Indium (49)	In-117m	3.13E+03	2.21E-04	1.36E+09	1.00E+00	8.98E+06	7.66E+10	2.36E+02	2.36E+02	1.00E-08	4.61E-10
Indium (49)	In-118	4.37E+06	1.59E-07	1.36E+09	1.00E+00	.	.	1.10E+26	1.10E+26	1.00E-08	1.56E+11
Indium (49)	In-118m	8.35E+04	8.30E-06	1.36E+09	1.00E+00	.	.	1.40E+14	1.40E+14	1.00E-08	1.04E+01
Indium (49)	In-119	1.52E+05	4.57E-06	1.36E+09	1.00E+00	3.14E+10	1.99E+13	1.63E+09	1.55E+09	1.00E-08	6.39E-05
Indium (49)	In-119m	2.02E+04	3.42E-05	1.36E+09	1.00E+00	7.47E+10	4.73E+13	3.84E+09	3.65E+09	1.00E-08	1.13E-03
Indium (49)	In-121	9.46E+05	7.32E-07	1.36E+09	1.00E+00	1.85E+09	9.18E+12	1.07E+09	6.77E+08	1.00E-08	4.54E-06
Indium (49)	In-121m	9.39E+04	7.38E-06	1.36E+09	1.00E+00	1.63E+08	8.97E+11	9.58E+07	6.03E+07	1.00E-08	4.08E-06
Iridium (77)	Ir-180	2.43E+05	2.85E-06	1.36E+09	1.00E+00	1.55E+16	1.11E+20	1.44E+10	1.44E+10	1.00E-08	5.61E-04
Iridium (77)	Ir-182	2.43E+04	2.85E-05	1.36E+09	1.00E+00	1.12E+07	9.11E+10	4.37E+02	4.37E+02	1.00E-08	1.72E-10
Iridium (77)	Ir-183	6.28E+03	1.10E-04	1.36E+09	1.00E+00	2.04E+06	4.17E+09	8.10E+01	8.10E+01	1.00E-08	1.24E-10
Iridium (77)	Ir-184	1.96E+03	3.53E-04	1.36E+09	1.00E+00	4.18E+06	3.59E+10	2.86E+01	2.86E+01	1.00E-08	1.40E-10
Iridium (77)	Ir-185	4.22E+02	1.64E-03	1.36E+09	1.00E+00	2.12E+05	6.07E+08	8.14E+00	8.14E+00	1.00E-08	1.87E-10
Iridium (77)	Ir-186	3.65E+02	1.90E-03	1.36E+09	1.00E+00	2.59E+05	2.36E+09	6.29E+00	6.29E+00	1.00E-08	1.68E-10
Iridium (77)	Ir-186m	3.16E+03	2.19E-04	1.36E+09	1.00E+00	5.90E+06	5.21E+10	5.32E+01	5.32E+01	1.00E-08	1.64E-10
Iridium (77)	Ir-187	5.78E+02	1.20E-03	1.36E+09	1.00E+00	1.99E+06	1.73E+10	5.80E+01	5.80E+01	1.00E-08	9.84E-10
Iridium (77)	Ir-188	1.46E+02	4.74E-03	1.36E+09	1.00E+00	7.64E+04	6.97E+08	1.83E+00	1.83E+00	1.00E-08	1.23E-10
Iridium (77)	Ir-189	1.92E+01	3.62E-02	1.36E+09	1.00E+00	3.14E+04	8.32E+07	1.50E+01	1.50E+01	1.00E-08	7.74E-09
Iridium (77)	Ir-190	2.15E+01	3.23E-02	1.36E+09	1.00E+00	8.03E+03	3.74E+07	4.45E-01	4.45E-01	1.00E-08	2.06E-10
Iridium (77)	Ir-190m	5.42E+03	1.28E-04	1.36E+09	1.00E+00	2.01E+06	9.41E+09	1.12E+02	1.12E+02	1.00E-08	2.06E-10

Composite Worker Soil DCCs July 2023											
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Iridium (77)	Ir-190n	1.97E+03	3.52E-04	1.36E+09	1.00E+00	3.75E+06	2.29E+10	3.72E+01	3.72E+01	1.00E-08	1.88E-10
Iridium (77)	Ir-191m	4.42E+06	1.57E-07	1.36E+09	1.00E+00	.	.	3.51E+26	3.51E+26	1.00E-08	7.94E+11
Iridium (77)	Ir-192	3.43E+00	2.02E-01	1.36E+09	1.00E+00	1.03E+03	1.32E+06	1.34E-01	1.34E-01	1.00E-08	3.94E-10
Iridium (77)	Ir-192m	2.51E+05	2.76E-06	1.36E+09	1.00E+00	7.58E+07	9.67E+10	9.84E+03	9.84E+03	1.00E-08	3.94E-10
Iridium (77)	Ir-192n	2.88E-03	2.41E+02	1.36E+09	1.00E+00	1.76E+02	3.99E+04	3.81E-02	3.81E-02	1.69E+00	1.33E-07
Iridium (77)	Ir-193m	2.40E+01	2.88E-02	1.36E+09	1.00E+00	3.31E+04	4.84E+07	6.34E+03	5.32E+03	1.00E-08	2.24E-06
Iridium (77)	Ir-194	3.15E+02	2.20E-03	1.36E+09	1.00E+00	9.47E+04	1.27E+09	9.65E+01	9.64E+01	1.00E-08	3.12E-09
Iridium (77)	Ir-194m	1.48E+00	4.68E-01	1.36E+09	1.00E+00	3.72E+02	3.92E+05	2.44E-02	2.44E-02	1.00E-08	1.68E-10
Iridium (77)	Ir-195	2.43E+03	2.85E-04	1.36E+09	1.00E+00	9.62E+06	7.94E+10	2.67E+03	2.67E+03	1.00E-08	1.12E-08
Iridium (77)	Ir-195m	1.60E+03	4.34E-04	1.36E+09	1.00E+00	1.51E+06	6.08E+09	1.33E+02	1.33E+02	1.00E-08	8.51E-10
Iridium (77)	Ir-196	4.20E+05	1.65E-06	1.36E+09	1.00E+00	.	.	3.54E+19	3.54E+19	1.00E-08	8.67E+05
Iridium (77)	Ir-196m	4.34E+03	1.60E-04	1.36E+09	1.00E+00	1.56E+07	1.09E+11	5.23E+01	5.23E+01	1.00E-08	1.24E-10
Potassium (19)	K-38	4.77E+04	1.45E-05	1.36E+09	1.00E+00	.	.	4.21E+12	4.21E+12	1.00E-08	1.76E-01
Potassium (19)	K-40	5.54E-10	1.25E+09	1.36E+09	1.00E+00	6.50E+01	3.07E+04	1.62E-01	1.62E-01	1.00E-08	6.14E-01
Potassium (19)	K-42	4.91E+02	1.41E-03	1.36E+09	1.00E+00	4.50E+05	3.27E+09	4.29E+01	4.29E+01	1.00E-08	1.92E-10
Potassium (19)	K-43	2.72E+02	2.55E-03	1.36E+09	1.00E+00	4.37E+05	1.71E+09	8.35E+00	8.35E+00	1.00E-08	6.91E-11
Potassium (19)	K-44	1.65E+04	4.21E-05	1.36E+09	1.00E+00	1.47E+14	2.10E+18	3.24E+08	3.24E+08	1.00E-08	4.54E-05
Potassium (19)	K-45	2.11E+04	3.29E-05	1.36E+09	1.00E+00	1.51E+07	1.82E+10	8.07E+07	1.27E+07	1.00E-08	1.42E-06
Potassium (19)	K-46	2.08E+05	3.33E-06	1.36E+09	1.00E+00	.	.	3.97E+16	3.97E+16	1.00E-08	4.60E+02
Krypton (36)	Kr-74	3.17E+04	2.19E-05	1.36E+09	1.00E+00	1.71E+13	2.00E+17	1.92E+07	1.92E+07	1.00E-08	2.36E-06
Krypton (36)	Kr-75	8.49E+04	8.16E-06	1.36E+09	1.00E+00	1.45E+07	1.71E+11	1.70E+03	1.70E+03	1.00E-08	7.90E-11
Krypton (36)	Kr-76	4.10E+02	1.69E-03	1.36E+09	1.00E+00	3.54E+05	2.19E+09	3.45E+00	3.45E+00	1.00E-08	3.35E-11
Krypton (36)	Kr-77	4.90E+03	1.42E-04	1.36E+09	1.00E+00	2.00E+07	1.24E+11	1.11E+02	1.11E+02	1.00E-08	9.13E-11
Krypton (36)	Kr-79	1.73E+02	4.00E-03	1.36E+09	1.00E+00	.	.	2.09E+01	2.09E+01	1.00E-08	4.99E-10
Krypton (36)	Kr-81	3.03E-06	2.29E+05	1.36E+09	1.00E+00	.	.	3.91E+01	3.91E+01	1.00E-08	5.49E-02
Krypton (36)	Kr-81m	1.67E+06	4.15E-07	1.36E+09	1.00E+00	.	.	2.15E+13	2.15E+13	1.00E-08	5.49E-02
Krypton (36)	Kr-83m	3.32E+03	2.09E-04	1.36E+09	1.00E+00	.	.	2.30E+07	2.30E+07	1.00E-08	3.02E-05
Krypton (36)	Kr-85	6.44E-02	1.08E+01	1.36E+09	1.00E+00	.	.	1.23E+01	1.23E+01	1.00E-08	8.50E-07
Krypton (36)	Kr-85m	1.36E+03	5.11E-04	1.36E+09	1.00E+00	.	.	3.17E+02	3.17E+02	1.00E-08	1.04E-09
Krypton (36)	Kr-87	4.77E+03	1.45E-04	1.36E+09	1.00E+00	8.87E+16	5.49E+19	1.55E+02	1.55E+02	1.00E-08	1.48E-10
Krypton (36)	Kr-88	2.14E+03	3.24E-04	1.36E+09	1.00E+00	9.43E+06	1.75E+11	2.05E+01	2.05E+01	1.00E-08	4.43E-11
Krypton (36)	Kr-89	1.16E+05	5.99E-06	1.36E+09	1.00E+00	1.81E+07	3.58E+10	1.24E+06	1.16E+06	1.00E-08	4.68E-08

Composite Worker Soil DCCs July 2023											
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Lanthanum (57)	La-128	7.03E+04	9.86E-06	1.36E+09	1.00E+00	1.03E+07	1.16E+11	2.21E+03	2.21E+03	1.00E-08	2.11E-10
Lanthanum (57)	La-129	3.14E+04	2.21E-05	1.36E+09	1.00E+00	1.13E+08	6.59E+11	1.41E+03	1.41E+03	1.00E-08	3.04E-10
Lanthanum (57)	La-130	4.19E+04	1.66E-05	1.36E+09	1.00E+00	.	.	2.53E+12	2.53E+12	1.00E-08	4.12E-01
Lanthanum (57)	La-131	6.17E+03	1.12E-04	1.36E+09	1.00E+00	4.45E+06	1.62E+10	1.73E+02	1.73E+02	1.00E-08	1.93E-10
Lanthanum (57)	La-132	1.26E+03	5.48E-04	1.36E+09	1.00E+00	1.24E+06	1.57E+10	1.74E+01	1.74E+01	1.00E-08	9.52E-11
Lanthanum (57)	La-132m	1.50E+04	4.62E-05	1.36E+09	1.00E+00	1.93E+07	2.45E+11	2.71E+02	2.71E+02	1.00E-08	1.25E-10
Lanthanum (57)	La-133	1.55E+03	4.47E-04	1.36E+09	1.00E+00	4.78E+06	5.74E+09	2.88E+02	2.88E+02	1.00E-08	1.29E-09
Lanthanum (57)	La-134	5.65E+04	1.23E-05	1.36E+09	1.00E+00	.	.	3.52E+13	3.52E+13	1.00E-08	4.39E+00
Lanthanum (57)	La-135	3.11E+02	2.23E-03	1.36E+09	1.00E+00	4.02E+06	4.60E+10	7.52E+02	7.52E+02	1.00E-08	1.71E-08
Lanthanum (57)	La-136	3.69E+04	1.88E-05	1.36E+09	1.00E+00	.	.	5.57E+12	5.57E+12	1.00E-08	1.08E+00
Lanthanum (57)	La-137	1.16E-05	6.00E+04	1.36E+09	1.00E+00	4.76E+03	2.88E+05	1.51E+01	1.51E+01	1.00E-08	9.39E-03
Lanthanum (57)	La-138	6.79E-12	1.02E+11	1.36E+09	1.00E+00	3.67E+02	1.68E+04	2.15E-02	2.15E-02	1.00E-08	2.29E+01
Lanthanum (57)	La-140	1.51E+02	4.60E-03	1.36E+09	1.00E+00	3.00E+04	3.04E+08	1.71E+00	1.71E+00	1.00E-08	8.35E-11
Lanthanum (57)	La-141	1.55E+03	4.47E-04	1.36E+09	1.00E+00	5.71E+05	9.77E+08	4.98E+02	4.97E+02	1.00E-08	2.37E-09
Lanthanum (57)	La-142	4.00E+03	1.73E-04	1.36E+09	1.00E+00	9.14E+06	1.02E+11	4.22E+01	4.22E+01	1.00E-08	7.86E-11
Lanthanum (57)	La-143	2.57E+04	2.70E-05	1.36E+09	1.00E+00	4.45E+06	1.89E+10	3.03E+03	3.02E+03	1.00E-08	8.84E-10
Lutetium (71)	Lu-165	3.39E+04	2.04E-05	1.36E+09	1.00E+00	3.56E+07	3.21E+11	1.92E+03	1.92E+03	1.00E-08	4.91E-10
Lutetium (71)	Lu-167	7.07E+03	9.80E-05	1.36E+09	1.00E+00	4.43E+06	1.26E+10	1.01E+02	1.01E+02	1.00E-08	1.25E-10
Lutetium (71)	Lu-169	1.78E+02	3.89E-03	1.36E+09	1.00E+00	5.26E+04	1.13E+08	3.34E+00	3.34E+00	1.00E-08	1.66E-10
Lutetium (71)	Lu-169m	1.37E+05	5.07E-06	1.36E+09	1.00E+00	4.03E+07	8.69E+10	2.56E+03	2.56E+03	1.00E-08	1.66E-10
Lutetium (71)	Lu-170	1.26E+02	5.51E-03	1.36E+09	1.00E+00	5.19E+04	4.52E+08	1.26E+00	1.26E+00	1.00E-08	8.95E-11
Lutetium (71)	Lu-171	3.07E+01	2.26E-02	1.36E+09	1.00E+00	1.78E+04	7.52E+07	1.48E+00	1.48E+00	1.00E-08	4.32E-10
Lutetium (71)	Lu-171m	2.77E+05	2.51E-06	1.36E+09	1.00E+00	1.60E+08	6.78E+11	1.33E+04	1.33E+04	1.00E-08	4.32E-10
Lutetium (71)	Lu-172	3.78E+01	1.84E-02	1.36E+09	1.00E+00	1.14E+04	5.70E+07	5.44E-01	5.44E-01	1.00E-08	1.30E-10
Lutetium (71)	Lu-172m	9.84E+04	7.04E-06	1.36E+09	1.00E+00	2.96E+07	1.49E+11	1.42E+03	1.42E+03	1.00E-08	1.30E-10
Lutetium (71)	Lu-173	5.06E-01	1.37E+00	1.36E+09	1.00E+00	1.39E+03	8.81E+05	3.59E-01	3.59E-01	1.00E-08	6.44E-09
Lutetium (71)	Lu-174	2.09E-01	3.31E+00	1.36E+09	1.00E+00	1.56E+03	6.10E+05	3.82E-01	3.81E-01	1.00E-08	1.66E-08
Lutetium (71)	Lu-174m	1.78E+00	3.89E-01	1.36E+09	1.00E+00	1.48E+03	1.06E+06	1.94E+00	1.94E+00	1.00E-08	9.93E-09
Lutetium (71)	Lu-176	1.80E-11	3.85E+10	1.36E+09	1.00E+00	2.21E+02	1.69E+04	7.11E-02	7.11E-02	1.00E-08	3.65E+01
Lutetium (71)	Lu-176m	1.67E+03	4.15E-04	1.36E+09	1.00E+00	4.05E+06	3.44E+10	6.84E+03	6.82E+03	1.00E-08	3.77E-08
Lutetium (71)	Lu-177	3.81E+01	1.82E-02	1.36E+09	1.00E+00	2.86E+04	7.84E+07	4.25E+01	4.24E+01	1.00E-08	1.04E-08
Lutetium (71)	Lu-177m	1.58E+00	4.39E-01	1.36E+09	1.00E+00	4.36E+02	3.02E+05	6.93E-02	6.93E-02	1.00E-08	4.08E-10



Composite Worker Soil DCCs July 2023											
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Lutetium (71)	Lu-178	1.28E+04	5.40E-05	1.36E+09	1.00E+00	4.69E+12	5.02E+16	1.15E+08	1.15E+08	1.00E-08	8.40E-05
Lutetium (71)	Lu-178m	1.58E+04	4.39E-05	1.36E+09	1.00E+00	1.68E+14	1.03E+18	4.44E+08	4.44E+08	1.00E-08	2.63E-04
Lutetium (71)	Lu-179	1.32E+03	5.24E-04	1.36E+09	1.00E+00	2.45E+06	2.77E+10	1.43E+03	1.43E+03	1.00E-08	1.01E-08
Lutetium (71)	Lu-180	6.39E+04	1.08E-05	1.36E+09	1.00E+00	.	.	1.50E+14	1.50E+14	1.00E-08	2.21E+01
Lutetium (71)	Lu-181	1.04E+05	6.66E-06	1.36E+09	1.00E+00	3.76E+07	4.35E+10	6.24E+03	6.24E+03	1.00E-08	5.69E-10
Magnesium (12)	Mg-27	3.85E+04	1.80E-05	1.36E+09	1.00E+00	.	.	6.38E+12	6.38E+12	1.00E-08	2.35E-01
Magnesium (12)	Mg-28	2.90E+02	2.39E-03	1.36E+09	1.00E+00	5.38E+04	5.26E+08	2.39E+00	2.38E+00	1.00E-08	1.21E-11
Manganese (25)	Mn-50m	2.08E+05	3.33E-06	1.36E+09	1.00E+00	.	.	2.74E+16	2.74E+16	1.00E-08	3.45E+02
Manganese (25)	Mn-51	7.88E+03	8.79E-05	1.36E+09	1.00E+00	2.40E+07	2.25E+11	2.25E+02	2.25E+02	1.00E-08	7.64E-11
Manganese (25)	Mn-52	4.52E+01	1.53E-02	1.36E+09	1.00E+00	1.00E+04	7.41E+07	3.54E-01	3.54E-01	1.00E-08	2.13E-11
Manganese (25)	Mn-52m	1.73E+04	4.01E-05	1.36E+09	1.00E+00	2.18E+08	1.61E+12	7.69E+03	7.69E+03	1.00E-08	1.22E-09
Manganese (25)	Mn-53	1.87E-07	3.70E+06	1.36E+09	1.00E+00	1.34E+04	7.45E+06	.	1.34E+04	1.00E-08	1.99E+02
Manganese (25)	Mn-54	8.10E-01	8.55E-01	1.36E+09	1.00E+00	8.10E+02	1.10E+06	4.87E-02	4.87E-02	1.00E-08	1.70E-10
Manganese (25)	Mn-56	2.35E+03	2.94E-04	1.36E+09	1.00E+00	3.68E+06	4.16E+10	3.63E+01	3.63E+01	1.00E-08	4.53E-11
Manganese (25)	Mn-57	2.56E+05	2.71E-06	1.36E+09	1.00E+00	.	.	9.24E+18	9.24E+18	1.00E-08	1.08E+05
Manganese (25)	Mn-58m	3.35E+05	2.07E-06	1.36E+09	1.00E+00	.	.	7.73E+17	7.73E+17	1.00E-08	7.02E+03
Molybdenum (42)	Mo-101	2.49E+04	2.78E-05	1.36E+09	1.00E+00	9.49E+15	8.33E+19	4.02E+10	4.02E+10	1.00E-08	8.54E-03
Molybdenum (42)	Mo-102	3.22E+04	2.15E-05	1.36E+09	1.00E+00	5.02E+17	7.87E+21	1.94E+13	1.94E+13	1.00E-08	3.23E+00
Molybdenum (42)	Mo-89	1.73E+05	4.01E-06	1.36E+09	1.00E+00	6.53E+07	5.94E+11	1.88E+03	1.88E+03	1.00E-08	5.07E-11
Molybdenum (42)	Mo-90	1.09E+03	6.35E-04	1.36E+09	1.00E+00	2.97E+05	2.43E+09	5.77E+00	5.77E+00	1.00E-08	2.49E-11
Molybdenum (42)	Mo-91	2.35E+04	2.95E-05	1.36E+09	1.00E+00	5.14E+10	1.80E+13	6.33E+07	6.32E+07	1.00E-08	1.28E-05
Molybdenum (42)	Mo-91m	3.38E+05	2.05E-06	1.36E+09	1.00E+00	6.70E+08	4.08E+11	7.37E+05	7.36E+05	1.00E-08	1.04E-08
Molybdenum (42)	Mo-93	1.73E-04	4.00E+03	1.36E+09	1.00E+00	1.35E+02	6.61E+05	3.48E+02	9.73E+01	6.50E+01	2.74E-03
Molybdenum (42)	Mo-93m	8.86E+02	7.82E-04	1.36E+09	1.00E+00	2.94E+06	1.12E+10	1.03E+01	1.03E+01	1.00E-08	5.66E-11
Molybdenum (42)	Mo-99	9.21E+01	7.53E-03	1.36E+09	1.00E+00	5.90E+04	2.16E+08	1.18E+01	1.17E+01	1.00E-08	6.63E-10
Nitrogen (7)	N-13	3.66E+04	1.90E-05	1.36E+09	9.00E-01	.	.	2.09E+12	2.09E+12	1.00E-08	3.90E-02
Nitrogen (7)	N-16	3.07E+06	2.26E-07	1.36E+09	1.00E+00	.	.	6.36E+23	6.36E+23	1.00E-08	1.74E+08
Sodium (11)	Na-22	2.66E-01	2.60E+00	1.36E+09	1.00E+00	1.44E+02	9.83E+04	1.43E-02	1.43E-02	1.00E-08	6.20E-11
Sodium (11)	Na-24	4.06E+02	1.71E-03	1.36E+09	1.00E+00	3.74E+05	1.89E+09	2.41E+00	2.41E+00	1.00E-08	7.48E-12
Niobium (41)	Nb-87	9.71E+04	7.13E-06	1.36E+09	1.00E+00	4.01E+07	3.50E+11	1.46E+03	1.46E+03	1.00E-08	6.85E-11
Niobium (41)	Nb-88	2.51E+04	2.76E-05	1.36E+09	1.00E+00	7.24E+06	7.65E+09	2.80E+02	2.80E+02	2.24E-02	5.14E-11
Niobium (41)	Nb-88m	4.68E+04	1.48E-05	1.36E+09	1.00E+00	1.35E+07	1.43E+10	5.21E+02	5.21E+02	2.24E-02	5.14E-11

Composite Worker Soil DCCs July 2023											
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Niobium (41)	Nb-89	2.99E+03	2.32E-04	1.36E+09	1.00E+00	1.13E+06	1.03E+10	3.25E+01	3.25E+01	1.00E-08	5.07E-11
Niobium (41)	Nb-89m	5.52E+03	1.26E-04	1.36E+09	1.00E+00	2.51E+06	2.17E+10	5.24E+01	5.24E+01	1.00E-08	4.43E-11
Niobium (41)	Nb-90	4.16E+02	1.67E-03	1.36E+09	1.00E+00	1.33E+05	1.42E+09	2.56E+00	2.56E+00	1.00E-08	2.90E-11
Niobium (41)	Nb-91	1.02E-03	6.80E+02	1.36E+09	1.00E+00	9.12E+03	1.38E+06	1.78E+01	1.78E+01	1.00E-08	8.31E-05
Niobium (41)	Nb-91m	4.16E+00	1.67E-01	1.36E+09	1.00E+00	4.12E+03	2.51E+06	4.53E+00	4.52E+00	1.00E-08	5.19E-09
Niobium (41)	Nb-92	2.00E-08	3.47E+07	1.36E+09	1.00E+00	3.92E+02	9.57E+04	1.88E-02	1.88E-02	1.00E-08	4.54E-03
Niobium (41)	Nb-92m	2.49E+01	2.78E-02	1.36E+09	1.00E+00	1.99E+04	1.31E+08	7.14E-01	7.14E-01	1.00E-08	1.38E-10
Niobium (41)	Nb-93m	4.30E-02	1.61E+01	1.36E+09	1.00E+00	3.17E+03	1.33E+06	2.27E+03	1.32E+03	1.00E-08	1.50E-04
Niobium (41)	Nb-94	3.41E-05	2.03E+04	1.36E+09	1.00E+00	2.31E+02	5.32E+04	1.80E-02	1.80E-02	1.00E-08	2.59E-06
Niobium (41)	Nb-94m	5.82E+04	1.19E-05	1.36E+09	1.00E+00	3.96E+11	9.11E+13	3.08E+07	3.08E+07	1.00E-08	2.61E-06
Niobium (41)	Nb-95	7.23E+00	9.59E-02	1.36E+09	1.00E+00	4.93E+03	1.02E+07	2.66E-01	2.66E-01	1.00E-08	1.83E-10
Niobium (41)	Nb-95m	7.01E+01	9.89E-03	1.36E+09	1.00E+00	2.41E+04	6.76E+07	2.55E+00	2.55E+00	1.00E-08	1.81E-10
Niobium (41)	Nb-96	2.60E+02	2.67E-03	1.36E+09	1.00E+00	9.46E+04	8.99E+08	2.94E+00	2.94E+00	1.00E-08	5.70E-11
Niobium (41)	Nb-97	5.05E+03	1.37E-04	1.36E+09	1.00E+00	2.93E+07	2.58E+11	2.16E+02	2.16E+02	1.00E-08	2.17E-10
Niobium (41)	Nb-98m	7.10E+03	9.76E-05	1.36E+09	1.00E+00	2.61E+07	2.73E+11	6.84E+01	6.84E+01	1.00E-08	4.95E-11
Niobium (41)	Nb-99	1.46E+06	4.76E-07	1.36E+09	1.00E+00	9.34E+08	3.42E+12	1.86E+05	1.86E+05	1.00E-08	6.63E-10
Niobium (41)	Nb-99m	1.40E+05	4.95E-06	1.36E+09	1.00E+00	8.97E+07	3.28E+11	1.79E+04	1.79E+04	1.00E-08	6.62E-10
Neodymium (60)	Nd-134	4.29E+04	1.62E-05	1.36E+09	1.00E+00	6.45E+06	6.81E+10	1.74E+03	1.74E+03	1.00E-08	2.85E-10
Neodymium (60)	Nd-135	2.94E+04	2.36E-05	1.36E+09	1.00E+00	3.98E+07	4.29E+11	1.07E+03	1.07E+03	1.00E-08	2.59E-10
Neodymium (60)	Nd-136	7.19E+03	9.64E-05	1.36E+09	1.00E+00	2.15E+07	2.43E+11	8.49E+01	8.49E+01	1.00E-08	8.42E-11
Neodymium (60)	Nd-137	9.46E+03	7.32E-05	1.36E+09	1.00E+00	3.24E+07	3.65E+11	1.77E+02	1.77E+02	1.00E-08	1.34E-10
Neodymium (60)	Nd-138	1.20E+03	5.75E-04	1.36E+09	1.00E+00	7.53E+05	1.08E+10	4.22E+01	4.22E+01	1.00E-08	2.53E-10
Neodymium (60)	Nd-139	1.23E+04	5.65E-05	1.36E+09	1.00E+00	1.93E+07	1.84E+10	1.83E+03	1.83E+03	1.00E-08	1.09E-09
Neodymium (60)	Nd-139m	1.10E+03	6.28E-04	1.36E+09	1.00E+00	8.85E+05	1.50E+09	1.72E+01	1.72E+01	1.00E-08	1.14E-10
Neodymium (60)	Nd-140	7.51E+01	9.23E-03	1.36E+09	1.00E+00	1.51E+04	1.53E+08	4.07E+00	4.07E+00	1.00E-08	3.98E-10
Neodymium (60)	Nd-141	2.44E+03	2.84E-04	1.36E+09	1.00E+00	1.13E+08	1.04E+12	1.36E+03	1.36E+03	1.00E-08	4.11E-09
Neodymium (60)	Nd-141m	3.52E+05	1.97E-06	1.36E+09	1.00E+00	1.63E+10	1.49E+14	1.95E+05	1.95E+05	1.00E-08	4.09E-09
Neodymium (60)	Nd-144	3.03E-16	2.29E+15	1.36E+09	9.00E-01	9.80E+00	1.35E+02		9.14E+00	2.19E-06	2.28E+08
Neodymium (60)	Nd-147	2.30E+01	3.01E-02	1.36E+09	1.00E+00	8.10E+03	1.62E+07	6.04E+00	6.03E+00	1.00E-08	2.02E-09
Neodymium (60)	Nd-149	3.51E+03	1.97E-04	1.36E+09	1.00E+00	1.26E+06	1.01E+10	3.01E+02	3.01E+02	1.00E-08	6.69E-10
Neodymium (60)	Nd-151	2.93E+04	2.37E-05	1.36E+09	1.00E+00	1.58E+07	1.26E+11	2.85E+03	2.85E+03	1.00E-08	7.71E-10
Neodymium (60)	Nd-152	3.20E+04	2.17E-05	1.36E+09	1.00E+00	1.09E+18	1.28E+22	6.10E+12	6.10E+12	1.00E-08	1.52E+00

Composite Worker Soil DCCs July 2023											
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Neon (10)	Ne-19	1.27E+06	5.46E-07	1.36E+09	1.00E+00	.	.	3.51E+22	3.51E+22	1.00E-08	2.75E+07
Neon (10)	Ne-24	1.08E+05	6.43E-06	1.36E+09	1.00E+00	9.90E+07	5.01E+11	6.38E+02	6.38E+02	1.00E-08	7.46E-12
Nickel (28)	Ni-56	4.16E+01	1.66E-02	1.36E+09	1.00E+00	5.05E+03	1.33E+07	2.14E-01	2.14E-01	1.00E-08	1.51E-11
Nickel (28)	Ni-57	1.71E+02	4.06E-03	1.36E+09	1.00E+00	6.56E+04	3.48E+08	2.29E+00	2.29E+00	1.00E-08	4.02E-11
Nickel (28)	Ni-59	6.86E-06	1.01E+05	1.36E+09	1.00E+00	6.42E+03	2.98E+06	1.90E+03	1.46E+03	1.00E-08	6.60E-01
Nickel (28)	Ni-63	6.92E-03	1.00E+02	1.36E+09	9.00E-01	2.59E+03	1.22E+06	.	2.58E+03	1.00E-08	1.23E-03
Nickel (28)	Ni-65	2.41E+03	2.87E-04	1.36E+09	1.00E+00	5.30E+06	1.62E+10	1.13E+02	1.13E+02	1.00E-08	1.59E-10
Nickel (28)	Ni-66	1.11E+02	6.23E-03	1.36E+09	9.00E-01	1.47E+04	1.41E+08	2.83E+01	2.82E+01	1.00E-08	8.79E-10
Neptunium (93)	Np-232	2.48E+04	2.80E-05	1.36E+09	1.00E+00	2.26E+06	8.58E+07	4.86E+04	4.75E+04	9.73E+00	2.33E-08
Neptunium (93)	Np-233	1.01E+04	6.89E-05	1.36E+09	1.00E+00	1.56E+09	7.05E+10	5.56E+03	5.56E+03	1.00E-08	6.75E-09
Neptunium (93)	Np-234	5.75E+01	1.21E-02	1.36E+09	1.00E+00	3.56E+04	2.79E+08	1.40E+00	1.40E+00	1.00E-08	2.98E-10
Neptunium (93)	Np-235	6.39E-01	1.09E+00	1.36E+09	1.00E+00	9.56E+03	5.85E+06	1.16E+02	1.15E+02	1.00E-08	2.22E-06
Neptunium (93)	Np-236	4.50E-06	1.54E+05	1.36E+09	1.00E+00	4.17E+00	1.15E+02	9.78E-02	9.55E-02	7.12E+02	2.63E-04
Neptunium (93)	Np-236m	2.70E+02	2.57E-03	1.36E+09	1.00E+00	1.13E+04	6.10E+05	2.58E+02	2.52E+02	1.00E-08	1.16E-08
Neptunium (93)	Np-237	3.23E-07	2.14E+06	1.36E+09	1.00E+00	6.18E-01	2.89E+01	7.83E-02	6.94E-02	5.39E+05	2.67E-03
Neptunium (93)	Np-238	1.19E+02	5.80E-03	1.36E+09	1.00E+00	1.79E+04	3.75E+05	5.60E+00	5.60E+00	1.00E-08	5.85E-10
Neptunium (93)	Np-239	1.07E+02	6.46E-03	1.36E+09	1.00E+00	5.23E+04	6.32E+07	2.40E+01	2.40E+01	1.00E-08	2.80E-09
Neptunium (93)	Np-240	5.88E+03	1.18E-04	1.36E+09	1.00E+00	2.38E+07	1.24E+09	1.63E+02	1.63E+02	1.00E-08	3.49E-10
Neptunium (93)	Np-240m	5.04E+04	1.37E-05	1.36E+09	1.00E+00	7.61E+08	1.07E+10	4.06E+07	3.84E+07	1.00E-08	9.57E-06
Neptunium (93)	Np-241	2.62E+04	2.64E-05	1.36E+09	1.00E+00	3.47E+07	4.89E+08	8.00E+07	2.32E+07	5.83E+01	1.12E-05
Neptunium (93)	Np-242	1.66E+05	4.19E-06	1.36E+09	1.00E+00	1.50E+11	2.12E+12	1.63E+13	1.39E+11	1.00E-08	1.07E-02
Neptunium (93)	Np-242m	6.62E+04	1.05E-05	1.36E+09	1.00E+00	6.00E+10	8.47E+11	6.53E+12	5.57E+10	1.00E-08	1.07E-02
Oxygen (8)	O-14	3.10E+05	2.24E-06	1.36E+09	1.00E+00	.	.	1.04E+18	1.04E+18	1.00E-08	2.48E+03
Oxygen (8)	O-15	1.79E+05	3.88E-06	1.36E+09	9.00E-01	.	.	3.46E+16	3.46E+16	1.00E-08	1.52E+02
Oxygen (8)	O-19	8.26E+05	8.39E-07	1.36E+09	1.00E+00	.	.	7.18E+20	7.18E+20	1.00E-08	8.66E+05
Osmium (76)	Os-180	1.69E+04	4.09E-05	1.36E+09	1.00E+00	1.16E+15	8.30E+18	1.08E+09	1.08E+09	1.00E-08	6.03E-04
Osmium (76)	Os-181	3.47E+03	2.00E-04	1.36E+09	1.00E+00	2.34E+06	1.40E+10	4.68E+01	4.68E+01	1.00E-08	1.28E-10
Osmium (76)	Os-182	2.75E+02	2.52E-03	1.36E+09	1.00E+00	1.26E+05	1.03E+09	4.95E+00	4.95E+00	1.00E-08	1.72E-10
Osmium (76)	Os-183	4.67E+02	1.48E-03	1.36E+09	1.00E+00	1.60E+05	3.13E+08	2.19E+01	2.19E+01	1.00E-08	4.50E-10
Osmium (76)	Os-183m	6.13E+02	1.13E-03	1.36E+09	1.00E+00	2.08E+05	4.13E+08	1.48E+01	1.48E+01	1.00E-08	2.31E-10
Osmium (76)	Os-185	2.70E+00	2.56E-01	1.36E+09	1.00E+00	2.30E+03	4.55E+06	1.25E-01	1.25E-01	1.00E-08	4.49E-10
Osmium (76)	Os-186	3.47E-16	2.00E+15	1.36E+09	9.00E-01	1.25E+01	6.03E+02	.	1.22E+01	1.64E-05	3.45E+08

Composite Worker Soil DCCs July 2023											
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Osmium (76)	Os-189m	1.05E+03	6.62E-04	1.36E+09	1.00E+00	2.45E+07	4.43E+11	1.16E+08	2.02E+07	1.00E-08	1.92E-04
Osmium (76)	Os-190m	3.68E+04	1.88E-05	1.36E+09	1.00E+00	.	.	1.35E+12	1.35E+12	1.00E-08	3.66E-01
Osmium (76)	Os-191	1.64E+01	4.22E-02	1.36E+09	1.00E+00	1.13E+04	2.02E+07	1.16E+01	1.16E+01	1.00E-08	7.06E-09
Osmium (76)	Os-191m	4.63E+02	1.50E-03	1.36E+09	1.00E+00	2.72E+05	5.26E+08	3.12E+02	3.12E+02	1.00E-08	6.74E-09
Osmium (76)	Os-193	2.02E+02	3.44E-03	1.36E+09	1.00E+00	9.75E+04	8.61E+08	1.04E+02	1.04E+02	1.00E-08	5.22E-09
Osmium (76)	Os-194	1.16E-01	6.00E+00	1.36E+09	1.00E+00	1.11E+02	3.14E+04	3.24E-01	3.23E-01	7.02E-03	2.84E-08
Osmium (76)	Os-196	1.04E+04	6.64E-05	1.36E+09	1.00E+00	3.80E+07	4.28E+11	9.69E+02	9.69E+02	1.00E-08	9.54E-10
Phosphorus (15)	P-30	1.46E+05	4.75E-06	1.36E+09	1.00E+00	.	.	9.78E+15	9.78E+15	1.00E-08	1.06E+02
Phosphorus (15)	P-32	1.77E+01	3.91E-02	1.36E+09	9.00E-01	2.96E+03	1.10E+07	1.57E+02	1.49E+02	1.00E-08	1.41E-08
Phosphorus (15)	P-33	9.98E+00	6.94E-02	1.36E+09	9.00E-01	1.63E+04	1.38E+07	3.58E+04	1.12E+04	1.00E-08	1.94E-06
Protactinium (91)	Pa-227	9.51E+03	7.29E-05	1.36E+09	1.00E+00	2.20E+05	8.14E+06	2.30E+03	2.27E+03	1.00E-08	2.85E-09
Protactinium (91)	Pa-228	2.76E+02	2.51E-03	1.36E+09	1.00E+00	2.49E+03	5.29E+04	4.23E+00	4.22E+00	1.00E-08	1.83E-10
Protactinium (91)	Pa-229	1.69E+02	4.11E-03	1.36E+09	1.00E+00	2.05E+05	7.57E+06	1.42E+02	1.42E+02	1.00E-08	1.01E-08
Protactinium (91)	Pa-230	1.45E+01	4.77E-02	1.36E+09	1.00E+00	6.97E+02	1.77E+04	6.39E-01	6.38E-01	1.00E-08	5.30E-10
Protactinium (91)	Pa-231	2.12E-05	3.28E+04	1.36E+09	1.00E+00	4.40E-01	8.63E+00	7.30E-02	6.22E-02	2.21E+02	3.56E-05
Protactinium (91)	Pa-232	1.93E+02	3.59E-03	1.36E+09	1.00E+00	1.76E+04	6.68E+05	5.82E+00	5.82E+00	1.00E-08	3.67E-10
Protactinium (91)	Pa-233	9.38E+00	7.39E-02	1.36E+09	1.00E+00	3.88E+03	5.55E+06	1.49E+00	1.49E+00	1.00E-08	1.94E-09
Protactinium (91)	Pa-234	9.06E+02	7.65E-04	1.36E+09	1.00E+00	8.65E+05	5.78E+09	1.77E+01	1.77E+01	1.00E-08	2.40E-10
Protactinium (91)	Pa-234m	3.11E+05	2.23E-06	1.36E+09	1.00E+00	3.04E+10	3.74E+12	3.76E+06	3.76E+06	1.00E-08	1.48E-07
Protactinium (91)	Pa-235	1.49E+04	4.66E-05	1.36E+09	1.00E+00	6.29E+12	1.26E+14	8.76E+10	8.75E+10	1.00E-08	7.25E-02
Protactinium (91)	Pa-236	4.00E+04	1.73E-05	1.36E+09	1.00E+00	1.16E+13	3.93E+14	9.39E+12	9.09E+12	1.63E+08	2.81E+00
Protactinium (91)	Pa-237	4.19E+04	1.66E-05	1.36E+09	1.00E+00	2.15E+07	5.41E+10	1.42E+04	1.42E+04	1.00E-08	4.21E-09
Lead (82)	Pb-194	3.04E+04	2.28E-05	1.36E+09	1.00E+00	2.50E+08	1.33E+12	9.92E+02	9.92E+02	1.00E-08	3.32E-10
Lead (82)	Pb-195m	2.43E+04	2.85E-05	1.36E+09	1.00E+00	2.98E+07	2.08E+10	4.75E+02	4.75E+02	1.00E-08	2.00E-10
Lead (82)	Pb-196	9.84E+03	7.04E-05	1.36E+09	1.00E+00	5.04E+07	3.48E+11	1.18E+02	1.18E+02	1.00E-08	1.23E-10
Lead (82)	Pb-197	4.55E+04	1.52E-05	1.36E+09	1.00E+00	6.67E+07	2.43E+10	2.92E+03	2.92E+03	1.00E-08	6.62E-10
Lead (82)	Pb-197m	8.47E+03	8.18E-05	1.36E+09	1.00E+00	1.07E+07	4.46E+09	1.30E+02	1.30E+02	1.00E-08	1.59E-10
Lead (82)	Pb-198	2.53E+03	2.74E-04	1.36E+09	1.00E+00	6.60E+06	4.10E+10	2.90E+01	2.90E+01	1.00E-08	1.19E-10
Lead (82)	Pb-199	4.05E+03	1.71E-04	1.36E+09	1.00E+00	2.43E+07	1.17E+11	9.30E+01	9.30E+01	1.00E-08	2.40E-10
Lead (82)	Pb-200	2.82E+02	2.45E-03	1.36E+09	1.00E+00	1.92E+05	1.24E+09	5.60E+00	5.60E+00	1.00E-08	2.08E-10
Lead (82)	Pb-201	6.51E+02	1.07E-03	1.36E+09	1.00E+00	9.94E+05	4.89E+09	2.50E+01	2.50E+01	1.00E-08	4.05E-10
Lead (82)	Pb-201m	3.58E+05	1.93E-06	1.36E+09	1.00E+00	5.47E+08	2.69E+12	1.37E+04	1.37E+04	1.00E-08	4.04E-10



Composite Worker Soil DCCs July 2023											
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Lead (82)	Pb-202	1.32E-05	5.25E+04	1.36E+09	1.00E+00	2.49E+01	5.10E+04	7.07E-02	7.05E-02	5.35E-01	5.66E-05
Lead (82)	Pb-202m	1.72E+03	4.03E-04	1.36E+09	1.00E+00	3.59E+06	2.78E+10	2.41E+01	2.41E+01	1.00E-08	1.48E-10
Lead (82)	Pb-203	1.17E+02	5.92E-03	1.36E+09	1.00E+00	1.87E+05	1.23E+09	1.36E+01	1.36E+01	1.00E-08	1.24E-09
Lead (82)	Pb-204m	5.42E+03	1.28E-04	1.36E+09	1.00E+00	4.45E+07	4.16E+11	7.38E+01	7.38E+01	1.00E-08	1.46E-10
Lead (82)	Pb-205	4.53E-08	1.53E+07	1.36E+09	1.00E+00	1.48E+03	3.06E+06	2.25E+04	1.38E+03	1.00E-08	3.29E+02
Lead (82)	Pb-209	1.87E+03	3.71E-04	1.36E+09	9.00E-01	1.32E+07	7.27E+10	4.46E+05	4.32E+05	1.00E-08	2.54E-06
Lead (82)	Pb-210	3.12E-02	2.22E+01	1.36E+09	1.00E+00	2.25E-01	2.68E+02	2.17E+01	2.23E-01	1.61E+00	7.86E-08
Lead (82)	Pb-211	1.01E+04	6.87E-05	1.36E+09	1.00E+00	2.27E+07	2.02E+09	2.59E+03	2.58E+03	1.00E-08	2.83E-09
Lead (82)	Pb-212	5.71E+02	1.21E-03	1.36E+09	1.00E+00	3.65E+04	1.28E+07	1.02E+01	1.02E+01	1.00E-08	1.99E-10
Lead (82)	Pb-214	1.36E+04	5.10E-05	1.36E+09	1.00E+00	9.81E+04	1.17E+08	3.55E+06	9.71E+04	1.61E+00	8.01E-08
Palladium (46)	Pd-100	6.97E+01	9.95E-03	1.36E+09	1.00E+00	1.75E+04	1.40E+08	6.55E-01	6.55E-01	1.00E-08	4.93E-11
Palladium (46)	Pd-101	7.17E+02	9.67E-04	1.36E+09	1.00E+00	9.26E+05	5.13E+09	3.59E+01	3.59E+01	1.00E-08	2.65E-10
Palladium (46)	Pd-103	1.49E+01	4.66E-02	1.36E+09	1.00E+00	3.07E+04	8.05E+07	1.19E+03	1.15E+03	1.00E-08	4.16E-07
Palladium (46)	Pd-107	1.07E-07	6.50E+06	1.36E+09	9.00E-01	1.04E+04	4.13E+06	1.04E+04	1.04E+04	1.00E-08	5.47E+02
Palladium (46)	Pd-109	4.43E+02	1.56E-03	1.36E+09	1.00E+00	3.18E+05	2.74E+09	3.99E+03	3.94E+03	1.00E-08	5.08E-08
Palladium (46)	Pd-109m	7.77E+04	8.92E-06	1.36E+09	1.00E+00	5.54E+07	4.77E+11	6.95E+05	6.87E+05	1.00E-08	5.05E-08
Palladium (46)	Pd-111	1.56E+04	4.45E-05	1.36E+09	1.00E+00	5.02E+06	2.20E+10	1.81E+04	1.80E+04	1.00E-08	6.75E-09
Palladium (46)	Pd-112	2.89E+02	2.40E-03	1.36E+09	1.00E+00	3.85E+04	5.13E+08	1.10E+01	1.10E+01	1.00E-08	2.23E-10
Palladium (46)	Pd-114	1.51E+05	4.60E-06	1.36E+09	1.00E+00			5.12E+16	5.12E+16	1.00E-08	2.03E+03
Palladium (46)	Pd-96	1.79E+05	3.87E-06	1.36E+09	1.00E+00			2.74E+12	2.74E+12	1.00E-08	7.70E-02
Palladium (46)	Pd-97	1.17E+05	5.90E-06	1.36E+09	1.00E+00	3.13E+08	2.29E+12	1.73E+04	1.73E+04	1.00E-08	7.50E-10
Palladium (46)	Pd-98	2.06E+04	3.37E-05	1.36E+09	1.00E+00	8.97E+15	1.13E+20	1.00E+10	1.00E+10	1.00E-08	2.50E-03
Palladium (46)	Pd-99	1.70E+04	4.07E-05	1.36E+09	1.00E+00	8.17E+07	4.88E+11	7.82E+02	7.82E+02	1.00E-08	2.39E-10
Promethium (61)	Pm-136	2.04E+05	3.39E-06	1.36E+09	1.00E+00	6.12E+08	6.89E+12	2.41E+03	2.41E+03	1.00E-08	8.42E-11
Promethium (61)	Pm-137m	1.52E+05	4.57E-06	1.36E+09	1.00E+00	9.60E+08	1.13E+13	1.20E+04	1.20E+04	1.00E-08	5.66E-10
Promethium (61)	Pm-139	8.78E+04	7.90E-06	1.36E+09	1.00E+00	1.38E+08	1.32E+11	1.31E+04	1.31E+04	1.00E-08	1.09E-09
Promethium (61)	Pm-140	2.38E+06	2.92E-07	1.36E+09	1.00E+00	4.78E+08	4.86E+12	1.29E+05	1.29E+05	1.00E-08	3.98E-10
Promethium (61)	Pm-140m	6.12E+04	1.13E-05	1.36E+09	1.00E+00	1.23E+07	1.25E+11	3.32E+03	3.32E+03	1.00E-08	3.98E-10
Promethium (61)	Pm-141	1.74E+04	3.98E-05	1.36E+09	1.00E+00	8.10E+08	7.43E+12	9.69E+03	9.69E+03	1.00E-08	4.11E-09
Promethium (61)	Pm-142	5.40E+05	1.28E-06	1.36E+09	1.00E+00			3.84E+19	3.84E+19	1.00E-08	5.30E+05
Promethium (61)	Pm-143	9.55E-01	7.26E-01	1.36E+09	1.00E+00	2.64E+03	1.29E+06	1.51E-01	1.51E-01	1.00E-08	1.19E-09
Promethium (61)	Pm-144	6.97E-01	9.95E-01	1.36E+09	1.00E+00	5.63E+02	1.98E+05	2.60E-02	2.60E-02	1.00E-08	2.81E-10

Composite Worker Soil DCCs July 2023											
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Promethium (61)	Pm-145	3.92E-02	1.77E+01	1.36E+09	1.00E+00	3.67E+03	3.22E+05	7.25E+00	7.24E+00	1.00E-08	1.41E-06
Promethium (61)	Pm-146	1.25E-01	5.53E+00	1.36E+09	1.00E+00	4.75E+02	6.05E+04	4.20E-02	4.20E-02	1.00E-08	2.56E-09
Promethium (61)	Pm-147	2.64E-01	2.62E+00	1.36E+09	1.00E+00	1.74E+03	5.83E+05	4.27E+03	1.24E+03	1.00E-08	3.61E-05
Promethium (61)	Pm-148	4.71E+01	1.47E-02	1.36E+09	1.00E+00	7.01E+03	5.10E+07	2.19E+00	2.19E+00	1.00E-08	3.60E-10
Promethium (61)	Pm-148m	6.13E+00	1.13E-01	1.36E+09	1.00E+00	1.31E+03	2.61E+06	8.75E-02	8.75E-02	1.00E-08	1.11E-10
Promethium (61)	Pm-149	1.14E+02	6.06E-03	1.36E+09	1.00E+00	4.61E+04	3.71E+08	2.81E+02	2.79E+02	1.00E-08	1.91E-08
Promethium (61)	Pm-150	2.27E+03	3.06E-04	1.36E+09	1.00E+00	3.47E+06	3.95E+10	4.16E+01	4.16E+01	1.00E-08	1.45E-10
Promethium (61)	Pm-151	2.14E+02	3.24E-03	1.36E+09	1.00E+00	1.16E+05	9.22E+08	2.10E+01	2.10E+01	1.00E-08	7.76E-10
Promethium (61)	Pm-152	8.84E+04	7.84E-06	1.36E+09	1.00E+00	.	.	1.29E+15	1.29E+15	1.00E-08	1.16E+02
Promethium (61)	Pm-152m	4.84E+04	1.43E-05	1.36E+09	1.00E+00	.	.	1.54E+13	1.54E+13	1.00E-08	2.53E+00
Promethium (61)	Pm-153	6.94E+04	9.99E-06	1.36E+09	1.00E+00	3.77E+07	2.38E+11	7.71E+04	7.69E+04	1.00E-08	8.89E-09
Promethium (61)	Pm-154	2.11E+05	3.29E-06	1.36E+09	1.00E+00	.	.	6.01E+16	6.01E+16	1.00E-08	2.31E+03
Promethium (61)	Pm-154m	1.36E+05	5.10E-06	1.36E+09	1.00E+00	.	.	3.35E+15	3.35E+15	1.00E-08	1.99E+02
Polonium (84)	Po-203	9.92E+03	6.98E-05	1.36E+09	1.00E+00	5.01E+06	4.13E+10	6.37E+01	6.37E+01	1.00E-08	6.83E-11
Polonium (84)	Po-204	1.72E+03	4.03E-04	1.36E+09	1.00E+00	8.37E+05	5.52E+09	1.15E+01	1.15E+01	1.00E-08	7.15E-11
Polonium (84)	Po-205	3.66E+03	1.89E-04	1.36E+09	1.00E+00	1.51E+06	7.75E+09	3.06E+01	3.06E+01	1.00E-08	8.99E-11
Polonium (84)	Po-206	2.87E+01	2.41E-02	1.36E+09	1.00E+00	6.20E+02	1.07E+06	1.90E-01	1.90E-01	1.00E-08	7.14E-11
Polonium (84)	Po-207	1.05E+03	6.62E-04	1.36E+09	1.00E+00	3.04E+06	2.96E+09	2.26E+01	2.26E+01	1.00E-08	2.34E-10
Polonium (84)	Po-208	2.39E-01	2.90E+00	1.36E+09	1.00E+00	2.96E-01	4.12E+02	1.63E+03	2.96E-01	1.00E-08	1.35E-08
Polonium (84)	Po-209	6.79E-03	1.02E+02	1.36E+09	1.00E+00	2.66E-01	2.67E+02	4.89E+00	2.52E-01	1.00E-08	4.06E-07
Polonium (84)	Po-210	1.83E+00	3.79E-01	1.36E+09	1.00E+00	7.20E-01	1.27E+03	6.26E+03	7.20E-01	1.00E-08	4.34E-09
Polonium (84)	Po-211	4.24E+07	1.64E-08	1.36E+09	1.00E+00	.	.	2.30E+33	2.30E+33	6.31E-06	6.00E+17
Polonium (84)	Po-212	7.31E+13	9.48E-15	.	.	.	.	.	.	.	.
Polonium (84)	Po-212m	4.85E+05	1.43E-06	1.36E+09	1.00E+00	.	.	4.02E+20	4.02E+20	1.00E-08	9.22E+06
Polonium (84)	Po-213	5.20E+12	1.33E-13	1.36E+09	1.00E+00	5.11E+16	2.82E+20	1.73E+15	1.67E+15	1.00E-08	3.60E-06
Polonium (84)	Po-214	1.33E+11	5.21E-12	1.36E+09	1.00E+00	9.60E+11	1.14E+15	9.25E+13	9.50E+11	1.61E+00	8.01E-08
Polonium (84)	Po-215	1.23E+10	5.65E-11	1.36E+09	1.00E+00	6.70E+16	5.96E+18	7.40E+12	7.40E+12	1.00E-08	6.80E-06
Polonium (84)	Po-216	1.51E+08	4.60E-09	1.36E+09	1.00E+00	9.49E+09	3.29E+12	2.43E+06	2.43E+06	1.00E-08	1.83E-10
Polonium (84)	Po-218	1.17E+05	5.90E-06	1.36E+09	9.00E-01	8.48E+05	1.01E+09	2.83E+07	8.39E+05	1.61E+00	8.16E-08
Praseodymium (59)	Pr-134	3.31E+04	2.09E-05	1.36E+09	1.00E+00	4.97E+06	5.25E+10	1.34E+03	1.34E+03	1.00E-08	2.84E-10
Praseodymium (59)	Pr-134m	2.14E+04	3.23E-05	1.36E+09	1.00E+00	3.22E+06	3.41E+10	8.69E+02	8.68E+02	1.00E-08	2.85E-10
Praseodymium (59)	Pr-135	1.52E+04	4.57E-05	1.36E+09	1.00E+00	2.06E+07	2.21E+11	5.54E+02	5.54E+02	1.00E-08	2.59E-10

Composite Worker Soil DCCs July 2023												
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)						
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)	
Praseodymium (59)	Pr-136	2.78E+04	2.49E-05	1.36E+09	1.00E+00	1.27E+17	1.76E+21	1.41E+11	1.41E+11	1.00E-08	3.62E-02	
Praseodymium (59)	Pr-137	4.74E+03	1.46E-04	1.36E+09	1.00E+00	3.00E+07	3.52E+11	3.75E+02	3.75E+02	1.00E-08	5.67E-10	
Praseodymium (59)	Pr-138	2.51E+05	2.76E-06	1.36E+09	1.00E+00	.	.	5.91E+18	5.91E+18	1.00E-08	1.70E+05	
Praseodymium (59)	Pr-138m	2.86E+03	2.42E-04	1.36E+09	1.00E+00	8.88E+06	8.58E+10	3.27E+01	3.27E+01	1.00E-08	8.27E-11	
Praseodymium (59)	Pr-139	1.38E+03	5.03E-04	1.36E+09	1.00E+00	2.16E+06	2.06E+09	2.05E+02	2.05E+02	1.00E-08	1.09E-09	
Praseodymium (59)	Pr-140	1.07E+05	6.45E-06	1.36E+09	1.00E+00	.	.	2.92E+15	2.92E+15	1.00E-08	2.00E+02	
Praseodymium (59)	Pr-142	3.18E+02	2.18E-03	1.36E+09	1.00E+00	9.62E+04	1.29E+09	1.28E+02	1.28E+02	1.00E-08	3.00E-09	
Praseodymium (59)	Pr-142m	2.49E+04	2.78E-05	1.36E+09	1.00E+00	7.56E+06	1.02E+11	1.01E+04	1.01E+04	1.00E-08	3.00E-09	
Praseodymium (59)	Pr-143	1.86E+01	3.72E-02	1.36E+09	1.00E+00	6.37E+03	1.86E+07	1.03E+03	8.87E+02	1.00E-08	3.57E-07	
Praseodymium (59)	Pr-144	2.11E+04	3.29E-05	1.36E+09	1.00E+00	1.24E+16	1.92E+20	1.03E+12	1.03E+12	1.00E-08	3.71E-01	
Praseodymium (59)	Pr-144m	5.06E+04	1.37E-05	1.36E+09	1.00E+00	1.74E+16	2.72E+20	1.45E+12	1.45E+12	1.00E-08	2.16E-01	
Praseodymium (59)	Pr-145	1.01E+03	6.83E-04	1.36E+09	1.00E+00	1.03E+06	1.37E+10	1.30E+03	1.29E+03	1.00E-08	9.71E-09	
Praseodymium (59)	Pr-146	1.51E+04	4.59E-05	1.36E+09	1.00E+00	3.37E+13	4.97E+17	1.71E+08	1.71E+08	1.00E-08	8.66E-05	
Praseodymium (59)	Pr-147	2.72E+04	2.55E-05	1.36E+09	1.00E+00	9.55E+06	1.92E+10	7.12E+03	7.12E+03	1.00E-08	2.02E-09	
Praseodymium (59)	Pr-148	1.59E+05	4.36E-06	1.36E+09	1.00E+00	.	.	1.39E+17	1.39E+17	1.00E-08	6.77E+03	
Praseodymium (59)	Pr-148m	1.81E+05	3.82E-06	1.36E+09	1.00E+00	.	.	3.77E+16	3.77E+16	1.00E-08	1.61E+03	
Platinum (78)	Pt-184	2.11E+04	3.29E-05	1.36E+09	1.00E+00	4.48E+07	3.84E+11	3.06E+02	3.06E+02	1.00E-08	1.40E-10	
Platinum (78)	Pt-186	2.92E+03	2.37E-04	1.36E+09	1.00E+00	3.02E+06	2.68E+10	3.59E+01	3.59E+01	1.00E-08	1.20E-10	
Platinum (78)	Pt-187	2.58E+03	2.68E-04	1.36E+09	1.00E+00	5.13E+06	4.04E+10	8.95E+01	8.95E+01	1.00E-08	3.40E-10	
Platinum (78)	Pt-188	2.48E+01	2.79E-02	1.36E+09	1.00E+00	6.15E+03	2.37E+07	2.92E-01	2.92E-01	1.00E-08	1.16E-10	
Platinum (78)	Pt-189	5.58E+02	1.24E-03	1.36E+09	1.00E+00	5.06E+05	1.82E+09	3.53E+01	3.53E+01	1.00E-08	6.27E-10	
Platinum (78)	Pt-190	1.07E-12	6.50E+11	1.36E+09	9.00E-01	5.76E+01	4.87E+02	.	5.15E+01	1.00E-08	4.82E+05	
Platinum (78)	Pt-191	9.03E+01	7.68E-03	1.36E+09	1.00E+00	9.79E+04	5.83E+08	1.19E+01	1.19E+01	1.00E-08	1.32E-09	
Platinum (78)	Pt-193	1.39E-02	5.00E+01	1.36E+09	1.00E+00	1.13E+04	3.77E+06	3.73E+04	8.66E+03	1.00E-08	6.33E-03	
Platinum (78)	Pt-193m	5.84E+01	1.19E-02	1.36E+09	1.00E+00	5.10E+04	1.46E+08	4.33E+02	4.30E+02	1.00E-08	7.44E-08	
Platinum (78)	Pt-195m	6.29E+01	1.10E-02	1.36E+09	1.00E+00	3.90E+04	1.33E+08	6.13E+01	6.12E+01	1.00E-08	9.94E-09	
Platinum (78)	Pt-197	3.05E+02	2.27E-03	1.36E+09	1.00E+00	2.83E+05	1.93E+09	6.67E+02	6.65E+02	1.00E-08	2.25E-08	
Platinum (78)	Pt-197m	3.82E+03	1.82E-04	1.36E+09	1.00E+00	3.04E+06	2.04E+10	1.64E+03	1.64E+03	1.00E-08	4.45E-09	
Platinum (78)	Pt-199	1.18E+04	5.86E-05	1.36E+09	1.00E+00	1.05E+07	3.58E+10	5.00E+03	5.00E+03	1.00E-08	4.41E-09	
Platinum (78)	Pt-200	4.86E+02	1.43E-03	1.36E+09	1.00E+00	1.57E+05	1.75E+09	4.27E+01	4.27E+01	1.00E-08	9.22E-10	
Platinum (78)	Pt-202	1.38E+02	5.02E-03	1.36E+09	9.00E-01	1.25E+04	1.44E+08	2.08E+01	2.07E+01	1.00E-08	1.59E-09	
Plutonium (94)	Pu-232	1.08E+04	6.41E-05	1.36E+09	1.00E+00	1.28E+06	4.86E+07	2.75E+04	2.69E+04	9.73E+00	3.03E-08	

Composite Worker Soil DCCs July 2023											
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Plutonium (94)	Pu-234	6.90E+02	1.00E-03	1.36E+09	1.00E+00	4.36E+04	1.70E+06	1.72E+01	1.72E+01	1.00E-08	3.07E-10
Plutonium (94)	Pu-235	1.44E+04	4.81E-05	1.36E+09	1.00E+00	2.15E+08	1.32E+11	2.60E+06	2.57E+06	1.00E-08	2.20E-06
Plutonium (94)	Pu-236	2.42E-01	2.86E+00	1.36E+09	1.00E+00	4.97E+00	2.63E+02	5.00E-01	4.88E-01	1.70E+01	2.49E-08
Plutonium (94)	Pu-237	5.60E+00	1.24E-01	1.36E+09	1.00E+00	2.01E+04	3.48E+07	6.18E+00	6.18E+00	1.00E-08	1.37E-08
Plutonium (94)	Pu-238	7.90E-03	8.77E+01	1.36E+09	1.00E+00	1.76E+00	2.48E+01	7.34E+01	1.64E+00	1.00E-08	2.59E-06
Plutonium (94)	Pu-239	2.87E-05	2.41E+04	1.36E+09	1.00E+00	1.59E+00	2.25E+01	5.86E+02	1.48E+00	1.00E-08	6.47E-04
Plutonium (94)	Pu-240	1.06E-04	6.56E+03	1.36E+09	1.00E+00	1.59E+00	2.25E+01	1.43E+03	1.49E+00	1.00E-08	1.77E-04
Plutonium (94)	Pu-241	4.83E-02	1.44E+01	1.36E+09	1.00E+00	6.39E+01	9.02E+02	1.47E+02	4.27E+01	5.83E+01	1.12E-05
Plutonium (94)	Pu-242	1.85E-06	3.75E+05	1.36E+09	1.00E+00	1.67E+00	2.36E+01	1.82E+02	1.55E+00	1.00E-08	1.07E-02
Plutonium (94)	Pu-243	1.22E+03	5.66E-04	1.36E+09	1.00E+00	4.68E+06	3.60E+08	2.77E+03	2.77E+03	1.00E-08	2.88E-08
Plutonium (94)	Pu-244	8.66E-09	8.00E+07	1.36E+09	1.00E+00	8.17E-01	1.16E+01	8.20E-02	7.41E-02	6.12E+04	1.09E-01
Plutonium (94)	Pu-245	5.78E+02	1.20E-03	1.36E+09	1.00E+00	3.03E+05	1.12E+08	4.08E+01	4.07E+01	1.00E-08	9.05E-10
Plutonium (94)	Pu-246	2.33E+01	2.97E-02	1.36E+09	1.00E+00	3.25E+03	3.32E+06	5.99E-01	5.99E-01	1.00E-08	3.31E-10
Radium (88)	Ra-219	2.19E+09	3.17E-10	1.36E+09	1.00E+00	.	.	1.16E+35	1.16E+35	6.31E-06	6.11E+17
Radium (88)	Ra-220	1.22E+09	5.68E-10	1.36E+09	1.00E+00	.	.	1.16E+40	1.16E+40	7.94E-07	1.09E+23
Radium (88)	Ra-221	7.81E+05	8.88E-07	1.36E+09	1.00E+00	5.50E+09	3.03E+13	1.86E+08	1.80E+08	1.00E-08	2.68E-06
Radium (88)	Ra-222	5.75E+05	1.20E-06	1.36E+09	1.00E+00	4.15E+06	4.94E+09	4.00E+08	4.11E+06	1.61E+00	8.31E-08
Radium (88)	Ra-223	2.21E+01	3.13E-02	1.36E+09	1.00E+00	8.58E+01	6.40E+03	2.38E+00	2.31E+00	1.00E-08	1.22E-09
Radium (88)	Ra-224	6.91E+01	1.00E-02	1.36E+09	1.00E+00	3.90E+02	5.00E+04	1.23E+00	1.23E+00	1.00E-08	2.09E-10
Radium (88)	Ra-225	1.70E+01	4.08E-02	1.36E+09	1.00E+00	4.91E+01	2.62E+03	2.39E+00	2.27E+00	1.00E-08	1.58E-09
Radium (88)	Ra-226	4.33E-04	1.60E+03	1.36E+09	1.00E+00	1.94E-01	1.36E+02	1.55E-02	1.48E-02	5.25E+01	4.06E-07
Radium (88)	Ra-227	8.63E+03	8.03E-05	1.36E+09	1.00E+00	2.56E+05	9.49E+06	2.18E+04	2.00E+04	3.05E-01	2.76E-08
Radium (88)	Ra-228	1.21E-01	5.75E+00	1.36E+09	1.00E+00	5.90E-01	7.21E+01	1.93E-02	1.88E-02	2.73E+00	1.86E-09
Radium (88)	Ra-230	3.92E+03	1.77E-04	1.36E+09	1.00E+00	8.61E+06	9.86E+09	1.70E+02	1.70E+02	1.00E-08	5.25E-10
Rubidium (37)	Rb-77	9.66E+04	7.17E-06	1.36E+09	1.00E+00	3.95E+08	2.46E+12	2.19E+03	2.19E+03	1.00E-08	9.13E-11
Rubidium (37)	Rb-78	2.06E+04	3.36E-05	1.36E+09	1.00E+00	8.00E+15	1.08E+20	8.82E+09	8.82E+09	1.00E-08	1.75E-03
Rubidium (37)	Rb-78m	6.35E+04	1.09E-05	1.36E+09	1.00E+00	1.66E+17	2.25E+21	1.83E+11	1.83E+11	1.00E-08	1.18E-02
Rubidium (37)	Rb-79	1.59E+04	4.36E-05	1.36E+09	1.00E+00	1.32E+14	1.30E+18	1.91E+03	1.91E+03	1.00E-08	4.99E-10
Rubidium (37)	Rb-80	6.54E+05	1.06E-06	1.36E+09	1.00E+00	.	.	1.51E+20	1.51E+20	1.00E-08	9.70E+05
Rubidium (37)	Rb-81	1.33E+03	5.22E-04	1.36E+09	1.00E+00	1.09E+07	4.32E+10	6.47E+01	6.47E+01	1.00E-08	2.07E-10
Rubidium (37)	Rb-81m	1.19E+04	5.80E-05	1.36E+09	1.00E+00	1.00E+08	3.98E+11	5.97E+02	5.97E+02	1.00E-08	2.12E-10
Rubidium (37)	Rb-82	2.86E+05	2.42E-06	1.36E+09	1.00E+00	.	.	5.30E+17	5.30E+17	1.00E-08	7.97E+03



Composite Worker Soil DCCs July 2023											
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Rubidium (37)	Rb-82m	9.38E+02	7.39E-04	1.36E+09	1.00E+00	2.80E+06	1.43E+10	8.92E+00	8.92E+00	1.00E-08	4.09E-11
Rubidium (37)	Rb-83	2.93E+00	2.36E-01	1.36E+09	1.00E+00	7.00E+02	5.40E+06	1.88E-01	1.88E-01	1.00E-08	2.79E-10
Rubidium (37)	Rb-84	7.72E+00	8.98E-02	1.36E+09	1.00E+00	1.10E+03	6.48E+06	2.41E-01	2.41E-01	1.00E-08	1.38E-10
Rubidium (37)	Rb-84m	1.80E+04	3.85E-05	1.36E+09	1.00E+00	2.56E+06	1.51E+10	5.61E+02	5.61E+02	1.00E-08	1.37E-10
Rubidium (37)	Rb-86	1.36E+01	5.11E-02	1.36E+09	1.00E+00	1.93E+03	7.00E+06	3.79E+00	3.78E+00	1.00E-08	1.26E-09
Rubidium (37)	Rb-86m	3.58E+05	1.93E-06	1.36E+09	1.00E+00	5.08E+07	1.85E+11	1.00E+05	9.98E+04	1.00E-08	1.26E-09
Rubidium (37)	Rb-87	1.41E-11	4.92E+10	1.36E+09	9.00E-01	2.61E+02	1.62E+05	1.34E+03	2.18E+02	1.00E-08	7.08E+04
Rubidium (37)	Rb-88	2.05E+04	3.38E-05	1.36E+09	1.00E+00	6.01E+15	1.11E+20	5.16E+10	5.16E+10	1.00E-08	1.16E-02
Rubidium (37)	Rb-89	2.40E+04	2.88E-05	1.36E+09	1.00E+00	3.77E+06	7.45E+09	2.58E+05	2.41E+05	1.00E-08	4.68E-08
Rubidium (37)	Rb-90	1.38E+05	5.01E-06	1.36E+09	1.00E+00	7.69E+07	9.54E+10	2.32E+07	1.78E+07	3.69E-02	6.07E-07
Rubidium (37)	Rb-90m	8.47E+04	8.18E-06	1.36E+09	1.00E+00	4.71E+07	5.84E+10	1.42E+07	1.09E+07	3.69E-02	6.07E-07
Rhenium (75)	Re-178	2.76E+04	2.51E-05	1.36E+09	1.00E+00	4.43E+07	8.08E+10	8.71E+03	8.70E+03	1.00E-08	2.94E-09
Rhenium (75)	Re-179	1.87E+04	3.71E-05	1.36E+09	1.00E+00	3.31E+08	2.91E+11	3.32E+04	3.32E+04	1.00E-08	1.67E-08
Rhenium (75)	Re-180	1.49E+05	4.64E-06	1.36E+09	1.00E+00	.	.	1.22E+16	1.22E+16	1.00E-08	7.70E+02
Rhenium (75)	Re-181	3.05E+02	2.27E-03	1.36E+09	1.00E+00	2.44E+05	1.39E+09	1.17E+01	1.17E+01	1.00E-08	3.64E-10
Rhenium (75)	Re-182	9.49E+01	7.31E-03	1.36E+09	1.00E+00	2.65E+04	1.74E+08	1.57E+00	1.57E+00	1.00E-08	1.58E-10
Rhenium (75)	Re-182m	4.78E+02	1.45E-03	1.36E+09	1.00E+00	6.62E+05	5.08E+09	1.12E+01	1.11E+01	1.00E-08	2.23E-10
Rhenium (75)	Re-183	3.61E+00	1.92E-01	1.36E+09	1.00E+00	1.54E+03	2.56E+06	1.32E+00	1.31E+00	1.00E-08	3.49E-09
Rhenium (75)	Re-184	6.66E+00	1.04E-01	1.36E+09	1.00E+00	2.64E+03	7.05E+06	2.20E-01	2.20E-01	1.00E-08	3.19E-10
Rhenium (75)	Re-184m	1.50E+00	4.63E-01	1.36E+09	1.00E+00	3.54E+02	4.04E+05	5.94E-02	5.94E-02	1.00E-08	3.83E-10
Rhenium (75)	Re-186	6.80E+01	1.02E-02	1.36E+09	1.00E+00	1.90E+04	1.41E+08	1.54E+02	1.52E+02	1.00E-08	2.19E-08
Rhenium (75)	Re-186m	3.47E-06	2.00E+05	1.36E+09	1.00E+00	1.09E+02	4.14E+04	1.69E+00	1.66E+00	1.75E-01	4.68E-03
Rhenium (75)	Re-187	1.68E-11	4.12E+10	1.36E+09	9.00E-01	8.35E+04	6.38E+07	.	8.34E+04	1.00E-08	4.86E+07
Rhenium (75)	Re-188	3.57E+02	1.94E-03	1.36E+09	1.00E+00	1.05E+05	1.45E+09	1.76E+02	1.76E+02	1.00E-08	4.85E-09
Rhenium (75)	Re-188m	1.96E+04	3.54E-05	1.36E+09	1.00E+00	5.76E+06	7.98E+10	9.66E+03	9.64E+03	1.00E-08	4.85E-09
Rhenium (75)	Re-189	2.50E+02	2.77E-03	1.36E+09	1.00E+00	1.34E+05	1.34E+09	1.56E+02	1.56E+02	1.00E-08	6.18E-09
Rhenium (75)	Re-190	1.17E+05	5.90E-06	1.36E+09	1.00E+00	.	.	2.27E+15	2.27E+15	1.00E-08	1.93E+02
Rhenium (75)	Re-190m	1.90E+03	3.65E-04	1.36E+09	1.00E+00	2.08E+06	2.11E+10	3.71E+01	3.71E+01	1.00E-08	1.95E-10
Rhodium (45)	Rh-100	2.92E+02	2.37E-03	1.36E+09	1.00E+00	1.72E+05	1.91E+09	2.79E+00	2.79E+00	1.00E-08	5.01E-11
Rhodium (45)	Rh-100m	7.92E+04	8.75E-06	1.36E+09	1.00E+00	4.74E+07	5.26E+11	7.66E+02	7.66E+02	1.00E-08	5.08E-11
Rhodium (45)	Rh-101	2.10E-01	3.30E+00	1.36E+09	1.00E+00	8.06E+02	5.42E+05	1.48E-01	1.48E-01	1.00E-08	3.74E-09
Rhodium (45)	Rh-101m	5.83E+01	1.19E-02	1.36E+09	1.00E+00	1.08E+05	5.21E+08	6.64E+00	6.64E+00	1.00E-08	6.03E-10

Composite Worker Soil DCCs July 2023											
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion	Inhalation	External	Total	Peak Dose	Total
						DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	Exposure DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	Start Time Total (yrs)	DCC DL=1 (mg/kg)
Rhodium (45)	Rh-102	1.22E+00	5.67E-01	1.36E+09	1.00E+00	5.82E+02	5.88E+05	1.02E-01	1.02E-01	1.00E-08	4.44E-10
Rhodium (45)	Rh-102m	1.85E-01	3.74E+00	1.36E+09	1.00E+00	1.59E+02	1.40E+05	1.45E-02	1.45E-02	1.00E-08	4.18E-10
Rhodium (45)	Rh-103m	6.49E+03	1.07E-04	1.36E+09	1.00E+00	6.89E+08	5.69E+12	6.66E+06	6.59E+06	1.00E-08	5.49E-06
Rhodium (45)	Rh-104	5.17E+05	1.34E-06	1.36E+09	1.00E+00	.	.	2.43E+21	2.43E+21	1.00E-08	2.56E+07
Rhodium (45)	Rh-104m	8.39E+04	8.26E-06	1.36E+09	1.00E+00	.	.	1.21E+16	1.21E+16	1.00E-08	7.84E+02
Rhodium (45)	Rh-105	1.72E+02	4.04E-03	1.36E+09	1.00E+00	1.87E+05	1.16E+09	7.03E+01	7.02E+01	1.00E-08	2.25E-09
Rhodium (45)	Rh-106	7.33E+05	9.45E-07	1.36E+09	1.00E+00	.	.	1.00E+21	1.00E+21	1.00E-08	7.58E+06
Rhodium (45)	Rh-106m	2.78E+03	2.49E-04	1.36E+09	1.00E+00	6.62E+06	5.73E+10	2.70E+01	2.70E+01	1.00E-08	5.40E-11
Rhodium (45)	Rh-107	1.68E+04	4.13E-05	1.36E+09	1.00E+00	5.16E+14	5.89E+17	4.48E+09	4.48E+09	1.00E-08	1.50E-03
Rhodium (45)	Rh-108	1.30E+06	5.33E-07	1.36E+09	1.00E+00	.	.	4.13E+22	4.13E+22	1.00E-08	1.80E+08
Rhodium (45)	Rh-109	2.73E+05	2.54E-06	1.36E+09	1.00E+00	1.96E+08	1.69E+12	2.46E+06	2.43E+06	1.00E-08	5.08E-08
Rhodium (45)	Rh-94	3.10E+05	2.24E-06	1.36E+09	1.00E+00	6.31E+08	6.71E+12	3.51E+03	3.51E+03	1.00E-08	5.59E-11
Rhodium (45)	Rh-95	7.26E+04	9.55E-06	1.36E+09	1.00E+00	1.14E+08	9.07E+11	1.01E+03	1.01E+03	1.00E-08	6.93E-11
Rhodium (45)	Rh-95m	1.86E+05	3.73E-06	1.36E+09	1.00E+00	2.92E+08	2.32E+12	2.58E+03	2.58E+03	1.00E-08	6.93E-11
Rhodium (45)	Rh-96	3.68E+04	1.88E-05	1.36E+09	1.00E+00	.	.	5.02E+11	5.02E+11	1.00E-08	6.86E-02
Rhodium (45)	Rh-96m	2.41E+05	2.87E-06	1.36E+09	1.00E+00	.	.	4.65E+12	4.65E+12	1.00E-08	9.70E-02
Rhodium (45)	Rh-97	1.19E+04	5.84E-05	1.36E+09	1.00E+00	3.16E+07	2.31E+11	1.75E+03	1.75E+03	1.00E-08	7.50E-10
Rhodium (45)	Rh-97m	7.88E+03	8.79E-05	1.36E+09	1.00E+00	1.58E+07	1.23E+11	8.40E+01	8.40E+01	1.00E-08	5.42E-11
Rhodium (45)	Rh-98	4.19E+04	1.66E-05	1.36E+09	1.00E+00	.	.	3.13E+12	3.13E+12	1.00E-08	3.85E-01
Rhodium (45)	Rh-99	1.57E+01	4.41E-02	1.36E+09	1.00E+00	1.11E+04	3.03E+07	8.74E-01	8.74E-01	1.00E-08	2.89E-10
Rhodium (45)	Rh-99m	1.29E+03	5.37E-04	1.36E+09	1.00E+00	7.76E+06	7.15E+10	5.90E+01	5.90E+01	1.00E-08	2.37E-10
Radon (86)	Rn-207	3.94E+04	1.76E-05	1.36E+09	1.00E+00	3.24E+07	3.87E+10	3.34E+02	3.34E+02	1.00E-08	9.21E-11
Radon (86)	Rn-209	1.28E+04	5.42E-05	1.36E+09	1.00E+00	5.92E+05	6.02E+08	1.45E+02	1.45E+02	1.00E-08	1.25E-10
Radon (86)	Rn-210	2.53E+03	2.74E-04	1.36E+09	1.00E+00	1.73E+04	3.03E+07	1.67E+01	1.67E+01	1.00E-08	7.25E-11
Radon (86)	Rn-211	4.16E+02	1.67E-03	1.36E+09	1.00E+00	2.09E+04	1.19E+07	5.16E+00	5.15E+00	1.00E-08	1.37E-10
Radon (86)	Rn-212	1.52E+04	4.55E-05	1.36E+09	1.00E+00	1.89E+04	2.63E+07	1.04E+08	1.88E+04	1.00E-08	1.37E-08
Radon (86)	Rn-215	9.50E+12	7.29E-14	.	.	.	.	.	.	.	.
Radon (86)	Rn-216	4.86E+11	1.43E-12	.	.	.	.	.	.	.	.
Radon (86)	Rn-217	4.05E+10	1.71E-11	.	.	.	.	.	.	.	.
Radon (86)	Rn-218	6.24E+08	1.11E-09	1.36E+09	1.00E+00	4.51E+09	5.37E+12	4.34E+11	4.46E+09	1.61E+00	8.16E-08
Radon (86)	Rn-219	5.52E+06	1.26E-07	1.36E+09	1.00E+00	3.01E+13	2.68E+15	3.32E+09	3.32E+09	1.00E-08	6.91E-06
Radon (86)	Rn-220	3.93E+05	1.76E-06	1.36E+09	1.00E+00	2.51E+07	8.78E+09	7.04E+03	7.04E+03	1.00E-08	2.07E-10

Composite Worker Soil DCCs July 2023											
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Radon (86)	Rn-222	6.62E+01	1.05E-02	1.36E+09	1.00E+00	4.77E+02	5.68E+05	1.03E+00	1.03E+00	1.00E-08	1.81E-10
Radon (86)	Rn-223	1.50E+04	4.62E-05	1.36E+09	1.00E+00	5.80E+04	4.32E+06	1.60E+03	1.56E+03	1.00E-08	1.22E-09
Ruthenium (44)	Ru-103	6.44E+00	1.08E-01	1.36E+09	1.00E+00	3.60E+03	5.56E+06	3.86E-01	3.86E-01	1.00E-08	3.24E-10
Ruthenium (44)	Ru-105	1.37E+03	5.07E-04	1.36E+09	1.00E+00	8.47E+05	5.86E+09	4.84E+01	4.84E+01	1.00E-08	1.95E-10
Ruthenium (44)	Ru-106	6.77E-01	1.02E+00	1.36E+09	9.00E-01	7.84E+01	5.18E+04	1.78E-01	1.78E-01	1.00E-08	1.46E-09
Ruthenium (44)	Ru-107	9.71E+04	7.13E-06	1.36E+09	1.00E+00	2.61E+15	3.34E+18	2.15E+10	2.15E+10	1.00E-08	1.24E-03
Ruthenium (44)	Ru-108	8.01E+04	8.66E-06	1.36E+09	1.00E+00	.	.	3.36E+15	3.36E+15	1.00E-08	2.38E+02
Ruthenium (44)	Ru-92	9.98E+04	6.94E-06	1.36E+09	1.00E+00	.	.	1.49E+13	1.49E+13	1.00E-08	7.22E-01
Ruthenium (44)	Ru-94	7.03E+03	9.86E-05	1.36E+09	1.00E+00	1.43E+07	1.52E+11	7.98E+01	7.98E+01	1.00E-08	5.59E-11
Ruthenium (44)	Ru-95	3.69E+03	1.88E-04	1.36E+09	1.00E+00	5.81E+06	4.62E+10	5.14E+01	5.14E+01	1.00E-08	6.93E-11
Ruthenium (44)	Ru-97	8.72E+01	7.95E-03	1.36E+09	1.00E+00	2.32E+05	1.70E+09	1.29E+01	1.29E+01	1.00E-08	7.51E-10
Sulfur (16)	S-35	2.89E+00	2.40E-01	1.36E+09	9.00E-01	9.35E+03	4.08E+06	4.52E+04	7.73E+03	1.00E-08	4.91E-06
Sulphur (16)	S-37	7.21E+04	9.61E-06	1.36E+09	1.00E+00	.	.	3.32E+13	3.32E+13	1.00E-08	8.94E-01
Sulfur (16)	S-38	2.14E+03	3.24E-04	1.36E+09	1.00E+00	1.87E+06	1.42E+10	1.68E+01	1.68E+01	1.00E-08	1.56E-11
Antimony (51)	Sb-111	2.91E+05	2.38E-06	1.36E+09	1.00E+00	3.99E+08	2.76E+12	2.61E+04	2.61E+04	1.00E-08	5.21E-10
Antimony (51)	Sb-113	5.46E+04	1.27E-05	1.36E+09	1.00E+00	3.23E+07	3.82E+10	7.38E+03	7.37E+03	1.00E-08	8.00E-10
Antimony (51)	Sb-114	1.04E+05	6.64E-06	1.36E+09	1.00E+00	.	.	6.51E+14	6.51E+14	1.00E-08	3.73E+01
Antimony (51)	Sb-115	1.13E+04	6.11E-05	1.36E+09	1.00E+00	1.88E+08	1.89E+12	3.80E+02	3.80E+02	1.00E-08	2.02E-10
Antimony (51)	Sb-116	2.31E+04	3.01E-05	1.36E+09	1.00E+00	4.36E+16	5.12E+20	3.89E+10	3.89E+10	1.00E-08	1.03E-02
Antimony (51)	Sb-116m	6.04E+03	1.15E-04	1.36E+09	1.00E+00	3.71E+07	2.91E+11	5.39E+01	5.39E+01	1.00E-08	5.43E-11
Antimony (51)	Sb-117	2.17E+03	3.20E-04	1.36E+09	1.00E+00	4.74E+07	2.82E+11	4.73E+02	4.73E+02	1.00E-08	1.34E-09
Antimony (51)	Sb-118	1.01E+05	6.85E-06	1.36E+09	1.00E+00	.	.	5.46E+15	5.46E+15	1.00E-08	3.34E+02
Antimony (51)	Sb-118m	1.21E+03	5.71E-04	1.36E+09	1.00E+00	2.27E+06	2.20E+10	1.29E+01	1.29E+01	1.00E-08	6.56E-11
Antimony (51)	Sb-119	1.59E+02	4.36E-03	1.36E+09	1.00E+00	7.77E+05	9.06E+09	5.75E+03	5.71E+03	1.00E-08	2.24E-07
Antimony (51)	Sb-120	2.29E+04	3.02E-05	1.36E+09	1.00E+00	8.46E+16	9.58E+20	2.03E+11	2.03E+11	1.00E-08	5.58E-02
Antimony (51)	Sb-120m	4.39E+01	1.58E-02	1.36E+09	1.00E+00	1.41E+04	9.40E+07	4.99E-01	4.99E-01	1.00E-08	7.15E-11
Antimony (51)	Sb-122	9.29E+01	7.46E-03	1.36E+09	1.00E+00	2.19E+04	1.91E+08	6.01E+00	6.01E+00	1.00E-08	4.14E-10
Antimony (51)	Sb-122m	8.69E+04	7.97E-06	1.36E+09	1.00E+00	2.04E+07	1.79E+11	5.62E+03	5.62E+03	1.00E-08	4.14E-10
Antimony (51)	Sb-124	4.20E+00	1.65E-01	1.36E+09	1.00E+00	6.69E+02	1.22E+06	6.12E-02	6.12E-02	1.00E-08	9.47E-11
Antimony (51)	Sb-124m	2.35E+05	2.95E-06	1.36E+09	1.00E+00	4.99E+07	9.11E+10	4.56E+03	4.56E+03	1.00E-08	1.26E-10
Antimony (51)	Sb-124n	1.80E+04	3.84E-05	1.36E+09	1.00E+00	3.83E+06	6.99E+09	3.50E+02	3.50E+02	1.00E-08	1.26E-10
Antimony (51)	Sb-125	2.51E-01	2.76E+00	1.36E+09	1.00E+00	3.45E+02	2.22E+05	7.91E-02	7.90E-02	1.00E-08	2.06E-09

Composite Worker Soil DCCs July 2023											
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Antimony (51)	Sb-126	2.05E+01	3.38E-02	1.36E+09	1.00E+00	3.06E+03	1.40E+07	2.13E-01	2.13E-01	1.00E-08	6.86E-11
Antimony (51)	Sb-126m	1.90E+04	3.64E-05	1.36E+09	1.00E+00	2.03E+07	9.30E+10	1.41E+03	1.41E+03	1.00E-08	4.89E-10
Antimony (51)	Sb-127	6.57E+01	1.05E-02	1.36E+09	1.00E+00	1.18E+04	4.46E+07	2.72E+00	2.72E+00	1.00E-08	2.76E-10
Antimony (51)	Sb-128	6.74E+02	1.03E-03	1.36E+09	1.00E+00	3.31E+05	3.48E+09	6.19E+00	6.19E+00	1.00E-08	6.17E-11
Antimony (51)	Sb-128m	3.50E+04	1.98E-05	1.36E+09	1.00E+00	4.69E+08	4.92E+12	8.77E+03	8.77E+03	1.00E-08	1.68E-09
Antimony (51)	Sb-129	1.38E+03	5.02E-04	1.36E+09	1.00E+00	4.77E+05	1.62E+09	2.47E+01	2.47E+01	1.00E-08	1.21E-10
Antimony (51)	Sb-130	9.22E+03	7.52E-05	1.36E+09	1.00E+00	3.93E+07	3.89E+11	7.92E+01	7.92E+01	1.00E-08	5.86E-11
Antimony (51)	Sb-130m	5.78E+04	1.20E-05	1.36E+09	1.00E+00	.	.	1.12E+13	1.12E+13	1.00E-08	1.32E+00
Antimony (51)	Sb-131	1.58E+04	4.38E-05	1.36E+09	1.00E+00	2.88E+05	1.63E+09	5.33E+02	5.32E+02	1.00E-08	2.31E-10
Antimony (51)	Sb-133	1.46E+05	4.76E-06	1.36E+09	1.00E+00	1.34E+07	7.17E+10	4.35E+03	4.35E+03	1.00E-08	2.08E-10
Scandium (21)	Sc-42m	3.52E+05	1.97E-06	1.36E+09	1.00E+00	.	.	4.60E+17	4.60E+17	1.00E-08	2.87E+03
Scandium (21)	Sc-43	1.56E+03	4.44E-04	1.36E+09	1.00E+00	2.86E+06	2.85E+10	4.68E+01	4.68E+01	1.00E-08	6.77E-11
Scandium (21)	Sc-44	1.53E+03	4.53E-04	1.36E+09	1.00E+00	1.71E+06	1.86E+10	1.99E+01	1.99E+01	1.00E-08	3.01E-11
Scandium (21)	Sc-44m	1.04E+02	6.69E-03	1.36E+09	1.00E+00	1.48E+04	1.51E+08	1.23E+00	1.23E+00	1.00E-08	2.73E-11
Scandium (21)	Sc-46	3.02E+00	2.30E-01	1.36E+09	1.00E+00	8.64E+02	1.16E+06	4.29E-02	4.29E-02	1.00E-08	3.43E-11
Scandium (21)	Sc-47	7.55E+01	9.18E-03	1.36E+09	1.00E+00	5.53E+04	2.53E+08	2.64E+01	2.64E+01	1.00E-08	8.62E-10
Scandium (21)	Sc-48	1.39E+02	4.99E-03	1.36E+09	1.00E+00	3.33E+04	2.91E+08	1.11E+00	1.11E+00	1.00E-08	2.00E-11
Scandium (21)	Sc-49	6.37E+03	1.09E-04	1.36E+09	1.00E+00	3.15E+07	3.71E+11	2.86E+04	2.86E+04	1.00E-08	1.15E-08
Scandium (21)	Sc-50	2.13E+05	3.25E-06	1.36E+09	1.00E+00	.	.	3.19E+16	3.19E+16	1.00E-08	3.92E+02
Selenium (34)	Se-70	8.86E+03	7.82E-05	1.36E+09	1.00E+00	1.52E+07	1.44E+11	4.92E+01	4.92E+01	1.00E-08	2.04E-11
Selenium (34)	Se-71	7.68E+04	9.02E-06	1.36E+09	1.00E+00	6.57E+07	4.60E+11	4.11E+03	4.11E+03	1.00E-08	1.99E-10
Selenium (34)	Se-72	3.01E+01	2.30E-02	1.36E+09	1.00E+00	1.72E+03	1.54E+07	4.76E-01	4.75E-01	1.00E-08	5.96E-11
Selenium (34)	Se-73	8.49E+02	8.16E-04	1.36E+09	1.00E+00	7.47E+05	1.35E+09	2.39E+01	2.39E+01	1.00E-08	1.08E-10
Selenium (34)	Se-73m	9.15E+03	7.57E-05	1.36E+09	1.00E+00	8.60E+06	1.50E+10	2.64E+02	2.64E+02	1.00E-08	1.10E-10
Selenium (34)	Se-75	2.11E+00	3.28E-01	1.36E+09	1.00E+00	3.72E+02	4.47E+06	2.15E-01	2.15E-01	1.00E-08	4.01E-10
Selenium (34)	Se-77m	1.26E+06	5.50E-07	1.36E+09	1.00E+00	.	.	1.59E+24	1.59E+24	1.00E-08	5.09E+09
Selenium (34)	Se-79	2.35E-06	2.95E+05	1.36E+09	9.00E-01	1.46E+02	4.01E+05	1.41E+04	1.44E+02	1.00E-08	2.55E-01
Selenium (34)	Se-79m	9.29E+04	7.46E-06	1.36E+09	1.00E+00	5.78E+12	1.59E+16	5.57E+14	5.72E+12	1.00E-08	2.55E-01
Selenium (34)	Se-81	1.97E+04	3.51E-05	1.36E+09	1.00E+00	1.52E+16	1.61E+20	2.80E+12	2.80E+12	1.00E-08	6.01E-01
Selenium (34)	Se-81m	6.36E+03	1.09E-04	1.36E+09	1.00E+00	3.19E+07	2.26E+11	9.80E+03	9.80E+03	1.00E-08	6.55E-09
Selenium (34)	Se-83	1.63E+04	4.24E-05	1.36E+09	1.00E+00	1.48E+08	7.35E+11	6.44E+04	6.43E+04	1.00E-08	1.71E-08
Selenium (34)	Se-83m	3.12E+05	2.22E-06	1.36E+09	1.00E+00	2.79E+09	1.39E+13	1.22E+06	1.22E+06	1.00E-08	1.70E-08



Composite Worker Soil DCCs July 2023											
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Selenium (34)	Se-84	1.17E+05	5.90E-06	1.36E+09	1.00E+00	4.87E+12	6.33E+16	1.52E+07	1.52E+07	1.00E-08	5.71E-07
Silicon (14)	Si-31	2.32E+03	2.99E-04	1.36E+09	1.00E+00	5.79E+06	6.77E+10	1.90E+04	1.89E+04	1.00E-08	1.33E-08
Silicon (14)	Si-32	5.25E-03	1.32E+02	1.36E+09	9.00E-01	1.35E+02	2.27E+04	8.87E+00	8.32E+00	2.96E-01	2.66E-06
Samarium (62)	Sm-139	1.42E+05	4.89E-06	1.36E+09	1.00E+00	2.23E+08	2.12E+11	2.11E+04	2.11E+04	1.00E-08	1.09E-09
Samarium (62)	Sm-140	2.46E+04	2.82E-05	1.36E+09	1.00E+00	4.94E+06	5.03E+10	1.33E+03	1.33E+03	1.00E-08	3.98E-10
Samarium (62)	Sm-141	3.57E+04	1.94E-05	1.36E+09	1.00E+00	1.66E+09	1.52E+13	1.99E+04	1.99E+04	1.00E-08	4.11E-09
Samarium (62)	Sm-141m	1.61E+04	4.30E-05	1.36E+09	1.00E+00	7.49E+08	6.87E+12	8.96E+03	8.96E+03	1.00E-08	4.11E-09
Samarium (62)	Sm-142	5.02E+03	1.38E-04	1.36E+09	1.00E+00	1.11E+07	1.54E+11	1.54E+02	1.54E+02	1.00E-08	2.28E-10
Samarium (62)	Sm-143	4.16E+04	1.66E-05	1.36E+09	1.00E+00	1.15E+08	5.63E+10	6.60E+03	6.60E+03	1.00E-08	1.19E-09
Samarium (62)	Sm-143m	3.31E+05	2.09E-06	1.36E+09	1.00E+00	9.16E+08	4.48E+11	5.25E+04	5.25E+04	1.00E-08	1.19E-09
Samarium (62)	Sm-145	7.44E-01	9.32E-01	1.36E+09	1.00E+00	2.64E+03	1.11E+06	4.28E+00	4.27E+00	1.00E-08	4.36E-08
Samarium (62)	Sm-146	6.73E-09	1.03E+08	1.36E+09	9.00E-01	7.38E+00	1.02E+02	.	6.88E+00	1.00E-08	7.83E+00
Samarium (62)	Sm-147	6.54E-12	1.06E+11	1.36E+09	9.00E-01	8.08E+00	1.11E+02	.	7.53E+00	1.00E-08	8.88E+03
Samarium (62)	Sm-148	9.90E-17	7.00E+15	1.36E+09	9.00E-01	8.12E+00	1.29E+02	.	7.14E+00	2.84E+15	5.60E+08
Samarium (62)	Sm-151	7.70E-03	9.00E+01	1.36E+09	1.00E+00	4.06E+03	2.77E+05	2.24E+05	3.93E+03	1.00E-08	4.04E-03
Samarium (62)	Sm-153	1.31E+02	5.31E-03	1.36E+09	1.00E+00	7.11E+04	4.49E+08	1.45E+02	1.45E+02	1.00E-08	8.91E-09
Samarium (62)	Sm-155	1.63E+04	4.24E-05	1.36E+09	1.00E+00	1.45E+08	5.04E+10	1.20E+05	1.20E+05	1.00E-08	5.95E-08
Samarium (62)	Sm-156	6.46E+02	1.07E-03	1.36E+09	1.00E+00	1.01E+05	3.75E+08	1.29E+01	1.29E+01	1.00E-08	1.64E-10
Samarium (62)	Sm-157	4.54E+04	1.53E-05	1.36E+09	1.00E+00	2.93E+07	3.22E+11	5.23E+03	5.22E+03	1.00E-08	9.48E-10
Tin (50)	Sn-106	1.90E+05	3.65E-06	1.36E+09	1.00E+00	.	.	5.30E+13	5.30E+13	1.00E-08	1.55E+00
Tin (50)	Sn-108	3.54E+04	1.96E-05	1.36E+09	1.00E+00	1.75E+08	2.12E+12	3.32E+02	3.32E+02	1.00E-08	5.32E-11
Tin (50)	Sn-109	2.02E+04	3.42E-05	1.36E+09	1.00E+00	8.97E+06	1.86E+10	9.38E+02	9.37E+02	1.00E-08	2.65E-10
Tin (50)	Sn-110	1.48E+03	4.69E-04	1.36E+09	1.00E+00	1.26E+06	1.52E+10	2.29E+01	2.29E+01	1.00E-08	8.93E-11
Tin (50)	Sn-111	1.03E+04	6.72E-05	1.36E+09	1.00E+00	1.32E+07	9.28E+10	3.66E+02	3.66E+02	1.00E-08	2.06E-10
Tin (50)	Sn-113	2.20E+00	3.15E-01	1.36E+09	1.00E+00	1.27E+03	1.51E+06	2.91E-01	2.91E-01	2.61E-05	7.85E-10
Tin (50)	Sn-113m	1.70E+04	4.07E-05	1.36E+09	1.00E+00	1.08E+07	1.28E+10	2.47E+03	2.47E+03	1.00E-08	8.61E-10
Tin (50)	Sn-117m	1.84E+01	3.77E-02	1.36E+09	1.00E+00	1.03E+04	1.61E+07	4.97E+00	4.97E+00	1.00E-08	1.66E-09
Tin (50)	Sn-119m	8.63E-01	8.03E-01	1.36E+09	1.00E+00	1.69E+03	1.07E+06	8.81E+01	8.37E+01	1.00E-08	6.06E-07
Tin (50)	Sn-121	2.25E+02	3.09E-03	1.36E+09	9.00E-01	3.91E+05	2.15E+09	2.29E+05	1.45E+05	1.00E-08	4.08E-06
Tin (50)	Sn-121m	1.58E-02	4.39E+01	1.36E+09	1.00E+00	7.14E+02	1.70E+05	1.04E+02	9.08E+01	8.62E-03	3.65E-05
Tin (50)	Sn-123	1.96E+00	3.54E-01	1.36E+09	1.00E+00	4.32E+02	4.36E+05	6.96E+00	6.85E+00	1.00E-08	2.26E-08
Tin (50)	Sn-123m	9.09E+03	7.62E-05	1.36E+09	1.00E+00	9.45E+07	7.43E+11	2.47E+03	2.47E+03	1.00E-08	1.75E-09

Composite Worker Soil DCCs July 2023											
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Tin (50)	Sn-125	2.62E+01	2.64E-02	1.36E+09	1.00E+00	3.15E+03	1.03E+07	1.67E+00	1.67E+00	1.00E-08	4.16E-10
Tin (50)	Sn-125m	3.83E+04	1.81E-05	1.36E+09	1.00E+00	5.26E+07	3.39E+10	1.20E+04	1.20E+04	1.00E-08	2.06E-09
Tin (50)	Sn-126	3.01E-06	2.30E+05	1.36E+09	1.00E+00	7.67E+01	1.63E+04	1.47E-02	1.47E-02	5.34E-01	3.22E-05
Tin (50)	Sn-127	2.89E+03	2.40E-04	1.36E+09	1.00E+00	4.78E+05	1.88E+09	3.04E+01	3.04E+01	1.00E-08	7.00E-11
Tin (50)	Sn-127m	8.82E+04	7.86E-06	1.36E+09	1.00E+00	1.59E+07	5.98E+10	3.65E+03	3.65E+03	1.00E-08	2.76E-10
Tin (50)	Sn-128	6.17E+03	1.12E-04	1.36E+09	1.00E+00	1.14E+07	1.11E+11	6.90E+01	6.90E+01	1.00E-08	7.51E-11
Tin (50)	Sn-129	1.63E+05	4.24E-06	1.36E+09	1.00E+00	5.62E+07	1.92E+11	2.90E+03	2.90E+03	1.00E-08	1.20E-10
Tin (50)	Sn-130	9.79E+04	7.08E-06	1.36E+09	1.00E+00	.	.	7.82E+12	7.82E+12	1.00E-08	5.44E-01
Tin (50)	Sn-130m	2.14E+05	3.23E-06	1.36E+09	1.00E+00	1.00E+12	9.93E+15	2.02E+06	2.02E+06	1.00E-08	6.43E-08
Strontium (38)	Sr-79	1.62E+05	4.28E-06	1.36E+09	1.00E+00	1.21E+15	1.19E+19	1.95E+04	1.95E+04	1.00E-08	4.99E-10
Strontium (38)	Sr-80	3.43E+03	2.02E-04	1.36E+09	1.00E+00	3.63E+06	4.88E+10	6.11E+01	6.11E+01	1.00E-08	7.48E-11
Strontium (38)	Sr-81	1.63E+04	4.24E-05	1.36E+09	1.00E+00	1.34E+08	5.32E+11	7.96E+02	7.96E+02	1.00E-08	2.07E-10
Strontium (38)	Sr-82	9.97E+00	6.95E-02	1.36E+09	1.00E+00	6.45E+02	2.22E+06	2.60E-01	2.60E-01	1.00E-08	1.12E-10
Strontium (38)	Sr-83	1.87E+02	3.70E-03	1.36E+09	1.00E+00	3.42E+04	2.68E+08	4.24E+00	4.24E+00	1.00E-08	9.85E-11
Strontium (38)	Sr-85	3.90E+00	1.78E-01	1.36E+09	1.00E+00	2.90E+03	1.17E+07	2.38E-01	2.38E-01	1.00E-08	2.72E-10
Strontium (38)	Sr-85m	5.39E+03	1.29E-04	1.36E+09	1.00E+00	4.55E+06	1.86E+10	2.62E+02	2.62E+02	1.00E-08	2.17E-10
Strontium (38)	Sr-87m	2.16E+03	3.21E-04	1.36E+09	1.00E+00	2.61E+02	1.62E+05	1.34E+03	2.18E+02	1.00E-08	4.62E-10
Strontium (38)	Sr-89	5.01E+00	1.38E-01	1.36E+09	1.00E+00	7.84E+02	1.55E+06	5.37E+01	5.02E+01	1.00E-08	4.68E-08
Strontium (38)	Sr-90	2.41E-02	2.88E+01	1.36E+09	9.00E-01	1.34E+01	1.66E+04	4.03E+00	3.10E+00	3.69E-02	6.07E-07
Strontium (38)	Sr-91	6.30E+02	1.10E-03	1.36E+09	1.00E+00	8.40E+04	1.67E+08	1.72E+01	1.72E+01	1.00E-08	1.30E-10
Strontium (38)	Sr-92	2.28E+03	3.04E-04	1.36E+09	1.00E+00	9.98E+05	1.28E+10	3.74E+01	3.74E+01	1.00E-08	7.90E-11
Strontium (38)	Sr-93	4.91E+04	1.41E-05	1.36E+09	1.00E+00	1.69E+07	2.57E+11	1.24E+04	1.24E+04	1.00E-08	1.23E-09
Strontium (38)	Sr-94	2.90E+05	2.39E-06	1.36E+09	1.00E+00	5.69E+16	9.93E+20	4.07E+11	4.07E+11	1.00E-08	6.91E-03
Tantalum (73)	Ta-170	5.39E+04	1.29E-05	1.36E+09	1.00E+00	1.56E+07	1.33E+11	4.80E+02	4.80E+02	1.00E-08	7.94E-11
Tantalum (73)	Ta-172	9.90E+03	7.00E-05	1.36E+09	1.00E+00	5.40E+06	2.99E+09	1.22E+02	1.22E+02	1.00E-08	1.11E-10
Tantalum (73)	Ta-173	1.93E+03	3.58E-04	1.36E+09	1.00E+00	1.62E+06	2.84E+09	6.36E+01	6.36E+01	1.00E-08	2.99E-10
Tantalum (73)	Ta-174	5.33E+03	1.30E-04	1.36E+09	1.00E+00	2.96E+07	2.54E+11	1.59E+02	1.59E+02	1.00E-08	2.73E-10
Tantalum (73)	Ta-175	5.78E+02	1.20E-03	1.36E+09	1.00E+00	3.66E+05	9.32E+08	1.19E+01	1.19E+01	1.00E-08	1.89E-10
Tantalum (73)	Ta-176	7.50E+02	9.24E-04	1.36E+09	1.00E+00	9.47E+05	8.47E+09	8.87E+00	8.87E+00	1.00E-08	1.09E-10
Tantalum (73)	Ta-177	1.07E+02	6.46E-03	1.36E+09	1.00E+00	3.90E+05	2.39E+09	1.10E+02	1.10E+02	1.00E-08	9.50E-09
Tantalum (73)	Ta-178	3.91E+04	1.77E-05	1.36E+09	1.00E+00	.	.	1.60E+14	1.60E+14	1.00E-08	3.81E+01
Tantalum (73)	Ta-178m	2.57E+03	2.69E-04	1.36E+09	1.00E+00	1.21E+07	7.81E+10	7.59E+01	7.59E+01	1.00E-08	2.76E-10

Composite Worker Soil DCCs July 2023											
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Tantalum (73)	Ta-179	3.81E-01	1.82E+00	1.36E+09	1.00E+00	8.02E+03	5.99E+06	5.16E+00	5.16E+00	1.00E-08	1.27E-07
Tantalum (73)	Ta-180	7.45E+02	9.31E-04	1.36E+09	1.00E+00	5.34E+06	4.01E+10	1.49E+03	1.49E+03	1.00E-08	1.88E-08
Tantalum (73)	Ta-182	2.21E+00	3.14E-01	1.36E+09	1.00E+00	6.53E+02	5.92E+05	5.37E-02	5.37E-02	1.00E-08	2.32E-10
Tantalum (73)	Ta-182m	2.30E+04	3.01E-05	1.36E+09	1.00E+00	6.80E+06	6.16E+09	5.59E+02	5.59E+02	1.00E-08	2.32E-10
Tantalum (73)	Ta-183	4.96E+01	1.40E-02	1.36E+09	1.00E+00	1.47E+04	5.39E+07	6.69E+00	6.69E+00	1.00E-08	1.29E-09
Tantalum (73)	Ta-184	6.98E+02	9.93E-04	1.36E+09	1.00E+00	4.15E+05	3.72E+09	1.32E+01	1.32E+01	1.00E-08	1.82E-10
Tantalum (73)	Ta-185	7.37E+03	9.40E-05	1.36E+09	1.00E+00	5.93E+06	4.83E+09	1.88E+03	1.88E+03	1.00E-08	2.47E-09
Tantalum (73)	Ta-186	3.47E+04	2.00E-05	1.36E+09	1.00E+00	4.97E+17	5.54E+21	9.14E+11	9.14E+11	1.00E-08	2.57E-01
Terbium (65)	Tb-146	9.50E+05	7.29E-07	1.36E+09	1.00E+00	1.77E+08	2.98E+11	1.05E+04	1.05E+04	1.00E-08	8.46E-11
Terbium (65)	Tb-147	3.70E+03	1.87E-04	1.36E+09	1.00E+00	1.22E+06	5.25E+09	2.61E+01	2.61E+01	1.00E-08	5.43E-11
Terbium (65)	Tb-147m	1.95E+05	3.56E-06	1.36E+09	1.00E+00	7.17E+07	2.89E+11	3.11E+03	3.11E+03	1.00E-08	1.23E-10
Terbium (65)	Tb-148	6.07E+03	1.14E-04	1.36E+09	1.00E+00	3.86E+06	2.69E+08	7.00E+01	7.00E+01	1.00E-08	8.94E-11
Terbium (65)	Tb-148m	1.66E+05	4.19E-06	1.36E+09	1.00E+00	1.31E+08	7.34E+09	1.01E+16	1.29E+08	1.00E-08	6.03E-06
Terbium (65)	Tb-149	1.47E+03	4.70E-04	1.36E+09	1.00E+00	6.59E+05	6.15E+08	2.09E+01	2.09E+01	1.00E-08	1.11E-10
Terbium (65)	Tb-149m	8.76E+04	7.91E-06	1.36E+09	1.00E+00	5.02E+07	1.58E+11	5.15E+03	5.15E+03	1.00E-08	4.59E-10
Terbium (65)	Tb-150	1.74E+03	3.97E-04	1.36E+09	1.00E+00	3.20E+06	3.62E+10	1.89E+01	1.89E+01	1.00E-08	8.50E-11
Terbium (65)	Tb-150m	6.28E+04	1.10E-05	1.36E+09	1.00E+00	1.24E+12	7.76E+13	1.67E+15	1.22E+12	1.00E-08	1.53E-01
Terbium (65)	Tb-151	3.45E+02	2.01E-03	1.36E+09	1.00E+00	2.47E+05	6.53E+08	1.04E+01	1.04E+01	1.00E-08	2.40E-10
Terbium (65)	Tb-151m	8.74E+05	7.93E-07	1.36E+09	1.00E+00	6.53E+08	1.68E+12	2.83E+04	2.83E+04	1.00E-08	2.56E-10
Terbium (65)	Tb-152	3.47E+02	2.00E-03	1.36E+09	1.00E+00	1.99E+05	2.47E+09	6.40E+00	6.40E+00	1.00E-08	1.47E-10
Terbium (65)	Tb-152m	8.67E+04	7.99E-06	1.36E+09	1.00E+00	6.28E+07	7.81E+11	2.02E+03	2.02E+03	1.00E-08	1.86E-10
Terbium (65)	Tb-153	1.08E+02	6.41E-03	1.36E+09	1.00E+00	9.21E+04	1.48E+08	1.07E+01	1.07E+01	1.00E-08	7.93E-10
Terbium (65)	Tb-154	2.82E+02	2.45E-03	1.36E+09	1.00E+00	1.80E+05	1.79E+09	3.22E+00	3.22E+00	1.00E-08	9.20E-11
Terbium (65)	Tb-155	4.75E+01	1.46E-02	1.36E+09	1.00E+00	7.15E+04	3.69E+08	1.39E+01	1.39E+01	1.00E-08	2.37E-09
Terbium (65)	Tb-156	4.73E+01	1.47E-02	1.36E+09	1.00E+00	1.62E+04	8.93E+07	6.90E-01	6.89E-01	1.00E-08	1.19E-10
Terbium (65)	Tb-156m	2.49E+02	2.79E-03	1.36E+09	1.00E+00	7.46E+04	4.04E+08	3.61E+00	3.61E+00	1.00E-08	1.19E-10
Terbium (65)	Tb-156n	1.15E+03	6.05E-04	1.36E+09	1.00E+00	3.64E+05	1.99E+09	1.67E+01	1.67E+01	1.00E-08	1.19E-10
Terbium (65)	Tb-157	9.76E-03	7.10E+01	1.36E+09	1.00E+00	1.03E+04	7.99E+05	3.82E+01	3.81E+01	1.00E-08	3.21E-05
Terbium (65)	Tb-158	3.85E-03	1.80E+02	1.36E+09	1.00E+00	3.58E+02	2.48E+04	3.62E-02	3.62E-02	1.00E-08	7.79E-08
Terbium (65)	Tb-160	3.50E+00	1.98E-01	1.36E+09	1.00E+00	8.91E+02	1.07E+06	8.94E-02	8.94E-02	1.00E-08	2.14E-10
Terbium (65)	Tb-161	3.66E+01	1.89E-02	1.36E+09	1.00E+00	1.97E+04	6.26E+07	1.26E+02	1.25E+02	1.00E-08	2.88E-08
Terbium (65)	Tb-162	4.79E+04	1.45E-05	1.36E+09	1.00E+00	.	.	1.54E+13	1.54E+13	1.00E-08	2.74E+00

Composite Worker Soil DCCs July 2023											
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Terbium (65)	Tb-163	1.87E+04	3.71E-05	1.36E+09	1.00E+00	7.85E+15	5.63E+19	1.62E+10	1.62E+10	1.00E-08	7.41E-03
Terbium (65)	Tb-164	1.21E+05	5.71E-06	1.36E+09	1.00E+00	.	.	2.59E+15	2.59E+15	1.00E-08	1.84E+02
Terbium (65)	Tb-165	1.73E+05	4.01E-06	1.36E+09	1.00E+00	6.47E+08	6.37E+12	2.25E+05	2.25E+05	1.00E-08	1.13E-08
Technetium (43)	Tc-101	2.57E+04	2.70E-05	1.36E+09	1.00E+00	4.44E+17	3.90E+21	1.92E+12	1.92E+12	1.00E-08	3.96E-01
Technetium (43)	Tc-102	4.14E+06	1.67E-07	1.36E+09	1.00E+00	.	.	1.38E+26	1.38E+26	1.00E-08	1.78E+11
Technetium (43)	Tc-102m	8.37E+04	8.28E-06	1.36E+09	1.00E+00	.	.	1.51E+14	1.51E+14	1.00E-08	9.63E+00
Technetium (43)	Tc-104	1.99E+04	3.48E-05	1.36E+09	1.00E+00	5.42E+15	8.47E+19	1.28E+10	1.28E+10	1.00E-08	3.52E-03
Technetium (43)	Tc-105	4.79E+04	1.45E-05	1.36E+09	1.00E+00	2.97E+07	2.06E+11	1.70E+03	1.70E+03	1.00E-08	1.95E-10
Technetium (43)	Tc-91	1.16E+05	5.97E-06	1.36E+09	1.00E+00	2.92E+10	1.64E+13	3.25E+07	3.24E+07	1.00E-08	1.33E-06
Technetium (43)	Tc-91m	1.10E+05	6.28E-06	1.36E+09	1.00E+00	2.23E+08	1.36E+11	2.45E+05	2.45E+05	1.00E-08	1.06E-08
Technetium (43)	Tc-92	8.57E+04	8.09E-06	1.36E+09	1.00E+00	.	.	9.19E+13	9.19E+13	1.00E-08	5.17E+00
Technetium (43)	Tc-93	2.21E+03	3.14E-04	1.36E+09	1.00E+00	1.24E+07	1.07E+11	3.70E+01	3.70E+01	1.00E-08	8.17E-11
Technetium (43)	Tc-93m	8.37E+03	8.28E-05	1.36E+09	1.00E+00	3.85E+07	3.33E+11	1.01E+02	1.01E+02	1.00E-08	5.90E-11
Technetium (43)	Tc-94	1.24E+03	5.57E-04	1.36E+09	1.00E+00	2.43E+06	2.17E+10	1.31E+01	1.31E+01	1.00E-08	5.20E-11
Technetium (43)	Tc-94m	7.00E+03	9.89E-05	1.36E+09	1.00E+00	2.77E+07	3.40E+11	9.88E+01	9.88E+01	1.00E-08	6.96E-11
Technetium (43)	Tc-95	3.04E+02	2.28E-03	1.36E+09	1.00E+00	6.64E+05	6.21E+09	1.08E+01	1.08E+01	1.00E-08	1.78E-10
Technetium (43)	Tc-95m	4.15E+00	1.67E-01	1.36E+09	1.00E+00	2.92E+03	8.39E+06	1.74E-01	1.74E-01	1.00E-08	2.09E-10
Technetium (43)	Tc-96	5.91E+01	1.17E-02	1.36E+09	1.00E+00	2.09E+04	1.89E+08	6.60E-01	6.60E-01	1.00E-08	5.62E-11
Technetium (43)	Tc-96m	7.07E+03	9.80E-05	1.36E+09	1.00E+00	2.53E+06	2.29E+10	7.92E+01	7.92E+01	1.00E-08	5.64E-11
Technetium (43)	Tc-97	2.67E-07	2.60E+06	1.36E+09	1.00E+00	5.87E+03	1.43E+06	2.94E+02	2.80E+02	1.00E-08	5.34E+00
Technetium (43)	Tc-97m	2.81E+00	2.47E-01	1.36E+09	1.00E+00	2.18E+03	1.78E+06	3.19E+02	2.78E+02	1.00E-08	5.04E-07
Technetium (43)	Tc-98	1.65E-07	4.20E+06	1.36E+09	1.00E+00	2.15E+02	6.08E+04	2.01E-02	2.01E-02	1.00E-08	6.25E-04
Technetium (43)	Tc-99	3.28E-06	2.11E+05	1.36E+09	1.00E+00	6.23E+02	1.91E+05	1.47E+03	4.36E+02	1.00E-08	6.90E-01
Technetium (43)	Tc-99m	1.01E+03	6.87E-04	1.36E+09	1.00E+00	1.81E+07	1.18E+11	3.24E+02	3.24E+02	1.00E-08	1.67E-09
Tellurium (52)	Te-113	2.14E+05	3.23E-06	1.36E+09	1.00E+00	1.27E+08	1.50E+11	2.89E+04	2.89E+04	1.00E-08	8.00E-10
Tellurium (52)	Te-114	2.40E+04	2.89E-05	1.36E+09	1.00E+00	4.19E+16	4.95E+20	3.96E+10	3.96E+10	1.00E-08	9.89E-03
Tellurium (52)	Te-115	6.28E+04	1.10E-05	1.36E+09	1.00E+00	7.71E+12	7.78E+16	1.56E+07	1.56E+07	1.00E-08	1.50E-06
Tellurium (52)	Te-115m	5.44E+04	1.27E-05	1.36E+09	1.00E+00	6.45E+12	6.51E+16	1.31E+07	1.31E+07	1.00E-08	1.45E-06
Tellurium (52)	Te-116	2.44E+03	2.84E-04	1.36E+09	1.00E+00	4.27E+06	3.96E+10	2.79E+01	2.79E+01	1.00E-08	6.96E-11
Tellurium (52)	Te-117	5.87E+03	1.18E-04	1.36E+09	1.00E+00	3.31E+07	2.93E+11	9.54E+01	9.54E+01	1.00E-08	9.96E-11
Tellurium (52)	Te-118	4.22E+01	1.64E-02	1.36E+09	1.00E+00	5.55E+03	3.89E+07	1.53E+00	1.53E+00	1.00E-08	2.24E-10
Tellurium (52)	Te-119	3.78E+02	1.83E-03	1.36E+09	1.00E+00	5.80E+05	5.72E+09	1.42E+01	1.42E+01	1.00E-08	2.34E-10



Composite Worker Soil DCCs July 2023											
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Tellurium (52)	Te-119m	5.38E+01	1.29E-02	1.36E+09	1.00E+00	2.68E+04	1.88E+08	9.91E-01	9.91E-01	1.00E-08	1.15E-10
Tellurium (52)	Te-121	1.32E+01	5.25E-02	1.36E+09	1.00E+00	1.16E+04	5.50E+07	6.90E-01	6.90E-01	1.00E-08	3.32E-10
Tellurium (52)	Te-121m	1.64E+00	4.22E-01	1.36E+09	1.00E+00	2.96E+02	8.01E+05	9.05E-02	9.05E-02	1.00E-08	3.49E-10
Tellurium (52)	Te-123	1.16E-15	6.00E+14	1.36E+09	1.00E+00	2.94E+02	6.92E+05	2.02E+04	2.90E+02	5.44E-06	1.62E+09
Tellurium (52)	Te-123m	2.12E+00	3.27E-01	1.36E+09	1.00E+00	7.04E+02	1.18E+06	6.83E-01	6.83E-01	1.00E-08	2.08E-09
Tellurium (52)	Te-125m	4.41E+00	1.57E-01	1.36E+09	1.00E+00	2.05E+03	2.69E+06	6.51E+01	6.31E+01	1.00E-08	9.38E-08
Tellurium (52)	Te-127	6.49E+02	1.07E-03	1.36E+09	1.00E+00	1.53E+06	1.06E+10	3.94E+03	3.93E+03	1.00E-08	4.03E-08
Tellurium (52)	Te-127m	2.32E+00	2.99E-01	1.36E+09	1.00E+00	4.09E+02	6.38E+05	1.38E+01	1.34E+01	1.00E-08	3.84E-08
Tellurium (52)	Te-129	5.23E+03	1.32E-04	1.36E+09	1.00E+00	3.32E+07	3.35E+11	2.58E+03	2.58E+03	1.00E-08	3.34E-09
Tellurium (52)	Te-129m	7.53E+00	9.21E-02	1.36E+09	1.00E+00	9.98E+02	2.34E+06	3.18E+00	3.17E+00	1.00E-08	2.85E-09
Tellurium (52)	Te-131	1.46E+04	4.76E-05	1.36E+09	1.00E+00	2.69E+05	1.52E+09	1.17E+03	1.17E+03	1.00E-08	5.50E-10
Tellurium (52)	Te-131m	2.02E+02	3.42E-03	1.36E+09	1.00E+00	3.42E+03	1.88E+07	3.00E+00	3.00E+00	1.00E-08	1.02E-10
Tellurium (52)	Te-132	7.89E+01	8.78E-03	1.36E+09	1.00E+00	7.77E+03	3.07E+07	9.04E-01	9.03E-01	1.00E-08	7.92E-11
Tellurium (52)	Te-133	2.91E+04	2.38E-05	1.36E+09	1.00E+00	2.70E+06	1.45E+10	1.34E+03	1.34E+03	1.00E-08	3.20E-10
Tellurium (52)	Te-133m	6.57E+03	1.05E-04	1.36E+09	1.00E+00	5.74E+05	3.10E+09	6.79E+01	6.79E+01	1.00E-08	7.20E-11
Tellurium (52)	Te-134	8.71E+03	7.95E-05	1.36E+09	1.00E+00	1.75E+07	9.15E+10	7.06E+01	7.06E+01	1.00E-08	5.69E-11
Thorium (90)	Th-223	3.64E+07	1.90E-08	1.36E+09	1.00E+00	.	.	2.35E+31	2.35E+31	2.51E-06	7.56E+15
Thorium (90)	Th-224	2.08E+07	3.33E-08	1.36E+09	1.00E+00	.	.	1.39E+31	1.39E+31	7.94E-06	7.84E+15
Thorium (90)	Th-226	1.19E+04	5.82E-05	1.36E+09	1.00E+00	8.60E+04	1.02E+08	8.29E+06	8.51E+04	1.61E+00	8.46E-08
Thorium (90)	Th-227	1.35E+01	5.12E-02	1.36E+09	1.00E+00	4.82E+01	1.79E+03	1.06E+00	1.03E+00	1.00E-08	9.10E-10
Thorium (90)	Th-228	3.63E-01	1.91E+00	1.36E+09	1.00E+00	3.36E+00	6.86E+01	2.14E-02	2.12E-02	1.93E-02	7.00E-10
Thorium (90)	Th-229	9.44E-05	7.34E+03	1.36E+09	1.00E+00	6.28E-01	2.92E+01	1.12E-01	9.51E-02	5.86E-01	1.21E-05
Thorium (90)	Th-230	9.19E-06	7.54E+04	1.36E+09	1.00E+00	1.81E-01	2.31E+01	1.69E-02	1.54E-02	8.93E+03	2.02E-05
Thorium (90)	Th-231	2.38E+02	2.91E-03	1.36E+09	1.00E+00	2.76E+05	9.70E+07	1.19E+03	1.18E+03	1.00E-08	6.01E-08
Thorium (90)	Th-232	4.93E-11	1.41E+10	1.36E+09	1.00E+00	3.74E-01	3.02E+01	1.15E-02	1.11E-02	1.77E+02	2.74E+00
Thorium (90)	Th-233	1.63E+04	4.24E-05	1.36E+09	1.00E+00	6.76E+06	9.65E+09	2.60E+03	2.60E+03	1.00E-08	1.94E-09
Thorium (90)	Th-234	1.05E+01	6.60E-02	1.36E+09	1.00E+00	1.24E+03	3.31E+06	1.05E+01	1.04E+01	1.00E-08	1.22E-08
Thorium (90)	Th-235	5.13E+04	1.35E-05	1.36E+09	1.00E+00	2.17E+13	4.35E+14	2.16E+11	2.16E+11	1.00E-08	5.19E-02
Thorium (90)	Th-236	9.71E+03	7.13E-05	1.36E+09	1.00E+00	4.45E+07	3.92E+11	2.76E+02	2.76E+02	1.00E-08	3.52E-10
Titanium (22)	Ti-44	1.16E-02	6.00E+01	1.36E+09	1.00E+00	6.53E+01	2.05E+04	1.28E-02	1.28E-02	2.90E-03	2.55E-09
Titanium (22)	Ti-45	1.97E+03	3.52E-04	1.36E+09	1.00E+00	5.22E+06	4.83E+10	6.68E+01	6.68E+01	1.00E-08	8.00E-11
Titanium (22)	Ti-51	6.32E+04	1.10E-05	1.36E+09	1.00E+00	.	.	1.71E+15	1.71E+15	1.00E-08	7.25E+01

Composite Worker Soil DCCs July 2023											
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Titanium (22)	Ti-52	2.14E+05	3.23E-06	1.36E+09	1.00E+00	.	.	1.73E+15	1.73E+15	1.00E-08	2.20E+01
Thallium (81)	Tl-190	1.40E+05	4.95E-06	1.36E+09	1.00E+00	1.31E+09	1.31E+13	1.54E+03	1.54E+03	1.00E-08	1.10E-10
Thallium (81)	Tl-190m	9.84E+04	7.04E-06	1.36E+09	1.00E+00	9.22E+08	9.23E+12	1.08E+03	1.08E+03	1.00E-08	1.10E-10
Thallium (81)	Tl-194	1.10E+04	6.28E-05	1.36E+09	1.00E+00	9.10E+07	4.83E+11	3.61E+02	3.61E+02	1.00E-08	3.33E-10
Thallium (81)	Tl-194m	1.11E+04	6.24E-05	1.36E+09	1.00E+00	1.06E+08	4.05E+11	1.29E+02	1.29E+02	1.00E-08	1.18E-10
Thallium (81)	Tl-195	5.23E+03	1.32E-04	1.36E+09	1.00E+00	6.42E+06	4.49E+09	1.02E+02	1.02E+02	1.00E-08	2.00E-10
Thallium (81)	Tl-196	3.30E+03	2.10E-04	1.36E+09	1.00E+00	2.59E+07	1.91E+11	4.80E+01	4.80E+01	1.00E-08	1.50E-10
Thallium (81)	Tl-197	2.14E+03	3.24E-04	1.36E+09	1.00E+00	3.13E+06	1.14E+09	1.37E+02	1.37E+02	1.00E-08	6.62E-10
Thallium (81)	Tl-198	1.15E+03	6.05E-04	1.36E+09	1.00E+00	6.18E+06	3.41E+10	1.54E+01	1.54E+01	1.00E-08	1.39E-10
Thallium (81)	Tl-198m	3.25E+03	2.13E-04	1.36E+09	1.00E+00	1.45E+07	7.18E+10	4.38E+01	4.38E+01	1.00E-08	1.40E-10
Thallium (81)	Tl-199	8.18E+02	8.47E-04	1.36E+09	1.00E+00	1.21E+07	3.83E+10	1.21E+02	1.21E+02	1.00E-08	1.54E-09
Thallium (81)	Tl-200	2.33E+02	2.98E-03	1.36E+09	1.00E+00	4.61E+05	2.96E+09	5.08E+00	5.08E+00	1.00E-08	2.29E-10
Thallium (81)	Tl-201	8.33E+01	8.32E-03	1.36E+09	1.00E+00	3.36E+05	1.03E+09	5.52E+01	5.51E+01	1.00E-08	6.98E-09
Thallium (81)	Tl-202	2.07E+01	3.35E-02	1.36E+09	1.00E+00	1.81E+04	1.23E+08	1.45E+00	1.45E+00	1.00E-08	7.41E-10
Thallium (81)	Tl-204	1.83E-01	3.78E+00	1.36E+09	1.00E+00	3.68E+02	1.45E+05	4.24E+01	3.80E+01	1.00E-08	2.22E-06
Thallium (81)	Tl-206	8.67E+04	7.99E-06	1.36E+09	1.00E+00	.	.	1.63E+17	1.63E+17	1.00E-08	2.03E+04
Thallium (81)	Tl-206m	9.74E+04	7.12E-06	1.36E+09	1.00E+00	.	.	9.58E+14	9.58E+14	1.00E-08	1.06E+02
Thallium (81)	Tl-207	7.64E+04	9.08E-06	1.36E+09	1.00E+00	.	.	8.07E+16	8.07E+16	1.00E-08	1.15E+04
Thallium (81)	Tl-208	1.19E+05	5.81E-06	1.36E+09	1.00E+00	.	.	1.04E+15	1.04E+15	1.00E-08	9.55E+01
Thallium (81)	Tl-209	1.69E+05	4.11E-06	1.36E+09	1.00E+00	1.19E+09	6.57E+12	4.03E+07	3.90E+07	1.00E-08	2.54E-06
Thallium (81)	Tl-210	2.80E+05	2.47E-06	1.36E+09	1.00E+00	2.02E+06	2.41E+09	1.95E+08	2.00E+06	1.61E+00	7.86E-08
Thulium (69)	Tm-161	1.21E+04	5.75E-05	1.36E+09	1.00E+00	4.95E+07	4.48E+11	3.47E+02	3.47E+02	1.00E-08	2.43E-10
Thulium (69)	Tm-162	1.68E+04	4.13E-05	1.36E+09	1.00E+00	4.55E+14	5.09E+18	6.28E+08	6.28E+08	1.00E-08	3.18E-04
Thulium (69)	Tm-163	3.35E+03	2.07E-04	1.36E+09	1.00E+00	2.35E+07	1.94E+11	7.17E+01	7.17E+01	1.00E-08	1.83E-10
Thulium (69)	Tm-164	1.82E+05	3.81E-06	1.36E+09	1.00E+00	.	.	4.78E+16	4.78E+16	1.00E-08	2.26E+03
Thulium (69)	Tm-165	2.02E+02	3.43E-03	1.36E+09	1.00E+00	2.14E+05	1.93E+09	1.16E+01	1.16E+01	1.00E-08	4.96E-10
Thulium (69)	Tm-166	7.88E+02	8.79E-04	1.36E+09	1.00E+00	1.10E+06	9.83E+09	1.08E+01	1.08E+01	1.00E-08	1.19E-10
Thulium (69)	Tm-167	2.73E+01	2.53E-02	1.36E+09	1.00E+00	1.88E+04	5.06E+07	8.60E+00	8.59E+00	1.00E-08	2.75E-09
Thulium (69)	Tm-168	2.72E+00	2.55E-01	1.36E+09	1.00E+00	1.12E+03	1.41E+06	7.03E-02	7.03E-02	1.00E-08	2.28E-10
Thulium (69)	Tm-170	1.97E+00	3.52E-01	1.36E+09	1.00E+00	6.98E+02	6.16E+05	3.26E+01	3.12E+01	1.00E-08	1.41E-07
Thulium (69)	Tm-171	3.61E-01	1.92E+00	1.36E+09	1.00E+00	4.50E+03	2.33E+06	2.14E+02	2.05E+02	1.00E-08	5.08E-06
Thulium (69)	Tm-172	9.55E+01	7.26E-03	1.36E+09	1.00E+00	2.25E+04	1.83E+08	5.31E+00	5.31E+00	1.00E-08	5.02E-10

Composite Worker Soil DCCs July 2023											
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Thulium (69)	Tm-173	7.37E+02	9.41E-04	1.36E+09	1.00E+00	9.79E+05	8.90E+09	5.87E+01	5.86E+01	1.00E-08	7.22E-10
Thulium (69)	Tm-174	6.75E+04	1.03E-05	1.36E+09	1.00E+00	.	.	5.20E+13	5.20E+13	1.00E-08	7.04E+00
Thulium (69)	Tm-175	2.40E+04	2.89E-05	1.36E+09	1.00E+00	2.18E+07	8.02E+10	2.01E+04	2.01E+04	1.00E-08	7.71E-09
Thulium (69)	Tm-176	1.97E+05	3.52E-06	1.36E+09	1.00E+00	.	.	2.08E+17	2.08E+17	1.00E-08	9.73E+03
Uranium (92)	U-227	3.31E+05	2.09E-06	1.36E+09	1.00E+00	.	.	7.70E+18	7.70E+18	1.00E-08	2.77E+05
Uranium (92)	U-228	4.00E+04	1.73E-05	1.36E+09	1.00E+00	.	.	9.48E+14	9.48E+14	1.00E-08	2.83E+02
Uranium (92)	U-230	1.22E+01	5.70E-02	1.36E+09	1.00E+00	5.24E+01	1.85E+03	2.29E+01	1.58E+01	1.00E-08	1.57E-08
Uranium (92)	U-231	6.02E+01	1.15E-02	1.36E+09	1.00E+00	6.83E+04	2.46E+07	4.54E+01	4.54E+01	1.00E-08	9.13E-09
Uranium (92)	U-232	1.01E-02	6.89E+01	1.36E+09	1.00E+00	9.16E-01	3.48E+01	1.97E-02	1.93E-02	9.73E+00	2.33E-08
Uranium (92)	U-233	4.35E-06	1.59E+05	1.36E+09	1.00E+00	6.74E-01	3.05E+01	1.30E-01	1.09E-01	3.41E+04	3.06E-04
Uranium (92)	U-234	2.82E-06	2.46E+05	1.36E+09	1.00E+00	2.75E-01	3.39E+01	2.62E-02	2.39E-02	1.87E+05	1.04E-04
Uranium (92)	U-235	9.84E-10	7.04E+08	1.36E+09	1.00E+00	4.17E-01	8.35E+00	5.47E-02	4.81E-02	4.46E+05	6.02E-01
Uranium (92)	U-235m	1.40E+04	4.95E-05	1.36E+09	1.00E+00	5.93E+12	1.19E+14	7.79E+11	6.84E+11	4.46E+05	6.02E-01
Uranium (92)	U-236	2.96E-08	2.34E+07	1.36E+09	1.00E+00	8.58E+00	2.90E+02	6.94E+00	6.72E+00	1.63E+08	2.81E+00
Uranium (92)	U-237	3.75E+01	1.85E-02	1.36E+09	1.00E+00	1.93E+04	4.84E+07	1.27E+01	1.27E+01	1.00E-08	4.21E-09
Uranium (92)	U-238	1.55E-10	4.47E+09	1.36E+09	1.00E+00	1.60E-01	1.89E+01	1.53E-02	1.40E-02	3.52E+06	1.12E+00
Uranium (92)	U-239	1.55E+04	4.46E-05	1.36E+09	1.00E+00	7.57E+06	9.15E+09	3.47E+03	3.47E+03	1.00E-08	2.80E-09
Uranium (92)	U-240	4.31E+02	1.61E-03	1.36E+09	1.00E+00	1.54E+05	8.73E+07	3.76E+01	3.76E+01	1.00E-08	1.10E-09
Uranium (92)	U-242	2.17E+04	3.20E-05	1.36E+09	1.00E+00	1.96E+10	2.77E+11	1.36E+11	1.62E+10	1.00E-08	9.46E-03
Vanadium (23)	V-47	1.12E+04	6.20E-05	1.36E+09	1.00E+00	7.10E+07	8.30E+11	3.30E+02	3.30E+02	1.00E-08	7.28E-11
Vanadium (23)	V-48	1.58E+01	4.38E-02	1.36E+09	1.00E+00	3.18E+03	1.39E+07	1.47E-01	1.47E-01	1.00E-08	2.34E-11
Vanadium (23)	V-49	7.67E-01	9.04E-01	1.36E+09	1.00E+00	3.11E+04	4.88E+07	.	3.11E+04	1.00E-08	1.04E-04
Vanadium (23)	V-50	4.62E-18	1.50E+17	1.36E+09	1.00E+00	1.17E+02	4.06E+04	1.81E-02	1.81E-02	7.22E+00	1.03E+07
Vanadium (23)	V-52	9.73E+04	7.12E-06	1.36E+09	1.00E+00	.	.	1.41E+15	1.41E+15	1.00E-08	3.96E+01
Vanadium (23)	V-53	2.26E+05	3.06E-06	1.36E+09	1.00E+00	.	.	1.22E+17	1.22E+17	1.00E-08	1.49E+03
Tungsten (74)	W-177	2.76E+03	2.51E-04	1.36E+09	1.00E+00	6.63E+06	4.31E+10	9.30E+01	9.30E+01	1.00E-08	3.13E-10
Tungsten (74)	W-178	1.17E+01	5.92E-02	1.36E+09	1.00E+00	1.88E+04	3.43E+07	3.70E+00	3.70E+00	1.00E-08	2.95E-09
Tungsten (74)	W-179	9.83E+03	7.05E-05	1.36E+09	1.00E+00	1.74E+08	1.53E+11	1.75E+04	1.75E+04	1.00E-08	1.67E-08
Tungsten (74)	W-179m	5.69E+04	1.22E-05	1.36E+09	1.00E+00	1.01E+09	8.87E+11	1.01E+05	1.01E+05	1.00E-08	1.67E-08
Tungsten (74)	W-181	2.09E+00	3.32E-01	1.36E+09	1.00E+00	1.10E+04	1.99E+07	6.03E+00	6.02E+00	1.00E-08	2.74E-08
Tungsten (74)	W-185	3.37E+00	2.06E-01	1.36E+09	1.00E+00	3.14E+03	2.24E+06	1.53E+03	1.03E+03	1.00E-08	2.96E-06
Tungsten (74)	W-185m	2.28E+05	3.04E-06	1.36E+09	1.00E+00	2.13E+08	1.51E+11	1.04E+08	6.96E+07	1.00E-08	2.96E-06

Composite Worker Soil DCCs July 2023											
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion	Inhalation	External	Total	Peak Dose	Total
						DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	Exposure DCC DL=1 (Bq/g)	DCC DL=1 (Bq/g)	Start Time Total (yrs)	DCC DL=1 (mg/kg)
Tungsten (74)	W-187	2.56E+02	2.71E-03	1.36E+09	1.00E+00	1.72E+05	1.44E+09	1.72E+01	1.72E+01	1.00E-08	6.60E-10
Tungsten (74)	W-188	3.62E+00	1.91E-01	1.36E+09	1.00E+00	4.32E+02	5.67E+05	1.79E+00	1.78E+00	1.00E-08	4.84E-09
Tungsten (74)	W-190	1.21E+04	5.71E-05	1.36E+09	1.00E+00	1.21E+12	8.05E+15	4.74E+06	4.74E+06	1.00E-08	3.89E-06
Xenon (54)	Xe-120	9.11E+03	7.61E-05	1.36E+09	1.00E+00	1.25E+07	7.64E+10	8.10E+01	8.10E+01	1.00E-08	5.60E-11
Xenon (54)	Xe-121	9.08E+03	7.63E-05	1.36E+09	1.00E+00	6.79E+06	3.24E+10	1.07E+02	1.07E+02	1.00E-08	7.45E-11
Xenon (54)	Xe-122	3.02E+02	2.29E-03	1.36E+09	1.00E+00	.	.	8.75E+00	8.75E+00	1.00E-08	1.85E-10
Xenon (54)	Xe-123	2.92E+03	2.37E-04	1.36E+09	1.00E+00	5.28E+06	2.78E+10	1.15E+02	1.15E+02	1.00E-08	2.54E-10
Xenon (54)	Xe-125	3.59E+02	1.93E-03	1.36E+09	1.00E+00	9.41E+03	6.01E+07	4.86E+01	4.84E+01	1.00E-08	8.82E-10
Xenon (54)	Xe-127	6.95E+00	9.97E-02	1.36E+09	1.00E+00	.	.	9.31E-01	9.31E-01	1.00E-08	8.93E-10
Xenon (54)	Xe-127m	3.16E+05	2.19E-06	1.36E+09	1.00E+00	.	.	4.23E+04	4.23E+04	1.00E-08	8.93E-10
Xenon (54)	Xe-129m	2.85E+01	2.43E-02	1.36E+09	1.00E+00	.	.	8.08E+01	8.08E+01	1.00E-08	1.92E-08
Xenon (54)	Xe-131m	2.14E+01	3.24E-02	1.36E+09	1.00E+00	.	.	1.77E+02	1.77E+02	1.00E-08	5.68E-08
Xenon (54)	Xe-133	4.82E+01	1.44E-02	1.36E+09	1.00E+00	.	.	8.79E+01	8.79E+01	1.00E-08	1.27E-08
Xenon (54)	Xe-133m	1.16E+02	6.00E-03	1.36E+09	1.00E+00	.	.	9.02E+01	9.02E+01	1.00E-08	5.45E-09
Xenon (54)	Xe-135	6.64E+02	1.04E-03	1.36E+09	1.00E+00	3.33E+11	4.79E+14	8.77E+01	8.77E+01	1.00E-08	9.35E-10
Xenon (54)	Xe-135m	2.38E+04	2.91E-05	1.36E+09	1.00E+00	1.19E+13	1.72E+16	3.17E+03	3.17E+03	1.00E-08	9.41E-10
Xenon (54)	Xe-137	9.54E+04	7.26E-06	1.36E+09	1.00E+00	1.24E+08	2.74E+11	2.13E+05	2.13E+05	1.00E-08	1.60E-08
Xenon (54)	Xe-138	2.59E+04	2.68E-05	1.36E+09	1.00E+00	1.07E+08	1.30E+12	2.83E+02	2.83E+02	1.00E-08	7.93E-11
Yttrium (39)	Y-81	3.10E+05	2.23E-06	1.36E+09	1.00E+00	2.54E+09	1.01E+13	1.51E+04	1.51E+04	1.00E-08	2.07E-10
Yttrium (39)	Y-83	5.14E+04	1.35E-05	1.36E+09	1.00E+00	9.40E+06	7.35E+10	1.16E+03	1.16E+03	1.00E-08	9.83E-11
Yttrium (39)	Y-83m	1.28E+05	5.42E-06	1.36E+09	1.00E+00	2.33E+07	1.83E+11	2.89E+03	2.89E+03	1.00E-08	9.84E-11
Yttrium (39)	Y-84m	9.22E+03	7.52E-05	1.36E+09	1.00E+00	2.69E+07	3.34E+11	6.40E+01	6.40E+01	1.00E-08	3.06E-11
Yttrium (39)	Y-85	2.27E+03	3.06E-04	1.36E+09	1.00E+00	1.38E+06	6.82E+09	3.95E+01	3.95E+01	1.00E-08	7.78E-11
Yttrium (39)	Y-85m	1.25E+03	5.55E-04	1.36E+09	1.00E+00	5.51E+05	3.08E+09	1.94E+01	1.94E+01	1.00E-08	6.91E-11
Yttrium (39)	Y-86	4.12E+02	1.68E-03	1.36E+09	1.00E+00	1.72E+05	1.97E+09	3.11E+00	3.11E+00	1.00E-08	3.40E-11
Yttrium (39)	Y-86m	7.59E+03	9.13E-05	1.36E+09	1.00E+00	3.02E+06	3.44E+10	5.49E+01	5.49E+01	1.00E-08	3.27E-11
Yttrium (39)	Y-87	7.61E+01	9.11E-03	1.36E+09	1.00E+00	5.27E+04	4.23E+08	3.03E+00	3.03E+00	1.00E-08	1.82E-10
Yttrium (39)	Y-87m	4.54E+02	1.53E-03	1.36E+09	1.00E+00	2.31E+05	1.91E+09	1.31E+01	1.31E+01	1.00E-08	1.32E-10
Yttrium (39)	Y-88	2.37E+00	2.92E-01	1.36E+09	1.00E+00	8.05E+02	1.03E+06	2.50E-02	2.50E-02	1.00E-08	4.87E-11
Yttrium (39)	Y-89m	1.40E+06	4.97E-07	1.36E+09	1.00E+00	.	.	1.09E+22	1.09E+22	1.00E-08	3.65E+07
Yttrium (39)	Y-90	9.47E+01	7.32E-03	1.36E+09	1.00E+00	1.41E+04	1.45E+08	3.82E+02	3.72E+02	1.00E-08	1.85E-08
Yttrium (39)	Y-90m	1.90E+03	3.64E-04	1.36E+09	1.00E+00	2.67E+05	2.74E+09	9.27E+01	9.27E+01	1.00E-08	2.30E-10



Composite Worker Soil DCCs July 2023											
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Yttrium (39)	Y-91	4.32E+00	1.60E-01	1.36E+09	1.00E+00	7.39E+02	1.20E+06	2.03E+01	1.98E+01	1.00E-08	2.18E-08
Yttrium (39)	Y-91m	7.33E+03	9.46E-05	1.36E+09	1.00E+00	1.25E+06	2.03E+09	4.00E+02	4.00E+02	1.00E-08	2.61E-10
Yttrium (39)	Y-92	1.71E+03	4.04E-04	1.36E+09	1.00E+00	1.39E+06	2.17E+10	1.74E+02	1.74E+02	1.00E-08	4.88E-10
Yttrium (39)	Y-93	5.96E+02	1.16E-03	1.36E+09	1.00E+00	2.06E+05	3.12E+09	1.51E+02	1.51E+02	1.00E-08	1.23E-09
Yttrium (39)	Y-94	1.95E+04	3.56E-05	1.36E+09	1.00E+00	4.09E+15	7.14E+19	2.93E+10	2.93E+10	1.00E-08	7.41E-03
Yttrium (39)	Y-95	3.54E+04	1.96E-05	1.36E+09	1.00E+00	9.32E+06	1.17E+10	6.86E+02	6.86E+02	1.00E-08	9.67E-11
Ytterbium (70)	Yb-162	1.93E+04	3.59E-05	1.36E+09	1.00E+00	7.21E+13	8.06E+17	1.00E+08	1.00E+08	1.00E-08	4.40E-05
Ytterbium (70)	Yb-163	3.30E+04	2.10E-05	1.36E+09	1.00E+00	2.31E+08	1.91E+12	7.05E+02	7.05E+02	1.00E-08	1.83E-10
Ytterbium (70)	Yb-164	4.81E+03	1.44E-04	1.36E+09	1.00E+00	2.10E+07	2.46E+11	1.73E+02	1.73E+02	1.00E-08	3.09E-10
Ytterbium (70)	Yb-165	3.68E+04	1.88E-05	1.36E+09	1.00E+00	3.88E+07	3.50E+11	2.10E+03	2.10E+03	1.00E-08	4.94E-10
Ytterbium (70)	Yb-166	1.07E+02	6.47E-03	1.36E+09	1.00E+00	3.44E+04	2.63E+08	1.45E+00	1.45E+00	1.00E-08	1.18E-10
Ytterbium (70)	Yb-167	2.08E+04	3.33E-05	1.36E+09	1.00E+00	1.43E+07	3.85E+10	6.54E+03	6.54E+03	1.00E-08	2.75E-09
Ytterbium (70)	Yb-169	7.90E+00	8.77E-02	1.36E+09	1.00E+00	3.85E+03	5.71E+06	1.24E+00	1.24E+00	1.00E-08	1.39E-09
Ytterbium (70)	Yb-175	6.04E+01	1.15E-02	1.36E+09	1.00E+00	5.51E+04	2.03E+08	5.09E+01	5.09E+01	1.00E-08	7.72E-09
Ytterbium (70)	Yb-177	3.18E+03	2.18E-04	1.36E+09	1.00E+00	2.04E+06	6.15E+09	4.22E+02	4.22E+02	1.00E-08	1.23E-09
Ytterbium (70)	Yb-178	4.92E+03	1.41E-04	1.36E+09	1.00E+00	1.21E+07	1.16E+11	8.29E+02	8.29E+02	1.00E-08	1.57E-09
Ytterbium (70)	Yb-179	4.55E+04	1.52E-05	1.36E+09	1.00E+00	8.43E+07	9.52E+11	4.91E+04	4.91E+04	1.00E-08	1.01E-08
Zinc (30)	Zn-60	1.53E+05	4.53E-06	1.36E+09	1.00E+00	4.48E+14	5.19E+18	5.41E+08	5.41E+08	1.00E-08	1.11E-05
Zinc (30)	Zn-61	2.45E+05	2.83E-06	1.36E+09	1.00E+00	8.39E+08	7.34E+12	8.69E+03	8.69E+03	1.00E-08	1.13E-10
Zinc (30)	Zn-62	6.61E+02	1.05E-03	1.36E+09	1.00E+00	2.82E+05	2.73E+09	1.34E+01	1.34E+01	1.00E-08	6.61E-11
Zinc (30)	Zn-63	9.47E+03	7.32E-05	1.36E+09	1.00E+00	4.74E+07	5.81E+11	2.51E+02	2.51E+02	1.00E-08	8.74E-11
Zinc (30)	Zn-65	1.04E+00	6.69E-01	1.36E+09	1.00E+00	1.64E+02	1.71E+06	7.45E-02	7.45E-02	1.00E-08	2.45E-10
Zinc (30)	Zn-69	6.46E+03	1.07E-04	1.36E+09	1.00E+00	8.39E+07	5.45E+11	3.55E+05	3.53E+05	1.00E-08	1.98E-07
Zinc (30)	Zn-69m	4.41E+02	1.57E-03	1.36E+09	1.00E+00	4.85E+05	3.38E+09	3.19E+01	3.19E+01	1.00E-08	2.61E-10
Zinc (30)	Zn-71	1.49E+05	4.66E-06	1.36E+09	1.00E+00	.	.	4.15E+16	4.15E+16	1.00E-08	1.04E+03
Zinc (30)	Zn-71m	1.53E+03	4.52E-04	1.36E+09	1.00E+00	2.54E+06	2.13E+10	2.87E+01	2.87E+01	1.00E-08	6.98E-11
Zinc (30)	Zn-72	1.31E+02	5.31E-03	1.36E+09	1.00E+00	2.06E+04	1.60E+08	1.21E+00	1.21E+00	1.00E-08	3.50E-11
Zirconium (40)	Zr-85	4.63E+04	1.50E-05	1.36E+09	1.00E+00	2.06E+07	1.15E+11	7.21E+02	7.21E+02	1.00E-08	6.93E-11
Zirconium (40)	Zr-86	3.68E+02	1.88E-03	1.36E+09	1.00E+00	8.12E+04	9.14E+08	2.61E+00	2.61E+00	1.00E-08	3.20E-11
Zirconium (40)	Zr-87	3.61E+03	1.92E-04	1.36E+09	1.00E+00	1.49E+06	1.30E+10	5.43E+01	5.43E+01	1.00E-08	6.85E-11
Zirconium (40)	Zr-88	3.03E+00	2.28E-01	1.36E+09	1.00E+00	8.74E+02	9.23E+05	3.38E-02	3.38E-02	2.24E-02	5.14E-11
Zirconium (40)	Zr-89	7.74E+01	8.95E-03	1.36E+09	1.00E+00	3.92E+04	3.25E+08	1.88E+00	1.88E+00	1.00E-08	1.13E-10

Composite Worker Soil DCCs July 2023											
Radionuclides		Isotope-specific Information				Dose Compliance Concentrations (DCCs)					
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Particulate Emission Factor (m <sup>3</sup> /kg)	Soil Volume Area Correction Factor	Ingestion DCC DL=1 (Bq/g)	Inhalation DCC DL=1 (Bq/g)	External Exposure DCC DL=1 (Bq/g)	Total DCC DL=1 (Bq/g)	Peak Dose Start Time Total (yrs)	Total DCC DL=1 (mg/kg)
Zirconium (40)	Zr-89m	8.75E+04	7.92E-06	1.36E+09	1.00E+00	4.72E+07	3.92E+11	2.26E+03	2.26E+03	1.00E-08	1.21E-10
Zirconium (40)	Zr-93	4.53E-07	1.53E+06	1.36E+09	9.00E-01	3.35E+02	1.13E+05	2.28E+03	2.91E+02	2.23E+02	3.13E+00
Zirconium (40)	Zr-95	3.95E+00	1.75E-01	1.36E+09	1.00E+00	1.04E+03	1.31E+06	7.67E-02	7.67E-02	1.00E-08	9.67E-11
Zirconium (40)	Zr-97	3.63E+02	1.91E-03	1.36E+09	1.00E+00	6.81E+04	8.06E+08	6.61E+00	6.61E+00	1.00E-08	9.27E-11

Composite Worker Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Actinium (89)	Ac-223	1.73E+05	4.00E-06	4.09E+02	.	4.09E+02	2.76E-14
Actinium (89)	Ac-224	2.18E+03	3.17E-04	1.72E+01	5.64E-04	5.64E-04	3.03E-18
Actinium (89)	Ac-225	2.53E+01	2.74E-02	1.39E+02	2.17E-04	2.17E-04	1.01E-16
Actinium (89)	Ac-226	2.07E+02	3.35E-03	6.72E+01	1.42E-04	1.42E-04	8.15E-18
Actinium (89)	Ac-227	3.18E-02	2.18E+01	7.21E+01	2.51E-05	2.51E-05	9.40E-15
Actinium (89)	Ac-228	9.87E+02	7.02E-04	1.24E+01	4.23E-05	4.23E-05	5.12E-19
Actinium (89)	Ac-230	1.79E+05	3.87E-06	1.27E+01	1.60E-05	1.60E-05	1.08E-21
Actinium (89)	Ac-231	4.86E+04	1.43E-05	3.51E+01	6.32E-06	6.32E-06	1.58E-21
Actinium (89)	Ac-232	1.84E+05	3.77E-06	8.22E+00	2.22E-05	2.22E-05	1.47E-21
Actinium (89)	Ac-233	1.51E+05	4.60E-06	2.92E+01	1.93E-05	1.93E-05	1.57E-21
Silver (47)	Ag-100m	1.63E+05	4.26E-06	5.17E+00	1.48E+00	1.15E+00	3.71E-17
Silver (47)	Ag-101	3.28E+04	2.11E-05	1.39E+01	2.87E+00	2.38E+00	3.84E-16
Silver (47)	Ag-102	2.82E+04	2.45E-05	8.67E+00	9.05E+01	7.92E+00	1.50E-15
Silver (47)	Ag-102m	4.73E+04	1.46E-05	7.90E+00	1.85E+02	7.58E+00	8.57E-16
Silver (47)	Ag-103	5.54E+03	1.25E-04	3.66E+01	3.75E+00	3.40E+00	3.31E-15
Silver (47)	Ag-104	5.26E+03	1.32E-04	1.12E+01	4.38E+01	8.91E+00	9.24E-15
Silver (47)	Ag-104m	1.09E+04	6.37E-05	1.64E+01	5.57E+01	1.27E+01	6.36E-15
Silver (47)	Ag-105	6.13E+00	1.13E-01	6.28E+01	2.15E+00	2.08E+00	1.87E-12
Silver (47)	Ag-105m	5.04E+04	1.38E-05	6.29E+01	2.16E+00	2.09E+00	2.28E-16
Silver (47)	Ag-106	1.52E+04	4.56E-05	4.43E+01	1.10E+02	3.16E+01	1.16E-14
Silver (47)	Ag-106m	3.05E+01	2.27E-02	1.08E+01	1.54E+00	1.35E+00	2.45E-13
Silver (47)	Ag-108	1.54E+05	4.51E-06	1.09E+03	.	1.09E+03	4.03E-14
Silver (47)	Ag-108m	1.66E-03	4.18E+02	1.92E+01	4.96E-02	4.95E-02	1.69E-10
Silver (47)	Ag-109m	5.52E+05	1.26E-06	8.78E+03	.	8.78E+03	9.10E-14
Silver (47)	Ag-110	8.88E+05	7.80E-07	5.64E+02	.	5.64E+02	3.66E-15
Silver (47)	Ag-110m	1.01E+00	6.84E-01	1.08E+01	1.45E-01	1.43E-01	8.15E-13
Silver (47)	Ag-111	3.40E+01	2.04E-02	9.99E+02	1.03E+00	1.03E+00	1.77E-13
Silver (47)	Ag-111m	3.37E+05	2.05E-06	8.96E+02	1.04E+00	1.04E+00	1.79E-17
Silver (47)	Ag-112	1.94E+03	3.57E-04	4.09E+01	9.52E+00	7.73E+00	2.34E-14
Silver (47)	Ag-113	1.13E+03	6.13E-04	3.60E+02	1.61E-02	1.61E-02	8.45E-17
Silver (47)	Ag-113m	3.18E+05	2.18E-06	1.15E+02	1.61E-02	1.61E-02	3.00E-19
Silver (47)	Ag-114	4.75E+06	1.46E-07	9.51E+01	.	9.51E+01	1.20E-16
Silver (47)	Ag-115	1.82E+04	3.81E-05	3.56E+01	5.11E-03	5.11E-03	1.69E-18
Silver (47)	Ag-116	1.36E+05	5.10E-06	1.30E+01	.	1.30E+01	5.81E-16
Silver (47)	Ag-117	2.97E+05	2.33E-06	9.59E+00	6.56E+00	3.89E+00	8.05E-17
Silver (47)	Ag-99	1.76E+05	3.93E-06	7.10E+00	1.70E+01	5.01E+00	1.48E-16
Aluminum (13)	Al-26	9.67E-07	7.17E+05	1.08E+01	1.75E-02	1.75E-02	2.47E-08
Aluminum (13)	Al-28	1.63E+05	4.26E-06	1.56E+01	.	1.56E+01	1.41E-16
Aluminum (13)	Al-29	5.55E+04	1.25E-05	2.07E+01	.	2.07E+01	5.67E-16
Americium (95)	Am-237	4.99E+03	1.39E-04	3.39E+01	1.72E-05	1.72E-05	4.29E-20

Composite Worker Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Americium (95)	Am-238	3.72E+03	1.86E-04	1.12E+01	8.15E-06	8.15E-06	2.74E-20
Americium (95)	Am-239	5.10E+02	1.36E-03	3.71E+01	4.48E-06	4.48E-06	1.10E-19
Americium (95)	Am-240	1.20E+02	5.80E-03	8.72E+00	9.08E-06	9.08E-06	9.56E-19
Americium (95)	Am-241	1.60E-03	4.32E+02	5.69E+01	9.34E-06	9.34E-06	7.36E-14
Americium (95)	Am-242	3.79E+02	1.83E-03	1.66E+01	7.90E-06	7.90E-06	2.65E-19
Americium (95)	Am-242m	4.91E-03	1.41E+02	1.65E+01	5.78E-06	5.78E-06	1.49E-14
Americium (95)	Am-243	9.40E-05	7.37E+03	3.72E+01	3.68E-06	3.68E-06	4.98E-13
Americium (95)	Am-244	6.01E+02	1.15E-03	9.37E+00	8.52E-06	8.52E-06	1.81E-19
Americium (95)	Am-244m	1.40E+04	4.95E-05	1.22E+01	8.52E-06	8.52E-06	7.79E-21
Americium (95)	Am-245	2.96E+03	2.34E-04	4.65E+01	6.32E-06	6.32E-06	2.74E-20
Americium (95)	Am-246	9.34E+03	7.42E-05	1.18E+01	5.57E-06	5.57E-06	7.70E-21
Americium (95)	Am-246m	1.46E+04	4.76E-05	1.06E+01	5.57E-06	5.57E-06	4.94E-21
Americium (95)	Am-247	1.58E+04	4.38E-05	2.40E+01	3.15E-06	3.15E-06	2.57E-21
Argon (18)	Ar-37	7.22E+00	9.60E-02	.	.	.	.
Argon (18)	Ar-39	2.58E-03	2.69E+02	1.21E+04	.	1.21E+04	9.58E-06
Argon (18)	Ar-41	3.32E+03	2.09E-04	2.26E+01	.	2.26E+01	1.46E-14
Argon (18)	Ar-42	2.11E-02	3.29E+01	9.24E+01	4.90E+00	4.65E+00	4.87E-10
Argon (18)	Ar-43	6.78E+04	1.02E-05	1.17E+01	4.63E+00	3.32E+00	1.10E-16
Argon (18)	Ar-44	3.07E+04	2.26E-05	6.50E+00	5.01E+01	5.75E+00	4.33E-16
Arsenic (33)	As-68	1.44E+05	4.81E-06	6.34E+00	5.96E-02	5.90E-02	1.46E-18
Arsenic (33)	As-69	2.39E+04	2.90E-05	1.44E+01	6.28E+00	4.37E+00	6.61E-16
Arsenic (33)	As-70	6.92E+03	1.00E-04	6.94E+00	2.31E+01	5.34E+00	2.83E-15
Arsenic (33)	As-71	9.30E+01	7.45E-03	5.44E+01	4.41E+00	4.08E+00	1.63E-13
Arsenic (33)	As-72	2.33E+02	2.97E-03	1.69E+01	1.75E+00	1.59E+00	2.57E-14
Arsenic (33)	As-73	3.15E+00	2.20E-01	9.01E+03	1.32E+00	1.32E+00	1.60E-12
Arsenic (33)	As-74	1.42E+01	4.87E-02	4.08E+01	7.19E-01	7.07E-01	1.93E-13
Arsenic (33)	As-76	2.35E+02	2.95E-03	6.94E+01	2.19E+00	2.13E+00	3.61E-14
Arsenic (33)	As-77	1.56E+02	4.43E-03	2.86E+03	4.14E+00	4.13E+00	1.07E-13
Arsenic (33)	As-78	4.02E+03	1.73E-04	2.21E+01	1.85E+01	1.01E+01	1.03E-14
Arsenic (33)	As-79	4.04E+04	1.71E-05	5.33E+02	2.95E-01	2.95E-01	3.02E-17
Astatine (85)	At-204	3.96E+04	1.75E-05	4.65E+00	2.38E+00	1.57E+00	4.25E-16
Astatine (85)	At-205	1.39E+04	4.98E-05	6.86E+00	7.19E-01	6.51E-01	5.03E-16
Astatine (85)	At-206	1.19E+04	5.82E-05	4.50E+00	2.63E-02	2.62E-02	2.38E-17
Astatine (85)	At-207	3.37E+03	2.05E-04	6.25E+00	5.02E-02	4.98E-02	1.60E-16
Astatine (85)	At-208	3.72E+03	1.86E-04	9.86E+00	2.71E-04	2.71E-04	7.94E-19
Astatine (85)	At-209	1.12E+03	6.18E-04	1.30E+01	2.04E-04	2.04E-04	2.00E-18
Astatine (85)	At-210	7.49E+02	9.25E-04	9.90E+00	4.27E-04	4.27E-04	6.27E-18
Astatine (85)	At-211	8.42E+02	8.24E-04	4.50E+01	1.36E-02	1.36E-02	1.79E-16
Astatine (85)	At-215	2.19E+11	3.17E-12	5.47E+02	.	5.47E+02	2.82E-20
Astatine (85)	At-216	7.28E+10	9.51E-12	2.11E+01	1.21E-01	1.20E-01	1.87E-23



Composite Worker Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Astatine (85)	At-217	6.77E+08	1.02E-09	1.70E+02	5.62E-02	5.62E-02	9.46E-22
Astatine (85)	At-218	1.46E+07	4.76E-08	1.94E+01	1.84E-04	1.84E-04	1.44E-22
Astatine (85)	At-219	3.90E+05	1.78E-06	8.15E+01	1.52E-01	1.51E-01	4.45E-18
Astatine (85)	At-220	9.82E+04	7.06E-06	1.46E+01	1.64E-02	1.64E-02	1.93E-18
Gold (79)	Au-186	3.40E+04	2.04E-05	7.90E+00	4.43E-04	4.43E-04	1.27E-19
Gold (79)	Au-187	4.34E+04	1.60E-05	1.54E+01	1.15E+01	6.58E+00	1.49E-15
Gold (79)	Au-190	8.51E+03	8.14E-05	1.20E+01	1.98E-04	1.98E-04	2.32E-19
Gold (79)	Au-191	1.91E+03	3.63E-04	3.72E+01	4.03E+00	3.63E+00	1.91E-14
Gold (79)	Au-192	1.23E+03	5.64E-04	1.49E+01	1.74E+01	8.04E+00	6.58E-14
Gold (79)	Au-193	3.44E+02	2.01E-03	2.17E+02	2.35E+00	2.33E+00	6.85E-14
Gold (79)	Au-193m	5.60E+06	1.24E-07	9.39E+01	2.35E+00	2.29E+00	4.14E-18
Gold (79)	Au-194	1.60E+02	4.34E-03	2.89E+01	7.17E+00	5.74E+00	3.66E-13
Gold (79)	Au-195	1.36E+00	5.10E-01	5.14E+02	1.00E+00	9.98E-01	7.51E-12
Gold (79)	Au-195m	7.17E+05	9.67E-07	1.24E+02	1.00E+00	9.92E-01	1.42E-17
Gold (79)	Au-196	4.09E+01	1.69E-02	6.87E+01	5.33E+00	4.95E+00	1.24E-12
Gold (79)	Au-196m	6.32E+02	1.10E-03	4.64E+01	2.29E+00	2.18E+00	3.54E-14
Gold (79)	Au-198	9.39E+01	7.38E-03	7.71E+01	2.03E+00	1.98E+00	2.19E-13
Gold (79)	Au-198m	1.11E+02	6.22E-03	3.46E+01	6.59E-01	6.47E-01	6.03E-14
Gold (79)	Au-199	8.06E+01	8.60E-03	3.50E+02	2.22E+00	2.21E+00	2.86E-13
Gold (79)	Au-200	7.53E+03	9.21E-05	1.04E+02	4.83E+01	3.30E+01	4.60E-14
Gold (79)	Au-200m	3.25E+02	2.13E-03	1.53E+01	2.49E+00	2.14E+00	6.92E-14
Gold (79)	Au-201	1.40E+04	4.95E-05	7.75E+02	9.85E+01	8.74E+01	6.58E-14
Gold (79)	Au-202	7.59E+05	9.13E-07	1.56E+02	.	1.56E+02	2.18E-15
Barium (56)	Ba-124	3.31E+04	2.09E-05	1.75E+01	7.38E+01	1.41E+01	2.78E-15
Barium (56)	Ba-126	3.64E+03	1.90E-04	1.77E+01	1.50E+01	8.13E+00	1.47E-14
Barium (56)	Ba-127	2.87E+04	2.42E-05	2.22E+01	3.30E+01	1.33E+01	3.08E-15
Barium (56)	Ba-128	1.04E+02	6.66E-03	3.26E+01	1.21E+00	1.17E+00	7.54E-14
Barium (56)	Ba-129	2.72E+03	2.55E-04	5.42E+01	1.56E+01	1.21E+01	3.01E-14
Barium (56)	Ba-129m	2.81E+03	2.47E-04	1.67E+01	1.34E+01	7.43E+00	1.79E-14
Barium (56)	Ba-131	2.20E+01	3.15E-02	6.86E+01	1.98E+00	1.93E+00	6.02E-13
Barium (56)	Ba-131m	2.49E+04	2.78E-05	6.06E+01	1.96E+00	1.90E+00	5.24E-16
Barium (56)	Ba-133	6.59E-02	1.05E+01	8.57E+01	1.79E-01	1.78E-01	1.89E-11
Barium (56)	Ba-133m	1.56E+02	4.44E-03	7.43E+01	1.70E-01	1.70E-01	7.60E-15
Barium (56)	Ba-135m	2.12E+02	3.28E-03	6.43E+02	4.81E+00	4.77E+00	1.60E-13
Barium (56)	Ba-137m	1.43E+05	4.86E-06	5.16E+01	.	5.16E+01	2.60E-15
Barium (56)	Ba-139	4.39E+03	1.58E-04	5.20E+02	2.86E+01	2.71E+01	4.50E-14
Barium (56)	Ba-140	1.98E+01	3.49E-02	1.17E+01	2.54E-01	2.49E-01	9.21E-14
Barium (56)	Ba-141	1.99E+04	3.48E-05	2.86E+01	4.59E-01	4.52E-01	1.68E-16
Barium (56)	Ba-142	3.44E+04	2.02E-05	8.29E+00	1.51E+01	5.35E+00	1.16E-15
Beryllium (4)	Be-10	4.59E-07	1.51E+06	9.99E+03	5.46E-02	5.46E-02	6.24E-08

Composite Worker Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Beryllium (4)	Be-7	4.75E+00	1.46E-01	6.28E+02	3.13E+01	2.98E+01	2.30E-12
Bismuth (83)	Bi-197	3.92E+04	1.77E-05	8.16E+00	3.90E-01	3.72E-01	9.82E-17
Bismuth (83)	Bi-200	1.00E+04	6.93E-05	7.80E+00	3.02E+00	2.18E+00	2.28E-15
Bismuth (83)	Bi-201	3.37E+03	2.05E-04	1.11E+01	4.43E+00	3.16E+00	9.89E-15
Bismuth (83)	Bi-202	3.53E+03	1.96E-04	9.53E+00	3.74E-02	3.73E-02	1.12E-16
Bismuth (83)	Bi-203	5.16E+02	1.34E-03	1.10E+01	3.33E+00	2.56E+00	5.28E-14
Bismuth (83)	Bi-204	5.41E+02	1.28E-03	9.62E+00	5.20E+00	3.38E+00	6.68E-14
Bismuth (83)	Bi-205	1.65E+01	4.19E-02	1.74E+01	9.44E-01	8.96E-01	5.83E-13
Bismuth (83)	Bi-206	4.05E+01	1.71E-02	9.19E+00	9.30E-01	8.45E-01	2.25E-13
Bismuth (83)	Bi-207	2.11E-02	3.29E+01	1.97E+01	4.90E-02	4.89E-02	2.52E-11
Bismuth (83)	Bi-208	1.88E-06	3.68E+05	1.03E+01	5.22E-02	5.20E-02	3.01E-07
Bismuth (83)	Bi-210	5.05E+01	1.37E-02	5.37E+03	4.14E-04	4.14E-04	9.05E-17
Bismuth (83)	Bi-210m	2.28E-07	3.04E+06	1.18E+02	1.87E-04	1.87E-04	9.03E-09
Bismuth (83)	Bi-211	1.70E+05	4.07E-06	5.48E+02	.	5.48E+02	3.57E-14
Bismuth (83)	Bi-212	6.02E+03	1.15E-04	2.12E+01	1.21E-01	1.20E-01	2.23E-16
Bismuth (83)	Bi-212n	5.20E+04	1.33E-05	3.17E+02	.	3.17E+02	6.77E-14
Bismuth (83)	Bi-213	7.99E+03	8.67E-05	1.70E+02	5.62E-02	5.62E-02	7.86E-17
Bismuth (83)	Bi-214	1.83E+04	3.79E-05	1.94E+01	1.84E-04	1.84E-04	1.13E-19
Bismuth (83)	Bi-215	4.79E+04	1.45E-05	7.90E+01	1.47E-01	1.47E-01	3.45E-17
Bismuth (83)	Bi-216	1.68E+05	4.13E-06	1.31E+01	1.64E-02	1.64E-02	1.11E-18
Berkelium (97)	Bk-245	5.12E+01	1.35E-02	3.69E+01	6.32E-06	6.32E-06	1.59E-18
Berkelium (97)	Bk-246	1.41E+02	4.93E-03	1.13E+01	5.57E-06	5.57E-06	5.12E-19
Berkelium (97)	Bk-247	5.02E-04	1.38E+03	3.21E+01	2.77E-06	2.77E-06	7.15E-14
Berkelium (97)	Bk-248m	2.56E+02	2.71E-03	1.02E+01	5.37E-06	5.37E-06	2.73E-19
Berkelium (97)	Bk-249	7.67E-01	9.04E-01	3.25E+01	4.04E-06	4.04E-06	6.89E-17
Berkelium (97)	Bk-250	1.89E+03	3.67E-04	1.09E+01	5.35E-06	5.35E-06	3.71E-20
Berkelium (97)	Bk-251	6.55E+03	1.06E-04	2.30E+01	2.45E-06	2.45E-06	4.92E-21
Bromine (35)	Br-72	2.78E+05	2.49E-06	6.20E+00	3.77E-01	3.56E-01	4.83E-18
Bromine (35)	Br-73	1.07E+05	6.47E-06	1.24E+01	1.16E+00	1.06E+00	3.78E-17
Bromine (35)	Br-74	1.43E+04	4.83E-05	6.03E+00	4.21E+01	5.28E+00	1.43E-15
Bromine (35)	Br-74m	7.92E+03	8.75E-05	6.94E+00	2.48E+01	5.42E+00	2.66E-15
Bromine (35)	Br-75	3.77E+03	1.84E-04	1.98E+01	1.31E+00	1.23E+00	1.28E-15
Bromine (35)	Br-76	3.75E+02	1.85E-03	1.04E+01	3.93E+00	2.85E+00	3.03E-14
Bromine (35)	Br-76m	1.67E+07	4.15E-08	1.03E+01	3.94E+00	2.85E+00	6.81E-19
Bromine (35)	Br-77	1.06E+02	6.51E-03	9.91E+01	1.87E+01	1.57E+01	5.97E-13
Bromine (35)	Br-77m	8.51E+04	8.14E-06	9.51E+01	1.87E+01	1.56E+01	7.41E-16
Bromine (35)	Br-78	5.64E+04	1.23E-05	2.96E+01	.	2.96E+01	2.15E-15
Bromine (35)	Br-80	2.06E+04	3.36E-05	3.49E+02	1.16E+02	8.68E+01	1.77E-14
Bromine (35)	Br-80m	1.37E+03	5.05E-04	3.29E+02	1.41E+01	1.35E+01	4.12E-14
Bromine (35)	Br-82	1.72E+02	4.03E-03	1.14E+01	2.59E+00	2.11E+00	5.28E-14

Composite Worker Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Bromine (35)	Br-82m	5.94E+04	1.17E-05	1.16E+01	2.65E+00	2.16E+00	1.56E-16
Bromine (35)	Br-83	2.53E+03	2.74E-04	2.72E+03	3.31E+01	3.27E+01	5.63E-14
Bromine (35)	Br-84	1.15E+04	6.05E-05	1.56E+01	4.33E+01	1.15E+01	4.42E-15
Bromine (35)	Br-84m	6.07E+04	1.14E-05	1.06E+01	.	1.06E+01	7.69E-16
Bromine (35)	Br-85	1.26E+05	5.52E-06	1.28E+02	.	1.28E+02	4.53E-15
Carbon (6)	C-10	1.14E+06	6.11E-07	1.76E+01	.	1.76E+01	8.12E-18
Carbon (6)	C-11	1.79E+04	3.88E-05	3.04E+01	9.17E+01	2.29E+01	7.38E-16
Carbon (6)	C-14	1.22E-04	5.70E+03	5.34E+05	3.25E-01	3.25E-01	1.96E-09
Calcium (20)	Ca-41	6.79E-06	1.02E+05	.	8.70E+00	8.70E+00	2.75E-06
Calcium (20)	Ca-45	1.55E+00	4.46E-01	9.13E+04	5.01E-01	5.01E-01	7.61E-13
Calcium (20)	Ca-47	5.58E+01	1.24E-02	2.53E+01	6.27E-01	6.11E-01	2.70E-14
Calcium (20)	Ca-49	4.18E+04	1.66E-05	8.28E+00	4.28E+01	6.94E+00	4.27E-16
Cadmium (48)	Cd-101	2.68E+05	2.59E-06	6.41E+00	2.87E+00	1.98E+00	3.92E-17
Cadmium (48)	Cd-102	6.62E+04	1.05E-05	6.54E+00	1.75E+02	6.31E+00	5.10E-16
Cadmium (48)	Cd-103	4.99E+04	1.39E-05	1.01E+01	3.75E+00	2.73E+00	2.96E-16
Cadmium (48)	Cd-104	6.31E+03	1.10E-04	1.47E+01	2.12E+01	8.66E+00	7.48E-15
Cadmium (48)	Cd-105	6.56E+03	1.06E-04	1.66E+01	2.09E+00	1.86E+00	1.56E-15
Cadmium (48)	Cd-107	9.34E+02	7.42E-04	2.83E+03	2.19E+01	2.17E+01	1.30E-13
Cadmium (48)	Cd-109	5.48E-01	1.26E+00	6.11E+03	2.90E-01	2.90E-01	3.02E-12
Cadmium (48)	Cd-111m	7.51E+03	9.23E-05	1.16E+02	7.52E+01	4.56E+01	3.53E-14
Cadmium (48)	Cd-113	9.00E-17	7.70E+15	5.57E+04	1.61E-02	1.61E-02	1.06E+03
Cadmium (48)	Cd-113m	4.91E-02	1.41E+01	1.50E+04	1.71E-02	1.71E-02	2.06E-12
Cadmium (48)	Cd-115	1.14E+02	6.10E-03	8.82E+01	5.13E-03	5.13E-03	2.72E-16
Cadmium (48)	Cd-115m	5.67E+00	1.22E-01	6.75E+02	4.79E-03	4.79E-03	5.09E-15
Cadmium (48)	Cd-117	2.44E+03	2.84E-04	1.96E+01	6.50E+00	4.88E+00	1.23E-14
Cadmium (48)	Cd-117m	1.81E+03	3.84E-04	1.07E+01	6.88E+00	4.19E+00	1.42E-14
Cadmium (48)	Cd-118	7.24E+03	9.57E-05	2.40E+02	2.08E+01	1.92E+01	1.64E-14
Cadmium (48)	Cd-119	1.35E+05	5.12E-06	1.57E+01	7.97E+01	1.31E+01	6.05E-16
Cadmium (48)	Cd-119m	1.66E+05	4.19E-06	9.48E+00	5.57E+01	8.10E+00	3.06E-16
Cerium (58)	Ce-130	1.59E+04	4.36E-05	1.12E+01	4.68E+01	9.01E+00	3.86E-15
Cerium (58)	Ce-131	3.57E+04	1.94E-05	1.13E+01	1.90E+00	1.62E+00	3.12E-16
Cerium (58)	Ce-132	1.73E+03	4.01E-04	1.33E+01	5.12E+00	3.69E+00	1.48E-14
Cerium (58)	Ce-133	3.76E+03	1.85E-04	3.06E+01	1.77E-01	1.76E-01	3.27E-16
Cerium (58)	Ce-133m	1.24E+03	5.59E-04	1.36E+01	1.76E-01	1.74E-01	9.78E-16
Cerium (58)	Ce-134	8.00E+01	8.66E-03	4.20E+01	1.17E+00	1.14E+00	9.99E-14
Cerium (58)	Ce-135	3.43E+02	2.02E-03	3.76E+01	1.07E+01	8.35E+00	1.72E-13
Cerium (58)	Ce-137	6.75E+02	1.03E-03	1.20E+03	2.12E-01	2.12E-01	2.26E-15
Cerium (58)	Ce-137m	1.76E+02	3.93E-03	4.49E+02	2.01E-01	2.01E-01	8.17E-15
Cerium (58)	Ce-139	1.84E+00	3.77E-01	2.32E+02	9.39E-01	9.35E-01	3.71E-12
Cerium (58)	Ce-141	7.78E+00	8.91E-02	4.43E+02	4.85E-01	4.85E-01	4.61E-13



Composite Worker Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Cerium (58)	Ce-143	1.84E+02	3.77E-03	1.15E+02	5.43E-01	5.40E-01	2.21E-14
Cerium (58)	Ce-144	8.88E-01	7.81E-01	4.27E+02	9.92E-05	9.92E-05	8.44E-16
Cerium (58)	Ce-145	1.21E+05	5.73E-06	3.67E+01	9.95E+00	7.83E+00	4.92E-16
Californium (98)	Cf-244	1.88E+04	3.69E-05	1.93E+01	1.98E-05	1.98E-05	1.35E-20
Californium (98)	Cf-246	1.70E+02	4.08E-03	1.67E+01	7.93E-06	7.93E-06	6.01E-19
Californium (98)	Cf-247	1.95E+03	3.55E-04	2.96E+01	2.77E-06	2.77E-06	1.84E-20
Californium (98)	Cf-248	7.57E-01	9.15E-01	1.24E+01	8.22E-06	8.22E-06	1.41E-16
Californium (98)	Cf-249	1.97E-03	3.51E+02	3.25E+01	4.05E-06	4.05E-06	2.68E-14
Californium (98)	Cf-250	5.30E-02	1.31E+01	1.63E+01	5.35E-06	5.35E-06	1.32E-15
Californium (98)	Cf-251	7.70E-04	9.00E+02	2.44E+01	2.45E-06	2.45E-06	4.19E-14
Californium (98)	Cf-252	2.62E-01	2.65E+00	7.00E+00	3.00E-06	3.00E-06	1.51E-16
Californium (98)	Cf-253	1.42E+01	4.88E-02	3.25E+01	4.00E-06	4.00E-06	3.74E-18
Californium (98)	Cf-254	4.18E+00	1.66E-01	1.68E+00	3.56E-05	3.56E-05	1.13E-16
Californium (98)	Cf-255	4.29E+03	1.62E-04	2.42E+01	2.43E-06	2.43E-06	7.59E-21
Chlorine (17)	Cl-34	1.43E+07	4.84E-08	2.91E+01	.	2.91E+01	3.62E-18
Chlorine (17)	Cl-34m	1.14E+04	6.09E-05	1.12E+01	3.64E+01	8.54E+00	1.34E-15
Chlorine (17)	Cl-36	2.30E-06	3.01E+05	8.36E+03	5.01E-02	5.01E-02	4.11E-08
Chlorine (17)	Cl-38	9.78E+03	7.09E-05	1.89E+01	3.51E+01	1.23E+01	2.50E-15
Chlorine (17)	Cl-39	6.55E+03	1.06E-04	1.99E+01	3.45E+01	1.26E+01	3.94E-15
Chlorine (17)	Cl-40	2.70E+05	2.57E-06	6.64E+00	.	6.64E+00	5.16E-17
Curium (96)	Cm-238	2.53E+03	2.74E-04	1.09E+01	8.31E-06	8.31E-06	4.10E-20
Curium (96)	Cm-239	2.09E+03	3.31E-04	2.90E+01	4.48E-06	4.48E-06	2.68E-20
Curium (96)	Cm-240	9.37E+00	7.40E-02	1.93E+01	1.98E-05	1.98E-05	2.66E-17
Curium (96)	Cm-241	7.71E+00	8.99E-02	3.04E+01	9.38E-06	9.38E-06	1.54E-17
Curium (96)	Cm-242	1.55E+00	4.46E-01	1.67E+01	7.94E-06	7.94E-06	6.49E-17
Curium (96)	Cm-243	2.38E-02	2.91E+01	4.16E+01	4.32E-06	4.32E-06	2.31E-15
Curium (96)	Cm-244	3.83E-02	1.81E+01	1.24E+01	8.52E-06	8.52E-06	2.85E-15
Curium (96)	Cm-245	8.15E-05	8.50E+03	4.89E+01	6.32E-06	6.32E-06	9.96E-13
Curium (96)	Cm-246	1.46E-04	4.76E+03	1.63E+01	5.57E-06	5.57E-06	4.94E-13
Curium (96)	Cm-247	4.44E-08	1.56E+07	2.67E+01	3.15E-06	3.15E-06	9.17E-10
Curium (96)	Cm-248	1.99E-06	3.48E+05	7.64E+00	2.97E-06	2.97E-06	1.94E-11
Curium (96)	Cm-249	5.68E+03	1.22E-04	3.18E+01	4.04E-06	4.04E-06	9.29E-21
Curium (96)	Cm-250	8.35E-05	8.30E+03	2.02E+00	7.68E-07	7.68E-07	1.21E-13
Curium (96)	Cm-251	2.17E+04	3.20E-05	2.11E+01	2.45E-06	2.45E-06	1.49E-21
Cobalt (27)	Co-54m	2.46E+05	2.82E-06	7.50E+00	.	7.50E+00	8.63E-17
Cobalt (27)	Co-55	3.46E+02	2.00E-03	1.51E+01	1.29E+00	1.19E+00	9.91E-15
Cobalt (27)	Co-56	3.28E+00	2.12E-01	7.89E+00	2.71E-01	2.62E-01	2.35E-13
Cobalt (27)	Co-57	9.31E-01	7.44E-01	2.79E+02	1.79E+00	1.77E+00	5.70E-12
Cobalt (27)	Co-58	3.57E+00	1.94E-01	3.13E+01	8.55E-01	8.32E-01	7.09E-13
Cobalt (27)	Co-58m	6.72E+02	1.03E-03	3.13E+01	8.48E-01	8.25E-01	3.74E-15



Composite Worker Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Cobalt (27)	Co-60	1.31E-01	5.27E+00	1.17E+01	6.06E-02	6.03E-02	1.44E-12
Cobalt (27)	Co-60m	3.48E+04	1.99E-05	1.17E+01	6.07E-02	6.04E-02	5.46E-18
Cobalt (27)	Co-61	3.68E+03	1.88E-04	3.42E+02	3.36E+01	3.06E+01	2.66E-14
Cobalt (27)	Co-62	2.43E+05	2.85E-06	1.75E+01	.	1.75E+01	2.35E-16
Cobalt (27)	Co-62m	2.62E+04	2.65E-05	1.07E+01	7.94E+01	9.41E+00	1.17E-15
Chromium (24)	Cr-48	2.82E+02	2.46E-03	8.97E+00	6.00E-01	5.62E-01	5.03E-15
Chromium (24)	Cr-49	8.61E+03	8.05E-05	2.97E+01	1.65E+01	1.06E+01	3.16E-15
Chromium (24)	Cr-51	9.13E+00	7.59E-02	9.91E+02	4.61E+01	4.40E+01	1.29E-11
Chromium (24)	Cr-55	1.04E+05	6.65E-06	1.39E+03	.	1.39E+03	3.84E-14
Chromium (24)	Cr-56	6.13E+04	1.13E-05	1.63E+01	1.30E+01	7.23E+00	3.46E-16
Cesium (55)	Cs-121	1.41E+05	4.92E-06	8.38E+00	2.61E+00	1.99E+00	8.95E-17
Cesium (55)	Cs-121m	1.79E+05	3.87E-06	7.95E+00	2.61E+00	1.96E+00	6.96E-17
Cesium (55)	Cs-123	6.19E+04	1.12E-05	1.65E+01	4.74E-01	4.61E-01	4.80E-17
Cesium (55)	Cs-124	7.10E+05	9.77E-07	2.56E+01	.	2.56E+01	2.34E-16
Cesium (55)	Cs-125	8.09E+03	8.56E-05	3.09E+01	1.21E-01	1.21E-01	9.76E-17
Cesium (55)	Cs-126	2.22E+05	3.12E-06	2.62E+01	.	2.62E+01	7.81E-16
Cesium (55)	Cs-127	9.71E+02	7.13E-04	4.67E+01	4.24E+01	2.22E+01	1.52E-13
Cesium (55)	Cs-128	1.00E+05	6.93E-06	3.44E+01	.	3.44E+01	2.30E-15
Cesium (55)	Cs-129	1.89E+02	3.66E-03	1.24E+02	2.14E+01	1.82E+01	6.51E-13
Cesium (55)	Cs-130	1.25E+04	5.56E-05	6.22E+01	1.23E+02	4.14E+01	2.26E-14
Cesium (55)	Cs-130m	1.05E+05	6.58E-06	5.72E+01	1.24E+02	3.91E+01	2.53E-15
Cesium (55)	Cs-131	2.61E+01	2.65E-02	5.78E+03	3.50E+01	3.48E+01	9.16E-12
Cesium (55)	Cs-132	3.90E+01	1.78E-02	4.41E+01	5.46E+00	4.86E+00	8.62E-13
Cesium (55)	Cs-134	3.36E-01	2.06E+00	1.96E+01	9.01E-02	8.97E-02	1.88E-12
Cesium (55)	Cs-134m	2.09E+03	3.31E-04	1.94E+01	8.98E-02	8.94E-02	3.00E-16
Cesium (55)	Cs-135	3.01E-07	2.30E+06	6.40E+04	1.60E-01	1.60E-01	3.76E-06
Cesium (55)	Cs-135m	6.87E+03	1.01E-04	1.90E+01	1.60E-01	1.58E-01	1.63E-16
Cesium (55)	Cs-136	1.92E+01	3.61E-02	1.41E+01	6.58E-01	6.29E-01	2.33E-13
Cesium (55)	Cs-137	2.30E-02	3.02E+01	5.45E+01	4.80E-02	4.79E-02	1.50E-11
Cesium (55)	Cs-138	1.09E+04	6.36E-05	1.21E+01	3.70E+01	9.10E+00	6.04E-15
Cesium (55)	Cs-138m	1.25E+05	5.54E-06	1.24E+01	4.57E+01	9.73E+00	5.62E-16
Cesium (55)	Cs-139	3.93E+04	1.76E-05	7.20E+01	2.86E+01	2.05E+01	3.80E-15
Cesium (55)	Cs-140	3.43E+05	2.02E-06	6.67E+00	2.54E-01	2.45E-01	5.24E-18
Copper (29)	Cu-57	1.11E+08	6.22E-09	9.05E+00	1.13E+00	1.00E+00	2.69E-20
Copper (29)	Cu-59	2.68E+05	2.58E-06	2.08E+01	2.19E+00	1.98E+00	2.29E-17
Copper (29)	Cu-60	1.54E+04	4.51E-05	7.38E+00	4.74E+01	6.39E+00	1.31E-15
Copper (29)	Cu-61	1.82E+03	3.80E-04	3.75E+01	2.22E+01	1.39E+01	2.45E-14
Copper (29)	Cu-62	3.77E+04	1.84E-05	3.02E+01	.	3.02E+01	2.61E-15
Copper (29)	Cu-64	4.78E+02	1.45E-03	1.67E+02	1.47E+01	1.35E+01	9.49E-14
Copper (29)	Cu-66	7.11E+04	9.74E-06	2.52E+02	.	2.52E+02	1.23E-14

Composite Worker Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Copper (29)	Cu-67	9.82E+01	7.06E-03	2.83E+02	3.03E+00	2.99E+00	1.07E-13
Copper (29)	Cu-69	1.28E+05	5.42E-06	5.44E+01	6.21E+01	2.90E+01	8.21E-16
Dysprosium (66)	Dy-148	1.10E+05	6.28E-06	9.74E+00	3.02E-04	3.02E-04	2.12E-20
Dysprosium (66)	Dy-149	8.67E+04	7.99E-06	8.38E+00	3.75E-01	3.59E-01	3.23E-17
Dysprosium (66)	Dy-150	5.08E+04	1.36E-05	1.07E+01	6.59E-05	6.59E-05	1.02E-20
Dysprosium (66)	Dy-151	2.03E+04	3.41E-05	1.25E+01	1.46E-03	1.46E-03	5.68E-19
Dysprosium (66)	Dy-152	2.55E+03	2.72E-04	1.70E+01	3.27E-05	3.27E-05	1.02E-19
Dysprosium (66)	Dy-153	9.49E+02	7.31E-04	2.53E+01	6.52E-01	6.36E-01	5.38E-15
Dysprosium (66)	Dy-154	2.31E-07	3.00E+06	.	5.20E-05	5.20E-05	1.82E-09
Dysprosium (66)	Dy-155	6.13E+02	1.13E-03	3.87E+01	4.36E+00	3.92E+00	5.19E-14
Dysprosium (66)	Dy-157	7.46E+02	9.29E-04	9.57E+01	5.78E-01	5.75E-01	6.35E-15
Dysprosium (66)	Dy-159	1.75E+00	3.96E-01	1.39E+03	3.90E+00	3.89E+00	1.85E-11
Dysprosium (66)	Dy-165	2.60E+03	2.66E-04	9.99E+02	2.66E+01	2.59E+01	8.62E-14
Dysprosium (66)	Dy-165m	2.90E+05	2.39E-06	6.72E+02	2.72E+01	2.61E+01	7.81E-16
Dysprosium (66)	Dy-166	7.44E+01	9.32E-03	4.54E+02	6.17E-01	6.16E-01	7.21E-14
Dysprosium (66)	Dy-167	5.87E+04	1.18E-05	3.47E+01	2.19E+01	1.34E+01	2.00E-15
Dysprosium (66)	Dy-168	4.19E+04	1.66E-05	2.40E+01	.	2.40E+01	5.04E-15
Erbium (68)	Er-154	9.77E+04	7.10E-06	1.56E+01	5.20E-05	5.20E-05	4.30E-21
Erbium (68)	Er-156	1.87E+04	3.71E-05	1.39E+01	2.24E+01	8.59E+00	3.76E-15
Erbium (68)	Er-159	1.01E+04	6.85E-05	2.32E+01	3.69E+00	3.19E+00	2.63E-15
Erbium (68)	Er-161	1.89E+03	3.66E-04	3.02E+01	2.73E+01	1.43E+01	6.40E-14
Erbium (68)	Er-163	4.86E+03	1.43E-04	1.41E+03	7.05E+00	7.02E+00	1.24E-14
Erbium (68)	Er-165	5.86E+02	1.18E-03	1.54E+03	1.92E+02	1.71E+02	2.52E-12
Erbium (68)	Er-167m	9.63E+06	7.19E-08	3.44E+02	.	3.44E+02	3.13E-16
Erbium (68)	Er-169	2.69E+01	2.58E-02	4.70E+04	1.56E+00	1.56E+00	5.15E-13
Erbium (68)	Er-171	8.08E+02	8.58E-04	8.61E+01	1.20E+00	1.19E+00	1.32E-14
Erbium (68)	Er-172	1.23E+02	5.63E-03	3.06E+01	7.12E-01	6.96E-01	5.10E-14
Erbium (68)	Er-173	2.54E+05	2.73E-06	2.55E+01	8.89E+00	6.59E+00	2.35E-16
Einsteinium (99)	Es-249	3.56E+03	1.94E-04	2.30E+01	4.05E-06	4.05E-06	1.49E-20
Einsteinium (99)	Es-250	7.06E+02	9.82E-04	1.02E+01	5.43E-06	5.43E-06	1.01E-19
Einsteinium (99)	Es-250m	2.73E+03	2.53E-04	1.26E+01	5.35E-06	5.35E-06	2.56E-20
Einsteinium (99)	Es-251	1.84E+02	3.77E-03	2.30E+01	2.45E-06	2.45E-06	1.75E-19
Einsteinium (99)	Es-253	1.24E+01	5.61E-02	3.25E+01	4.01E-06	4.01E-06	4.31E-18
Einsteinium (99)	Es-254	9.17E-01	7.55E-01	1.09E+01	5.22E-06	5.22E-06	7.59E-17
Einsteinium (99)	Es-254m	1.54E+02	4.49E-03	1.31E+01	5.43E-06	5.43E-06	4.68E-19
Einsteinium (99)	Es-255	6.36E+00	1.09E-01	2.42E+01	2.43E-06	2.43E-06	5.12E-18
Einsteinium (99)	Es-256	1.43E+04	4.83E-05	2.23E+00	3.68E-05	3.68E-05	3.44E-20
Europium (63)	Eu-142	9.34E+06	7.42E-08	1.37E+01	2.25E+01	8.51E+00	6.79E-18
Europium (63)	Eu-142m	2.98E+05	2.33E-06	6.88E+00	2.25E+01	5.27E+00	1.32E-16
Europium (63)	Eu-143	1.41E+05	4.93E-06	1.55E+01	6.12E-01	5.88E-01	3.14E-17

Composite Worker Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Europium (63)	Eu-144	2.14E+06	3.23E-07	2.68E+01	.	2.68E+01	9.44E-17
Europium (63)	Eu-145	4.27E+01	1.62E-02	2.26E+01	1.60E-01	1.59E-01	2.83E-14
Europium (63)	Eu-146	5.49E+01	1.26E-02	1.25E+01	7.49E-05	7.49E-05	1.05E-17
Europium (63)	Eu-147	1.05E+01	6.60E-02	6.84E+01	8.20E-05	8.20E-05	6.02E-17
Europium (63)	Eu-148	4.64E+00	1.49E-01	1.37E+01	4.87E-05	4.87E-05	8.14E-17
Europium (63)	Eu-149	2.72E+00	2.55E-01	6.84E+02	4.10E+00	4.07E+00	1.17E-11
Europium (63)	Eu-150	1.88E-02	3.69E+01	2.01E+01	1.49E-02	1.49E-02	6.25E-12
Europium (63)	Eu-150m	4.74E+02	1.46E-03	5.96E+02	6.94E-05	6.94E-05	1.15E-18
Europium (63)	Eu-152	5.12E-02	1.35E+01	2.58E+01	1.16E-04	1.16E-04	1.81E-14
Europium (63)	Eu-152m	6.52E+02	1.06E-03	1.01E+02	4.54E-05	4.54E-05	5.55E-19
Europium (63)	Eu-152n	3.79E+03	1.83E-04	2.46E+01	1.16E-04	1.16E-04	2.45E-19
Europium (63)	Eu-154	8.06E-02	8.59E+00	2.40E+01	1.74E-02	1.74E-02	1.74E-12
Europium (63)	Eu-154m	7.92E+03	8.75E-05	2.32E+01	1.74E-02	1.74E-02	1.77E-17
Europium (63)	Eu-155	1.46E-01	4.76E+00	6.40E+02	3.07E-01	3.07E-01	1.71E-11
Europium (63)	Eu-156	1.67E+01	4.16E-02	2.34E+01	4.54E-01	4.45E-01	2.19E-13
Europium (63)	Eu-157	4.00E+02	1.73E-03	1.13E+02	5.26E+00	5.03E+00	1.04E-13
Europium (63)	Eu-158	7.94E+03	8.73E-05	2.26E+01	3.42E+01	1.36E+01	1.42E-14
Europium (63)	Eu-159	2.01E+04	3.44E-05	8.93E+01	5.27E+00	4.98E+00	2.06E-15
Fluorine (9)	F-17	3.39E+05	2.04E-06	3.02E+01	.	3.02E+01	7.94E-17
Fluorine (9)	F-18	3.32E+03	2.09E-04	3.15E+01	3.01E+01	1.54E+01	4.38E-15
Iron (26)	Fe-52	7.34E+02	9.45E-04	9.34E+00	2.40E+00	1.91E+00	7.09E-15
Iron (26)	Fe-53	4.28E+04	1.62E-05	2.59E+01	5.48E+00	4.52E+00	2.94E-16
Iron (26)	Fe-53m	1.44E+05	4.81E-06	7.03E+00	5.48E+00	3.08E+00	5.93E-17
Iron (26)	Fe-55	2.53E-01	2.74E+00	2.07E+11	2.21E+00	2.21E+00	2.52E-11
Iron (26)	Fe-59	5.68E+00	1.22E-01	2.47E+01	4.49E-01	4.41E-01	2.40E-13
Iron (26)	Fe-60	4.62E-07	1.50E+06	1.17E+01	6.06E-03	6.06E-03	4.13E-08
Iron (26)	Fe-61	6.09E+04	1.14E-05	1.96E+01	3.36E+01	1.24E+01	6.50E-16
Iron (26)	Fe-62	3.21E+05	2.16E-06	1.36E+01	.	1.36E+01	1.37E-16
Fermium (100)	Fm-251	1.15E+03	6.05E-04	2.09E+01	2.46E-06	2.46E-06	2.82E-20
Fermium (100)	Fm-252	2.39E+02	2.90E-03	1.24E+01	8.21E-06	8.21E-06	4.54E-19
Fermium (100)	Fm-253	8.43E+01	8.22E-03	3.08E+01	4.01E-06	4.01E-06	6.32E-19
Fermium (100)	Fm-254	1.87E+03	3.70E-04	1.62E+01	5.35E-06	5.35E-06	3.80E-20
Fermium (100)	Fm-255	3.02E+02	2.29E-03	2.44E+01	2.45E-06	2.45E-06	1.08E-19
Fermium (100)	Fm-256	2.31E+03	3.00E-04	2.23E+00	3.68E-05	3.68E-05	2.14E-19
Fermium (100)	Fm-257	2.52E+00	2.75E-01	2.85E+01	3.94E-06	3.94E-06	2.11E-17
Francium (87)	Fr-212	1.82E+04	3.81E-05	1.23E+01	2.70E-04	2.70E-04	1.65E-19
Francium (87)	Fr-219	1.09E+09	6.34E-10	5.15E+02	.	5.15E+02	5.41E-18
Francium (87)	Fr-220	7.98E+05	8.69E-07	2.11E+01	1.22E-01	1.21E-01	1.75E-18
Francium (87)	Fr-221	7.43E+04	9.32E-06	1.47E+02	5.62E-02	5.62E-02	8.76E-18
Francium (87)	Fr-222	2.57E+04	2.70E-05	1.56E+02	1.84E-04	1.84E-04	8.34E-20



Composite Worker Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Francium (87)	Fr-223	1.66E+04	4.19E-05	8.56E+01	2.12E-04	2.12E-04	1.50E-19
Francium (87)	Fr-224	1.09E+05	6.34E-06	1.41E+01	5.32E-04	5.32E-04	5.71E-20
Francium (87)	Fr-227	1.47E+05	4.70E-06	3.04E+01	2.51E-05	2.51E-05	2.03E-21
Gallium (31)	Ga-64	1.39E+05	5.00E-06	8.46E+00	.	8.46E+00	2.05E-16
Gallium (31)	Ga-65	2.40E+04	2.89E-05	1.75E+01	7.75E-01	7.42E-01	1.06E-16
Gallium (31)	Ga-66	6.40E+02	1.08E-03	1.12E+01	3.51E+00	2.67E+00	1.45E-14
Gallium (31)	Ga-67	7.76E+01	8.93E-03	2.11E+02	6.64E+00	6.44E+00	2.92E-13
Gallium (31)	Ga-68	5.38E+03	1.29E-04	3.24E+01	3.26E+01	1.62E+01	1.08E-14
Gallium (31)	Ga-70	1.72E+04	4.02E-05	1.68E+03	1.03E+02	9.67E+01	2.06E-14
Gallium (31)	Ga-72	4.31E+02	1.61E-03	1.06E+01	2.98E+00	2.32E+00	2.04E-14
Gallium (31)	Ga-73	1.25E+03	5.55E-04	8.90E+01	1.09E+01	9.73E+00	2.98E-14
Gallium (31)	Ga-74	4.49E+04	1.54E-05	8.95E+00	.	8.95E+00	7.75E-16
Gadolinium (64)	Gd-142	3.11E+05	2.23E-06	9.30E+00	2.25E+01	6.58E+00	1.57E-16
Gadolinium (64)	Gd-143m	1.99E+05	3.49E-06	7.40E+00	6.12E-01	5.65E-01	2.13E-17
Gadolinium (64)	Gd-144	8.15E+04	8.50E-06	1.47E+01	.	1.47E+01	1.36E-15
Gadolinium (64)	Gd-145	1.58E+04	4.38E-05	7.74E+00	1.59E-01	1.56E-01	7.50E-17
Gadolinium (64)	Gd-145m	2.57E+05	2.70E-06	6.83E+00	1.59E-01	1.56E-01	4.61E-18
Gadolinium (64)	Gd-146	5.24E+00	1.32E-01	1.16E+01	7.49E-05	7.49E-05	1.09E-16
Gadolinium (64)	Gd-147	1.59E+02	4.35E-03	1.67E+01	8.20E-05	8.20E-05	3.97E-18
Gadolinium (64)	Gd-148	9.29E-03	7.46E+01	.	3.02E-04	3.02E-04	2.52E-13
Gadolinium (64)	Gd-149	2.73E+01	2.54E-02	5.68E+01	1.30E+00	1.27E+00	3.64E-13
Gadolinium (64)	Gd-150	3.87E-07	1.79E+06	.	6.18E-05	6.18E-05	1.26E-09
Gadolinium (64)	Gd-151	2.04E+00	3.40E-01	6.46E+02	1.53E+00	1.52E+00	5.91E-12
Gadolinium (64)	Gd-152	6.42E-15	1.08E+14	.	3.27E-05	3.27E-05	4.06E-02
Gadolinium (64)	Gd-153	1.05E+00	6.59E-01	4.46E+02	7.55E-01	7.53E-01	5.75E-12
Gadolinium (64)	Gd-159	3.29E+02	2.11E-03	5.91E+02	5.70E+00	5.64E+00	1.43E-13
Gadolinium (64)	Gd-162	4.34E+04	1.60E-05	2.01E+01	.	2.01E+01	3.94E-15
Germanium (32)	Ge-66	2.69E+03	2.58E-04	9.03E+00	2.94E+00	2.22E+00	2.86E-15
Germanium (32)	Ge-67	1.93E+04	3.60E-05	1.93E+01	6.05E+00	4.60E+00	8.39E-16
Germanium (32)	Ge-68	9.34E-01	7.42E-01	3.24E+01	5.96E-02	5.95E-02	2.27E-13
Germanium (32)	Ge-69	1.55E+02	4.46E-03	3.17E+01	6.83E+00	5.62E+00	1.31E-13
Germanium (32)	Ge-71	2.21E+01	3.13E-02	1.54E+07	1.39E+02	1.39E+02	2.34E-11
Germanium (32)	Ge-75	4.40E+03	1.57E-04	7.58E+02	4.46E+01	4.22E+01	3.77E-14
Germanium (32)	Ge-77	5.37E+02	1.29E-03	2.78E+01	2.14E+00	1.99E+00	1.50E-14
Germanium (32)	Ge-78	4.14E+03	1.67E-04	1.85E+01	8.97E+00	6.04E+00	5.97E-15
Hydrogen (1)	H-3	5.63E-02	1.23E+01	.	6.92E+00	6.92E+00	1.94E-11
Hafnium (72)	Hf-167	1.78E+05	3.90E-06	1.14E+01	1.31E+00	1.18E+00	5.80E-17
Hafnium (72)	Hf-169	1.12E+05	6.16E-06	1.38E+01	4.68E-01	4.52E-01	3.57E-17
Hafnium (72)	Hf-170	3.79E+02	1.83E-03	9.69E+00	1.82E+00	1.53E+00	3.60E-14
Hafnium (72)	Hf-172	3.71E-01	1.87E+00	1.50E+01	6.90E-02	6.86E-02	1.67E-12



Composite Worker Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Hafnium (72)	Hf-173	2.57E+02	2.69E-03	6.12E+01	4.84E-01	4.80E-01	1.69E-14
Hafnium (72)	Hf-174	3.47E-16	2.00E+15	.	3.77E-04	3.77E-04	9.94E+00
Hafnium (72)	Hf-175	3.61E+00	1.92E-01	9.44E+01	1.29E+00	1.27E+00	3.23E-12
Hafnium (72)	Hf-177m	7.09E+03	9.78E-05	1.41E+01	1.80E+01	7.91E+00	1.04E-14
Hafnium (72)	Hf-178m	2.24E-02	3.10E+01	1.42E+01	8.70E-03	8.69E-03	3.63E-12
Hafnium (72)	Hf-179m	1.01E+01	6.86E-02	3.54E+01	4.08E-01	4.04E-01	3.75E-13
Hafnium (72)	Hf-180m	1.10E+03	6.28E-04	3.25E+01	1.20E+01	8.75E+00	7.48E-14
Hafnium (72)	Hf-181	5.97E+00	1.16E-01	5.98E+01	3.07E-01	3.05E-01	4.85E-13
Hafnium (72)	Hf-182	7.70E-08	9.00E+06	1.98E+01	6.34E-03	6.34E-03	7.86E-07
Hafnium (72)	Hf-182m	5.92E+03	1.17E-04	1.32E+01	1.44E-02	1.44E-02	2.31E-17
Hafnium (72)	Hf-183	5.69E+03	1.22E-04	2.95E+01	7.77E-01	7.57E-01	1.28E-15
Hafnium (72)	Hf-184	1.47E+03	4.70E-04	1.72E+01	2.18E+00	1.93E+00	1.27E-14
Mercury (80)	Hg-190	1.82E+04	3.81E-05	1.12E+01	1.98E-04	1.98E-04	1.08E-19
Mercury (80)	Hg-191m	7.17E+03	9.67E-05	1.33E+01	2.37E+00	2.01E+00	2.81E-15
Mercury (80)	Hg-192	1.25E+03	5.54E-04	1.34E+01	1.67E+00	1.49E+00	1.20E-14
Mercury (80)	Hg-193	1.60E+03	4.34E-04	3.10E+01	1.11E+00	1.08E+00	6.82E-15
Mercury (80)	Hg-193m	5.14E+02	1.35E-03	2.19E+01	4.80E-01	4.70E-01	9.24E-15
Mercury (80)	Hg-194	1.58E-03	4.40E+02	2.89E+01	8.04E-02	8.02E-02	5.18E-10
Mercury (80)	Hg-195	5.77E+02	1.20E-03	1.27E+02	5.51E-01	5.49E-01	9.73E-15
Mercury (80)	Hg-195m	1.46E+02	4.75E-03	8.94E+01	1.71E-01	1.71E-01	1.20E-14
Mercury (80)	Hg-197	9.35E+01	7.41E-03	5.81E+02	3.95E-01	3.95E-01	4.37E-14
Mercury (80)	Hg-197m	2.55E+02	2.72E-03	2.34E+02	1.82E-01	1.82E-01	7.36E-15
Mercury (80)	Hg-199m	8.54E+03	8.12E-05	1.84E+02	1.05E+01	9.91E+00	1.21E-14
Mercury (80)	Hg-203	5.43E+00	1.28E-01	1.33E+02	2.59E-01	2.59E-01	5.08E-13
Mercury (80)	Hg-205	7.00E+04	9.89E-06	2.24E+03	.	2.24E+03	3.44E-13
Mercury (80)	Hg-206	4.47E+04	1.55E-05	2.33E+02	.	2.33E+02	5.63E-14
Mercury (80)	Hg-207	1.26E+05	5.52E-06	1.08E+01	.	1.08E+01	9.34E-16
Holmium (67)	Ho-150	2.85E+05	2.44E-06	6.39E+00	6.59E-05	6.59E-05	1.82E-21
Holmium (67)	Ho-153	1.81E+05	3.82E-06	1.38E+01	6.53E-01	6.23E-01	2.76E-17
Holmium (67)	Ho-153m	3.92E+04	1.77E-05	1.36E+01	6.51E-01	6.21E-01	1.27E-16
Holmium (67)	Ho-154	3.10E+04	2.24E-05	1.61E+01	5.20E-05	5.20E-05	1.36E-20
Holmium (67)	Ho-154m	1.17E+05	5.90E-06	1.27E+01	5.20E-05	5.20E-05	3.57E-21
Holmium (67)	Ho-155	7.59E+03	9.13E-05	2.20E+01	4.10E+00	3.46E+00	3.70E-15
Holmium (67)	Ho-156	6.50E+03	1.07E-04	1.42E+01	3.05E+01	9.68E+00	1.22E-14
Holmium (67)	Ho-157	2.89E+04	2.40E-05	3.55E+01	5.77E-01	5.68E-01	1.62E-16
Holmium (67)	Ho-159	1.10E+04	6.29E-05	8.57E+01	3.84E+00	3.67E+00	2.78E-15
Holmium (67)	Ho-160	1.42E+04	4.87E-05	1.82E+01	1.23E+02	1.58E+01	9.33E-15
Holmium (67)	Ho-161	2.45E+03	2.83E-04	1.04E+03	2.23E+02	1.84E+02	6.33E-13
Holmium (67)	Ho-162	2.43E+04	2.85E-05	2.12E+02	5.83E+02	1.56E+02	5.44E-14
Holmium (67)	Ho-162m	5.44E+03	1.27E-04	4.81E+01	7.35E+01	2.91E+01	4.54E-14

Composite Worker Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Holmium (67)	Ho-163	1.52E-04	4.57E+03	.	7.09E+00	7.09E+00	4.00E-07
Holmium (67)	Ho-164	1.26E+04	5.52E-05	1.73E+03	1.96E+02	1.76E+02	1.21E-13
Holmium (67)	Ho-164m	9.59E+03	7.23E-05	7.45E+02	8.44E+01	7.58E+01	6.80E-14
Holmium (67)	Ho-166	2.27E+02	3.06E-03	7.93E+02	2.38E+00	2.37E+00	9.10E-14
Holmium (67)	Ho-166m	5.78E-04	1.20E+03	1.90E+01	6.76E-03	6.75E-03	1.02E-10
Holmium (67)	Ho-167	1.96E+03	3.54E-04	8.67E+01	2.19E+01	1.75E+01	7.83E-14
Holmium (67)	Ho-168	1.22E+05	5.69E-06	3.42E+01	.	3.42E+01	2.47E-15
Holmium (67)	Ho-168m	1.66E+05	4.19E-06	3.41E+01	.	3.41E+01	1.81E-15
Holmium (67)	Ho-170	1.32E+05	5.25E-06	1.77E+01	.	1.77E+01	1.20E-15
Iodine (53)	I-118	2.66E+04	2.61E-05	1.06E+01	6.34E-01	5.99E-01	1.39E-16
Iodine (53)	I-118m	4.29E+04	1.62E-05	6.68E+00	6.78E-01	6.16E-01	8.89E-17
Iodine (53)	I-119	1.91E+04	3.63E-05	1.84E+01	8.26E+00	5.70E+00	1.87E-15
Iodine (53)	I-120	4.46E+03	1.55E-04	1.08E+01	6.17E+00	3.93E+00	5.55E-15
Iodine (53)	I-120m	6.87E+03	1.01E-04	8.51E+00	1.23E+01	5.04E+00	4.61E-15
Iodine (53)	I-121	2.86E+03	2.42E-04	3.30E+01	2.61E+00	2.42E+00	5.36E-15
Iodine (53)	I-122	1.00E+05	6.91E-06	3.16E+01	.	3.16E+01	2.02E-15
Iodine (53)	I-123	4.57E+02	1.51E-03	2.12E+02	4.74E-01	4.73E-01	6.68E-15
Iodine (53)	I-124	6.06E+01	1.14E-02	2.72E+01	1.27E-01	1.27E-01	1.36E-14
Iodine (53)	I-125	4.26E+00	1.63E-01	3.67E+03	1.21E-01	1.21E-01	1.87E-13
Iodine (53)	I-126	1.96E+01	3.54E-02	7.23E+01	5.81E-02	5.81E-02	1.96E-14
Iodine (53)	I-128	1.46E+04	4.75E-05	3.91E+02	2.75E+01	2.57E+01	1.19E-14
Iodine (53)	I-129	4.41E-08	1.57E+07	4.85E+03	1.85E-02	1.85E-02	2.84E-06
Iodine (53)	I-130	4.91E+02	1.41E-03	1.43E+01	8.47E-01	8.00E-01	1.11E-14
Iodine (53)	I-130m	4.12E+04	1.68E-05	1.61E+01	1.01E+00	9.49E-01	1.57E-16
Iodine (53)	I-131	3.15E+01	2.20E-02	8.16E+01	7.66E-02	7.66E-02	1.67E-14
Iodine (53)	I-132	2.65E+03	2.62E-04	1.33E+01	5.17E+00	3.73E+00	9.75E-15
Iodine (53)	I-132m	4.38E+03	1.58E-04	1.33E+01	3.18E+00	2.57E+00	4.06E-15
Iodine (53)	I-133	2.92E+02	2.37E-03	4.75E+01	3.65E-01	3.62E-01	8.66E-15
Iodine (53)	I-134	6.94E+03	9.99E-05	1.15E+01	1.23E+01	5.95E+00	6.02E-15
Iodine (53)	I-134m	1.01E+05	6.85E-06	1.07E+01	1.26E+01	5.78E+00	4.02E-16
Iodine (53)	I-135	9.24E+02	7.50E-04	1.54E+01	1.46E-01	1.45E-01	1.11E-15
Indium (49)	In-103	3.64E+05	1.90E-06	5.18E+00	3.75E+00	2.17E+00	3.22E-17
Indium (49)	In-105	7.18E+04	9.65E-06	8.02E+00	2.09E+00	1.66E+00	1.27E-16
Indium (49)	In-106	5.87E+04	1.18E-05	8.51E+00	.	8.51E+00	8.06E-16
Indium (49)	In-106m	7.00E+04	9.89E-06	1.03E+01	.	1.03E+01	8.16E-16
Indium (49)	In-107	1.12E+04	6.16E-05	1.92E+01	1.64E+01	8.84E+00	4.41E-15
Indium (49)	In-108	6.28E+03	1.10E-04	7.67E+00	3.50E+01	6.29E+00	5.67E-15
Indium (49)	In-108m	9.20E+03	7.53E-05	1.03E+01	4.42E+01	8.34E+00	5.14E-15
Indium (49)	In-109	1.45E+03	4.79E-04	4.81E+01	2.88E-01	2.86E-01	1.13E-15
Indium (49)	In-109m	2.72E+05	2.55E-06	2.47E+01	2.88E-01	2.85E-01	5.98E-18

Composite Worker Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Indium (49)	In-110	1.24E+03	5.59E-04	9.84E+00	1.22E+01	5.45E+00	2.54E-14
Indium (49)	In-110m	5.27E+03	1.31E-04	1.91E+01	3.33E+01	1.21E+01	1.33E-14
Indium (49)	In-111	9.02E+01	7.68E-03	8.21E+01	6.97E+00	6.42E+00	4.15E-13
Indium (49)	In-111m	4.73E+04	1.46E-05	3.66E+01	6.97E+00	5.85E+00	7.20E-16
Indium (49)	In-112	2.43E+04	2.85E-05	1.17E+02	2.12E+02	7.53E+01	1.82E-14
Indium (49)	In-112m	1.77E+04	3.91E-05	1.08E+02	5.65E+01	3.70E+01	1.23E-14
Indium (49)	In-113m	3.66E+03	1.89E-04	1.23E+02	8.00E+01	4.84E+01	7.84E-14
Indium (49)	In-114	3.04E+05	2.28E-06	1.91E+03	.	1.91E+03	3.76E-14
Indium (49)	In-114m	5.11E+00	1.36E-01	3.50E+02	1.33E-01	1.33E-01	1.56E-13
Indium (49)	In-115	1.57E-15	4.41E+14	2.10E+04	4.89E-03	4.89E-03	1.88E+01
Indium (49)	In-115m	1.35E+03	5.12E-04	1.98E+02	5.15E-03	5.15E-03	2.29E-17
Indium (49)	In-116m	6.69E+03	1.04E-04	1.18E+01	3.54E+01	8.83E+00	8.02E-15
Indium (49)	In-117	8.43E+03	8.22E-05	4.50E+01	4.32E+01	2.21E+01	1.61E-14
Indium (49)	In-117m	3.13E+03	2.21E-04	7.46E+01	1.80E+01	1.45E+01	2.84E-14
Indium (49)	In-118	4.37E+06	1.59E-07	2.43E+02	.	2.43E+02	3.44E-16
Indium (49)	In-118m	8.35E+04	8.30E-06	1.06E+01	.	1.06E+01	7.86E-16
Indium (49)	In-119	1.52E+05	4.57E-06	3.92E+01	5.57E+01	2.30E+01	9.46E-16
Indium (49)	In-119m	2.02E+04	3.42E-05	2.36E+02	8.36E+01	6.18E+01	1.91E-14
Indium (49)	In-121	9.46E+05	7.32E-07	3.18E+01	9.61E-01	9.33E-01	6.26E-18
Indium (49)	In-121m	9.39E+04	7.38E-06	3.10E+02	6.55E+00	6.41E+00	4.33E-16
Iridium (77)	Ir-180	2.43E+05	2.85E-06	1.06E+01	1.13E+02	9.66E+00	3.75E-16
Iridium (77)	Ir-182	2.43E+04	2.85E-05	1.00E+01	2.65E+00	2.09E+00	8.23E-16
Iridium (77)	Ir-183	6.28E+03	1.10E-04	1.34E+01	4.76E-01	4.60E-01	7.03E-16
Iridium (77)	Ir-184	1.96E+03	3.53E-04	1.54E+01	1.34E+01	7.17E+00	3.52E-14
Iridium (77)	Ir-185	4.22E+02	1.64E-03	1.98E+01	9.97E-01	9.49E-01	2.18E-14
Iridium (77)	Ir-186	3.65E+02	1.90E-03	1.82E+01	4.43E-04	4.43E-04	1.19E-17
Iridium (77)	Ir-186m	3.16E+03	2.19E-04	1.80E+01	4.43E-04	4.43E-04	1.37E-18
Iridium (77)	Ir-187	5.78E+02	1.20E-03	9.91E+01	2.20E+01	1.80E+01	3.05E-13
Iridium (77)	Ir-188	1.46E+02	4.74E-03	1.37E+01	3.50E+00	2.79E+00	1.88E-13
Iridium (77)	Ir-189	1.92E+01	3.62E-02	5.20E+02	3.19E+00	3.17E+00	1.64E-12
Iridium (77)	Ir-190	2.15E+01	3.23E-02	2.13E+01	1.28E+00	1.21E+00	5.61E-13
Iridium (77)	Ir-190m	5.42E+03	1.28E-04	2.13E+01	1.28E+00	1.20E+00	2.21E-15
Iridium (77)	Ir-190n	1.97E+03	3.52E-04	1.93E+01	8.57E+00	5.94E+00	3.01E-14
Iridium (77)	Ir-191m	4.42E+06	1.57E-07	5.22E+02	.	5.22E+02	1.18E-15
Iridium (77)	Ir-192	3.43E+00	2.02E-01	3.84E+01	2.74E-01	2.72E-01	7.99E-13
Iridium (77)	Ir-192m	2.51E+05	2.76E-06	3.85E+01	2.74E-01	2.72E-01	1.09E-17
Iridium (77)	Ir-192n	2.88E-03	2.41E+02	3.84E+01	2.92E-02	2.92E-02	1.02E-10
Iridium (77)	Ir-193m	2.40E+01	2.88E-02	1.33E+05	1.48E+00	1.48E+00	6.24E-13
Iridium (77)	Ir-194	3.15E+02	2.20E-03	2.91E+02	2.96E+00	2.93E+00	9.48E-14
Iridium (77)	Ir-194m	1.48E+00	4.68E-01	1.33E+01	1.50E-01	1.49E-01	1.02E-12

Composite Worker Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Iridium (77)	Ir-195	2.43E+03	2.85E-04	6.31E+02	2.40E+01	2.32E+01	9.75E-14
Iridium (77)	Ir-195m	1.60E+03	4.34E-04	7.94E+01	2.80E+00	2.70E+00	1.73E-14
Iridium (77)	Ir-196	4.20E+05	1.65E-06	1.20E+02	.	1.20E+02	2.93E-15
Iridium (77)	Ir-196m	4.34E+03	1.60E-04	1.26E+01	1.85E+01	7.50E+00	1.78E-14
Potassium (19)	K-38	4.77E+04	1.45E-05	8.90E+00	.	8.90E+00	3.72E-16
Potassium (19)	K-40	5.54E-10	1.25E+09	1.75E+02	2.25E-02	2.25E-02	8.54E-05
Potassium (19)	K-42	4.91E+02	1.41E-03	9.32E+01	4.90E+00	4.66E+00	2.09E-14
Potassium (19)	K-43	2.72E+02	2.55E-03	3.21E+01	4.63E+00	4.05E+00	3.35E-14
Potassium (19)	K-44	1.65E+04	4.21E-05	1.17E+01	5.01E+01	9.46E+00	1.33E-15
Potassium (19)	K-45	2.11E+04	3.29E-05	1.53E+01	4.98E-01	4.82E-01	5.41E-17
Potassium (19)	K-46	2.08E+05	3.33E-06	9.44E+00	.	9.44E+00	1.09E-16
Krypton (36)	Kr-74	3.17E+04	2.19E-05	5.01E+00	4.21E+01	4.48E+00	5.49E-16
Krypton (36)	Kr-75	8.49E+04	8.16E-06	1.08E+01	1.31E+00	1.17E+00	5.41E-17
Krypton (36)	Kr-76	4.10E+02	1.69E-03	9.11E+00	3.93E+00	2.75E+00	2.67E-14
Krypton (36)	Kr-77	4.90E+03	1.42E-04	2.30E+01	1.87E+01	1.03E+01	8.50E-15
Krypton (36)	Kr-79	1.73E+02	4.00E-03	1.25E+02	.	1.25E+02	2.99E-12
Krypton (36)	Kr-81	3.03E-06	2.29E+05	3.63E+04	.	3.63E+04	5.10E-02
Krypton (36)	Kr-81m	1.67E+06	4.15E-07	2.47E+02	.	2.47E+02	6.30E-16
Krypton (36)	Kr-83m	3.32E+03	2.09E-04	1.26E+06	.	1.26E+06	1.66E-09
Krypton (36)	Kr-85	6.44E-02	1.08E+01	5.76E+03	.	5.76E+03	3.98E-07
Krypton (36)	Kr-85m	1.36E+03	5.11E-04	2.01E+02	.	2.01E+02	6.62E-13
Krypton (36)	Kr-87	4.77E+03	1.45E-04	3.49E+01	1.19E-01	1.19E-01	1.13E-16
Krypton (36)	Kr-88	2.14E+03	3.24E-04	1.06E+01	6.01E+01	9.02E+00	1.95E-14
Krypton (36)	Kr-89	1.16E+05	5.99E-06	6.77E+00	2.26E-01	2.19E-01	8.82E-18
Lanthanum (57)	La-128	7.03E+04	9.86E-06	8.05E+00	1.21E+00	1.05E+00	1.01E-16
Lanthanum (57)	La-129	3.14E+04	2.21E-05	1.95E+01	1.38E+01	8.10E+00	1.75E-15
Lanthanum (57)	La-130	4.19E+04	1.66E-05	1.35E+01	.	1.35E+01	2.19E-15
Lanthanum (57)	La-131	6.17E+03	1.12E-04	2.83E+01	1.93E+00	1.81E+00	2.01E-15
Lanthanum (57)	La-132	1.26E+03	5.48E-04	1.49E+01	9.13E+00	5.66E+00	3.10E-14
Lanthanum (57)	La-132m	1.50E+04	4.62E-05	1.38E+01	1.04E+01	5.95E+00	2.75E-15
Lanthanum (57)	La-133	1.55E+03	4.47E-04	6.14E+01	1.78E-01	1.78E-01	7.99E-16
Lanthanum (57)	La-134	5.65E+04	1.23E-05	4.26E+01	.	4.26E+01	5.30E-15
Lanthanum (57)	La-135	3.11E+02	2.23E-03	1.80E+03	1.09E+02	1.02E+02	2.33E-12
Lanthanum (57)	La-136	3.69E+04	1.88E-05	7.75E+01	.	7.75E+01	1.50E-14
Lanthanum (57)	La-137	1.16E-05	6.00E+04	4.52E+03	2.12E-01	2.12E-01	1.32E-07
Lanthanum (57)	La-138	6.79E-12	1.02E+11	2.38E+01	1.23E-02	1.23E-02	1.31E-02
Lanthanum (57)	La-140	1.51E+02	4.60E-03	1.25E+01	1.48E+00	1.32E+00	6.45E-14
Lanthanum (57)	La-141	1.55E+03	4.47E-04	2.63E+02	4.64E-01	4.63E-01	2.21E-15
Lanthanum (57)	La-142	4.00E+03	1.73E-04	1.17E+01	1.87E+01	7.18E+00	1.34E-14
Lanthanum (57)	La-143	2.57E+04	2.70E-05	5.34E+01	5.39E-01	5.34E-01	1.56E-16



Composite Worker Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Lutetium (71)	Lu-165	3.39E+04	2.04E-05	1.56E+01	6.65E+00	4.67E+00	1.19E-15
Lutetium (71)	Lu-167	7.07E+03	9.80E-05	1.47E+01	1.31E+00	1.20E+00	1.49E-15
Lutetium (71)	Lu-169	1.78E+02	3.89E-03	1.91E+01	4.68E-01	4.57E-01	2.27E-14
Lutetium (71)	Lu-169m	1.37E+05	5.07E-06	1.91E+01	4.68E-01	4.57E-01	2.96E-17
Lutetium (71)	Lu-170	1.26E+02	5.51E-03	1.11E+01	2.64E+00	2.13E+00	1.51E-13
Lutetium (71)	Lu-171	3.07E+01	2.26E-02	4.97E+01	1.80E+00	1.74E+00	5.08E-13
Lutetium (71)	Lu-171m	2.77E+05	2.51E-06	4.97E+01	1.80E+00	1.74E+00	5.64E-17
Lutetium (71)	Lu-172	3.78E+01	1.84E-02	1.55E+01	1.11E+00	1.04E+00	2.48E-13
Lutetium (71)	Lu-172m	9.84E+04	7.04E-06	1.55E+01	1.11E+00	1.04E+00	9.50E-17
Lutetium (71)	Lu-173	5.06E-01	1.37E+00	2.15E+02	5.09E-01	5.08E-01	9.11E-12
Lutetium (71)	Lu-174	2.09E-01	3.31E+00	3.11E+02	4.05E-01	4.04E-01	1.76E-11
Lutetium (71)	Lu-174m	1.78E+00	3.89E-01	2.23E+02	2.05E-01	2.05E-01	1.05E-12
Lutetium (71)	Lu-176	1.80E-11	3.85E+10	6.71E+01	1.24E-02	1.24E-02	6.37E-03
Lutetium (71)	Lu-176m	1.67E+03	4.15E-04	1.80E+03	1.52E+01	1.50E+01	8.30E-14
Lutetium (71)	Lu-177	3.81E+01	1.82E-02	9.25E+02	1.52E+00	1.51E+00	3.69E-13
Lutetium (71)	Lu-177m	1.58E+00	4.39E-01	3.26E+01	1.12E-01	1.11E-01	6.56E-13
Lutetium (71)	Lu-178	1.28E+04	5.40E-05	2.16E+02	6.78E+01	5.16E+01	3.75E-14
Lutetium (71)	Lu-178m	1.58E+04	4.39E-05	3.06E+01	5.39E+01	1.95E+01	1.16E-14
Lutetium (71)	Lu-179	1.32E+03	5.24E-04	8.51E+02	1.54E+01	1.51E+01	1.07E-13
Lutetium (71)	Lu-180	6.39E+04	1.08E-05	1.96E+01	.	1.96E+01	2.89E-15
Lutetium (71)	Lu-181	1.04E+05	6.66E-06	2.83E+01	3.07E-01	3.03E-01	2.77E-17
Magnesium (12)	Mg-27	3.85E+04	1.80E-05	3.34E+01	.	3.34E+01	1.23E-15
Magnesium (12)	Mg-28	2.90E+02	2.39E-03	9.10E+00	1.33E+00	1.16E+00	5.88E-15
Manganese (25)	Mn-50m	2.08E+05	3.33E-06	6.37E+00	.	6.37E+00	8.02E-17
Manganese (25)	Mn-51	7.88E+03	8.79E-05	2.98E+01	2.10E+01	1.23E+01	4.18E-15
Manganese (25)	Mn-52	4.52E+01	1.53E-02	8.57E+00	1.20E+00	1.06E+00	6.37E-14
Manganese (25)	Mn-52m	1.73E+04	4.01E-05	1.20E+01	3.10E+01	8.64E+00	1.36E-15
Manganese (25)	Mn-53	1.87E-07	3.70E+06	.	5.48E+00	5.48E+00	8.13E-05
Manganese (25)	Mn-54	8.10E-01	8.55E-01	3.62E+01	5.56E-01	5.47E-01	1.91E-12
Manganese (25)	Mn-56	2.35E+03	2.94E-04	1.70E+01	1.30E+01	7.36E+00	9.18E-15
Manganese (25)	Mn-57	2.56E+05	2.71E-06	2.62E+02	.	2.62E+02	3.06E-15
Manganese (25)	Mn-58m	3.35E+05	2.07E-06	1.21E+01	.	1.21E+01	1.10E-16
Molybdenum (42)	Mo-101	2.49E+04	2.78E-05	1.63E+01	4.42E+01	1.19E+01	2.53E-15
Molybdenum (42)	Mo-102	3.22E+04	2.15E-05	2.02E+02	6.67E+01	5.01E+01	8.32E-15
Molybdenum (42)	Mo-89	1.73E+05	4.01E-06	7.92E+00	2.53E+00	1.92E+00	5.18E-17
Molybdenum (42)	Mo-90	1.09E+03	6.35E-04	5.74E+00	1.64E+00	1.27E+00	5.50E-15
Molybdenum (42)	Mo-91	2.35E+04	2.95E-05	3.08E+01	1.00E+00	9.70E-01	1.97E-16
Molybdenum (42)	Mo-91m	3.38E+05	2.05E-06	1.58E+01	4.72E-01	4.59E-01	6.47E-18
Molybdenum (42)	Mo-93	1.73E-04	4.00E+03	7.05E+04	4.76E-01	4.76E-01	1.34E-08
Molybdenum (42)	Mo-93m	8.86E+02	7.82E-04	1.27E+01	4.54E-01	4.38E-01	2.41E-15

Composite Worker Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Molybdenum (42)	Mo-99	9.21E+01	7.53E-03	1.20E+02	1.30E-01	1.30E-01	7.34E-15
Nitrogen (7)	N-13	3.66E+04	1.90E-05	3.04E+01	.	3.04E+01	5.66E-16
Nitrogen (7)	N-16	3.07E+06	2.26E-07	5.36E+00	.	5.36E+00	1.47E-18
Sodium (11)	Na-22	2.66E-01	2.60E+00	1.36E+01	6.35E-02	6.32E-02	2.74E-13
Sodium (11)	Na-24	4.06E+02	1.71E-03	6.67E+00	3.43E+00	2.27E+00	7.03E-15
Niobium (41)	Nb-87	9.71E+04	7.13E-06	9.64E+00	2.49E+00	1.98E+00	9.28E-17
Niobium (41)	Nb-88	2.51E+04	2.76E-05	4.07E+00	1.83E-01	1.75E-01	3.22E-17
Niobium (41)	Nb-88m	4.68E+04	1.48E-05	4.11E+00	1.84E-01	1.76E-01	1.73E-17
Niobium (41)	Nb-89	2.99E+03	2.32E-04	1.17E+01	2.53E+00	2.08E+00	3.25E-15
Niobium (41)	Nb-89m	5.52E+03	1.26E-04	1.01E+01	2.90E+00	2.25E+00	1.90E-15
Niobium (41)	Nb-90	4.16E+02	1.67E-03	6.77E+00	2.52E+00	1.83E+00	2.08E-14
Niobium (41)	Nb-91	1.02E-03	6.80E+02	1.64E+04	1.02E+00	1.02E+00	4.75E-09
Niobium (41)	Nb-91m	4.16E+00	1.67E-01	1.08E+03	3.09E-01	3.09E-01	3.55E-13
Niobium (41)	Nb-92	2.00E-08	3.47E+07	2.03E+01	7.04E-02	7.02E-02	1.70E-05
Niobium (41)	Nb-92m	2.49E+01	2.78E-02	3.13E+01	3.85E+00	3.43E+00	6.64E-13
Niobium (41)	Nb-93m	4.30E-02	1.61E+01	4.57E+05	9.57E-01	9.57E-01	1.09E-10
Niobium (41)	Nb-94	3.41E-05	2.03E+04	1.95E+01	3.91E-02	3.91E-02	5.64E-09
Niobium (41)	Nb-94m	5.82E+04	1.19E-05	1.95E+01	3.93E-02	3.93E-02	3.33E-18
Niobium (41)	Nb-95	7.23E+00	9.59E-02	3.98E+01	1.04E+00	1.01E+00	6.96E-13
Niobium (41)	Nb-95m	7.01E+01	9.89E-03	3.88E+01	7.09E-01	6.96E-01	4.95E-14
Niobium (41)	Nb-96	2.60E+02	2.67E-03	1.23E+01	2.54E+00	2.11E+00	4.08E-14
Niobium (41)	Nb-97	5.05E+03	1.37E-04	4.57E+01	3.75E+01	2.06E+01	2.07E-14
Niobium (41)	Nb-98m	7.10E+03	9.76E-05	1.05E+01	2.83E+01	7.67E+00	5.55E-15
Niobium (41)	Nb-99	1.46E+06	4.76E-07	6.98E+01	1.30E-01	1.30E-01	4.63E-19
Niobium (41)	Nb-99m	1.40E+05	4.95E-06	2.76E+01	1.30E-01	1.30E-01	4.80E-18
Neodymium (60)	Nd-134	4.29E+04	1.62E-05	8.45E+00	1.14E+00	1.01E+00	1.65E-16
Neodymium (60)	Nd-135	2.94E+04	2.36E-05	1.05E+01	8.24E+00	4.62E+00	1.11E-15
Neodymium (60)	Nd-136	7.19E+03	9.64E-05	1.26E+01	2.48E+01	8.34E+00	8.27E-15
Neodymium (60)	Nd-137	9.46E+03	7.32E-05	1.96E+01	2.11E-01	2.08E-01	1.58E-16
Neodymium (60)	Nd-138	1.20E+03	5.75E-04	3.62E+01	6.60E+00	5.58E+00	3.35E-14
Neodymium (60)	Nd-139	1.23E+04	5.65E-05	4.54E+01	9.23E-01	9.04E-01	5.38E-16
Neodymium (60)	Nd-139m	1.10E+03	6.28E-04	1.63E+01	8.56E-01	8.13E-01	5.37E-15
Neodymium (60)	Nd-140	7.51E+01	9.23E-03	5.59E+01	1.50E+00	1.46E+00	1.43E-13
Neodymium (60)	Nd-141	2.44E+03	2.84E-04	5.26E+02	3.13E+02	1.96E+02	5.96E-13
Neodymium (60)	Nd-141m	3.52E+05	1.97E-06	4.05E+01	3.14E+02	3.59E+01	7.53E-16
Neodymium (60)	Nd-144	3.03E-16	2.29E+15	.	9.95E-05	9.95E-05	2.48E+00
Neodymium (60)	Nd-147	2.30E+01	3.01E-02	2.41E+02	8.19E-05	8.19E-05	2.74E-17
Neodymium (60)	Nd-149	3.51E+03	1.97E-04	8.14E+01	2.12E+00	2.06E+00	4.59E-15
Neodymium (60)	Nd-151	2.93E+04	2.37E-05	2.58E+01	1.92E-01	1.91E-01	5.16E-17
Neodymium (60)	Nd-152	3.20E+04	2.17E-05	6.37E+01	7.14E+01	3.37E+01	8.40E-15

Composite Worker Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Neon (10)	Ne-19	1.27E+06	5.46E-07	3.00E+01	.	3.00E+01	2.35E-17
Neon (10)	Ne-24	1.08E+05	6.43E-06	5.96E+00	3.43E+00	2.18E+00	2.54E-17
Nickel (28)	Ni-56	4.16E+01	1.66E-02	5.46E+00	2.26E-01	2.17E-01	1.53E-14
Nickel (28)	Ni-57	1.71E+02	4.06E-03	1.43E+01	1.13E+00	1.04E+00	1.83E-14
Nickel (28)	Ni-59	6.86E-06	1.01E+05	2.01E+06	2.19E+00	2.19E+00	9.88E-07
Nickel (28)	Ni-63	6.92E-03	1.00E+02	.	8.97E-01	8.97E-01	4.28E-10
Nickel (28)	Ni-65	2.41E+03	2.87E-04	5.10E+01	4.94E+00	4.50E+00	6.36E-15
Nickel (28)	Ni-66	1.11E+02	6.23E-03	2.52E+02	9.35E-01	9.31E-01	2.90E-14
Neptunium (93)	Np-232	2.48E+04	2.80E-05	1.10E+01	2.32E-05	2.32E-05	1.14E-20
Neptunium (93)	Np-233	1.01E+04	6.89E-05	8.19E+01	1.93E-05	1.93E-05	2.35E-20
Neptunium (93)	Np-234	5.75E+01	1.21E-02	1.03E+01	1.48E-05	1.48E-05	3.16E-18
Neptunium (93)	Np-235	6.39E-01	1.09E+00	4.95E+01	6.14E-06	6.14E-06	1.19E-16
Neptunium (93)	Np-236	4.50E-06	1.54E+05	1.23E+01	1.81E-05	1.81E-05	4.98E-11
Neptunium (93)	Np-236m	2.70E+02	2.57E-03	1.46E+01	2.03E-05	2.03E-05	9.32E-19
Neptunium (93)	Np-237	3.23E-07	2.14E+06	5.85E+01	1.72E-05	1.72E-05	6.63E-10
Neptunium (93)	Np-238	1.19E+02	5.80E-03	1.26E+01	8.15E-06	8.15E-06	8.52E-19
Neptunium (93)	Np-239	1.07E+02	6.46E-03	3.92E+01	4.48E-06	4.48E-06	5.23E-19
Neptunium (93)	Np-240	5.88E+03	1.18E-04	8.69E+00	9.08E-06	9.08E-06	1.94E-20
Neptunium (93)	Np-240m	5.04E+04	1.37E-05	1.09E+01	9.08E-06	9.08E-06	2.26E-21
Neptunium (93)	Np-241	2.62E+04	2.64E-05	5.30E+01	9.24E-06	9.24E-06	4.46E-21
Neptunium (93)	Np-242	1.66E+05	4.19E-06	1.42E+01	7.72E-06	7.72E-06	5.92E-22
Neptunium (93)	Np-242m	6.62E+04	1.05E-05	1.10E+01	7.72E-06	7.72E-06	1.48E-21
Oxygen (8)	O-14	3.10E+05	2.24E-06	8.51E+00	.	8.51E+00	2.02E-17
Oxygen (8)	O-15	1.79E+05	3.88E-06	3.02E+01	.	3.02E+01	1.33E-16
Oxygen (8)	O-19	8.26E+05	8.39E-07	3.02E+01	.	3.02E+01	3.64E-17
Osmium (76)	Os-180	1.69E+04	4.09E-05	2.35E+01	1.13E+02	1.95E+01	1.08E-14
Osmium (76)	Os-181	3.47E+03	2.00E-04	1.40E+01	2.80E+00	2.33E+00	6.38E-15
Osmium (76)	Os-182	2.75E+02	2.52E-03	1.87E+01	2.76E+00	2.40E+00	8.35E-14
Osmium (76)	Os-183	4.67E+02	1.48E-03	4.32E+01	4.81E-01	4.75E-01	9.77E-15
Osmium (76)	Os-183m	6.13E+02	1.13E-03	2.49E+01	4.82E-01	4.73E-01	7.40E-15
Osmium (76)	Os-185	2.70E+00	2.56E-01	4.54E+01	1.16E+00	1.13E+00	4.05E-12
Osmium (76)	Os-186	3.47E-16	2.00E+15	.	4.43E-04	4.43E-04	1.25E+01
Osmium (76)	Os-189m	1.05E+03	6.62E-04	1.35E+07	3.12E+02	3.12E+02	2.95E-12
Osmium (76)	Os-190m	3.68E+04	1.88E-05	1.97E+01	.	1.97E+01	5.34E-15
Osmium (76)	Os-191	1.64E+01	4.22E-02	4.70E+02	9.05E-01	9.03E-01	5.51E-13
Osmium (76)	Os-191m	4.63E+02	1.50E-03	4.43E+02	8.35E-01	8.34E-01	1.80E-14
Osmium (76)	Os-193	2.02E+02	3.44E-03	4.58E+02	3.14E+00	3.12E+00	1.57E-13
Osmium (76)	Os-194	1.16E-01	6.00E+00	2.88E+02	2.18E-02	2.18E-02	1.92E-12
Osmium (76)	Os-196	1.04E+04	6.64E-05	9.11E+01	3.01E+01	2.26E+01	2.23E-14
Phosphorus (15)	P-30	1.46E+05	4.75E-06	2.96E+01	.	2.96E+01	3.19E-16



Composite Worker Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Phosphorus (15)	P-32	1.77E+01	3.91E-02	2.59E+03	4.57E-01	4.57E-01	4.32E-14
Phosphorus (15)	P-33	9.98E+00	6.94E-02	9.64E+04	1.02E+00	1.02E+00	1.77E-13
Protactinium (91)	Pa-227	9.51E+03	7.29E-05	2.14E+02	6.30E-04	6.30E-04	7.88E-19
Protactinium (91)	Pa-228	2.76E+02	2.51E-03	1.03E+01	4.30E-05	4.30E-05	1.87E-18
Protactinium (91)	Pa-229	1.69E+02	4.11E-03	8.74E+01	2.16E-05	2.16E-05	1.54E-18
Protactinium (91)	Pa-230	1.45E+01	4.77E-02	1.31E+01	1.70E-05	1.70E-05	1.41E-17
Protactinium (91)	Pa-231	2.12E-05	3.28E+04	6.71E+01	6.32E-06	6.32E-06	3.62E-12
Protactinium (91)	Pa-232	1.93E+02	3.59E-03	1.21E+01	2.32E-05	2.32E-05	1.46E-18
Protactinium (91)	Pa-233	9.38E+00	7.39E-02	6.08E+01	1.93E-05	1.93E-05	2.52E-17
Protactinium (91)	Pa-234	9.06E+02	7.65E-04	9.28E+00	1.48E-05	1.48E-05	2.00E-19
Protactinium (91)	Pa-234m	3.11E+05	2.23E-06	1.64E+01	1.48E-05	1.48E-05	5.83E-22
Protactinium (91)	Pa-235	1.49E+04	4.66E-05	4.89E+01	6.14E-06	6.14E-06	5.09E-21
Protactinium (91)	Pa-236	4.00E+04	1.73E-05	8.90E+00	2.01E-05	2.01E-05	6.23E-21
Protactinium (91)	Pa-237	4.19E+04	1.66E-05	2.43E+01	1.72E-05	1.72E-05	5.12E-21
Lead (82)	Pb-194	3.04E+04	2.28E-05	1.00E+01	8.03E-02	7.96E-02	2.67E-17
Lead (82)	Pb-195m	2.43E+04	2.85E-05	9.75E+00	5.38E-01	5.10E-01	2.15E-16
Lead (82)	Pb-196	9.84E+03	7.04E-05	1.27E+01	2.60E+01	8.55E+00	8.93E-15
Lead (82)	Pb-197	4.55E+04	1.52E-05	1.48E+01	3.92E-01	3.82E-01	8.66E-17
Lead (82)	Pb-197m	8.47E+03	8.18E-05	1.57E+01	3.88E-01	3.78E-01	4.61E-16
Lead (82)	Pb-198	2.53E+03	2.74E-04	1.22E+01	1.19E+01	6.03E+00	2.48E-14
Lead (82)	Pb-199	4.05E+03	1.71E-04	2.38E+01	2.12E+01	1.12E+01	2.89E-14
Lead (82)	Pb-200	2.82E+02	2.45E-03	2.04E+01	3.23E+00	2.79E+00	1.04E-13
Lead (82)	Pb-201	6.51E+02	1.07E-03	3.79E+01	5.52E+00	4.82E+00	7.81E-14
Lead (82)	Pb-201m	3.58E+05	1.93E-06	2.62E+01	5.52E+00	4.56E+00	1.34E-16
Lead (82)	Pb-202	1.32E-05	5.25E+04	7.04E+01	3.75E-02	3.75E-02	3.01E-08
Lead (82)	Pb-202m	1.72E+03	4.03E-04	1.26E+01	4.13E-02	4.11E-02	2.53E-16
Lead (82)	Pb-203	1.17E+02	5.92E-03	1.06E+02	7.75E+00	7.22E+00	6.57E-13
Lead (82)	Pb-204m	5.42E+03	1.28E-04	1.47E+01	5.65E+01	1.17E+01	2.30E-14
Lead (82)	Pb-205	4.53E-08	1.53E+07	2.82E+06	2.25E+00	2.25E+00	5.35E-04
Lead (82)	Pb-209	1.87E+03	3.71E-04	1.39E+04	2.87E+01	2.86E+01	1.68E-13
Lead (82)	Pb-210	3.12E-02	2.22E+01	4.54E+03	1.84E-04	1.84E-04	6.50E-14
Lead (82)	Pb-211	1.01E+04	6.87E-05	2.41E+02	1.47E-01	1.47E-01	1.61E-16
Lead (82)	Pb-212	5.71E+02	1.21E-03	1.94E+01	1.64E-02	1.64E-02	3.20E-16
Lead (82)	Pb-214	1.36E+04	5.10E-05	1.68E+01	1.84E-04	1.84E-04	1.52E-19
Palladium (46)	Pd-100	6.97E+01	9.95E-03	1.02E+01	1.48E+00	1.29E+00	9.72E-14
Palladium (46)	Pd-101	7.17E+02	9.67E-04	5.02E+01	2.94E+00	2.77E+00	2.05E-14
Palladium (46)	Pd-103	1.49E+01	4.66E-02	2.37E+04	3.98E+00	3.97E+00	1.44E-12
Palladium (46)	Pd-107	1.07E-07	6.50E+06	.	3.03E+00	3.03E+00	1.60E-04
Palladium (46)	Pd-109	4.43E+02	1.56E-03	3.30E+03	4.55E+00	4.54E+00	5.86E-14
Palladium (46)	Pd-109m	7.77E+04	8.92E-06	2.77E+02	4.55E+00	4.47E+00	3.29E-16



Composite Worker Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Palladium (46)	Pd-111	1.56E+04	4.45E-05	3.13E+02	1.02E+00	1.02E+00	3.81E-16
Palladium (46)	Pd-112	2.89E+02	2.40E-03	4.09E+01	1.31E+00	1.27E+00	2.58E-14
Palladium (46)	Pd-114	1.51E+05	4.60E-06	8.63E+01	.	8.63E+01	3.43E-15
Palladium (46)	Pd-96	1.79E+05	3.87E-06	5.93E+00	.	5.93E+00	1.67E-16
Palladium (46)	Pd-97	1.17E+05	5.90E-06	7.36E+00	9.67E-01	8.55E-01	3.70E-17
Palladium (46)	Pd-98	2.06E+04	3.37E-05	1.37E+01	5.97E+01	1.12E+01	2.79E-15
Palladium (46)	Pd-99	1.70E+04	4.07E-05	1.59E+01	1.70E+01	8.21E+00	2.50E-15
Promethium (61)	Pm-136	2.04E+05	3.39E-06	5.89E+00	2.48E+01	4.76E+00	1.66E-16
Promethium (61)	Pm-137m	1.52E+05	4.57E-06	9.21E+00	2.11E-01	2.06E-01	9.74E-18
Promethium (61)	Pm-139	8.78E+04	7.90E-06	1.89E+01	9.23E-01	8.80E-01	7.31E-17
Promethium (61)	Pm-140	2.38E+06	2.92E-07	1.87E+01	1.50E+00	1.39E+00	4.30E-18
Promethium (61)	Pm-140m	6.12E+04	1.13E-05	8.47E+00	1.50E+00	1.28E+00	1.53E-16
Promethium (61)	Pm-141	1.74E+04	3.98E-05	3.83E+01	8.45E+01	2.64E+01	1.12E-14
Promethium (61)	Pm-142	5.40E+05	1.28E-06	3.51E+01	.	3.51E+01	4.85E-16
Promethium (61)	Pm-143	9.55E-01	7.26E-01	1.03E+02	6.12E-01	6.08E-01	4.78E-12
Promethium (61)	Pm-144	6.97E-01	9.95E-01	2.00E+01	9.94E-05	9.94E-05	1.08E-15
Promethium (61)	Pm-145	3.92E-02	1.77E+01	2.52E+03	2.32E-01	2.32E-01	4.51E-11
Promethium (61)	Pm-146	1.25E-01	5.53E+00	4.17E+01	2.19E-04	2.19E-04	1.34E-14
Promethium (61)	Pm-147	2.64E-01	2.62E+00	1.60E+05	8.19E-05	8.19E-05	2.39E-15
Promethium (61)	Pm-148	4.71E+01	1.47E-02	5.03E+01	4.87E-05	4.87E-05	8.01E-18
Promethium (61)	Pm-148m	6.13E+00	1.13E-01	1.52E+01	4.87E-05	4.87E-05	6.16E-17
Promethium (61)	Pm-149	1.14E+02	6.06E-03	1.83E+03	2.39E+00	2.38E+00	1.63E-13
Promethium (61)	Pm-150	2.27E+03	3.06E-04	1.99E+01	1.28E+01	7.80E+00	2.71E-14
Promethium (61)	Pm-151	2.14E+02	3.24E-03	9.64E+01	1.92E-01	1.92E-01	7.11E-15
Promethium (61)	Pm-152	8.84E+04	7.84E-06	9.57E+01	.	9.57E+01	8.63E-15
Promethium (61)	Pm-152m	4.84E+04	1.43E-05	1.96E+01	.	1.96E+01	3.23E-15
Promethium (61)	Pm-153	6.94E+04	9.99E-06	2.51E+02	2.53E+00	2.51E+00	2.90E-16
Promethium (61)	Pm-154	2.11E+05	3.29E-06	1.59E+01	.	1.59E+01	6.10E-16
Promethium (61)	Pm-154m	1.36E+05	5.10E-06	1.63E+01	.	1.63E+01	9.70E-16
Polonium (84)	Po-203	9.92E+03	6.98E-05	6.89E+00	3.06E+00	2.12E+00	2.27E-15
Polonium (84)	Po-204	1.72E+03	4.03E-04	7.10E+00	2.36E+00	1.77E+00	1.10E-14
Polonium (84)	Po-205	3.66E+03	1.89E-04	9.08E+00	9.22E-01	8.37E-01	2.46E-15
Polonium (84)	Po-206	2.87E+01	2.41E-02	7.04E+00	2.64E-02	2.63E-02	9.87E-15
Polonium (84)	Po-207	1.05E+03	6.62E-04	1.08E+01	4.89E-02	4.87E-02	5.05E-16
Polonium (84)	Po-208	2.39E-01	2.90E+00	3.52E+05	2.70E-04	2.70E-04	1.23E-14
Polonium (84)	Po-209	6.79E-03	1.02E+02	5.02E+03	1.96E-04	1.96E-04	3.16E-13
Polonium (84)	Po-210	1.83E+00	3.79E-01	3.12E+06	4.27E-04	4.27E-04	2.57E-15
Polonium (84)	Po-211	4.24E+07	1.64E-08	3.72E+03	.	3.72E+03	9.72E-16
Polonium (84)	Po-212	7.31E+13	9.48E-15	.	.	.	.
Polonium (84)	Po-212m	4.85E+05	1.43E-06	3.48E+02	.	3.48E+02	7.98E-15

Composite Worker Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Polonium (84)	Po-213	5.20E+12	1.33E-13	1.36E+04	2.87E+01	2.86E+01	6.14E-23
Polonium (84)	Po-214	1.33E+11	5.21E-12	4.49E+03	1.84E-04	1.84E-04	1.55E-26
Polonium (84)	Po-215	1.23E+10	5.65E-11	2.41E+02	1.47E-01	1.47E-01	1.35E-22
Polonium (84)	Po-216	1.51E+08	4.60E-09	1.94E+01	1.64E-02	1.64E-02	1.23E-21
Polonium (84)	Po-218	1.17E+05	5.90E-06	1.68E+01	1.84E-04	1.84E-04	1.79E-20
Praseodymium (59)	Pr-134	3.31E+04	2.09E-05	7.84E+00	1.15E+00	1.00E+00	2.13E-16
Praseodymium (59)	Pr-134m	2.14E+04	3.23E-05	9.84E+00	1.14E+00	1.02E+00	3.36E-16
Praseodymium (59)	Pr-135	1.52E+04	4.57E-05	1.83E+01	9.48E+00	6.25E+00	2.91E-15
Praseodymium (59)	Pr-136	2.78E+04	2.49E-05	1.39E+01	1.19E+02	1.25E+01	3.20E-15
Praseodymium (59)	Pr-137	4.74E+03	1.46E-04	8.00E+01	2.11E-01	2.11E-01	3.19E-16
Praseodymium (59)	Pr-138	2.51E+05	2.76E-06	3.72E+01	.	3.72E+01	1.07E-15
Praseodymium (59)	Pr-138m	2.86E+03	2.42E-04	1.23E+01	2.20E+01	7.89E+00	1.99E-14
Praseodymium (59)	Pr-139	1.38E+03	5.03E-04	1.25E+02	9.28E-01	9.22E-01	4.88E-15
Praseodymium (59)	Pr-140	1.07E+05	6.45E-06	5.69E+01	.	5.69E+01	3.89E-15
Praseodymium (59)	Pr-142	3.18E+02	2.18E-03	3.98E+02	3.00E+00	2.98E+00	6.98E-14
Praseodymium (59)	Pr-142m	2.49E+04	2.78E-05	3.98E+02	2.96E+00	2.94E+00	8.77E-16
Praseodymium (59)	Pr-143	1.86E+01	3.72E-02	7.12E+03	7.35E-01	7.35E-01	2.96E-13
Praseodymium (59)	Pr-144	2.11E+04	3.29E-05	5.53E+02	9.95E-05	9.95E-05	3.56E-20
Praseodymium (59)	Pr-144m	5.06E+04	1.37E-05	5.03E+02	9.95E-05	9.95E-05	1.49E-20
Praseodymium (59)	Pr-145	1.01E+03	6.83E-04	1.01E+03	9.95E+00	9.85E+00	7.39E-14
Praseodymium (59)	Pr-146	1.51E+04	4.59E-05	2.82E+01	5.59E+01	1.87E+01	9.52E-15
Praseodymium (59)	Pr-147	2.72E+04	2.55E-05	5.04E+01	8.19E-05	8.19E-05	2.32E-20
Praseodymium (59)	Pr-148	1.59E+05	4.36E-06	2.87E+01	.	2.87E+01	1.40E-15
Praseodymium (59)	Pr-148m	1.81E+05	3.82E-06	3.18E+01	.	3.18E+01	1.36E-15
Platinum (78)	Pt-184	2.11E+04	3.29E-05	1.15E+01	1.11E+01	5.67E+00	2.60E-15
Platinum (78)	Pt-186	2.92E+03	2.37E-04	1.30E+01	4.43E-04	4.43E-04	1.48E-18
Platinum (78)	Pt-187	2.58E+03	2.68E-04	3.42E+01	1.15E+01	8.61E+00	3.27E-14
Platinum (78)	Pt-188	2.48E+01	2.79E-02	1.27E+01	7.02E-01	6.65E-01	2.64E-13
Platinum (78)	Pt-189	5.58E+02	1.24E-03	5.96E+01	2.40E+00	2.31E+00	4.10E-14
Platinum (78)	Pt-190	1.07E-12	6.50E+11	.	1.98E-04	1.98E-04	1.85E-03
Platinum (78)	Pt-191	9.03E+01	7.68E-03	1.18E+02	4.75E+00	4.57E+00	5.07E-13
Platinum (78)	Pt-193	1.39E-02	5.00E+01	4.90E+06	2.75E+00	2.75E+00	2.01E-09
Platinum (78)	Pt-193m	5.84E+01	1.19E-02	3.77E+03	1.11E+00	1.11E+00	1.92E-13
Platinum (78)	Pt-195m	6.29E+01	1.10E-02	5.67E+02	1.55E+00	1.55E+00	2.51E-13
Platinum (78)	Pt-197	3.05E+02	2.27E-03	1.40E+03	4.64E+00	4.63E+00	1.57E-13
Platinum (78)	Pt-197m	3.82E+03	1.82E-04	3.29E+02	3.93E+00	3.88E+00	1.05E-14
Platinum (78)	Pt-199	1.18E+04	5.86E-05	1.05E+02	2.14E+00	2.10E+00	1.85E-15
Platinum (78)	Pt-200	4.86E+02	1.43E-03	8.88E+01	2.65E+00	2.57E+00	5.55E-14
Platinum (78)	Pt-202	1.38E+02	5.02E-03	1.48E+02	7.66E-01	7.62E-01	5.85E-14
Plutonium (94)	Pu-232	1.08E+04	6.41E-05	1.40E+01	3.01E-05	3.01E-05	3.39E-20

Composite Worker Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Plutonium (94)	Pu-234	6.90E+02	1.00E-03	1.07E+01	1.55E-05	1.55E-05	2.76E-19
Plutonium (94)	Pu-235	1.44E+04	4.81E-05	4.40E+01	6.14E-06	6.14E-06	5.26E-21
Plutonium (94)	Pu-236	2.42E-01	2.86E+00	1.92E+01	2.05E-05	2.05E-05	1.05E-15
Plutonium (94)	Pu-237	5.60E+00	1.24E-01	5.44E+01	1.72E-05	1.72E-05	3.83E-17
Plutonium (94)	Pu-238	7.90E-03	8.77E+01	1.67E+01	8.15E-06	8.15E-06	1.29E-14
Plutonium (94)	Pu-239	2.87E-05	2.41E+04	4.95E+01	4.48E-06	4.48E-06	1.95E-12
Plutonium (94)	Pu-240	1.06E-04	6.56E+03	1.24E+01	9.08E-06	9.08E-06	1.08E-12
Plutonium (94)	Pu-241	4.83E-02	1.44E+01	5.69E+01	9.24E-06	9.24E-06	2.42E-15
Plutonium (94)	Pu-242	1.85E-06	3.75E+05	1.64E+01	7.72E-06	7.72E-06	5.30E-11
Plutonium (94)	Pu-243	1.22E+03	5.66E-04	3.63E+01	3.68E-06	3.68E-06	3.82E-20
Plutonium (94)	Pu-244	8.66E-09	8.00E+07	1.08E+01	6.00E-06	6.00E-06	8.87E-09
Plutonium (94)	Pu-245	5.78E+02	1.20E-03	2.90E+01	6.32E-06	6.32E-06	1.40E-19
Plutonium (94)	Pu-246	2.33E+01	2.97E-02	1.02E+01	5.57E-06	5.57E-06	3.08E-18
Radium (88)	Ra-219	2.19E+09	3.17E-10	1.79E+02	.	1.79E+02	9.42E-19
Radium (88)	Ra-220	1.22E+09	5.68E-10	6.71E+03	.	6.71E+03	6.34E-17
Radium (88)	Ra-221	7.81E+05	8.88E-07	8.83E+02	2.87E+01	2.78E+01	4.12E-16
Radium (88)	Ra-222	5.75E+05	1.20E-06	1.86E+03	1.84E-04	1.84E-04	3.73E-21
Radium (88)	Ra-223	2.21E+01	3.13E-02	9.87E+01	2.13E-04	2.13E-04	1.12E-16
Radium (88)	Ra-224	6.91E+01	1.00E-02	1.92E+01	5.32E-04	5.32E-04	9.04E-17
Radium (88)	Ra-225	1.70E+01	4.08E-02	1.35E+02	1.13E-04	1.13E-04	7.89E-17
Radium (88)	Ra-226	4.33E-04	1.60E+03	1.67E+01	9.44E-05	9.44E-05	2.58E-12
Radium (88)	Ra-227	8.63E+03	8.03E-05	5.42E+01	2.51E-05	2.51E-05	3.47E-20
Radium (88)	Ra-228	1.21E-01	5.75E+00	1.24E+01	3.11E-05	3.11E-05	3.08E-15
Radium (88)	Ra-230	3.92E+03	1.77E-04	1.23E+01	1.60E-05	1.60E-05	4.92E-20
Rubidium (37)	Rb-77	9.66E+04	7.17E-06	1.06E+01	1.87E+01	6.75E+00	2.82E-16
Rubidium (37)	Rb-78	2.06E+04	3.36E-05	6.80E+00	5.63E+01	6.07E+00	1.20E-15
Rubidium (37)	Rb-78m	6.35E+04	1.09E-05	8.05E+00	5.63E+02	7.94E+00	5.12E-16
Rubidium (37)	Rb-79	1.59E+04	4.36E-05	1.82E+01	5.85E+01	1.39E+01	3.61E-15
Rubidium (37)	Rb-80	6.54E+05	1.06E-06	2.51E+01	.	2.51E+01	1.61E-16
Rubidium (37)	Rb-81	1.33E+03	5.22E-04	4.98E+01	2.40E+01	1.62E+01	5.18E-14
Rubidium (37)	Rb-81m	1.19E+04	5.80E-05	4.91E+01	1.99E+01	1.41E+01	5.03E-15
Rubidium (37)	Rb-82	2.86E+05	2.42E-06	2.73E+01	.	2.73E+01	4.10E-16
Rubidium (37)	Rb-82m	9.38E+02	7.39E-04	1.04E+01	1.12E+01	5.39E+00	2.47E-14
Rubidium (37)	Rb-83	2.93E+00	2.36E-01	6.43E+01	1.28E+00	1.26E+00	1.86E-12
Rubidium (37)	Rb-84	7.72E+00	8.98E-02	3.36E+01	6.17E-01	6.06E-01	3.46E-13
Rubidium (37)	Rb-84m	1.80E+04	3.85E-05	2.39E+01	6.15E-01	6.00E-01	1.47E-16
Rubidium (37)	Rb-86	1.36E+01	5.11E-02	2.84E+02	3.80E-01	3.79E-01	1.26E-13
Rubidium (37)	Rb-86m	3.58E+05	1.93E-06	4.74E+01	3.80E-01	3.76E-01	4.74E-18
Rubidium (37)	Rb-87	1.41E-11	4.92E+10	3.89E+04	1.19E-01	1.19E-01	3.86E-02
Rubidium (37)	Rb-88	2.05E+04	3.38E-05	4.12E+01	6.01E+01	2.44E+01	5.50E-15



Composite Worker Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Rubidium (37)	Rb-89	2.40E+04	2.88E-05	1.27E+01	2.26E-01	2.22E-01	4.31E-17
Rubidium (37)	Rb-90	1.38E+05	5.01E-06	1.27E+01	1.21E-02	1.21E-02	4.11E-19
Rubidium (37)	Rb-90m	8.47E+04	8.18E-06	8.33E+00	1.21E-02	1.20E-02	6.71E-19
Rhenium (75)	Re-178	2.76E+04	2.51E-05	1.60E+01	2.11E+00	1.86E+00	6.30E-16
Rhenium (75)	Re-179	1.87E+04	3.71E-05	2.69E+01	3.57E+00	3.15E+00	1.58E-15
Rhenium (75)	Re-180	1.49E+05	4.64E-06	2.55E+01	.	2.55E+01	1.61E-15
Rhenium (75)	Re-181	3.05E+02	2.27E-03	3.82E+01	3.13E+00	2.89E+00	9.00E-14
Rhenium (75)	Re-182	9.49E+01	7.31E-03	1.71E+01	1.35E+00	1.25E+00	1.26E-13
Rhenium (75)	Re-182m	4.78E+02	1.45E-03	2.48E+01	7.81E+00	5.94E+00	1.19E-13
Rhenium (75)	Re-183	3.61E+00	1.92E-01	2.51E+02	5.08E-01	5.07E-01	1.35E-12
Rhenium (75)	Re-184	6.66E+00	1.04E-01	3.48E+01	7.78E-01	7.61E-01	1.10E-12
Rhenium (75)	Re-184m	1.50E+00	4.63E-01	2.99E+01	1.52E-01	1.51E-01	9.76E-13
Rhenium (75)	Re-186	6.80E+01	1.02E-02	1.39E+03	4.79E-04	4.79E-04	6.87E-17
Rhenium (75)	Re-186m	3.47E-06	2.00E+05	9.77E+02	4.72E-04	4.72E-04	1.33E-09
Rhenium (75)	Re-187	1.68E-11	4.12E+10	.	4.69E+01	4.69E+01	2.74E+01
Rhenium (75)	Re-188	3.57E+02	1.94E-03	4.22E+02	2.99E+00	2.97E+00	8.21E-14
Rhenium (75)	Re-188m	1.96E+04	3.54E-05	2.50E+02	2.92E+00	2.89E+00	1.45E-15
Rhenium (75)	Re-189	2.50E+02	2.77E-03	5.44E+02	3.95E+00	3.92E+00	1.55E-13
Rhenium (75)	Re-190	1.17E+05	5.90E-06	2.30E+01	.	2.30E+01	1.95E-15
Rhenium (75)	Re-190m	1.90E+03	3.65E-04	2.02E+01	8.20E+00	5.83E+00	3.06E-14
Rhodium (45)	Rh-100	2.92E+02	2.37E-03	1.05E+01	4.82E+00	3.30E+00	5.94E-14
Rhodium (45)	Rh-100m	7.92E+04	8.75E-06	1.05E+01	4.90E+00	3.35E+00	2.22E-16
Rhodium (45)	Rh-101	2.10E-01	3.30E+00	1.19E+02	3.60E-01	3.59E-01	9.05E-12
Rhodium (45)	Rh-101m	5.83E+01	1.19E-02	1.08E+02	3.37E+00	3.27E+00	2.97E-13
Rhodium (45)	Rh-102	1.22E+00	5.67E-01	6.20E+01	2.50E-01	2.49E-01	1.09E-12
Rhodium (45)	Rh-102m	1.85E-01	3.74E+00	1.42E+01	9.38E-02	9.32E-02	2.69E-12
Rhodium (45)	Rh-103m	6.49E+03	1.07E-04	2.47E+05	6.45E+02	6.43E+02	5.35E-13
Rhodium (45)	Rh-104	5.17E+05	1.34E-06	9.91E+02	.	9.91E+02	1.05E-14
Rhodium (45)	Rh-104m	8.39E+04	8.26E-06	6.00E+02	.	6.00E+02	3.90E-14
Rhodium (45)	Rh-105	1.72E+02	4.04E-03	4.00E+02	4.98E+00	4.91E+00	1.58E-13
Rhodium (45)	Rh-106	7.33E+05	9.45E-07	1.30E+02	.	1.30E+02	9.83E-16
Rhodium (45)	Rh-106m	2.78E+03	2.49E-04	1.05E+01	1.52E+01	6.21E+00	1.24E-14
Rhodium (45)	Rh-107	1.68E+04	4.13E-05	9.84E+01	2.95E+00	2.86E+00	9.57E-16
Rhodium (45)	Rh-108	1.30E+06	5.33E-07	8.62E+01	.	8.62E+01	3.75E-16
Rhodium (45)	Rh-109	2.73E+05	2.54E-06	9.76E+01	4.55E+00	4.34E+00	9.09E-17
Rhodium (45)	Rh-94	3.10E+05	2.24E-06	4.71E+00	1.59E+01	3.63E+00	5.79E-17
Rhodium (45)	Rh-95	7.26E+04	9.55E-06	6.50E+00	9.17E+00	3.80E+00	2.61E-16
Rhodium (45)	Rh-95m	1.86E+05	3.73E-06	5.74E+00	9.17E+00	3.53E+00	9.46E-17
Rhodium (45)	Rh-96	3.68E+04	1.88E-05	7.67E+00	.	7.67E+00	1.05E-15
Rhodium (45)	Rh-96m	2.41E+05	2.87E-06	8.22E+00	.	8.22E+00	1.72E-16



Composite Worker Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Rhodium (45)	Rh-97	1.19E+04	5.84E-05	1.83E+01	9.67E-01	9.18E-01	3.94E-16
Rhodium (45)	Rh-97m	7.88E+03	8.79E-05	1.16E+01	9.64E-01	8.90E-01	5.74E-16
Rhodium (45)	Rh-98	4.19E+04	1.66E-05	1.66E+01	.	1.66E+01	2.04E-15
Rhodium (45)	Rh-99	1.57E+01	4.41E-02	5.74E+01	1.42E+00	1.38E+00	4.57E-13
Rhodium (45)	Rh-99m	1.29E+03	5.37E-04	4.80E+01	4.07E+01	2.20E+01	8.86E-14
Radon (86)	Rn-207	3.94E+04	1.76E-05	5.30E+00	6.33E-02	6.25E-02	1.72E-17
Radon (86)	Rn-209	1.28E+04	5.42E-05	8.21E+00	2.46E-04	2.46E-04	2.11E-19
Radon (86)	Rn-210	2.53E+03	2.74E-04	7.02E+00	7.69E-03	7.68E-03	3.34E-17
Radon (86)	Rn-211	4.16E+02	1.67E-03	9.64E+00	1.70E-02	1.69E-02	4.50E-16
Radon (86)	Rn-212	1.52E+04	4.55E-05	7.21E+04	2.70E-04	2.70E-04	1.97E-19
Radon (86)	Rn-215	9.50E+12	7.29E-14	3.72E+03	.	3.72E+03	4.42E-21
Radon (86)	Rn-216	4.86E+11	1.43E-12	.	.	.	.
Radon (86)	Rn-217	4.05E+10	1.71E-11	1.36E+04	2.87E+01	2.86E+01	8.04E-21
Radon (86)	Rn-218	6.24E+08	1.11E-09	4.04E+03	1.84E-04	1.84E-04	3.37E-24
Radon (86)	Rn-219	5.52E+06	1.26E-07	1.67E+02	1.47E-01	1.47E-01	3.06E-19
Radon (86)	Rn-220	3.93E+05	1.76E-06	1.94E+01	1.64E-02	1.64E-02	4.81E-19
Radon (86)	Rn-222	6.62E+01	1.05E-02	1.68E+01	1.84E-04	1.84E-04	3.23E-17
Radon (86)	Rn-223	1.50E+04	4.62E-05	4.36E+01	2.12E-04	2.12E-04	1.66E-19
Ruthenium (44)	Ru-103	6.44E+00	1.08E-01	6.28E+01	6.34E-01	6.28E-01	5.26E-13
Ruthenium (44)	Ru-105	1.37E+03	5.07E-04	3.71E+01	3.15E+00	2.91E+00	1.17E-14
Ruthenium (44)	Ru-106	6.77E-01	1.02E+00	1.30E+02	2.77E-02	2.77E-02	2.27E-13
Ruthenium (44)	Ru-107	9.71E+04	7.13E-06	4.48E+01	2.95E+00	2.77E+00	1.60E-16
Ruthenium (44)	Ru-108	8.01E+04	8.66E-06	7.30E+01	.	7.30E+01	5.16E-15
Ruthenium (44)	Ru-92	9.98E+04	6.94E-06	5.08E+00	.	5.08E+00	2.45E-16
Ruthenium (44)	Ru-94	7.03E+03	9.86E-05	1.22E+01	1.59E+01	6.91E+00	4.84E-15
Ruthenium (44)	Ru-95	3.69E+03	1.88E-04	1.50E+01	9.17E+00	5.69E+00	7.67E-15
Ruthenium (44)	Ru-97	8.72E+01	7.95E-03	1.39E+02	9.80E-01	9.74E-01	5.68E-14
Sulfur (16)	S-35	2.89E+00	2.40E-01	4.52E+05	9.80E-01	9.80E-01	6.23E-13
Sulphur (16)	S-37	7.21E+04	9.61E-06	9.01E+00	.	9.01E+00	2.42E-16
Sulfur (16)	S-38	2.14E+03	3.24E-04	8.77E+00	4.88E+00	3.13E+00	2.92E-15
Antimony (51)	Sb-111	2.91E+05	2.38E-06	1.30E+01	6.62E+00	4.39E+00	8.76E-17
Antimony (51)	Sb-113	5.46E+04	1.27E-05	2.03E+01	4.57E-01	4.47E-01	4.85E-17
Antimony (51)	Sb-114	1.04E+05	6.64E-06	1.09E+01	.	1.09E+01	6.26E-16
Antimony (51)	Sb-115	1.13E+04	6.11E-05	3.52E+01	1.23E+02	2.74E+01	1.45E-14
Antimony (51)	Sb-116	2.31E+04	3.01E-05	1.29E+01	1.14E+02	1.15E+01	3.05E-15
Antimony (51)	Sb-116m	6.04E+03	1.15E-04	9.71E+00	3.54E+01	7.62E+00	7.67E-15
Antimony (51)	Sb-117	2.17E+03	3.20E-04	1.92E+02	9.57E+01	6.39E+01	1.81E-13
Antimony (51)	Sb-118	1.01E+05	6.85E-06	3.80E+01	.	3.80E+01	2.33E-15
Antimony (51)	Sb-118m	1.21E+03	5.71E-04	1.15E+01	1.33E+01	6.17E+00	3.14E-14
Antimony (51)	Sb-119	1.59E+02	4.36E-03	9.19E+03	4.19E+01	4.17E+01	1.64E-12

Composite Worker Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC	Inhalation DCC	Total DCC	Total DCC
				(no decay) DL=1 (Bq/m <sup>3</sup> )	(no decay) DL=1 (Bq/m <sup>3</sup> )	(no decay) DL=1 (Bq/m <sup>3</sup> )	(no decay) DL=1 (mg/m <sup>3</sup> )
Antimony (51)	Sb-120	2.29E+04	3.02E-05	6.94E+01	2.30E+02	5.33E+01	1.46E-14
Antimony (51)	Sb-120m	4.39E+01	1.58E-02	1.23E+01	1.57E+00	1.40E+00	2.00E-13
Antimony (51)	Sb-122	9.29E+01	7.46E-03	6.80E+01	1.52E+00	1.48E+00	1.02E-13
Antimony (51)	Sb-122m	8.69E+04	7.97E-06	6.26E+01	1.52E+00	1.48E+00	1.09E-16
Antimony (51)	Sb-124	4.20E+00	1.65E-01	1.58E+01	2.11E-01	2.08E-01	3.22E-13
Antimony (51)	Sb-124m	2.35E+05	2.95E-06	1.62E+01	2.81E-01	2.76E-01	7.64E-18
Antimony (51)	Sb-124n	1.80E+04	3.84E-05	1.62E+01	2.81E-01	2.76E-01	9.95E-17
Antimony (51)	Sb-125	2.51E-01	2.76E+00	7.28E+01	1.42E-01	1.42E-01	3.71E-12
Antimony (51)	Sb-126	2.05E+01	3.38E-02	1.11E+01	5.04E-01	4.82E-01	1.55E-13
Antimony (51)	Sb-126m	1.90E+04	3.64E-05	1.58E+01	3.45E+00	2.83E+00	9.84E-16
Antimony (51)	Sb-127	6.57E+01	1.05E-02	4.37E+01	4.76E-01	4.71E-01	4.77E-14
Antimony (51)	Sb-128	6.74E+02	1.03E-03	9.84E+00	3.80E+00	2.74E+00	2.73E-14
Antimony (51)	Sb-128m	3.50E+04	1.98E-05	1.50E+01	5.45E+01	1.18E+01	2.26E-15
Antimony (51)	Sb-129	1.38E+03	5.02E-04	1.94E+01	1.81E-02	1.81E-02	8.88E-17
Antimony (51)	Sb-130	9.22E+03	7.52E-05	9.19E+00	3.11E+01	7.09E+00	5.24E-15
Antimony (51)	Sb-130m	5.78E+04	1.20E-05	1.10E+01	.	1.10E+01	1.30E-15
Antimony (51)	Sb-131	1.58E+04	4.38E-05	9.99E+00	7.55E-02	7.49E-02	3.25E-17
Antimony (51)	Sb-133	1.46E+05	4.76E-06	6.15E+00	3.58E-01	3.38E-01	1.62E-17
Scandium (21)	Sc-42m	3.52E+05	1.97E-06	7.01E+00	.	7.01E+00	4.38E-17
Scandium (21)	Sc-43	1.56E+03	4.44E-04	3.15E+01	1.34E+01	9.41E+00	1.36E-14
Scandium (21)	Sc-44	1.53E+03	4.53E-04	1.41E+01	8.97E+00	5.48E+00	8.26E-15
Scandium (21)	Sc-44m	1.04E+02	6.69E-03	1.27E+01	1.07E+00	9.86E-01	2.20E-14
Scandium (21)	Sc-46	3.02E+00	2.30E-01	1.48E+01	2.68E-01	2.63E-01	2.10E-13
Scandium (21)	Sc-47	7.55E+01	9.18E-03	2.95E+02	2.46E+00	2.44E+00	7.97E-14
Scandium (21)	Sc-48	1.39E+02	4.99E-03	8.78E+00	1.54E+00	1.31E+00	2.37E-14
Scandium (21)	Sc-49	6.37E+03	1.09E-04	1.95E+03	4.28E+01	4.19E+01	1.69E-14
Scandium (21)	Sc-50	2.13E+05	3.25E-06	9.01E+00	.	9.01E+00	1.11E-16
Selenium (34)	Se-70	8.86E+03	7.82E-05	6.00E+00	1.19E+01	3.99E+00	1.65E-15
Selenium (34)	Se-71	7.68E+04	9.02E-06	1.39E+01	4.41E+00	3.35E+00	1.62E-16
Selenium (34)	Se-72	3.01E+01	2.30E-02	1.68E+01	3.77E-01	3.69E-01	4.63E-14
Selenium (34)	Se-73	8.49E+02	8.16E-04	2.88E+01	1.13E+00	1.09E+00	4.90E-15
Selenium (34)	Se-73m	9.15E+03	7.57E-05	2.96E+01	1.16E+00	1.11E+00	4.66E-16
Selenium (34)	Se-75	2.11E+00	3.28E-01	8.36E+01	1.37E+00	1.35E+00	2.51E-12
Selenium (34)	Se-77m	1.26E+06	5.50E-07	3.75E+02	.	3.75E+02	1.20E-15
Selenium (34)	Se-79	2.35E-06	2.95E+05	4.55E+05	2.95E-01	2.95E-01	5.20E-07
Selenium (34)	Se-79m	9.29E+04	7.46E-06	3.82E+03	2.95E-01	2.95E-01	1.32E-17
Selenium (34)	Se-81	1.97E+04	3.51E-05	1.70E+03	1.16E+02	1.09E+02	2.34E-14
Selenium (34)	Se-81m	6.36E+03	1.09E-04	1.01E+03	2.61E+01	2.55E+01	1.70E-14
Selenium (34)	Se-83	1.63E+04	4.24E-05	1.11E+01	1.99E+01	7.15E+00	1.91E-15
Selenium (34)	Se-83m	3.12E+05	2.22E-06	2.87E+01	3.31E+01	1.54E+01	2.15E-16

Composite Worker Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Selenium (34)	Se-84	1.17E+05	5.90E-06	1.29E+01	4.33E+01	9.92E+00	3.72E-16
Silicon (14)	Si-31	2.32E+03	2.99E-04	2.87E+03	2.15E+01	2.13E+01	1.50E-14
Silicon (14)	Si-32	5.25E-03	1.32E+02	2.54E+03	1.66E-02	1.66E-02	5.31E-12
Samarium (62)	Sm-139	1.42E+05	4.89E-06	9.92E+00	9.23E-01	8.44E-01	4.34E-17
Samarium (62)	Sm-140	2.46E+04	2.82E-05	1.40E+01	1.46E+00	1.32E+00	3.95E-16
Samarium (62)	Sm-141	3.57E+04	1.94E-05	1.38E+01	4.69E+01	1.06E+01	2.20E-15
Samarium (62)	Sm-141m	1.61E+04	4.30E-05	1.11E+01	3.19E+01	8.21E+00	3.77E-15
Samarium (62)	Sm-142	5.02E+03	1.38E-04	3.18E+01	2.25E+01	1.32E+01	1.95E-14
Samarium (62)	Sm-143	4.16E+04	1.66E-05	3.74E+01	6.12E-01	6.02E-01	1.08E-16
Samarium (62)	Sm-143m	3.31E+05	2.09E-06	2.04E+01	6.12E-01	5.94E-01	1.34E-17
Samarium (62)	Sm-145	7.44E-01	9.32E-01	7.80E+02	1.68E-01	1.68E-01	1.71E-12
Samarium (62)	Sm-146	6.73E-09	1.03E+08	.	7.49E-05	7.49E-05	8.52E-08
Samarium (62)	Sm-147	6.54E-12	1.06E+11	.	8.20E-05	8.20E-05	9.67E-05
Samarium (62)	Sm-148	9.90E-17	7.00E+15	.	4.87E-05	4.87E-05	3.82E+00
Samarium (62)	Sm-151	7.70E-03	9.00E+01	5.24E+07	2.03E-01	2.03E-01	2.09E-10
Samarium (62)	Sm-153	1.31E+02	5.31E-03	6.55E+02	2.53E+00	2.52E+00	1.55E-13
Samarium (62)	Sm-155	1.63E+04	4.24E-05	2.10E+02	3.06E-01	3.06E-01	1.52E-16
Samarium (62)	Sm-156	6.46E+02	1.07E-03	2.16E+01	4.27E-01	4.18E-01	5.30E-15
Samarium (62)	Sm-157	4.54E+04	1.53E-05	4.42E+01	5.26E+00	4.70E+00	8.54E-16
Tin (50)	Sn-106	1.90E+05	3.65E-06	7.34E+00	.	7.34E+00	2.15E-16
Tin (50)	Sn-108	3.54E+04	1.96E-05	8.43E+00	3.37E+01	6.75E+00	1.08E-15
Tin (50)	Sn-109	2.02E+04	3.42E-05	9.80E+00	2.87E-01	2.79E-01	7.88E-17
Tin (50)	Sn-110	1.48E+03	4.69E-04	1.64E+01	7.57E+00	5.18E+00	2.02E-14
Tin (50)	Sn-111	1.03E+04	6.72E-05	3.55E+01	6.62E+00	5.58E+00	3.15E-15
Tin (50)	Sn-113	2.20E+00	3.15E-01	1.19E+02	4.48E-01	4.46E-01	1.20E-12
Tin (50)	Sn-113m	1.70E+04	4.07E-05	1.30E+02	4.91E-01	4.89E-01	1.70E-16
Tin (50)	Sn-117m	1.84E+01	3.77E-02	2.26E+02	6.45E-01	6.43E-01	2.15E-13
Tin (50)	Sn-119m	8.63E-01	8.03E-01	1.50E+04	5.28E-01	5.28E-01	3.82E-12
Tin (50)	Sn-121	2.25E+02	3.09E-03	3.49E+04	7.04E+00	7.04E+00	1.99E-13
Tin (50)	Sn-121m	1.58E-02	4.39E+01	1.65E+04	1.24E-01	1.24E-01	4.99E-11
Tin (50)	Sn-123	1.96E+00	3.54E-01	1.98E+03	1.41E-01	1.41E-01	4.64E-13
Tin (50)	Sn-123m	9.09E+03	7.62E-05	2.24E+02	6.01E+01	4.73E+01	3.36E-14
Tin (50)	Sn-125	2.62E+01	2.64E-02	3.91E+01	1.11E-01	1.11E-01	2.77E-14
Tin (50)	Sn-125m	3.83E+04	1.81E-05	3.96E+01	1.42E-01	1.42E-01	2.43E-17
Tin (50)	Sn-126	3.01E-06	2.30E+05	1.55E+01	1.20E-02	1.20E-02	2.63E-08
Tin (50)	Sn-127	2.89E+03	2.40E-04	1.14E+01	4.58E-01	4.40E-01	1.01E-15
Tin (50)	Sn-127m	8.82E+04	7.86E-06	2.37E+01	4.76E-01	4.66E-01	3.52E-17
Tin (50)	Sn-128	6.17E+03	1.12E-04	1.18E+01	1.33E+01	6.25E+00	6.80E-15
Tin (50)	Sn-129	1.63E+05	4.24E-06	1.16E+01	1.81E-02	1.81E-02	7.50E-19
Tin (50)	Sn-130	9.79E+04	7.08E-06	8.28E+00	.	8.28E+00	5.77E-16



Composite Worker Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Tin (50)	Sn-130m	2.14E+05	3.23E-06	7.32E+00	3.61E+01	6.09E+00	1.94E-16
Strontium (38)	Sr-79	1.62E+05	4.28E-06	1.07E+01	5.85E+01	9.02E+00	2.31E-16
Strontium (38)	Sr-80	3.43E+03	2.02E-04	1.86E+01	1.05E+01	6.70E+00	8.20E-15
Strontium (38)	Sr-81	1.63E+04	4.24E-05	1.53E+01	1.63E+01	7.91E+00	2.06E-15
Strontium (38)	Sr-82	9.97E+00	6.95E-02	2.73E+01	1.64E-01	1.63E-01	7.03E-14
Strontium (38)	Sr-83	1.87E+02	3.70E-03	2.37E+01	1.01E+00	9.66E-01	2.24E-14
Strontium (38)	Sr-85	3.90E+00	1.78E-01	6.34E+01	2.17E+00	2.10E+00	2.40E-12
Strontium (38)	Sr-85m	5.39E+03	1.29E-04	4.89E+01	2.49E+00	2.37E+00	1.96E-15
Strontium (38)	Sr-87m	2.16E+03	3.21E-04	9.84E+01	2.64E+01	2.08E+01	4.41E-14
Strontium (38)	Sr-89	5.01E+00	1.38E-01	3.16E+03	2.27E-01	2.26E-01	2.11E-13
Strontium (38)	Sr-90	2.41E-02	2.88E+01	1.56E+03	1.21E-02	1.21E-02	2.37E-12
Strontium (38)	Sr-91	6.30E+02	1.10E-03	2.92E+01	1.92E-01	1.91E-01	1.44E-15
Strontium (38)	Sr-92	2.28E+03	3.04E-04	1.80E+01	4.12E+00	3.35E+00	7.09E-15
Strontium (38)	Sr-93	4.91E+04	1.41E-05	1.23E+01	8.14E-02	8.09E-02	8.04E-18
Strontium (38)	Sr-94	2.90E+05	2.39E-06	1.29E+01	6.08E+01	1.07E+01	1.81E-16
Tantalum (73)	Ta-170	5.39E+04	1.29E-05	7.23E+00	1.82E+00	1.45E+00	2.41E-16
Tantalum (73)	Ta-172	9.90E+03	7.00E-05	8.12E+00	6.89E-02	6.83E-02	6.22E-17
Tantalum (73)	Ta-173	1.93E+03	3.58E-04	2.88E+01	4.73E-01	4.66E-01	2.18E-15
Tantalum (73)	Ta-174	5.33E+03	1.30E-04	3.11E+01	3.77E-04	3.77E-04	6.47E-19
Tantalum (73)	Ta-175	5.78E+02	1.20E-03	2.12E+01	1.16E+00	1.10E+00	1.74E-14
Tantalum (73)	Ta-176	7.50E+02	9.24E-04	1.30E+01	8.30E+00	5.06E+00	6.23E-14
Tantalum (73)	Ta-177	1.07E+02	6.46E-03	6.40E+02	1.64E+01	1.60E+01	1.38E-12
Tantalum (73)	Ta-178	3.91E+04	1.77E-05	2.94E+02	.	2.94E+02	7.02E-14
Tantalum (73)	Ta-178m	2.57E+03	2.69E-04	2.83E+01	2.23E+01	1.25E+01	4.53E-14
Tantalum (73)	Ta-179	3.81E-01	1.82E+00	1.99E+03	3.66E+00	3.66E+00	9.01E-11
Tantalum (73)	Ta-180	7.45E+02	9.31E-04	9.77E+02	3.96E+01	3.81E+01	4.82E-13
Tantalum (73)	Ta-182	2.21E+00	3.14E-01	2.32E+01	1.75E-01	1.74E-01	7.52E-13
Tantalum (73)	Ta-182m	2.30E+04	3.01E-05	1.97E+01	1.75E-01	1.74E-01	7.20E-17
Tantalum (73)	Ta-183	4.96E+01	1.40E-02	1.16E+02	8.00E-01	7.95E-01	1.54E-13
Tantalum (73)	Ta-184	6.98E+02	9.93E-04	1.96E+01	3.92E+00	3.27E+00	4.52E-14
Tantalum (73)	Ta-185	7.37E+03	9.40E-05	2.06E+02	4.65E-01	4.64E-01	6.11E-16
Tantalum (73)	Ta-186	3.47E+04	2.00E-05	2.16E+01	9.35E+01	1.75E+01	4.93E-15
Terbium (65)	Tb-146	9.50E+05	7.29E-07	4.73E+00	7.49E-05	7.49E-05	6.03E-22
Terbium (65)	Tb-147	3.70E+03	1.87E-04	7.49E+00	8.20E-05	8.20E-05	1.71E-19
Terbium (65)	Tb-147m	1.95E+05	3.56E-06	7.96E+00	8.20E-05	8.20E-05	3.24E-21
Terbium (65)	Tb-148	6.07E+03	1.14E-04	1.25E+01	3.02E-04	3.02E-04	3.86E-19
Terbium (65)	Tb-148m	1.66E+05	4.19E-06	9.77E+00	3.02E-04	3.02E-04	1.41E-20
Terbium (65)	Tb-149	1.47E+03	4.70E-04	1.49E+01	2.43E-01	2.39E-01	1.27E-15
Terbium (65)	Tb-149m	8.76E+04	7.91E-06	1.61E+01	1.30E+00	1.20E+00	1.07E-16
Terbium (65)	Tb-150	1.74E+03	3.97E-04	1.19E+01	6.18E-05	6.18E-05	2.79E-19



Composite Worker Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Terbium (65)	Tb-150m	6.28E+04	1.10E-05	1.24E+01	6.18E-05	6.18E-05	7.74E-21
Terbium (65)	Tb-151	3.45E+02	2.01E-03	3.05E+01	5.10E-01	5.01E-01	1.15E-14
Terbium (65)	Tb-151m	8.74E+05	7.93E-07	3.02E+01	5.33E-01	5.24E-01	4.75E-18
Terbium (65)	Tb-152	3.47E+02	2.00E-03	1.99E+01	3.27E-05	3.27E-05	7.51E-19
Terbium (65)	Tb-152m	8.67E+04	7.99E-06	1.58E+01	3.27E-05	3.27E-05	3.00E-21
Terbium (65)	Tb-153	1.08E+02	6.41E-03	8.36E+01	6.86E-01	6.81E-01	5.05E-14
Terbium (65)	Tb-154	2.82E+02	2.45E-03	1.25E+01	4.65E+00	3.39E+00	9.70E-14
Terbium (65)	Tb-155	4.75E+01	1.46E-02	2.20E+02	5.71E+00	5.57E+00	9.52E-13
Terbium (65)	Tb-156	4.73E+01	1.47E-02	1.56E+01	1.39E+00	1.28E+00	2.21E-13
Terbium (65)	Tb-156m	2.49E+02	2.79E-03	1.55E+01	1.20E+00	1.11E+00	3.65E-14
Terbium (65)	Tb-156n	1.15E+03	6.05E-04	1.56E+01	1.28E+00	1.18E+00	8.42E-15
Terbium (65)	Tb-157	9.76E-03	7.10E+01	1.41E+04	5.85E-01	5.85E-01	4.93E-10
Terbium (65)	Tb-158	3.85E-03	1.80E+02	3.84E+01	1.82E-02	1.82E-02	3.91E-11
Terbium (65)	Tb-160	3.50E+00	1.98E-01	2.67E+01	2.18E-01	2.16E-01	5.19E-13
Terbium (65)	Tb-161	3.66E+01	1.89E-02	1.52E+03	1.26E+00	1.26E+00	2.90E-13
Terbium (65)	Tb-162	4.79E+04	1.45E-05	2.75E+01	.	2.75E+01	4.88E-15
Terbium (65)	Tb-163	1.87E+04	3.71E-05	3.95E+01	9.85E+01	2.82E+01	1.29E-14
Terbium (65)	Tb-164	1.21E+05	5.71E-06	1.22E+01	.	1.22E+01	8.62E-16
Terbium (65)	Tb-165	1.73E+05	4.01E-06	3.27E+01	2.71E+01	1.48E+01	7.44E-16
Technetium (43)	Tc-101	2.57E+04	2.70E-05	9.13E+01	1.39E+02	5.51E+01	1.14E-14
Technetium (43)	Tc-102	4.14E+06	1.67E-07	2.37E+02	.	2.37E+02	3.07E-16
Technetium (43)	Tc-102m	8.37E+04	8.28E-06	1.18E+01	.	1.18E+01	7.51E-16
Technetium (43)	Tc-104	1.99E+04	3.48E-05	1.26E+01	5.63E+01	1.03E+01	2.82E-15
Technetium (43)	Tc-105	4.79E+04	1.45E-05	1.85E+01	3.15E+00	2.69E+00	3.10E-16
Technetium (43)	Tc-91	1.16E+05	5.97E-06	8.39E+00	9.94E-01	8.89E-01	3.66E-17
Technetium (43)	Tc-91m	1.10E+05	6.28E-06	9.08E+00	4.77E-01	4.54E-01	1.96E-17
Technetium (43)	Tc-92	8.57E+04	8.09E-06	7.75E+00	.	7.75E+00	4.37E-16
Technetium (43)	Tc-93	2.21E+03	3.14E-04	1.86E+01	4.70E-01	4.58E-01	1.01E-15
Technetium (43)	Tc-93m	8.37E+03	8.28E-05	1.34E+01	4.69E-01	4.53E-01	2.64E-16
Technetium (43)	Tc-94	1.24E+03	5.57E-04	1.15E+01	1.28E+01	6.05E+00	2.40E-14
Technetium (43)	Tc-94m	7.00E+03	9.89E-05	1.52E+01	3.57E+01	1.07E+01	7.51E-15
Technetium (43)	Tc-95	3.04E+02	2.28E-03	3.87E+01	1.50E+01	1.08E+01	1.78E-13
Technetium (43)	Tc-95m	4.15E+00	1.67E-01	4.34E+01	1.47E+00	1.42E+00	1.70E-12
Technetium (43)	Tc-96	5.91E+01	1.17E-02	1.22E+01	2.36E+00	1.97E+00	1.68E-13
Technetium (43)	Tc-96m	7.07E+03	9.80E-05	1.22E+01	2.38E+00	1.99E+00	1.42E-15
Technetium (43)	Tc-97	2.67E-07	2.60E+06	6.28E+04	1.05E+00	1.05E+00	2.01E-05
Technetium (43)	Tc-97m	2.81E+00	2.47E-01	2.36E+04	3.10E-01	3.10E-01	5.61E-13
Technetium (43)	Tc-98	1.65E-07	4.20E+06	2.17E+01	4.47E-02	4.47E-02	1.39E-06
Technetium (43)	Tc-99	3.28E-06	2.11E+05	4.82E+04	1.41E-01	1.41E-01	2.23E-07
Technetium (43)	Tc-99m	1.01E+03	6.87E-04	2.62E+02	1.41E-01	1.41E-01	7.23E-16

Composite Worker Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Tellurium (52)	Te-113	2.14E+05	3.23E-06	8.00E+00	4.57E-01	4.32E-01	1.20E-17
Tellurium (52)	Te-114	2.40E+04	2.89E-05	7.45E+00	5.24E+01	6.53E+00	1.63E-15
Tellurium (52)	Te-115	6.28E+04	1.10E-05	9.61E+00	1.23E+02	8.91E+00	8.56E-16
Tellurium (52)	Te-115m	5.44E+04	1.27E-05	8.60E+00	1.23E+02	8.04E+00	8.92E-16
Tellurium (52)	Te-116	2.44E+03	2.84E-04	1.24E+01	1.19E+01	6.09E+00	1.52E-14
Tellurium (52)	Te-117	5.87E+03	1.18E-04	1.74E+01	3.66E+01	1.18E+01	1.23E-14
Tellurium (52)	Te-118	4.22E+01	1.64E-02	3.79E+01	6.78E-01	6.66E-01	9.78E-14
Tellurium (52)	Te-119	3.78E+02	1.83E-03	4.03E+01	1.11E+01	8.72E+00	1.44E-13
Tellurium (52)	Te-119m	5.38E+01	1.29E-02	1.99E+01	2.57E+00	2.27E+00	2.63E-13
Tellurium (52)	Te-121	1.32E+01	5.25E-02	5.53E+01	3.06E+00	2.90E+00	1.39E-12
Tellurium (52)	Te-121m	1.64E+00	4.22E-01	4.44E+01	2.89E-01	2.87E-01	1.11E-12
Tellurium (52)	Te-123	1.16E-15	6.00E+14	5.28E+06	5.09E-01	5.09E-01	2.84E+03
Tellurium (52)	Te-123m	2.12E+00	3.27E-01	2.39E+02	2.11E-01	2.11E-01	6.41E-13
Tellurium (52)	Te-125m	4.41E+00	1.57E-01	4.13E+03	4.43E-01	4.43E-01	6.60E-13
Tellurium (52)	Te-127	6.49E+02	1.07E-03	4.14E+03	1.20E+01	1.20E+01	1.23E-13
Tellurium (52)	Te-127m	2.32E+00	2.99E-01	3.16E+03	1.82E-01	1.82E-01	5.24E-13
Tellurium (52)	Te-129	5.23E+03	1.32E-04	4.24E+02	1.85E-02	1.85E-02	2.39E-17
Tellurium (52)	Te-129m	7.53E+00	9.21E-02	3.71E+02	1.71E-02	1.71E-02	1.54E-14
Tellurium (52)	Te-131	1.46E+04	4.76E-05	3.83E+01	7.64E-02	7.62E-02	3.59E-17
Tellurium (52)	Te-131m	2.02E+02	3.42E-03	1.57E+01	6.84E-02	6.81E-02	2.31E-15
Tellurium (52)	Te-132	7.89E+01	8.78E-03	1.22E+01	2.86E-01	2.79E-01	2.45E-14
Tellurium (52)	Te-133	2.91E+04	2.38E-05	1.62E+01	3.60E-01	3.52E-01	8.43E-17
Tellurium (52)	Te-133m	6.57E+03	1.05E-04	1.11E+01	3.46E-01	3.36E-01	3.56E-16
Tellurium (52)	Te-134	8.71E+03	7.95E-05	8.69E+00	7.72E+00	4.09E+00	3.30E-15
Thorium (90)	Th-223	3.64E+07	1.90E-08	1.32E+02	.	1.32E+02	4.23E-17
Thorium (90)	Th-224	2.08E+07	3.33E-08	1.17E+03	.	1.17E+03	6.63E-16
Thorium (90)	Th-226	1.19E+04	5.82E-05	1.30E+03	1.83E-04	1.83E-04	1.82E-19
Thorium (90)	Th-227	1.35E+01	5.12E-02	7.20E+01	9.71E-05	9.71E-05	8.53E-17
Thorium (90)	Th-228	3.63E-01	1.91E+00	1.92E+01	4.23E-05	4.23E-05	1.40E-15
Thorium (90)	Th-229	9.44E-05	7.34E+03	1.02E+02	2.15E-05	2.15E-05	2.73E-12
Thorium (90)	Th-230	9.19E-06	7.54E+04	1.67E+01	1.60E-05	1.60E-05	2.10E-11
Thorium (90)	Th-231	2.38E+02	2.91E-03	6.56E+01	6.32E-06	6.32E-06	3.22E-19
Thorium (90)	Th-232	4.93E-11	1.41E+10	1.24E+01	2.22E-05	2.22E-05	5.48E-06
Thorium (90)	Th-233	1.63E+04	4.24E-05	5.63E+01	1.93E-05	1.93E-05	1.45E-20
Thorium (90)	Th-234	1.05E+01	6.60E-02	1.64E+01	1.48E-05	1.48E-05	1.73E-17
Thorium (90)	Th-235	5.13E+04	1.35E-05	4.44E+01	6.14E-06	6.14E-06	1.48E-21
Thorium (90)	Th-236	9.71E+03	7.13E-05	8.81E+00	2.01E-05	2.01E-05	2.57E-20
Titanium (22)	Ti-44	1.16E-02	6.00E+01	1.34E+01	1.50E-02	1.50E-02	3.00E-12
Titanium (22)	Ti-45	1.97E+03	3.52E-04	3.56E+01	1.80E+01	1.20E+01	1.43E-14
Titanium (22)	Ti-51	6.32E+04	1.10E-05	8.12E+01	.	8.12E+01	3.43E-15

Composite Worker Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Titanium (22)	Ti-52	2.14E+05	3.23E-06	1.82E+01	.	1.82E+01	2.32E-16
Thallium (81)	Tl-190	1.40E+05	4.95E-06	7.58E+00	1.98E-04	1.98E-04	1.41E-20
Thallium (81)	Tl-190m	9.84E+04	7.04E-06	5.91E+00	1.98E-04	1.98E-04	2.01E-20
Thallium (81)	Tl-194	1.10E+04	6.28E-05	1.56E+01	8.03E-02	7.99E-02	7.37E-17
Thallium (81)	Tl-194m	1.11E+04	6.24E-05	8.62E+00	8.03E-02	7.95E-02	7.29E-17
Thallium (81)	Tl-195	5.23E+03	1.32E-04	2.03E+01	5.42E-01	5.28E-01	1.03E-15
Thallium (81)	Tl-196	3.30E+03	2.10E-04	1.58E+01	4.26E+01	1.15E+01	3.59E-14
Thallium (81)	Tl-197	2.14E+03	3.24E-04	6.14E+01	3.92E-01	3.89E-01	1.88E-15
Thallium (81)	Tl-198	1.15E+03	6.05E-04	1.46E+01	2.19E+01	8.76E+00	7.95E-14
Thallium (81)	Tl-198m	3.25E+03	2.13E-04	1.43E+01	1.63E+01	7.60E+00	2.43E-14
Thallium (81)	Tl-199	8.18E+02	8.47E-04	1.35E+02	3.44E+01	2.74E+01	3.50E-13
Thallium (81)	Tl-200	2.33E+02	2.98E-03	2.32E+01	9.35E+00	6.66E+00	3.00E-13
Thallium (81)	Tl-201	8.33E+01	8.32E-03	4.26E+02	9.09E+00	8.90E+00	1.13E-12
Thallium (81)	Tl-202	2.07E+01	3.35E-02	6.97E+01	4.36E+00	4.10E+00	2.10E-12
Thallium (81)	Tl-204	1.83E-01	3.78E+00	7.93E+03	9.76E-02	9.76E-02	5.69E-12
Thallium (81)	Tl-206	8.67E+04	7.99E-06	3.50E+03	.	3.50E+03	4.36E-13
Thallium (81)	Tl-206m	9.74E+04	7.12E-06	1.27E+01	.	1.27E+01	1.41E-15
Thallium (81)	Tl-207	7.64E+04	9.08E-06	3.01E+03	.	3.01E+03	4.28E-13
Thallium (81)	Tl-208	1.19E+05	5.81E-06	8.26E+00	.	8.26E+00	7.55E-16
Thallium (81)	Tl-209	1.69E+05	4.11E-06	1.36E+01	2.87E+01	9.22E+00	6.00E-16
Thallium (81)	Tl-210	2.80E+05	2.47E-06	1.05E+01	1.84E-04	1.84E-04	7.24E-21
Thulium (69)	Tm-161	1.21E+04	5.75E-05	1.32E+01	1.93E+01	7.85E+00	5.49E-15
Thulium (69)	Tm-162	1.68E+04	4.13E-05	1.52E+01	8.33E+01	1.28E+01	6.50E-15
Thulium (69)	Tm-163	3.35E+03	2.07E-04	2.26E+01	6.08E+00	4.79E+00	1.22E-14
Thulium (69)	Tm-164	1.82E+05	3.81E-06	3.89E+01	.	3.89E+01	1.84E-15
Thulium (69)	Tm-165	2.02E+02	3.43E-03	5.57E+01	7.03E+00	6.24E+00	2.68E-13
Thulium (69)	Tm-166	7.88E+02	8.79E-04	1.49E+01	9.17E+00	5.68E+00	6.27E-14
Thulium (69)	Tm-167	2.73E+01	2.53E-02	2.53E+02	1.36E+00	1.35E+00	4.33E-13
Thulium (69)	Tm-168	2.72E+00	2.55E-01	2.52E+01	3.57E-01	3.52E-01	1.14E-12
Thulium (69)	Tm-170	1.97E+00	3.52E-01	4.27E+03	1.98E-01	1.98E-01	8.98E-13
Thulium (69)	Tm-171	3.61E-01	1.92E+00	8.16E+04	1.44E+00	1.44E+00	3.57E-11
Thulium (69)	Tm-172	9.55E+01	7.26E-03	6.06E+01	1.41E+00	1.38E+00	1.30E-13
Thulium (69)	Tm-173	7.37E+02	9.41E-04	8.07E+01	8.89E+00	8.01E+00	9.86E-14
Thulium (69)	Tm-174	6.75E+04	1.03E-05	1.72E+01	.	1.72E+01	2.33E-15
Thulium (69)	Tm-175	2.40E+04	2.89E-05	2.70E+01	2.40E+00	2.20E+00	8.44E-16
Thulium (69)	Tm-176	1.97E+05	3.52E-06	1.48E+01	.	1.48E+01	6.93E-16
Uranium (92)	U-227	3.31E+05	2.09E-06	9.03E+01	.	9.03E+01	3.25E-15
Uranium (92)	U-228	4.00E+04	1.73E-05	1.06E+03	.	1.06E+03	3.16E-13
Uranium (92)	U-230	1.22E+01	5.70E-02	1.25E+03	7.01E-05	7.01E-05	6.95E-17
Uranium (92)	U-231	6.02E+01	1.15E-02	5.94E+01	6.32E-06	6.32E-06	1.27E-18

Composite Worker Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Uranium (92)	U-232	1.01E-02	6.89E+01	1.92E+01	2.32E-05	2.32E-05	2.81E-14
Uranium (92)	U-233	4.35E-06	1.59E+05	1.02E+02	1.93E-05	1.93E-05	5.43E-11
Uranium (92)	U-234	2.82E-06	2.46E+05	1.67E+01	1.48E-05	1.48E-05	6.43E-11
Uranium (92)	U-235	9.84E-10	7.04E+08	4.95E+01	6.14E-06	6.14E-06	7.69E-08
Uranium (92)	U-235m	1.40E+04	4.95E-05	4.95E+01	6.14E-06	6.14E-06	5.40E-21
Uranium (92)	U-236	2.96E-08	2.34E+07	1.24E+01	2.01E-05	2.01E-05	8.42E-09
Uranium (92)	U-237	3.75E+01	1.85E-02	4.79E+01	1.72E-05	1.72E-05	5.72E-18
Uranium (92)	U-238	1.55E-10	4.47E+09	1.64E+01	1.39E-05	1.39E-05	1.12E-06
Uranium (92)	U-239	1.55E+04	4.46E-05	3.70E+01	4.48E-06	4.48E-06	3.61E-21
Uranium (92)	U-240	4.31E+02	1.61E-03	1.09E+01	9.08E-06	9.08E-06	2.65E-19
Uranium (92)	U-242	2.17E+04	3.20E-05	1.39E+01	7.72E-06	7.72E-06	4.52E-21
Vanadium (23)	V-47	1.12E+04	6.20E-05	3.08E+01	5.46E+01	1.97E+01	4.35E-15
Vanadium (23)	V-48	1.58E+01	4.38E-02	1.02E+01	6.47E-01	6.09E-01	9.68E-14
Vanadium (23)	V-49	7.67E-01	9.04E-01	.	2.51E+01	2.51E+01	8.41E-11
Vanadium (23)	V-50	4.62E-18	1.50E+17	2.02E+01	2.99E-02	2.99E-02	1.69E+04
Vanadium (23)	V-52	9.73E+04	7.12E-06	1.97E+01	.	1.97E+01	5.52E-16
Vanadium (23)	V-53	2.26E+05	3.06E-06	2.82E+01	.	2.82E+01	3.46E-16
Tungsten (74)	W-177	2.76E+03	2.51E-04	3.30E+01	1.15E+01	8.52E+00	2.87E-14
Tungsten (74)	W-178	1.17E+01	5.92E-02	2.69E+02	2.15E+00	2.14E+00	1.70E-12
Tungsten (74)	W-179	9.83E+03	7.05E-05	6.47E+02	3.65E+00	3.63E+00	3.47E-15
Tungsten (74)	W-179m	5.69E+04	1.22E-05	3.36E+02	3.65E+00	3.61E+00	5.96E-16
Tungsten (74)	W-181	2.09E+00	3.32E-01	1.21E+03	6.15E+00	6.12E+00	2.78E-11
Tungsten (74)	W-185	3.37E+00	2.06E-01	2.80E+04	4.72E-01	4.72E-01	1.36E-12
Tungsten (74)	W-185m	2.28E+05	3.04E-06	1.41E+03	4.72E-01	4.72E-01	2.01E-17
Tungsten (74)	W-187	2.56E+02	2.71E-03	6.94E+01	3.81E+00	3.61E+00	1.38E-13
Tungsten (74)	W-188	3.62E+00	1.91E-01	4.08E+02	1.12E-01	1.12E-01	3.04E-13
Tungsten (74)	W-190	1.21E+04	5.71E-05	2.10E+01	2.34E+01	1.11E+01	9.08E-15
Xenon (54)	Xe-120	9.11E+03	7.61E-05	9.61E+00	6.17E+00	3.76E+00	2.60E-15
Xenon (54)	Xe-121	9.08E+03	7.63E-05	1.24E+01	2.61E+00	2.16E+00	1.51E-15
Xenon (54)	Xe-122	3.02E+02	2.29E-03	3.01E+01	.	3.01E+01	6.38E-13
Xenon (54)	Xe-123	2.92E+03	2.37E-04	3.96E+01	4.74E-01	4.69E-01	1.04E-15
Xenon (54)	Xe-125	3.59E+02	1.93E-03	1.24E+02	1.21E-01	1.21E-01	2.21E-15
Xenon (54)	Xe-127	6.95E+00	9.97E-02	1.23E+02	.	1.23E+02	1.18E-10
Xenon (54)	Xe-127m	3.16E+05	2.19E-06	7.77E+01	.	7.77E+01	1.64E-15
Xenon (54)	Xe-129m	2.85E+01	2.43E-02	1.51E+03	.	1.51E+03	3.59E-10
Xenon (54)	Xe-131m	2.14E+01	3.24E-02	3.89E+03	.	3.89E+03	1.25E-09
Xenon (54)	Xe-133	4.82E+01	1.44E-02	1.01E+03	.	1.01E+03	1.46E-10
Xenon (54)	Xe-133m	1.16E+02	6.00E-03	5.22E+02	.	5.22E+02	3.15E-11
Xenon (54)	Xe-135	6.64E+02	1.04E-03	1.26E+02	1.60E-01	1.60E-01	1.70E-15
Xenon (54)	Xe-135m	2.38E+04	2.91E-05	4.65E+01	1.60E-01	1.59E-01	4.74E-17



Composite Worker Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Xenon (54)	Xe-137	9.54E+04	7.26E-06	3.87E+01	4.80E-02	4.79E-02	3.61E-18
Xenon (54)	Xe-138	2.59E+04	2.68E-05	8.18E+00	3.70E+01	6.70E+00	1.87E-15
Yttrium (39)	Y-81	3.10E+05	2.23E-06	9.64E+00	1.63E+01	6.06E+00	8.30E-17
Yttrium (39)	Y-83	5.14E+04	1.35E-05	1.15E+01	1.01E+00	9.26E-01	7.83E-17
Yttrium (39)	Y-83m	1.28E+05	5.42E-06	1.15E+01	1.01E+00	9.25E-01	3.15E-17
Yttrium (39)	Y-84m	9.22E+03	7.52E-05	7.54E+00	2.67E+01	5.88E+00	2.81E-15
Yttrium (39)	Y-85	2.27E+03	3.06E-04	1.81E+01	2.17E+00	1.94E+00	3.82E-15
Yttrium (39)	Y-85m	1.25E+03	5.55E-04	1.65E+01	1.78E+00	1.61E+00	5.75E-15
Yttrium (39)	Y-86	4.12E+02	1.68E-03	8.26E+00	3.51E+00	2.47E+00	2.70E-14
Yttrium (39)	Y-86m	7.59E+03	9.13E-05	7.87E+00	3.34E+00	2.34E+00	1.39E-15
Yttrium (39)	Y-87	7.61E+01	9.11E-03	4.14E+01	3.71E+00	3.40E+00	2.04E-13
Yttrium (39)	Y-87m	4.54E+02	1.53E-03	2.99E+01	2.87E+00	2.62E+00	2.63E-14
Yttrium (39)	Y-88	2.37E+00	2.92E-01	1.07E+01	2.90E-01	2.83E-01	5.50E-13
Yttrium (39)	Y-89m	1.40E+06	4.97E-07	3.34E+01	.	3.34E+01	1.12E-16
Yttrium (39)	Y-90	9.47E+01	7.32E-03	1.75E+03	1.13E+00	1.13E+00	5.63E-14
Yttrium (39)	Y-90m	1.90E+03	3.64E-04	4.82E+01	1.06E+00	1.04E+00	2.57E-15
Yttrium (39)	Y-91	4.32E+00	1.60E-01	2.31E+03	2.02E-01	2.02E-01	2.23E-13
Yttrium (39)	Y-91m	7.33E+03	9.46E-05	5.74E+01	2.02E-01	2.01E-01	1.31E-16
Yttrium (39)	Y-92	1.71E+03	4.04E-04	1.05E+02	9.30E+00	8.55E+00	2.40E-14
Yttrium (39)	Y-93	5.96E+02	1.16E-03	2.46E+02	8.14E-02	8.14E-02	6.66E-16
Yttrium (39)	Y-94	1.95E+04	3.56E-05	3.63E+01	6.08E+01	2.27E+01	5.76E-15
Yttrium (39)	Y-95	3.54E+04	1.96E-05	1.11E+01	2.37E-01	2.32E-01	3.27E-17
Ytterbium (70)	Yb-162	1.93E+04	3.59E-05	1.37E+01	4.45E+01	1.05E+01	4.61E-15
Ytterbium (70)	Yb-163	3.30E+04	2.10E-05	1.47E+01	5.90E+00	4.21E+00	1.09E-15
Ytterbium (70)	Yb-164	4.81E+03	1.44E-04	3.72E+01	3.77E+01	1.87E+01	3.35E-14
Ytterbium (70)	Yb-165	3.68E+04	1.88E-05	3.60E+01	7.03E+00	5.88E+00	1.38E-15
Ytterbium (70)	Yb-166	1.07E+02	6.47E-03	1.46E+01	1.81E+00	1.61E+00	1.31E-13
Ytterbium (70)	Yb-167	2.08E+04	3.33E-05	9.23E+01	1.35E+00	1.33E+00	5.61E-16
Ytterbium (70)	Yb-169	7.90E+00	8.77E-02	1.17E+02	5.32E-01	5.30E-01	5.94E-13
Ytterbium (70)	Yb-175	6.04E+01	1.15E-02	8.02E+02	2.47E+00	2.46E+00	3.73E-13
Ytterbium (70)	Yb-177	3.18E+03	2.18E-04	1.31E+02	1.42E+00	1.41E+00	4.12E-15
Ytterbium (70)	Yb-178	4.92E+03	1.41E-04	1.69E+02	1.73E+01	1.57E+01	2.97E-14
Ytterbium (70)	Yb-179	4.55E+04	1.52E-05	3.04E+01	1.54E+01	1.02E+01	2.11E-15
Zinc (30)	Zn-60	1.53E+05	4.53E-06	5.40E+00	4.74E+01	4.85E+00	9.96E-17
Zinc (30)	Zn-61	2.45E+05	2.83E-06	1.27E+01	2.22E+01	8.07E+00	1.05E-16
Zinc (30)	Zn-62	6.61E+02	1.05E-03	2.12E+01	3.04E+00	2.66E+00	1.31E-14
Zinc (30)	Zn-63	9.47E+03	7.32E-05	2.78E+01	4.51E+01	1.72E+01	6.01E-15
Zinc (30)	Zn-65	1.04E+00	6.69E-01	5.10E+01	7.81E-01	7.69E-01	2.53E-12
Zinc (30)	Zn-69	6.46E+03	1.07E-04	6.94E+03	6.21E+01	6.16E+01	3.45E-14
Zinc (30)	Zn-69m	4.41E+02	1.57E-03	7.46E+01	5.63E+00	5.24E+00	4.29E-14

Composite Worker Ambient Air DCCs July 2023							
Radionuclides		Isotope-specific Information		Dose Compliance Concentrations (DCCs)			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	External Exposure DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Inhalation DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (Bq/m <sup>3</sup> )	Total DCC (no decay) DL=1 (mg/m <sup>3</sup> )
Zinc (30)	Zn-71	1.49E+05	4.66E-06	9.13E+01	.	9.13E+01	2.29E-15
Zinc (30)	Zn-71m	1.53E+03	4.52E-04	1.97E+01	1.02E+01	6.72E+00	1.63E-14
Zinc (30)	Zn-72	1.31E+02	5.31E-03	1.01E+01	9.00E-01	8.27E-01	2.39E-14
Zirconium (40)	Zr-85	4.63E+04	1.50E-05	9.18E+00	1.79E+00	1.50E+00	1.44E-16
Zirconium (40)	Zr-86	3.68E+02	1.88E-03	7.71E+00	1.83E+00	1.48E+00	1.81E-14
Zirconium (40)	Zr-87	3.61E+03	1.92E-04	1.57E+01	2.49E+00	2.14E+00	2.71E-15
Zirconium (40)	Zr-88	3.03E+00	2.28E-01	9.45E+00	1.84E-01	1.80E-01	2.74E-13
Zirconium (40)	Zr-89	7.74E+01	8.95E-03	2.62E+01	3.09E+00	2.77E+00	1.67E-13
Zirconium (40)	Zr-89m	8.75E+04	7.92E-06	1.77E+01	3.30E+00	2.78E+00	1.48E-16
Zirconium (40)	Zr-93	4.53E-07	1.53E+06	4.68E+05	8.32E-02	8.32E-02	8.96E-07
Zirconium (40)	Zr-95	3.95E+00	1.75E-01	2.03E+01	2.38E-01	2.35E-01	2.96E-13
Zirconium (40)	Zr-97	3.63E+02	1.91E-03	1.95E+01	1.63E+00	1.51E+00	2.12E-14

Composite Worker 2D External Exposure DCCs July 2023															
Radionuclides		Isotope-specific Information			Dose Compliance Concentrations (DCCs)										
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Soil Volume Area Correction Factor	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	
					DCC DL=1 (Bq/g)	@ 1cm DCC DL=1 (Bq/g)	@ 5cm DCC DL=1 (Bq/g)	@ 15cm DCC DL=1 (Bq/g)	Plane DCC DL=1 (Bq/cm <sup>2</sup> )	DCC DL=1 (mg/kg)	@ 1cm DCC DL=1 (mg/kg)	@ 5cm DCC DL=1 (mg/kg)	@ 15cm DCC DL=1 (mg/kg)	Plane DCC DL=1 (mg/cm <sup>2</sup> )	
Actinium (89)	Ac-223	1.73E+05	4.00E-06	1.00E+00	5.55E+16	1.55E+17	8.31E+16	6.06E+16	2.11E+16	3.74E+03	1.04E+04	5.60E+03	4.09E+03	1.42E+03	
Actinium (89)	Ac-224	2.18E+03	3.17E-04	1.00E+00	3.56E+01	1.97E+02	6.90E+01	4.31E+01	1.95E+02	1.92E-10	1.06E-09	3.71E-10	2.32E-10	1.05E-09	
Actinium (89)	Ac-225	2.53E+01	2.74E-02	1.00E+00	3.58E+00	1.67E+01	5.99E+00	3.95E+00	1.41E+01	1.67E-09	7.81E-09	2.79E-09	1.84E-09	6.56E-09	
Actinium (89)	Ac-226	2.07E+02	3.35E-03	1.00E+00	5.17E+01	2.11E+02	7.62E+01	5.37E+01	1.89E+02	2.96E-09	1.21E-08	4.37E-09	3.08E-09	1.08E-08	
Actinium (89)	Ac-227	3.18E-02	2.18E+01	1.00E+00	8.03E-02	3.42E-01	1.25E-01	8.55E-02	2.81E-01	3.00E-08	1.28E-07	4.67E-08	3.20E-08	1.05E-07	
Actinium (89)	Ac-228	9.87E+02	7.02E-04	1.00E+00	2.06E+01	1.12E+02	3.88E+01	2.44E+01	1.10E+02	2.49E-10	1.35E-09	4.70E-10	2.95E-10	1.33E-09	
Actinium (89)	Ac-230	1.79E+05	3.87E-06	1.00E+00	3.29E+08	1.79E+09	6.21E+08	3.88E+08	1.72E+09	2.21E-05	1.20E-04	4.18E-05	2.61E-05	1.16E-04	
Actinium (89)	Ac-231	4.86E+04	1.43E-05	1.00E+00	2.41E+05	6.69E+05	2.93E+05	2.41E+05	4.41E+05	6.01E-08	1.67E-07	7.32E-08	6.01E-08	1.10E-07	
Actinium (89)	Ac-232	1.84E+05	3.77E-06	1.00E+00	4.26E+13	2.38E+14	8.26E+13	5.13E+13	2.34E+14	2.83E+00	1.58E+01	5.48E+00	3.40E+00	1.55E+01	
Actinium (89)	Ac-233	1.51E+05	4.60E-06	1.00E+00	2.40E+04	1.03E+05	3.70E+04	2.53E+04	1.03E+05	1.94E-09	8.35E-09	3.00E-09	2.05E-09	8.38E-09	
Silver (47)	Ag-100m	1.63E+05	4.26E-06	1.00E+00	1.53E+03	8.60E+03	2.99E+03	1.85E+03	8.81E+03	4.93E-11	2.77E-10	9.63E-11	5.96E-11	2.84E-10	
Silver (47)	Ag-101	3.28E+04	2.11E-05	1.00E+00	1.64E+03	7.81E+03	2.75E+03	1.80E+03	7.73E+03	2.65E-10	1.26E-09	4.43E-10	2.91E-10	1.25E-09	
Silver (47)	Ag-102	2.82E+04	2.45E-05	1.00E+00	9.45E+10	5.07E+11	1.77E+11	1.11E+11	5.08E+11	1.79E-02	9.61E-02	3.35E-02	2.10E-02	9.62E-02	
Silver (47)	Ag-102m	4.73E+04	1.46E-05	1.00E+00	1.31E+11	7.04E+11	2.45E+11	1.54E+11	7.05E+11	1.48E-02	7.96E-02	2.77E-02	1.74E-02	7.97E-02	
Silver (47)	Ag-103	5.54E+03	1.25E-04	1.00E+00	1.94E+02	9.64E+02	3.39E+02	2.20E+02	9.45E+02	1.89E-10	9.40E-10	3.30E-10	2.14E-10	9.21E-10	
Silver (47)	Ag-104	5.26E+03	1.32E-04	1.00E+00	5.40E+01	2.84E+02	9.87E+01	6.23E+01	2.87E+02	5.59E-11	2.94E-10	1.02E-10	6.46E-11	2.98E-10	
Silver (47)	Ag-104m	1.09E+04	6.37E-05	1.00E+00	1.66E+02	8.74E+02	3.06E+02	1.93E+02	8.66E+02	8.30E-11	4.38E-10	1.54E-10	9.68E-11	4.35E-10	
Silver (47)	Ag-105	6.13E+00	1.13E-01	1.00E+00	3.75E-01	1.78E+00	6.26E-01	4.13E-01	1.78E+00	3.37E-10	1.60E-09	5.63E-10	3.71E-10	1.60E-09	
Silver (47)	Ag-105m	5.04E+04	1.38E-05	1.00E+00	3.10E+03	1.47E+04	5.17E+03	3.41E+03	1.47E+04	3.38E-10	1.60E-09	5.65E-10	3.72E-10	1.61E-09	
Silver (47)	Ag-106	1.52E+04	4.56E-05	1.00E+00	3.16E+08	1.52E+09	5.36E+08	3.49E+08	1.42E+09	1.16E-04	5.55E-04	1.96E-04	1.27E-04	5.20E-04	
Silver (47)	Ag-106m	3.05E+01	2.27E-02	1.00E+00	3.04E-01	1.59E+00	5.52E-01	3.50E-01	1.61E+00	5.53E-11	2.89E-10	1.00E-10	6.36E-11	2.93E-10	
Silver (47)	Ag-108	1.54E+05	4.51E-06	1.00E+00	1.61E+18	6.24E+18	2.63E+18	1.78E+18	1.81E+18	5.94E+04	2.30E+05	9.69E+04	6.54E+04	6.67E+04	
Silver (47)	Ag-108m	1.66E-03	4.18E+02	1.00E+00	1.80E-02	8.90E-02	3.12E-02	2.01E-02	8.96E-02	6.16E-08	3.04E-07	1.07E-07	6.87E-08	3.06E-07	
Silver (47)	Ag-109m	5.52E+05	1.26E-06	1.00E+00	1.86E+22	4.59E+22	2.21E+22	1.86E+22	2.19E+22	1.93E+08	4.75E+08	2.29E+08	1.92E+08	2.27E+08	
Silver (47)	Ag-110	8.88E+05	7.80E-07	1.00E+00	1.49E+22	5.03E+22	2.37E+22	1.64E+22	1.85E+22	9.65E+07	3.27E+08	1.54E+08	1.07E+08	1.20E+08	
Silver (47)	Ag-110m	1.01E+00	6.84E-01	1.00E+00	1.58E-02	8.36E-02	2.90E-02	1.83E-02	8.51E-02	9.02E-11	4.76E-10	1.65E-10	1.04E-10	4.84E-10	
Silver (47)	Ag-111	3.40E+01	2.04E-02	1.00E+00	3.92E+01	1.71E+02	6.23E+01	4.18E+01	8.90E+01	6.73E-09	2.94E-08	1.07E-08	7.18E-09	1.53E-08	
Silver (47)	Ag-111m	3.37E+05	2.05E-06	1.00E+00	3.93E+05	1.71E+06	6.23E+05	4.19E+05	8.91E+05	6.78E-09	2.96E-08	1.08E-08	7.23E-09	1.54E-08	
Silver (47)	Ag-112	1.94E+03	3.57E-04	1.00E+00	7.38E+01	3.90E+02	1.39E+02	8.72E+01	3.48E+02	2.24E-10	1.18E-09	4.21E-10	2.64E-10	1.05E-09	
Silver (47)	Ag-113	1.13E+03	6.13E-04	1.00E+00	4.44E+02	1.90E+03	7.27E+02	4.86E+02	9.86E+02	2.33E-09	9.97E-09	3.81E-09	2.55E-09	5.17E-09	
Silver (47)	Ag-113m	3.18E+05	2.18E-06	1.00E+00	1.95E+05	8.33E+05	3.18E+05	2.13E+05	4.32E+05	3.62E-09	1.55E-08	5.93E-09	3.97E-09	8.05E-09	
Silver (47)	Ag-114	4.75E+06	1.46E-07	1.00E+00	1.03E+26	4.81E+26	1.87E+26	1.20E+26	3.57E+26	1.30E+11	6.06E+11	2.35E+11	1.51E+11	4.49E+11	
Silver (47)	Ag-115	1.82E+04	3.81E-05	1.00E+00	1.68E+03	7.85E+03	2.78E+03	1.83E+03	7.34E+03	5.56E-10	2.60E-09	9.20E-10	6.04E-10	2.43E-09	
Silver (47)	Ag-116	1.36E+05	5.10E-06	1.00E+00	2.62E+15	1.51E+16	5.26E+15	3.22E+15	1.48E+16	1.17E+02	6.76E+02	2.35E+02	1.44E+02	6.63E+02	
Silver (47)	Ag-117	2.97E+05	2.33E-06	1.00E+00	4.82E+03	2.53E+04	8.84E+03	5.60E+03	2.49E+04	9.95E-11	5.23E-10	1.83E-10	1.16E-10	5.15E-10	
Silver (47)	Ag-99	1.76E+05	3.93E-06	1.00E+00	8.10E+03	4.00E+04	1.40E+04	9.05E+03	4.04E+04	2.39E-10	1.18E-09	4.12E-10	2.67E-10	1.19E-09	
Aluminum (13)	Al-26	9.67E-07	7.17E+05	1.00E+00	9.81E-03	5.56E-02	1.92E-02	1.18E-02	5.61E-02	1.38E-05	7.85E-05	2.70E-05	1.67E-05	7.92E-05	
Aluminum (13)	Al-28	1.63E+05	4.26E-06	1.00E+00	2.17E+16	1.29E+17	4.46E+16	2.70E+16	1.26E+17	1.96E+02	1.17E+03	4.03E+02	2.44E+02	1.13E+03	
Aluminum (13)	Al-29	5.55E+04	1.25E-05	1.00E+00	1.46E+13	8.28E+13	2.87E+13	1.77E+13	7.90E+13	4.00E-01	2.27E+00	7.86E-01	4.84E-01	2.16E+00	
Americium (95)	Am-237	4.99E+03	1.39E-04	1.00E+00	4.35E+02	1.83E+03	6.65E+02	4.61E+02	1.82E+03	1.08E-09	4.56E-09	1.66E-09	1.15E-09	4.53E-09	
Americium (95)	Am-238	3.72E+03	1.86E-04	1.00E+00	1.19E+02	6.11E+02	2.14E+02	1.37E+02	6.18E+02	3.98E-10	2.05E-09	7.17E-10	4.59E-10	2.08E-09	
Americium (95)	Am-239	5.10E+02	1.36E-03	1.00E+00	9.26E+01	3.43E+02	1.29E+02	9.48E+01	3.38E+02	2.28E-09	8.43E-09	3.17E-09	2.33E-09	8.32E-09	

Composite Worker 2D External Exposure DCCs July 2023															
Radionuclides		Isotope-specific Information			Dose Compliance Concentrations (DCCs)										
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Soil Volume Area Correction Factor	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	
					DCC DL=1 (Bq/g)	@ 1cm DCC DL=1 (Bq/g)	@ 5cm DCC DL=1 (Bq/g)	@ 15cm DCC DL=1 (Bq/g)	Plane DCC DL=1 (Bq/cm <sup>2</sup> )	DCC DL=1 (mg/kg)	@ 1cm DCC DL=1 (mg/kg)	@ 5cm DCC DL=1 (mg/kg)	@ 15cm DCC DL=1 (mg/kg)	Plane DCC DL=1 (mg/cm <sup>2</sup> )	
Americium (95)	Am-240	1.20E+02	5.80E-03	1.00E+00	3.30E+00	1.71E+01	5.99E+00	3.80E+00	1.73E+01	3.48E-10	1.80E-09	6.31E-10	4.00E-10	1.82E-09	
Americium (95)	Am-241	1.60E-03	4.32E+02	1.00E+00	4.36E+00	8.86E+00	4.69E+00	4.36E+00	6.36E+00	3.44E-05	6.98E-05	3.70E-05	3.44E-05	5.02E-05	
Americium (95)	Am-242	3.79E+02	1.83E-03	1.00E+00	1.36E+03	4.38E+03	1.75E+03	1.37E+03	3.18E+03	4.56E-08	1.47E-07	5.85E-08	4.58E-08	1.06E-07	
Americium (95)	Am-242m	4.91E-03	1.41E+02	1.00E+00	2.64E+00	9.35E+00	3.67E+00	2.75E+00	6.61E+00	6.82E-06	2.42E-05	9.47E-06	7.10E-06	1.71E-05	
Americium (95)	Am-243	9.40E-05	7.37E+03	1.00E+00	1.90E-01	6.82E-01	2.62E-01	1.95E-01	6.55E-01	2.57E-05	9.24E-05	3.55E-05	2.64E-05	8.88E-05	
Americium (95)	Am-244	6.01E+02	1.15E-03	1.00E+00	2.17E+01	1.10E+02	3.86E+01	2.47E+01	1.10E+02	4.63E-10	2.35E-09	8.22E-10	5.26E-10	2.35E-09	
Americium (95)	Am-244m	1.40E+04	4.95E-05	1.00E+00	2.78E+08	5.83E+08	3.92E+08	3.07E+08	8.65E+07	2.54E-04	5.32E-04	3.58E-04	2.81E-04	7.90E-05	
Americium (95)	Am-245	2.96E+03	2.34E-04	1.00E+00	3.61E+03	1.40E+04	5.21E+03	3.73E+03	1.00E+04	1.57E-08	6.09E-08	2.26E-08	1.62E-08	4.34E-08	
Americium (95)	Am-246	9.34E+03	7.42E-05	1.00E+00	3.84E+02	1.86E+03	6.59E+02	4.27E+02	1.78E+03	5.31E-10	2.57E-09	9.10E-10	5.89E-10	2.46E-09	
Americium (95)	Am-246m	1.46E+04	4.76E-05	1.00E+00	9.11E+07	4.88E+08	1.69E+08	1.06E+08	4.68E+08	8.06E-05	4.32E-04	1.50E-04	9.42E-05	4.15E-04	
Americium (95)	Am-247	1.58E+04	4.38E-05	1.00E+00	3.76E+09	1.51E+10	5.59E+09	3.93E+09	1.15E+10	3.08E-03	1.24E-02	4.57E-03	3.21E-03	9.41E-03	
Argon (18)	Ar-37	7.22E+00	9.60E-02												
Argon (18)	Ar-39	2.58E-03	2.69E+02	9.00E-01	2.24E+02	6.11E+02	2.86E+02	2.27E+02	6.12E+01	1.78E-04	4.85E-04	2.27E-04	1.80E-04	4.86E-05	
Argon (18)	Ar-41	3.32E+03	2.09E-04	1.00E+00	6.79E+01	3.81E+02	1.32E+02	8.12E+01	3.78E+02	4.39E-11	2.47E-10	8.52E-11	5.26E-11	2.44E-10	
Argon (18)	Ar-42	2.11E-02	3.29E+01	9.00E-01	8.82E-02	4.66E-01	1.72E-01	1.07E-01	3.47E-01	9.22E-09	4.87E-08	1.80E-08	1.12E-08	3.63E-08	
Argon (18)	Ar-43	6.78E+04	1.02E-05	1.00E+00	2.07E+03	1.00E+04	3.51E+03	2.28E+03	1.00E+04	6.89E-11	3.33E-10	1.17E-10	7.59E-11	3.33E-10	
Argon (18)	Ar-44	3.07E+04	2.26E-05	1.00E+00	2.79E+08	1.66E+09	5.74E+08	3.48E+08	1.65E+09	2.10E-05	1.25E-04	4.31E-05	2.61E-05	1.24E-04	
Arsenic (33)	As-68	1.44E+05	4.81E-06	1.00E+00	7.33E+03	3.53E+04	1.25E+04	8.08E+03	3.30E+04	1.81E-10	8.73E-10	3.09E-10	2.00E-10	8.17E-10	
Arsenic (33)	As-69	2.39E+04	2.90E-05	1.00E+00	6.95E+02	3.64E+03	1.27E+03	8.00E+02	3.67E+03	1.05E-10	5.50E-10	1.91E-10	1.21E-10	5.55E-10	
Arsenic (33)	As-70	6.92E+03	1.00E-04	1.00E+00	4.42E+01	2.38E+02	8.25E+01	5.18E+01	2.38E+02	2.34E-11	1.26E-10	4.38E-11	2.75E-11	1.26E-10	
Arsenic (33)	As-71	9.30E+01	7.45E-03	1.00E+00	4.98E+00	2.35E+01	8.28E+00	5.45E+00	2.37E+01	1.99E-10	9.39E-10	3.31E-10	2.18E-10	9.49E-10	
Arsenic (33)	As-72	2.33E+02	2.97E-03	1.00E+00	3.70E+00	1.86E+01	6.56E+00	4.19E+00	1.80E+01	5.98E-11	3.01E-10	1.06E-10	6.77E-11	2.91E-10	
Arsenic (33)	As-73	3.15E+00	2.20E-01	1.00E+00	6.83E+01	1.24E+02	7.12E+01	6.83E+01	8.88E+01	8.30E-08	1.51E-07	8.65E-08	8.30E-08	1.08E-07	
Arsenic (33)	As-74	1.42E+01	4.87E-02	1.00E+00	5.47E-01	2.69E+00	9.43E-01	6.08E-01	2.65E+00	1.49E-10	7.32E-10	2.57E-10	1.66E-10	7.21E-10	
Arsenic (33)	As-76	2.35E+02	2.95E-03	1.00E+00	1.55E+01	7.63E+01	2.75E+01	1.76E+01	6.34E+01	2.64E-10	1.30E-09	4.67E-10	2.98E-10	1.08E-09	
Arsenic (33)	As-77	1.56E+02	4.43E-03	1.00E+00	5.90E+02	2.60E+03	9.29E+02	6.31E+02	1.63E+03	1.52E-08	6.73E-08	2.40E-08	1.63E-08	4.21E-08	
Arsenic (33)	As-78	4.02E+03	1.73E-04	1.00E+00	8.18E+01	4.39E+02	1.54E+02	9.63E+01	4.19E+02	8.33E-11	4.47E-10	1.57E-10	9.81E-11	4.26E-10	
Arsenic (33)	As-79	4.04E+04	1.71E-05	1.00E+00	1.23E+14	2.85E+14	1.55E+14	1.28E+14	1.24E+14	1.26E+01	2.93E+01	1.59E+01	1.31E+01	1.27E+01	
Astatine (85)	At-204	3.96E+04	1.75E-05	1.00E+00	2.71E+02	1.39E+03	4.90E+02	3.12E+02	1.42E+03	7.33E-11	3.77E-10	1.32E-10	8.43E-11	3.83E-10	
Astatine (85)	At-205	1.39E+04	4.98E-05	1.00E+00	1.19E+02	6.40E+02	2.23E+02	1.40E+02	6.53E+02	9.18E-11	4.95E-10	1.73E-10	1.08E-10	5.05E-10	
Astatine (85)	At-206	1.19E+04	5.82E-05	1.00E+00	7.88E+01	4.08E+02	1.43E+02	9.08E+01	4.14E+02	7.16E-11	3.70E-10	1.29E-10	8.24E-11	3.76E-10	
Astatine (85)	At-207	3.37E+03	2.05E-04	1.00E+00	2.73E+01	1.44E+02	5.04E+01	3.19E+01	1.47E+02	8.80E-11	4.65E-10	1.62E-10	1.03E-10	4.73E-10	
Astatine (85)	At-208	3.72E+03	1.86E-04	1.00E+00	3.43E+01	1.79E+02	6.23E+01	3.95E+01	1.81E+02	1.00E-10	5.23E-10	1.82E-10	1.16E-10	5.31E-10	
Astatine (85)	At-209	1.12E+03	6.18E-04	1.00E+00	1.38E+01	6.95E+01	2.44E+01	1.57E+01	7.03E+01	1.35E-10	6.79E-10	2.39E-10	1.53E-10	6.87E-10	
Astatine (85)	At-210	7.49E+02	9.25E-04	1.00E+00	6.80E+00	3.75E+01	1.30E+01	8.09E+00	3.84E+01	1.00E-10	5.51E-10	1.91E-10	1.19E-10	5.64E-10	
Astatine (85)	At-211	8.42E+02	8.24E-04	1.00E+00	6.81E+02	2.55E+03	1.01E+03	7.35E+02	2.44E+03	8.96E-09	3.36E-08	1.32E-08	9.66E-09	3.21E-08	
Astatine (85)	At-215	2.19E+11	3.17E-12	1.00E+00	1.11E+23	3.24E+23	1.68E+23	1.22E+23	4.66E+22	5.75E+03	1.67E+04	8.68E+03	6.27E+03	2.40E+03	
Astatine (85)	At-216	7.28E+10	9.51E-12	1.00E+00	5.47E+10	3.29E+11	1.13E+11	6.83E+10	3.24E+11	8.50E-09	5.11E-08	1.76E-08	1.06E-08	5.04E-08	
Astatine (85)	At-217	6.77E+08	1.02E-09	1.00E+00	2.69E+10	1.14E+11	4.38E+10	2.96E+10	2.73E+10	4.52E-07	1.92E-06	7.36E-07	4.97E-07	4.60E-07	
Astatine (85)	At-218	1.46E+07	4.76E-08	9.00E-01	1.01E+10	1.72E+10	1.16E+10	1.03E+10	1.77E+09	7.95E-06	1.35E-05	9.14E-06	8.07E-06	1.39E-06	
Astatine (85)	At-219	3.90E+05	1.78E-06												
Astatine (85)	At-220	9.82E+04	7.06E-06	1.00E+00	1.76E+03	1.02E+04	3.54E+03	2.17E+03	1.01E+04	2.07E-10	1.20E-09	4.16E-10	2.55E-10	1.18E-09	



Composite Worker 2D External Exposure DCCs July 2023															
Radionuclides		Isotope-specific Information			Dose Compliance Concentrations (DCCs)										
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Soil Volume Area Correction Factor	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	
					DCC DL=1 (Bq/g)	@ 1cm DCC DL=1 (Bq/g)	@ 5cm DCC DL=1 (Bq/g)	@ 15cm DCC DL=1 (Bq/g)	Plane DCC DL=1 (Bq/cm <sup>2</sup> )	DCC DL=1 (mg/kg)	@ 1cm DCC DL=1 (mg/kg)	@ 5cm DCC DL=1 (mg/kg)	@ 15cm DCC DL=1 (mg/kg)	Plane DCC DL=1 (mg/cm <sup>2</sup> )	
Gold (79)	Au-186	3.40E+04	2.04E-05	1.00E+00	4.19E+02	2.14E+03	7.55E+02	4.83E+02	2.17E+03	1.20E-10	6.14E-10	2.16E-10	1.38E-10	6.22E-10	
Gold (79)	Au-187	4.34E+04	1.60E-05	1.00E+00	1.50E+03	6.92E+03	2.52E+03	1.67E+03	6.81E+03	3.40E-10	1.56E-09	5.69E-10	3.78E-10	1.54E-09	
Gold (79)	Au-190	8.51E+03	8.14E-05	1.00E+00	9.37E+01	5.43E+02	1.87E+02	1.15E+02	5.59E+02	1.10E-10	6.36E-10	2.19E-10	1.35E-10	6.55E-10	
Gold (79)	Au-191	1.91E+03	3.63E-04	1.00E+00	7.40E+01	3.25E+02	1.19E+02	8.06E+01	3.21E+02	3.88E-10	1.70E-09	6.24E-10	4.23E-10	1.69E-09	
Gold (79)	Au-192	1.23E+03	5.64E-04	1.00E+00	1.69E+01	9.61E+01	3.31E+01	2.05E+01	9.85E+01	1.38E-10	7.87E-10	2.71E-10	1.68E-10	8.07E-10	
Gold (79)	Au-193	3.44E+02	2.01E-03	1.00E+00	9.33E+01	3.35E+02	1.32E+02	9.72E+01	3.20E+02	2.74E-09	9.87E-09	3.89E-09	2.86E-09	9.42E-09	
Gold (79)	Au-193m	5.60E+06	1.24E-07	1.00E+00	1.52E+06	5.47E+06	2.15E+06	1.58E+06	5.22E+06	2.75E-09	9.88E-09	3.89E-09	2.86E-09	9.43E-09	
Gold (79)	Au-194	1.60E+02	4.34E-03	1.00E+00	4.33E+00	2.30E+01	8.06E+00	5.08E+00	2.34E+01	2.76E-10	1.46E-09	5.13E-10	3.23E-10	1.49E-09	
Gold (79)	Au-195	1.36E+00	5.10E-01	1.00E+00	1.65E+00	4.14E+00	1.90E+00	1.65E+00	3.66E+00	1.24E-08	3.12E-08	1.43E-08	1.24E-08	2.75E-08	
Gold (79)	Au-195m	7.17E+05	9.67E-07	1.00E+00	8.71E+05	2.18E+06	1.00E+06	8.71E+05	1.93E+06	1.24E-08	3.12E-08	1.43E-08	1.24E-08	2.75E-08	
Gold (79)	Au-196	4.09E+01	1.69E-02	1.00E+00	2.89E+00	1.27E+01	4.57E+00	3.09E+00	1.28E+01	7.25E-10	3.20E-09	1.15E-09	7.76E-10	3.22E-09	
Gold (79)	Au-196m	6.32E+02	1.10E-03	1.00E+00	3.20E+01	1.33E+02	4.88E+01	3.38E+01	1.33E+02	5.19E-10	2.16E-09	7.93E-10	5.49E-10	2.16E-09	
Gold (79)	Au-198	9.39E+01	7.38E-03	1.00E+00	7.08E+00	3.32E+01	1.17E+01	7.68E+00	3.21E+01	7.84E-10	3.68E-09	1.29E-09	8.50E-10	3.56E-09	
Gold (79)	Au-198m	1.11E+02	6.22E-03	1.00E+00	4.13E+00	1.76E+01	6.37E+00	4.38E+00	1.74E+01	3.85E-10	1.64E-09	5.93E-10	4.08E-10	1.62E-09	
Gold (79)	Au-199	8.06E+01	8.60E-03	1.00E+00	3.41E+01	1.29E+02	4.79E+01	3.48E+01	1.30E+02	4.42E-09	1.67E-08	6.20E-09	4.51E-09	1.68E-08	
Gold (79)	Au-200	7.53E+03	9.21E-05	1.00E+00	7.43E+02	3.82E+03	1.36E+03	8.63E+02	3.10E+03	1.04E-09	5.32E-09	1.90E-09	1.20E-09	4.32E-09	
Gold (79)	Au-200m	3.25E+02	2.13E-03	1.00E+00	4.78E+00	2.31E+01	8.08E+00	5.27E+00	2.32E+01	1.55E-10	7.46E-10	2.61E-10	1.70E-10	7.49E-10	
Gold (79)	Au-201	1.40E+04	4.95E-05	1.00E+00	1.73E+09	7.74E+09	2.87E+09	1.90E+09	3.82E+09	1.30E-03	5.82E-03	2.16E-03	1.43E-03	2.88E-03	
Gold (79)	Au-202	7.59E+05	9.13E-07	1.00E+00	2.32E+21	1.11E+22	4.14E+21	2.67E+21	7.49E+21	3.24E+07	1.55E+08	5.78E+07	3.72E+07	1.05E+08	
Barium (56)	Ba-124	3.31E+04	2.09E-05	1.00E+00	8.15E+11	3.91E+12	1.40E+12	9.10E+11	3.68E+12	1.60E-01	7.68E-01	2.75E-01	1.79E-01	7.22E-01	
Barium (56)	Ba-126	3.64E+03	1.90E-04	1.00E+00	6.15E+01	2.99E+02	1.06E+02	6.86E+01	2.85E+02	1.12E-10	5.42E-10	1.92E-10	1.24E-10	5.18E-10	
Barium (56)	Ba-127	2.87E+04	2.42E-05	1.00E+00	1.36E+03	6.13E+03	2.19E+03	1.46E+03	5.99E+03	3.16E-10	1.42E-09	5.09E-10	3.40E-10	1.39E-09	
Barium (56)	Ba-128	1.04E+02	6.66E-03	1.00E+00	3.28E+00	1.56E+01	5.55E+00	3.63E+00	1.44E+01	2.11E-10	1.00E-09	3.58E-10	2.34E-10	9.26E-10	
Barium (56)	Ba-129	2.72E+03	2.55E-04	1.00E+00	1.44E+02	6.83E+02	2.43E+02	1.59E+02	6.47E+02	3.58E-10	1.70E-09	6.05E-10	3.96E-10	1.61E-09	
Barium (56)	Ba-129m	2.81E+03	2.47E-04	1.00E+00	4.41E+01	2.25E+02	7.89E+01	5.04E+01	2.25E+02	1.06E-10	5.41E-10	1.90E-10	1.21E-10	5.42E-10	
Barium (56)	Ba-131	2.20E+01	3.15E-02	1.00E+00	1.52E+00	6.90E+00	2.48E+00	1.65E+00	6.59E+00	4.75E-10	2.15E-09	7.76E-10	5.16E-10	2.06E-09	
Barium (56)	Ba-131m	2.49E+04	2.78E-05	1.00E+00	1.72E+03	7.82E+03	2.82E+03	1.87E+03	7.47E+03	4.75E-10	2.15E-09	7.76E-10	5.16E-10	2.06E-09	
Barium (56)	Ba-133	6.59E-02	1.05E+01	1.00E+00	9.19E-02	4.00E-01	1.45E-01	9.81E-02	3.84E-01	9.74E-09	4.24E-08	1.54E-08	1.04E-08	4.07E-08	
Barium (56)	Ba-133m	1.56E+02	4.44E-03	1.00E+00	6.85E+01	2.86E+02	1.06E+02	7.24E+01	2.56E+02	3.06E-09	1.28E-08	4.74E-09	3.24E-09	1.15E-08	
Barium (56)	Ba-135m	2.12E+02	3.28E-03	1.00E+00	1.58E+02	6.40E+02	2.42E+02	1.67E+02	5.45E+02	5.30E-09	2.14E-08	8.10E-09	5.58E-09	1.82E-08	
Barium (56)	Ba-137m	1.43E+05	4.86E-06	1.00E+00	1.30E+16	6.54E+16	2.29E+16	1.46E+16	6.52E+16	6.55E+02	3.29E+03	1.15E+03	7.36E+02	3.28E+03	
Barium (56)	Ba-139	4.39E+03	1.58E-04	1.00E+00	3.02E+03	1.01E+04	4.34E+03	3.14E+03	4.08E+03	5.02E-09	1.69E-08	7.22E-09	5.23E-09	6.78E-09	
Barium (56)	Ba-140	1.98E+01	3.49E-02	1.00E+00	2.11E-01	1.18E+00	4.07E-01	2.52E-01	1.17E+00	7.82E-11	4.37E-10	1.51E-10	9.34E-11	4.35E-10	
Barium (56)	Ba-141	1.99E+04	3.48E-05	1.00E+00	6.41E+03	2.41E+04	9.74E+03	6.89E+03	1.32E+04	2.38E-09	8.94E-09	3.61E-09	2.56E-09	4.89E-09	
Barium (56)	Ba-142	3.44E+04	2.02E-05	1.00E+00	3.63E+02	2.19E+03	7.53E+02	4.55E+02	2.21E+03	7.86E-11	4.75E-10	1.63E-10	9.85E-11	4.78E-10	
Beryllium (4)	Be-10	4.59E-07	1.51E+06	9.00E-01	1.78E+02	4.87E+02	2.27E+02	1.80E+02	4.48E+01	2.03E-01	5.56E-01	2.59E-01	2.06E-01	5.12E-02	
Beryllium (4)	Be-7	4.75E+00	1.46E-01	1.00E+00	2.87E+00	1.37E+01	4.82E+00	3.15E+00	1.40E+01	2.22E-10	1.06E-09	3.72E-10	2.43E-10	1.08E-09	
Bismuth (83)	Bi-197	3.92E+04	1.77E-05	1.00E+00	1.20E+03	5.64E+03	2.03E+03	1.34E+03	5.62E+03	3.16E-10	1.49E-09	5.36E-10	3.54E-10	1.48E-09	
Bismuth (83)	Bi-200	1.00E+04	6.93E-05	1.00E+00	7.48E+01	3.70E+02	1.31E+02	8.45E+01	3.74E+02	7.84E-11	3.88E-10	1.37E-10	8.86E-11	3.92E-10	
Bismuth (83)	Bi-201	3.37E+03	2.05E-04	1.00E+00	3.55E+01	1.83E+02	6.45E+01	4.11E+01	1.84E+02	1.11E-10	5.71E-10	2.02E-10	1.28E-10	5.76E-10	
Bismuth (83)	Bi-202	3.53E+03	1.96E-04	1.00E+00	3.62E+01	1.87E+02	6.53E+01	4.16E+01	1.90E+02	1.09E-10	5.61E-10	1.96E-10	1.25E-10	5.69E-10	
Bismuth (83)	Bi-203	5.16E+02	1.34E-03	1.00E+00	5.29E+00	2.85E+01	9.95E+00	6.26E+00	2.91E+01	1.09E-10	5.88E-10	2.05E-10	1.29E-10	6.01E-10	

Composite Worker 2D External Exposure DCCs July 2023															
Radionuclides		Isotope-specific Information			Dose Compliance Concentrations (DCCs)										
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Soil Volume Area Correction Factor	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	
					DCC DL=1 (Bq/g)	@ 1cm DCC DL=1 (Bq/g)	@ 5cm DCC DL=1 (Bq/g)	@ 15cm DCC DL=1 (Bq/g)	Plane DCC DL=1 (Bq/cm <sup>2</sup> )	DCC DL=1 (mg/kg)	@ 1cm DCC DL=1 (mg/kg)	@ 5cm DCC DL=1 (mg/kg)	@ 15cm DCC DL=1 (mg/kg)	Plane DCC DL=1 (mg/cm <sup>2</sup> )	
Bismuth (83)	Bi-204	5.41E+02	1.28E-03	1.00E+00	4.84E+00	2.53E+01	8.86E+00	5.60E+00	2.58E+01	9.56E-11	5.01E-10	1.75E-10	1.11E-10	5.11E-10	
Bismuth (83)	Bi-205	1.65E+01	4.19E-02	1.00E+00	2.63E-01	1.46E+00	5.07E-01	3.14E-01	1.50E+00	1.71E-10	9.49E-10	3.30E-10	2.05E-10	9.74E-10	
Bismuth (83)	Bi-206	4.05E+01	1.71E-02	1.00E+00	3.45E-01	1.81E+00	6.31E-01	4.00E-01	1.84E+00	9.19E-11	4.83E-10	1.68E-10	1.07E-10	4.91E-10	
Bismuth (83)	Bi-207	2.11E-02	3.29E+01	1.00E+00	1.86E-02	9.61E-02	3.37E-02	2.14E-02	9.66E-02	9.57E-09	4.95E-08	1.74E-08	1.10E-08	4.98E-08	
Bismuth (83)	Bi-208	1.88E-06	3.68E+05	1.00E+00	9.18E-03	5.94E-02	2.02E-02	1.19E-02	6.27E-02	5.32E-05	3.44E-04	1.17E-04	6.92E-05	3.63E-04	
Bismuth (83)	Bi-210	5.05E+01	1.37E-02	1.00E+00	1.48E+03	2.60E+03	1.79E+03	1.51E+03	1.99E+02	3.23E-07	5.67E-07	3.91E-07	3.30E-07	4.35E-08	
Bismuth (83)	Bi-210m	2.28E-07	3.04E+06	1.00E+00	1.24E-01	5.42E-01	1.95E-01	1.32E-01	4.54E-01	5.97E-03	2.62E-02	9.40E-03	6.35E-03	2.19E-02	
Bismuth (83)	Bi-211	1.70E+05	4.07E-06	1.00E+00	8.67E+16	2.52E+17	1.31E+17	9.47E+16	3.63E+16	5.64E+03	1.64E+04	8.52E+03	6.15E+03	2.36E+03	
Bismuth (83)	Bi-212	6.02E+03	1.15E-04	1.00E+00	1.16E+02	6.96E+02	2.40E+02	1.45E+02	6.85E+02	2.14E-10	1.29E-09	4.43E-10	2.68E-10	1.27E-09	
Bismuth (83)	Bi-212n	5.20E+04	1.33E-05	9.00E-01	2.64E+14	1.58E+15	5.59E+14	3.36E+14	1.03E+15	5.64E+01	3.38E+02	1.19E+02	7.19E+01	2.21E+02	
Bismuth (83)	Bi-213	7.99E+03	8.67E-05	1.00E+00	1.35E+03	6.54E+03	2.33E+03	1.51E+03	5.30E+03	1.89E-09	9.14E-09	3.25E-09	2.11E-09	7.41E-09	
Bismuth (83)	Bi-214	1.83E+04	3.79E-05	1.00E+00	1.27E+07	2.16E+07	1.46E+07	1.29E+07	2.22E+06	7.81E-06	1.33E-05	8.97E-06	7.93E-06	1.36E-06	
Bismuth (83)	Bi-215	4.79E+04	1.45E-05	1.00E+00	1.23E+04	5.58E+04	2.05E+04	1.35E+04	3.19E+04	2.89E-09	1.31E-08	4.83E-09	3.18E-09	7.50E-09	
Bismuth (83)	Bi-216	1.68E+05	4.13E-06	1.00E+00	3.01E+03	1.75E+04	6.05E+03	3.70E+03	1.72E+04	2.03E-10	1.18E-09	4.08E-10	2.50E-10	1.16E-09	
Berkelium (97)	Bk-245	5.12E+01	1.35E-02	1.00E+00	9.18E+00	3.50E+01	1.30E+01	9.43E+00	3.45E+01	2.30E-09	8.78E-09	3.25E-09	2.37E-09	8.65E-09	
Berkelium (97)	Bk-246	1.41E+02	4.93E-03	1.00E+00	4.80E+00	2.44E+01	8.59E+00	5.49E+00	2.46E+01	4.41E-10	2.24E-09	7.88E-10	5.04E-10	2.26E-09	
Berkelium (97)	Bk-247	5.02E-04	1.38E+03	1.00E+00	2.74E-01	1.05E+00	3.93E-01	2.84E-01	1.05E+00	7.06E-06	2.72E-05	1.01E-05	7.31E-06	2.71E-05	
Berkelium (97)	Bk-248m	2.56E+02	2.71E-03	1.00E+00	1.76E+02	7.34E+02	2.70E+02	1.88E+02	6.14E+02	8.93E-09	3.73E-08	1.37E-08	9.54E-09	3.12E-08	
Berkelium (97)	Bk-249	7.67E-01	9.04E-01	1.00E+00	3.79E+01	1.74E+02	6.14E+01	4.08E+01	1.77E+02	6.45E-07	2.97E-06	1.05E-06	6.94E-07	3.02E-06	
Berkelium (97)	Bk-250	1.89E+03	3.67E-04	1.00E+00	5.75E+01	3.07E+02	1.06E+02	6.69E+01	3.07E+02	3.99E-10	2.13E-09	7.38E-10	4.64E-10	2.13E-09	
Berkelium (97)	Bk-251	6.55E+03	1.06E-04	1.00E+00	3.42E+03	1.21E+04	4.62E+03	3.46E+03	9.67E+03	6.87E-09	2.42E-08	9.28E-09	6.96E-09	1.94E-08	
Bromine (35)	Br-72	2.78E+05	2.49E-06	1.00E+00	4.39E+03	2.19E+04	7.77E+03	4.97E+03	2.11E+04	5.96E-11	2.98E-10	1.06E-10	6.75E-11	2.87E-10	
Bromine (35)	Br-73	1.07E+05	6.47E-06	1.00E+00	3.09E+03	1.45E+04	5.16E+03	3.38E+03	1.41E+04	1.10E-10	5.20E-10	1.85E-10	1.21E-10	5.03E-10	
Bromine (35)	Br-74	1.43E+04	4.83E-05	1.00E+00	1.59E+07	9.60E+07	3.30E+07	2.00E+07	9.80E+07	4.31E-06	2.60E-05	8.93E-06	5.40E-06	2.65E-05	
Bromine (35)	Br-74m	7.92E+03	8.75E-05	1.00E+00	5.05E+01	2.83E+02	9.80E+01	6.08E+01	2.85E+02	2.48E-11	1.39E-10	4.80E-11	2.98E-11	1.40E-10	
Bromine (35)	Br-75	3.77E+03	1.84E-04	1.00E+00	7.56E+01	3.52E+02	1.24E+02	8.21E+01	3.45E+02	7.90E-11	3.68E-10	1.30E-10	8.57E-11	3.60E-10	
Bromine (35)	Br-76	3.75E+02	1.85E-03	1.00E+00	3.54E+00	1.99E+01	6.89E+00	4.26E+00	2.01E+01	3.77E-11	2.12E-10	7.33E-11	4.53E-11	2.14E-10	
Bromine (35)	Br-76m	1.67E+07	4.15E-08	1.00E+00	1.58E+05	8.91E+05	3.08E+05	1.90E+05	9.00E+05	3.78E-11	2.13E-10	7.35E-11	4.55E-11	2.15E-10	
Bromine (35)	Br-77	1.06E+02	6.51E-03	1.00E+00	1.02E+01	4.86E+01	1.70E+01	1.12E+01	4.94E+01	3.88E-10	1.84E-09	6.46E-10	4.24E-10	1.87E-09	
Bromine (35)	Br-77m	8.51E+04	8.14E-06	1.00E+00	8.16E+03	3.88E+04	1.36E+04	8.93E+03	3.94E+04	3.87E-10	1.84E-09	6.46E-10	4.24E-10	1.87E-09	
Bromine (35)	Br-78	5.64E+04	1.23E-05	1.00E+00	2.42E+13	1.15E+14	4.10E+13	2.67E+13	1.07E+14	1.75E+00	8.37E+00	2.97E+00	1.94E+00	7.75E+00	
Bromine (35)	Br-80	2.06E+04	3.36E-05	1.00E+00	5.08E+11	2.26E+12	8.58E+11	5.62E+11	1.22E+12	1.03E-01	4.60E-01	1.75E-01	1.14E-01	2.48E-01	
Bromine (35)	Br-80m	1.37E+03	5.05E-04	1.00E+00	4.87E+02	2.07E+03	8.12E+02	5.37E+02	1.10E+03	1.49E-09	6.31E-09	2.48E-09	1.64E-09	3.35E-09	
Bromine (35)	Br-82	1.72E+02	4.03E-03	1.00E+00	1.80E+00	9.44E+00	3.29E+00	2.08E+00	9.62E+00	4.51E-11	2.36E-10	8.22E-11	5.19E-11	2.40E-10	
Bromine (35)	Br-82m	5.94E+04	1.17E-05	1.00E+00	6.37E+02	3.33E+03	1.16E+03	7.33E+02	3.40E+03	4.61E-11	2.41E-10	8.40E-11	5.30E-11	2.46E-10	
Bromine (35)	Br-83	2.53E+03	2.74E-04	1.00E+00	9.97E+03	4.33E+04	1.65E+04	1.10E+04	1.20E+04	1.72E-08	7.45E-08	2.84E-08	1.89E-08	2.07E-08	
Bromine (35)	Br-84	1.15E+04	6.05E-05	1.00E+00	1.62E+02	9.75E+02	3.37E+02	2.04E+02	9.63E+02	6.24E-11	3.75E-10	1.30E-10	7.84E-11	3.70E-10	
Bromine (35)	Br-84m	6.07E+04	1.14E-05	1.00E+00	2.86E+13	1.55E+14	5.38E+13	3.37E+13	1.54E+14	2.08E+00	1.12E+01	3.90E+00	2.44E+00	1.11E+01	
Bromine (35)	Br-85	1.26E+05	5.52E-06	1.00E+00	2.91E+04	1.17E+05	4.24E+04	3.00E+04	1.11E+05	1.03E-09	4.15E-09	1.50E-09	1.07E-09	3.93E-09	
Carbon (6)	C-10	1.14E+06	6.11E-07	1.00E+00	1.68E+21	8.21E+21	2.90E+21	1.87E+21	7.98E+21	7.75E+05	3.79E+06	1.34E+06	8.64E+05	3.69E+06	
Carbon (6)	C-11	1.79E+04	3.88E-05	9.00E-01	5.25E+09	2.54E+10	8.89E+09	5.79E+09	2.52E+10	1.69E-04	8.19E-04	2.87E-04	1.87E-04	8.12E-04	
Carbon (6)	C-14	1.22E-04	5.70E+03	9.00E-01	1.63E+04	2.78E+04	1.74E+04	1.63E+04	1.20E+04	9.83E-02	1.68E-01	1.05E-01	9.83E-02	7.27E-02	

Composite Worker 2D External Exposure DCCs July 2023															
Radionuclides		Isotope-specific Information			Dose Compliance Concentrations (DCCs)										
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Soil Volume Area Correction Factor	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	
					DCC DL=1 (Bq/g)	@ 1cm DCC DL=1 (Bq/g)	@ 5cm DCC DL=1 (Bq/g)	@ 15cm DCC DL=1 (Bq/g)	Plane DCC DL=1 (Bq/cm <sup>2</sup> )	DCC DL=1 (mg/kg)	@ 1cm DCC DL=1 (mg/kg)	@ 5cm DCC DL=1 (mg/kg)	@ 15cm DCC DL=1 (mg/kg)	Plane DCC DL=1 (mg/cm <sup>2</sup> )	
Calcium (20)	Ca-41	6.79E-06	1.02E+05		5.98E+03	1.29E+04	6.81E+03	5.98E+03	7.23E+03	9.08E-06	1.95E-05	1.03E-05	9.08E-06	1.10E-05	
Calcium (20)	Ca-45	1.55E+00	4.46E-01	1.00E+00	1.30E+00	7.07E+00	2.45E+00	1.54E+00	7.09E+00	5.77E-11	3.12E-10	1.08E-10	6.81E-11	3.14E-10	
Calcium (20)	Ca-47	5.58E+01	1.24E-02	1.00E+00	1.30E+00	7.07E+00	2.45E+00	1.54E+00	7.09E+00	5.77E-11	3.12E-10	1.08E-10	6.81E-11	3.14E-10	
Calcium (20)	Ca-49	4.18E+04	1.66E-05	1.00E+00	1.88E+05	3.63E+05	2.48E+05	2.00E+05	5.74E+04	1.16E-08	2.23E-08	1.53E-08	1.23E-08	3.53E-09	
Cadmium (48)	Cd-101	2.68E+05	2.59E-06	1.00E+00	1.32E+04	6.29E+04	2.21E+04	1.45E+04	6.22E+04	2.61E-10	1.24E-09	4.37E-10	2.87E-10	1.23E-09	
Cadmium (48)	Cd-102	6.62E+04	1.05E-05	1.00E+00	1.07E+11	5.74E+11	2.00E+11	1.25E+11	5.75E+11	8.61E-03	4.64E-02	1.61E-02	1.01E-02	4.65E-02	
Cadmium (48)	Cd-103	4.99E+04	1.39E-05	1.00E+00	1.74E+03	8.68E+03	3.05E+03	1.98E+03	8.50E+03	1.89E-10	9.40E-10	3.30E-10	2.14E-10	9.21E-10	
Cadmium (48)	Cd-104	6.31E+03	1.10E-04	1.00E+00	8.64E+01	4.50E+02	1.58E+02	1.00E+02	4.44E+02	7.47E-11	3.89E-10	1.37E-10	8.66E-11	3.84E-10	
Cadmium (48)	Cd-105	6.56E+03	1.06E-04	1.00E+00	1.01E+02	5.39E+02	1.87E+02	1.18E+02	5.43E+02	8.51E-11	4.52E-10	1.57E-10	9.92E-11	4.55E-10	
Cadmium (48)	Cd-107	9.34E+02	7.42E-04	1.00E+00	3.57E+03	1.19E+04	5.26E+03	3.82E+03	5.68E+03	2.15E-08	7.17E-08	3.16E-08	2.30E-08	3.41E-08	
Cadmium (48)	Cd-109	5.48E-01	1.26E+00	1.00E+00	1.73E+01	3.47E+01	2.00E+01	1.73E+01	1.09E+01	1.81E-07	3.62E-07	2.08E-07	1.80E-07	1.14E-07	
Cadmium (48)	Cd-111m	7.51E+03	9.23E-05	1.00E+00	9.28E+02	3.97E+03	1.41E+03	9.68E+02	4.01E+03	7.20E-10	3.08E-09	1.09E-09	7.51E-10	3.10E-09	
Cadmium (48)	Cd-113	9.00E-17	7.70E+15	9.00E-01	1.87E+03	4.38E+03	2.20E+03	1.88E+03	2.68E+03	1.23E+11	2.89E+11	1.45E+11	1.23E+11	1.77E+11	
Cadmium (48)	Cd-113m	4.91E+02	1.41E+01	1.00E+00	1.85E+02	5.70E+02	2.50E+02	1.90E+02	7.98E+01	2.23E-05	6.87E-05	3.01E-05	2.29E-05	9.62E-06	
Cadmium (48)	Cd-115	1.14E+02	6.10E-03	1.00E+00	9.93E+00	4.65E+01	1.64E+01	1.08E+01	4.39E+01	5.28E-10	2.47E-09	8.72E-10	5.73E-10	2.33E-09	
Cadmium (48)	Cd-115m	5.67E+00	1.22E-01	1.00E+00	4.33E+00	2.00E+01	7.77E+00	5.02E+00	7.73E+00	4.60E-09	2.13E-08	8.27E-09	5.33E-09	8.22E-09	
Cadmium (48)	Cd-117	2.44E+03	2.84E-04	1.00E+00	4.51E+01	2.34E+02	8.18E+01	5.21E+01	2.27E+02	1.13E-10	5.89E-10	2.06E-10	1.31E-10	5.72E-10	
Cadmium (48)	Cd-117m	1.81E+03	3.84E-04	1.00E+00	1.78E+01	9.76E+01	3.39E+01	2.11E+01	1.00E+02	6.05E-11	3.32E-10	1.15E-10	7.18E-11	3.40E-10	
Cadmium (48)	Cd-118	7.24E+03	9.57E-05	9.00E-01	1.87E+03	7.32E+03	3.25E+03	2.16E+03	3.98E+03	1.60E-09	6.25E-09	2.78E-09	1.84E-09	3.40E-09	
Cadmium (48)	Cd-119	1.35E+05	5.12E-06	1.00E+00	9.70E+09	1.01E+10	9.72E+09	9.71E+09	2.33E+09	4.47E-04	4.65E-04	4.48E-04	4.47E-04	1.08E-04	
Cadmium (48)	Cd-119m	1.66E+05	4.19E-06	1.00E+00	1.79E+09	1.85E+09	1.79E+09	1.79E+09	4.28E+08	6.74E-05	6.97E-05	6.74E-05	6.74E-05	1.61E-05	
Cerium (58)	Ce-130	1.59E+04	4.36E-05	1.00E+00	1.14E+08	5.77E+08	2.03E+08	1.30E+08	5.66E+08	4.89E-05	2.47E-04	8.69E-05	5.57E-05	2.42E-04	
Cerium (58)	Ce-131	3.57E+04	1.94E-05	1.00E+00	1.00E+03	4.65E+03	1.66E+03	1.10E+03	4.47E+03	1.93E-10	8.94E-10	3.19E-10	2.11E-10	8.61E-10	
Cerium (58)	Ce-132	1.73E+03	4.01E-04	1.00E+00	2.17E+01	1.13E+02	3.95E+01	2.51E+01	1.12E+02	8.67E-11	4.52E-10	1.58E-10	1.00E-10	4.49E-10	
Cerium (58)	Ce-133	3.76E+03	1.85E-04	1.00E+00	1.73E+02	7.87E+02	2.86E+02	1.90E+02	7.19E+02	3.21E-10	1.46E-09	5.31E-10	3.53E-10	1.34E-09	
Cerium (58)	Ce-133m	1.24E+03	5.59E-04	1.00E+00	1.85E+01	9.68E+01	3.38E+01	2.14E+01	9.63E+01	1.04E-10	5.45E-10	1.90E-10	1.20E-10	5.42E-10	
Cerium (58)	Ce-134	8.00E+01	8.66E-03	1.00E+00	3.24E+00	1.54E+01	5.52E+00	3.60E+00	1.39E+01	2.85E-10	1.35E-09	4.84E-10	3.16E-10	1.22E-09	
Cerium (58)	Ce-135	3.43E+02	2.02E-03	1.00E+00	1.25E+01	6.00E+01	2.14E+01	1.39E+01	5.90E+01	2.59E-10	1.24E-09	4.41E-10	2.87E-10	1.22E-09	
Cerium (58)	Ce-137	6.75E+02	1.03E-03	1.00E+00	1.51E+03	4.76E+03	2.27E+03	1.63E+03	2.88E+03	1.61E-08	5.07E-08	2.42E-08	1.73E-08	3.07E-08	
Cerium (58)	Ce-137m	1.76E+02	3.93E-03	1.00E+00	1.10E+02	4.04E+02	1.68E+02	1.17E+02	2.99E+02	4.47E-09	1.64E-08	6.82E-09	4.76E-09	1.22E-08	
Cerium (58)	Ce-139	1.84E+00	3.77E-01	1.00E+00	6.12E-01	2.30E+00	8.66E-01	6.26E-01	2.12E+00	2.43E-09	9.11E-09	3.43E-09	2.48E-09	8.40E-09	
Cerium (58)	Ce-141	7.78E+00	8.91E-02	1.00E+00	4.33E+00	1.60E+01	5.98E+00	4.39E+00	1.55E+01	4.11E-09	1.52E-08	5.68E-09	4.17E-09	1.47E-08	
Cerium (58)	Ce-143	1.84E+02	3.77E-03	1.00E+00	2.18E+01	9.85E+01	3.57E+01	2.38E+01	7.97E+01	8.91E-10	4.02E-09	1.46E-09	9.70E-10	3.25E-09	
Cerium (58)	Ce-144	8.88E-01	7.81E-01	1.00E+00	7.89E-01	2.82E+00	1.28E+00	8.93E-01	1.17E+00	6.71E-09	2.40E-08	1.09E-08	7.60E-09	9.97E-09	
Cerium (58)	Ce-145	1.21E+05	5.73E-06	1.00E+00	1.55E+05	5.97E+05	2.59E+05	1.74E+05	1.70E+05	9.72E-09	3.75E-08	1.63E-08	1.10E-08	1.07E-08	
Californium (98)	Cf-244	1.88E+04	3.69E-05	1.00E+00	3.87E+04	2.24E+05	7.77E+04	4.76E+04	2.21E+05	2.64E-08	1.53E-07	5.29E-08	3.25E-08	1.51E-07	
Californium (98)	Cf-246	1.70E+02	4.08E-03	1.00E+00	7.08E+04	1.36E+05	9.36E+04	7.62E+04	2.16E+04	5.37E-06	1.04E-05	7.10E-06	5.78E-06	1.64E-06	
Californium (98)	Cf-247	1.95E+03	3.55E-04	1.00E+00	9.78E+02	3.43E+03	1.31E+03	9.90E+02	3.20E+03	6.49E-09	2.28E-08	8.71E-09	6.57E-09	2.12E-08	
Californium (98)	Cf-248	7.57E-01	9.15E-01	1.00E+00	1.07E+02	4.95E+02	2.00E+02	1.29E+02	2.06E+02	1.84E-06	8.49E-06	3.43E-06	2.21E-06	3.53E-06	
Californium (98)	Cf-249	1.97E-03	3.51E+02	1.00E+00	9.62E-02	4.43E-01	1.56E-01	1.04E-01	4.51E-01	6.36E-07	2.93E-06	1.03E-06	6.85E-07	2.98E-06	
Californium (98)	Cf-250	5.30E-02	1.31E+01	1.00E+00	2.72E+00	1.54E+01	5.37E+00	3.31E+00	1.46E+01	6.74E-07	3.81E-06	1.33E-06	8.19E-07	3.61E-06	
Californium (98)	Cf-251	7.70E-04	9.00E+02	1.00E+00	3.51E-01	1.32E+00	4.90E-01	3.59E-01	1.30E+00	6.01E-06	2.25E-05	8.38E-06	6.13E-06	2.22E-05	

Composite Worker 2D External Exposure DCCs July 2023															
Radionuclides		Isotope-specific Information			Dose Compliance Concentrations (DCCs)										
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Soil Volume Area Correction Factor	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	
					DCC DL=1 (Bq/g)	@ 1cm DCC DL=1 (Bq/g)	@ 5cm DCC DL=1 (Bq/g)	@ 15cm DCC DL=1 (Bq/g)	Plane DCC DL=1 (Bq/cm <sup>2</sup> )	DCC DL=1 (mg/kg)	@ 1cm DCC DL=1 (mg/kg)	@ 5cm DCC DL=1 (mg/kg)	@ 15cm DCC DL=1 (mg/kg)	Plane DCC DL=1 (mg/cm <sup>2</sup> )	
Californium (98)	Cf-252	2.62E-01	2.65E+00	1.00E+00	6.49E-02	3.69E-01	1.28E-01	7.89E-02	3.65E-01	3.27E-09	1.86E-08	6.47E-09	3.98E-09	1.84E-08	
Californium (98)	Cf-253	1.42E+01	4.88E-02	1.00E+00	6.97E+02	2.04E+03	1.00E+03	7.40E+02	6.88E+02	6.51E-07	1.90E-06	9.38E-07	6.91E-07	6.43E-07	
Californium (98)	Cf-254	4.18E+00	1.66E-01	1.00E+00	6.57E-03	3.72E-02	1.30E-02	7.99E-03	3.68E-02	2.09E-11	1.19E-10	4.13E-11	2.55E-11	1.17E-10	
Californium (98)	Cf-255	4.29E+03	1.62E-04	9.00E-01	1.97E+04	6.56E+04	2.70E+04	2.03E+04	2.96E+04	6.14E-08	2.05E-07	8.42E-08	6.34E-08	9.25E-08	
Chlorine (17)	Cl-34	1.43E+07	4.84E-08	1.00E+00	1.83E+28	8.53E+28	3.09E+28	2.02E+28	7.76E+28	2.28E+12	1.06E+13	3.84E+12	2.52E+12	9.66E+12	
Chlorine (17)	Cl-34m	1.14E+04	6.09E-05	1.00E+00	1.40E+02	8.17E+02	2.80E+02	1.72E+02	8.27E+02	2.19E-11	1.28E-10	4.38E-11	2.69E-11	1.29E-10	
Chlorine (17)	Cl-36	2.30E-06	3.01E+05	1.00E+00	6.67E+01	1.81E+02	9.09E+01	6.94E+01	1.25E+01	5.47E-02	1.49E-01	7.46E-02	5.69E-02	1.02E-02	
Chlorine (17)	Cl-38	9.78E+03	7.09E-05	1.00E+00	1.66E+02	9.97E+02	3.47E+02	2.09E+02	9.69E+02	3.38E-11	2.03E-10	7.06E-11	4.25E-11	1.97E-10	
Chlorine (17)	Cl-39	6.55E+03	1.06E-04	1.00E+00	1.19E+02	6.61E+02	2.29E+02	1.42E+02	6.40E+02	3.72E-11	2.06E-10	7.16E-11	4.44E-11	2.00E-10	
Chlorine (17)	Cl-40	2.70E+05	2.57E-06	1.00E+00	9.56E+16	6.03E+17	2.07E+17	1.23E+17	6.15E+17	7.43E+02	4.69E+03	1.61E+03	9.54E+02	4.78E+03	
Curium (96)	Cm-238	2.53E+03	2.74E-04	1.00E+00	7.60E+01	3.82E+02	1.35E+02	8.71E+01	3.85E+02	3.75E-10	1.89E-09	6.65E-10	4.30E-10	1.90E-09	
Curium (96)	Cm-239	2.09E+03	3.31E-04	1.00E+00	1.77E+02	6.65E+02	2.48E+02	1.81E+02	6.61E+02	1.06E-09	3.98E-09	1.49E-09	1.09E-09	3.96E-09	
Curium (96)	Cm-240	9.37E+00	7.40E-02	1.00E+00	1.93E+01	1.12E+02	3.88E+01	2.38E+01	1.10E+02	2.59E-08	1.50E-07	5.21E-08	3.19E-08	1.48E-07	
Curium (96)	Cm-241	7.71E+00	8.99E-02	1.00E+00	5.11E-01	2.31E+00	8.24E-01	5.53E-01	2.30E+00	8.37E-10	3.78E-09	1.35E-09	9.06E-10	3.77E-09	
Curium (96)	Cm-242	1.55E+00	4.46E-01	1.00E+00	2.47E+03	3.20E+03	2.71E+03	2.51E+03	4.07E+02	2.02E-05	2.61E-05	2.21E-05	2.05E-05	3.33E-06	
Curium (96)	Cm-243	2.38E-02	2.91E+01	1.00E+00	3.06E-01	1.20E+00	4.43E-01	3.16E-01	1.19E+00	1.64E-07	6.44E-07	2.37E-07	1.69E-07	6.36E-07	
Curium (96)	Cm-244	3.83E-02	1.81E+01	1.00E+00	8.26E+02	1.66E+03	1.15E+03	9.11E+02	2.42E+02	2.76E-04	5.54E-04	3.83E-04	3.04E-04	8.07E-05	
Curium (96)	Cm-245	8.15E-05	8.50E+03	1.00E+00	4.52E-01	1.48E+00	5.90E-01	4.57E-01	1.38E+00	7.12E-05	2.34E-04	9.29E-05	7.20E-05	2.17E-04	
Curium (96)	Cm-246	1.46E-04	4.76E+03	1.00E+00	7.17E+00	4.04E+01	1.42E+01	8.75E+00	3.58E+01	6.35E-04	3.58E-03	1.25E-03	7.75E-04	3.17E-03	
Curium (96)	Cm-247	4.44E-08	1.56E+07	1.00E+00	6.31E-02	2.64E+01	9.65E-02	6.69E-02	2.61E-01	1.84E-02	7.70E-02	2.81E-02	1.95E-02	7.62E-02	
Curium (96)	Cm-248	1.99E-06	3.48E+05	1.00E+00	1.99E-02	1.13E-01	3.93E-02	2.42E-02	1.11E-01	1.30E-04	7.37E-04	2.56E-04	1.58E-04	7.24E-04	
Curium (96)	Cm-249	5.68E+03	1.22E-04	1.00E+00	8.48E+03	4.03E+04	1.44E+04	9.41E+03	2.37E+04	1.95E-08	9.28E-08	3.32E-08	2.16E-08	5.46E-08	
Curium (96)	Cm-250	8.35E-05	8.30E+03	1.00E+00	1.92E-03	1.09E-02	3.78E-03	2.33E-03	1.07E-02	3.01E-07	1.70E-06	5.93E-07	3.66E-07	1.68E-06	
Curium (96)	Cm-251	2.17E+04	3.20E-05	1.00E+00	1.13E+04	3.99E+04	1.53E+04	1.15E+04	3.20E+04	6.87E-09	2.42E-08	9.28E-09	6.96E-09	1.94E-08	
Cobalt (27)	Co-54m	2.46E+05	2.82E-06	1.00E+00	2.40E+17	1.26E+18	4.41E+17	2.77E+17	1.24E+18	2.76E+03	1.45E+04	5.07E+03	3.19E+03	1.43E+04	
Cobalt (27)	Co-55	3.46E+02	2.00E-03	1.00E+00	4.86E+00	2.50E+01	8.74E+00	5.55E+00	2.50E+01	4.05E-11	2.09E-10	7.28E-11	4.63E-11	2.08E-10	
Cobalt (27)	Co-56	3.28E+00	2.12E-01	1.00E+00	2.42E-02	1.40E-01	4.83E-02	2.96E-02	1.44E-01	2.17E-11	1.26E-10	4.33E-11	2.65E-11	1.29E-10	
Cobalt (27)	Co-57	9.31E-01	7.44E-01	1.00E+00	5.46E-01	1.94E+00	7.32E-01	5.53E-01	1.95E+00	1.75E-09	6.24E-09	2.35E-09	1.78E-09	6.28E-09	
Cobalt (27)	Co-58	3.57E+00	1.94E-01	1.00E+00	1.06E-01	5.44E-01	1.90E-01	1.21E-01	5.52E-01	9.05E-11	4.63E-10	1.62E-10	1.03E-10	4.71E-10	
Cobalt (27)	Co-58m	6.72E+02	1.03E-03	1.00E+00	2.00E+01	1.02E+02	3.57E+01	2.27E+01	1.04E+02	9.05E-11	4.63E-10	1.62E-10	1.03E-10	4.71E-10	
Cobalt (27)	Co-60	1.31E-01	5.27E+00	1.00E+00	1.12E-02	6.30E-02	2.17E-02	1.34E-02	6.43E-02	2.69E-10	1.51E-09	5.19E-10	3.21E-10	1.54E-09	
Cobalt (27)	Co-60m	3.48E+04	1.99E-05	1.00E+00	2.98E+03	1.67E+04	5.75E+03	3.56E+03	1.71E+04	2.70E-10	1.51E-09	5.20E-10	3.21E-10	1.54E-09	
Cobalt (27)	Co-61	3.68E+03	1.88E-04	1.00E+00	1.66E+03	5.96E+03	2.47E+03	1.81E+03	3.75E+03	1.45E-09	5.18E-09	2.15E-09	1.58E-09	3.26E-09	
Cobalt (27)	Co-62	2.43E+05	2.85E-06	1.00E+00	2.85E+17	1.61E+18	5.63E+17	3.46E+17	1.54E+18	3.82E+03	2.16E+04	7.54E+03	4.63E+03	2.07E+04	
Cobalt (27)	Co-62m	2.62E+04	2.65E-05	1.00E+00	1.26E+11	7.09E+11	2.46E+11	1.51E+11	7.01E+11	1.56E-02	8.81E-02	3.05E-02	1.88E-02	8.71E-02	
Chromium (24)	Cr-48	2.82E+02	2.46E-03	1.00E+00	2.34E+00	1.23E+01	4.28E+00	2.71E+00	1.25E+01	2.09E-11	1.10E-10	3.83E-11	2.42E-11	1.12E-10	
Chromium (24)	Cr-49	8.61E+03	8.05E-05	1.00E+00	2.50E+02	1.17E+03	4.15E+02	2.74E+02	1.12E+03	7.46E-11	3.49E-10	1.24E-10	8.17E-11	3.33E-10	
Chromium (24)	Cr-51	9.13E+00	7.59E-02	1.00E+00	9.07E+00	4.13E+01	1.45E+01	9.66E+00	4.23E+01	2.66E-09	1.21E-08	4.24E-09	2.83E-09	1.24E-08	
Chromium (24)	Cr-55	1.04E+05	6.65E-06	1.00E+00	1.86E+17	3.41E+17	2.39E+17	1.95E+17	7.13E+16	5.15E+03	9.44E+03	6.62E+03	5.41E+03	1.98E+03	
Chromium (24)	Cr-56	6.13E+04	1.13E-05	1.00E+00	9.45E+02	5.32E+03	1.85E+03	1.14E+03	5.25E+03	4.53E-11	2.55E-10	8.85E-11	5.46E-11	2.51E-10	
Cesium (55)	Cs-121	1.41E+05	4.92E-06	1.00E+00	1.66E+03	8.54E+03	2.99E+03	1.91E+03	8.42E+03	7.45E-11	3.85E-10	1.35E-10	8.58E-11	3.79E-10	
Cesium (55)	Cs-121m	1.79E+05	3.87E-06	1.00E+00	5.72E+03	2.72E+04	9.60E+03	6.28E+03	2.69E+04	2.03E-10	9.63E-10	3.40E-10	2.22E-10	9.53E-10	



Composite Worker 2D External Exposure DCCs July 2023															
Radionuclides		Isotope-specific Information			Dose Compliance Concentrations (DCCs)										
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Soil Volume Area Correction Factor	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	
					DCC DL=1 (Bq/g)	@ 1cm DCC DL=1 (Bq/g)	@ 5cm DCC DL=1 (Bq/g)	@ 15cm DCC DL=1 (Bq/g)	Plane DCC DL=1 (Bq/cm <sup>2</sup> )	DCC DL=1 (mg/kg)	@ 1cm DCC DL=1 (mg/kg)	@ 5cm DCC DL=1 (mg/kg)	@ 15cm DCC DL=1 (mg/kg)	Plane DCC DL=1 (mg/cm <sup>2</sup> )	
Cesium (55)	Cs-123	6.19E+04	1.12E-05	1.00E+00	2.44E+03	1.16E+04	4.16E+03	2.73E+03	1.13E+04	2.54E-10	1.21E-09	4.33E-10	2.84E-10	1.17E-09	
Cesium (55)	Cs-124	7.10E+05	9.77E-07	1.00E+00	1.33E+20	6.33E+20	2.28E+20	1.48E+20	5.89E+20	1.22E+06	5.80E+06	2.09E+06	1.36E+06	5.40E+06	
Cesium (55)	Cs-125	8.09E+03	8.56E-05	1.00E+00	2.45E+02	1.16E+03	4.15E+02	2.72E+02	1.09E+03	1.99E-10	9.41E-10	3.36E-10	2.20E-10	8.80E-10	
Cesium (55)	Cs-126	2.22E+05	3.12E-06	1.00E+00	1.03E+17	4.94E+17	1.76E+17	1.14E+17	4.63E+17	3.07E+03	1.47E+04	5.23E+03	3.40E+03	1.38E+04	
Cesium (55)	Cs-127	9.71E+02	7.13E-04	1.00E+00	4.61E+01	2.08E+02	7.43E+01	4.96E+01	2.03E+02	3.16E-10	1.42E-09	5.09E-10	3.40E-10	1.39E-09	
Cesium (55)	Cs-128	1.00E+05	6.93E-06	1.00E+00	1.58E+16	7.59E+16	2.70E+16	1.76E+16	7.05E+16	1.06E+03	5.09E+03	1.81E+03	1.18E+03	4.73E+03	
Cesium (55)	Cs-129	1.89E+02	3.66E-03	1.00E+00	2.33E+01	1.06E+02	3.80E+01	2.52E+01	1.01E+02	8.33E-10	3.79E-09	1.36E-09	9.02E-10	3.61E-09	
Cesium (55)	Cs-130	1.25E+04	5.56E-05	1.00E+00	2.17E+07	1.04E+08	3.71E+07	2.40E+07	9.66E+07	1.19E-05	5.71E-05	2.03E-05	1.31E-05	5.28E-05	
Cesium (55)	Cs-130m	1.05E+05	6.58E-06	1.00E+00	1.62E+08	7.78E+08	2.76E+08	1.79E+08	7.20E+08	1.05E-05	5.04E-05	1.79E-05	1.16E-05	4.66E-05	
Cesium (55)	Cs-131	2.61E+01	2.65E-02	1.00E+00	5.37E+02	5.98E+02	5.37E+02	5.37E+02	2.01E+02	1.41E-07	1.57E-07	1.41E-07	1.41E-07	5.29E-08	
Cesium (55)	Cs-132	3.90E+01	1.78E-02	1.00E+00	1.61E+00	8.01E+00	2.82E+00	1.80E+00	8.00E+00	2.85E-10	1.42E-09	5.01E-10	3.20E-10	1.42E-09	
Cesium (55)	Cs-134	3.36E-01	2.06E+00	1.00E+00	2.15E-02	1.09E-01	3.80E-02	2.43E-02	1.10E-01	4.49E-10	2.28E-09	7.95E-10	5.08E-10	2.31E-09	
Cesium (55)	Cs-134m	2.09E+03	3.31E-04	1.00E+00	1.30E+02	6.51E+02	2.29E+02	1.47E+02	6.53E+02	4.38E-10	2.19E-09	7.69E-10	4.94E-10	2.19E-09	
Cesium (55)	Cs-135	3.01E-07	2.30E+06	9.00E-01	2.30E+03	5.15E+03	2.66E+03	2.31E+03	3.04E+03	5.41E+01	1.21E+02	6.26E+01	5.42E+01	7.15E+01	
Cesium (55)	Cs-135m	6.87E+03	1.01E-04	1.00E+00	1.20E+02	6.21E+02	2.16E+02	1.37E+02	6.27E+02	1.24E-10	6.39E-10	2.23E-10	1.42E-10	6.46E-10	
Cesium (55)	Cs-136	1.92E+01	3.61E-02	1.00E+00	2.52E-01	1.31E+00	4.57E-01	2.90E-01	1.34E+00	9.33E-11	4.87E-10	1.70E-10	1.07E-10	4.97E-10	
Cesium (55)	Cs-137	2.30E-02	3.02E+01	1.00E+00	5.13E-02	2.58E-01	9.02E-02	5.77E-02	2.56E-01	1.61E-08	8.07E-08	2.82E-08	1.81E-08	8.01E-08	
Cesium (55)	Cs-138	1.09E+04	6.36E-05	1.00E+00	1.19E+02	6.81E+02	2.35E+02	1.45E+02	6.69E+02	7.93E-11	4.52E-10	1.56E-10	9.62E-11	4.44E-10	
Cesium (55)	Cs-138m	1.25E+05	5.54E-06	1.00E+00	8.79E+06	5.01E+07	1.73E+07	1.07E+07	4.92E+07	5.08E-07	2.90E-06	1.00E-06	6.16E-07	2.85E-06	
Cesium (55)	Cs-139	3.93E+04	1.76E-05	1.00E+00	2.71E+04	9.09E+04	3.89E+04	2.82E+04	3.66E+04	5.02E-09	1.69E-08	7.22E-09	5.23E-09	6.78E-09	
Cesium (55)	Cs-140	3.43E+05	2.02E-06	1.00E+00	3.66E+03	2.04E+04	7.04E+03	4.37E+03	2.03E+04	7.82E-11	4.37E-10	1.51E-10	9.34E-11	4.35E-10	
Copper (29)	Cu-57	1.11E+08	6.22E-09	1.00E+00	1.50E+06	8.18E+06	2.84E+06	1.77E+06	8.37E+06	4.02E-11	2.20E-10	7.63E-11	4.77E-11	2.25E-10	
Copper (29)	Cu-59	2.68E+05	2.58E-06	1.00E+00	7.42E+13	3.59E+14	1.26E+14	8.19E+13	3.66E+14	8.56E-01	4.14E+00	1.45E+00	9.45E-01	4.22E+00	
Copper (29)	Cu-60	1.54E+04	4.51E-05	1.00E+00	6.04E+07	3.39E+08	1.17E+08	7.29E+07	3.41E+08	1.24E-05	6.94E-05	2.40E-05	1.49E-05	6.99E-05	
Copper (29)	Cu-61	1.82E+03	3.80E-04	1.00E+00	6.50E+01	3.16E+02	1.11E+02	7.18E+01	3.10E+02	1.14E-10	5.55E-10	1.95E-10	1.26E-10	5.44E-10	
Copper (29)	Cu-62	3.77E+04	1.84E-05	1.00E+00	3.12E+12	1.48E+13	5.29E+12	3.44E+12	1.35E+13	2.70E-01	1.28E+00	4.57E-01	2.97E-01	1.16E+00	
Copper (29)	Cu-64	4.78E+02	1.45E-03	1.00E+00	7.62E+01	3.70E+02	1.30E+02	8.43E+01	3.72E+02	5.35E-10	2.60E-09	9.13E-10	5.92E-10	2.61E-09	
Copper (29)	Cu-66	7.11E+04	9.74E-06	1.00E+00	9.19E+14	4.24E+15	1.65E+15	1.07E+15	2.33E+15	4.47E+01	2.06E+02	8.03E+01	5.19E+01	1.13E+02	
Copper (29)	Cu-67	9.82E+01	7.06E-03	1.00E+00	3.26E+01	1.28E+02	4.68E+01	3.35E+01	1.30E+02	1.17E-09	4.58E-09	1.68E-09	1.20E-09	4.64E-09	
Copper (29)	Cu-69	1.28E+05	5.42E-06	1.00E+00	7.02E+06	1.36E+07	8.60E+06	7.15E+06	8.48E+05	1.99E-07	3.86E-07	2.43E-07	2.03E-07	2.40E-08	
Dysprosium (66)	Dy-148	1.10E+05	6.28E-06	1.00E+00	1.27E+03	6.84E+03	2.38E+03	1.49E+03	6.77E+03	8.94E-11	4.81E-10	1.68E-10	1.05E-10	4.76E-10	
Dysprosium (66)	Dy-149	8.67E+04	7.99E-06	1.00E+00	1.83E+03	9.16E+03	3.25E+03	2.09E+03	9.07E+03	1.65E-10	8.25E-10	2.93E-10	1.89E-10	8.18E-10	
Dysprosium (66)	Dy-150	5.08E+04	1.36E-05	1.00E+00	5.53E+02	3.03E+03	1.06E+03	6.59E+02	3.07E+03	8.57E-11	4.69E-10	1.64E-10	1.02E-10	4.75E-10	
Dysprosium (66)	Dy-151	2.03E+04	3.41E-05	1.00E+00	6.01E+02	2.85E+03	1.02E+03	6.68E+02	2.81E+03	2.34E-10	1.11E-09	3.96E-10	2.60E-10	1.10E-09	
Dysprosium (66)	Dy-152	2.55E+03	2.72E-04	1.00E+00	4.12E+01	2.14E+02	7.52E+01	4.78E+01	2.14E+02	1.29E-10	6.70E-10	2.35E-10	1.49E-10	6.69E-10	
Dysprosium (66)	Dy-153	9.49E+02	7.31E-04	1.00E+00	2.47E+01	1.16E+02	4.22E+01	2.78E+01	1.12E+02	2.09E-10	9.82E-10	3.57E-10	2.35E-10	9.51E-10	
Dysprosium (66)	Dy-154	2.31E-07	3.00E+06												
Dysprosium (66)	Dy-155	6.13E+02	1.13E-03	1.00E+00	2.41E+01	1.12E+02	4.07E+01	2.70E+01	1.09E+02	3.20E-10	1.49E-09	5.40E-10	3.58E-10	1.45E-09	
Dysprosium (66)	Dy-157	7.46E+02	9.29E-04	1.00E+00	7.46E+01	3.25E+02	1.18E+02	7.95E+01	3.19E+02	8.23E-10	3.59E-09	1.30E-09	8.78E-10	3.52E-09	
Dysprosium (66)	Dy-159	1.75E+00	3.96E-01	1.00E+00	7.60E+00	1.20E+01	7.76E+00	7.60E+00	7.51E+00	3.62E-08	5.72E-08	3.69E-08	3.62E-08	3.58E-08	
Dysprosium (66)	Dy-165	2.60E+03	2.66E-04	1.00E+00	3.33E+03	1.31E+04	5.27E+03	3.63E+03	5.20E+03	1.11E-08	4.37E-08	1.75E-08	1.21E-08	1.73E-08	
Dysprosium (66)	Dy-165m	2.90E+05	2.39E-06	1.00E+00	3.76E+05	1.48E+06	5.96E+05	4.11E+05	5.87E+05	1.12E-08	4.43E-08	1.78E-08	1.23E-08	1.75E-08	

Composite Worker 2D External Exposure DCCs July 2023															
Radionuclides		Isotope-specific Information			Dose Compliance Concentrations (DCCs)										
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Soil Volume Area Correction Factor	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	
					DCC DL=1 (Bq/g)	@ 1cm DCC DL=1 (Bq/g)	@ 5cm DCC DL=1 (Bq/g)	@ 15cm DCC DL=1 (Bq/g)	Plane DCC DL=1 (Bq/cm <sup>2</sup> )	DCC DL=1 (mg/kg)	@ 1cm DCC DL=1 (mg/kg)	@ 5cm DCC DL=1 (mg/kg)	@ 15cm DCC DL=1 (mg/kg)	Plane DCC DL=1 (mg/cm <sup>2</sup> )	
Dysprosium (66)	Dy-166	7.44E+01	9.32E-03	1.00E+00	4.94E+01	1.58E+02	7.32E+01	5.45E+01	7.18E+01	5.78E-09	1.85E-08	8.56E-09	6.37E-09	8.41E-09	
Dysprosium (66)	Dy-167	5.87E+04	1.18E-05	1.00E+00	5.18E+03	2.34E+04	8.28E+03	5.54E+03	2.31E+04	7.72E-10	3.49E-09	1.23E-09	8.26E-10	3.45E-09	
Dysprosium (66)	Dy-168	4.19E+04	1.66E-05	1.00E+00	3.35E+12	1.67E+13	5.89E+12	3.78E+12	1.55E+13	7.04E-01	3.50E+00	1.24E+00	7.96E-01	3.25E+00	
Erbium (68)	Er-154	9.77E+04	7.10E-06	1.00E+00	2.09E+05	1.15E+06	4.00E+05	2.49E+05	1.16E+06	1.73E-08	9.49E-08	3.31E-08	2.06E-08	9.61E-08	
Erbium (68)	Er-156	1.87E+04	3.71E-05	1.00E+00	2.49E+02	1.30E+03	4.57E+02	2.89E+02	1.29E+03	1.09E-10	5.68E-10	2.00E-10	1.27E-10	5.67E-10	
Erbium (68)	Er-159	1.01E+04	6.85E-05	1.00E+00	2.33E+02	1.12E+03	4.05E+02	2.64E+02	1.09E+03	1.92E-10	9.21E-10	3.33E-10	2.17E-10	9.02E-10	
Erbium (68)	Er-161	1.89E+03	3.66E-04	1.00E+00	5.44E+01	2.73E+02	9.74E+01	6.24E+01	2.69E+02	2.43E-10	1.22E-09	4.35E-10	2.79E-10	1.20E-09	
Erbium (68)	Er-163	4.86E+03	1.43E-04	1.00E+00	1.58E+04	2.85E+04	1.71E+04	1.60E+04	1.94E+04	2.78E-08	5.01E-08	3.00E-08	2.82E-08	3.42E-08	
Erbium (68)	Er-165	5.86E+02	1.18E-03	1.00E+00	2.24E+03	3.74E+03	2.30E+03	2.24E+03	2.50E+03	3.31E-08	5.52E-08	3.40E-08	3.31E-08	3.69E-08	
Erbium (68)	Er-167m	9.63E+06	7.19E-08	1.00E+00	4.85E+28	1.95E+29	7.15E+28	5.01E+28	1.95E+29	4.41E+13	1.78E+14	6.50E+13	4.55E+13	1.78E+14	
Erbium (68)	Er-169	2.69E+01	2.58E-02	1.00E+00	3.44E+04	8.37E+04	4.10E+04	3.45E+04	5.35E+04	1.13E-05	2.76E-05	1.35E-05	1.14E-05	1.76E-05	
Erbium (68)	Er-171	8.08E+02	8.58E-04	1.00E+00	7.40E+01	3.20E+02	1.15E+02	7.86E+01	2.97E+02	8.22E-10	3.55E-09	1.28E-09	8.72E-10	3.30E-09	
Erbium (68)	Er-172	1.23E+02	5.63E-03	1.00E+00	3.57E+00	1.83E+01	6.45E+00	4.11E+00	1.75E+01	2.62E-10	1.34E-09	4.73E-10	3.01E-10	1.28E-09	
Erbium (68)	Er-173	2.54E+05	2.73E-06	1.00E+00	2.02E+04	9.36E+04	3.30E+04	2.18E+04	9.10E+04	7.21E-10	3.34E-09	1.18E-09	7.78E-10	3.25E-09	
Einsteinium (99)	Es-249	3.56E+03	1.94E-04	1.00E+00	2.83E+02	1.29E+03	4.61E+02	3.09E+02	1.29E+03	1.04E-09	4.72E-09	1.69E-09	1.13E-09	4.74E-09	
Einsteinium (99)	Es-250	7.06E+02	9.82E-04	1.00E+00	1.83E+01	8.76E+01	3.11E+01	2.03E+01	8.74E+01	3.39E-10	1.63E-09	5.77E-10	3.78E-10	1.62E-09	
Einsteinium (99)	Es-250m	2.73E+03	2.53E-04	1.00E+00	1.45E+02	7.41E+02	2.61E+02	1.67E+02	7.46E+02	6.93E-10	3.55E-09	1.25E-09	8.00E-10	3.58E-09	
Einsteinium (99)	Es-251	1.84E+02	3.77E-03	1.00E+00	9.32E+01	3.23E+02	1.24E+02	9.38E+01	3.07E+02	6.67E-09	2.31E-08	8.85E-09	6.71E-09	2.19E-08	
Einsteinium (99)	Es-253	1.24E+01	5.61E-02	1.00E+00	6.11E+02	2.81E+03	9.90E+02	6.57E+02	2.59E+03	6.56E-07	3.02E-06	1.06E-06	7.06E-07	2.78E-06	
Einsteinium (99)	Es-254	9.17E-01	7.55E-01	1.00E+00	4.64E-02	2.47E+01	8.58E-02	5.40E-02	2.46E-01	6.74E-10	3.59E-09	1.25E-09	7.84E-10	3.57E-09	
Einsteinium (99)	Es-254m	1.54E+02	4.49E-03	1.00E+00	8.96E+00	4.51E+01	1.58E+01	1.01E+01	4.45E+01	7.73E-10	3.89E-09	1.36E-09	8.67E-10	3.84E-09	
Einsteinium (99)	Es-255	6.36E+00	1.09E-01	1.00E+00	3.00E+01	1.01E+02	4.13E+01	3.10E+01	5.94E+01	6.32E-08	2.13E-07	8.69E-08	6.53E-08	1.25E-07	
Einsteinium (99)	Es-256	1.43E+04	4.83E-05	1.00E+00	3.01E+01	1.71E+02	5.92E+01	3.66E+01	1.70E+02	2.82E-11	1.60E-10	5.54E-11	3.42E-11	1.59E-10	
Europium (63)	Eu-142	9.34E+06	7.42E-08	1.00E+00	4.63E+06	2.19E+07	7.90E+06	5.15E+06	1.99E+07	3.69E-09	1.75E-08	6.30E-09	4.11E-09	1.59E-08	
Europium (63)	Eu-142m	2.98E+05	2.33E-06	1.00E+00	8.89E+03	4.20E+04	1.52E+04	9.89E+03	3.83E+04	2.22E-10	1.05E-09	3.79E-10	2.47E-10	9.57E-10	
Europium (63)	Eu-143	1.41E+05	4.93E-06	1.00E+00	2.23E+04	1.10E+05	3.94E+04	2.52E+04	1.07E+05	1.19E-09	5.88E-09	2.10E-09	1.35E-09	5.69E-09	
Europium (63)	Eu-144	2.14E+06	3.23E-07	1.00E+00	1.51E+23	7.28E+23	2.63E+23	1.70E+23	6.76E+23	5.31E+08	2.56E+09	9.26E+08	5.98E+08	2.38E+09	
Europium (63)	Eu-145	4.27E+01	1.62E-02	1.00E+00	9.08E-01	4.90E+00	1.72E+00	1.07E+00	4.89E+00	1.62E-10	8.74E-10	3.06E-10	1.92E-10	8.73E-10	
Europium (63)	Eu-146	5.49E+01	1.26E-02	1.00E+00	6.34E-01	3.35E+00	1.17E+00	7.36E-01	3.40E+00	8.85E-11	4.68E-10	1.63E-10	1.03E-10	4.74E-10	
Europium (63)	Eu-147	1.05E+01	6.60E-02	1.00E+00	7.06E-01	3.40E+00	1.22E+00	7.92E-01	3.32E+00	5.19E-10	2.50E-09	8.97E-10	5.82E-10	2.44E-09	
Europium (63)	Eu-148	4.64E+00	1.49E-01	1.00E+00	6.01E-02	3.06E-01	1.07E-01	6.83E-02	3.09E-01	1.01E-10	5.11E-10	1.79E-10	1.14E-10	5.17E-10	
Europium (63)	Eu-149	2.72E+00	2.55E-01	1.00E+00	2.45E+00	8.73E+00	3.67E+00	2.61E+00	6.89E+00	7.05E-09	2.51E-08	1.06E-08	7.51E-09	1.98E-08	
Europium (63)	Eu-150	1.88E-02	3.69E+01	1.00E+00	1.92E-02	9.45E-02	3.32E-02	2.15E-02	9.52E-02	8.06E-09	3.96E-08	1.39E-08	8.99E-09	3.99E-08	
Europium (63)	Eu-150m	4.74E+02	1.46E-03	1.00E+00	2.96E+02	1.39E+03	5.02E+02	3.29E+02	9.38E+02	4.91E-09	2.31E-08	8.33E-09	5.46E-09	1.56E-08	
Europium (63)	Eu-152	5.12E-02	1.35E+01	1.00E+00	2.47E-02	1.29E-01	4.52E-02	2.86E-02	1.30E-01	3.84E-09	2.01E-08	7.03E-09	4.46E-09	2.03E-08	
Europium (63)	Eu-152m	6.52E+02	1.06E-03	1.00E+00	6.28E+01	3.16E+02	1.13E+02	7.22E+01	2.69E+02	7.68E-10	3.86E-09	1.38E-09	8.82E-10	3.29E-09	
Europium (63)	Eu-152n	3.79E+03	1.83E-04	1.00E+00	1.15E+03	4.61E+03	1.78E+03	1.27E+03	4.41E+03	2.43E-09	9.70E-09	3.74E-09	2.66E-09	9.26E-09	
Europium (63)	Eu-154	8.06E-02	8.59E+00	1.00E+00	2.32E-02	1.22E-01	4.26E-02	2.69E-02	1.23E-01	2.32E-09	1.22E-08	4.27E-09	2.69E-09	1.24E-08	
Europium (63)	Eu-154m	7.92E+03	8.75E-05	1.00E+00	1.80E+03	7.81E+03	2.97E+03	2.03E+03	7.30E+03	1.84E-09	7.97E-09	3.03E-09	2.07E-09	7.44E-09	
Europium (63)	Eu-155	1.46E-01	4.76E+00	1.00E+00	1.07E+00	3.06E+00	1.31E+00	1.07E+00	2.76E+00	5.96E-08	1.71E-07	7.29E-08	5.96E-08	1.54E-07	
Europium (63)	Eu-156	1.67E+01	4.16E-02	1.00E+00	3.53E-01	2.00E+00	6.91E-01	4.26E-01	1.99E+00	1.74E-10	9.83E-10	3.40E-10	2.09E-10	9.78E-10	
Europium (63)	Eu-157	4.00E+02	1.73E-03	1.00E+00	4.65E+01	2.07E+02	7.58E+01	5.07E+01	1.82E+02	9.56E-10	4.25E-09	1.56E-09	1.04E-09	3.74E-09	

Composite Worker 2D External Exposure DCCs July 2023															
Radionuclides		Isotope-specific Information			Dose Compliance Concentrations (DCCs)										
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Soil Volume Area Correction Factor	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	
					DCC DL=1 (Bq/g)	@ 1cm DCC DL=1 (Bq/g)	@ 5cm DCC DL=1 (Bq/g)	@ 15cm DCC DL=1 (Bq/g)	Plane DCC DL=1 (Bq/cm <sup>2</sup> )	DCC DL=1 (mg/kg)	@ 1cm DCC DL=1 (mg/kg)	@ 5cm DCC DL=1 (mg/kg)	@ 15cm DCC DL=1 (mg/kg)	Plane DCC DL=1 (mg/cm <sup>2</sup> )	
Europium (63)	Eu-158	7.94E+03	8.73E-05	1.00E+00	1.65E+02	8.89E+02	3.10E+02	1.95E+02	8.46E+02	1.72E-10	9.28E-10	3.24E-10	2.03E-10	8.84E-10	
Europium (63)	Eu-159	2.01E+04	3.44E-05	1.00E+00	1.34E+04	5.67E+04	2.12E+04	1.44E+04	4.00E+04	5.57E-09	2.35E-08	8.78E-09	5.98E-09	1.66E-08	
Fluorine (9)	F-17	3.39E+05	2.04E-06	1.00E+00	1.92E+18	9.22E+18	3.25E+18	2.12E+18	8.65E+18	5.06E+03	2.43E+04	8.56E+03	5.58E+03	2.28E+04	
Fluorine (9)	F-18	3.32E+03	2.09E-04	9.00E-01	1.10E+02	5.32E+02	1.87E+02	1.21E+02	5.39E+02	3.13E-11	1.51E-10	5.32E-11	3.45E-11	1.53E-10	
Iron (26)	Fe-52	7.34E+02	9.45E-04	1.00E+00	6.38E+00	3.30E+01	1.15E+01	7.34E+00	3.25E+01	2.37E-11	1.22E-10	4.29E-11	2.73E-11	1.21E-10	
Iron (26)	Fe-53	4.28E+04	1.62E-05	1.00E+00	4.46E+12	2.13E+13	7.56E+12	4.93E+12	1.99E+13	2.90E-01	1.38E+00	4.91E-01	3.20E-01	1.29E+00	
Iron (26)	Fe-53m	1.44E+05	4.81E-06	1.00E+00	1.05E+13	5.03E+13	1.78E+13	1.16E+13	4.70E+13	2.03E-01	9.69E-01	3.44E-01	2.24E-01	9.05E-01	
Iron (26)	Fe-55	2.53E+01	2.74E+00	1.00E+00	2.98E+08	1.07E+09	4.01E+08	3.01E+08	1.08E+09	3.40E+00	1.21E+01	4.57E+00	3.43E+00	1.23E+01	
Iron (26)	Fe-59	5.68E+00	1.22E-01	1.00E+00	1.28E-01	7.05E-01	2.44E-01	1.51E-01	7.19E-01	6.96E-11	3.84E-10	1.33E-10	8.24E-11	3.91E-10	
Iron (26)	Fe-60	4.62E-07	1.50E+06	9.00E-01	1.05E-02	5.91E-02	2.03E-02	1.26E-02	6.03E-02	7.18E-05	4.02E-04	1.39E-04	8.56E-05	4.11E-04	
Iron (26)	Fe-61	6.09E+04	1.14E-05	1.00E+00	2.75E+04	9.86E+04	4.10E+04	3.00E+04	6.21E+04	1.45E-09	5.18E-09	2.15E-09	1.58E-09	3.26E-09	
Iron (26)	Fe-62	3.21E+05	2.16E-06	1.00E+00	1.04E+17	5.84E+17	2.04E+17	1.26E+17	5.58E+17	1.05E+03	5.91E+03	2.06E+03	1.27E+03	5.64E+03	
Fermium (100)	Fm-251	1.15E+03	6.05E-04	1.00E+00	1.88E+02	7.34E+02	2.74E+02	1.97E+02	7.12E+02	2.16E-09	8.43E-09	3.15E-09	2.26E-09	8.18E-09	
Fermium (100)	Fm-252	2.39E+02	2.90E-03	1.00E+00	1.37E+04	5.94E+04	2.48E+04	1.62E+04	2.36E+04	7.55E-07	3.28E-06	1.37E-06	8.97E-07	1.30E-06	
Fermium (100)	Fm-253	8.43E+01	8.22E-03	1.00E+00	6.34E+01	2.27E+02	8.64E+01	6.46E+01	2.06E+02	9.98E-09	3.57E-08	1.36E-08	1.02E-08	3.24E-08	
Fermium (100)	Fm-254	1.87E+03	3.70E-04	1.00E+00	6.48E+03	3.65E+04	1.27E+04	7.90E+03	3.35E+04	4.61E-08	2.59E-07	9.06E-08	5.61E-08	2.38E-07	
Fermium (100)	Fm-255	3.02E+02	2.29E-03	1.00E+00	8.55E+03	1.89E+04	1.02E+04	8.62E+03	5.79E+03	3.78E-07	8.35E-07	4.51E-07	3.81E-07	2.56E-07	
Fermium (100)	Fm-256	2.31E+03	3.00E-04	1.00E+00	4.85E+00	2.76E+01	9.54E+00	5.89E+00	2.74E+01	2.82E-11	1.60E-10	5.54E-11	3.42E-11	1.59E-10	
Fermium (100)	Fm-257	2.52E+00	2.75E-01	1.00E+00	7.10E-01	2.95E+00	1.08E+00	7.60E-01	2.82E+00	3.80E-09	1.58E-08	5.81E-09	4.07E-09	1.51E-08	
Francium (87)	Fr-212	1.82E+04	3.81E-05	1.00E+00	3.90E+02	2.03E+03	7.08E+02	4.49E+02	2.06E+03	2.38E-10	1.24E-09	4.32E-10	2.74E-10	1.26E-09	
Francium (87)	Fr-219	1.09E+09	6.34E-10	1.00E+00	5.57E+20	1.62E+21	8.41E+20	6.08E+20	2.33E+20	5.85E+03	1.70E+04	8.84E+03	6.39E+03	2.45E+03	
Francium (87)	Fr-220	7.98E+05	8.69E-07	1.00E+00	1.54E+04	9.26E+04	3.19E+04	1.92E+04	9.10E+04	2.23E-10	1.34E-09	4.61E-10	2.78E-10	1.32E-09	
Francium (87)	Fr-221	7.43E+04	9.32E-06	1.00E+00	1.75E+04	8.09E+04	2.90E+04	1.91E+04	6.17E+04	2.73E-09	1.26E-08	4.52E-09	2.98E-09	9.62E-09	
Francium (87)	Fr-222	2.57E+04	2.70E-05	1.00E+00	1.78E+07	3.03E+07	2.05E+07	1.81E+07	3.11E+06	8.10E-06	1.37E-05	9.30E-06	8.22E-06	1.41E-06	
Francium (87)	Fr-223	1.66E+04	4.19E-05	1.00E+00	1.77E+03	7.59E+03	2.79E+03	1.90E+03	5.86E+03	1.25E-09	5.36E-09	1.97E-09	1.34E-09	4.14E-09	
Francium (87)	Fr-224	1.09E+05	6.34E-06	1.00E+00	1.95E+03	1.13E+04	3.91E+03	2.40E+03	1.12E+04	2.09E-10	1.21E-09	4.20E-10	2.58E-10	1.20E-09	
Francium (87)	Fr-227	1.47E+05	4.70E-06	1.00E+00	3.72E+05	1.58E+06	5.79E+05	3.96E+05	1.30E+06	3.00E-08	1.28E-07	4.67E-08	3.20E-08	1.05E-07	
Gallium (31)	Ga-64	1.39E+05	5.00E-06	1.00E+00	1.76E+15	9.91E+15	3.45E+15	2.13E+15	9.91E+15	4.26E+01	2.40E+02	8.34E+01	5.15E+01	2.40E+02	
Gallium (31)	Ga-65	2.40E+04	2.89E-05	1.00E+00	1.72E+03	9.39E+03	3.25E+03	2.03E+03	9.59E+03	2.45E-10	1.34E-09	4.62E-10	2.88E-10	1.36E-09	
Gallium (31)	Ga-66	6.40E+02	1.08E-03	1.00E+00	6.52E+00	3.88E+01	1.34E+01	8.13E+00	3.92E+01	3.53E-11	2.10E-10	7.24E-11	4.40E-11	2.12E-10	
Gallium (31)	Ga-67	7.76E+01	8.93E-03	1.00E+00	1.83E+01	7.45E+01	2.72E+01	1.91E+01	7.52E+01	8.29E-10	3.38E-09	1.23E-09	8.66E-10	3.41E-09	
Gallium (31)	Ga-68	5.38E+03	1.29E-04	1.00E+00	1.66E+02	7.99E+02	2.83E+02	1.83E+02	7.48E+02	1.10E-10	5.30E-10	1.88E-10	1.21E-10	4.96E-10	
Gallium (31)	Ga-70	1.72E+04	4.02E-05	1.00E+00	2.04E+11	6.54E+11	3.25E+11	2.28E+11	1.25E+11	4.34E-02	1.39E-01	6.93E-02	4.85E-02	2.66E-02	
Gallium (31)	Ga-72	4.31E+02	1.61E-03	1.00E+00	4.13E+00	2.36E+01	8.18E+00	5.01E+00	2.41E+01	3.62E-11	2.07E-10	7.17E-11	4.40E-11	2.11E-10	
Gallium (31)	Ga-73	1.25E+03	5.55E-04	1.00E+00	1.13E+02	5.16E+02	1.82E+02	1.22E+02	4.67E+02	3.46E-10	1.58E-09	5.59E-10	3.72E-10	1.43E-09	
Gallium (31)	Ga-74	4.49E+04	1.54E-05	1.00E+00	1.69E+12	9.87E+12	3.41E+12	2.08E+12	9.95E+12	1.46E-01	8.54E-01	2.95E-01	1.80E-01	8.61E-01	
Gadolinium (64)	Gd-142	3.11E+05	2.23E-06	1.00E+00	9.30E+03	4.39E+04	1.58E+04	1.03E+04	4.00E+04	2.22E-10	1.05E-09	3.79E-10	2.47E-10	9.57E-10	
Gadolinium (64)	Gd-143m	1.99E+05	3.49E-06	1.00E+00	3.15E+04	1.56E+05	5.56E+04	3.57E+04	1.51E+05	1.19E-09	5.88E-09	2.10E-09	1.35E-09	5.69E-09	
Gadolinium (64)	Gd-144	8.15E+04	8.50E-06	1.00E+00	2.90E+14	1.45E+15	5.20E+14	3.32E+14	1.37E+15	2.69E+01	1.35E+02	4.82E+01	3.08E+01	1.27E+02	
Gadolinium (64)	Gd-145	1.58E+04	4.38E-05	1.00E+00	3.36E+02	1.82E+03	6.36E+02	3.98E+02	1.81E+03	1.62E-10	8.72E-10	3.06E-10	1.91E-10	8.70E-10	
Gadolinium (64)	Gd-145m	2.57E+05	2.70E-06	1.00E+00	5.46E+03	2.95E+04	1.03E+04	6.46E+03	2.94E+04	1.62E-10	8.72E-10	3.06E-10	1.91E-10	8.70E-10	
Gadolinium (64)	Gd-146	5.24E+00	1.32E-01	1.00E+00	5.79E-02	2.96E-01	1.04E-01	6.67E-02	2.97E-01	8.46E-11	4.33E-10	1.53E-10	9.75E-11	4.33E-10	

Composite Worker 2D External Exposure DCCs July 2023															
Radionuclides		Isotope-specific Information			Dose Compliance Concentrations (DCCs)										
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Soil Volume Area Correction Factor	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	
					DCC DL=1 (Bq/g)	@ 1cm DCC DL=1 (Bq/g)	@ 5cm DCC DL=1 (Bq/g)	@ 15cm DCC DL=1 (Bq/g)	Plane DCC DL=1 (Bq/cm <sup>2</sup> )	DCC DL=1 (mg/kg)	@ 1cm DCC DL=1 (mg/kg)	@ 5cm DCC DL=1 (mg/kg)	@ 15cm DCC DL=1 (mg/kg)	Plane DCC DL=1 (mg/cm <sup>2</sup> )	
Gadolinium (64)	Gd-147	1.59E+02	4.35E-03	1.00E+00	2.55E+00	1.26E+01	4.45E+00	2.87E+00	1.26E+01	1.23E-10	6.10E-10	2.15E-10	1.39E-10	6.12E-10	
Gadolinium (64)	Gd-148	9.29E-03	7.46E+01	1.00E+00	1.60E+00	7.15E+00	2.61E+00	1.75E+00	6.89E+00	4.60E-10	2.05E-09	7.48E-10	5.02E-10	1.98E-09	
Gadolinium (64)	Gd-149	2.73E+01	2.54E-02	1.00E+00	2.07E+00	6.65E+00	2.87E+00	2.14E+00	5.27E+00	8.04E-09	2.58E-08	1.11E-08	8.30E-09	2.05E-08	
Gadolinium (64)	Gd-150	3.87E-07	1.79E+06	1.00E+00	1.23E+00	3.13E+00	1.48E+00	1.23E+00	2.43E+00	9.38E-09	2.39E-08	1.13E-08	9.38E-09	1.86E-08	
Gadolinium (64)	Gd-151	2.04E+00	3.40E-01	1.00E+00	2.19E+02	9.26E+02	3.46E+02	2.36E+02	6.54E+02	5.57E-09	2.35E-08	8.78E-09	5.98E-09	1.66E-08	
Gadolinium (64)	Gd-152	6.42E-15	1.08E+14	1.00E+00	6.11E+11	3.04E+12	1.07E+12	6.87E+11	2.96E+12	1.20E-01	5.95E-01	2.09E-01	1.35E-01	5.79E-01	
Gadolinium (64)	Gd-153	1.05E+00	6.59E-01	1.00E+00	2.24E+01	1.27E+02	4.41E+01	2.72E+01	1.28E+02	2.88E-11	1.64E-10	5.68E-11	3.51E-11	1.65E-10	
Gadolinium (64)	Gd-159	3.29E+02	2.11E-03	1.00E+00	4.54E+03	1.85E+04	6.77E+03	4.75E+03	1.87E+04	8.29E-10	3.38E-09	1.23E-09	8.66E-10	3.41E-09	
Gadolinium (64)	Gd-162	4.34E+04	1.60E-05	1.00E+00	4.75E-02	2.29E-01	8.09E-02	5.23E-02	2.14E-01	1.81E-10	8.73E-10	3.09E-10	2.00E-10	8.17E-10	
Germanium (32)	Ge-66	2.69E+03	2.58E-04	1.00E+00	4.54E+00	2.38E+01	8.28E+00	5.23E+00	2.40E+01	1.06E-10	5.54E-10	1.93E-10	1.22E-10	5.58E-10	
Germanium (32)	Ge-67	1.93E+04	3.60E-05	1.00E+00	3.13E+06	3.13E+06	3.13E+06	3.13E+06	8.38E+04	5.26E-04	5.26E-04	5.26E-04	5.26E-04	1.41E-05	
Germanium (32)	Ge-68	9.34E-01	7.42E-01	1.00E+00	3.93E+03	1.65E+04	6.07E+03	4.14E+03	8.36E+03	3.51E-09	1.48E-08	5.43E-09	3.70E-09	7.47E-09	
Germanium (32)	Ge-69	1.55E+02	4.46E-03	1.00E+00	1.44E+01	7.10E+01	2.50E+01	1.61E+01	6.81E+01	1.08E-10	5.34E-10	1.88E-10	1.21E-10	5.12E-10	
Germanium (32)	Ge-71	2.21E+01	3.13E-02	1.00E+00	7.17E+01	3.74E+02	1.31E+02	8.30E+01	3.60E+02	7.09E-11	3.69E-10	1.30E-10	8.20E-11	3.55E-10	
Germanium (32)	Ge-75	4.40E+03	1.57E-04	1.00E+00	2.53E+03	1.30E+04	4.66E+03	2.98E+03	1.30E+04	1.25E-10	6.42E-10	2.29E-10	1.47E-10	6.39E-10	
Germanium (32)	Ge-77	5.37E+02	1.29E-03	1.00E+00	2.10E+03	1.05E+04	3.78E+03	2.44E+03	1.04E+04	1.66E-10	8.27E-10	2.98E-10	1.92E-10	8.21E-10	
Germanium (32)	Ge-78	4.14E+03	1.67E-04	1.00E+00	3.38E+00	1.92E+01	6.70E+00	4.13E+00	1.97E+01	7.94E-11	4.52E-10	1.58E-10	9.71E-11	4.63E-10	
Hydrogen (1)	H-3	5.63E-02	1.23E+01	1.00E+00	1.71E-02	8.79E-02	3.11E-02	1.98E-02	8.79E-02	4.17E-10	2.14E-09	7.58E-10	4.83E-10	2.14E-09	
Hafnium (72)	Hf-167	1.78E+05	3.90E-06	1.00E+00	2.22E+01	8.61E+01	3.28E+01	2.34E+01	8.34E+01	7.83E-10	3.04E-09	1.16E-09	8.24E-10	2.94E-09	
Hafnium (72)	Hf-169	1.12E+05	6.16E-06	1.00E+00	3.47E+01	1.64E+00	5.83E-01	3.87E-01	1.65E+00	5.69E-10	2.60E-09	9.28E-10	6.16E-10	2.63E-09	
Hafnium (72)	Hf-170	3.79E+02	1.83E-03	1.00E+00	3.69E-01	1.59E+00	5.79E-01	3.94E-01	1.56E+00	9.37E-10	4.03E-09	1.47E-09	1.00E-09	3.97E-09	
Hafnium (72)	Hf-172	3.71E-01	1.87E+00	1.00E+00	1.04E+02	4.56E+02	1.63E+02	1.11E+02	4.61E+02	1.36E-10	5.97E-10	2.14E-10	1.45E-10	6.04E-10	
Hafnium (72)	Hf-173	2.57E+02	2.69E-03	1.00E+00	1.43E-02	6.55E-02	2.33E-02	1.54E-02	6.64E-02	5.96E-09	2.73E-08	9.72E-09	6.45E-09	2.77E-08	
Hafnium (72)	Hf-174	3.47E-16	2.00E+15	1.00E+00	1.01E+01	6.86E-02	1.62E+00	5.84E-01	3.96E-01	3.44E-10	1.51E-09	5.43E-10	3.69E-10	1.51E-09	
Hafnium (72)	Hf-175	3.61E+00	1.92E-01	1.00E+00	1.10E+03	6.28E-04	1.63E+02	5.84E+01	3.91E+01	3.11E-10	1.40E-09	4.99E-10	3.34E-10	1.41E-09	
Hafnium (72)	Hf-177m	7.09E+03	9.78E-05	1.00E+00	5.97E+00	1.16E-01	1.64E+00	5.83E-01	3.87E-01	5.69E-10	2.60E-09	9.28E-10	6.16E-10	2.63E-09	
Hafnium (72)	Hf-178m	2.24E-02	3.10E+01	1.00E+00	7.70E-08	9.00E+06	1.87E-02	9.67E-02	3.40E-02	2.32E-03	1.20E-02	4.22E-03	2.68E-03	1.22E-02	
Hafnium (72)	Hf-179m	1.01E+01	6.86E-02	1.00E+00	1.11E+02	5.46E+02	1.94E+02	1.26E+02	5.49E+02	1.79E-10	8.80E-10	3.12E-10	2.02E-10	8.85E-10	
Hafnium (72)	Hf-180m	1.10E+03	6.28E-04	1.00E+00	1.68E+02	7.88E+02	2.83E+02	1.87E+02	7.57E+02	2.84E-10	1.33E-09	4.77E-10	3.15E-10	1.28E-09	
Hafnium (72)	Hf-181	5.97E+00	1.16E-01	1.00E+00	1.47E+03	4.70E-04	1.19E+02	4.20E+01	2.75E+01	1.63E-10	7.79E-10	2.75E-10	1.80E-10	7.66E-10	
Hafnium (72)	Hf-182	7.70E-08	9.00E+06	1.00E+00	2.01E+02	1.16E+03	4.01E+02	2.47E+02	1.20E+03	1.10E-10	6.36E-10	2.19E-10	1.35E-10	6.55E-10	
Hafnium (72)	Hf-182m	5.92E+03	1.17E-04	1.00E+00	9.37E+01	4.49E+02	1.60E+02	1.05E+02	4.51E+02	1.31E-10	6.27E-10	2.24E-10	1.47E-10	6.30E-10	
Hafnium (72)	Hf-183	5.69E+03	1.22E-04	1.00E+00	1.57E+01	8.61E+01	2.99E+01	1.88E+01	8.78E+01	1.26E-10	6.92E-10	2.41E-10	1.51E-10	7.06E-10	
Hafnium (72)	Hf-184	1.47E+03	4.70E-04	1.00E+00	4.87E+01	2.40E+02	8.62E+01	5.58E+01	2.41E+02	3.08E-10	1.52E-09	5.46E-10	3.54E-10	1.52E-09	
Mercury (80)	Hg-190	1.82E+04	3.81E-05	1.00E+00	1.11E+01	5.39E+01	1.92E+01	1.25E+01	5.44E+01	2.18E-10	1.06E-09	3.79E-10	2.46E-10	1.07E-09	
Mercury (80)	Hg-191m	7.17E+03	9.67E-05	1.00E+00	2.71E-02	1.44E-01	5.05E-02	3.18E-02	1.47E-01	1.75E-07	9.30E-07	3.26E-07	2.05E-07	9.48E-07	
Mercury (80)	Hg-192	1.25E+03	5.54E-04	1.00E+00	8.99E+01	3.61E+02	1.40E+02	9.90E+01	3.44E+02	1.60E-09	6.41E-09	2.49E-09	1.76E-09	6.10E-09	
Mercury (80)	Hg-193	1.60E+03	4.34E-04	1.00E+00	1.46E+02	4.75E-03	1.53E+01	6.27E+01	2.37E+01	1.07E-09	4.39E-09	1.66E-09	1.16E-09	4.27E-09	
Mercury (80)	Hg-193m	5.14E+02	1.35E-03	1.00E+00	2.71E-02	1.44E-01	5.05E-02	3.18E-02	1.47E-01	1.75E-07	9.30E-07	3.26E-07	2.05E-07	9.48E-07	
Mercury (80)	Hg-194	1.58E-03	4.40E+02	1.00E+00	8.99E+01	3.61E+02	1.40E+02	9.90E+01	3.44E+02	1.60E-09	6.41E-09	2.49E-09	1.76E-09	6.10E-09	
Mercury (80)	Hg-195	5.77E+02	1.20E-03	1.00E+00	1.46E+02	4.75E-03	1.53E+01	6.27E+01	2.37E+01	1.07E-09	4.39E-09	1.66E-09	1.16E-09	4.27E-09	
Mercury (80)	Hg-195m	1.46E+02	4.75E-03	1.00E+00	1.53E+01	6.27E+01	2.37E+01	1.66E+01	6.09E+01	1.07E-09	4.39E-09	1.66E-09	1.16E-09	4.27E-09	



Composite Worker 2D External Exposure DCCs July 2023															
Radionuclides		Isotope-specific Information			Dose Compliance Concentrations (DCCs)										
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Soil Volume Area Correction Factor	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	
					DCC DL=1 (Bq/g)	@ 1cm DCC DL=1 (Bq/g)	@ 5cm DCC DL=1 (Bq/g)	@ 15cm DCC DL=1 (Bq/g)	Plane DCC DL=1 (Bq/cm <sup>2</sup> )	DCC DL=1 (mg/kg)	@ 1cm DCC DL=1 (mg/kg)	@ 5cm DCC DL=1 (mg/kg)	@ 15cm DCC DL=1 (mg/kg)	Plane DCC DL=1 (mg/cm <sup>2</sup> )	
Mercury (80)	Hg-197	9.35E+01	7.41E-03	1.00E+00	9.53E+01	2.39E+02	1.09E+02	9.54E+01	2.13E+02	1.05E-08	2.64E-08	1.21E-08	1.05E-08	2.35E-08	
Mercury (80)	Hg-197m	2.55E+02	2.72E-03	1.00E+00	8.62E+01	2.69E+02	1.11E+02	8.76E+01	2.54E+02	3.49E-09	1.09E-08	4.49E-09	3.55E-09	1.03E-08	
Mercury (80)	Hg-199m	8.54E+03	8.12E-05	1.00E+00	1.91E+03	7.26E+03	2.74E+03	1.98E+03	7.22E+03	2.33E-09	8.88E-09	3.35E-09	2.42E-09	8.82E-09	
Mercury (80)	Hg-203	5.43E+00	1.28E-01	1.00E+00	7.58E-01	3.33E+00	1.18E+00	8.00E-01	3.40E+00	1.49E-09	6.53E-09	2.31E-09	1.57E-09	6.68E-09	
Mercury (80)	Hg-205	7.00E+04	9.89E-06	1.00E+00	1.46E+16	4.02E+16	2.03E+16	1.52E+16	6.92E+15	2.25E+03	6.17E+03	3.11E+03	2.33E+03	1.06E+03	
Mercury (80)	Hg-206	4.47E+04	1.55E-05	1.00E+00	5.14E+13	2.13E+14	8.03E+13	5.48E+13	1.01E+14	1.24E+01	5.14E+01	1.94E+01	1.32E+01	2.45E+01	
Mercury (80)	Hg-207	1.26E+05	5.52E-06	1.00E+00	2.73E+16	9.90E+16	4.59E+16	3.12E+16	1.79E+16	2.36E+03	8.56E+03	3.97E+03	2.70E+03	1.55E+03	
Holmium (67)	Ho-150	2.85E+05	2.44E-06	1.00E+00	3.10E+03	1.70E+04	5.92E+03	3.69E+03	1.72E+04	8.57E-11	4.69E-10	1.64E-10	1.02E-10	4.75E-10	
Holmium (67)	Ho-153	1.81E+05	3.82E-06	1.00E+00	4.70E+03	2.21E+04	8.04E+03	5.30E+03	2.14E+04	2.08E-10	9.79E-10	3.56E-10	2.34E-10	9.48E-10	
Holmium (67)	Ho-153m	3.92E+04	1.77E-05	1.00E+00	1.02E+03	4.79E+03	1.74E+03	1.15E+03	4.64E+03	2.08E-10	9.81E-10	3.57E-10	2.35E-10	9.50E-10	
Holmium (67)	Ho-154	3.10E+04	2.24E-05	1.00E+00	2.17E+06	1.23E+07	4.28E+06	2.63E+06	1.26E+07	5.65E-07	3.22E-06	1.11E-06	6.86E-07	3.28E-06	
Holmium (67)	Ho-154m	1.17E+05	5.90E-06	1.00E+00	1.25E+15	6.08E+15	2.13E+15	1.38E+15	6.02E+15	8.58E+01	4.18E+02	1.47E+02	9.52E+01	4.14E+02	
Holmium (67)	Ho-155	7.59E+03	9.13E-05	1.00E+00	1.67E+02	7.92E+02	2.86E+02	1.88E+02	7.70E+02	1.79E-10	8.48E-10	3.06E-10	2.01E-10	8.25E-10	
Holmium (67)	Ho-156	6.50E+03	1.07E-04	1.00E+00	8.67E+01	4.52E+02	1.59E+02	1.01E+02	4.51E+02	1.09E-10	5.68E-10	2.00E-10	1.27E-10	5.67E-10	
Holmium (67)	Ho-157	2.89E+04	2.40E-05	1.00E+00	2.89E+03	1.26E+04	4.56E+03	3.08E+03	1.24E+04	8.23E-10	3.59E-09	1.30E-09	8.78E-10	3.52E-09	
Holmium (67)	Ho-159	1.10E+04	6.29E-05	1.00E+00	1.10E+03	4.32E+03	1.68E+03	1.18E+03	3.98E+03	8.35E-10	3.26E-09	1.27E-09	8.92E-10	3.01E-09	
Holmium (67)	Ho-160	1.42E+04	4.87E-05	1.00E+00	4.34E+07	2.22E+08	7.77E+07	4.96E+07	2.23E+08	2.56E-05	1.31E-04	4.58E-05	2.93E-05	1.32E-04	
Holmium (67)	Ho-161	2.45E+03	2.83E-04	1.00E+00	5.42E+03	1.07E+04	6.03E+03	5.45E+03	7.01E+03	1.87E-08	3.70E-08	2.08E-08	1.88E-08	2.42E-08	
Holmium (67)	Ho-162	2.43E+04	2.85E-05	1.00E+00	2.29E+12	1.05E+13	3.99E+12	2.64E+12	9.59E+12	8.03E-01	3.68E+00	1.40E+00	9.22E-01	3.36E+00	
Holmium (67)	Ho-162m	5.44E+03	1.27E-04	1.00E+00	2.54E+02	1.26E+03	4.55E+02	2.93E+02	1.24E+03	3.98E-10	1.98E-09	7.11E-10	4.57E-10	1.94E-09	
Holmium (67)	Ho-163	1.52E+04	4.57E+03												
Holmium (67)	Ho-164	1.26E+04	5.52E-05	1.00E+00	1.72E+09	3.13E+09	1.83E+09	1.72E+09	1.67E+09	1.18E-03	2.15E-03	1.25E-03	1.18E-03	1.14E-03	
Holmium (67)	Ho-164m	9.59E+03	7.23E-05	1.00E+00	1.76E+04	3.06E+04	1.84E+04	1.76E+04	1.84E+04	1.58E-08	2.74E-08	1.65E-08	1.58E-08	1.65E-08	
Holmium (67)	Ho-166	2.27E+02	3.06E-03	1.00E+00	2.31E+02	8.77E+02	3.88E+02	2.67E+02	2.96E+02	8.88E-09	3.37E-08	1.49E-08	1.02E-08	1.14E-08	
Holmium (67)	Ho-166m	5.78E-04	1.20E+03	1.00E+00	1.81E-02	8.93E-02	3.13E-02	2.03E-02	9.06E-02	2.73E-07	1.35E-06	4.72E-07	3.06E-07	1.37E-06	
Holmium (67)	Ho-167	1.96E+03	3.54E-04	1.00E+00	1.73E+02	7.79E+02	2.76E+02	1.85E+02	7.71E+02	7.72E-10	3.49E-09	1.23E-09	8.26E-10	3.45E-09	
Holmium (67)	Ho-168	1.22E+05	5.69E-06	1.00E+00	8.29E+15	4.22E+16	1.49E+16	9.48E+15	3.92E+16	6.00E+02	3.06E+03	1.08E+03	6.86E+02	2.83E+03	
Holmium (67)	Ho-168m	1.66E+05	4.19E-06	1.00E+00	3.89E+15	1.98E+16	6.98E+15	4.45E+15	1.84E+16	2.07E+02	1.05E+03	3.71E+02	2.37E+02	9.77E+02	
Holmium (67)	Ho-170	1.32E+05	5.25E-06	1.00E+00	4.27E+15	2.18E+16	7.66E+15	4.89E+15	2.11E+16	2.88E+02	1.47E+03	5.17E+02	3.30E+02	1.43E+03	
Iodine (53)	I-118	2.66E+04	2.61E-05	1.00E+00	9.63E+02	4.59E+03	1.64E+03	1.06E+03	4.18E+03	2.24E-10	1.07E-09	3.82E-10	2.48E-10	9.72E-10	
Iodine (53)	I-118m	4.29E+04	1.62E-05	1.00E+00	1.55E+03	7.41E+03	2.65E+03	1.72E+03	6.74E+03	2.24E-10	1.07E-09	3.82E-10	2.48E-10	9.73E-10	
Iodine (53)	I-119	1.91E+04	3.63E-05	1.00E+00	7.09E+02	3.60E+03	1.27E+03	8.07E+02	3.56E+03	2.32E-10	1.18E-09	4.15E-10	2.64E-10	1.16E-09	
Iodine (53)	I-120	4.46E+03	1.55E-04	1.00E+00	4.45E+01	2.47E+02	8.57E+01	5.33E+01	2.46E+02	6.28E-11	3.48E-10	1.21E-10	7.51E-11	3.46E-10	
Iodine (53)	I-120m	6.87E+03	1.01E-04	1.00E+00	5.42E+01	2.83E+02	9.84E+01	6.24E+01	2.81E+02	4.96E-11	2.59E-10	9.01E-11	5.71E-11	2.57E-10	
Iodine (53)	I-121	2.86E+03	2.42E-04	1.00E+00	9.17E+01	4.35E+02	1.54E+02	1.01E+02	4.31E+02	2.03E-10	9.64E-10	3.41E-10	2.23E-10	9.54E-10	
Iodine (53)	I-122	1.00E+05	6.91E-06	1.00E+00	9.21E+15	4.40E+16	1.57E+16	1.02E+16	4.06E+16	5.87E+02	2.81E+03	1.00E+03	6.51E+02	2.59E+03	
Iodine (53)	I-123	4.57E+02	1.51E-03	1.00E+00	1.13E+02	4.41E+02	1.63E+02	1.17E+02	4.12E+02	1.59E-09	6.22E-09	2.30E-09	1.65E-09	5.81E-09	
Iodine (53)	I-124	6.06E+01	1.14E-02	1.00E+00	1.52E+00	8.00E+00	2.80E+00	1.76E+00	8.00E+00	1.63E-10	8.59E-10	3.00E-10	1.89E-10	8.59E-10	
Iodine (53)	I-125	4.26E+00	1.63E-01	1.00E+00	5.84E+01	6.31E+01	5.83E+01	5.84E+01	1.88E+01	8.99E-08	9.71E-08	8.97E-08	8.99E-08	2.89E-08	
Iodine (53)	I-126	1.96E+01	3.54E-02	1.00E+00	1.35E+00	6.55E+00	2.31E+00	1.49E+00	6.41E+00	4.55E-10	2.21E-09	7.79E-10	5.03E-10	2.17E-09	
Iodine (53)	I-128	1.46E+04	4.75E-05	1.00E+00	1.57E+09	6.64E+09	2.58E+09	1.72E+09	3.38E+09	7.24E-04	3.06E-03	1.19E-03	7.93E-04	1.56E-03	
Iodine (53)	I-129	4.41E-08	1.57E+07	1.00E+00	1.67E+01	1.94E+01	1.67E+01	1.67E+01	6.97E+00	2.56E+00	2.97E+00	2.56E+00	2.56E+00	1.07E+00	

Composite Worker 2D External Exposure DCCs July 2023															
Radionuclides		Isotope-specific Information			Dose Compliance Concentrations (DCCs)										
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Soil Volume Area Correction Factor	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	
					DCC DL=1 (Bq/g)	@ 1cm DCC DL=1 (Bq/g)	@ 5cm DCC DL=1 (Bq/g)	@ 15cm DCC DL=1 (Bq/g)	Plane DCC DL=1 (Bq/cm <sup>2</sup> )	DCC DL=1 (mg/kg)	@ 1cm DCC DL=1 (mg/kg)	@ 5cm DCC DL=1 (mg/kg)	@ 15cm DCC DL=1 (mg/kg)	Plane DCC DL=1 (mg/cm <sup>2</sup> )	
Iodine (53)	I-130	4.91E+02	1.41E-03	1.00E+00	6.57E+00	3.30E+01	1.15E+01	7.39E+00	3.32E+01	9.12E-11	4.59E-10	1.60E-10	1.03E-10	4.61E-10	
Iodine (53)	I-130m	4.12E+04	1.68E-05	1.00E+00	6.56E+02	3.30E+03	1.15E+03	7.38E+02	3.32E+03	1.09E-10	5.46E-10	1.90E-10	1.22E-10	5.49E-10	
Iodine (53)	I-131	3.15E+01	2.20E-02	1.00E+00	2.53E+00	1.18E+01	4.16E+00	2.74E+00	1.20E+01	5.52E-10	2.58E-09	9.06E-10	5.98E-10	2.61E-09	
Iodine (53)	I-132	2.65E+03	2.62E-04	1.00E+00	3.26E+01	1.69E+02	5.87E+01	3.73E+01	1.68E+02	8.52E-11	4.42E-10	1.54E-10	9.75E-11	4.40E-10	
Iodine (53)	I-132m	4.38E+03	1.58E-04	1.00E+00	5.38E+01	2.77E+02	9.66E+01	6.14E+01	2.76E+02	8.51E-11	4.38E-10	1.53E-10	9.71E-11	4.36E-10	
Iodine (53)	I-133	2.92E+02	2.37E-03	1.00E+00	1.34E+01	6.47E+01	2.30E+01	1.49E+01	6.10E+01	3.20E-10	1.55E-09	5.49E-10	3.56E-10	1.46E-09	
Iodine (53)	I-134	6.94E+03	9.99E-05	1.00E+00	7.33E+01	3.88E+02	1.35E+02	8.50E+01	3.86E+02	7.43E-11	3.93E-10	1.37E-10	8.61E-11	3.91E-10	
Iodine (53)	I-134m	1.01E+05	6.85E-06	1.00E+00	1.09E+03	5.80E+03	2.01E+03	1.27E+03	5.77E+03	7.60E-11	4.03E-10	1.40E-10	8.82E-11	4.01E-10	
Iodine (53)	I-135	9.24E+02	7.50E-04	1.00E+00	1.32E+01	7.16E+01	2.48E+01	1.55E+01	7.16E+01	1.01E-10	5.49E-10	1.90E-10	1.19E-10	5.49E-10	
Indium (49)	In-103	3.64E+05	1.90E-06	1.00E+00	1.27E+04	6.34E+04	2.22E+04	1.44E+04	6.21E+04	1.89E-10	9.40E-10	3.30E-10	2.14E-10	9.21E-10	
Indium (49)	In-105	7.18E+04	9.65E-06	1.00E+00	1.11E+03	5.90E+03	2.05E+03	1.29E+03	5.94E+03	8.51E-11	4.52E-10	1.57E-10	9.92E-11	4.55E-10	
Indium (49)	In-106	5.87E+04	1.18E-05	1.00E+00	1.09E+13	5.54E+13	1.94E+13	1.24E+13	5.51E+13	1.03E+00	5.24E+00	1.84E+00	1.17E+00	5.21E+00	
Indium (49)	In-106m	7.00E+04	9.89E-06	1.00E+00	3.10E+13	1.68E+14	5.88E+13	3.67E+13	1.66E+14	2.46E+00	1.33E+01	4.67E+00	2.91E+00	1.32E+01	
Indium (49)	In-107	1.12E+04	6.16E-05	1.00E+00	2.00E+02	1.08E+03	3.76E+02	2.36E+02	1.07E+03	1.00E-10	5.40E-10	1.88E-10	1.18E-10	5.36E-10	
Indium (49)	In-108	6.28E+03	1.10E-04	1.00E+00	4.43E+01	2.34E+02	8.15E+01	5.14E+01	2.38E+02	4.00E-11	2.11E-10	7.35E-11	4.64E-11	2.15E-10	
Indium (49)	In-108m	9.20E+03	7.53E-05	1.00E+00	8.64E+01	5.02E+02	1.73E+02	1.06E+02	5.06E+02	5.32E-11	3.09E-10	1.06E-10	6.52E-11	3.12E-10	
Indium (49)	In-109	1.45E+03	4.79E-04	1.00E+00	6.70E+01	3.34E+02	1.17E+02	7.59E+01	3.34E+02	2.65E-10	1.32E-09	4.63E-10	3.00E-10	1.32E-09	
Indium (49)	In-109m	2.72E+05	2.55E-06	1.00E+00	1.25E+04	6.25E+04	2.19E+04	1.42E+04	6.24E+04	2.64E-10	1.32E-09	4.60E-10	2.99E-10	1.31E-09	
Indium (49)	In-110	1.24E+03	5.59E-04	1.00E+00	1.12E+01	5.81E+01	2.02E+01	1.28E+01	5.88E+01	5.22E-11	2.71E-10	9.43E-11	5.97E-11	2.74E-10	
Indium (49)	In-110m	5.27E+03	1.31E-04	1.00E+00	9.39E+01	4.82E+02	1.69E+02	1.07E+02	4.72E+02	1.03E-10	5.28E-10	1.85E-10	1.18E-10	5.16E-10	
Indium (49)	In-111	9.02E+01	7.68E-03	1.00E+00	8.08E+00	3.39E+01	1.21E+01	8.40E+00	3.39E+01	5.21E-10	2.19E-09	7.82E-10	5.42E-10	2.19E-09	
Indium (49)	In-111m	4.73E+04	1.46E-05	1.00E+00	4.23E+03	1.77E+04	6.34E+03	4.40E+03	1.77E+04	5.20E-10	2.18E-09	7.81E-10	5.41E-10	2.18E-09	
Indium (49)	In-112	2.43E+04	2.85E-05	1.00E+00	1.26E+12	6.07E+12	2.15E+12	1.39E+12	5.70E+12	3.04E-01	1.46E+00	5.18E-01	3.36E-01	1.38E+00	
Indium (49)	In-112m	1.77E+04	3.91E-05	1.00E+00	4.14E+09	1.98E+10	7.03E+09	4.57E+09	1.85E+10	1.37E-03	6.57E-03	2.33E-03	1.51E-03	6.14E-03	
Indium (49)	In-113m	3.66E+03	1.89E-04	1.00E+00	4.41E+02	2.05E+03	7.22E+02	4.76E+02	2.06E+03	7.13E-10	3.32E-09	1.17E-09	7.71E-10	3.34E-09	
Indium (49)	In-114	3.04E+05	2.28E-06	1.00E+00	2.44E+20	5.30E+20	3.37E+20	2.63E+20	8.78E+19	4.80E+06	1.04E+07	6.63E+06	5.18E+06	1.73E+06	
Indium (49)	In-114m	5.11E+00	1.36E-01	1.00E+00	2.03E+00	8.39E+00	3.25E+00	2.20E+00	4.29E+00	2.37E-09	9.81E-09	3.80E-09	2.58E-09	5.02E-09	
Indium (49)	In-115	1.57E-15	4.41E+14	9.00E-01	4.99E+02	1.36E+03	6.26E+02	5.05E+02	4.12E+02	1.92E+09	5.23E+09	2.40E+09	1.94E+09	1.58E+09	
Indium (49)	In-115m	1.35E+03	5.12E-04	1.00E+00	2.74E+02	1.25E+03	4.40E+02	2.93E+02	1.23E+03	1.22E-09	5.56E-09	1.96E-09	1.31E-09	5.50E-09	
Indium (49)	In-116m	6.69E+03	1.04E-04	1.00E+00	7.15E+01	4.01E+02	1.38E+02	8.56E+01	4.09E+02	6.49E-11	3.64E-10	1.26E-10	7.77E-11	3.72E-10	
Indium (49)	In-117	8.43E+03	8.22E-05	1.00E+00	3.73E+02	1.75E+03	6.20E+02	4.09E+02	1.76E+03	2.72E-10	1.28E-09	4.51E-10	2.97E-10	1.28E-09	
Indium (49)	In-117m	3.13E+03	2.21E-04	1.00E+00	2.36E+02	1.08E+03	3.85E+02	2.56E+02	9.91E+02	4.62E-10	2.12E-09	7.54E-10	5.02E-10	1.94E-09	
Indium (49)	In-118	4.37E+06	1.59E-07	1.00E+00	1.10E+26	4.33E+26	1.92E+26	1.28E+26	2.35E+26	1.56E+11	6.12E+11	2.72E+11	1.81E+11	3.33E+11	
Indium (49)	In-118m	8.35E+04	8.30E-06	1.00E+00	1.40E+14	7.62E+14	2.64E+14	1.65E+14	7.58E+14	1.04E+01	5.65E+01	1.96E+01	1.22E+01	5.62E+01	
Indium (49)	In-119	1.52E+05	4.57E-06	1.00E+00	1.63E+09	1.69E+09	1.63E+09	1.63E+09	3.91E+08	6.72E-05	6.96E-05	6.72E-05	6.72E-05	1.61E-05	
Indium (49)	In-119m	2.02E+04	3.42E-05	1.00E+00	3.84E+09	4.02E+09	3.86E+09	3.85E+09	9.31E+08	1.18E-03	1.24E-03	1.19E-03	1.19E-03	2.87E-04	
Indium (49)	In-121	9.46E+05	7.32E-07	1.00E+00	1.07E+09	2.64E+09	1.29E+09	1.08E+09	1.66E+09	7.17E-06	1.77E-05	8.65E-06	7.21E-06	1.12E-05	
Indium (49)	In-121m	9.39E+04	7.38E-06	1.00E+00	9.58E+07	2.42E+08	1.16E+08	9.64E+07	1.60E+08	6.47E-06	1.63E-05	7.84E-06	6.52E-06	1.08E-05	
Iridium (77)	Ir-180	2.43E+05	2.85E-06	1.00E+00	1.44E+10	7.22E+10	2.57E+10	1.65E+10	7.20E+10	5.61E-04	2.81E-03	1.00E-03	6.42E-04	2.80E-03	
Iridium (77)	Ir-182	2.43E+04	2.85E-05	1.00E+00	4.37E+02	2.21E+03	7.84E+02	5.04E+02	2.21E+03	1.72E-10	8.67E-10	3.08E-10	1.98E-10	8.70E-10	
Iridium (77)	Ir-183	6.28E+03	1.10E-04	1.00E+00	8.10E+01	4.11E+02	1.46E+02	9.39E+01	4.12E+02	1.24E-10	6.28E-10	2.23E-10	1.44E-10	6.29E-10	
Iridium (77)	Ir-184	1.96E+03	3.53E-04	1.00E+00	2.86E+01	1.47E+02	5.17E+01	3.29E+01	1.48E+02	1.40E-10	7.22E-10	2.54E-10	1.62E-10	7.27E-10	

Composite Worker 2D External Exposure DCCs July 2023															
Radionuclides		Isotope-specific Information			Dose Compliance Concentrations (DCCs)										
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Soil Volume Area Correction Factor	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	
					DCC DL=1 (Bq/g)	@ 1cm DCC DL=1 (Bq/g)	@ 5cm DCC DL=1 (Bq/g)	@ 15cm DCC DL=1 (Bq/g)	Plane DCC DL=1 (Bq/cm <sup>2</sup> )	DCC DL=1 (mg/kg)	@ 1cm DCC DL=1 (mg/kg)	@ 5cm DCC DL=1 (mg/kg)	@ 15cm DCC DL=1 (mg/kg)	Plane DCC DL=1 (mg/cm <sup>2</sup> )	
Iridium (77)	Ir-185	4.22E+02	1.64E-03	1.00E+00	8.14E+00	4.21E+01	1.49E+01	9.48E+00	4.25E+01	1.87E-10	9.69E-10	3.42E-10	2.18E-10	9.77E-10	
Iridium (77)	Ir-186	3.65E+02	1.90E-03	1.00E+00	6.29E+00	3.25E+01	1.14E+01	7.28E+00	3.31E+01	1.68E-10	8.68E-10	3.04E-10	1.95E-10	8.84E-10	
Iridium (77)	Ir-186m	3.16E+03	2.19E-04	1.00E+00	5.32E+01	2.81E+02	9.85E+01	6.23E+01	2.86E+02	1.64E-10	8.67E-10	3.04E-10	1.92E-10	8.83E-10	
Iridium (77)	Ir-187	5.78E+02	1.20E-03	1.00E+00	5.80E+01	2.67E+02	9.76E+01	6.49E+01	2.62E+02	9.84E-10	4.53E-09	1.66E-09	1.10E-09	4.44E-09	
Iridium (77)	Ir-188	1.46E+02	4.74E-03	1.00E+00	1.83E+00	1.06E+01	3.66E+00	2.24E+00	1.09E+01	1.23E-10	7.13E-10	2.47E-10	1.51E-10	7.35E-10	
Iridium (77)	Ir-189	1.92E+01	3.62E-02	1.00E+00	1.50E+01	4.41E+01	1.92E+01	1.53E+01	3.94E+01	7.75E-09	2.28E-08	9.92E-09	7.89E-09	2.04E-08	
Iridium (77)	Ir-190	2.15E+01	3.23E-02	1.00E+00	4.45E-01	2.11E+00	7.45E-01	4.89E-01	2.13E+00	2.06E-10	9.79E-10	3.46E-10	2.27E-10	9.87E-10	
Iridium (77)	Ir-190m	5.42E+03	1.28E-04	1.00E+00	1.12E+02	5.33E+02	1.88E+02	1.23E+02	5.37E+02	2.06E-10	9.79E-10	3.46E-10	2.27E-10	9.87E-10	
Iridium (77)	Ir-190n	1.97E+03	3.52E-04	1.00E+00	3.72E+01	1.75E+02	6.19E+01	4.07E+01	1.76E+02	1.88E-10	8.84E-10	3.14E-10	2.06E-10	8.92E-10	
Iridium (77)	Ir-191m	4.42E+06	1.57E-07	1.00E+00	3.51E+26	1.05E+27	4.39E+26	3.54E+26	9.72E+26	7.94E+11	2.37E+12	9.95E+11	8.01E+11	2.20E+12	
Iridium (77)	Ir-192	3.43E+00	2.02E-01	1.00E+00	1.34E-01	6.23E-01	2.19E-01	1.45E-01	6.33E-01	3.94E-10	1.83E-09	6.45E-10	4.26E-10	1.86E-09	
Iridium (77)	Ir-192m	2.51E+05	2.76E-06	1.00E+00	9.84E+03	4.57E+04	1.61E+04	1.06E+04	4.65E+04	3.94E-10	1.83E-09	6.45E-10	4.26E-10	1.86E-09	
Iridium (77)	Ir-192n	2.88E-03	2.41E+02	1.00E+00	3.81E-02	1.77E-01	6.23E-02	4.12E-02	1.80E-01	1.33E-07	6.20E-07	2.18E-07	1.44E-07	6.30E-07	
Iridium (77)	Ir-193m	2.40E+01	2.88E-02	1.00E+00	6.34E+03	1.46E+04	7.04E+03	6.34E+03	1.05E+04	2.67E-06	6.14E-06	2.97E-06	2.67E-06	4.41E-06	
Iridium (77)	Ir-194	3.15E+02	2.20E-03	1.00E+00	9.65E+01	4.25E+02	1.62E+02	1.07E+02	2.41E+02	3.12E-09	1.37E-08	5.22E-09	3.45E-09	7.79E-09	
Iridium (77)	Ir-194m	1.48E+00	4.68E-01	1.00E+00	2.44E-02	1.18E-01	4.12E-02	2.69E-02	1.20E-01	1.68E-10	8.11E-10	2.84E-10	1.85E-10	8.23E-10	
Iridium (77)	Ir-195	2.43E+03	2.85E-04	1.00E+00	2.67E+03	7.24E+03	3.22E+03	2.68E+03	4.56E+03	1.12E-08	3.05E-08	1.36E-08	1.13E-08	1.92E-08	
Iridium (77)	Ir-195m	1.60E+03	4.34E-04	1.00E+00	1.33E+02	5.81E+02	2.11E+02	1.43E+02	5.67E+02	8.51E-10	3.72E-09	1.35E-09	9.15E-10	3.63E-09	
Iridium (77)	Ir-196	4.20E+05	1.65E-06	1.00E+00	3.54E+19	1.64E+20	6.07E+19	3.97E+19	1.19E+20	8.67E+05	4.00E+06	1.49E+06	9.71E+05	2.91E+06	
Iridium (77)	Ir-196m	4.34E+03	1.60E-04	1.00E+00	5.23E+01	2.53E+02	8.85E+01	5.77E+01	2.55E+02	1.24E-10	5.99E-10	2.10E-10	1.37E-10	6.04E-10	
Potassium (19)	K-38	4.77E+04	1.45E-05	1.00E+00	4.21E+12	2.42E+13	8.37E+12	5.14E+12	2.42E+13	1.76E-01	1.01E+00	3.50E-01	2.15E-01	1.01E+00	
Potassium (19)	K-40	5.54E-10	1.25E+09	1.00E+00	1.62E-01	9.11E-01	3.20E-01	1.97E-01	6.80E-01	6.15E-01	3.45E+00	1.21E+00	7.47E-01	2.57E+00	
Potassium (19)	K-42	4.91E+02	1.41E-03	1.00E+00	4.29E+01	2.27E+02	8.36E+01	5.19E+01	1.70E+02	1.92E-10	1.02E-09	3.75E-10	2.33E-10	7.64E-10	
Potassium (19)	K-43	2.72E+02	2.55E-03	1.00E+00	8.35E+00	4.04E+01	1.41E+01	9.19E+00	4.04E+01	6.91E-11	3.34E-10	1.17E-10	7.61E-11	3.34E-10	
Potassium (19)	K-44	1.65E+04	4.21E-05	1.00E+00	3.24E+08	1.92E+09	6.64E+08	4.03E+08	1.91E+09	4.54E-05	2.69E-04	9.31E-05	5.65E-05	2.68E-04	
Potassium (19)	K-45	2.11E+04	3.29E-05	1.00E+00	8.07E+07	1.74E+08	9.21E+07	8.07E+07	9.78E+07	9.04E-06	1.95E-05	1.03E-05	9.05E-06	1.10E-05	
Potassium (19)	K-46	2.08E+05	3.33E-06	1.00E+00	3.97E+16	2.44E+17	8.42E+16	5.06E+16	2.43E+17	4.60E+02	2.83E+03	9.76E+02	5.86E+02	2.82E+03	
Krypton (36)	Kr-74	3.17E+04	2.19E-05	1.00E+00	1.92E+07	1.16E+08	3.99E+07	2.41E+07	1.18E+08	2.36E-06	1.42E-05	4.89E-06	2.95E-06	1.45E-05	
Krypton (36)	Kr-75	8.49E+04	8.16E-06	1.00E+00	1.70E+03	7.93E+03	2.80E+03	1.85E+03	7.78E+03	7.90E-11	3.68E-10	1.30E-10	8.57E-11	3.60E-10	
Krypton (36)	Kr-76	4.10E+02	1.69E-03	1.00E+00	3.45E+00	1.89E+01	6.55E+00	4.09E+00	1.91E+01	3.35E-11	1.84E-10	6.37E-11	3.98E-11	1.86E-10	
Krypton (36)	Kr-77	4.90E+03	1.42E-04	1.00E+00	1.11E+02	5.16E+02	1.83E+02	1.21E+02	4.99E+02	9.13E-11	4.26E-10	1.51E-10	9.99E-11	4.12E-10	
Krypton (36)	Kr-79	1.73E+02	4.00E-03	1.00E+00	2.09E+01	1.00E+02	3.50E+01	2.29E+01	1.01E+02	4.99E-10	2.40E-09	8.38E-10	5.48E-10	2.42E-09	
Krypton (36)	Kr-81	3.03E-06	2.29E+05	1.00E+00	3.91E+01	1.69E+02	6.07E+01	4.13E+01	8.83E+01	5.49E-02	2.37E-01	8.52E-02	5.80E-02	1.24E-01	
Krypton (36)	Kr-81m	1.67E+06	4.15E-07	1.00E+00	2.15E+13	9.32E+13	3.34E+13	2.28E+13	4.87E+13	5.49E-02	2.37E-01	8.52E-02	5.80E-02	1.24E-01	
Krypton (36)	Kr-83m	3.32E+03	2.09E-04	1.00E+00	2.30E+07	2.40E+07	2.30E+07	2.30E+07	1.41E+06	3.02E-05	3.15E-05	3.02E-05	3.02E-05	1.85E-06	
Krypton (36)	Kr-85	6.44E-02	1.08E+01	1.00E+00	1.23E+01	5.36E+01	2.02E+01	1.34E+01	1.36E+01	8.50E-07	3.71E-06	1.40E-06	9.29E-07	9.43E-07	
Krypton (36)	Kr-85m	1.36E+03	5.11E-04	1.00E+00	3.17E+02	1.27E+03	4.61E+02	3.27E+02	1.20E+03	1.04E-09	4.19E-09	1.52E-09	1.07E-09	3.96E-09	
Krypton (36)	Kr-87	4.77E+03	1.45E-04	1.00E+00	1.55E+02	8.65E+02	3.05E+02	1.88E+02	7.90E+02	1.48E-10	8.27E-10	2.91E-10	1.80E-10	7.55E-10	
Krypton (36)	Kr-88	2.14E+03	3.24E-04	1.00E+00	2.05E+01	1.22E+02	4.23E+01	2.56E+01	1.20E+02	4.43E-11	2.63E-10	9.12E-11	5.52E-11	2.59E-10	
Krypton (36)	Kr-89	1.16E+05	5.99E-06	1.00E+00	1.24E+06	2.09E+06	1.50E+06	1.28E+06	2.35E+05	5.00E-08	8.42E-08	6.07E-08	5.15E-08	9.47E-09	
Lanthanum (57)	La-128	7.03E+04	9.86E-06	1.00E+00	2.21E+03	1.05E+04	3.74E+03	2.44E+03	9.67E+03	2.11E-10	1.00E-09	3.57E-10	2.33E-10	9.24E-10	
Lanthanum (57)	La-129	3.14E+04	2.21E-05	1.00E+00	1.41E+03	6.77E+03	2.41E+03	1.57E+03	6.49E+03	3.04E-10	1.46E-09	5.18E-10	3.38E-10	1.40E-09	

Composite Worker 2D External Exposure DCCs July 2023															
Radionuclides		Isotope-specific Information			Dose Compliance Concentrations (DCCs)										
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Soil Volume Area Correction Factor	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	
					DCC DL=1 (Bq/g)	@ 1cm DCC DL=1 (Bq/g)	@ 5cm DCC DL=1 (Bq/g)	@ 15cm DCC DL=1 (Bq/g)	Plane DCC DL=1 (Bq/cm <sup>2</sup> )	DCC DL=1 (mg/kg)	@ 1cm DCC DL=1 (mg/kg)	@ 5cm DCC DL=1 (mg/kg)	@ 15cm DCC DL=1 (mg/kg)	Plane DCC DL=1 (mg/cm <sup>2</sup> )	
Lanthanum (57)	La-130	4.19E+04	1.66E-05	1.00E+00	2.53E+12	1.29E+13	4.52E+12	2.88E+12	1.26E+13	4.12E-01	2.10E+00	7.35E-01	4.70E-01	2.06E+00	
Lanthanum (57)	La-131	6.17E+03	1.12E-04	1.00E+00	1.73E+02	8.03E+02	2.87E+02	1.90E+02	7.73E+02	1.93E-10	8.94E-10	3.19E-10	2.11E-10	8.61E-10	
Lanthanum (57)	La-132	1.26E+03	5.48E-04	1.00E+00	1.74E+01	9.30E+01	3.24E+01	2.04E+01	9.28E+01	9.52E-11	5.09E-10	1.77E-10	1.11E-10	5.08E-10	
Lanthanum (57)	La-132m	1.50E+04	4.62E-05	1.00E+00	2.71E+02	1.45E+03	5.05E+02	3.18E+02	1.45E+03	1.25E-10	6.70E-10	2.33E-10	1.47E-10	6.68E-10	
Lanthanum (57)	La-133	1.55E+03	4.47E-04	1.00E+00	2.88E+02	1.33E+03	4.82E+02	3.17E+02	1.23E+03	1.29E-09	5.99E-09	2.17E-09	1.42E-09	5.53E-09	
Lanthanum (57)	La-134	5.65E+04	1.23E-05	1.00E+00	3.52E+13	1.69E+14	6.00E+13	3.91E+13	1.55E+14	4.39E+00	2.10E+01	7.47E+00	4.86E+00	1.93E+01	
Lanthanum (57)	La-135	3.11E+02	2.23E-03	1.00E+00	7.52E+02	2.41E+03	1.15E+03	8.19E+02	1.42E+03	1.71E-08	5.49E-08	2.61E-08	1.86E-08	3.22E-08	
Lanthanum (57)	La-136	3.69E+04	1.88E-05	1.00E+00	5.57E+12	2.66E+13	9.44E+12	6.15E+12	2.44E+13	1.08E+00	5.13E+00	1.82E+00	1.19E+00	4.72E+00	
Lanthanum (57)	La-137	1.16E-05	6.00E+04	1.00E+00	1.51E+01	1.79E+01	1.52E+01	1.51E+01	6.90E+00	9.42E-03	1.12E-02	9.43E-03	9.42E-03	4.29E-03	
Lanthanum (57)	La-138	6.79E-12	1.02E+11	1.00E+00	2.15E-02	1.21E-01	4.17E-02	2.58E-02	1.24E-01	2.29E+01	1.29E+02	4.44E+01	2.75E+01	1.32E+02	
Lanthanum (57)	La-140	1.51E+02	4.60E-03	1.00E+00	1.71E+00	9.69E+00	3.34E+00	2.06E+00	9.72E+00	8.35E-11	4.72E-10	1.63E-10	1.00E-10	4.74E-10	
Lanthanum (57)	La-141	1.55E+03	4.47E-04	1.00E+00	4.98E+02	1.87E+03	7.57E+02	5.35E+02	1.02E+03	2.38E-09	8.94E-09	3.61E-09	2.56E-09	4.89E-09	
Lanthanum (57)	La-142	4.00E+03	1.73E-04	1.00E+00	4.22E+01	2.55E+02	8.76E+01	5.29E+01	2.57E+02	7.86E-11	4.75E-10	1.63E-10	9.85E-11	4.78E-10	
Lanthanum (57)	La-143	2.57E+04	2.70E-05	1.00E+00	3.03E+03	1.37E+04	4.95E+03	3.30E+03	1.11E+04	8.85E-10	3.99E-09	1.45E-09	9.64E-10	3.23E-09	
Lutetium (71)	Lu-165	3.39E+04	2.04E-05	1.00E+00	1.92E+03	8.65E+03	3.19E+03	2.12E+03	8.38E+03	4.91E-10	2.21E-09	8.13E-10	5.41E-10	2.14E-09	
Lutetium (71)	Lu-167	7.07E+03	9.80E-05	1.00E+00	1.01E+02	5.19E+02	1.85E+02	1.18E+02	5.16E+02	1.25E-10	6.42E-10	2.29E-10	1.47E-10	6.39E-10	
Lutetium (71)	Lu-169	1.78E+02	3.89E-03	1.00E+00	3.34E+00	1.66E+01	6.00E+00	3.87E+00	1.65E+01	1.66E-10	8.28E-10	2.99E-10	1.92E-10	8.22E-10	
Lutetium (71)	Lu-169m	1.37E+05	5.07E-06	1.00E+00	2.56E+03	1.27E+04	4.60E+03	2.96E+03	1.27E+04	1.66E-10	8.27E-10	2.98E-10	1.92E-10	8.21E-10	
Lutetium (71)	Lu-170	1.26E+02	5.51E-03	1.00E+00	1.26E+00	7.47E+00	2.58E+00	1.57E+00	7.71E+00	8.95E-11	5.30E-10	1.83E-10	1.11E-10	5.47E-10	
Lutetium (71)	Lu-171	3.07E+01	2.26E-02	1.00E+00	1.48E+00	7.12E+00	2.56E+00	1.66E+00	7.01E+00	4.32E-10	2.08E-09	7.48E-10	4.86E-10	2.05E-09	
Lutetium (71)	Lu-171m	2.77E+05	2.51E-06	1.00E+00	1.33E+04	6.42E+04	2.31E+04	1.50E+04	6.32E+04	4.32E-10	2.08E-09	7.48E-10	4.86E-10	2.05E-09	
Lutetium (71)	Lu-172	3.78E+01	1.84E-02	1.00E+00	5.44E-01	2.85E+00	9.99E-01	6.31E-01	2.88E+00	1.30E-10	6.81E-10	2.39E-10	1.51E-10	6.87E-10	
Lutetium (71)	Lu-172m	9.84E+04	7.04E-06	1.00E+00	1.42E+03	7.43E+03	2.60E+03	1.65E+03	7.50E+03	1.30E-10	6.81E-10	2.39E-10	1.51E-10	6.87E-10	
Lutetium (71)	Lu-173	5.06E-01	1.37E+00	1.00E+00	3.59E-01	1.21E+00	5.05E-01	3.75E-01	1.08E+00	6.44E-09	2.17E-08	9.05E-09	6.72E-09	1.93E-08	
Lutetium (71)	Lu-174	2.09E-01	3.31E+00	1.00E+00	3.82E-01	1.64E+00	6.50E-01	4.41E-01	1.49E+00	1.66E-08	7.14E-08	2.83E-08	1.92E-08	6.50E-08	
Lutetium (71)	Lu-174m	1.78E+00	3.89E-01	1.00E+00	1.94E+00	5.64E+00	2.66E+00	2.10E+00	4.59E+00	9.95E-09	2.89E-08	1.36E-08	1.07E-08	2.35E-08	
Lutetium (71)	Lu-176	1.80E-11	3.85E+10	1.00E+00	7.11E-02	3.08E-01	1.10E-01	7.48E-02	3.10E-01	3.65E+01	1.58E+02	5.62E+01	3.84E+01	1.59E+02	
Lutetium (71)	Lu-176m	1.67E+03	4.15E-04	1.00E+00	6.84E+03	1.61E+04	8.05E+03	6.87E+03	4.12E+03	3.78E-08	8.89E-08	4.45E-08	3.80E-08	2.28E-08	
Lutetium (71)	Lu-177	3.81E+01	1.82E-02	1.00E+00	4.25E+01	1.66E+02	6.13E+01	4.38E+01	1.64E+02	1.04E-08	4.05E-08	1.49E-08	1.07E-08	4.01E-08	
Lutetium (71)	Lu-177m	1.58E+00	4.39E-01	1.00E+00	6.93E-02	2.94E-01	1.06E-01	7.32E-02	2.95E-01	4.08E-10	1.73E-09	6.26E-10	4.31E-10	1.74E-09	
Lutetium (71)	Lu-178	1.28E+04	5.40E-05	1.00E+00	1.15E+08	5.86E+08	2.17E+08	1.37E+08	3.77E+08	8.40E-05	4.26E-04	1.58E-04	9.96E-05	2.75E-04	
Lutetium (71)	Lu-178m	1.58E+04	4.39E-05	1.00E+00	4.44E+08	1.96E+09	7.03E+08	4.75E+08	1.93E+09	2.63E-04	1.16E-03	4.16E-04	2.81E-04	1.14E-03	
Lutetium (71)	Lu-179	1.32E+03	5.24E-04	1.00E+00	1.43E+03	5.57E+03	2.14E+03	1.49E+03	2.30E+03	1.01E-08	3.95E-08	1.52E-08	1.06E-08	1.64E-08	
Lutetium (71)	Lu-180	6.39E+04	1.08E-05	1.00E+00	1.50E+14	7.98E+14	2.79E+14	1.75E+14	7.84E+14	2.21E+01	1.18E+02	4.12E+01	2.59E+01	1.16E+02	
Lutetium (71)	Lu-181	1.04E+05	6.66E-06	1.00E+00	6.24E+03	2.86E+04	1.02E+04	6.76E+03	2.88E+04	5.69E-10	2.60E-09	9.28E-10	6.16E-10	2.63E-09	
Magnesium (12)	Mg-27	3.85E+04	1.80E-05	1.00E+00	6.38E+12	3.32E+13	1.16E+13	7.35E+12	3.10E+13	2.35E-01	1.22E+00	4.28E-01	2.70E-01	1.14E+00	
Magnesium (12)	Mg-28	2.90E+02	2.39E-03	1.00E+00	2.39E+00	1.37E+01	4.73E+00	2.90E+00	1.36E+01	1.21E-11	6.92E-11	2.40E-11	1.47E-11	6.86E-11	
Manganese (25)	Mn-50m	2.08E+05	3.33E-06	1.00E+00	2.74E+16	1.45E+17	5.07E+16	3.19E+16	1.45E+17	3.45E+02	1.83E+03	6.39E+02	4.02E+02	1.82E+03	
Manganese (25)	Mn-51	7.88E+03	8.79E-05	1.00E+00	2.25E+02	1.07E+03	3.79E+02	2.48E+02	9.94E+02	7.64E-11	3.64E-10	1.29E-10	8.41E-11	3.37E-10	
Manganese (25)	Mn-52	4.52E+01	1.53E-02	1.00E+00	3.54E-01	1.92E+00	6.63E-01	4.15E-01	1.95E+00	2.13E-11	1.15E-10	4.00E-11	2.50E-11	1.18E-10	
Manganese (25)	Mn-52m	1.73E+04	4.01E-05	1.00E+00	7.69E+03	4.17E+04	1.44E+04	9.02E+03	4.25E+04	1.22E-09	6.58E-09	2.28E-09	1.42E-09	6.72E-09	
Manganese (25)	Mn-53	1.87E-07	3.70E+06												



Composite Worker 2D External Exposure DCCs July 2023															
Radionuclides		Isotope-specific Information			Dose Compliance Concentrations (DCCs)										
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Soil Volume Area Correction Factor	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	
					DCC DL=1 (Bq/g)	@ 1cm DCC DL=1 (Bq/g)	@ 5cm DCC DL=1 (Bq/g)	@ 15cm DCC DL=1 (Bq/g)	Plane DCC DL=1 (Bq/cm <sup>2</sup> )	DCC DL=1 (mg/kg)	@ 1cm DCC DL=1 (mg/kg)	@ 5cm DCC DL=1 (mg/kg)	@ 15cm DCC DL=1 (mg/kg)	Plane DCC DL=1 (mg/cm <sup>2</sup> )	
Manganese (25)	Mn-54	8.10E-01	8.55E-01	1.00E+00	4.87E-02	2.52E-01	8.79E-02	5.58E-02	2.56E-01	1.70E-10	8.81E-10	3.07E-10	1.95E-10	8.96E-10	
Manganese (25)	Mn-56	2.35E+03	2.94E-04	1.00E+00	3.63E+01	2.04E+02	7.09E+01	4.37E+01	2.01E+02	4.53E-11	2.55E-10	8.85E-11	5.46E-11	2.51E-10	
Manganese (25)	Mn-57	2.56E+05	2.71E-06	1.00E+00	9.24E+18	3.86E+19	1.54E+19	1.03E+19	2.09E+19	1.08E+05	4.51E+05	1.80E+05	1.21E+05	2.44E+05	
Manganese (25)	Mn-58m	3.35E+05	2.07E-06	1.00E+00	7.73E+17	4.21E+18	1.47E+18	9.17E+17	4.11E+18	7.02E+03	3.82E+04	1.34E+04	8.32E+03	3.73E+04	
Molybdenum (42)	Mo-101	2.49E+04	2.78E-05	1.00E+00	4.02E+10	1.83E+11	6.48E+10	4.32E+10	1.65E+11	8.54E-03	3.90E-02	1.38E-02	9.17E-03	3.51E-02	
Molybdenum (42)	Mo-102	3.22E+04	2.15E-05	1.00E+00	1.94E+13	7.33E+13	3.20E+13	2.17E+13	3.95E+13	3.23E+00	1.22E+01	5.31E+00	3.61E+00	6.55E+00	
Molybdenum (42)	Mo-89	1.73E+05	4.01E-06	1.00E+00	1.88E+03	9.87E+03	3.46E+03	2.18E+03	9.66E+03	5.07E-11	2.67E-10	9.35E-11	5.89E-11	2.61E-10	
Molybdenum (42)	Mo-90	1.09E+03	6.35E-04	1.00E+00	5.77E+00	3.26E+01	1.12E+01	6.97E+00	3.32E+01	2.49E-11	1.41E-10	4.86E-11	3.01E-11	1.43E-10	
Molybdenum (42)	Mo-91	2.35E+04	2.95E-05	1.00E+00	6.33E+07	3.30E+08	1.18E+08	7.40E+07	2.39E+08	1.28E-05	6.69E-05	2.39E-05	1.50E-05	4.84E-05	
Molybdenum (42)	Mo-91m	3.38E+05	2.05E-06	1.00E+00	7.37E+05	4.00E+06	1.40E+06	8.73E+05	3.63E+06	1.04E-08	5.64E-08	1.97E-08	1.23E-08	5.13E-08	
Molybdenum (42)	Mo-93	1.73E-04	4.00E+03	1.00E+00	3.48E+02	3.47E+02	3.48E+02	3.48E+02	3.18E+01	9.81E-03	9.77E-03	9.81E-03	9.81E-03	8.97E-04	
Molybdenum (42)	Mo-93m	8.86E+02	7.82E-04	1.00E+00	1.03E+01	5.61E+01	1.95E+01	1.21E+01	5.77E+01	5.66E-11	3.09E-10	1.07E-10	6.69E-11	3.18E-10	
Molybdenum (42)	Mo-99	9.21E+01	7.53E-03	1.00E+00	1.18E+01	5.19E+01	1.87E+01	1.27E+01	4.61E+01	6.63E-10	2.92E-09	1.05E-09	7.17E-10	2.60E-09	
Nitrogen (7)	N-13	3.66E+04	1.90E-05	9.00E-01	2.09E+12	1.01E+13	3.54E+12	2.30E+12	9.72E+12	3.90E-02	1.88E-01	6.61E-02	4.30E-02	1.81E-01	
Nitrogen (7)	N-16	3.07E+06	2.26E-07	1.00E+00	6.36E+23	4.82E+24	1.63E+24	9.24E+23	5.11E+24	1.74E+08	1.32E+09	4.47E+08	2.53E+08	1.40E+09	
Sodium (11)	Na-22	2.66E-01	2.60E+00	1.00E+00	1.43E-02	7.54E-02	2.63E-02	1.66E-02	7.70E-02	6.20E-11	3.27E-10	1.14E-10	7.17E-11	3.34E-10	
Sodium (11)	Na-24	4.06E+02	1.71E-03	1.00E+00	2.41E+00	1.52E+01	5.19E+00	3.09E+00	1.57E+01	7.48E-12	4.73E-11	1.61E-11	9.58E-12	4.86E-11	
Niobium (41)	Nb-87	9.71E+04	7.13E-06	1.00E+00	1.46E+03	6.98E+03	2.45E+03	1.61E+03	6.79E+03	6.85E-11	3.28E-10	1.15E-10	7.54E-11	3.19E-10	
Niobium (41)	Nb-88	2.51E+04	2.76E-05	1.00E+00	2.80E+02	1.58E+03	5.43E+02	3.36E+02	1.62E+03	5.14E-11	2.89E-10	9.98E-11	6.17E-11	2.98E-10	
Niobium (41)	Nb-88m	4.68E+04	1.48E-05	1.00E+00	5.21E+02	2.94E+03	1.01E+03	6.26E+02	3.03E+03	5.14E-11	2.89E-10	9.98E-11	6.17E-11	2.98E-10	
Niobium (41)	Nb-89	2.99E+03	2.32E-04	1.00E+00	3.25E+01	1.71E+02	5.99E+01	3.77E+01	1.67E+02	5.07E-11	2.67E-10	9.35E-11	5.89E-11	2.61E-10	
Niobium (41)	Nb-89m	5.52E+03	1.26E-04	1.00E+00	5.24E+01	2.61E+02	9.18E+01	5.88E+01	2.57E+02	4.43E-11	2.21E-10	7.76E-11	4.97E-11	2.18E-10	
Niobium (41)	Nb-90	4.16E+02	1.67E-03	1.00E+00	2.56E+00	1.49E+01	5.13E+00	3.14E+00	1.53E+01	2.90E-11	1.69E-10	5.82E-11	3.56E-11	1.73E-10	
Niobium (41)	Nb-91	1.02E-03	6.80E+02	1.00E+00	1.78E+01	7.61E+01	2.95E+01	1.95E+01	2.93E+01	8.33E-05	3.57E-04	1.38E-04	9.15E-05	1.37E-04	
Niobium (41)	Nb-91m	4.16E+00	1.67E-01	1.00E+00	4.53E+00	2.46E+01	8.60E+00	5.36E+00	2.23E+01	5.20E-09	2.82E-08	9.87E-09	6.16E-09	2.57E-08	
Niobium (41)	Nb-92	2.00E-08	3.47E+07	1.00E+00	1.88E-02	9.64E-02	3.36E-02	2.14E-02	9.76E-02	4.54E-03	2.33E-02	8.12E-03	5.16E-03	2.36E-02	
Niobium (41)	Nb-92m	2.49E+01	2.78E-02	1.00E+00	7.14E-01	3.77E+00	1.31E+00	8.25E-01	3.83E+00	1.38E-10	7.31E-10	2.54E-10	1.60E-10	7.41E-10	
Niobium (41)	Nb-93m	4.30E-02	1.61E+01	1.00E+00	2.27E+03	2.26E+03	2.27E+03	2.27E+03	2.07E+02	2.57E-04	2.57E-04	2.57E-04	2.57E-04	2.35E-05	
Niobium (41)	Nb-94	3.41E-05	2.03E+04	1.00E+00	1.80E-02	9.25E-02	3.23E-02	2.05E-02	9.37E-02	2.59E-06	1.34E-05	4.66E-06	2.95E-06	1.35E-05	
Niobium (41)	Nb-94m	5.82E+04	1.19E-05	1.00E+00	3.08E+07	1.58E+08	5.52E+07	3.50E+07	1.60E+08	2.61E-06	1.34E-05	4.68E-06	2.97E-06	1.36E-05	
Niobium (41)	Nb-95	7.23E+00	9.59E-02	1.00E+00	2.66E-01	1.36E+00	4.76E-01	3.02E-01	1.38E+00	1.83E-10	9.38E-10	3.28E-10	2.08E-10	9.52E-10	
Niobium (41)	Nb-95m	7.01E+01	9.89E-03	1.00E+00	2.55E+00	1.29E+01	4.50E+00	2.87E+00	1.30E+01	1.81E-10	9.15E-10	3.20E-10	2.04E-10	9.24E-10	
Niobium (41)	Nb-96	2.60E+02	2.67E-03	1.00E+00	2.94E+00	1.52E+01	5.32E+00	3.37E+00	1.55E+01	5.70E-11	2.95E-10	1.03E-10	6.53E-11	3.00E-10	
Niobium (41)	Nb-97	5.05E+03	1.37E-04	1.00E+00	2.16E+02	1.08E+03	3.78E+02	2.44E+02	1.03E+03	2.17E-10	1.09E-09	3.81E-10	2.45E-10	1.03E-09	
Niobium (41)	Nb-98m	7.10E+03	9.76E-05	1.00E+00	6.84E+01	3.67E+02	1.27E+02	7.98E+01	3.63E+02	4.95E-11	2.65E-10	9.21E-11	5.78E-11	2.63E-10	
Niobium (41)	Nb-99	1.46E+06	4.76E-07	1.00E+00	1.86E+05	8.21E+05	2.96E+05	2.01E+05	7.29E+05	6.63E-10	2.93E-09	1.06E-09	7.17E-10	2.60E-09	
Niobium (41)	Nb-99m	1.40E+05	4.95E-06	1.00E+00	1.79E+04	7.89E+04	2.85E+04	1.93E+04	7.01E+04	6.62E-10	2.92E-09	1.05E-09	7.17E-10	2.60E-09	
Neodymium (60)	Nd-134	4.29E+04	1.62E-05	1.00E+00	1.74E+03	8.25E+03	2.95E+03	1.93E+03	7.46E+03	2.85E-10	1.35E-09	4.84E-10	3.16E-10	1.22E-09	
Neodymium (60)	Nd-135	2.94E+04	2.36E-05	1.00E+00	1.07E+03	5.14E+03	1.83E+03	1.19E+03	5.06E+03	2.59E-10	1.24E-09	4.41E-10	2.87E-10	1.22E-09	
Neodymium (60)	Nd-136	7.19E+03	9.64E-05	1.00E+00	8.49E+01	4.36E+02	1.53E+02	9.75E+01	4.26E+02	8.42E-11	4.33E-10	1.52E-10	9.67E-11	4.23E-10	
Neodymium (60)	Nd-137	9.46E+03	7.32E-05	1.00E+00	1.77E+02	8.89E+02	3.15E+02	2.02E+02	8.56E+02	1.34E-10	6.75E-10	2.39E-10	1.53E-10	6.50E-10	
Neodymium (60)	Nd-138	1.20E+03	5.75E-04	1.00E+00	4.22E+01	1.97E+02	7.14E+01	4.65E+01	1.78E+02	2.53E-10	1.19E-09	4.29E-10	2.80E-10	1.07E-09	

Composite Worker 2D External Exposure DCCs July 2023															
Radionuclides		Isotope-specific Information			Dose Compliance Concentrations (DCCs)										
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Soil Volume Area Correction Factor	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	
					DCC DL=1 (Bq/g)	@ 1cm DCC DL=1 (Bq/g)	@ 5cm DCC DL=1 (Bq/g)	@ 15cm DCC DL=1 (Bq/g)	Plane DCC DL=1 (Bq/cm <sup>2</sup> )	DCC DL=1 (mg/kg)	@ 1cm DCC DL=1 (mg/kg)	@ 5cm DCC DL=1 (mg/kg)	@ 15cm DCC DL=1 (mg/kg)	Plane DCC DL=1 (mg/cm <sup>2</sup> )	
Neodymium (60)	Nd-139	1.23E+04	5.65E-05	1.00E+00	1.83E+03	7.70E+03	2.87E+03	1.96E+03	6.96E+03	1.09E-09	4.58E-09	1.70E-09	1.17E-09	4.14E-09	
Neodymium (60)	Nd-139m	1.10E+03	6.28E-04	1.00E+00	1.72E+01	8.71E+01	3.07E+01	1.97E+01	8.62E+01	1.14E-10	5.75E-10	2.03E-10	1.30E-10	5.69E-10	
Neodymium (60)	Nd-140	7.51E+01	9.23E-03	1.00E+00	4.07E+00	1.91E+01	6.89E+00	4.49E+00	1.71E+01	3.98E-10	1.87E-09	6.73E-10	4.40E-10	1.67E-09	
Neodymium (60)	Nd-141	2.44E+03	2.84E-04	1.00E+00	1.36E+03	5.94E+03	2.32E+03	1.53E+03	4.87E+03	4.11E-09	1.80E-08	7.03E-09	4.65E-09	1.48E-08	
Neodymium (60)	Nd-141m	3.52E+05	1.97E-06	1.00E+00	1.95E+05	8.54E+05	3.33E+05	2.20E+05	7.00E+05	4.09E-09	1.79E-08	6.98E-09	4.62E-09	1.47E-08	
Neodymium (60)	Nd-144	3.03E-16	2.29E+15												
Neodymium (60)	Nd-147	2.30E+01	3.01E-02	1.00E+00	6.04E+00	2.57E+01	9.61E+00	6.55E+00	2.28E+01	2.02E-09	8.61E-09	3.22E-09	2.19E-09	7.63E-09	
Neodymium (60)	Nd-149	3.51E+03	1.97E-04	1.00E+00	3.01E+02	1.33E+03	4.80E+02	3.23E+02	1.12E+03	6.69E-10	2.97E-09	1.07E-09	7.19E-10	2.49E-09	
Neodymium (60)	Nd-151	2.93E+04	2.37E-05	1.00E+00	2.85E+03	1.30E+04	4.64E+03	3.09E+03	1.24E+04	7.71E-10	3.52E-09	1.25E-09	8.36E-10	3.36E-09	
Neodymium (60)	Nd-152	3.20E+04	2.17E-05	1.00E+00	6.10E+12	2.90E+13	1.07E+13	6.93E+12	2.28E+13	1.52E+00	7.24E+00	2.66E+00	1.73E+00	5.70E+00	
Neon (10)	Ne-19	1.27E+06	5.46E-07	1.00E+00	3.51E+22	1.67E+23	5.92E+22	3.86E+22	1.55E+23	2.75E+07	1.31E+08	4.64E+07	3.03E+07	1.22E+08	
Neon (10)	Ne-24	1.08E+05	6.43E-06	1.00E+00	6.38E+02	4.03E+03	1.37E+03	8.17E+02	4.15E+03	7.46E-12	4.71E-11	1.60E-11	9.55E-12	4.84E-11	
Nickel (28)	Ni-56	4.16E+01	1.66E-02	1.00E+00	2.14E-01	1.18E+00	4.10E-01	2.55E-01	1.22E+00	1.51E-11	8.34E-11	2.89E-11	1.80E-11	8.58E-11	
Nickel (28)	Ni-57	1.71E+02	4.06E-03	1.00E+00	2.29E+00	1.25E+01	4.35E+00	2.72E+00	1.28E+01	4.02E-11	2.20E-10	7.63E-11	4.76E-11	2.25E-10	
Nickel (28)	Ni-59	6.86E-06	1.01E+05	1.00E+00	1.90E+03	9.19E+03	3.23E+03	2.10E+03	9.37E+03	8.56E-01	4.14E+00	1.45E+00	9.45E-01	4.22E+00	
Nickel (28)	Ni-63	6.92E-03	1.00E+02												
Nickel (28)	Ni-65	2.41E+03	2.87E-04	1.00E+00	1.13E+02	6.27E+02	2.19E+02	1.35E+02	5.80E+02	1.59E-10	8.86E-10	3.09E-10	1.91E-10	8.20E-10	
Nickel (28)	Ni-66	1.11E+02	6.23E-03	9.00E-01	2.83E+01	1.30E+02	5.08E+01	3.28E+01	7.17E+01	8.81E-10	4.06E-09	1.58E-09	1.02E-09	2.23E-09	
Neptunium (93)	Np-232	2.48E+04	2.80E-05	1.00E+00	4.86E+04	2.82E+05	9.75E+04	5.98E+04	2.78E+05	2.38E-08	1.38E-07	4.79E-08	2.93E-08	1.36E-07	
Neptunium (93)	Np-233	1.01E+04	6.89E-05	1.00E+00	5.56E+03	1.87E+04	7.34E+03	5.63E+03	1.81E+04	6.75E-09	2.27E-08	8.91E-09	6.84E-09	2.19E-08	
Neptunium (93)	Np-234	5.75E+01	1.21E-02	1.00E+00	1.40E+00	7.81E+00	2.71E+00	1.68E+00	7.98E+00	2.98E-10	1.67E-09	5.79E-10	3.59E-10	1.70E-09	
Neptunium (93)	Np-235	6.39E-01	1.09E+00	1.00E+00	1.16E+02	3.03E+02	1.43E+02	1.16E+02	8.68E+01	2.24E-06	5.84E-06	2.76E-06	2.24E-06	1.68E-06	
Neptunium (93)	Np-236	4.50E-06	1.54E+05	1.00E+00	9.78E-02	4.74E-01	1.71E-01	1.13E-01	4.61E-01	2.69E-04	1.30E-03	4.69E-04	3.11E-04	1.27E-03	
Neptunium (93)	Np-236m	2.70E+02	2.57E-03	1.00E+00	2.58E+02	9.06E+02	3.52E+02	2.66E+02	8.63E+02	1.18E-08	4.15E-08	1.62E-08	1.22E-08	3.96E-08	
Neptunium (93)	Np-237	3.23E-07	2.14E+06	1.00E+00	7.83E-02	3.32E-01	1.22E-01	8.38E-02	3.00E-01	3.01E-03	1.27E-02	4.68E-03	3.22E-03	1.15E-02	
Neptunium (93)	Np-238	1.19E+02	5.80E-03	1.00E+00	5.60E+00	2.98E+01	1.04E+01	6.52E+00	2.94E+01	5.85E-10	3.11E-09	1.08E-09	6.81E-10	3.07E-09	
Neptunium (93)	Np-239	1.07E+02	6.46E-03	1.00E+00	2.40E+01	9.31E+01	3.44E+01	2.48E+01	9.19E+01	2.80E-09	1.09E-08	4.01E-09	2.89E-09	1.07E-08	
Neptunium (93)	Np-240	5.88E+03	1.18E-04	1.00E+00	1.63E+02	8.21E+02	2.89E+02	1.85E+02	8.16E+02	3.49E-10	1.76E-09	6.17E-10	3.96E-10	1.75E-09	
Neptunium (93)	Np-240m	5.04E+04	1.37E-05	1.00E+00	4.06E+07	2.04E+08	7.17E+07	4.60E+07	2.03E+08	1.01E-05	5.09E-05	1.79E-05	1.15E-05	5.05E-05	
Neptunium (93)	Np-241	2.62E+04	2.64E-05	1.00E+00	8.00E+07	1.63E+08	8.61E+07	8.00E+07	1.17E+08	3.86E-05	7.84E-05	4.15E-05	3.86E-05	5.63E-05	
Neptunium (93)	Np-242	1.66E+05	4.19E-06	1.00E+00	1.63E+13	8.79E+13	3.07E+13	1.93E+13	2.23E+13	1.25E+00	6.73E+00	2.36E+00	1.48E+00	1.71E+00	
Neptunium (93)	Np-242m	6.62E+04	1.05E-05	1.00E+00	6.53E+12	3.51E+13	1.23E+13	7.71E+12	8.79E+12	1.25E+00	6.73E+00	2.36E+00	1.48E+00	1.68E+00	
Oxygen (8)	O-14	3.10E+05	2.24E-06	1.00E+00	1.04E+18	6.12E+18	2.10E+18	1.28E+18	6.17E+18	2.48E+03	1.45E+04	4.99E+03	3.04E+03	1.46E+04	
Oxygen (8)	O-15	1.79E+05	3.88E-06	9.00E-01	3.46E+16	1.66E+17	5.86E+16	3.82E+16	1.56E+17	1.52E+02	7.30E+02	2.58E+02	1.68E+02	6.85E+02	
Oxygen (8)	O-19	8.26E+05	8.39E-07	1.00E+00	7.18E+20	3.72E+21	1.33E+21	8.43E+20	3.39E+21	8.66E+05	4.49E+06	1.61E+06	1.02E+06	4.09E+06	
Osmium (76)	Os-180	1.69E+04	4.09E-05	1.00E+00	1.08E+09	5.42E+09	1.93E+09	1.24E+09	5.40E+09	6.03E-04	3.02E-03	1.07E-03	6.91E-04	3.01E-03	
Osmium (76)	Os-181	3.47E+03	2.00E-04	1.00E+00	4.68E+01	2.33E+02	8.30E+01	5.35E+01	2.35E+02	1.28E-10	6.38E-10	2.27E-10	1.46E-10	6.42E-10	
Osmium (76)	Os-182	2.75E+02	2.52E-03	1.00E+00	4.95E+00	2.50E+01	8.87E+00	5.70E+00	2.50E+01	1.72E-10	8.67E-10	3.08E-10	1.98E-10	8.70E-10	
Osmium (76)	Os-183	4.67E+02	1.48E-03	1.00E+00	2.19E+01	9.26E+01	3.45E+01	2.38E+01	9.04E+01	4.51E-10	1.90E-09	7.09E-10	4.89E-10	1.86E-09	
Osmium (76)	Os-183m	6.13E+02	1.13E-03	1.00E+00	1.48E+01	7.40E+01	2.65E+01	1.70E+01	7.38E+01	2.31E-10	1.16E-09	4.14E-10	2.67E-10	1.16E-09	
Osmium (76)	Os-185	2.70E+00	2.56E-01	1.00E+00	1.25E-01	6.13E-01	2.17E-01	1.40E-01	6.14E-01	4.49E-10	2.20E-09	7.78E-10	5.04E-10	2.20E-09	
Osmium (76)	Os-186	3.47E-16	2.00E+15												

Composite Worker 2D External Exposure DCCs July 2023															
Radionuclides		Isotope-specific Information			Dose Compliance Concentrations (DCCs)										
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Soil Volume Area Correction Factor	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	
					DCC DL=1 (Bq/g)	@ 1cm DCC DL=1 (Bq/g)	@ 5cm DCC DL=1 (Bq/g)	@ 15cm DCC DL=1 (Bq/g)	Plane DCC DL=1 (Bq/cm <sup>2</sup> )	DCC DL=1 (mg/kg)	@ 1cm DCC DL=1 (mg/kg)	@ 5cm DCC DL=1 (mg/kg)	@ 15cm DCC DL=1 (mg/kg)	Plane DCC DL=1 (mg/cm <sup>2</sup> )	
Osmium (76)	Os-189m	1.05E+03	6.62E-04	1.00E+00	1.16E+08	1.16E+08	1.16E+08	1.16E+08	3.60E+06	1.10E-03	1.10E-03	1.10E-03	1.10E-03	3.41E-05	
Osmium (76)	Os-190m	3.68E+04	1.88E-05	1.00E+00	1.35E+12	6.44E+12	2.27E+12	1.48E+12	6.53E+12	3.66E-01	1.74E+00	6.14E-01	4.02E-01	1.77E+00	
Osmium (76)	Os-191	1.64E+01	4.22E-02	1.00E+00	1.16E+01	3.44E+01	1.45E+01	1.17E+01	3.20E+01	7.07E-09	2.10E-08	8.83E-09	7.12E-09	1.95E-08	
Osmium (76)	Os-191m	4.63E+02	1.50E-03	1.00E+00	3.12E+02	9.13E+02	3.88E+02	3.14E+02	8.44E+02	6.74E-09	1.97E-08	8.38E-09	6.80E-09	1.82E-08	
Osmium (76)	Os-193	2.02E+02	3.44E-03	1.00E+00	1.04E+02	4.38E+02	1.64E+02	1.12E+02	3.10E+02	5.23E-09	2.20E-08	8.21E-09	5.63E-09	1.56E-08	
Osmium (76)	Os-194	1.16E-01	6.00E+00	1.00E+00	3.24E-01	1.41E+00	5.40E-01	3.57E-01	8.02E-01	2.85E-08	1.24E-07	4.76E-08	3.15E-08	7.06E-08	
Osmium (76)	Os-196	1.04E+04	6.64E-05	1.00E+00	9.69E+02	4.39E+03	1.63E+03	1.07E+03	3.19E+03	9.54E-10	4.33E-09	1.60E-09	1.06E-09	3.15E-09	
Phosphorus (15)	P-30	1.46E+05	4.75E-06	1.00E+00	9.78E+15	4.61E+16	1.65E+16	1.08E+16	4.22E+16	1.06E+02	4.97E+02	1.78E+02	1.16E+02	4.55E+02	
Phosphorus (15)	P-32	1.77E+01	3.91E-02	9.00E-01	1.57E+02	2.58E+02	1.89E+02	1.61E+02	3.21E+01	1.48E-08	2.44E-08	1.79E-08	1.53E-08	3.03E-09	
Phosphorus (15)	P-33	9.98E+00	6.94E-02	9.00E-01	3.58E+04	7.58E+04	4.08E+04	3.59E+04	4.23E+04	6.20E-06	1.31E-05	7.07E-06	6.23E-06	7.33E-06	
Protactinium (91)	Pa-227	9.51E+03	7.29E-05	1.00E+00	2.30E+03	9.44E+03	3.52E+03	2.44E+03	6.76E+03	2.88E-09	1.18E-08	4.41E-09	3.06E-09	8.46E-09	
Protactinium (91)	Pa-228	2.76E+02	2.51E-03	1.00E+00	4.23E+00	2.24E+01	7.83E+00	4.95E+00	2.26E+01	1.83E-10	9.73E-10	3.39E-10	2.14E-10	9.81E-10	
Protactinium (91)	Pa-229	1.69E+02	4.11E-03	1.00E+00	1.42E+02	4.43E+02	1.78E+02	1.42E+02	4.19E+02	1.01E-08	3.15E-08	1.27E-08	1.01E-08	2.98E-08	
Protactinium (91)	Pa-230	1.45E+01	4.77E-02	1.00E+00	6.39E-01	3.20E+00	1.13E+00	7.28E-01	3.23E+00	5.30E-10	2.66E-09	9.41E-10	6.04E-10	2.68E-09	
Protactinium (91)	Pa-231	2.12E-05	3.28E+04	1.00E+00	7.30E-02	3.11E-01	1.14E-01	7.78E-02	2.58E-01	4.18E-05	1.78E-04	6.51E-05	4.45E-05	1.48E-04	
Protactinium (91)	Pa-232	1.93E+02	3.59E-03	1.00E+00	5.82E+00	3.00E+01	1.04E+01	6.66E+00	3.04E+01	3.67E-10	1.89E-09	6.58E-10	4.20E-10	1.91E-09	
Protactinium (91)	Pa-233	9.38E+00	7.39E-02	1.00E+00	1.49E+00	6.41E+00	2.31E+00	1.58E+00	6.44E+00	1.95E-09	8.35E-09	3.00E-09	2.06E-09	8.39E-09	
Protactinium (91)	Pa-234	9.06E+02	7.65E-04	1.00E+00	1.77E+01	9.07E+01	3.17E+01	2.03E+01	9.10E+01	2.40E-10	1.23E-09	4.29E-10	2.74E-10	1.23E-09	
Protactinium (91)	Pa-234m	3.11E+05	2.23E-06	1.00E+00	3.76E+06	1.92E+07	6.72E+06	4.29E+06	1.93E+07	1.48E-07	7.58E-07	2.65E-07	1.69E-07	7.61E-07	
Protactinium (91)	Pa-235	1.49E+04	4.66E-05	1.00E+00	8.76E+10	1.49E+11	1.06E+11	8.96E+10	1.42E+10	7.26E-02	1.23E-01	8.75E-02	7.43E-02	1.17E-02	
Protactinium (91)	Pa-236	4.00E+04	1.73E-05	1.00E+00	9.39E+12	5.25E+13	1.82E+13	1.13E+13	5.16E+13	2.90E+00	1.62E+01	5.63E+00	3.50E+00	1.60E+01	
Protactinium (91)	Pa-237	4.19E+04	1.66E-05	1.00E+00	1.42E+04	4.99E+04	1.94E+04	1.45E+04	4.72E+04	4.21E-09	1.48E-08	5.76E-09	4.29E-09	1.40E-08	
Lead (82)	Pb-194	3.04E+04	2.28E-05	1.00E+00	9.92E+02	4.70E+03	1.67E+03	1.10E+03	4.54E+03	3.32E-10	1.57E-09	5.61E-10	3.67E-10	1.52E-09	
Lead (82)	Pb-195m	2.43E+04	2.85E-05	1.00E+00	4.75E+02	2.49E+03	8.83E+02	5.61E+02	2.51E+03	2.00E-10	1.05E-09	3.72E-10	2.36E-10	1.06E-09	
Lead (82)	Pb-196	9.84E+03	7.04E-05	1.00E+00	1.18E+02	6.16E+02	2.17E+02	1.38E+02	6.27E+02	1.23E-10	6.43E-10	2.26E-10	1.44E-10	6.54E-10	
Lead (82)	Pb-197	4.55E+04	1.52E-05	1.00E+00	2.92E+03	1.33E+04	4.89E+03	3.28E+03	1.31E+04	6.62E-10	3.01E-09	1.11E-09	7.44E-10	2.97E-09	
Lead (82)	Pb-197m	8.47E+03	8.18E-05	1.00E+00	1.30E+02	6.32E+02	2.25E+02	1.47E+02	6.35E+02	1.59E-10	7.71E-10	2.74E-10	1.79E-10	7.75E-10	
Lead (82)	Pb-198	2.53E+03	2.74E-04	1.00E+00	2.90E+01	1.54E+02	5.39E+01	3.41E+01	1.58E+02	1.19E-10	6.33E-10	2.21E-10	1.40E-10	6.47E-10	
Lead (82)	Pb-199	4.05E+03	1.71E-04	1.00E+00	9.30E+01	4.70E+02	1.66E+02	1.07E+02	4.74E+02	2.40E-10	1.21E-09	4.29E-10	2.76E-10	1.22E-09	
Lead (82)	Pb-200	2.82E+02	2.45E-03	1.00E+00	5.60E+00	2.77E+01	9.83E+00	6.36E+00	2.79E+01	2.08E-10	1.03E-09	3.65E-10	2.36E-10	1.04E-09	
Lead (82)	Pb-201	6.51E+02	1.07E-03	1.00E+00	2.50E+01	1.15E+02	4.16E+01	2.77E+01	1.15E+02	4.05E-10	1.86E-09	6.74E-10	4.48E-10	1.86E-09	
Lead (82)	Pb-201m	3.58E+05	1.93E-06	1.00E+00	1.37E+04	6.31E+04	2.29E+04	1.52E+04	6.32E+04	4.04E-10	1.86E-09	6.73E-10	4.48E-10	1.86E-09	
Lead (82)	Pb-202	1.32E-05	5.25E+04	1.00E+00	7.07E-02	3.19E-01	1.15E-01	7.69E-02	3.20E-01	5.67E-05	2.56E-04	9.22E-05	6.17E-05	2.57E-04	
Lead (82)	Pb-202m	1.72E+03	4.03E-04	1.00E+00	2.41E+01	1.22E+02	4.26E+01	2.73E+01	1.23E+02	1.48E-10	7.50E-10	2.62E-10	1.68E-10	7.60E-10	
Lead (82)	Pb-203	1.17E+02	5.92E-03	1.00E+00	1.36E+01	5.64E+01	2.06E+01	1.44E+01	5.65E+01	1.24E-09	5.13E-09	1.88E-09	1.31E-09	5.14E-09	
Lead (82)	Pb-204m	5.42E+03	1.28E-04	1.00E+00	7.38E+01	3.79E+02	1.32E+02	8.43E+01	3.83E+02	1.46E-10	7.49E-10	2.62E-10	1.66E-10	7.57E-10	
Lead (82)	Pb-205	4.53E-08	1.53E+07	1.00E+00	2.25E+04	2.25E+04	2.25E+04	2.25E+04	7.30E+02	5.33E+03	5.33E+03	5.33E+03	5.33E+03	1.73E+02	
Lead (82)	Pb-209	1.87E+03	3.71E-04	9.00E-01	4.46E+05	1.14E+06	5.64E+05	4.53E+05	9.01E+04	2.62E-06	6.69E-06	3.31E-06	2.66E-06	5.29E-07	
Lead (82)	Pb-210	3.12E-02	2.22E+01	1.00E+00	2.17E+01	3.69E+01	2.49E+01	2.20E+01	3.79E+00	7.66E-06	1.30E-05	8.80E-06	7.78E-06	1.34E-06	
Lead (82)	Pb-211	1.01E+04	6.87E-05	1.00E+00	2.59E+03	1.17E+04	4.32E+03	2.85E+03	6.71E+03	2.84E-09	1.29E-08	4.74E-09	3.12E-09	7.36E-09	
Lead (82)	Pb-212	5.71E+02	1.21E-03	1.00E+00	1.02E+01	5.94E+01	2.06E+01	1.26E+01	5.86E+01	1.99E-10	1.16E-09	4.01E-10	2.45E-10	1.14E-09	
Lead (82)	Pb-214	1.36E+04	5.10E-05	1.00E+00	3.55E+06	1.07E+07	5.46E+06	3.97E+06	1.65E+06	2.93E-06	8.83E-06	4.51E-06	3.28E-06	1.36E-06	

Composite Worker 2D External Exposure DCCs July 2023															
Radionuclides		Isotope-specific Information			Dose Compliance Concentrations (DCCs)										
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Soil Volume Area Correction Factor	Soil Volume DCC DL=1 (Bq/g)	Soil Volume @ 1cm DCC DL=1 (Bq/g)	Soil Volume @ 5cm DCC DL=1 (Bq/g)	Soil Volume @ 15cm DCC DL=1 (Bq/g)	Ground Plane DCC DL=1 (Bq/cm <sup>2</sup> )	Soil Volume DCC DL=1 (mg/kg)	Soil Volume @ 1cm DCC DL=1 (mg/kg)	Soil Volume @ 5cm DCC DL=1 (mg/kg)	Soil Volume @ 15cm DCC DL=1 (mg/kg)	Ground Plane DCC DL=1 (mg/cm <sup>2</sup> )	
Palladium (46)	Pd-100	6.97E+01	9.95E-03	1.00E+00	6.55E-01	3.68E+00	1.28E+00	7.91E-01	3.77E+00	4.93E-11	2.77E-10	9.63E-11	5.96E-11	2.84E-10	
Palladium (46)	Pd-101	7.17E+02	9.67E-04	1.00E+00	3.59E+01	1.71E+02	6.00E+01	3.93E+01	1.69E+02	2.65E-10	1.26E-09	4.43E-10	2.91E-10	1.25E-09	
Palladium (46)	Pd-103	1.49E+01	4.66E-02	1.00E+00	1.19E+03	1.54E+03	1.33E+03	1.22E+03	2.43E+02	4.32E-07	5.57E-07	4.84E-07	4.41E-07	8.83E-08	
Palladium (46)	Pd-107	1.07E-07	6.50E+06												
Palladium (46)	Pd-109	4.43E+02	1.56E-03	1.00E+00	3.99E+03	9.96E+03	5.07E+03	4.08E+03	1.65E+03	5.15E-08	1.29E-07	6.54E-08	5.27E-08	2.13E-08	
Palladium (46)	Pd-109m	7.77E+04	8.92E-06	1.00E+00	6.95E+05	1.74E+06	8.84E+05	7.12E+05	2.88E+05	5.12E-08	1.28E-07	6.51E-08	5.24E-08	2.12E-08	
Palladium (46)	Pd-111	1.56E+04	4.45E-05	1.00E+00	1.81E+04	7.91E+04	2.88E+04	1.93E+04	4.11E+04	6.77E-09	2.96E-08	1.08E-08	7.23E-09	1.54E-08	
Palladium (46)	Pd-112	2.89E+02	2.40E-03	1.00E+00	1.10E+01	5.80E+01	2.07E+01	1.30E+01	5.17E+01	2.24E-10	1.18E-09	4.21E-10	2.64E-10	1.05E-09	
Palladium (46)	Pd-114	1.51E+05	4.60E-06	1.00E+00	5.12E+16	2.35E+17	9.13E+16	5.92E+16	1.60E+17	2.03E+03	9.32E+03	3.63E+03	2.35E+03	6.35E+03	
Palladium (46)	Pd-96	1.79E+05	3.87E-06	1.00E+00	2.74E+12	1.43E+13	4.98E+12	3.15E+12	1.43E+13	7.70E-02	4.01E-01	1.40E-01	8.85E-02	4.01E-01	
Palladium (46)	Pd-97	1.17E+05	5.90E-06	1.00E+00	1.73E+04	7.49E+04	2.65E+04	1.82E+04	7.50E+04	7.50E-10	3.24E-09	1.15E-09	7.86E-10	3.25E-09	
Palladium (46)	Pd-98	2.06E+04	3.37E-05	1.00E+00	1.00E+10	4.98E+10	1.75E+10	1.13E+10	4.78E+10	2.50E-03	1.24E-02	4.37E-03	2.82E-03	1.20E-02	
Palladium (46)	Pd-99	1.70E+04	4.07E-05	1.00E+00	7.82E+02	3.87E+03	1.35E+03	8.74E+02	3.90E+03	2.39E-10	1.18E-09	4.12E-10	2.67E-10	1.19E-09	
Promethium (61)	Pm-136	2.04E+05	3.39E-06	1.00E+00	2.41E+03	1.24E+04	4.35E+03	2.77E+03	1.21E+04	8.42E-11	4.33E-10	1.52E-10	9.67E-11	4.23E-10	
Promethium (61)	Pm-137m	1.52E+05	4.57E-06	1.00E+00	1.20E+04	5.73E+04	2.07E+04	1.34E+04	5.20E+04	5.66E-10	2.71E-09	9.79E-10	6.36E-10	2.46E-09	
Promethium (61)	Pm-139	8.78E+04	7.90E-06	1.00E+00	1.31E+04	5.51E+04	2.05E+04	1.41E+04	4.98E+04	1.09E-09	4.58E-09	1.70E-09	1.17E-09	4.14E-09	
Promethium (61)	Pm-140	2.38E+06	2.92E-07	1.00E+00	1.29E+05	6.04E+05	2.18E+05	1.42E+05	5.40E+05	3.98E-10	1.87E-09	6.73E-10	4.40E-10	1.67E-09	
Promethium (61)	Pm-140m	6.12E+04	1.13E-05	1.00E+00	3.32E+03	1.56E+04	5.61E+03	3.66E+03	1.39E+04	3.98E-10	1.87E-09	6.72E-10	4.39E-10	1.67E-09	
Promethium (61)	Pm-141	1.74E+04	3.98E-05	1.00E+00	9.69E+03	4.25E+04	1.66E+04	1.10E+04	3.48E+04	4.11E-09	1.80E-08	7.03E-09	4.65E-09	1.48E-08	
Promethium (61)	Pm-142	5.40E+05	1.28E-06	1.00E+00	3.84E+19	1.83E+20	6.56E+19	4.27E+19	1.67E+20	5.30E+05	2.52E+06	9.05E+05	5.89E+05	2.31E+06	
Promethium (61)	Pm-143	9.55E-01	7.26E-01	1.00E+00	1.51E-01	7.48E-01	2.67E-01	1.71E-01	7.24E-01	1.19E-09	5.88E-09	2.10E-09	1.35E-09	5.69E-09	
Promethium (61)	Pm-144	6.97E-01	9.95E-01	1.00E+00	2.60E-02	1.29E-01	4.51E-02	2.91E-02	1.29E-01	2.81E-10	1.39E-09	4.89E-10	3.15E-10	1.40E-09	
Promethium (61)	Pm-145	3.92E-02	1.77E+01	1.00E+00	7.25E+00	1.04E+01	7.37E+00	7.25E+00	5.35E+00	1.41E-06	2.03E-06	1.43E-06	1.41E-06	1.04E-06	
Promethium (61)	Pm-146	1.25E-01	5.53E+00	1.00E+00	4.20E-02	2.06E-01	7.27E-02	4.69E-02	2.06E-01	2.56E-09	1.26E-08	4.44E-09	2.86E-09	1.26E-08	
Promethium (61)	Pm-147	2.64E-01	2.62E+00	1.00E+00	4.27E+03	9.77E+03	5.01E+03	4.29E+03	5.61E+03	1.25E-04	2.85E-04	1.46E-04	1.25E-04	1.64E-04	
Promethium (61)	Pm-148	4.71E+01	1.47E-02	1.00E+00	2.19E+00	1.17E+01	4.12E+00	2.57E+00	1.07E+01	3.60E-10	1.94E-09	6.78E-10	4.24E-10	1.76E-09	
Promethium (61)	Pm-148m	6.13E+00	1.13E-01	1.00E+00	8.75E-02	4.39E-01	1.53E-01	9.83E-02	4.42E-01	1.11E-10	5.56E-10	1.94E-10	1.25E-10	5.60E-10	
Promethium (61)	Pm-149	1.14E+02	6.06E-03	1.00E+00	2.81E+02	1.17E+03	4.45E+02	3.02E+02	3.83E+02	1.92E-08	8.01E-08	3.04E-08	2.06E-08	2.62E-08	
Promethium (61)	Pm-150	2.27E+03	3.06E-04	1.00E+00	4.16E+01	2.24E+02	7.80E+01	4.89E+01	2.18E+02	1.45E-10	7.77E-10	2.71E-10	1.70E-10	7.57E-10	
Promethium (61)	Pm-151	2.14E+02	3.24E-03	1.00E+00	2.10E+01	9.56E+01	3.41E+01	2.27E+01	9.12E+01	7.76E-10	3.54E-09	1.26E-09	8.42E-10	3.38E-09	
Promethium (61)	Pm-152	8.84E+04	7.84E-06	1.00E+00	1.29E+15	6.26E+15	2.33E+15	1.49E+15	4.73E+15	1.16E+02	5.65E+02	2.10E+02	1.35E+02	4.26E+02	
Promethium (61)	Pm-152m	4.84E+04	1.43E-05	1.00E+00	1.54E+13	7.95E+13	2.79E+13	1.77E+13	7.66E+13	2.53E+00	1.31E+01	4.58E+00	2.92E+00	1.26E+01	
Promethium (61)	Pm-153	6.94E+04	9.99E-06	1.00E+00	7.71E+04	2.09E+05	9.48E+04	7.75E+04	1.54E+05	8.91E-09	2.41E-08	1.10E-08	8.96E-09	1.78E-08	
Promethium (61)	Pm-154	2.11E+05	3.29E-06	1.00E+00	6.01E+16	3.48E+17	1.20E+17	7.34E+16	3.40E+17	2.31E+03	1.33E+04	4.60E+03	2.82E+03	1.30E+04	
Promethium (61)	Pm-154m	1.36E+05	5.10E-06	1.00E+00	3.35E+15	1.81E+16	6.31E+15	3.96E+15	1.75E+16	1.99E+02	1.08E+03	3.75E+02	2.35E+02	1.04E+03	
Polonium (84)	Po-203	9.92E+03	6.98E-05	1.00E+00	6.37E+01	3.40E+02	1.19E+02	7.49E+01	3.46E+02	6.83E-11	3.65E-10	1.27E-10	8.03E-11	3.71E-10	
Polonium (84)	Po-204	1.72E+03	4.03E-04	1.00E+00	1.15E+01	5.91E+01	2.08E+01	1.32E+01	6.00E+01	7.15E-11	3.68E-10	1.29E-10	8.22E-11	3.73E-10	
Polonium (84)	Po-205	3.66E+03	1.89E-04	1.00E+00	3.06E+01	1.66E+02	5.77E+01	3.61E+01	1.69E+02	8.99E-11	4.87E-10	1.70E-10	1.06E-10	4.97E-10	
Polonium (84)	Po-206	2.87E+01	2.41E-02	1.00E+00	1.90E-01	9.83E-01	3.43E-01	2.19E-01	9.98E-01	7.14E-11	3.69E-10	1.29E-10	8.22E-11	3.75E-10	
Polonium (84)	Po-207	1.05E+03	6.62E-04	1.00E+00	2.26E+01	1.17E+02	4.10E+01	2.61E+01	1.18E+02	2.34E-10	1.21E-09	4.25E-10	2.70E-10	1.22E-09	
Polonium (84)	Po-208	2.39E-01	2.90E+00	1.00E+00	1.63E+03	7.74E+03	2.75E+03	1.80E+03	7.79E+03	7.42E-05	3.53E-04	1.25E-04	8.22E-05	3.56E-04	
Polonium (84)	Po-209	6.79E-03	1.02E+02	1.00E+00	4.89E+00	2.38E+01	8.45E+00	5.51E+00	2.41E+01	7.89E-06	3.85E-05	1.36E-05	8.89E-06	3.89E-05	



Composite Worker 2D External Exposure DCCs July 2023															
Radionuclides		Isotope-specific Information			Dose Compliance Concentrations (DCCs)										
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Soil Volume Area Correction Factor	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	
					DCC DL=1 (Bq/g)	@ 1cm DCC DL=1 (Bq/g)	@ 5cm DCC DL=1 (Bq/g)	@ 15cm DCC DL=1 (Bq/g)	Plane DCC DL=1 (Bq/cm <sup>2</sup> )	DCC DL=1 (mg/kg)	@ 1cm DCC DL=1 (mg/kg)	@ 5cm DCC DL=1 (mg/kg)	@ 15cm DCC DL=1 (mg/kg)	Plane DCC DL=1 (mg/cm <sup>2</sup> )	
Polonium (84)	Po-210	1.83E+00	3.79E-01	1.00E+00	6.26E+03	3.22E+04	1.12E+04	7.16E+03	3.27E+04	3.77E-05	1.94E-04	6.78E-05	4.31E-05	1.97E-04	
Polonium (84)	Po-211	4.24E+07	1.64E-08	1.00E+00	2.30E+33	1.18E+34	4.11E+33	2.62E+33	1.19E+34	6.00E+17	3.07E+18	1.07E+18	6.85E+17	3.12E+18	
Polonium (84)	Po-212	7.31E+13	9.48E-15												
Polonium (84)	Po-212m	4.85E+05	1.43E-06	1.00E+00	4.02E+20	2.53E+21	8.62E+20	5.14E+20	2.65E+21	9.22E+06	5.81E+07	1.98E+07	1.18E+07	6.08E+07	
Polonium (84)	Po-213	5.20E+12	1.33E-13	1.00E+00	1.73E+15	4.42E+15	2.19E+15	1.76E+15	3.50E+14	3.72E-06	9.48E-06	4.70E-06	3.77E-06	7.50E-07	
Polonium (84)	Po-214	1.33E+11	5.21E-12	1.00E+00	9.25E+13	1.57E+14	1.06E+14	9.39E+13	1.61E+13	7.81E-06	1.33E-05	8.97E-06	7.93E-06	1.36E-06	
Polonium (84)	Po-215	1.23E+10	5.65E-11	1.00E+00	7.40E+12	3.34E+13	1.23E+13	8.14E+12	1.85E+13	6.80E-06	3.07E-05	1.13E-05	7.48E-06	1.70E-05	
Polonium (84)	Po-216	1.51E+08	4.60E-09	1.00E+00	2.43E+06	1.42E+07	4.90E+06	3.00E+06	1.40E+07	1.83E-10	1.07E-09	3.69E-10	2.25E-10	1.05E-09	
Polonium (84)	Po-218	1.17E+05	5.90E-06	9.00E-01	2.83E+07	8.85E+07	4.43E+07	3.19E+07	1.42E+07	2.76E-06	8.61E-06	4.31E-06	3.10E-06	1.39E-06	
Praseodymium (59)	Pr-134	3.31E+04	2.09E-05	1.00E+00	1.34E+03	6.36E+03	2.27E+03	1.48E+03	5.75E+03	2.84E-10	1.35E-09	4.83E-10	3.15E-10	1.22E-09	
Praseodymium (59)	Pr-134m	2.14E+04	3.23E-05	1.00E+00	8.69E+02	4.13E+03	1.48E+03	9.63E+02	3.73E+03	2.85E-10	1.35E-09	4.84E-10	3.16E-10	1.22E-09	
Praseodymium (59)	Pr-135	1.52E+04	4.57E-05	1.00E+00	5.54E+02	2.65E+03	9.45E+02	6.15E+02	2.61E+03	2.59E-10	1.24E-09	4.41E-10	2.87E-10	1.22E-09	
Praseodymium (59)	Pr-136	2.78E+04	2.49E-05	1.00E+00	1.41E+11	7.37E+11	2.57E+11	1.63E+11	7.24E+11	3.62E-02	1.89E-01	6.59E-02	4.17E-02	1.86E-01	
Praseodymium (59)	Pr-137	4.74E+03	1.46E-04	1.00E+00	3.75E+02	1.79E+03	6.48E+02	4.21E+02	1.63E+03	5.67E-10	2.72E-09	9.82E-10	6.37E-10	2.47E-09	
Praseodymium (59)	Pr-138	2.51E+05	2.76E-06	1.00E+00	5.91E+18	2.80E+19	1.00E+19	6.53E+18	2.55E+19	1.70E+05	8.05E+05	2.89E+05	1.88E+05	7.35E+05	
Praseodymium (59)	Pr-138m	2.86E+03	2.42E-04	1.00E+00	3.27E+01	1.68E+02	5.88E+01	3.74E+01	1.69E+02	8.27E-11	4.24E-10	1.49E-10	9.45E-11	4.27E-10	
Praseodymium (59)	Pr-139	1.38E+03	5.03E-04	1.00E+00	2.05E+02	8.65E+02	3.22E+02	2.20E+02	7.82E+02	1.09E-09	4.58E-09	1.70E-09	1.17E-09	4.14E-09	
Praseodymium (59)	Pr-140	1.07E+05	6.45E-06	1.00E+00	2.92E+15	1.39E+16	4.96E+15	3.23E+15	1.27E+16	2.00E+02	9.51E+02	3.39E+02	2.21E+02	8.66E+02	
Praseodymium (59)	Pr-142	3.18E+02	2.18E-03	1.00E+00	1.28E+02	6.30E+02	2.46E+02	1.55E+02	2.99E+02	3.01E-09	1.48E-08	5.77E-09	3.63E-09	7.02E-09	
Praseodymium (59)	Pr-142m	2.49E+04	2.78E-05												
Praseodymium (59)	Pr-143	1.86E+01	3.72E-02	1.00E+00	1.03E+03	1.96E+03	1.26E+03	1.05E+03	1.24E+02	4.14E-07	7.90E-07	5.08E-07	4.23E-07	5.00E-08	
Praseodymium (59)	Pr-144	2.11E+04	3.29E-05	1.00E+00	1.03E+12	3.74E+12	1.78E+12	1.21E+12	1.36E+12	3.71E-01	1.34E+00	6.39E-01	4.33E-01	4.86E-01	
Praseodymium (59)	Pr-144m	5.06E+04	1.37E-05	1.00E+00	1.45E+12	5.24E+12	2.50E+12	1.69E+12	1.90E+12	2.16E-01	7.83E-01	3.73E-01	2.53E-01	2.84E-01	
Praseodymium (59)	Pr-145	1.01E+03	6.83E-04	1.00E+00	1.30E+03	5.00E+03	2.17E+03	1.46E+03	1.43E+03	9.72E-09	3.75E-08	1.63E-08	1.10E-08	1.07E-08	
Praseodymium (59)	Pr-146	1.51E+04	4.59E-05	1.00E+00	1.71E+08	9.21E+08	3.25E+08	2.02E+08	8.57E+08	8.66E-05	4.67E-04	1.65E-04	1.03E-04	4.35E-04	
Praseodymium (59)	Pr-147	2.72E+04	2.55E-05	1.00E+00	7.12E+03	3.03E+04	1.13E+04	7.73E+03	2.69E+04	2.02E-09	8.60E-09	3.21E-09	2.19E-09	7.63E-09	
Praseodymium (59)	Pr-148	1.59E+05	4.36E-06	1.00E+00	1.39E+17	7.25E+17	2.58E+17	1.62E+17	6.67E+17	6.77E+03	3.54E+04	1.26E+04	7.93E+03	3.26E+04	
Praseodymium (59)	Pr-148m	1.81E+05	3.82E-06	1.00E+00	3.77E+16	1.79E+17	6.40E+16	4.18E+16	1.62E+17	1.61E+03	7.65E+03	2.74E+03	1.79E+03	6.93E+03	
Platinum (78)	Pt-184	2.11E+04	3.29E-05	1.00E+00	3.06E+02	1.57E+03	5.54E+02	3.53E+02	1.59E+03	1.40E-10	7.22E-10	2.54E-10	1.62E-10	7.27E-10	
Platinum (78)	Pt-186	2.92E+03	2.37E-04	1.00E+00	3.59E+01	1.84E+02	6.47E+01	4.14E+01	1.86E+02	1.20E-10	6.14E-10	2.16E-10	1.38E-10	6.22E-10	
Platinum (78)	Pt-187	2.58E+03	2.68E-04	1.00E+00	8.95E+01	4.12E+02	1.50E+02	9.95E+01	4.06E+02	3.40E-10	1.56E-09	5.69E-10	3.78E-10	1.54E-09	
Platinum (78)	Pt-188	2.48E+01	2.79E-02	1.00E+00	2.92E-01	1.64E+00	5.72E-01	3.55E-01	1.68E+00	1.16E-10	6.53E-10	2.28E-10	1.41E-10	6.69E-10	
Platinum (78)	Pt-189	5.58E+02	1.24E-03	1.00E+00	3.53E+01	1.54E+02	5.74E+01	3.91E+01	1.50E+02	6.27E-10	2.73E-09	1.02E-09	6.94E-10	2.66E-09	
Platinum (78)	Pt-190	1.07E-12	6.50E+11												
Platinum (78)	Pt-191	9.03E+01	7.68E-03	1.00E+00	1.19E+01	4.81E+01	1.82E+01	1.28E+01	4.64E+01	1.32E-09	5.33E-09	2.02E-09	1.42E-09	5.14E-09	
Platinum (78)	Pt-193	1.39E-02	5.00E+01	1.00E+00	3.73E+04	3.73E+04	3.73E+04	3.73E+04	1.30E+03	2.73E-02	2.73E-02	2.73E-02	2.73E-02	9.53E-04	
Platinum (78)	Pt-193m	5.84E+01	1.19E-02	1.00E+00	4.33E+02	1.04E+03	4.87E+02	4.33E+02	8.94E+02	7.51E-08	1.80E-07	8.44E-08	7.51E-08	1.55E-07	
Platinum (78)	Pt-195m	6.29E+01	1.10E-02	1.00E+00	6.13E+01	1.59E+02	7.17E+01	6.13E+01	1.41E+02	9.96E-09	2.58E-08	1.16E-08	9.97E-09	2.29E-08	
Platinum (78)	Pt-197	3.05E+02	2.27E-03	1.00E+00	6.67E+02	2.10E+03	8.63E+02	6.79E+02	1.75E+03	2.26E-08	7.11E-08	2.92E-08	2.30E-08	5.92E-08	
Platinum (78)	Pt-197m	3.82E+03	1.82E-04	1.00E+00	1.64E+03	5.96E+03	2.34E+03	1.72E+03	5.51E+03	4.45E-09	1.61E-08	6.33E-09	4.65E-09	1.49E-08	
Platinum (78)	Pt-199	1.18E+04	5.86E-05	1.00E+00	5.00E+03	1.90E+04	7.03E+03	5.10E+03	1.90E+04	4.42E-09	1.67E-08	6.20E-09	4.50E-09	1.68E-08	
Platinum (78)	Pt-200	4.86E+02	1.43E-03	1.00E+00	4.27E+01	2.08E+02	7.55E+01	4.89E+01	1.72E+02	9.22E-10	4.50E-09	1.63E-09	1.06E-09	3.72E-09	

Composite Worker 2D External Exposure DCCs July 2023															
Radionuclides		Isotope-specific Information			Dose Compliance Concentrations (DCCs)										
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Soil Volume Area Correction Factor	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	
					DCC DL=1 (Bq/g)	@ 1cm DCC DL=1 (Bq/g)	@ 5cm DCC DL=1 (Bq/g)	@ 15cm DCC DL=1 (Bq/g)	Plane DCC DL=1 (Bq/cm <sup>2</sup> )	DCC DL=1 (mg/kg)	@ 1cm DCC DL=1 (mg/kg)	@ 5cm DCC DL=1 (mg/kg)	@ 15cm DCC DL=1 (mg/kg)	Plane DCC DL=1 (mg/cm <sup>2</sup> )	
Platinum (78)	Pt-202	1.38E+02	5.02E-03	9.00E-01	2.08E+01	9.61E+01	3.68E+01	2.38E+01	5.45E+01	1.60E-09	7.38E-09	2.82E-09	1.83E-09	4.18E-09	
Plutonium (94)	Pu-232	1.08E+04	6.41E-05	1.00E+00	2.75E+04	1.60E+05	5.52E+04	3.39E+04	1.57E+05	3.10E-08	1.80E-07	6.22E-08	3.81E-08	1.77E-07	
Plutonium (94)	Pu-234	6.90E+02	1.00E-03	1.00E+00	1.72E+01	9.41E+01	3.29E+01	2.06E+01	9.59E+01	3.07E-10	1.67E-09	5.85E-10	3.66E-10	1.71E-09	
Plutonium (94)	Pu-235	1.44E+04	4.81E-05	1.00E+00	2.60E+06	6.78E+06	3.20E+06	2.60E+06	1.95E+06	2.22E-06	5.80E-06	2.74E-06	2.23E-06	1.67E-06	
Plutonium (94)	Pu-236	2.42E-01	2.86E+00	1.00E+00	5.00E-01	2.90E+00	1.00E+00	6.15E-01	2.86E+00	2.55E-08	1.48E-07	5.12E-08	3.14E-08	1.46E-07	
Plutonium (94)	Pu-237	5.60E+00	1.24E-01	1.00E+00	6.18E+00	1.97E+01	7.85E+00	6.18E+00	1.82E+01	1.37E-08	4.36E-08	1.74E-08	1.37E-08	4.05E-08	
Plutonium (94)	Pu-238	7.90E-03	8.77E+01	1.00E+00	7.34E+01	3.98E+02	1.38E+02	8.66E+01	2.32E+02	1.16E-04	6.29E-04	2.19E-04	1.37E-04	3.67E-04	
Plutonium (94)	Pu-239	2.87E-05	2.41E+04	1.00E+00	5.86E+02	1.68E+03	8.03E+02	6.07E+02	4.53E+02	2.56E-01	7.32E-01	3.50E-01	2.65E-01	1.98E-01	
Plutonium (94)	Pu-240	1.06E-04	6.56E+03	1.00E+00	1.43E+03	1.97E+03	1.56E+03	1.45E+03	2.44E+02	1.71E-01	2.35E-01	1.86E-01	1.72E-01	2.91E-02	
Plutonium (94)	Pu-241	4.83E-02	1.44E+01	1.00E+00	1.47E+02	3.00E+02	1.59E+02	1.47E+02	2.15E+02	3.86E-05	7.84E-05	4.15E-05	3.86E-05	5.63E-05	
Plutonium (94)	Pu-242	1.85E-06	3.75E+05	1.00E+00	1.82E+02	9.81E+02	3.43E+02	2.15E+02	2.49E+02	1.25E+00	6.73E+00	2.36E+00	1.48E+00	1.71E+00	
Plutonium (94)	Pu-243	1.22E+03	5.66E-04	1.00E+00	2.77E+03	8.43E+03	3.52E+03	2.82E+03	7.48E+03	2.88E-08	8.77E-08	3.66E-08	2.93E-08	7.78E-08	
Plutonium (94)	Pu-244	8.66E-09	8.00E+07	1.00E+00	8.20E-02	4.10E-01	1.46E-01	9.33E-02	3.46E-01	1.21E-01	6.06E-01	2.15E-01	1.38E-01	5.11E-01	
Plutonium (94)	Pu-245	5.78E+02	1.20E-03	1.00E+00	4.08E+01	1.94E+02	6.87E+01	4.52E+01	1.86E+02	9.06E-10	4.32E-09	1.53E-09	1.01E-09	4.12E-09	
Plutonium (94)	Pu-246	2.33E+01	2.97E-02	1.00E+00	5.99E-01	3.08E+00	1.08E+00	6.88E-01	2.98E+00	3.31E-10	1.70E-09	5.96E-10	3.80E-10	1.65E-09	
Radium (88)	Ra-219	2.19E+09	3.17E-10	1.00E+00	1.16E+35	5.96E+35	2.08E+35	1.33E+35	6.03E+35	6.11E+17	3.13E+18	1.09E+18	6.97E+17	3.17E+18	
Radium (88)	Ra-220	1.22E+09	5.68E-10	1.00E+00	1.16E+40	5.48E+40	1.93E+40	1.26E+40	5.58E+40	1.09E+23	5.18E+23	1.82E+23	1.19E+23	5.27E+23	
Radium (88)	Ra-221	7.81E+05	8.88E-07	1.00E+00	1.86E+08	4.75E+08	2.35E+08	1.89E+08	3.76E+07	2.77E-06	7.06E-06	3.50E-06	2.81E-06	5.59E-07	
Radium (88)	Ra-222	5.75E+05	1.20E-06	1.00E+00	4.00E+08	6.79E+08	4.60E+08	4.06E+08	6.97E+07	8.10E-06	1.37E-05	9.30E-06	8.22E-06	1.41E-06	
Radium (88)	Ra-223	2.21E+01	3.13E-02	1.00E+00	2.38E+00	1.02E+01	3.73E+00	2.55E+00	7.86E+00	1.26E-09	5.37E-09	1.97E-09	1.35E-09	4.15E-09	
Radium (88)	Ra-224	6.91E+01	1.00E-02	1.00E+00	1.23E+00	7.14E+00	2.47E+00	1.52E+00	7.05E+00	2.09E-10	1.21E-09	4.20E-10	2.58E-10	1.20E-09	
Radium (88)	Ra-225	1.70E+01	4.08E-02	1.00E+00	2.39E+00	1.10E+01	3.97E+00	2.63E+00	9.04E+00	1.66E-09	7.61E-09	2.76E-09	1.83E-09	6.28E-09	
Radium (88)	Ra-226	4.33E-04	1.60E+03	1.00E+00	1.55E-02	8.45E-02	2.94E-02	1.84E-02	8.28E-02	4.25E-07	2.31E-06	8.03E-07	5.02E-07	2.27E-06	
Radium (88)	Ra-227	8.63E+03	8.03E-05	1.00E+00	2.18E+04	9.27E+04	3.39E+04	2.32E+04	7.63E+04	3.00E-08	1.28E-07	4.67E-08	3.20E-08	1.05E-07	
Radium (88)	Ra-228	1.21E-01	5.75E+00	1.00E+00	1.93E-02	1.07E-01	3.72E-02	2.31E-02	1.05E-01	1.91E-09	1.06E-08	3.69E-09	2.30E-09	1.05E-08	
Radium (88)	Ra-230	3.92E+03	1.77E-04	1.00E+00	1.70E+02	9.12E+02	3.22E+02	2.02E+02	8.15E+02	5.25E-10	2.81E-09	9.93E-10	6.22E-10	2.51E-09	
Rubidium (37)	Rb-77	9.66E+04	7.17E-06	1.00E+00	2.19E+03	1.02E+04	3.61E+03	2.39E+03	9.85E+03	9.13E-11	4.26E-10	1.51E-10	9.99E-11	4.12E-10	
Rubidium (37)	Rb-78	2.06E+04	3.36E-05	1.00E+00	8.82E+09	5.24E+10	1.81E+10	1.09E+10	5.34E+10	1.75E-03	1.04E-02	3.59E-03	2.17E-03	1.06E-02	
Rubidium (37)	Rb-78m	6.35E+04	1.09E-05	1.00E+00	1.83E+11	1.09E+12	3.75E+11	2.27E+11	1.11E+12	1.18E-02	7.00E-02	2.42E-02	1.46E-02	7.13E-02	
Rubidium (37)	Rb-79	1.59E+04	4.36E-05	1.00E+00	1.91E+03	9.20E+03	3.22E+03	2.10E+03	9.31E+03	4.99E-10	2.40E-09	8.38E-10	5.48E-10	2.42E-09	
Rubidium (37)	Rb-80	6.54E+05	1.06E-06	1.00E+00	1.51E+20	7.11E+20	2.56E+20	1.67E+20	6.56E+20	9.70E+05	4.56E+06	1.64E+06	1.07E+06	4.21E+06	
Rubidium (37)	Rb-81	1.33E+03	5.22E-04	1.00E+00	6.47E+01	3.05E+02	1.07E+02	7.06E+01	3.05E+02	2.07E-10	9.76E-10	3.43E-10	2.26E-10	9.77E-10	
Rubidium (37)	Rb-81m	1.19E+04	5.80E-05	1.00E+00	5.97E+02	2.81E+03	9.89E+02	6.51E+02	2.81E+03	2.12E-10	1.00E-09	3.52E-10	2.32E-10	1.00E-09	
Rubidium (37)	Rb-82	2.86E+05	2.42E-06	1.00E+00	5.30E+17	2.53E+18	9.01E+17	5.87E+17	2.33E+18	7.97E+03	3.80E+04	1.35E+04	8.82E+03	3.50E+04	
Rubidium (37)	Rb-82m	9.38E+02	7.39E-04	1.00E+00	8.92E+00	4.65E+01	1.62E+01	1.03E+01	4.75E+01	4.09E-11	2.13E-10	7.43E-11	4.71E-11	2.18E-10	
Rubidium (37)	Rb-83	2.93E+00	2.36E-01	1.00E+00	1.88E-01	9.15E-01	3.20E-01	2.08E-01	9.25E-01	2.79E-10	1.36E-09	4.75E-10	3.09E-10	1.37E-09	
Rubidium (37)	Rb-84	7.72E+00	8.98E-02	1.00E+00	2.41E-01	1.23E+00	4.30E-01	2.73E-01	1.23E+00	1.38E-10	7.03E-10	2.45E-10	1.56E-10	7.02E-10	
Rubidium (37)	Rb-84m	1.80E+04	3.85E-05	1.00E+00	5.61E+02	2.87E+03	1.00E+03	6.37E+02	2.87E+03	1.38E-10	7.03E-10	2.45E-10	1.56E-10	7.02E-10	
Rubidium (37)	Rb-86	1.36E+01	5.11E-02	1.00E+00	3.79E+00	1.90E+01	6.97E+00	4.43E+00	1.14E+01	1.26E-09	6.31E-09	2.32E-09	1.47E-09	3.79E-09	
Rubidium (37)	Rb-86m	3.58E+05	1.93E-06	1.00E+00	1.00E+05	5.01E+05	1.84E+05	1.17E+05	3.01E+05	1.26E-09	6.31E-09	2.32E-09	1.47E-09	3.79E-09	
Rubidium (37)	Rb-87	1.41E-11	4.92E+10	9.00E-01	1.34E+03	3.14E+03	1.57E+03	1.34E+03	1.95E+03	4.33E+05	1.02E+06	5.09E+05	4.34E+05	6.33E+05	
Rubidium (37)	Rb-88	2.05E+04	3.38E-05	1.00E+00	5.16E+10	2.87E+11	1.04E+11	6.35E+10	2.52E+11	1.16E-02	6.46E-02	2.34E-02	1.43E-02	5.69E-02	

Composite Worker 2D External Exposure DCCs July 2023															
Radionuclides		Isotope-specific Information			Dose Compliance Concentrations (DCCs)										
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Soil Volume Area Correction Factor	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	
					DCC DL=1 (Bq/g)	@ 1cm DCC DL=1 (Bq/g)	@ 5cm DCC DL=1 (Bq/g)	@ 15cm DCC DL=1 (Bq/g)	Plane DCC DL=1 (Bq/cm <sup>2</sup> )	DCC DL=1 (mg/kg)	@ 1cm DCC DL=1 (mg/kg)	@ 5cm DCC DL=1 (mg/kg)	@ 15cm DCC DL=1 (mg/kg)	Plane DCC DL=1 (mg/cm <sup>2</sup> )	
Rubidium (37)	Rb-89	2.40E+04	2.88E-05	1.00E+00	2.58E+05	4.34E+05	3.13E+05	2.65E+05	4.88E+04	5.00E-08	8.42E-08	6.08E-08	5.15E-08	9.47E-09	
Rubidium (37)	Rb-90	1.38E+05	5.01E-06	1.00E+00	2.32E+07	3.97E+07	2.86E+07	2.40E+07	7.24E+06	7.90E-07	1.36E-06	9.77E-07	8.20E-07	2.47E-07	
Rubidium (37)	Rb-90m	8.47E+04	8.18E-06	1.00E+00	1.42E+07	2.43E+07	1.75E+07	1.47E+07	4.43E+06	7.90E-07	1.36E-06	9.77E-07	8.20E-07	2.47E-07	
Rhenium (75)	Re-178	2.76E+04	2.51E-05	1.00E+00	8.71E+03	3.48E+04	1.41E+04	9.89E+03	3.14E+04	2.95E-09	1.18E-08	4.76E-09	3.35E-09	1.06E-08	
Rhenium (75)	Re-179	1.87E+04	3.71E-05	1.00E+00	3.32E+04	6.61E+04	3.55E+04	3.32E+04	4.97E+04	1.67E-08	3.32E-08	1.78E-08	1.67E-08	2.50E-08	
Rhenium (75)	Re-180	1.49E+05	4.64E-06	1.00E+00	1.22E+16	6.21E+16	2.19E+16	1.40E+16	6.23E+16	7.70E+02	3.93E+03	1.39E+03	8.85E+02	3.94E+03	
Rhenium (75)	Re-181	3.05E+02	2.27E-03	1.00E+00	1.17E+01	5.46E+01	1.98E+01	1.30E+01	5.42E+01	3.64E-10	1.70E-09	6.16E-10	4.06E-10	1.69E-09	
Rhenium (75)	Re-182	9.49E+01	7.31E-03	1.00E+00	1.57E+00	7.91E+00	2.81E+00	1.81E+00	7.97E+00	1.58E-10	7.96E-10	2.83E-10	1.82E-10	8.02E-10	
Rhenium (75)	Re-182m	4.78E+02	1.45E-03	1.00E+00	1.12E+01	5.88E+01	2.07E+01	1.31E+01	5.92E+01	2.23E-10	1.17E-09	4.14E-10	2.62E-10	1.18E-09	
Rhenium (75)	Re-183	3.61E+00	1.92E-01	1.00E+00	1.32E+00	4.14E+00	1.73E+00	1.34E+00	3.76E+00	3.49E-09	1.10E-08	4.60E-09	3.57E-09	9.98E-09	
Rhenium (75)	Re-184	6.66E+00	1.04E-01	1.00E+00	2.20E-01	1.10E+00	3.91E-01	2.50E-01	1.11E+00	3.19E-10	1.60E-09	5.66E-10	3.63E-10	1.60E-09	
Rhenium (75)	Re-184m	1.50E+00	4.63E-01	1.00E+00	5.94E-02	2.87E-01	1.03E-01	6.69E-02	2.88E-01	3.83E-10	1.85E-09	6.64E-10	4.32E-10	1.85E-09	
Rhenium (75)	Re-186	6.80E+01	1.02E-02	1.00E+00	1.54E+02	4.92E+02	2.03E+02	1.56E+02	2.17E+02	2.20E-08	7.05E-08	2.91E-08	2.24E-08	3.12E-08	
Rhenium (75)	Re-186m	3.47E-06	2.00E+05	1.00E+00	1.69E+00	4.76E+00	2.12E+00	1.71E+00	2.45E+00	4.75E-03	1.34E-02	5.96E-03	4.81E-03	6.91E-03	
Rhenium (75)	Re-187	1.68E-11	4.12E+10												
Rhenium (75)	Re-188	3.57E+02	1.94E-03	1.00E+00	1.76E+02	6.99E+02	2.79E+02	1.91E+02	3.34E+02	4.86E-09	1.93E-08	7.71E-09	5.28E-09	9.24E-09	
Rhenium (75)	Re-188m	1.96E+04	3.54E-05	1.00E+00	9.66E+03	3.84E+04	1.53E+04	1.05E+04	1.84E+04	4.86E-09	1.93E-08	7.71E-09	5.28E-09	9.24E-09	
Rhenium (75)	Re-189	2.50E+02	2.77E-03	1.00E+00	1.56E+02	6.53E+02	2.38E+02	1.64E+02	4.85E+02	6.19E-09	2.59E-08	9.43E-09	6.52E-09	1.92E-08	
Rhenium (75)	Re-190	1.17E+05	5.90E-06	1.00E+00	2.27E+15	1.10E+16	3.88E+15	2.52E+15	1.07E+16	1.93E+02	9.35E+02	3.29E+02	2.14E+02	9.03E+02	
Rhenium (75)	Re-190m	1.90E+03	3.65E-04	1.00E+00	3.71E+01	1.78E+02	6.29E+01	4.10E+01	1.73E+02	1.95E-10	9.34E-10	3.30E-10	2.15E-10	9.07E-10	
Rhodium (45)	Rh-100	2.92E+02	2.37E-03	1.00E+00	2.79E+00	1.59E+01	5.49E+00	3.38E+00	1.65E+01	5.01E-11	2.86E-10	9.87E-11	6.07E-11	2.96E-10	
Rhodium (45)	Rh-100m	7.92E+04	8.75E-06	1.00E+00	7.66E+02	4.38E+03	1.51E+03	9.29E+02	4.53E+03	5.08E-11	2.90E-10	1.00E-10	6.15E-11	3.00E-10	
Rhodium (45)	Rh-101	2.10E-01	3.30E+00	1.00E+00	1.48E-01	6.01E-01	2.17E-01	1.53E-01	5.98E-01	3.74E-09	1.52E-08	5.48E-09	3.87E-09	1.51E-08	
Rhodium (45)	Rh-101m	5.83E+01	1.19E-02	1.00E+00	6.64E+00	3.01E+01	1.06E+01	7.08E+00	3.01E+01	6.03E-10	2.74E-09	9.63E-10	6.43E-10	2.74E-09	
Rhodium (45)	Rh-102	1.22E+00	5.67E-01	1.00E+00	1.02E-01	4.98E-01	1.74E-01	1.13E-01	4.86E-01	4.45E-10	2.18E-09	7.63E-10	4.95E-10	2.13E-09	
Rhodium (45)	Rh-102m	1.85E-01	3.74E+00	1.00E+00	1.45E-02	7.37E-02	2.57E-02	1.64E-02	7.48E-02	4.18E-10	2.13E-09	7.44E-10	4.74E-10	2.16E-09	
Rhodium (45)	Rh-103m	6.49E+03	1.07E-04	1.00E+00	6.66E+06	6.91E+06	6.66E+06	6.66E+06	1.09E+06	5.54E-06	5.75E-06	5.54E-06	5.54E-06	9.07E-07	
Rhodium (45)	Rh-104	5.17E+05	1.34E-06	1.00E+00	2.43E+21	6.95E+21	3.64E+21	2.63E+21	1.83E+21	2.56E+07	7.34E+07	3.84E+07	2.78E+07	1.93E+07	
Rhodium (45)	Rh-104m	8.39E+04	8.26E-06	1.00E+00	1.21E+16	3.12E+16	1.65E+16	1.28E+16	1.03E+16	7.84E+02	2.03E+03	1.07E+03	8.33E+02	6.68E+02	
Rhodium (45)	Rh-105	1.72E+02	4.04E-03	1.00E+00	7.03E+01	3.19E+02	1.12E+02	7.49E+01	3.23E+02	2.25E-09	1.02E-08	3.59E-09	2.40E-09	1.03E-08	
Rhodium (45)	Rh-106	7.33E+05	9.45E-07	1.00E+00	1.00E+21	4.46E+21	1.70E+21	1.12E+21	3.09E+21	7.58E+06	3.38E+07	1.29E+07	8.46E+06	2.34E+07	
Rhodium (45)	Rh-106m	2.78E+03	2.49E-04	1.00E+00	2.70E+01	1.41E+02	4.92E+01	3.11E+01	1.43E+02	5.40E-11	2.82E-10	9.84E-11	6.22E-11	2.87E-10	
Rhodium (45)	Rh-107	1.68E+04	4.13E-05	1.00E+00	4.48E+09	2.04E+10	7.20E+09	4.80E+09	1.84E+10	1.50E-03	6.83E-03	2.41E-03	1.60E-03	6.17E-03	
Rhodium (45)	Rh-108	1.30E+06	5.33E-07	1.00E+00	4.13E+22	1.81E+23	6.88E+22	4.56E+22	1.39E+23	1.80E+08	7.89E+08	3.00E+08	1.98E+08	6.06E+08	
Rhodium (45)	Rh-109	2.73E+05	2.54E-06	1.00E+00	2.46E+06	6.13E+06	3.12E+06	2.51E+06	1.02E+06	5.14E-08	1.28E-07	6.54E-08	5.26E-08	2.13E-08	
Rhodium (45)	Rh-94	3.10E+05	2.24E-06	1.00E+00	3.51E+03	1.82E+04	6.35E+03	4.03E+03	1.79E+04	5.59E-11	2.90E-10	1.01E-10	6.42E-11	2.86E-10	
Rhodium (45)	Rh-95	7.26E+04	9.55E-06	1.00E+00	1.01E+03	5.22E+03	1.82E+03	1.15E+03	5.28E+03	6.93E-11	3.58E-10	1.25E-10	7.93E-11	3.62E-10	
Rhodium (45)	Rh-95m	1.86E+05	3.73E-06	1.00E+00	2.58E+03	1.34E+04	4.65E+03	2.96E+03	1.35E+04	6.93E-11	3.58E-10	1.25E-10	7.93E-11	3.62E-10	
Rhodium (45)	Rh-96	3.68E+04	1.88E-05	1.00E+00	5.02E+11	2.61E+12	9.13E+11	5.77E+11	2.62E+12	6.86E-02	3.58E-01	1.25E-01	7.89E-02	3.58E-01	
Rhodium (45)	Rh-96m	2.41E+05	2.87E-06	1.00E+00	4.65E+12	2.42E+13	8.45E+12	5.34E+12	2.42E+13	9.70E-02	5.05E-01	1.76E-01	1.11E-01	5.06E-01	
Rhodium (45)	Rh-97	1.19E+04	5.84E-05	1.00E+00	1.75E+03	7.57E+03	2.68E+03	1.83E+03	7.58E+03	7.50E-10	3.24E-09	1.15E-09	7.86E-10	3.25E-09	
Rhodium (45)	Rh-97m	7.88E+03	8.79E-05	1.00E+00	8.40E+01	4.74E+02	1.63E+02	1.01E+02	4.83E+02	5.42E-11	3.06E-10	1.05E-10	6.52E-11	3.11E-10	

Composite Worker 2D External Exposure DCCs July 2023															
Radionuclides		Isotope-specific Information			Dose Compliance Concentrations (DCCs)										
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Soil Volume Area Correction Factor	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	
					DCC DL=1 (Bq/g)	@ 1cm DCC DL=1 (Bq/g)	@ 5cm DCC DL=1 (Bq/g)	@ 15cm DCC DL=1 (Bq/g)	Plane DCC DL=1 (Bq/cm <sup>2</sup> )	DCC DL=1 (mg/kg)	@ 1cm DCC DL=1 (mg/kg)	@ 5cm DCC DL=1 (mg/kg)	@ 15cm DCC DL=1 (mg/kg)	Plane DCC DL=1 (mg/cm <sup>2</sup> )	
Rhodium (45)	Rh-98	4.19E+04	1.66E-05	1.00E+00	3.13E+12	1.57E+13	5.50E+12	3.53E+12	1.50E+13	3.85E-01	1.92E+00	6.75E-01	4.34E-01	1.84E+00	
Rhodium (45)	Rh-99	1.57E+01	4.41E-02	1.00E+00	8.74E-01	4.17E+00	1.47E+00	9.67E-01	4.17E+00	2.89E-10	1.38E-09	4.87E-10	3.20E-10	1.38E-09	
Rhodium (45)	Rh-99m	1.29E+03	5.37E-04	1.00E+00	5.90E+01	2.92E+02	1.02E+02	6.59E+01	2.95E+02	2.37E-10	1.17E-09	4.10E-10	2.65E-10	1.18E-09	
Radon (86)	Rn-207	3.94E+04	1.76E-05	1.00E+00	3.34E+02	1.77E+03	6.18E+02	3.90E+02	1.80E+03	9.21E-11	4.88E-10	1.70E-10	1.08E-10	4.96E-10	
Radon (86)	Rn-209	1.28E+04	5.42E-05	1.00E+00	1.45E+02	7.45E+02	2.61E+02	1.67E+02	7.55E+02	1.25E-10	6.39E-10	2.24E-10	1.43E-10	6.48E-10	
Radon (86)	Rn-210	2.53E+03	2.74E-04	1.00E+00	1.67E+01	8.63E+01	3.02E+01	1.92E+01	8.77E+01	7.26E-11	3.76E-10	1.31E-10	8.37E-11	3.82E-10	
Radon (86)	Rn-211	4.16E+02	1.67E-03	1.00E+00	5.16E+00	2.68E+01	9.40E+00	5.96E+00	2.73E+01	1.37E-10	7.14E-10	2.50E-10	1.59E-10	7.27E-10	
Radon (86)	Rn-212	1.52E+04	4.55E-05	1.00E+00	1.04E+08	4.93E+08	1.75E+08	1.15E+08	4.97E+08	7.56E-05	3.60E-04	1.28E-04	8.38E-05	3.62E-04	
Radon (86)	Rn-215	9.50E+12	7.29E-14												
Radon (86)	Rn-216	4.86E+11	1.43E-12												
Radon (86)	Rn-217	4.05E+10	1.71E-11												
Radon (86)	Rn-218	6.24E+08	1.11E-09	1.00E+00	4.34E+11	7.37E+11	4.99E+11	4.41E+11	7.57E+10	7.95E-06	1.35E-05	9.14E-06	8.07E-06	1.39E-06	
Radon (86)	Rn-219	5.52E+06	1.26E-07	1.00E+00	3.32E+09	1.50E+10	5.54E+09	3.65E+09	8.29E+09	6.91E-06	3.12E-05	1.15E-05	7.60E-06	1.73E-05	
Radon (86)	Rn-220	3.93E+05	1.76E-06	1.00E+00	7.04E+03	4.09E+04	1.42E+04	8.68E+03	4.04E+04	2.07E-10	1.20E-09	4.16E-10	2.55E-10	1.19E-09	
Radon (86)	Rn-222	6.62E+01	1.05E-02	1.00E+00	1.03E+00	5.61E+00	1.95E+00	1.22E+00	5.51E+00	1.81E-10	9.88E-10	3.43E-10	2.14E-10	9.70E-10	
Radon (86)	Rn-223	1.50E+04	4.62E-05	1.00E+00	1.60E+03	6.86E+03	2.52E+03	1.72E+03	5.30E+03	1.25E-09	5.35E-09	1.96E-09	1.34E-09	4.14E-09	
Ruthenium (44)	Ru-103	6.44E+00	1.08E-01	1.00E+00	3.86E-01	1.86E+00	6.52E-01	4.24E-01	1.88E+00	3.24E-10	1.56E-09	5.46E-10	3.56E-10	1.58E-09	
Ruthenium (44)	Ru-105	1.37E+03	5.07E-04	1.00E+00	4.84E+01	2.38E+02	8.34E+01	5.40E+01	2.31E+02	1.95E-10	9.58E-10	3.36E-10	2.17E-10	9.29E-10	
Ruthenium (44)	Ru-106	6.77E-01	1.02E+00												
Ruthenium (44)	Ru-107	9.71E+04	7.13E-06	1.00E+00	2.15E+10	9.78E+10	3.45E+10	2.30E+10	8.83E+10	1.24E-03	5.65E-03	1.99E-03	1.33E-03	5.10E-03	
Ruthenium (44)	Ru-108	8.01E+04	8.66E-06	1.00E+00	3.36E+15	1.44E+16	5.48E+15	3.67E+15	1.06E+16	2.38E+02	1.02E+03	3.88E+02	2.60E+02	7.52E+02	
Ruthenium (44)	Ru-92	9.98E+04	6.94E-06	1.00E+00	1.49E+13	7.85E+13	2.75E+13	1.74E+13	7.78E+13	7.22E-01	3.80E+00	1.33E+00	8.40E-01	3.76E+00	
Ruthenium (44)	Ru-94	7.03E+03	9.86E-05	1.00E+00	7.98E+01	4.13E+02	1.44E+02	9.15E+01	4.07E+02	5.59E-11	2.90E-10	1.01E-10	6.41E-11	2.85E-10	
Ruthenium (44)	Ru-95	3.69E+03	1.88E-04	1.00E+00	5.14E+01	2.66E+02	9.25E+01	5.88E+01	2.69E+02	6.93E-11	3.58E-10	1.25E-10	7.93E-11	3.62E-10	
Ruthenium (44)	Ru-97	8.72E+01	7.95E-03	1.00E+00	1.29E+01	5.57E+01	1.97E+01	1.35E+01	5.57E+01	7.51E-10	3.25E-09	1.15E-09	7.87E-10	3.25E-09	
Sulfur (16)	S-35	2.89E+00	2.40E-01	9.00E-01	4.52E+04	7.91E+04	4.86E+04	4.52E+04	3.54E+04	2.87E-05	5.02E-05	3.09E-05	2.87E-05	2.25E-05	
Sulphur (16)	S-37	7.21E+04	9.61E-06	1.00E+00	3.32E+13	2.24E+14	7.55E+13	4.41E+13	2.29E+14	8.94E-01	6.02E+00	2.03E+00	1.19E+00	6.16E+00	
Sulfur (16)	S-38	2.14E+03	3.24E-04	1.00E+00	1.68E+01	1.02E+02	3.52E+01	2.11E+01	1.02E+02	1.56E-11	9.51E-11	3.28E-11	1.97E-11	9.46E-11	
Antimony (51)	Sb-111	2.91E+05	2.38E-06	1.00E+00	2.61E+04	1.09E+05	3.91E+04	2.71E+04	1.09E+05	5.21E-10	2.19E-09	7.82E-10	5.42E-10	2.19E-09	
Antimony (51)	Sb-113	5.46E+04	1.27E-05	1.00E+00	7.38E+03	3.40E+04	1.21E+04	7.97E+03	3.30E+04	8.00E-10	3.69E-09	1.31E-09	8.64E-10	3.58E-09	
Antimony (51)	Sb-114	1.04E+05	6.64E-06	1.00E+00	6.51E+14	3.46E+15	1.21E+15	7.62E+14	3.44E+15	3.73E+01	1.98E+02	6.94E+01	4.36E+01	1.97E+02	
Antimony (51)	Sb-115	1.13E+04	6.11E-05	1.00E+00	3.80E+02	1.84E+03	6.48E+02	4.21E+02	1.81E+03	2.02E-10	9.79E-10	3.44E-10	2.24E-10	9.59E-10	
Antimony (51)	Sb-116	2.31E+04	3.01E-05	1.00E+00	3.89E+10	2.14E+11	7.42E+10	4.61E+10	2.14E+11	1.03E-02	5.66E-02	1.96E-02	1.22E-02	5.64E-02	
Antimony (51)	Sb-116m	6.04E+03	1.15E-04	1.00E+00	5.39E+01	2.86E+02	9.97E+01	6.27E+01	2.90E+02	5.43E-11	2.88E-10	1.00E-10	6.31E-11	2.92E-10	
Antimony (51)	Sb-117	2.17E+03	3.20E-04	1.00E+00	4.73E+02	1.90E+03	6.97E+02	4.93E+02	1.81E+03	1.34E-09	5.39E-09	1.97E-09	1.39E-09	5.13E-09	
Antimony (51)	Sb-118	1.01E+05	6.85E-06	1.00E+00	5.46E+15	2.62E+16	9.33E+15	6.04E+15	2.41E+16	3.34E+02	1.60E+03	5.70E+02	3.70E+02	1.47E+03	
Antimony (51)	Sb-118m	1.21E+03	5.71E-04	1.00E+00	1.29E+01	6.89E+01	2.39E+01	1.50E+01	6.99E+01	6.56E-11	3.51E-10	1.22E-10	7.66E-11	3.56E-10	
Antimony (51)	Sb-119	1.59E+02	4.36E-03	1.00E+00	5.75E+03	5.92E+03	5.72E+03	5.75E+03	1.41E+03	2.26E-07	2.32E-07	2.25E-07	2.26E-07	5.55E-08	
Antimony (51)	Sb-120	2.29E+04	3.02E-05	1.00E+00	2.03E+11	9.78E+11	3.46E+11	2.25E+11	9.10E+11	5.58E-02	2.69E-01	9.51E-02	6.19E-02	2.50E-01	
Antimony (51)	Sb-120m	4.39E+01	1.58E-02	1.00E+00	4.99E-01	2.63E+00	9.20E-01	5.81E-01	2.67E+00	7.15E-11	3.77E-10	1.32E-10	8.32E-11	3.83E-10	
Antimony (51)	Sb-122	9.29E+01	7.46E-03	1.00E+00	6.01E+00	2.94E+01	1.04E+01	6.72E+00	2.64E+01	4.14E-10	2.03E-09	7.15E-10	4.63E-10	1.82E-09	
Antimony (51)	Sb-122m	8.69E+04	7.97E-06	1.00E+00	5.62E+03	2.75E+04	9.70E+03	6.28E+03	2.47E+04	4.14E-10	2.02E-09	7.14E-10	4.62E-10	1.82E-09	



Composite Worker 2D External Exposure DCCs July 2023															
Radionuclides		Isotope-specific Information			Dose Compliance Concentrations (DCCs)										
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Soil Volume Area Correction Factor	Soil Volume DCC DL=1 (Bq/g)	Soil Volume @ 1cm DCC DL=1 (Bq/g)	Soil Volume @ 5cm DCC DL=1 (Bq/g)	Soil Volume @ 15cm DCC DL=1 (Bq/g)	Ground Plane DCC DL=1 (Bq/cm <sup>2</sup> )	Soil Volume DCC DL=1 (mg/kg)	Soil Volume @ 1cm DCC DL=1 (mg/kg)	Soil Volume @ 5cm DCC DL=1 (mg/kg)	Soil Volume @ 15cm DCC DL=1 (mg/kg)	Ground Plane DCC DL=1 (mg/cm <sup>2</sup> )	
Antimony (51)	Sb-124	4.20E+00	1.65E-01	1.00E+00	6.12E-02	3.40E-01	1.17E-01	7.27E-02	3.42E-01	9.47E-11	5.25E-10	1.81E-10	1.13E-10	5.29E-10	
Antimony (51)	Sb-124m	2.35E+05	2.95E-06	1.00E+00	4.56E+03	2.53E+04	8.73E+03	5.42E+03	2.55E+04	1.26E-10	7.01E-10	2.42E-10	1.50E-10	7.05E-10	
Antimony (51)	Sb-124n	1.80E+04	3.84E-05	1.00E+00	3.50E+02	1.94E+03	6.70E+02	4.16E+02	1.96E+03	1.26E-10	7.00E-10	2.42E-10	1.50E-10	7.05E-10	
Antimony (51)	Sb-125	2.51E-01	2.76E+00	1.00E+00	7.91E-02	3.79E-01	1.34E-01	8.75E-02	3.74E-01	2.06E-09	9.89E-09	3.50E-09	2.28E-09	9.77E-09	
Antimony (51)	Sb-126	2.05E+01	3.38E-02	1.00E+00	2.13E-01	1.06E+00	3.73E-01	2.39E-01	1.07E+00	6.86E-11	3.43E-10	1.20E-10	7.71E-11	3.46E-10	
Antimony (51)	Sb-126m	1.90E+04	3.64E-05	1.00E+00	1.41E+03	7.05E+03	2.47E+03	1.58E+03	7.10E+03	4.89E-10	2.45E-09	8.58E-10	5.50E-10	2.47E-09	
Antimony (51)	Sb-127	6.57E+01	1.05E-02	1.00E+00	2.72E+00	1.35E+01	4.72E+00	3.04E+00	1.32E+01	2.76E-10	1.37E-09	4.78E-10	3.09E-10	1.34E-09	
Antimony (51)	Sb-128	6.74E+02	1.03E-03	1.00E+00	6.19E+00	3.13E+01	1.09E+01	6.99E+00	3.14E+01	6.17E-11	3.11E-10	1.09E-10	6.97E-11	3.12E-10	
Antimony (51)	Sb-128m	3.50E+04	1.98E-05	1.00E+00	8.77E+03	4.43E+04	1.55E+04	9.90E+03	4.44E+04	1.68E-09	8.49E-09	2.97E-09	1.90E-09	8.51E-09	
Antimony (51)	Sb-129	1.38E+03	5.02E-04	1.00E+00	2.47E+01	1.31E+02	4.57E+01	2.88E+01	1.27E+02	1.21E-10	6.44E-10	2.24E-10	1.41E-10	6.21E-10	
Antimony (51)	Sb-130	9.22E+03	7.52E-05	1.00E+00	7.92E+01	4.06E+02	1.42E+02	9.05E+01	4.06E+02	5.86E-11	3.00E-10	1.05E-10	6.69E-11	3.00E-10	
Antimony (51)	Sb-130m	5.78E+04	1.20E-05	1.00E+00	1.12E+13	5.83E+13	2.03E+13	1.29E+13	5.71E+13	1.32E+00	6.87E+00	2.40E+00	1.52E+00	6.73E+00	
Antimony (51)	Sb-131	1.58E+04	4.38E-05	1.00E+00	5.33E+02	2.53E+03	8.98E+02	5.89E+02	2.39E+03	2.32E-10	1.10E-09	3.90E-10	2.56E-10	1.04E-09	
Antimony (51)	Sb-133	1.46E+05	4.76E-06	1.00E+00	4.35E+03	2.16E+04	7.64E+03	4.91E+03	2.08E+04	2.08E-10	1.04E-09	3.66E-10	2.35E-10	9.98E-10	
Scandium (21)	Sc-42m	3.52E+05	1.97E-06	1.00E+00	4.60E+17	2.47E+18	8.60E+17	5.40E+17	2.46E+18	2.87E+03	1.55E+04	5.37E+03	3.37E+03	1.54E+04	
Scandium (21)	Sc-43	1.56E+03	4.44E-04	1.00E+00	4.68E+01	2.26E+02	7.92E+01	5.17E+01	2.20E+02	6.77E-11	3.26E-10	1.14E-10	7.47E-11	3.18E-10	
Scandium (21)	Sc-44	1.53E+03	4.53E-04	1.00E+00	1.99E+01	1.04E+02	3.61E+01	2.28E+01	1.02E+02	3.01E-11	1.56E-10	5.44E-11	3.45E-11	1.54E-10	
Scandium (21)	Sc-44m	1.04E+02	6.69E-03	1.00E+00	1.23E+00	6.29E+00	2.19E+00	1.39E+00	6.21E+00	2.73E-11	1.40E-10	4.88E-11	3.11E-11	1.38E-10	
Scandium (21)	Sc-46	3.02E+00	2.30E-01	1.00E+00	4.29E-02	2.29E-01	7.98E-02	5.01E-02	2.34E-01	3.43E-11	1.83E-10	6.38E-11	4.00E-11	1.87E-10	
Scandium (21)	Sc-47	7.55E+01	9.18E-03	1.00E+00	2.64E+01	1.03E+02	3.74E+01	2.70E+01	1.05E+02	8.62E-10	3.37E-09	1.22E-09	8.80E-10	3.42E-09	
Scandium (21)	Sc-48	1.39E+02	4.99E-03	1.00E+00	1.11E+00	6.06E+00	2.10E+00	1.31E+00	6.20E+00	2.00E-11	1.10E-10	3.81E-11	2.37E-11	1.12E-10	
Scandium (21)	Sc-49	6.37E+03	1.09E-04	1.00E+00	2.86E+04	5.53E+04	3.78E+04	3.05E+04	8.74E+03	1.16E-08	2.23E-08	1.53E-08	1.23E-08	3.53E-09	
Scandium (21)	Sc-50	2.13E+05	3.25E-06	1.00E+00	3.19E+16	1.77E+17	6.15E+16	3.81E+16	1.74E+17	3.92E+02	2.18E+03	7.56E+02	4.69E+02	2.14E+03	
Selenium (34)	Se-70	8.86E+03	7.82E-05	1.00E+00	4.92E+01	2.60E+02	9.06E+01	5.72E+01	2.59E+02	2.04E-11	1.08E-10	3.75E-11	2.37E-11	1.07E-10	
Selenium (34)	Se-71	7.68E+04	9.02E-06	1.00E+00	4.11E+03	1.94E+04	6.83E+03	4.50E+03	1.96E+04	1.99E-10	9.38E-10	3.31E-10	2.18E-10	9.48E-10	
Selenium (34)	Se-72	3.01E+01	2.30E-02	1.00E+00	4.76E-01	2.38E+00	8.42E-01	5.38E-01	2.29E+00	5.96E-11	2.98E-10	1.06E-10	6.75E-11	2.87E-10	
Selenium (34)	Se-73	8.49E+02	8.16E-04	1.00E+00	2.39E+01	1.12E+02	3.97E+01	2.61E+01	1.09E+02	1.08E-10	5.04E-10	1.79E-10	1.18E-10	4.89E-10	
Selenium (34)	Se-73m	9.15E+03	7.57E-05	1.00E+00	2.64E+02	1.24E+03	4.41E+02	2.89E+02	1.20E+03	1.10E-10	5.20E-10	1.85E-10	1.21E-10	5.03E-10	
Selenium (34)	Se-75	2.11E+00	3.28E-01	1.00E+00	2.15E-01	9.18E-01	3.27E-01	2.26E-01	9.36E-01	4.01E-10	1.71E-09	6.09E-10	4.20E-10	1.74E-09	
Selenium (34)	Se-77m	1.26E+06	5.50E-07	1.00E+00	1.59E+24	6.22E+24	2.25E+24	1.62E+24	6.34E+24	5.09E+09	1.99E+10	7.22E+09	5.20E+09	2.03E+10	
Selenium (34)	Se-79	2.35E-06	2.95E+05	9.00E-01	1.41E+04	2.42E+04	1.51E+04	1.41E+04	1.06E+04	2.49E+01	4.26E+01	2.66E+01	2.49E+01	1.87E+01	
Selenium (34)	Se-79m	9.29E+04	7.46E-06	1.00E+00	5.57E+14	9.54E+14	5.95E+14	5.56E+14	4.20E+14	2.48E+01	4.25E+01	2.65E+01	2.48E+01	1.87E+01	
Selenium (34)	Se-81	1.97E+04	3.51E-05	1.00E+00	2.80E+12	8.89E+12	4.25E+12	3.02E+12	1.76E+12	6.02E-01	1.91E+00	9.14E-01	6.49E-01	3.79E-01	
Selenium (34)	Se-81m	6.36E+03	1.09E-04	1.00E+00	9.80E+03	3.15E+04	1.38E+04	1.02E+04	9.50E+03	6.55E-09	2.10E-08	9.19E-09	6.84E-09	6.34E-09	
Selenium (34)	Se-83	1.63E+04	4.24E-05	1.00E+00	6.44E+04	2.79E+05	1.06E+05	7.08E+04	7.78E+04	1.72E-08	7.45E-08	2.84E-08	1.89E-08	2.07E-08	
Selenium (34)	Se-83m	3.12E+05	2.22E-06	1.00E+00	1.22E+06	5.29E+06	2.02E+06	1.34E+06	1.47E+06	1.70E-08	7.39E-08	2.82E-08	1.87E-08	2.06E-08	
Selenium (34)	Se-84	1.17E+05	5.90E-06	1.00E+00	1.52E+07	9.15E+07	3.16E+07	1.91E+07	9.04E+07	5.71E-07	3.43E-06	1.19E-06	7.17E-07	3.39E-06	
Silicon (14)	Si-31	2.32E+03	2.99E-04	1.00E+00	1.90E+04	3.89E+04	2.55E+04	2.03E+04	4.50E+03	1.33E-08	2.73E-08	1.79E-08	1.42E-08	3.16E-09	
Silicon (14)	Si-32	5.25E-03	1.32E+02	9.00E-01	8.87E+00	1.46E+01	1.07E+01	9.12E+00	1.81E+00	2.83E-06	4.65E-06	3.41E-06	2.91E-06	5.80E-07	
Samarium (62)	Sm-139	1.42E+05	4.89E-06	1.00E+00	2.11E+04	8.90E+04	3.31E+04	2.27E+04	8.05E+04	1.09E-09	4.58E-09	1.70E-09	1.17E-09	4.14E-09	
Samarium (62)	Sm-140	2.46E+04	2.82E-05	1.00E+00	1.33E+03	6.26E+03	2.25E+03	1.47E+03	5.59E+03	3.98E-10	1.87E-09	6.73E-10	4.40E-10	1.67E-09	
Samarium (62)	Sm-141	3.57E+04	1.94E-05	1.00E+00	1.99E+04	8.70E+04	3.39E+04	2.25E+04	7.13E+04	4.11E-09	1.80E-08	7.03E-09	4.65E-09	1.48E-08	

Composite Worker 2D External Exposure DCCs July 2023															
Radionuclides		Isotope-specific Information			Dose Compliance Concentrations (DCCs)										
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Soil Volume Area Correction Factor	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	
					DCC DL=1 (Bq/g)	@ 1cm DCC DL=1 (Bq/g)	@ 5cm DCC DL=1 (Bq/g)	@ 15cm DCC DL=1 (Bq/g)	Plane DCC DL=1 (Bq/cm <sup>2</sup> )	DCC DL=1 (mg/kg)	@ 1cm DCC DL=1 (mg/kg)	@ 5cm DCC DL=1 (mg/kg)	@ 15cm DCC DL=1 (mg/kg)	Plane DCC DL=1 (mg/cm <sup>2</sup> )	
Samarium (62)	Sm-141m	1.61E+04	4.30E-05	1.00E+00	8.96E+03	3.93E+04	1.53E+04	1.01E+04	3.22E+04	4.11E-09	1.80E-08	7.03E-09	4.65E-09	1.48E-08	
Samarium (62)	Sm-142	5.02E+03	1.38E-04	1.00E+00	1.54E+02	7.27E+02	2.62E+02	1.71E+02	6.62E+02	2.28E-10	1.08E-09	3.89E-10	2.54E-10	9.82E-10	
Samarium (62)	Sm-143	4.16E+04	1.66E-05	1.00E+00	6.60E+03	3.26E+04	1.17E+04	7.47E+03	3.16E+04	1.19E-09	5.88E-09	2.10E-09	1.35E-09	5.69E-09	
Samarium (62)	Sm-143m	3.31E+05	2.09E-06	1.00E+00	5.25E+04	2.59E+05	9.27E+04	5.94E+04	2.51E+05	1.19E-09	5.88E-09	2.10E-09	1.35E-09	5.69E-09	
Samarium (62)	Sm-145	7.44E-01	9.32E-01	1.00E+00	4.28E+00	6.44E+00	4.38E+00	4.28E+00	3.56E+00	4.37E-08	6.59E-08	4.48E-08	4.37E-08	3.64E-08	
Samarium (62)	Sm-146	6.73E-09	1.03E+08												
Samarium (62)	Sm-147	6.54E-12	1.06E+11												
Samarium (62)	Sm-148	9.90E-17	7.00E+15												
Samarium (62)	Sm-151	7.70E-03	9.00E+01	1.00E+00	2.24E+05	2.26E+05	2.24E+05	2.24E+05	3.65E+04	2.31E-01	2.33E-01	2.31E-01	2.31E-01	3.76E-02	
Samarium (62)	Sm-153	1.31E+02	5.31E-03	1.00E+00	1.45E+02	3.93E+02	1.79E+02	1.46E+02	2.90E+02	8.93E-09	2.42E-08	1.10E-08	8.97E-09	1.78E-08	
Samarium (62)	Sm-155	1.63E+04	4.24E-05	1.00E+00	1.20E+05	3.43E+05	1.47E+05	1.20E+05	3.10E+05	5.96E-08	1.71E-07	7.29E-08	5.96E-08	1.54E-07	
Samarium (62)	Sm-156	6.46E+02	1.07E-03	1.00E+00	1.29E+01	7.13E+01	2.48E+01	1.54E+01	7.07E+01	1.64E-10	9.03E-10	3.14E-10	1.96E-10	8.95E-10	
Samarium (62)	Sm-157	4.54E+04	1.53E-05	1.00E+00	5.23E+03	2.32E+04	8.52E+03	5.70E+03	2.04E+04	9.48E-10	4.22E-09	1.55E-09	1.03E-09	3.71E-09	
Tin (50)	Sn-106	1.90E+05	3.65E-06	1.00E+00	5.30E+13	2.87E+14	1.00E+14	6.27E+13	2.84E+14	1.55E+00	8.42E+00	2.94E+00	1.84E+00	8.33E+00	
Tin (50)	Sn-108	3.54E+04	1.96E-05	1.00E+00	3.32E+02	1.93E+03	6.64E+02	4.07E+02	1.95E+03	5.32E-11	3.09E-10	1.06E-10	6.52E-11	3.12E-10	
Tin (50)	Sn-109	2.02E+04	3.42E-05	1.00E+00	9.38E+02	4.68E+03	1.64E+03	1.06E+03	4.67E+03	2.65E-10	1.32E-09	4.63E-10	3.00E-10	1.32E-09	
Tin (50)	Sn-110	1.48E+03	4.69E-04	1.00E+00	2.29E+01	1.15E+02	4.03E+01	2.59E+01	1.13E+02	8.93E-11	4.49E-10	1.57E-10	1.01E-10	4.40E-10	
Tin (50)	Sn-111	1.03E+04	6.72E-05	1.00E+00	3.66E+02	1.73E+03	6.10E+02	4.03E+02	1.69E+03	2.06E-10	9.74E-10	3.44E-10	2.27E-10	9.53E-10	
Tin (50)	Sn-113	2.20E+00	3.15E-01	1.00E+00	2.91E-01	1.34E+00	4.76E-01	3.14E-01	1.30E+00	7.85E-10	3.62E-09	1.28E-09	8.48E-10	3.51E-09	
Tin (50)	Sn-113m	1.70E+04	4.07E-05	1.00E+00	2.47E+03	1.14E+04	4.04E+03	2.67E+03	1.11E+04	8.61E-10	3.97E-09	1.41E-09	9.30E-10	3.85E-09	
Tin (50)	Sn-117m	1.84E+01	3.77E-02	1.00E+00	4.97E+00	1.91E+01	7.06E+00	5.08E+00	1.82E+01	1.66E-09	6.37E-09	2.36E-09	1.70E-09	6.08E-09	
Tin (50)	Sn-119m	8.63E-01	8.03E-01	1.00E+00	8.81E+01	9.12E+01	8.81E+01	8.81E+01	2.11E+01	6.37E-07	6.60E-07	6.37E-07	6.37E-07	1.53E-07	
Tin (50)	Sn-121	2.25E+02	3.09E-03	9.00E-01	2.29E+05	5.79E+05	2.78E+05	2.31E+05	3.82E+05	6.48E-06	1.64E-05	7.84E-06	6.52E-06	1.08E-05	
Tin (50)	Sn-121m	1.58E-02	4.39E+01	1.00E+00	1.04E+02	1.23E+02	1.06E+02	1.04E+02	3.76E+01	4.19E-05	4.93E-05	4.26E-05	4.19E-05	1.51E-05	
Tin (50)	Sn-123	1.96E+00	3.54E-01	1.00E+00	6.96E+00	2.51E+01	1.16E+01	7.91E+00	4.82E+00	2.29E-08	8.28E-08	3.83E-08	2.61E-08	1.59E-08	
Tin (50)	Sn-123m	9.09E+03	7.62E-05	1.00E+00	2.47E+03	9.48E+03	3.51E+03	2.53E+03	7.20E+03	1.75E-09	6.73E-09	2.49E-09	1.79E-09	5.11E-09	
Tin (50)	Sn-125	2.62E+01	2.64E-02	1.00E+00	1.67E+00	8.61E+00	3.06E+00	1.94E+00	7.41E+00	4.16E-10	2.15E-09	7.64E-10	4.84E-10	1.85E-09	
Tin (50)	Sn-125m	3.83E+04	1.81E-05	1.00E+00	1.20E+04	5.77E+04	2.04E+04	1.33E+04	5.70E+04	2.06E-09	9.89E-09	3.50E-09	2.28E-09	9.77E-09	
Tin (50)	Sn-126	3.01E-06	2.30E+05	1.00E+00	1.47E-02	7.21E-02	2.54E-02	1.64E-02	7.04E-02	3.22E-05	1.58E-04	5.57E-05	3.60E-05	1.54E-04	
Tin (50)	Sn-127	2.89E+03	2.40E-04	1.00E+00	3.04E+01	1.62E+02	5.63E+01	3.54E+01	1.61E+02	7.00E-11	3.72E-10	1.30E-10	8.16E-11	3.71E-10	
Tin (50)	Sn-127m	8.82E+04	7.86E-06	1.00E+00	3.65E+03	1.81E+04	6.33E+03	4.08E+03	1.77E+04	2.76E-10	1.36E-09	4.78E-10	3.08E-10	1.33E-09	
Tin (50)	Sn-128	6.17E+03	1.12E-04	1.00E+00	6.90E+01	3.41E+02	1.20E+02	7.73E+01	3.30E+02	7.51E-11	3.71E-10	1.30E-10	8.42E-11	3.59E-10	
Tin (50)	Sn-129	1.63E+05	4.24E-06	1.00E+00	2.90E+03	1.54E+04	5.37E+03	3.38E+03	1.49E+04	1.20E-10	6.39E-10	2.22E-10	1.40E-10	6.17E-10	
Tin (50)	Sn-130	9.79E+04	7.08E-06	1.00E+00	7.82E+12	4.07E+13	1.42E+13	9.01E+12	3.99E+13	5.44E-01	2.84E+00	9.90E-01	6.27E-01	2.78E+00	
Tin (50)	Sn-130m	2.14E+05	3.23E-06	1.00E+00	2.02E+06	1.04E+07	3.63E+06	2.31E+06	1.04E+07	6.43E-08	3.30E-07	1.15E-07	7.35E-08	3.29E-07	
Strontium (38)	Sr-79	1.62E+05	4.28E-06	1.00E+00	1.95E+04	9.36E+04	3.27E+04	2.14E+04	9.47E+04	4.99E-10	2.40E-09	8.38E-10	5.48E-10	2.42E-09	
Strontium (38)	Sr-80	3.43E+03	2.02E-04	1.00E+00	6.11E+01	2.89E+02	1.03E+02	6.74E+01	2.73E+02	7.48E-11	3.54E-10	1.27E-10	8.26E-11	3.34E-10	
Strontium (38)	Sr-81	1.63E+04	4.24E-05	1.00E+00	7.96E+02	3.75E+03	1.32E+03	8.70E+02	3.76E+03	2.07E-10	9.76E-10	3.43E-10	2.26E-10	9.77E-10	
Strontium (38)	Sr-82	9.97E+00	6.95E-02	1.00E+00	2.60E-01	1.24E+00	4.42E-01	2.88E-01	1.14E+00	1.12E-10	5.35E-10	1.90E-10	1.24E-10	4.92E-10	
Strontium (38)	Sr-83	1.87E+02	3.70E-03	1.00E+00	4.24E+00	2.12E+01	7.41E+00	4.77E+00	2.13E+01	9.85E-11	4.93E-10	1.72E-10	1.11E-10	4.95E-10	
Strontium (38)	Sr-85	3.90E+00	1.78E-01	1.00E+00	2.38E-01	1.16E+00	4.05E-01	2.64E-01	1.17E+00	2.72E-10	1.32E-09	4.63E-10	3.01E-10	1.34E-09	
Strontium (38)	Sr-85m	5.39E+03	1.29E-04	1.00E+00	2.62E+02	1.22E+03	4.29E+02	2.85E+02	1.24E+03	2.17E-10	1.01E-09	3.55E-10	2.36E-10	1.03E-09	

Composite Worker 2D External Exposure DCCs July 2023															
Radionuclides		Isotope-specific Information			Dose Compliance Concentrations (DCCs)										
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Soil Volume Area Correction Factor	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	
					DCC DL=1 (Bq/g)	@ 1cm DCC DL=1 (Bq/g)	@ 5cm DCC DL=1 (Bq/g)	@ 15cm DCC DL=1 (Bq/g)	Plane DCC DL=1 (Bq/cm <sup>2</sup> )	DCC DL=1 (mg/kg)	@ 1cm DCC DL=1 (mg/kg)	@ 5cm DCC DL=1 (mg/kg)	@ 15cm DCC DL=1 (mg/kg)	Plane DCC DL=1 (mg/cm <sup>2</sup> )	
Strontium (38)	Sr-87m	2.16E+03	3.21E-04	1.00E+00	1.34E+03	3.14E+03	1.57E+03	1.34E+03	1.95E+03	2.82E-09	6.64E-09	3.32E-09	2.83E-09	4.13E-09	
Strontium (38)	Sr-89	5.01E+00	1.38E-01	1.00E+00	5.37E+01	9.03E+01	6.52E+01	5.52E+01	1.02E+01	5.00E-08	8.42E-08	6.08E-08	5.15E-08	9.47E-09	
Strontium (38)	Sr-90	2.41E-02	2.88E+01	9.00E-01	4.03E+00	6.91E+00	4.98E+00	4.18E+00	1.26E+00	7.90E-07	1.36E-06	9.77E-07	8.20E-07	2.47E-07	
Strontium (38)	Sr-91	6.30E+02	1.10E-03	1.00E+00	1.72E+01	8.77E+01	3.08E+01	1.97E+01	7.92E+01	1.31E-10	6.64E-10	2.33E-10	1.49E-10	5.99E-10	
Strontium (38)	Sr-92	2.28E+03	3.04E-04	1.00E+00	3.74E+01	2.06E+02	7.23E+01	4.47E+01	1.97E+02	7.90E-11	4.36E-10	1.53E-10	9.46E-11	4.17E-10	
Strontium (38)	Sr-93	4.91E+04	1.41E-05	1.00E+00	1.24E+04	5.65E+04	2.24E+04	1.45E+04	3.14E+04	1.23E-09	5.62E-09	2.23E-09	1.44E-09	3.12E-09	
Strontium (38)	Sr-94	2.90E+05	2.39E-06	1.00E+00	4.07E+11	2.10E+12	7.55E+11	4.76E+11	1.87E+12	6.91E-03	3.57E-02	1.28E-02	8.08E-03	3.18E-02	
Tantalum (73)	Ta-170	5.39E+04	1.29E-05	1.00E+00	4.80E+02	2.73E+03	9.51E+02	5.86E+02	2.80E+03	7.94E-11	4.52E-10	1.57E-10	9.70E-11	4.63E-10	
Tantalum (73)	Ta-172	9.90E+03	7.00E-05	1.00E+00	1.22E+02	2.35E+03	2.21E+02	1.41E+02	2.35E+03	1.11E-10	2.14E-09	2.02E-10	1.28E-10	2.14E-09	
Tantalum (73)	Ta-173	1.93E+03	3.58E-04	1.00E+00	6.36E+01	2.84E+02	1.05E+02	7.06E+01	2.76E+02	2.99E-10	1.33E-09	4.93E-10	3.31E-10	1.30E-09	
Tantalum (73)	Ta-174	5.33E+03	1.30E-04	1.00E+00	1.59E+02	8.06E+02	2.85E+02	1.83E+02	7.88E+02	2.73E-10	1.38E-09	4.89E-10	3.14E-10	1.35E-09	
Tantalum (73)	Ta-175	5.78E+02	1.20E-03	1.00E+00	1.19E+01	6.00E+01	2.13E+01	1.37E+01	6.03E+01	1.89E-10	9.52E-10	3.39E-10	2.18E-10	9.57E-10	
Tantalum (73)	Ta-176	7.50E+02	9.24E-04	1.00E+00	8.87E+00	5.09E+01	1.76E+01	1.08E+01	5.20E+01	1.09E-10	6.26E-10	2.16E-10	1.33E-10	6.40E-10	
Tantalum (73)	Ta-177	1.07E+02	6.46E-03	1.00E+00	1.10E+02	3.00E+02	1.40E+02	1.14E+02	2.53E+02	9.50E-09	2.60E-08	1.21E-08	9.87E-09	2.19E-08	
Tantalum (73)	Ta-178	3.91E+04	1.77E-05	1.00E+00	1.60E+14	6.70E+14	2.65E+14	1.83E+14	6.14E+14	3.81E+01	1.60E+02	6.32E+01	4.36E+01	1.46E+02	
Tantalum (73)	Ta-178m	2.57E+03	2.69E-04	1.00E+00	7.59E+01	3.30E+02	1.19E+02	8.09E+01	3.30E+02	2.76E-10	1.20E-09	4.33E-10	2.93E-10	1.20E-09	
Tantalum (73)	Ta-179	3.81E-01	1.82E+00	1.00E+00	5.16E+00	1.02E+01	5.49E+00	5.16E+00	7.86E+00	1.27E-07	2.52E-07	1.35E-07	1.27E-07	1.94E-07	
Tantalum (73)	Ta-180	7.45E+02	9.31E-04	1.00E+00	1.49E+03	3.15E+03	1.63E+03	1.49E+03	2.47E+03	1.88E-08	4.00E-08	2.06E-08	1.88E-08	3.13E-08	
Tantalum (73)	Ta-182	2.21E+00	3.14E-01	1.00E+00	5.37E-02	2.85E-01	1.00E-01	6.30E-02	2.89E-01	2.32E-10	1.23E-09	4.33E-10	2.72E-10	1.25E-09	
Tantalum (73)	Ta-182m	2.30E+04	3.01E-05	1.00E+00	5.59E+02	2.97E+03	1.04E+03	6.55E+02	3.01E+03	2.32E-10	1.23E-09	4.33E-10	2.72E-10	1.25E-09	
Tantalum (73)	Ta-183	4.96E+01	1.40E-02	1.00E+00	6.69E+00	2.62E+01	9.85E+00	6.99E+00	2.55E+01	1.30E-09	5.08E-09	1.91E-09	1.35E-09	4.93E-09	
Tantalum (73)	Ta-184	6.98E+02	9.93E-04	1.00E+00	1.32E+01	6.43E+01	2.26E+01	1.47E+01	6.41E+01	1.82E-10	8.90E-10	3.12E-10	2.03E-10	8.86E-10	
Tantalum (73)	Ta-185	7.37E+03	9.40E-05	1.00E+00	1.88E+03	7.01E+03	2.72E+03	1.96E+03	4.75E+03	2.47E-09	9.23E-09	3.58E-09	2.57E-09	6.26E-09	
Tantalum (73)	Ta-186	3.47E+04	2.00E-05	1.00E+00	9.14E+11	4.37E+12	1.55E+12	1.01E+12	4.17E+12	2.57E-01	1.23E+00	4.36E-01	2.85E-01	1.17E+00	
Terbium (65)	Tb-146	9.50E+05	7.29E-07	1.00E+00	1.05E+04	5.37E+04	1.89E+04	1.21E+04	5.38E+04	8.46E-11	4.33E-10	1.53E-10	9.74E-11	4.33E-10	
Terbium (65)	Tb-147	3.70E+03	1.87E-04	1.00E+00	2.61E+01	1.35E+02	4.73E+01	3.01E+01	1.35E+02	5.43E-11	2.80E-10	9.85E-11	6.26E-11	2.82E-10	
Terbium (65)	Tb-147m	1.95E+05	3.56E-06	1.00E+00	3.11E+03	1.54E+04	5.44E+03	3.51E+03	1.54E+04	1.23E-10	6.10E-10	2.15E-10	1.39E-10	6.11E-10	
Terbium (65)	Tb-148	6.07E+03	1.14E-04	1.00E+00	7.00E+01	3.76E+02	1.31E+02	8.22E+01	3.72E+02	8.94E-11	4.81E-10	1.68E-10	1.05E-10	4.76E-10	
Terbium (65)	Tb-148m	1.66E+05	4.19E-06	1.00E+00	1.01E+16	5.07E+16	1.78E+16	1.14E+16	5.10E+16	4.72E+02	2.38E+03	8.34E+02	5.34E+02	2.39E+03	
Terbium (65)	Tb-149	1.47E+03	4.70E-04	1.00E+00	2.09E+01	1.07E+02	3.77E+01	2.41E+01	1.07E+02	1.11E-10	5.67E-10	2.00E-10	1.28E-10	5.65E-10	
Terbium (65)	Tb-149m	8.76E+04	7.91E-06	1.00E+00	5.15E+03	2.30E+04	8.37E+03	5.63E+03	2.21E+04	4.59E-10	2.05E-09	7.47E-10	5.02E-10	1.98E-09	
Terbium (65)	Tb-150	1.74E+03	3.97E-04	1.00E+00	1.89E+01	1.07E+02	3.72E+01	2.29E+01	1.09E+02	8.50E-11	4.84E-10	1.68E-10	1.03E-10	4.94E-10	
Terbium (65)	Tb-150m	6.28E+04	1.10E-05	1.00E+00	1.67E+15	8.17E+15	2.87E+15	1.86E+15	8.23E+15	2.09E+02	1.02E+03	3.60E+02	2.32E+02	1.03E+03	
Terbium (65)	Tb-151	3.45E+02	2.01E-03	1.00E+00	1.04E+01	4.92E+01	1.76E+01	1.16E+01	4.85E+01	2.40E-10	1.13E-09	4.04E-10	2.66E-10	1.12E-09	
Terbium (65)	Tb-151m	8.74E+05	7.93E-07	1.00E+00	2.83E+04	1.33E+05	4.76E+04	3.14E+04	1.31E+05	2.56E-10	1.21E-09	4.31E-10	2.84E-10	1.19E-09	
Terbium (65)	Tb-152	3.47E+02	2.00E-03	1.00E+00	6.40E+00	3.45E+01	1.20E+01	7.54E+00	3.46E+01	1.47E-10	7.93E-10	2.77E-10	1.73E-10	7.95E-10	
Terbium (65)	Tb-152m	8.67E+04	7.99E-06	1.00E+00	2.02E+03	1.09E+04	3.81E+03	2.38E+03	1.09E+04	1.86E-10	1.00E-09	3.50E-10	2.19E-10	1.01E-09	
Terbium (65)	Tb-153	1.08E+02	6.41E-03	1.00E+00	1.07E+01	4.42E+01	1.68E+01	1.16E+01	4.11E+01	7.93E-10	3.28E-09	1.25E-09	8.60E-10	3.05E-09	
Terbium (65)	Tb-154	2.82E+02	2.45E-03	1.00E+00	3.22E+00	1.88E+01	6.50E+00	3.96E+00	1.94E+01	9.20E-11	5.39E-10	1.86E-10	1.13E-10	5.54E-10	
Terbium (65)	Tb-155	4.75E+01	1.46E-02	1.00E+00	1.39E+01	4.66E+01	1.90E+01	1.43E+01	4.15E+01	2.37E-09	7.97E-09	3.25E-09	2.44E-09	7.09E-09	
Terbium (65)	Tb-156	4.73E+01	1.47E-02	1.00E+00	6.90E-01	3.63E+00	1.27E+00	8.01E-01	3.66E+00	1.19E-10	6.28E-10	2.19E-10	1.39E-10	6.34E-10	
Terbium (65)	Tb-156m	2.49E+02	2.79E-03	1.00E+00	3.61E+00	1.89E+01	6.62E+00	4.20E+00	1.89E+01	1.19E-10	6.21E-10	2.18E-10	1.38E-10	6.22E-10	

Composite Worker 2D External Exposure DCCs July 2023															
Radionuclides		Isotope-specific Information			Dose Compliance Concentrations (DCCs)										
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Soil Volume Area Correction Factor	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	
					DCC DL=1 (Bq/g)	@ 1cm DCC DL=1 (Bq/g)	@ 5cm DCC DL=1 (Bq/g)	@ 15cm DCC DL=1 (Bq/g)	Plane DCC DL=1 (Bq/cm <sup>2</sup> )	DCC DL=1 (mg/kg)	@ 1cm DCC DL=1 (mg/kg)	@ 5cm DCC DL=1 (mg/kg)	@ 15cm DCC DL=1 (mg/kg)	Plane DCC DL=1 (mg/cm <sup>2</sup> )	
Terbium (65)	Tb-156n	1.15E+03	6.05E-04	1.00E+00	1.67E+01	8.78E+01	3.07E+01	1.94E+01	8.86E+01	1.19E-10	6.27E-10	2.19E-10	1.39E-10	6.33E-10	
Terbium (65)	Tb-157	9.76E-03	7.10E+01	1.00E+00	3.82E+01	5.77E+01	3.87E+01	3.82E+01	3.45E+01	3.23E-05	4.87E-05	3.27E-05	3.23E-05	2.91E-05	
Terbium (65)	Tb-158	3.85E-03	1.80E+02	1.00E+00	3.62E-02	1.85E-01	6.54E-02	4.16E-02	1.84E-01	7.79E-08	3.99E-07	1.41E-07	8.95E-08	3.97E-07	
Terbium (65)	Tb-160	3.50E+00	1.98E-01	1.00E+00	8.94E-02	4.69E-01	1.63E-01	1.03E-01	4.72E-01	2.14E-10	1.12E-09	3.91E-10	2.48E-10	1.13E-09	
Terbium (65)	Tb-161	3.66E+01	1.89E-02	1.00E+00	1.26E+02	2.52E+02	1.39E+02	1.26E+02	1.68E+02	2.90E-08	5.81E-08	3.20E-08	2.91E-08	3.86E-08	
Terbium (65)	Tb-162	4.79E+04	1.45E-05	1.00E+00	1.54E+13	7.69E+13	2.70E+13	1.74E+13	7.49E+13	2.74E+00	1.36E+01	4.79E+00	3.08E+00	1.33E+01	
Terbium (65)	Tb-163	1.87E+04	3.71E-05	1.00E+00	1.62E+10	7.63E+10	2.68E+10	1.76E+10	7.53E+10	7.41E-03	3.49E-02	1.23E-02	8.06E-03	3.44E-02	
Terbium (65)	Tb-164	1.21E+05	5.71E-06	1.00E+00	2.59E+15	1.37E+16	4.77E+15	3.01E+15	1.35E+16	1.84E+02	9.71E+02	3.38E+02	2.13E+02	9.57E+02	
Terbium (65)	Tb-165	1.73E+05	4.01E-06	1.00E+00	2.25E+05	8.89E+05	3.57E+05	2.46E+05	3.52E+05	1.13E-08	4.45E-08	1.79E-08	1.23E-08	1.76E-08	
Technetium (43)	Tc-101	2.57E+04	2.70E-05	1.00E+00	1.92E+12	8.70E+12	3.08E+12	2.05E+12	7.83E+12	3.96E-01	1.80E+00	6.35E-01	4.24E-01	1.62E+00	
Technetium (43)	Tc-102	4.14E+06	1.67E-07	1.00E+00	1.38E+26	5.18E+26	2.31E+26	1.56E+26	2.88E+26	1.78E+11	6.69E+11	2.98E+11	2.02E+11	3.72E+11	
Technetium (43)	Tc-102m	8.37E+04	8.28E-06	1.00E+00	1.51E+14	8.37E+14	2.90E+14	1.80E+14	8.33E+14	9.63E+00	5.35E+01	1.85E+01	1.15E+01	5.32E+01	
Technetium (43)	Tc-104	1.99E+04	3.48E-05	1.00E+00	1.28E+10	7.21E+10	2.51E+10	1.55E+10	7.06E+10	3.52E-03	1.98E-02	6.88E-03	4.25E-03	1.94E-02	
Technetium (43)	Tc-105	4.79E+04	1.45E-05	1.00E+00	1.70E+03	8.34E+03	2.92E+03	1.89E+03	8.09E+03	1.95E-10	9.58E-10	3.36E-10	2.17E-10	9.29E-10	
Technetium (43)	Tc-91	1.16E+05	5.97E-06	1.00E+00	3.25E+07	1.75E+08	6.15E+07	3.84E+07	1.55E+08	1.34E-06	7.22E-06	2.53E-06	1.58E-06	6.39E-06	
Technetium (43)	Tc-91m	1.10E+05	6.28E-06	1.00E+00	2.45E+05	1.33E+06	4.66E+05	2.91E+05	1.21E+06	1.06E-08	5.76E-08	2.01E-08	1.26E-08	5.23E-08	
Technetium (43)	Tc-92	8.57E+04	8.09E-06	1.00E+00	9.19E+13	4.83E+14	1.69E+14	1.07E+14	4.79E+14	5.17E+00	2.72E+01	9.51E+00	6.02E+00	2.70E+01	
Technetium (43)	Tc-93	2.21E+03	3.14E-04	1.00E+00	3.70E+01	2.10E+02	7.23E+01	4.45E+01	2.16E+02	8.17E-11	4.64E-10	1.60E-10	9.84E-11	4.76E-10	
Technetium (43)	Tc-93m	8.37E+03	8.28E-05	1.00E+00	1.01E+02	5.87E+02	2.02E+02	1.24E+02	6.05E+02	5.90E-11	3.42E-10	1.18E-10	7.21E-11	3.52E-10	
Technetium (43)	Tc-94	1.24E+03	5.57E-04	1.00E+00	1.31E+01	6.78E+01	2.36E+01	1.50E+01	6.87E+01	5.20E-11	2.69E-10	9.36E-11	5.93E-11	2.72E-10	
Technetium (43)	Tc-94m	7.00E+03	9.89E-05	1.00E+00	9.88E+01	5.20E+02	1.81E+02	1.14E+02	5.09E+02	6.96E-11	3.66E-10	1.27E-10	8.04E-11	3.58E-10	
Technetium (43)	Tc-95	3.04E+02	2.28E-03	1.00E+00	1.08E+01	5.57E+01	1.94E+01	1.24E+01	5.63E+01	1.78E-10	9.14E-10	3.18E-10	2.03E-10	9.24E-10	
Technetium (43)	Tc-95m	4.15E+00	1.67E-01	1.00E+00	1.74E-01	8.59E-01	3.01E-01	1.94E-01	8.69E-01	2.09E-10	1.03E-09	3.62E-10	2.33E-10	1.04E-09	
Technetium (43)	Tc-96	5.91E+01	1.17E-02	1.00E+00	6.60E-01	3.42E+00	1.19E+00	7.56E-01	3.47E+00	5.62E-11	2.91E-10	1.02E-10	6.44E-11	2.96E-10	
Technetium (43)	Tc-96m	7.07E+03	9.80E-05	1.00E+00	7.92E+01	4.11E+02	1.43E+02	9.08E+01	4.17E+02	5.64E-11	2.92E-10	1.02E-10	6.46E-11	2.97E-10	
Technetium (43)	Tc-97	2.67E+07	2.60E+06	1.00E+00	2.94E+02	2.92E+02	2.94E+02	2.94E+02	3.04E+01	5.61E+00	5.57E+00	5.61E+00	5.61E+00	5.80E-01	
Technetium (43)	Tc-97m	2.81E+00	2.47E-01	1.00E+00	3.19E+02	5.57E+02	3.65E+02	3.19E+02	9.48E+01	5.78E-07	1.01E-06	6.62E-07	5.78E-07	1.72E-07	
Technetium (43)	Tc-98	1.65E-07	4.20E+06	1.00E+00	2.01E-02	1.02E-01	3.54E-02	2.27E-02	1.03E-01	6.26E-04	3.16E-03	1.10E-03	7.06E-04	3.22E-03	
Technetium (43)	Tc-99	3.28E-06	2.11E+05	1.00E+00	1.47E+03	3.43E+03	1.72E+03	1.47E+03	2.12E+03	2.32E+00	5.42E+00	2.73E+00	2.33E+00	3.35E+00	
Technetium (43)	Tc-99m	1.01E+03	6.87E-04	1.00E+00	3.24E+02	1.21E+03	4.49E+02	3.29E+02	1.23E+03	1.67E-09	6.23E-09	2.31E-09	1.69E-09	6.32E-09	
Tellurium (52)	Te-113	2.14E+05	3.23E-06	1.00E+00	2.89E+04	1.33E+05	4.73E+04	3.13E+04	1.30E+05	8.00E-10	3.69E-09	1.31E-09	8.64E-10	3.58E-09	
Tellurium (52)	Te-114	2.40E+04	2.89E-05	1.00E+00	3.96E+10	2.12E+11	7.41E+10	4.65E+10	2.11E+11	9.89E-03	5.29E-02	1.85E-02	1.16E-02	5.26E-02	
Tellurium (52)	Te-115	6.28E+04	1.10E-05	1.00E+00	1.56E+07	7.57E+07	2.66E+07	1.73E+07	7.42E+07	1.50E-06	7.27E-06	2.56E-06	1.66E-06	7.12E-06	
Tellurium (52)	Te-115m	5.44E+04	1.27E-05	1.00E+00	1.31E+07	6.33E+07	2.23E+07	1.45E+07	6.20E+07	1.45E-06	7.02E-06	2.47E-06	1.60E-06	6.88E-06	
Tellurium (52)	Te-116	2.44E+03	2.84E-04	1.00E+00	2.79E+01	1.52E+02	5.29E+01	3.30E+01	1.50E+02	6.96E-11	3.80E-10	1.32E-10	8.23E-11	3.75E-10	
Tellurium (52)	Te-117	5.87E+03	1.18E-04	1.00E+00	9.54E+01	5.06E+02	1.76E+02	1.11E+02	5.04E+02	9.96E-11	5.28E-10	1.84E-10	1.16E-10	5.27E-10	
Tellurium (52)	Te-118	4.22E+01	1.64E-02	1.00E+00	1.53E+00	7.30E+00	2.61E+00	1.69E+00	6.63E+00	2.24E-10	1.07E-09	3.83E-10	2.48E-10	9.74E-10	
Tellurium (52)	Te-119	3.78E+02	1.83E-03	1.00E+00	1.42E+01	7.21E+01	2.54E+01	1.61E+01	7.12E+01	2.34E-10	1.19E-09	4.19E-10	2.66E-10	1.17E-09	
Tellurium (52)	Te-119m	5.38E+01	1.29E-02	1.00E+00	9.91E-01	5.31E+00	1.85E+00	1.16E+00	5.35E+00	1.15E-10	6.16E-10	2.15E-10	1.35E-10	6.20E-10	
Tellurium (52)	Te-121	1.32E+01	5.25E-02	1.00E+00	6.90E-01	3.36E+00	1.18E+00	7.64E-01	3.35E+00	3.32E-10	1.61E-09	5.69E-10	3.67E-10	1.61E-09	
Tellurium (52)	Te-121m	1.64E+00	4.22E-01	1.00E+00	9.05E-02	4.27E-01	1.51E-01	9.89E-02	4.24E-01	3.50E-10	1.65E-09	5.83E-10	3.82E-10	1.64E-09	
Tellurium (52)	Te-123	1.16E-15	6.00E+14	1.00E+00	2.02E+04	2.11E+04	2.01E+04	2.02E+04	5.61E+03	1.13E+11	1.18E+11	1.12E+11	1.13E+11	3.13E+10	



Composite Worker 2D External Exposure DCCs July 2023															
Radionuclides		Isotope-specific Information			Dose Compliance Concentrations (DCCs)										
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Soil Volume Area Correction Factor	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	
					DCC DL=1 (Bq/g)	@ 1cm DCC DL=1 (Bq/g)	@ 5cm DCC DL=1 (Bq/g)	@ 15cm DCC DL=1 (Bq/g)	Plane DCC DL=1 (Bq/cm <sup>2</sup> )	DCC DL=1 (mg/kg)	@ 1cm DCC DL=1 (mg/kg)	@ 5cm DCC DL=1 (mg/kg)	@ 15cm DCC DL=1 (mg/kg)	Plane DCC DL=1 (mg/cm <sup>2</sup> )	
Tellurium (52)	Te-123m	2.12E+00	3.27E-01	1.00E+00	6.83E-01	2.62E+00	9.68E-01	6.97E-01	2.53E+00	2.08E-09	7.98E-09	2.94E-09	2.12E-09	7.70E-09	
Tellurium (52)	Te-125m	4.41E+00	1.57E-01	1.00E+00	6.51E+01	7.53E+01	6.64E+01	6.51E+01	2.31E+01	9.68E-08	1.12E-07	9.88E-08	9.68E-08	3.43E-08	
Tellurium (52)	Te-127	6.49E+02	1.07E-03	1.00E+00	3.94E+03	1.77E+04	6.39E+03	4.27E+03	8.57E+03	4.04E-08	1.82E-07	6.56E-08	4.38E-08	8.80E-08	
Tellurium (52)	Te-127m	2.32E+00	2.99E-01	1.00E+00	1.38E+01	4.69E+01	2.10E+01	1.48E+01	1.90E+01	3.97E-08	1.35E-07	6.02E-08	4.26E-08	5.45E-08	
Tellurium (52)	Te-129	5.23E+03	1.32E-04	1.00E+00	2.58E+03	1.16E+04	4.33E+03	2.84E+03	6.26E+03	3.34E-09	1.50E-08	5.59E-09	3.67E-09	8.09E-09	
Tellurium (52)	Te-129m	7.53E+00	9.21E-02	1.00E+00	3.18E+00	1.44E+01	5.41E+00	3.54E+00	7.95E+00	2.86E-09	1.30E-08	4.86E-09	3.18E-09	7.14E-09	
Tellurium (52)	Te-131	1.46E+04	4.76E-05	1.00E+00	1.17E+03	5.47E+03	1.92E+03	1.27E+03	5.53E+03	5.52E-10	2.58E-09	9.06E-10	5.98E-10	2.61E-09	
Tellurium (52)	Te-131m	2.02E+02	3.42E-03	1.00E+00	3.00E+00	1.52E+01	5.33E+00	3.40E+00	1.53E+01	1.02E-10	5.17E-10	1.81E-10	1.16E-10	5.21E-10	
Tellurium (52)	Te-132	7.89E+01	8.78E-03	1.00E+00	9.04E-01	4.60E+00	1.61E+00	1.03E+00	4.57E+00	7.92E-11	4.04E-10	1.41E-10	9.00E-11	4.01E-10	
Tellurium (52)	Te-133	2.91E+04	2.38E-05	1.00E+00	1.34E+03	6.46E+03	2.29E+03	1.49E+03	6.09E+03	3.20E-10	1.55E-09	5.49E-10	3.56E-10	1.46E-09	
Tellurium (52)	Te-133m	6.57E+03	1.05E-04	1.00E+00	6.79E+01	3.51E+02	1.23E+02	7.80E+01	3.47E+02	7.20E-11	3.72E-10	1.30E-10	8.28E-11	3.68E-10	
Tellurium (52)	Te-134	8.71E+03	7.95E-05	1.00E+00	7.06E+01	3.65E+02	1.27E+02	8.10E+01	3.64E+02	5.69E-11	2.95E-10	1.03E-10	6.53E-11	2.94E-10	
Thorium (90)	Th-223	3.64E+07	1.90E-08	1.00E+00	2.35E+31	1.03E+32	3.72E+31	2.54E+31	1.03E+32	7.56E+15	3.30E+16	1.19E+16	8.14E+15	3.31E+16	
Thorium (90)	Th-224	2.08E+07	3.33E-08	1.00E+00	1.39E+31	5.86E+31	2.10E+31	1.46E+31	5.94E+31	7.84E+15	3.31E+16	1.19E+16	8.22E+15	3.36E+16	
Thorium (90)	Th-226	1.19E+04	5.82E-05	1.00E+00	8.29E+06	1.41E+07	9.52E+06	8.42E+06	1.44E+06	8.24E-06	1.40E-05	9.47E-06	8.37E-06	1.44E-06	
Thorium (90)	Th-227	1.35E+01	5.12E-02	1.00E+00	1.06E+00	4.51E+00	1.65E+00	1.13E+00	3.71E+00	9.30E-10	3.96E-09	1.45E-09	9.91E-10	3.26E-09	
Thorium (90)	Th-228	3.63E-01	1.91E+00	1.00E+00	2.14E-02	1.24E-01	4.29E-02	2.63E-02	1.22E-01	7.04E-10	4.08E-09	1.41E-09	8.67E-10	4.03E-09	
Thorium (90)	Th-229	9.44E-05	7.34E+03	1.00E+00	1.12E-01	4.81E-01	1.78E-01	1.22E-01	4.10E-01	1.43E-05	6.12E-05	2.26E-05	1.55E-05	5.22E-05	
Thorium (90)	Th-230	9.19E-06	7.54E+04	1.00E+00	1.69E-02	9.16E-02	3.19E-02	1.99E-02	8.82E-02	2.21E-05	1.20E-04	4.18E-05	2.61E-05	1.16E-04	
Thorium (90)	Th-231	2.38E+02	2.91E-03	1.00E+00	1.19E+03	3.29E+03	1.44E+03	1.19E+03	2.17E+03	6.04E-08	1.68E-07	7.35E-08	6.04E-08	1.11E-07	
Thorium (90)	Th-232	4.93E-11	1.41E+10	1.00E+00	1.15E-02	6.40E-02	2.22E-02	1.38E-02	6.29E-02	2.83E+00	1.58E+01	5.48E+00	3.40E+00	1.55E+01	
Thorium (90)	Th-233	1.63E+04	4.24E-05	1.00E+00	2.60E+03	1.12E+04	4.01E+03	2.75E+03	1.12E+04	1.94E-09	8.35E-09	3.00E-09	2.05E-09	8.39E-09	
Thorium (90)	Th-234	1.05E+01	6.60E-02	1.00E+00	1.05E+01	3.60E+01	1.65E+01	1.16E+01	1.19E+01	1.23E-08	4.21E-08	1.93E-08	1.36E-08	1.39E-08	
Thorium (90)	Th-235	5.13E+04	1.35E-05	1.00E+00	2.16E+11	3.66E+11	2.60E+11	2.21E+11	3.47E+10	5.20E-02	8.78E-02	6.26E-02	5.32E-02	8.34E-03	
Thorium (90)	Th-236	9.71E+03	7.13E-05	1.00E+00	2.76E+02	1.49E+03	5.21E+02	3.26E+02	1.37E+03	3.52E-10	1.90E-09	6.64E-10	4.16E-10	1.75E-09	
Titanium (22)	Ti-44	1.16E-02	6.00E+01	1.00E+00	1.28E-02	6.47E-02	2.28E-02	1.46E-02	6.33E-02	2.55E-09	1.29E-08	4.55E-09	2.91E-09	1.26E-08	
Titanium (22)	Ti-45	1.97E+03	3.52E-04	1.00E+00	6.68E+01	3.23E+02	1.13E+02	7.37E+01	3.16E+02	8.00E-11	3.86E-10	1.36E-10	8.83E-11	3.78E-10	
Titanium (22)	Ti-51	6.32E+04	1.10E-05	1.00E+00	1.71E+15	7.79E+15	2.79E+15	1.85E+15	6.39E+15	7.25E+01	3.30E+02	1.18E+02	7.83E+01	2.70E+02	
Titanium (22)	Ti-52	2.14E+05	3.23E-06	1.00E+00	1.73E+15	9.83E+15	3.41E+15	2.09E+15	9.41E+15	2.20E+01	1.25E+02	4.35E+01	2.67E+01	1.20E+02	
Thallium (81)	Tl-190	1.40E+05	4.95E-06	1.00E+00	1.54E+03	8.94E+03	3.09E+03	1.90E+03	9.21E+03	1.10E-10	6.36E-10	2.19E-10	1.35E-10	6.55E-10	
Thallium (81)	Tl-190m	9.84E+04	7.04E-06	1.00E+00	1.08E+03	6.28E+03	2.17E+03	1.33E+03	6.47E+03	1.10E-10	6.36E-10	2.19E-10	1.35E-10	6.55E-10	
Thallium (81)	Tl-194	1.10E+04	6.28E-05	1.00E+00	3.61E+02	1.71E+03	6.09E+02	3.98E+02	1.65E+03	3.33E-10	1.57E-09	5.61E-10	3.67E-10	1.52E-09	
Thallium (81)	Tl-194m	1.11E+04	6.24E-05	1.00E+00	1.29E+02	6.34E+02	2.23E+02	1.45E+02	6.39E+02	1.18E-10	5.81E-10	2.05E-10	1.32E-10	5.85E-10	
Thallium (81)	Tl-195	5.23E+03	1.32E-04	1.00E+00	1.02E+02	5.38E+02	1.90E+02	1.21E+02	5.40E+02	2.00E-10	1.05E-09	3.72E-10	2.36E-10	1.06E-09	
Thallium (81)	Tl-196	3.30E+03	2.10E-04	1.00E+00	4.80E+01	2.60E+02	9.09E+01	5.69E+01	2.66E+02	1.50E-10	8.11E-10	2.83E-10	1.77E-10	8.29E-10	
Thallium (81)	Tl-197	2.14E+03	3.24E-04	1.00E+00	1.37E+02	6.23E+02	2.30E+02	1.54E+02	6.14E+02	6.62E-10	3.01E-09	1.11E-09	7.44E-10	2.97E-09	
Thallium (81)	Tl-198	1.15E+03	6.05E-04	1.00E+00	1.54E+01	8.50E+01	2.95E+01	1.84E+01	8.73E+01	1.39E-10	7.70E-10	2.67E-10	1.67E-10	7.91E-10	
Thallium (81)	Tl-198m	3.25E+03	2.13E-04	1.00E+00	4.38E+01	2.23E+02	7.80E+01	5.00E+01	2.27E+02	1.40E-10	7.12E-10	2.50E-10	1.60E-10	7.25E-10	
Thallium (81)	Tl-199	8.18E+02	8.47E-04	1.00E+00	1.21E+02	5.00E+02	1.87E+02	1.30E+02	4.95E+02	1.54E-09	6.38E-09	2.38E-09	1.66E-09	6.32E-09	
Thallium (81)	Tl-200	2.33E+02	2.98E-03	1.00E+00	5.08E+00	2.61E+01	9.17E+00	5.83E+00	2.64E+01	2.29E-10	1.18E-09	4.14E-10	2.63E-10	1.19E-09	
Thallium (81)	Tl-201	8.33E+01	8.32E-03	1.00E+00	5.52E+01	1.58E+02	6.75E+01	5.56E+01	1.46E+02	6.98E-09	2.00E-08	8.55E-09	7.04E-09	1.84E-08	
Thallium (81)	Tl-202	2.07E+01	3.35E-02	1.00E+00	1.45E+00	6.53E+00	2.35E+00	1.57E+00	6.56E+00	7.41E-10	3.34E-09	1.20E-09	8.06E-10	3.36E-09	

Composite Worker 2D External Exposure DCCs July 2023															
Radionuclides		Isotope-specific Information			Dose Compliance Concentrations (DCCs)										
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Soil Volume Area Correction Factor	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	
					DCC DL=1 (Bq/g)	@ 1cm DCC DL=1 (Bq/g)	@ 5cm DCC DL=1 (Bq/g)	@ 15cm DCC DL=1 (Bq/g)	Plane DCC DL=1 (Bq/cm <sup>2</sup> )	DCC DL=1 (mg/kg)	@ 1cm DCC DL=1 (mg/kg)	@ 5cm DCC DL=1 (mg/kg)	@ 15cm DCC DL=1 (mg/kg)	Plane DCC DL=1 (mg/cm <sup>2</sup> )	
Thallium (81)	TI-204	1.83E-01	3.78E+00	1.00E+00	4.24E+01	1.00E+02	4.97E+01	4.26E+01	1.39E+01	2.47E-06	5.84E-06	2.90E-06	2.48E-06	8.12E-07	
Thallium (81)	TI-206	8.67E+04	7.99E-06	1.00E+00	1.63E+17	2.75E+17	1.97E+17	1.67E+17	2.92E+16	2.03E+04	3.43E+04	2.46E+04	2.09E+04	3.63E+03	
Thallium (81)	TI-206m	9.74E+04	7.12E-06	1.00E+00	9.58E+14	4.40E+15	1.63E+15	1.07E+15	2.30E+15	1.06E+02	4.88E+02	1.81E+02	1.18E+02	2.55E+02	
Thallium (81)	TI-207	7.64E+04	9.08E-06	1.00E+00	8.07E+16	2.22E+17	1.21E+17	8.83E+16	2.94E+16	1.15E+04	3.15E+04	1.72E+04	1.26E+04	4.18E+03	
Thallium (81)	TI-208	1.19E+05	5.81E-06	1.00E+00	1.04E+15	6.38E+15	2.18E+15	1.31E+15	6.54E+15	9.55E+01	5.83E+02	2.00E+02	1.20E+02	5.98E+02	
Thallium (81)	TI-209	1.69E+05	4.11E-06	1.00E+00	4.03E+07	1.03E+08	5.09E+07	4.09E+07	8.14E+06	2.62E-06	6.69E-06	3.31E-06	2.66E-06	5.29E-07	
Thallium (81)	TI-210	2.80E+05	2.47E-06	1.00E+00	1.95E+08	3.31E+08	2.24E+08	1.98E+08	3.40E+07	7.66E-06	1.30E-05	8.80E-06	7.78E-06	1.34E-06	
Thulium (69)	Tm-161	1.21E+04	5.75E-05	1.00E+00	3.47E+02	1.74E+03	6.21E+02	3.98E+02	1.72E+03	2.43E-10	1.22E-09	4.35E-10	2.79E-10	1.20E-09	
Thulium (69)	Tm-162	1.68E+04	4.13E-05	1.00E+00	6.28E+08	3.48E+09	1.22E+09	7.56E+08	3.50E+09	3.18E-04	1.76E-03	6.17E-04	3.83E-04	1.77E-03	
Thulium (69)	Tm-163	3.35E+03	2.07E-04	1.00E+00	7.17E+01	3.77E+02	1.34E+02	8.47E+01	3.77E+02	1.83E-10	9.60E-10	3.41E-10	2.16E-10	9.60E-10	
Thulium (69)	Tm-164	1.82E+05	3.81E-06	1.00E+00	4.78E+16	2.41E+17	8.57E+16	5.48E+16	2.29E+17	2.26E+03	1.14E+04	4.05E+03	2.59E+03	1.08E+04	
Thulium (69)	Tm-165	2.02E+02	3.43E-03	1.00E+00	1.16E+01	5.21E+01	1.92E+01	1.28E+01	5.04E+01	4.96E-10	2.23E-09	8.21E-10	5.47E-10	2.16E-09	
Thulium (69)	Tm-166	7.88E+02	8.79E-04	1.00E+00	1.08E+01	6.00E+01	2.08E+01	1.29E+01	6.11E+01	1.19E-10	6.63E-10	2.30E-10	1.43E-10	6.74E-10	
Thulium (69)	Tm-167	2.73E+01	2.53E-02	1.00E+00	8.60E+00	3.12E+01	1.24E+01	8.92E+00	2.85E+01	2.75E-09	9.99E-09	3.96E-09	2.86E-09	9.13E-09	
Thulium (69)	Tm-168	2.72E+00	2.55E-01	1.00E+00	7.03E-02	3.43E-01	1.22E-01	7.89E-02	3.45E-01	2.28E-10	1.11E-09	3.95E-10	2.56E-10	1.12E-09	
Thulium (69)	Tm-170	1.97E+00	3.52E-01	1.00E+00	3.26E+01	7.35E+01	3.80E+01	3.27E+01	1.27E+01	1.48E-07	3.33E-07	1.72E-07	1.48E-07	5.77E-08	
Thulium (69)	Tm-171	3.61E-01	1.92E+00	1.00E+00	2.14E+02	4.13E+02	2.27E+02	2.14E+02	3.11E+02	5.33E-06	1.03E-05	5.64E-06	5.33E-06	7.73E-06	
Thulium (69)	Tm-172	9.55E+01	7.26E-03	1.00E+00	5.31E+00	2.96E+01	1.03E+01	6.37E+00	2.73E+01	5.02E-10	2.80E-09	9.76E-10	6.02E-10	2.58E-09	
Thulium (69)	Tm-173	7.37E+02	9.41E-04	1.00E+00	5.87E+01	2.72E+02	9.60E+01	6.33E+01	2.65E+02	7.22E-10	3.35E-09	1.18E-09	7.79E-10	3.26E-09	
Thulium (69)	Tm-174	6.75E+04	1.03E-05	1.00E+00	5.20E+13	2.57E+14	9.03E+13	5.84E+13	2.56E+14	7.04E+00	3.48E+01	1.22E+01	7.90E+00	3.47E+01	
Thulium (69)	Tm-175	2.40E+04	2.89E-05	1.00E+00	2.01E+04	8.94E+04	3.21E+04	2.16E+04	8.98E+04	7.71E-09	3.42E-08	1.23E-08	8.28E-09	3.44E-08	
Thulium (69)	Tm-176	1.97E+05	3.52E-06	1.00E+00	2.08E+17	1.14E+18	3.96E+17	2.48E+17	1.12E+18	9.73E+03	5.35E+04	1.86E+04	1.16E+04	5.26E+04	
Uranium (92)	U-227	3.31E+05	2.09E-06	1.00E+00	7.70E+18	3.16E+19	1.16E+19	8.10E+18	3.16E+19	2.77E+05	1.14E+06	4.16E+05	2.91E+05	1.14E+06	
Uranium (92)	U-228	4.00E+04	1.73E-05	1.00E+00	9.48E+14	3.93E+15	1.42E+15	9.90E+14	3.91E+15	2.83E+02	1.17E+03	4.24E+02	2.96E+02	1.17E+03	
Uranium (92)	U-230	1.22E+01	5.70E-02	1.00E+00	2.29E+01	9.48E+01	3.45E+01	2.41E+01	8.78E+01	2.27E-08	9.40E-08	3.42E-08	2.39E-08	8.70E-08	
Uranium (92)	U-231	6.02E+01	1.15E-02	1.00E+00	4.54E+01	1.41E+02	5.73E+01	4.58E+01	1.25E+02	9.14E-09	2.84E-08	1.15E-08	9.22E-09	2.52E-08	
Uranium (92)	U-232	1.01E-02	6.89E+01	1.00E+00	1.97E-02	1.14E-01	3.96E-02	2.43E-02	1.13E-01	2.38E-08	1.38E-07	4.79E-08	2.93E-08	1.36E-07	
Uranium (92)	U-233	4.35E-06	1.59E+05	1.00E+00	1.30E-01	5.57E-01	2.06E-01	1.41E-01	4.75E-01	3.66E-04	1.56E-03	5.78E-04	3.97E-04	1.33E-03	
Uranium (92)	U-234	2.82E-06	2.46E+05	1.00E+00	2.62E-02	1.42E-01	4.95E-02	3.09E-02	1.37E-01	1.14E-04	6.18E-04	2.15E-04	1.34E-04	5.95E-04	
Uranium (92)	U-235	9.84E-10	7.04E+08	1.00E+00	5.47E-02	2.28E-01	8.33E-02	5.77E-02	1.97E-01	6.85E-01	2.86E+00	1.04E+00	7.23E-01	2.47E+00	
Uranium (92)	U-235m	1.40E+04	4.95E-05												
Uranium (92)	U-236	2.96E-08	2.34E+07	1.00E+00	6.94E+00	3.88E+01	1.35E+01	8.36E+00	3.82E+01	2.90E+00	1.62E+01	5.63E+00	3.50E+00	1.60E+01	
Uranium (92)	U-237	3.75E+01	1.85E-02	1.00E+00	1.27E+01	4.47E+01	1.74E+01	1.30E+01	4.22E+01	4.21E-09	1.48E-08	5.77E-09	4.30E-09	1.40E-08	
Uranium (92)	U-238	1.55E-10	4.47E+09	1.00E+00	1.53E-02	8.23E-02	2.88E-02	1.80E-02	7.57E-02	1.23E+00	6.62E+00	2.32E+00	1.45E+00	6.09E+00	
Uranium (92)	U-239	1.55E+04	4.46E-05	1.00E+00	3.47E+03	1.35E+04	4.97E+03	3.58E+03	1.33E+04	2.80E-09	1.09E-08	4.01E-09	2.89E-09	1.07E-08	
Uranium (92)	U-240	4.31E+02	1.61E-03	1.00E+00	3.76E+01	1.87E+02	6.63E+01	4.26E+01	1.56E+02	1.10E-09	5.46E-09	1.94E-09	1.25E-09	4.57E-09	
Uranium (92)	U-242	2.17E+04	3.20E-05	1.00E+00	1.36E+11	6.90E+11	2.53E+11	1.60E+11	4.59E+11	7.94E-02	4.04E-01	1.48E-01	9.36E-02	2.69E-01	
Vanadium (23)	V-47	1.12E+04	6.20E-05	1.00E+00	3.30E+02	1.58E+03	5.57E+02	3.63E+02	1.48E+03	7.28E-11	3.49E-10	1.23E-10	8.01E-11	3.26E-10	
Vanadium (23)	V-48	1.58E+01	4.38E-02	1.00E+00	1.47E-01	7.94E-01	2.75E-01	1.72E-01	8.10E-01	2.34E-11	1.26E-10	4.38E-11	2.74E-11	1.29E-10	
Vanadium (23)	V-49	7.67E-01	9.04E-01												
Vanadium (23)	V-50	4.62E-18	1.50E+17	1.00E+00	1.81E-02	1.05E-01	3.60E-02	2.20E-02	1.08E-01	1.03E+07	5.95E+07	2.04E+07	1.25E+07	6.15E+07	
Vanadium (23)	V-52	9.73E+04	7.12E-06	1.00E+00	1.41E+15	8.03E+15	2.79E+15	1.71E+15	7.70E+15	3.96E+01	2.25E+02	7.81E+01	4.79E+01	2.16E+02	

Composite Worker 2D External Exposure DCCs July 2023															
Radionuclides		Isotope-specific Information			Dose Compliance Concentrations (DCCs)										
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Soil Volume Area Correction Factor	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	
					DCC DL=1 (Bq/g)	@ 1cm DCC DL=1 (Bq/g)	@ 5cm DCC DL=1 (Bq/g)	@ 15cm DCC DL=1 (Bq/g)	Plane DCC DL=1 (Bq/cm <sup>2</sup> )	DCC DL=1 (mg/kg)	@ 1cm DCC DL=1 (mg/kg)	@ 5cm DCC DL=1 (mg/kg)	@ 15cm DCC DL=1 (mg/kg)	Plane DCC DL=1 (mg/cm <sup>2</sup> )	
Vanadium (23)	V-53	2.26E+05	3.06E-06	1.00E+00	1.22E+17	6.44E+17	2.26E+17	1.42E+17	5.97E+17	1.49E+03	7.91E+03	2.78E+03	1.74E+03	7.33E+03	
Tungsten (74)	W-177	2.76E+03	2.51E-04	1.00E+00	9.30E+01	4.27E+02	1.56E+02	1.04E+02	4.21E+02	3.13E-10	1.44E-09	5.24E-10	3.48E-10	1.42E-09	
Tungsten (74)	W-178	1.17E+01	5.92E-02	1.00E+00	3.70E+00	1.48E+01	5.98E+00	4.20E+00	1.33E+01	2.95E-09	1.18E-08	4.76E-09	3.35E-09	1.06E-08	
Tungsten (74)	W-179	9.83E+03	7.05E-05	1.00E+00	1.75E+04	3.48E+04	1.87E+04	1.75E+04	2.62E+04	1.67E-08	3.32E-08	1.78E-08	1.67E-08	2.50E-08	
Tungsten (74)	W-179m	5.69E+04	1.22E-05	1.00E+00	1.01E+05	2.02E+05	1.08E+05	1.01E+05	1.52E+05	1.67E-08	3.33E-08	1.79E-08	1.67E-08	2.50E-08	
Tungsten (74)	W-181	2.09E+00	3.32E-01	1.00E+00	6.03E+00	1.22E+01	6.46E+00	6.03E+00	9.71E+00	2.74E-08	5.56E-08	2.94E-08	2.74E-08	4.42E-08	
Tungsten (74)	W-185	3.37E+00	2.06E-01	1.00E+00	1.53E+03	4.16E+03	1.89E+03	1.54E+03	2.90E+03	4.40E-06	1.20E-05	5.45E-06	4.45E-06	8.34E-06	
Tungsten (74)	W-185m	2.28E+05	3.04E-06	1.00E+00	1.04E+08	2.82E+08	1.28E+08	1.05E+08	1.96E+08	4.40E-06	1.20E-05	5.45E-06	4.45E-06	8.34E-06	
Tungsten (74)	W-187	2.56E+02	2.71E-03	1.00E+00	1.72E+01	8.29E+01	2.94E+01	1.91E+01	8.05E+01	6.60E-10	3.18E-09	1.13E-09	7.34E-10	3.08E-09	
Tungsten (74)	W-188	3.62E+00	1.91E-01	1.00E+00	1.79E+00	7.11E+00	2.83E+00	1.94E+00	3.45E+00	4.86E-09	1.93E-08	7.70E-09	5.28E-09	9.38E-09	
Tungsten (74)	W-190	1.21E+04	5.71E-05	1.00E+00	4.74E+06	2.23E+07	7.96E+06	5.23E+06	2.13E+07	3.89E-06	1.83E-05	6.53E-06	4.29E-06	1.75E-05	
Xenon (54)	Xe-120	9.11E+03	7.61E-05	1.00E+00	8.10E+01	4.41E+02	1.54E+02	9.62E+01	4.37E+02	5.60E-11	3.05E-10	1.06E-10	6.65E-11	3.02E-10	
Xenon (54)	Xe-121	9.08E+03	7.63E-05	1.00E+00	1.07E+02	5.50E+02	1.93E+02	1.23E+02	5.42E+02	7.45E-11	3.85E-10	1.35E-10	8.58E-11	3.79E-10	
Xenon (54)	Xe-122	3.02E+02	2.29E-03	1.00E+00	8.75E+00	4.16E+01	1.49E+01	9.68E+00	3.81E+01	1.85E-10	8.81E-10	3.15E-10	2.05E-10	8.06E-10	
Xenon (54)	Xe-123	2.92E+03	2.37E-04	1.00E+00	1.15E+02	5.48E+02	1.96E+02	1.29E+02	5.31E+02	2.54E-10	1.21E-09	4.33E-10	2.84E-10	1.17E-09	
Xenon (54)	Xe-125	3.59E+02	1.93E-03	1.00E+00	4.86E+01	2.04E+02	7.54E+01	5.17E+01	1.79E+02	8.87E-10	3.72E-09	1.38E-09	9.44E-10	3.26E-09	
Xenon (54)	Xe-127	6.95E+00	9.97E-02	1.00E+00	9.31E-01	3.89E+00	1.41E+00	9.73E-01	3.77E+00	8.93E-10	3.73E-09	1.35E-09	9.33E-10	3.61E-09	
Xenon (54)	Xe-127m	3.16E+05	2.19E-06	1.00E+00	4.23E+04	1.77E+05	6.41E+04	4.42E+04	1.71E+05	8.93E-10	3.73E-09	1.35E-09	9.33E-10	3.61E-09	
Xenon (54)	Xe-129m	2.85E+01	2.43E-02	1.00E+00	8.08E+01	1.95E+02	1.06E+02	8.29E+01	9.47E+01	1.92E-08	4.62E-08	2.52E-08	1.97E-08	2.25E-08	
Xenon (54)	Xe-131m	2.14E+01	3.24E-02	1.00E+00	1.77E+02	3.95E+02	2.24E+02	1.80E+02	1.82E+02	5.68E-08	1.27E-07	7.19E-08	5.79E-08	5.84E-08	
Xenon (54)	Xe-133	4.82E+01	1.44E-02	1.00E+00	8.79E+01	2.19E+02	1.03E+02	8.78E+01	1.65E+02	1.27E-08	3.17E-08	1.48E-08	1.27E-08	2.38E-08	
Xenon (54)	Xe-133m	1.16E+02	6.00E-03	1.00E+00	9.02E+01	2.79E+02	1.20E+02	9.23E+01	2.11E+02	5.45E-09	1.69E-08	7.25E-09	5.57E-09	1.27E-08	
Xenon (54)	Xe-135	6.64E+02	1.04E-03	1.00E+00	8.77E+01	3.87E+02	1.37E+02	9.25E+01	3.68E+02	9.35E-10	4.12E-09	1.46E-09	9.86E-10	3.93E-09	
Xenon (54)	Xe-135m	2.38E+04	2.91E-05	1.00E+00	3.17E+03	1.40E+04	4.93E+03	3.34E+03	1.33E+04	9.41E-10	4.15E-09	1.46E-09	9.92E-10	3.95E-09	
Xenon (54)	Xe-137	9.54E+04	7.26E-06	1.00E+00	2.13E+05	1.07E+06	3.75E+05	2.40E+05	1.06E+06	1.61E-08	8.07E-08	2.82E-08	1.81E-08	8.01E-08	
Xenon (54)	Xe-138	2.59E+04	2.68E-05	1.00E+00	2.83E+02	1.61E+03	5.58E+02	3.44E+02	1.59E+03	7.93E-11	4.52E-10	1.56E-10	9.62E-11	4.44E-10	
Yttrium (39)	Y-81	3.10E+05	2.23E-06	1.00E+00	1.51E+04	7.13E+04	2.51E+04	1.65E+04	7.14E+04	2.07E-10	9.76E-10	3.43E-10	2.26E-10	9.77E-10	
Yttrium (39)	Y-83	5.14E+04	1.35E-05	1.00E+00	1.16E+03	5.81E+03	2.03E+03	1.31E+03	5.84E+03	9.83E-11	4.92E-10	1.72E-10	1.11E-10	4.94E-10	
Yttrium (39)	Y-83m	1.28E+05	5.42E-06	1.00E+00	2.89E+03	1.45E+04	5.05E+03	3.25E+03	1.45E+04	9.84E-11	4.92E-10	1.72E-10	1.11E-10	4.94E-10	
Yttrium (39)	Y-84m	9.22E+03	7.52E-05	1.00E+00	6.40E+01	3.33E+02	1.16E+02	7.41E+01	3.31E+02	3.06E-11	1.59E-10	5.56E-11	3.54E-11	1.58E-10	
Yttrium (39)	Y-85	2.27E+03	3.06E-04	1.00E+00	3.95E+01	1.89E+02	6.65E+01	4.35E+01	1.86E+02	7.78E-11	3.72E-10	1.31E-10	8.56E-11	3.66E-10	
Yttrium (39)	Y-85m	1.25E+03	5.55E-04	1.00E+00	1.94E+01	9.98E+01	3.48E+01	2.22E+01	9.85E+01	6.91E-11	3.56E-10	1.24E-10	7.91E-11	3.52E-10	
Yttrium (39)	Y-86	4.12E+02	1.68E-03	1.00E+00	3.11E+00	1.69E+01	5.86E+00	3.66E+00	1.73E+01	3.40E-11	1.85E-10	6.42E-11	4.01E-11	1.89E-10	
Yttrium (39)	Y-86m	7.59E+03	9.13E-05	1.00E+00	5.49E+01	2.96E+02	1.02E+02	6.43E+01	3.01E+02	3.27E-11	1.76E-10	6.09E-11	3.82E-11	1.79E-10	
Yttrium (39)	Y-87	7.61E+01	9.11E-03	1.00E+00	3.03E+00	1.44E+01	5.05E+00	3.31E+00	1.46E+01	1.82E-10	8.63E-10	3.03E-10	1.99E-10	8.75E-10	
Yttrium (39)	Y-87m	4.54E+02	1.53E-03	1.00E+00	1.31E+01	6.19E+01	2.17E+01	1.43E+01	6.28E+01	1.32E-10	6.22E-10	2.18E-10	1.43E-10	6.31E-10	
Yttrium (39)	Y-88	2.37E+00	2.92E-01	1.00E+00	2.50E-02	1.45E-01	5.00E-02	3.05E-02	1.50E-01	4.87E-11	2.83E-10	9.73E-11	5.94E-11	2.93E-10	
Yttrium (39)	Y-89m	1.40E+06	4.97E-07	1.00E+00	1.09E+22	5.75E+22	2.00E+22	1.26E+22	5.84E+22	3.65E+07	1.92E+08	6.70E+07	4.22E+07	1.95E+08	
Yttrium (39)	Y-90	9.47E+01	7.32E-03	1.00E+00	3.82E+02	6.52E+02	4.72E+02	3.97E+02	1.19E+02	1.90E-08	3.25E-08	2.35E-08	1.98E-08	5.95E-09	
Yttrium (39)	Y-90m	1.90E+03	3.64E-04	1.00E+00	9.27E+01	4.18E+02	1.49E+02	1.00E+02	3.71E+02	2.30E-10	1.04E-09	3.70E-10	2.48E-10	9.19E-10	
Yttrium (39)	Y-91	4.32E+00	1.60E-01	1.00E+00	2.03E+01	5.41E+01	3.07E+01	2.25E+01	8.18E+00	2.24E-08	5.98E-08	3.38E-08	2.48E-08	9.02E-09	
Yttrium (39)	Y-91m	7.33E+03	9.46E-05	1.00E+00	4.00E+02	1.94E+03	6.86E+02	4.43E+02	1.75E+03	2.61E-10	1.26E-09	4.47E-10	2.88E-10	1.14E-09	

Composite Worker 2D External Exposure DCCs July 2023															
Radionuclides		Isotope-specific Information			Dose Compliance Concentrations (DCCs)										
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	Soil Volume Area Correction Factor	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	Soil Volume	Soil Volume	Soil Volume	Soil Volume	Ground	
					DCC DL=1 (Bq/g)	@ 1cm DCC DL=1 (Bq/g)	@ 5cm DCC DL=1 (Bq/g)	@ 15cm DCC DL=1 (Bq/g)	Plane DCC DL=1 (Bq/cm <sup>2</sup> )	DCC DL=1 (mg/kg)	@ 1cm DCC DL=1 (mg/kg)	@ 5cm DCC DL=1 (mg/kg)	@ 15cm DCC DL=1 (mg/kg)	Plane DCC DL=1 (mg/cm <sup>2</sup> )	
Yttrium (39)	Y-92	1.71E+03	4.04E-04	1.00E+00	1.74E+02	8.41E+02	3.16E+02	2.02E+02	6.21E+02	4.89E-10	2.37E-09	8.89E-10	5.67E-10	1.75E-09	
Yttrium (39)	Y-93	5.96E+02	1.16E-03	1.00E+00	1.51E+02	6.87E+02	2.72E+02	1.77E+02	3.81E+02	1.23E-09	5.62E-09	2.23E-09	1.45E-09	3.12E-09	
Yttrium (39)	Y-94	1.95E+04	3.56E-05	1.00E+00	2.93E+10	1.51E+11	5.43E+10	3.42E+10	1.35E+11	7.41E-03	3.83E-02	1.37E-02	8.66E-03	3.41E-02	
Yttrium (39)	Y-95	3.54E+04	1.96E-05	1.00E+00	6.86E+02	3.50E+03	1.22E+03	7.78E+02	3.56E+03	9.67E-11	4.94E-10	1.72E-10	1.10E-10	5.01E-10	
Ytterbium (70)	Yb-162	1.93E+04	3.59E-05	1.00E+00	1.00E+08	5.55E+08	1.94E+08	1.20E+08	5.58E+08	4.40E-05	2.44E-04	8.55E-05	5.30E-05	2.45E-04	
Ytterbium (70)	Yb-163	3.30E+04	2.10E-05	1.00E+00	7.05E+02	3.70E+03	1.32E+03	8.32E+02	3.70E+03	1.83E-10	9.60E-10	3.41E-10	2.16E-10	9.60E-10	
Ytterbium (70)	Yb-164	4.81E+03	1.44E-04	1.00E+00	1.73E+02	8.52E+02	3.07E+02	1.98E+02	8.01E+02	3.09E-10	1.52E-09	5.50E-10	3.54E-10	1.43E-09	
Ytterbium (70)	Yb-165	3.68E+04	1.88E-05	1.00E+00	2.10E+03	9.44E+03	3.48E+03	2.31E+03	9.14E+03	4.94E-10	2.22E-09	8.17E-10	5.44E-10	2.15E-09	
Ytterbium (70)	Yb-166	1.07E+02	6.47E-03	1.00E+00	1.45E+00	7.91E+00	2.77E+00	1.73E+00	7.96E+00	1.18E-10	6.43E-10	2.25E-10	1.41E-10	6.47E-10	
Ytterbium (70)	Yb-167	2.08E+04	3.33E-05	1.00E+00	6.54E+03	2.37E+04	9.41E+03	6.79E+03	2.17E+04	2.75E-09	9.99E-09	3.96E-09	2.86E-09	9.13E-09	
Ytterbium (70)	Yb-169	7.90E+00	8.77E-02	1.00E+00	1.24E+00	4.11E+00	1.69E+00	1.27E+00	3.71E+00	1.39E-09	4.61E-09	1.89E-09	1.43E-09	4.17E-09	
Ytterbium (70)	Yb-175	6.04E+01	1.15E-02	1.00E+00	5.09E+01	2.26E+02	8.11E+01	5.46E+01	2.27E+02	7.73E-09	3.43E-08	1.23E-08	8.30E-09	3.45E-08	
Ytterbium (70)	Yb-177	3.18E+03	2.18E-04	1.00E+00	4.22E+02	2.03E+03	7.29E+02	4.78E+02	1.73E+03	1.23E-09	5.93E-09	2.13E-09	1.40E-09	5.05E-09	
Ytterbium (70)	Yb-178	4.92E+03	1.41E-04	1.00E+00	8.29E+02	4.12E+03	1.51E+03	9.63E+02	2.85E+03	1.57E-09	7.81E-09	2.86E-09	1.83E-09	5.41E-09	
Ytterbium (70)	Yb-179	4.55E+04	1.52E-05	1.00E+00	4.91E+04	1.92E+05	7.37E+04	5.14E+04	7.93E+04	1.01E-08	3.95E-08	1.52E-08	1.06E-08	1.64E-08	
Zinc (30)	Zn-60	1.53E+05	4.53E-06	1.00E+00	5.41E+08	3.04E+09	1.05E+09	6.53E+08	3.06E+09	1.11E-05	6.24E-05	2.16E-05	1.34E-05	6.29E-05	
Zinc (30)	Zn-61	2.45E+05	2.83E-06	1.00E+00	8.69E+03	4.22E+04	1.49E+04	9.60E+03	4.14E+04	1.13E-10	5.51E-10	1.94E-10	1.25E-10	5.40E-10	
Zinc (30)	Zn-62	6.61E+02	1.05E-03	1.00E+00	1.34E+01	6.39E+01	2.28E+01	1.48E+01	5.99E+01	6.61E-11	3.15E-10	1.12E-10	7.29E-11	2.95E-10	
Zinc (30)	Zn-63	9.47E+03	7.32E-05	1.00E+00	2.51E+02	1.21E+03	4.30E+02	2.79E+02	1.13E+03	8.74E-11	4.24E-10	1.50E-10	9.72E-11	3.95E-10	
Zinc (30)	Zn-65	1.04E+00	6.69E-01	1.00E+00	7.45E-02	4.06E-01	1.41E-01	8.76E-02	4.15E-01	2.45E-10	1.34E-09	4.62E-10	2.88E-10	1.36E-09	
Zinc (30)	Zn-69	6.46E+03	1.07E-04	1.00E+00	3.55E+05	6.88E+05	4.34E+05	3.62E+05	4.28E+04	1.99E-07	3.86E-07	2.43E-07	2.03E-07	2.40E-08	
Zinc (30)	Zn-69m	4.41E+02	1.57E-03	1.00E+00	3.19E+01	1.51E+02	5.31E+01	3.48E+01	1.46E+02	2.61E-10	1.24E-09	4.35E-10	2.85E-10	1.20E-09	
Zinc (30)	Zn-71	1.49E+05	4.66E-06	1.00E+00	4.15E+16	1.98E+17	7.21E+16	4.66E+16	1.55E+17	1.04E+03	4.97E+03	1.81E+03	1.17E+03	3.88E+03	
Zinc (30)	Zn-71m	1.53E+03	4.52E-04	1.00E+00	2.87E+01	1.40E+02	4.93E+01	3.19E+01	1.38E+02	6.98E-11	3.41E-10	1.20E-10	7.75E-11	3.35E-10	
Zinc (30)	Zn-72	1.31E+02	5.31E-03	1.00E+00	1.21E+00	6.81E+00	2.36E+00	1.46E+00	6.93E+00	3.50E-11	1.97E-10	6.83E-11	4.22E-11	2.00E-10	
Zirconium (40)	Zr-85	4.63E+04	1.50E-05	1.00E+00	7.21E+02	3.70E+03	1.29E+03	8.24E+02	3.66E+03	6.93E-11	3.56E-10	1.24E-10	7.93E-11	3.52E-10	
Zirconium (40)	Zr-86	3.68E+02	1.88E-03	1.00E+00	2.61E+00	1.40E+01	4.86E+00	3.05E+00	1.43E+01	3.20E-11	1.72E-10	5.96E-11	3.74E-11	1.75E-10	
Zirconium (40)	Zr-87	3.61E+03	1.92E-04	1.00E+00	5.43E+01	2.60E+02	9.13E+01	5.97E+01	2.53E+02	6.85E-11	3.28E-10	1.15E-10	7.54E-11	3.19E-10	
Zirconium (40)	Zr-88	3.03E+00	2.28E-01	1.00E+00	3.38E-02	1.90E-01	6.56E-02	4.05E-02	1.96E-01	5.14E-11	2.89E-10	9.98E-11	6.17E-11	2.98E-10	
Zirconium (40)	Zr-89	7.74E+01	8.95E-03	1.00E+00	1.88E+00	9.72E+00	3.39E+00	2.15E+00	9.76E+00	1.13E-10	5.86E-10	2.05E-10	1.29E-10	5.88E-10	
Zirconium (40)	Zr-89m	8.75E+04	7.92E-06	1.00E+00	2.26E+03	1.17E+04	4.09E+03	2.59E+03	1.18E+04	1.21E-10	6.25E-10	2.18E-10	1.38E-10	6.27E-10	
Zirconium (40)	Zr-93	4.53E-07	1.53E+06												
Zirconium (40)	Zr-95	3.95E+00	1.75E-01	1.00E+00	7.67E-02	3.91E-01	1.36E-01	8.69E-02	3.97E-01	9.67E-11	4.94E-10	1.72E-10	1.10E-10	5.01E-10	
Zirconium (40)	Zr-97	3.63E+02	1.91E-03	1.00E+00	6.61E+00	3.34E+01	1.17E+01	7.49E+00	3.14E+01	9.27E-11	4.69E-10	1.64E-10	1.05E-10	4.41E-10	



Soil to Groundwater July 2023															
Radionuclides		Isotope-specific Information				Tap Water Dose Compliance Concentrations (DCCs)						Protection of Groundwater Soil Screening Levels			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	K <sub>d</sub> Distribution coefficient (L/kg)	DAF	Ingestion DCC DL=1 (Bq/L)	Inhalation DCC DL=1 (Bq/L)	Immersion DCC DL=1 (Bq/L)	Produce	Total DCC DL=1 (Bq/L)	Total DCC DL=1 (mg/L)	SSL Dose-based DL=1 (Bq/g)	SSL Dose-based DL=1 (mg/kg)	SSL MCL-based (Bq/g)	SSL MCL-based (mg/kg)
									Consumption DCC DL=1 (Bq/L)						
Actinium (89)	Ac-223	1.73E+05	4.00E-06	1.70E+03	1.00E+00	.	.	1.67E+03	.	1.67E+03	1.13E-13	8.67E+02	5.85E-14	2.69E-01	1.82E-17
Actinium (89)	Ac-224	2.18E+03	3.17E-04	1.70E+03	1.00E+00	1.07E-01	1.02E-01	6.73E+01	3.79E-02	2.20E-02	1.18E-16	3.65E-05	1.96E-19	7.24E-04	3.89E-18
Actinium (89)	Ac-225	2.53E+01	2.74E-02	1.70E+03	1.00E+00	2.58E-01	.	5.53E+02	1.09E-01	7.68E-02	3.58E-14	1.26E-01	5.87E-14	5.07E-03	2.37E-15
Actinium (89)	Ac-226	2.07E+02	3.35E-03	1.70E+03	1.00E+00	4.74E-03	1.40E-01	2.65E+02	1.90E-03	1.34E-03	7.71E-17	4.03E-05	2.31E-18	1.27E-03	7.27E-17
Actinium (89)	Ac-227	3.18E-02	2.18E+01	1.70E+03	1.00E+00	2.18E-02	2.74E-01	2.84E+02	8.65E-03	6.05E-03	2.26E-12	1.95E-05	7.28E-15	6.60E-04	2.47E-13
Actinium (89)	Ac-228	9.87E+02	7.02E-04	1.70E+03	1.00E+00	5.36E-02	1.02E-01	4.86E+01	2.06E-02	1.30E-02	1.57E-16	3.18E-05	3.85E-19	6.22E-04	7.53E-18
Actinium (89)	Ac-230	1.79E+05	3.87E-06	1.70E+03	1.00E+00	3.90E-03	1.40E-01	5.00E+01	1.55E-03	1.10E-03	7.41E-20	8.59E-06	5.78E-22	2.16E-04	1.46E-20
Actinium (89)	Ac-231	4.86E+04	1.43E-05	1.70E+03	1.00E+00	1.15E-02	2.74E-01	1.38E+02	4.53E-03	3.21E-03	8.01E-19	1.94E-05	4.85E-21	6.60E-04	1.65E-19
Actinium (89)	Ac-232	1.84E+05	3.77E-06	1.70E+03	1.00E+00	6.37E-03	1.02E-01	3.24E+01	2.32E-03	1.67E-03	1.11E-19	2.43E-06	1.61E-22	1.61E-04	1.07E-20
Actinium (89)	Ac-233	1.51E+05	4.60E-06	1.70E+03	1.00E+00	1.41E-02	.	1.15E+02	5.72E-03	4.07E-03	3.30E-19	1.12E-05	9.09E-22	3.49E-03	2.83E-19
Silver (47)	Ag-100m	1.63E+05	4.26E-06	3.80E+02	1.00E+00	6.69E+00	.	2.04E+01	1.71E+00	1.27E+00	4.11E-17	1.47E-02	4.74E-19	.	.
Silver (47)	Ag-101	3.28E+04	2.11E-05	3.80E+02	1.00E+00	2.82E+01	.	5.46E+01	7.82E+00	5.50E+00	8.88E-16	4.31E-02	6.96E-18	.	.
Silver (47)	Ag-102	2.82E+04	2.45E-05	3.80E+02	1.00E+00	2.53E+02	.	3.40E+01	4.79E+01	1.85E+01	3.50E-15	7.02E+00	1.33E-15	.	.
Silver (47)	Ag-102m	4.73E+04	1.46E-05	3.80E+02	1.00E+00	5.17E+02	.	3.11E+01	9.78E+01	2.26E+01	2.55E-15	8.58E+00	9.70E-16	.	.
Silver (47)	Ag-103	5.54E+03	1.25E-04	3.80E+02	1.00E+00	4.27E+01	.	1.43E+02	9.15E+00	7.16E+00	6.98E-15	9.64E-01	9.39E-16	2.63E+00	2.56E-15
Silver (47)	Ag-104	5.26E+03	1.32E-04	3.80E+02	1.00E+00	1.78E+02	.	4.37E+01	3.37E+01	1.72E+01	1.78E-14	6.54E+00	6.77E-15	.	.
Silver (47)	Ag-104m	1.09E+04	6.37E-05	3.80E+02	1.00E+00	1.55E+02	.	6.45E+01	2.94E+01	1.79E+01	8.96E-15	6.79E+00	3.41E-15	.	.
Silver (47)	Ag-105	6.13E+00	1.13E-01	3.80E+02	1.00E+00	2.30E+01	.	2.46E+02	4.35E+00	3.60E+00	3.24E-12	1.37E+00	1.23E-12	4.22E+00	3.79E-12
Silver (47)	Ag-105m	5.04E+04	1.38E-05	3.80E+02	1.00E+00	2.30E+01	.	2.46E+02	4.36E+00	3.61E+00	3.95E-16	1.37E+00	1.50E-16	4.23E+00	4.63E-16
Silver (47)	Ag-106	1.52E+04	4.56E-05	3.80E+02	1.00E+00	3.22E+02	.	1.74E+02	6.10E+01	3.97E+01	1.45E-14	1.51E+01	5.51E-15	.	.
Silver (47)	Ag-106m	3.05E+01	2.27E-02	3.80E+02	1.00E+00	7.41E+00	.	4.23E+01	1.40E+00	1.15E+00	2.09E-13	4.37E-01	7.95E-14	.	.
Silver (47)	Ag-108	1.54E+05	4.51E-06	3.80E+02	1.00E+00	.	.	5.09E+03	.	5.09E+03	1.88E-13	1.94E+03	7.13E-14	.	.
Silver (47)	Ag-108m	1.66E-03	4.18E+02	3.80E+02	1.00E+00	4.60E+00	.	7.51E+01	8.71E-01	7.25E-01	2.48E-09	2.76E-01	9.42E-10	.	.
Silver (47)	Ag-109m	5.52E+05	1.26E-06	3.80E+02	1.00E+00	3.32E+05	.	3.32E+04	.	3.32E+04	3.44E-13	1.26E+04	1.31E-13	.	.
Silver (47)	Ag-110	8.88E+05	7.80E-07	3.80E+02	1.00E+00	.	.	2.70E+03	.	2.70E+03	1.75E-14	1.03E+03	6.66E-15	.	.
Silver (47)	Ag-110m	1.01E+00	6.84E-01	3.80E+02	1.00E+00	3.82E+00	.	4.26E+01	7.24E-01	6.00E-01	3.42E-12	2.28E-01	1.30E-12	1.27E+00	7.21E-12
Silver (47)	Ag-111	3.40E+01	2.04E-02	3.80E+02	1.00E+00	7.84E+00	.	4.22E+03	1.49E+00	1.25E+00	2.14E-13	4.75E-01	8.14E-14	1.41E+00	2.41E-13
Silver (47)	Ag-111m	3.37E+05	2.05E-06	3.80E+02	1.00E+00	7.90E+00	.	3.75E+03	1.50E+00	1.26E+00	2.17E-17	4.78E-01	8.25E-18	1.42E+00	2.45E-17
Silver (47)	Ag-112	1.94E+03	3.57E-04	3.80E+02	1.00E+00	2.37E+01	.	1.63E+02	4.48E+00	3.69E+00	1.12E-14	1.40E+00	4.24E-15	.	.
Silver (47)	Ag-113	1.13E+03	6.13E-04	3.80E+02	1.00E+00	5.06E-01	.	1.52E+03	3.50E-02	3.27E-02	1.71E-16	3.96E-05	2.07E-19	.	.
Silver (47)	Ag-113m	3.18E+05	2.18E-06	3.80E+02	1.00E+00	5.09E-01	.	4.60E+02	3.51E-02	3.28E-02	6.11E-19	3.96E-05	7.37E-22	.	.
Silver (47)	Ag-114	4.75E+06	1.46E-07	3.80E+02	1.00E+00	.	.	3.98E+02	.	3.98E+02	5.00E-16	1.51E+02	1.90E-16	.	.
Silver (47)	Ag-115	1.82E+04	3.81E-05	3.80E+02	1.00E+00	3.76E-01	.	1.42E+02	1.24E-01	9.32E-02	3.09E-17	5.05E-04	1.67E-19	3.99E-03	1.32E-18
Silver (47)	Ag-116	1.36E+05	5.10E-06	3.80E+02	1.00E+00	.	.	5.16E+01	.	5.16E+01	2.31E-15	1.96E+01	8.78E-16	.	.
Silver (47)	Ag-117	2.97E+05	2.33E-06	3.80E+02	1.00E+00	2.57E+01	.	3.79E+01	2.32E+00	2.02E+00	4.17E-17	2.72E-03	5.63E-20	.	.
Silver (47)	Ag-99	1.76E+05	3.93E-06	3.80E+02	1.00E+00	8.90E+01	.	2.79E+01	2.56E+01	1.16E+01	3.42E-16	1.12E-01	3.29E-18	.	.
Aluminum (13)	Al-26	9.67E-07	7.17E+05	1.50E+03	1.00E+00	2.96E+00	.	4.25E+01	1.23E+00	8.49E-01	1.20E-06	1.27E+00	1.80E-06	.	.
Aluminum (13)	Al-28	1.63E+05	4.26E-06	1.50E+03	1.00E+00	.	.	6.18E+01	.	6.18E+01	5.59E-16	9.28E+01	8.38E-16	.	.
Aluminum (13)	Al-29	5.55E+04	1.25E-05	1.50E+03	1.00E+00	.	.	8.20E+01	.	8.20E+01	2.25E-15	1.23E+02	3.37E-15	.	.
Americium (95)	Am-237	4.99E+03	1.39E-04	4.00E+00	1.00E+00	1.25E-02	.	1.32E+02	5.04E-03	3.59E-03	8.95E-18	5.86E-06	1.46E-20	2.09E-04	5.20E-19
Americium (95)	Am-238	3.72E+03	1.86E-04	4.00E+00	1.00E+00	3.57E-03	1.40E-01	4.41E+01	1.43E-03	1.01E-03	3.40E-18	6.51E-06	2.19E-20	2.01E-04	6.75E-19
Americium (95)	Am-239	5.10E+02	1.36E-03	4.00E+00	1.00E+00	8.89E-03	2.74E-01	1.45E+02	3.57E-03	2.52E-03	6.20E-17	1.13E-05	2.78E-19	3.91E-04	9.61E-18
Americium (95)	Am-240	1.20E+02	5.80E-03	4.00E+00	1.00E+00	5.48E-03	1.02E-01	3.42E+01	2.04E-03	1.47E-03	1.54E-16	2.23E-06	2.35E-19	1.52E-04	1.60E-17

Soil to Groundwater July 2023															
Radionuclides		Isotope-specific Information				Tap Water Dose Compliance Concentrations (DCCs)						Protection of Groundwater Soil Screening Levels			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	K <sub>d</sub> Distribution coefficient (L/kg)	DAF	Ingestion DCC DL=1 (Bq/L)	Inhalation DCC DL=1 (Bq/L)	Immersion DCC DL=1 (Bq/L)	Produce Consumption DCC DL=1 (Bq/L)	Total DCC DL=1 (Bq/L)	Total DCC DL=1 (mg/L)	SSL Dose-based DL=1 (Bq/g)	SSL Dose-based DL=1 (mg/kg)	SSL MCL-based (Bq/g)	SSL MCL-based (mg/kg)
Americium (95)	Am-242	3.79E+02	1.83E-03	4.00E+00	1.00E+00	3.55E-03	1.40E-01	6.52E+01	1.42E-03	1.00E-03	3.37E-17	6.31E-06	2.11E-19	1.64E-04	5.49E-18
Americium (95)	Am-242m	4.91E-03	1.41E+02	4.00E+00	1.00E+00	3.36E-03	1.40E-01	6.51E+01	1.35E-03	9.54E-04	2.46E-12	5.84E-06	1.51E-14	1.64E-04	4.24E-13
Americium (95)	Am-243	9.40E-05	7.37E+03	4.00E+00	1.00E+00	7.70E-03	2.74E-01	1.45E+02	3.12E-03	2.20E-03	2.98E-10	9.71E-06	1.32E-12	3.11E-04	4.22E-11
Americium (95)	Am-244	6.01E+02	1.15E-03	4.00E+00	1.00E+00	5.17E-03	1.02E-01	3.68E+01	1.94E-03	1.39E-03	2.96E-17	2.19E-06	4.65E-20	1.43E-04	3.04E-18
Americium (95)	Am-244m	1.40E+04	4.95E-05	4.00E+00	1.00E+00	5.17E-03	1.02E-01	4.83E+01	1.94E-03	1.39E-03	1.27E-18	2.19E-06	2.00E-21	1.43E-04	1.31E-19
Americium (95)	Am-245	2.96E+03	2.34E-04	4.00E+00	1.00E+00	8.63E-03	.	1.82E+02	3.55E-03	2.52E-03	1.09E-17	5.03E-06	2.18E-20	1.76E-04	7.66E-19
Americium (95)	Am-246	9.34E+03	7.42E-05	4.00E+00	1.00E+00	3.30E-03	1.40E-01	4.65E+01	1.33E-03	9.39E-04	1.30E-18	5.24E-06	7.24E-21	1.06E-04	1.46E-19
Americium (95)	Am-246m	1.46E+04	4.76E-05	4.00E+00	1.00E+00	3.30E-03	1.40E-01	4.19E+01	1.33E-03	9.39E-04	8.32E-19	5.24E-06	4.64E-21	1.06E-04	9.38E-20
Americium (95)	Am-247	1.58E+04	4.38E-05	4.00E+00	1.00E+00	6.83E-03	2.74E-01	9.37E+01	2.79E-03	1.96E-03	1.61E-18	8.62E-06	7.05E-21	3.11E-04	2.55E-19
Argon (18)	Ar-37	7.22E+00	9.60E-02	.	1.00E+00	.	.	.	.	.	.	.	.	.	.
Argon (18)	Ar-39	2.58E-03	2.69E+02	.	1.00E+00	.	.	9.23E+04	.	9.23E+04	7.33E-05	.	.	.	.
Argon (18)	Ar-41	3.32E+03	2.09E-04	.	1.00E+00	.	.	8.88E+01	.	8.88E+01	5.75E-14	.	.	.	.
Argon (18)	Ar-42	2.11E-02	3.29E+01	.	1.00E+00	2.30E+01	.	3.78E+02	2.03E+00	1.86E+00	1.94E-10	2.46E-02	2.57E-12	4.40E-01	4.60E-11
Argon (18)	Ar-43	6.78E+04	1.02E-05	.	1.00E+00	4.24E+01	.	4.62E+01	3.74E+00	3.20E+00	1.06E-16	4.42E-02	1.47E-18	.	.
Argon (18)	Ar-44	3.07E+04	2.26E-05	.	1.00E+00	1.22E+02	.	2.56E+01	1.08E+01	7.15E+00	5.38E-16	1.08E-01	8.10E-18	.	.
Arsenic (33)	As-68	1.44E+05	4.81E-06	0.00E+00	1.00E+00	7.43E+00	.	2.50E+01	6.95E-01	6.20E-01	1.53E-17	4.50E-03	1.11E-19	.	.
Arsenic (33)	As-69	2.39E+04	2.90E-05	0.00E+00	1.00E+00	4.07E+01	.	5.68E+01	4.15E+00	3.54E+00	5.35E-16	5.13E-03	7.77E-19	.	.
Arsenic (33)	As-70	6.92E+03	1.00E-04	0.00E+00	1.00E+00	7.71E+01	.	2.73E+01	1.87E+01	9.70E+00	5.14E-15	1.94E-03	1.03E-18	.	.
Arsenic (33)	As-71	9.30E+01	7.45E-03	0.00E+00	1.00E+00	2.25E+01	.	2.12E+02	5.22E+00	4.16E+00	1.66E-13	8.83E-04	3.54E-17	5.59E+00	2.24E-13
Arsenic (33)	As-72	2.33E+02	2.97E-03	0.00E+00	1.00E+00	5.61E+00	.	6.67E+01	1.36E+00	1.08E+00	1.74E-14	2.15E-04	3.48E-18	.	.
Arsenic (33)	As-73	3.15E+00	2.20E-01	0.00E+00	1.00E+00	3.87E+01	.	3.33E+04	9.36E+00	7.53E+00	9.16E-12	1.51E-03	1.83E-15	7.40E-03	8.99E-15
Arsenic (33)	As-74	1.42E+01	4.87E-02	0.00E+00	1.00E+00	8.08E+00	.	1.60E+02	1.96E+00	1.56E+00	4.25E-13	3.12E-04	8.50E-17	7.40E-04	2.02E-16
Arsenic (33)	As-76	2.35E+02	2.95E-03	0.00E+00	1.00E+00	6.43E+00	.	2.78E+02	1.56E+00	1.25E+00	2.12E-14	2.50E-04	4.24E-18	4.44E-04	7.54E-18
Arsenic (33)	As-77	1.56E+02	4.43E-03	0.00E+00	1.00E+00	2.57E+01	.	1.26E+04	6.23E+00	5.02E+00	1.30E-13	1.00E-03	2.59E-17	1.48E-03	3.82E-17
Arsenic (33)	As-78	4.02E+03	1.73E-04	0.00E+00	1.00E+00	5.20E+01	.	8.75E+01	1.26E+01	9.08E+00	9.25E-15	1.82E-03	1.85E-18	.	.
Arsenic (33)	As-79	4.04E+04	1.71E-05	0.00E+00	1.00E+00	2.90E+00	.	2.37E+03	1.16E-01	1.12E-01	1.15E-17	2.15E-02	2.21E-18	.	.
Astatine (85)	At-204	3.96E+04	1.75E-05	1.00E+01	1.00E+00	1.33E+01	.	1.82E+01	3.43E+00	2.37E+00	6.40E-16	3.37E-01	9.10E-17	1.25E+03	3.38E-13
Astatine (85)	At-205	1.39E+04	4.98E-05	1.00E+01	1.00E+00	8.82E+00	.	2.69E+01	2.11E+00	1.60E+00	1.24E-15	1.42E-01	1.09E-16	4.98E+02	3.85E-13
Astatine (85)	At-206	1.19E+04	5.82E-05	1.00E+01	1.00E+00	4.94E-01	.	1.76E+01	1.92E-01	1.37E-01	1.25E-16	2.55E-02	2.31E-17	1.88E+00	1.71E-15
Astatine (85)	At-207	3.37E+03	2.05E-04	1.00E+01	1.00E+00	6.73E+00	.	2.45E+01	1.42E+00	1.12E+00	3.59E-15	4.90E-02	1.58E-16	3.67E+00	1.18E-14
Astatine (85)	At-208	3.72E+03	1.86E-04	1.00E+01	1.00E+00	6.23E-03	.	3.88E+01	2.65E-03	1.86E-03	5.44E-18	3.89E-04	1.14E-18	1.17E-01	3.44E-16
Astatine (85)	At-209	1.12E+03	6.18E-04	1.00E+01	1.00E+00	6.49E-03	.	5.10E+01	2.75E-03	1.93E-03	1.89E-17	4.02E-04	3.92E-18	.	.
Astatine (85)	At-210	7.49E+02	9.25E-04	1.00E+01	1.00E+00	7.76E-03	.	3.89E+01	3.29E-03	2.31E-03	3.40E-17	4.71E-04	6.92E-18	1.17E-01	1.72E-15
Astatine (85)	At-211	8.42E+02	8.24E-04	1.00E+01	1.00E+00	8.76E-01	.	1.76E+02	1.30E-01	1.13E-01	1.49E-15	1.19E-03	1.57E-17	8.50E+00	1.12E-13
Astatine (85)	At-215	2.19E+11	3.17E-12	1.00E+01	1.00E+00	.	.	2.28E+03	.	2.28E+03	1.18E-19	1.03E+03	5.33E-20	2.67E-01	1.38E-23
Astatine (85)	At-216	7.28E+10	9.51E-12	1.00E+01	1.00E+00	3.85E+01	.	8.33E+01	8.41E+00	6.38E+00	9.92E-22	3.20E+00	4.97E-22	1.08E-01	1.68E-23
Astatine (85)	At-217	6.77E+08	1.02E-09	1.00E+01	1.00E+00	3.96E+01	.	6.81E+02	9.49E+00	7.57E+00	1.27E-19	2.72E+00	4.57E-20	5.30E-03	8.91E-23
Astatine (85)	At-218	1.46E+07	4.76E-08	1.00E+01	1.00E+00	4.89E-03	.	7.65E+01	1.97E-03	1.41E-03	1.10E-21	2.56E-04	2.01E-22	4.97E-03	3.90E-21
Astatine (85)	At-219	3.90E+05	1.78E-06	1.00E+01	1.00E+00	5.34E+01	.	3.29E+02	1.98E+01	1.38E+01	4.07E-16	2.13E+00	6.26E-17	8.37E-02	2.46E-18
Astatine (85)	At-220	9.82E+04	7.06E-06	1.00E+01	1.00E+00	1.27E+00	1.02E-01	5.75E+01	4.61E-01	7.83E-02	9.20E-18	2.37E-03	2.79E-19	5.61E-02	6.60E-18
Gold (79)	Au-186	3.40E+04	2.04E-05	3.00E+04	1.00E+00	3.12E-01	.	3.10E+01	1.04E-01	7.78E-02	2.23E-17	1.47E-02	4.21E-18	.	.
Gold (79)	Au-187	4.34E+04	1.60E-05	3.00E+04	1.00E+00	5.14E+01	.	6.00E+01	1.40E+01	9.30E+00	2.10E-15	5.91E-02	1.34E-17	.	.

Soil to Groundwater July 2023															
Radionuclides		Isotope-specific Information				Tap Water Dose Compliance Concentrations (DCCs)						Protection of Groundwater Soil Screening Levels			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	K <sub>d</sub> Distribution coefficient (L/kg)	DAF	Ingestion DCC DL=1 (Bq/L)	Inhalation DCC DL=1 (Bq/L)	Immersion DCC DL=1 (Bq/L)	Produce Consumption DCC DL=1 (Bq/L)	Total DCC DL=1 (Bq/L)	Total DCC DL=1 (mg/L)	SSL Dose-based DL=1 (Bq/g)	SSL Dose-based DL=1 (mg/kg)	SSL MCL-based (Bq/g)	SSL MCL-based (mg/kg)
Gold (79)	Au-191	1.91E+03	3.63E-04	3.00E+04	1.00E+00	2.33E+01	.	1.44E+02	5.51E+00	4.32E+00	2.27E-14	1.19E-01	6.26E-16	2.69E-01	1.41E-15
Gold (79)	Au-192	1.23E+03	5.64E-04	3.00E+04	1.00E+00	6.20E+01	.	5.85E+01	2.60E+01	1.40E+01	1.14E-13	4.19E+02	3.43E-12		
Gold (79)	Au-193	3.44E+02	2.01E-03	3.00E+04	1.00E+00	6.16E+01	.	8.32E+02	2.14E+01	1.56E+01	4.59E-13	1.19E+00	3.50E-14	2.69E+00	7.90E-14
Gold (79)	Au-193m	5.60E+06	1.24E-07	3.00E+04	1.00E+00	6.16E+01	.	3.63E+02	2.14E+01	1.52E+01	2.75E-17	1.19E+00	2.14E-18	2.69E+00	4.85E-18
Gold (79)	Au-194	1.60E+02	4.34E-03	3.00E+04	1.00E+00	2.63E+01	.	1.12E+02	1.10E+01	7.28E+00	4.64E-13	2.18E+02	1.39E-11		
Gold (79)	Au-195	1.36E+00	5.10E-01	3.00E+04	1.00E+00	3.82E+01	.	1.94E+03	1.61E+01	1.12E+01	8.46E-11	3.37E+02	2.54E-09		
Gold (79)	Au-195m	7.17E+05	9.67E-07	3.00E+04	1.00E+00	3.82E+01	.	4.76E+02	1.61E+01	1.10E+01	1.58E-16	3.31E+02	4.73E-15		
Gold (79)	Au-196	4.09E+01	1.69E-02	3.00E+04	1.00E+00	2.99E+01	.	2.67E+02	1.26E+01	8.56E+00	2.15E-12	2.57E+02	6.45E-11	6.66E+02	1.67E-10
Gold (79)	Au-196m	6.32E+02	1.10E-03	3.00E+04	1.00E+00	1.38E+01	.	1.80E+02	5.81E+00	4.00E+00	6.50E-14	1.20E+02	1.95E-12	6.66E+02	1.08E-11
Gold (79)	Au-198	9.39E+01	7.38E-03	3.00E+04	1.00E+00	9.76E+00	.	3.03E+02	4.10E+00	2.86E+00	3.17E-13	8.58E+01	9.50E-12	1.11E+02	1.23E-11
Gold (79)	Au-198m	1.11E+02	6.22E-03	3.00E+04	1.00E+00	4.52E+00	.	1.35E+02	1.90E+00	1.32E+00	1.23E-13	3.97E+01	3.70E-12	1.11E+02	1.03E-11
Gold (79)	Au-199	8.06E+01	8.60E-03	3.00E+04	1.00E+00	2.23E+01	.	1.35E+03	9.38E+00	6.57E+00	8.51E-13	1.97E+02	2.55E-11	6.66E+02	8.63E-11
Gold (79)	Au-200	7.53E+03	9.21E-05	3.00E+04	1.00E+00	1.49E+02	.	4.16E+02	6.28E+01	4.00E+01	5.57E-14	1.20E+03	1.67E-12		
Gold (79)	Au-200m	3.25E+02	2.13E-03	3.00E+04	1.00E+00	1.02E+01	.	5.99E+01	4.27E+00	2.86E+00	9.24E-14	8.58E+01	2.77E-12		
Gold (79)	Au-201	1.40E+04	4.95E-05	3.00E+04	1.00E+00	4.15E+02	.	3.26E+03	1.74E+02	1.18E+02	8.90E-14	3.55E+03	2.67E-12		
Gold (79)	Au-202	7.59E+05	9.13E-07	3.00E+04	1.00E+00	.	.	6.38E+02	.	6.38E+02	8.91E-15	1.92E+04	2.67E-13		
Barium (56)	Ba-124	3.31E+04	2.09E-05	4.00E-01	1.00E+00	1.47E+02	.	6.92E+01	5.83E+01	2.60E+01	5.11E-15	2.06E-02	4.04E-18		
Barium (56)	Ba-126	3.64E+03	1.90E-04	4.00E-01	1.00E+00	4.04E+01	.	6.96E+01	1.60E+01	9.85E+00	1.79E-14	6.49E-03	1.18E-17		
Barium (56)	Ba-127	2.87E+04	2.42E-05	4.00E-01	1.00E+00	2.13E+02	.	8.70E+01	7.93E+01	3.47E+01	8.06E-15	3.94E-02	9.15E-18		
Barium (56)	Ba-128	1.04E+02	6.66E-03	4.00E-01	1.00E+00	3.81E+00	.	1.29E+02	1.51E+00	1.07E+00	6.92E-14	6.49E-04	4.18E-17		
Barium (56)	Ba-129	2.72E+03	2.55E-04	4.00E-01	1.00E+00	9.86E+01	.	2.11E+02	3.64E+01	2.36E+01	5.87E-14	2.96E-02	7.35E-17		
Barium (56)	Ba-129m	2.81E+03	2.47E-04	4.00E-01	1.00E+00	8.32E+01	.	6.54E+01	3.11E+01	1.68E+01	4.05E-14	1.60E-02	3.86E-17		
Barium (56)	Ba-131	2.20E+01	3.15E-02	4.00E-01	1.00E+00	1.99E+01	.	2.67E+02	7.80E+00	5.49E+00	1.72E-12	3.69E-03	1.15E-15	1.33E-02	4.15E-15
Barium (56)	Ba-131m	2.49E+04	2.78E-05	4.00E-01	1.00E+00	1.98E+01	.	2.36E+02	7.72E+00	5.43E+00	1.49E-15	3.64E-03	1.00E-18	1.33E-02	3.66E-18
Barium (56)	Ba-133	6.59E-02	1.05E+01	4.00E-01	1.00E+00	5.56E+00	.	3.32E+02	2.21E+00	1.57E+00	1.66E-10	9.43E-04	9.98E-14		
Barium (56)	Ba-133m	1.56E+02	4.44E-03	4.00E-01	1.00E+00	4.30E+00	.	2.88E+02	1.70E+00	1.21E+00	5.43E-14	7.29E-04	3.26E-17		
Barium (56)	Ba-135m	2.12E+02	3.28E-03	4.00E-01	1.00E+00	2.40E+01	.	2.54E+03	9.51E+00	6.79E+00	2.27E-13	4.07E-03	1.36E-16		
Barium (56)	Ba-137m	1.43E+05	4.86E-06	4.00E-01	1.00E+00	.	.	2.03E+02	.	2.03E+02	1.02E-14	1.22E-01	6.12E-18		
Barium (56)	Ba-139	4.39E+03	1.58E-04	4.00E-01	1.00E+00	8.27E+01	.	2.28E+03	3.28E+01	2.33E+01	3.87E-14	1.40E-02	2.32E-17		
Barium (56)	Ba-140	1.98E+01	3.49E-02	4.00E-01	1.00E+00	2.15E+00	.	4.61E+01	8.72E-01	6.13E-01	2.27E-13	6.36E-04	2.35E-16	2.00E-03	7.39E-16
Barium (56)	Ba-141	1.99E+04	3.48E-05	4.00E-01	1.00E+00	8.55E+00	.	1.14E+02	3.56E+00	2.46E+00	9.13E-16	1.79E-02	6.62E-18	1.33E+01	4.94E-15
Barium (56)	Ba-142	3.44E+04	2.02E-05	4.00E-01	1.00E+00	4.92E+01	.	3.27E+01	2.04E+01	1.00E+01	2.17E-15	2.93E-02	6.35E-18		
Beryllium (4)	Be-10	4.59E-07	1.51E+06	9.90E+02	1.00E+00	8.70E+00	.	7.62E+04	3.61E+00	2.55E+00	2.91E-06	2.52E+00	2.88E-06		
Beryllium (4)	Be-7	4.75E+00	1.46E-01	9.90E+02	1.00E+00	3.90E+02	.	2.46E+03	1.62E+02	1.09E+02	8.43E-12	1.08E+02	8.35E-12	2.20E+02	1.70E-11
Bismuth (83)	Bi-197	3.92E+04	1.77E-05	4.80E+02	1.00E+00	3.45E+01	.	3.20E+01	4.21E+00	3.36E+00	8.86E-16	4.82E+00	1.27E-15	2.10E+02	5.53E-14
Bismuth (83)	Bi-200	1.00E+04	6.93E-05	4.80E+02	1.00E+00	1.71E+01	.	3.05E+01	6.20E+00	3.96E+00	4.15E-15	9.75E-01	1.02E-15	5.55E+01	5.82E-14
Bismuth (83)	Bi-201	3.37E+03	2.05E-04	4.80E+02	1.00E+00	2.87E+01	.	4.34E+01	8.98E+00	5.91E+00	1.85E-14	1.70E+00	5.32E-15	5.00E+01	1.56E-13
Bismuth (83)	Bi-202	3.53E+03	1.96E-04	4.80E+02	1.00E+00	6.29E-01	.	3.72E+01	2.33E-01	1.69E-01	5.08E-16	2.62E-02	7.86E-17	1.68E+01	5.05E-14
Bismuth (83)	Bi-203	5.16E+02	1.34E-03	4.80E+02	1.00E+00	1.45E+01	.	4.33E+01	3.67E+00	2.74E+00	5.66E-14	8.67E-01	1.79E-14	5.56E+00	1.15E-13
Bismuth (83)	Bi-204	5.41E+02	1.28E-03	4.80E+02	1.00E+00	1.86E+01	.	3.78E+01	4.08E+00	3.08E+00	6.08E-14	1.44E+00	2.86E-14		
Bismuth (83)	Bi-205	1.65E+01	4.19E-02	4.80E+02	1.00E+00	9.03E+00	.	6.83E+01	2.18E+00	1.71E+00	1.11E-12	6.04E-01	3.93E-13		
Bismuth (83)	Bi-206	4.05E+01	1.71E-02	4.80E+02	1.00E+00	5.49E+00	.	3.60E+01	1.20E+00	9.58E-01	2.55E-13	4.60E-01	1.23E-13	1.78E+00	4.74E-13



Soil to Groundwater July 2023															
Radionuclides		Isotope-specific Information				Tap Water Dose Compliance Concentrations (DCCs)						Protection of Groundwater Soil Screening Levels			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	K <sub>d</sub> Distribution coefficient (L/kg)	DAF	Ingestion DCC DL=1 (Bq/L)	Inhalation DCC DL=1 (Bq/L)	Immersion DCC DL=1 (Bq/L)	Produce Consumption DCC DL=1 (Bq/L)	Total DCC DL=1 (Bq/L)	Total DCC DL=1 (mg/L)	SSL Dose-based DL=1 (Bq/g)	SSL Dose-based DL=1 (mg/kg)	SSL MCL-based (Bq/g)	SSL MCL-based (mg/kg)
Bismuth (83)	Bi-208	1.88E-06	3.68E+05	4.80E+02	1.00E+00	9.42E+00	.	4.03E+01	2.06E+00	1.62E+00	9.38E-06	7.78E-01	4.51E-06		
Bismuth (83)	Bi-210	5.05E+01	1.37E-02	4.80E+02	1.00E+00	7.75E-03	.	3.95E+04	3.29E-03	2.31E-03	5.04E-16	4.86E-04	1.06E-16	8.11E-02	1.77E-14
Bismuth (83)	Bi-210m	2.28E-07	3.04E+06	4.80E+02	1.00E+00	6.75E-01	.	4.66E+02	1.47E-01	1.21E-01	5.84E-06	5.81E-02	2.80E-06		
Bismuth (83)	Bi-211	1.70E+05	4.07E-06	4.80E+02	1.00E+00	.	.	2.29E+03	.	2.29E+03	1.49E-13	1.20E+03	7.81E-14	2.67E-01	1.73E-17
Bismuth (83)	Bi-212	6.02E+03	1.15E-04	4.80E+02	1.00E+00	3.85E+01	.	8.34E+01	8.41E+00	6.38E+00	1.18E-14	3.22E+00	5.95E-15	1.08E-01	2.00E-16
Bismuth (83)	Bi-212n	5.20E+04	1.33E-05	4.80E+02	1.00E+00	.	.	1.30E+03	.	1.30E+03	2.77E-13	2.81E+02	5.99E-14		
Bismuth (83)	Bi-213	7.99E+03	8.67E-05	4.80E+02	1.00E+00	3.96E+01	.	6.82E+02	9.49E+00	7.57E+00	1.06E-14	2.72E+00	3.80E-15	8.23E-02	1.15E-16
Bismuth (83)	Bi-214	1.83E+04	3.79E-05	4.80E+02	1.00E+00	4.89E-03	.	7.65E+01	1.97E-03	1.41E-03	8.62E-19	2.56E-04	1.57E-19	4.06E-02	2.49E-17
Bismuth (83)	Bi-215	4.79E+04	1.45E-05	4.80E+02	1.00E+00	5.18E+01	.	3.19E+02	1.92E+01	1.34E+01	3.16E-15	2.06E+00	4.85E-16	8.11E-02	1.91E-17
Bismuth (83)	Bi-216	1.68E+05	4.13E-06	4.80E+02	1.00E+00	1.27E+00	.	5.18E+01	4.61E-01	3.36E-01	2.27E-17	5.26E-02	3.55E-18	5.61E-02	3.79E-18
Berkelium (97)	Bk-245	5.12E+01	1.35E-02	1.00E+00	1.00E+00	8.63E-03	.	1.43E+02	3.55E-03	2.51E-03	6.31E-16	5.03E-06	1.26E-18	1.76E-04	4.43E-17
Berkelium (97)	Bk-246	1.41E+02	4.93E-03	1.00E+00	1.00E+00	3.30E-03	1.40E-01	4.44E+01	1.33E-03	9.39E-04	8.62E-17	5.24E-06	4.82E-19	1.06E-04	9.72E-18
Berkelium (97)	Bk-247	5.02E-04	1.38E+03	1.00E+00	1.00E+00	6.15E-03	2.74E-01	1.25E+02	2.52E-03	1.77E-03	4.58E-11	9.71E-06	2.51E-13	3.11E-04	8.03E-12
Berkelium (97)	Bk-248m	2.56E+02	2.71E-03	1.00E+00	1.00E+00	4.69E-03	1.46E+01	4.03E+01	1.78E-03	1.29E-03	6.56E-17	2.16E-06	1.10E-19	1.44E-04	7.33E-18
Berkelium (97)	Bk-249	7.67E-01	9.04E-01	1.00E+00	1.00E+00	6.72E-03	.	1.27E+02	2.79E-03	1.97E-03	3.36E-14	5.03E-06	8.56E-17	1.76E-04	3.01E-15
Berkelium (97)	Bk-250	1.89E+03	3.67E-04	1.00E+00	1.00E+00	3.14E-03	1.40E-01	4.31E+01	1.26E-03	8.94E-04	6.20E-18	5.25E-06	3.64E-20	1.06E-04	7.35E-19
Berkelium (97)	Bk-251	6.55E+03	1.06E-04	1.00E+00	1.00E+00	5.56E-03	2.74E-01	8.95E+01	2.29E-03	1.61E-03	3.24E-18	8.62E-06	1.73E-20	3.11E-04	6.26E-19
Bromine (35)	Br-72	2.78E+05	2.49E-06	5.50E+01	1.00E+00	1.27E+00	.	2.45E+01	6.31E-02	5.99E-02	8.14E-19	2.11E-04	2.87E-21		
Bromine (35)	Br-73	1.07E+05	6.47E-06	5.50E+01	1.00E+00	2.30E+01	.	4.86E+01	1.83E+00	1.64E+00	5.87E-17	1.50E-03	5.36E-20	7.40E-03	2.64E-19
Bromine (35)	Br-74	1.43E+04	4.83E-05	5.50E+01	1.00E+00	1.27E+02	.	2.37E+01	4.57E+01	1.39E+01	3.76E-15	7.68E-01	2.08E-16		
Bromine (35)	Br-74m	7.92E+03	8.75E-05	5.50E+01	1.00E+00	7.71E+01	.	2.73E+01	2.78E+01	1.17E+01	5.72E-15	6.45E-01	3.16E-16		
Bromine (35)	Br-75	3.77E+03	1.84E-04	5.50E+01	1.00E+00	3.93E+00	.	7.75E+01	1.62E-01	1.55E-01	1.62E-16	3.06E-02	3.19E-17	6.67E+00	6.96E-15
Bromine (35)	Br-76	3.75E+02	1.85E-03	5.50E+01	1.00E+00	2.29E+01	.	4.06E+01	8.26E+00	5.28E+00	5.62E-14	2.92E-01	3.10E-15		
Bromine (35)	Br-76m	1.67E+07	4.15E-08	5.50E+01	1.00E+00	2.30E+01	.	4.04E+01	8.29E+00	5.29E+00	1.26E-18	2.92E-01	6.98E-20		
Bromine (35)	Br-77	1.06E+02	6.51E-03	5.50E+01	1.00E+00	1.13E+02	.	3.87E+02	4.08E+01	2.78E+01	1.06E-12	1.54E+00	5.82E-14		
Bromine (35)	Br-77m	8.51E+04	8.14E-06	5.50E+01	1.00E+00	1.13E+02	.	3.71E+02	4.08E+01	2.77E+01	1.32E-15	1.53E+00	7.26E-17		
Bromine (35)	Br-78	5.64E+04	1.23E-05	5.50E+01	1.00E+00	.	.	1.17E+02	.	1.17E+02	8.48E-15	6.46E+00	4.68E-16		
Bromine (35)	Br-80	2.06E+04	3.36E-05	5.50E+01	1.00E+00	3.25E+02	.	1.46E+03	1.17E+02	8.12E+01	1.65E-14	4.48E+00	9.13E-16		
Bromine (35)	Br-80m	1.37E+03	5.05E-04	5.50E+01	1.00E+00	6.89E+01	.	1.37E+03	2.49E+01	1.80E+01	5.51E-14	9.95E-01	3.04E-15		
Bromine (35)	Br-82	1.72E+02	4.03E-03	5.50E+01	1.00E+00	2.01E+01	.	4.47E+01	7.25E+00	4.76E+00	1.19E-13	2.63E-01	6.57E-15	2.04E-01	5.11E-15
Bromine (35)	Br-82m	5.94E+04	1.17E-05	5.50E+01	1.00E+00	2.06E+01	.	4.58E+01	7.42E+00	4.88E+00	3.53E-16	2.69E-01	1.95E-17	2.09E-01	1.51E-17
Bromine (35)	Br-83	2.53E+03	2.74E-04	5.50E+01	1.00E+00	2.27E+02	.	1.31E+04	8.18E+01	5.98E+01	1.03E-13	3.30E+00	5.69E-15		
Bromine (35)	Br-84	1.15E+04	6.05E-05	5.50E+01	1.00E+00	1.15E+02	.	6.15E+01	4.15E+01	2.04E+01	7.84E-15	1.12E+00	4.33E-16		
Bromine (35)	Br-84m	6.07E+04	1.14E-05	5.50E+01	1.00E+00	.	.	4.17E+01	.	4.17E+01	3.03E-15	2.30E+00	1.67E-16		
Bromine (35)	Br-85	1.26E+05	5.52E-06	5.50E+01	1.00E+00	1.26E+05	.	5.19E+02	.	5.19E+02	1.84E-14	8.35E+01	2.96E-15		
Carbon (6)	C-10	1.14E+06	6.11E-07	2.00E+03	1.00E+00	.	.	6.91E+01	.	6.91E+01	3.19E-17	1.38E+02	6.38E-17		
Carbon (6)	C-11	1.79E+04	3.88E-05	2.00E+03	1.00E+00	4.38E+02	.	1.19E+02	9.55E+01	4.73E+01	1.53E-15	9.46E+01	3.06E-15		
Carbon (6)	C-14	1.22E-04	5.70E+03	2.00E+03	1.00E+00	2.14E+01	5.25E-01	4.09E+06	4.68E+00	4.62E-01	2.79E-09	9.24E-01	5.58E-09	1.48E+02	8.94E-07
Calcium (20)	Ca-41	6.79E-06	1.02E+05	8.00E+00	1.00E+00	4.58E+01	.	.	4.66E+00	4.23E+00	1.34E-06	3.47E-02	1.10E-08		
Calcium (20)	Ca-45	1.55E+00	4.46E-01	8.00E+00	1.00E+00	1.30E+01	.	7.12E+05	1.33E+00	1.20E+00	1.83E-12	9.87E-03	1.50E-14	3.03E-03	4.60E-15
Calcium (20)	Ca-47	5.58E+01	1.24E-02	8.00E+00	1.00E+00	4.85E+00	.	9.98E+01	6.19E-01	5.46E-01	2.41E-14	4.98E-03	2.20E-16	2.42E-02	1.07E-15
Calcium (20)	Ca-49	4.18E+04	1.66E-05	8.00E+00	1.00E+00	1.23E+02	.	3.26E+01	5.21E+01	1.73E+01	1.06E-15	2.67E-01	1.64E-17		



Soil to Groundwater July 2023															
Radionuclides		Isotope-specific Information				Tap Water Dose Compliance Concentrations (DCCs)						Protection of Groundwater Soil Screening Levels			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	K <sub>d</sub> Distribution coefficient (L/kg)	DAF	Ingestion DCC DL=1 (Bq/L)	Inhalation DCC DL=1 (Bq/L)	Immersion DCC DL=1 (Bq/L)	Produce Consumption DCC DL=1 (Bq/L)	Total DCC DL=1 (Bq/L)	Total DCC DL=1 (mg/L)	SSL Dose-based DL=1 (Bq/g)	SSL Dose-based DL=1 (mg/kg)	SSL MCL-based (Bq/g)	SSL MCL-based (mg/kg)
Cadmium (48)	Cd-102	6.62E+04	1.05E-05	1.00E+00	1.00E+00	4.89E+02	.	2.57E+01	9.27E+01	1.93E+01	1.56E-15	1.71E-01	1.38E-17		
Cadmium (48)	Cd-103	4.99E+04	1.39E-05	1.00E+00	1.00E+00	4.27E+01	.	3.94E+01	9.15E+00	6.33E+00	6.85E-16	6.12E-02	6.62E-18	2.63E+00	2.84E-16
Cadmium (48)	Cd-104	6.31E+03	1.10E-04	1.00E+00	1.00E+00	6.13E+01	.	5.75E+01	5.60E+00	4.71E+00	4.07E-15	7.66E-03	6.62E-18		
Cadmium (48)	Cd-105	6.56E+03	1.06E-04	1.00E+00	1.00E+00	2.11E+01	.	6.52E+01	3.47E+00	2.85E+00	2.39E-15	1.60E-02	1.34E-17	4.23E+00	3.55E-15
Cadmium (48)	Cd-107	9.34E+02	7.42E-04	1.00E+00	1.00E+00	1.58E+02	.	1.08E+04	1.08E+01	1.01E+01	6.06E-14	1.21E-02	7.27E-17		
Cadmium (48)	Cd-109	5.48E-01	1.26E+00	1.00E+00	1.00E+00	5.38E+00	.	2.27E+04	3.68E-01	3.44E-01	3.59E-12	4.13E-04	4.30E-15	2.66E-02	2.78E-13
Cadmium (48)	Cd-111m	7.51E+03	9.23E-05	1.00E+00	1.00E+00	7.50E+02	.	4.47E+02	5.12E+01	4.33E+01	3.35E-14	5.19E-02	4.02E-17		
Cadmium (48)	Cd-113	9.00E-17	7.70E+15	1.00E+00	1.00E+00	5.16E-01	.	4.34E+05	3.52E-02	3.30E-02	2.17E+03	3.96E-05	2.60E+00		
Cadmium (48)	Cd-113m	4.91E-02	1.41E+01	1.00E+00	1.00E+00	5.27E-01	.	1.11E+05	3.60E-02	3.37E-02	4.06E-12	4.04E-05	4.87E-15		
Cadmium (48)	Cd-115	1.14E+02	6.10E-03	1.00E+00	1.00E+00	3.80E-01	.	3.49E+02	1.27E-01	9.52E-02	5.06E-15	5.42E-04	2.88E-17	3.99E-03	2.12E-16
Cadmium (48)	Cd-115m	5.67E+00	1.22E-01	1.00E+00	1.00E+00	3.40E-01	.	2.99E+03	9.26E-02	7.28E-02	7.74E-14	2.38E-04	2.53E-16	3.99E-03	4.25E-15
Cadmium (48)	Cd-117	2.44E+03	2.84E-04	1.00E+00	1.00E+00	2.47E+01	.	7.75E+01	2.30E+00	2.05E+00	5.17E-15	2.73E-03	6.87E-18		
Cadmium (48)	Cd-117m	1.81E+03	3.84E-04	1.00E+00	1.00E+00	3.26E+01	.	4.21E+01	2.44E+00	2.15E+00	7.31E-15	2.69E-03	9.14E-18		
Cadmium (48)	Cd-118	7.24E+03	9.57E-05	1.00E+00	1.00E+00	5.43E+01	.	1.09E+03	3.70E+00	3.46E+00	2.95E-15	4.16E-03	3.56E-18		
Cadmium (48)	Cd-119	1.35E+05	5.12E-06	1.00E+00	1.00E+00	2.40E+02	.	6.21E+01	9.94E+01	3.30E+01	1.52E-15	8.22E-02	3.79E-18		
Cadmium (48)	Cd-119m	1.66E+05	4.19E-06	1.00E+00	1.00E+00	2.86E+03	.	3.72E+01	3.21E+02	3.30E+01	1.24E-15	5.88E-02	2.21E-18		
Cerium (58)	Ce-130	1.59E+04	4.36E-05	1.20E+03	1.00E+00	1.45E+02	.	4.38E+01	6.06E+01	2.16E+01	9.27E-15	3.80E+01	1.63E-14		
Cerium (58)	Ce-131	3.57E+04	1.94E-05	1.20E+03	1.00E+00	1.78E+01	.	4.41E+01	7.03E+00	4.52E+00	8.70E-16	3.69E-03	7.09E-19	1.33E-02	2.56E-18
Cerium (58)	Ce-132	1.73E+03	4.01E-04	1.20E+03	1.00E+00	1.38E+01	.	5.23E+01	5.77E+00	3.77E+00	1.51E-14	8.17E+00	3.27E-14		
Cerium (58)	Ce-133	3.76E+03	1.85E-04	1.20E+03	1.00E+00	5.21E+00	.	1.19E+02	2.07E+00	1.47E+00	2.72E-15	9.43E-04	1.75E-18		
Cerium (58)	Ce-133m	1.24E+03	5.59E-04	1.20E+03	1.00E+00	4.93E+00	.	5.31E+01	1.97E+00	1.37E+00	7.71E-15	9.43E-04	5.31E-18		
Cerium (58)	Ce-134	8.00E+01	8.66E-03	1.20E+03	1.00E+00	3.74E+00	.	1.66E+02	1.57E+00	1.10E+00	9.62E-14	1.32E+00	1.16E-13		
Cerium (58)	Ce-135	3.43E+02	2.02E-03	1.20E+03	1.00E+00	3.61E+01	.	1.47E+02	1.51E+01	9.93E+00	2.05E-13	1.30E+01	2.67E-13		
Cerium (58)	Ce-137	6.75E+02	1.03E-03	1.20E+03	1.00E+00	9.25E+01	.	4.51E+03	3.86E+01	2.71E+01	2.88E-13	7.80E+01	8.31E-13		
Cerium (58)	Ce-137m	1.76E+02	3.93E-03	1.20E+03	1.00E+00	1.50E+01	.	1.74E+03	6.27E+00	4.41E+00	1.80E-13	5.85E+00	2.38E-13		
Cerium (58)	Ce-139	1.84E+00	3.77E-01	1.20E+03	1.00E+00	3.88E+01	.	8.95E+02	1.62E+01	1.13E+01	4.48E-11	1.36E+01	5.38E-11		
Cerium (58)	Ce-141	7.78E+00	8.91E-02	1.20E+03	1.00E+00	1.39E+01	.	1.72E+03	5.81E+00	4.09E+00	3.88E-12	4.90E+00	4.66E-12	1.33E+01	1.27E-11
Cerium (58)	Ce-143	1.84E+02	3.77E-03	1.20E+03	1.00E+00	4.29E+00	.	4.54E+02	1.78E+00	1.26E+00	5.13E-14	1.05E+00	4.29E-14	1.56E+00	6.37E-14
Cerium (58)	Ce-144	8.88E-01	7.81E-01	1.20E+03	1.00E+00	2.26E-01	.	1.95E+03	9.52E-02	6.70E-02	5.70E-13	4.61E-02	3.92E-13	2.84E-01	2.42E-12
Cerium (58)	Ce-145	1.21E+05	5.73E-06	1.20E+03	1.00E+00	2.49E+01	.	1.46E+02	1.03E+01	6.93E+00	4.35E-16	4.60E+00	2.89E-16		
Californium (98)	Cf-244	1.88E+04	3.69E-05	1.00E+00	1.00E+00	1.75E-02	1.02E-01	7.58E+01	7.01E-03	4.77E-03	3.25E-18	4.78E-06	3.26E-21	5.13E-04	3.50E-19
Californium (98)	Cf-246	1.70E+02	4.08E-03	1.00E+00	1.00E+00	3.55E-03	1.40E-01	6.59E+01	1.42E-03	1.01E-03	7.63E-17	6.46E-06	4.90E-19	1.85E-04	1.40E-17
Californium (98)	Cf-247	1.95E+03	3.55E-04	1.00E+00	1.00E+00	6.15E-03	2.74E-01	1.15E+02	2.52E-03	1.77E-03	1.18E-17	9.71E-06	6.45E-20	3.11E-04	2.07E-18
Californium (98)	Cf-248	7.57E-01	9.15E-01	1.00E+00	1.00E+00	5.08E-03	1.02E-01	4.86E+01	1.91E-03	1.37E-03	2.35E-14	2.19E-06	3.76E-17	1.43E-04	2.45E-15
Californium (98)	Cf-249	1.97E-03	3.51E+02	1.00E+00	1.00E+00	6.73E-03	.	1.27E+02	2.79E-03	1.97E-03	1.30E-11	5.03E-06	3.32E-14	1.76E-04	1.17E-12
Californium (98)	Cf-250	5.30E-02	1.31E+01	1.00E+00	1.00E+00	3.14E-03	1.40E-01	6.42E+01	1.26E-03	8.94E-04	2.21E-13	5.25E-06	1.30E-15	1.06E-04	2.62E-14
Californium (98)	Cf-251	7.70E-04	9.00E+02	1.00E+00	1.00E+00	5.56E-03	2.74E-01	9.50E+01	2.29E-03	1.61E-03	2.75E-11	8.62E-06	1.47E-13	3.11E-04	5.32E-12
Californium (98)	Cf-252	2.62E-01	2.65E+00	1.00E+00	1.00E+00	3.92E-03	1.02E-01	2.75E+01	1.53E-03	1.09E-03	5.49E-14	2.17E-06	1.09E-16	1.53E-04	7.70E-15
Californium (98)	Cf-253	1.42E+01	4.88E-02	1.00E+00	1.00E+00	6.68E-03	.	1.27E+02	2.77E-03	1.96E-03	1.83E-15	5.03E-06	4.70E-18	1.76E-04	1.65E-16
Californium (98)	Cf-254	4.18E+00	1.66E-01	1.00E+00	1.00E+00	2.17E-02	1.40E-01	6.62E+00	9.26E-03	6.20E-03	1.98E-14	2.47E-04	7.87E-16	1.31E-01	4.19E-13
Californium (98)	Cf-255	4.29E+03	1.62E-04	1.00E+00	1.00E+00	5.53E-03	2.74E-01	9.42E+01	2.27E-03	1.60E-03	5.00E-18	8.62E-06	2.69E-20	3.11E-04	9.72E-19
Chlorine (17)	Cl-34	1.43E+07	4.84E-08	3.00E-01	1.00E+00	.	.	1.16E+02	.	1.16E+02	1.44E-17	5.79E-02	7.21E-21		

Soil to Groundwater July 2023															
Radionuclides		Isotope-specific Information				Tap Water Dose Compliance Concentrations (DCCs)						Protection of Groundwater Soil Screening Levels			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	K <sub>d</sub> Distribution coefficient (L/kg)	DAF	Ingestion DCC DL=1 (Bq/L)	Inhalation DCC DL=1 (Bq/L)	Immersion DCC DL=1 (Bq/L)	Produce Consumption DCC DL=1 (Bq/L)	Total DCC DL=1 (Bq/L)	Total DCC DL=1 (mg/L)	SSL Dose-based DL=1 (Bq/g)	SSL Dose-based DL=1 (mg/kg)	SSL MCL-based (Bq/g)	SSL MCL-based (mg/kg)
Chlorine (17)	Cl-36	2.30E-06	3.01E+05	3.00E-01	1.00E+00	1.09E+01	.	6.09E+04	6.02E-02	5.99E-02	4.91E-08	3.00E-05	2.46E-11	1.30E-02	1.06E-08
Chlorine (17)	Cl-38	9.78E+03	7.09E-05	3.00E-01	1.00E+00	8.70E+01	.	7.48E+01	4.79E-01	4.73E-01	9.64E-17	2.37E-04	4.82E-20	1.85E-02	3.77E-18
Chlorine (17)	Cl-39	6.55E+03	1.06E-04	3.00E-01	1.00E+00	1.20E+02	.	7.87E+01	6.61E-01	6.52E-01	2.04E-16	3.26E-04	1.02E-19	.	.
Chlorine (17)	Cl-40	2.70E+05	2.57E-06	3.00E-01	1.00E+00	.	.	2.61E+01	.	2.61E+01	2.03E-16	1.30E-02	1.01E-19	.	.
Curium (96)	Cm-238	2.53E+03	2.74E-04	4.00E+00	1.00E+00	3.58E-03	1.40E-01	4.29E+01	1.43E-03	1.01E-03	5.01E-18	6.54E-06	3.23E-20	2.02E-04	9.97E-19
Curium (96)	Cm-239	2.09E+03	3.31E-04	4.00E+00	1.00E+00	8.89E-03	2.74E-01	1.13E+02	3.57E-03	2.52E-03	1.51E-17	1.13E-05	6.77E-20	3.91E-04	2.34E-18
Curium (96)	Cm-240	9.37E+00	7.40E-02	4.00E+00	1.00E+00	1.75E-02	1.02E-01	7.58E+01	7.01E-03	4.77E-03	6.41E-15	4.78E-06	6.42E-18	5.13E-04	6.89E-16
Curium (96)	Cm-241	7.71E+00	8.99E-02	4.00E+00	1.00E+00	1.03E-02	.	1.19E+02	4.19E-03	2.97E-03	4.87E-15	5.42E-06	8.88E-18	1.92E-04	3.14E-16
Curium (96)	Cm-242	1.55E+00	4.46E-01	4.00E+00	1.00E+00	3.55E-03	1.40E-01	6.59E+01	1.42E-03	1.01E-03	8.23E-15	6.46E-06	5.28E-17	1.85E-04	1.51E-15
Curium (96)	Cm-243	2.38E-02	2.91E+01	4.00E+00	1.00E+00	7.95E-03	2.74E-01	1.63E+02	3.21E-03	2.27E-03	1.21E-12	1.01E-05	5.40E-15	3.35E-04	1.79E-13
Curium (96)	Cm-244	3.83E-02	1.81E+01	4.00E+00	1.00E+00	5.17E-03	1.02E-01	4.86E+01	1.94E-03	1.39E-03	4.65E-13	2.19E-06	7.31E-16	1.43E-04	4.77E-14
Curium (96)	Cm-245	8.15E-05	8.50E+03	4.00E+00	1.00E+00	8.63E-03	.	1.91E+02	3.55E-03	2.52E-03	3.96E-10	5.03E-06	7.92E-13	1.76E-04	2.78E-11
Curium (96)	Cm-246	1.46E-04	4.76E+03	4.00E+00	1.00E+00	3.30E-03	1.40E-01	6.45E+01	1.33E-03	9.39E-04	8.32E-11	5.24E-06	4.65E-13	1.06E-04	9.38E-12
Curium (96)	Cm-247	4.44E-08	1.56E+07	4.00E+00	1.00E+00	6.83E-03	2.74E-01	1.04E+02	2.79E-03	1.96E-03	5.73E-07	8.62E-06	2.51E-09	3.11E-04	9.08E-08
Curium (96)	Cm-248	1.99E-06	3.48E+05	4.00E+00	1.00E+00	3.97E-03	1.02E-01	3.01E+01	1.55E-03	1.10E-03	7.19E-09	2.10E-06	1.37E-11	1.48E-04	9.66E-10
Curium (96)	Cm-249	5.68E+03	1.22E-04	4.00E+00	1.00E+00	6.72E-03	.	1.24E+02	2.79E-03	1.97E-03	4.53E-18	5.03E-06	1.16E-20	1.76E-04	4.06E-19
Curium (96)	Cm-250	8.35E-05	8.30E+03	4.00E+00	1.00E+00	1.87E-03	1.40E-01	7.96E+00	7.91E-04	5.54E-04	8.69E-11	2.42E-06	3.80E-13	4.07E-04	6.40E-11
Curium (96)	Cm-251	2.17E+04	3.20E-05	4.00E+00	1.00E+00	5.56E-03	2.74E-01	8.26E+01	2.29E-03	1.61E-03	9.78E-19	8.62E-06	5.24E-21	3.11E-04	1.89E-19
Cobalt (27)	Co-54m	2.46E+05	2.82E-06	4.80E+02	1.00E+00	.	.	2.96E+01	.	2.96E+01	3.41E-16	1.42E+01	1.64E-16	.	.
Cobalt (27)	Co-55	3.46E+02	2.00E-03	4.80E+02	1.00E+00	7.45E+00	.	5.94E+01	2.12E+00	1.60E+00	1.34E-14	8.75E-01	7.29E-15	6.51E+01	5.43E-13
Cobalt (27)	Co-56	3.28E+00	2.12E-01	4.80E+02	1.00E+00	3.94E+00	.	3.09E+01	1.06E+00	8.12E-01	7.28E-13	3.90E-01	3.50E-13	.	.
Cobalt (27)	Co-57	9.31E-01	7.44E-01	4.80E+02	1.00E+00	4.33E+01	.	1.06E+03	1.16E+01	9.09E+00	2.92E-11	4.36E+00	1.40E-11	1.78E+01	5.71E-11
Cobalt (27)	Co-58	3.57E+00	1.94E-01	4.80E+02	1.00E+00	1.34E+01	.	1.23E+02	3.60E+00	2.78E+00	2.37E-12	1.33E+00	1.14E-12	5.33E+00	4.54E-12
Cobalt (27)	Co-58m	6.72E+02	1.03E-03	4.80E+02	1.00E+00	1.30E+01	.	1.23E+02	3.50E+00	2.70E+00	1.22E-14	1.29E+00	5.86E-15	5.16E+00	2.34E-14
Cobalt (27)	Co-60	1.31E-01	5.27E+00	4.80E+02	1.00E+00	2.47E+00	.	4.58E+01	6.63E-01	5.17E-01	1.24E-11	2.48E-01	5.94E-12	1.78E+00	4.25E-11
Cobalt (27)	Co-60m	3.48E+04	1.99E-05	4.80E+02	1.00E+00	2.48E+00	.	4.58E+01	6.64E-01	5.18E-01	4.68E-17	2.49E-01	2.25E-17	1.78E+00	1.61E-16
Cobalt (27)	Co-61	3.68E+03	1.88E-04	4.80E+02	1.00E+00	1.36E+02	.	1.36E+03	3.64E+01	2.81E+01	2.44E-14	1.35E+01	1.17E-14	.	.
Cobalt (27)	Co-62	2.43E+05	2.85E-06	4.80E+02	1.00E+00	.	.	6.95E+01	.	6.95E+01	9.30E-16	3.34E+01	4.47E-16	.	.
Cobalt (27)	Co-62m	2.62E+04	2.65E-05	4.80E+02	1.00E+00	2.09E+02	.	4.20E+01	5.62E+01	2.16E+01	2.68E-15	1.04E+01	1.29E-15	.	.
Chromium (24)	Cr-48	2.82E+02	2.46E-03	0.00E+00	1.00E+00	4.87E+00	.	3.51E+01	1.93E+00	1.33E+00	1.19E-14	3.09E-03	2.77E-17	1.00E+00	8.94E-15
Chromium (24)	Cr-49	8.61E+03	8.05E-05	0.00E+00	1.00E+00	1.27E+02	.	1.16E+02	5.34E+01	2.84E+01	8.47E-15	6.99E-03	2.09E-18	.	.
Chromium (24)	Cr-51	9.13E+00	7.59E-02	0.00E+00	1.00E+00	2.70E+02	.	3.87E+03	1.16E+02	7.92E+01	2.32E-11	1.58E-02	4.64E-15	4.44E-02	1.30E-14
Chromium (24)	Cr-55	1.04E+05	6.65E-06	0.00E+00	1.00E+00	.	.	9.09E+03	.	9.09E+03	2.52E-13	1.82E+00	5.03E-17	.	.
Chromium (24)	Cr-56	6.13E+04	1.13E-05	0.00E+00	1.00E+00	3.98E+01	.	6.44E+01	5.95E+00	4.79E+00	2.29E-16	3.04E-01	1.46E-17	1.33E+01	6.38E-16
Cesium (55)	Cs-121	1.41E+05	4.92E-06	1.00E+01	1.00E+00	2.01E+01	.	3.30E+01	3.41E+00	2.68E+00	1.21E-16	5.56E-03	2.50E-19	.	.
Cesium (55)	Cs-121m	1.79E+05	3.87E-06	1.00E+01	1.00E+00	2.01E+01	.	3.13E+01	3.41E+00	2.67E+00	9.46E-17	5.55E-03	1.97E-19	.	.
Cesium (55)	Cs-123	6.19E+04	1.12E-05	1.00E+01	1.00E+00	7.48E+00	.	6.47E+01	1.29E+00	1.08E+00	1.12E-16	1.87E-03	1.94E-19	.	.
Cesium (55)	Cs-124	7.10E+05	9.77E-07	1.00E+01	1.00E+00	.	.	1.02E+02	.	1.02E+02	9.33E-16	1.04E+00	9.52E-18	.	.
Cesium (55)	Cs-125	8.09E+03	8.56E-05	1.00E+01	1.00E+00	7.16E-01	.	1.21E+02	2.10E-01	1.62E-01	1.31E-16	3.25E-05	2.63E-20	.	.
Cesium (55)	Cs-126	2.22E+05	3.12E-06	1.00E+01	1.00E+00	.	.	1.04E+02	.	1.04E+02	3.08E-15	1.06E+00	3.14E-17	.	.
Cesium (55)	Cs-127	9.71E+02	7.13E-04	1.00E+01	1.00E+00	4.39E+02	.	1.82E+02	1.53E+02	7.00E+01	4.80E-13	8.37E-01	5.74E-15	.	.
Cesium (55)	Cs-128	1.00E+05	6.93E-06	1.00E+01	1.00E+00	.	.	1.36E+02	.	1.36E+02	9.10E-15	1.38E+00	9.28E-17	.	.

Soil to Groundwater July 2023															
Radionuclides		Isotope-specific Information				Tap Water Dose Compliance Concentrations (DCCs)						Protection of Groundwater Soil Screening Levels			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	K <sub>d</sub> Distribution coefficient (L/kg)	DAF	Ingestion DCC DL=1 (Bq/L)	Inhalation DCC DL=1 (Bq/L)	Immersion DCC DL=1 (Bq/L)	Produce Consumption DCC DL=1 (Bq/L)	Total DCC DL=1 (Bq/L)	Total DCC DL=1 (mg/L)	SSL Dose-based DL=1 (Bq/g)	SSL Dose-based DL=1 (mg/kg)	SSL MCL-based (Bq/g)	SSL MCL-based (mg/kg)
Cesium (55)	Cs-130	1.25E+04	5.56E-05	1.00E+01	1.00E+00	3.81E+02	.	2.45E+02	1.33E+02	7.03E+01	3.84E-14	7.17E-01	3.92E-16		
Cesium (55)	Cs-130m	1.05E+05	6.58E-06	1.00E+01	1.00E+00	3.82E+02	.	2.24E+02	1.33E+02	6.86E+01	4.44E-15	7.00E-01	4.53E-17		
Cesium (55)	Cs-131	2.61E+01	2.65E-02	1.00E+01	1.00E+00	1.88E+02	.	2.10E+04	6.57E+01	4.86E+01	1.28E-11	4.95E-01	1.30E-13	7.55E+00	1.99E-12
Cesium (55)	Cs-132	3.90E+01	1.78E-02	1.00E+01	1.00E+00	2.26E+01	.	1.72E+02	7.90E+00	5.66E+00	1.00E-12	5.78E-02	1.02E-14		
Cesium (55)	Cs-134	3.36E-01	2.06E+00	1.00E+01	1.00E+00	7.26E-01	.	7.72E+01	2.54E-01	1.87E+01	3.92E-12	1.91E-03	4.00E-14	3.02E-02	6.32E-13
Cesium (55)	Cs-134m	2.09E+03	3.31E-04	1.00E+01	1.00E+00	7.25E-01	.	7.63E+01	2.53E-01	1.87E-01	6.29E-16	1.91E-03	6.42E-18	3.01E-02	1.01E-16
Cesium (55)	Cs-135	3.01E-07	2.30E+06	1.00E+01	1.00E+00	5.14E+00	.	4.98E+05	1.80E+00	1.33E+00	3.13E-05	1.36E-02	3.19E-07	3.40E-01	7.98E-06
Cesium (55)	Cs-135m	6.87E+03	1.01E-04	1.00E+01	1.00E+00	5.09E+00	.	7.43E+01	1.78E+00	1.30E+00	1.34E-15	1.32E-02	1.36E-17	3.40E-01	3.50E-16
Cesium (55)	Cs-136	1.92E+01	3.61E-02	1.00E+01	1.00E+00	3.93E+00	.	5.55E+01	1.37E+00	1.00E+00	3.71E-13	1.02E-02	3.79E-15	3.02E-01	1.12E-13
Cesium (55)	Cs-137	2.30E-02	3.02E+01	1.00E+01	1.00E+00	1.02E+00	.	2.14E+02	3.57E-01	2.64E-01	8.25E-11	2.64E-03	8.26E-13	7.55E-02	2.36E-11
Cesium (55)	Cs-138	1.09E+04	6.36E-05	1.00E+01	1.00E+00	1.06E+02	.	4.76E+01	3.70E+01	1.74E+01	1.16E-14	1.78E-01	1.18E-16		
Cesium (55)	Cs-138m	1.25E+05	5.54E-06	1.00E+01	1.00E+00	1.31E+02	.	4.88E+01	4.57E+01	2.00E+01	1.16E-15	2.04E-01	1.18E-17		
Cesium (55)	Cs-139	3.93E+04	1.76E-05	1.00E+01	1.00E+00	8.27E+01	.	2.98E+02	3.28E+01	2.18E+01	4.04E-15	1.39E-02	2.58E-18		
Cesium (55)	Cs-140	3.43E+05	2.02E-06	1.00E+01	1.00E+00	2.15E+00	.	2.64E+01	8.72E-01	6.07E-01	1.30E-17	6.35E-04	1.36E-20	2.00E-03	4.28E-20
Copper (29)	Cu-57	1.11E+08	6.22E-09	5.30E+02	1.00E+00	9.15E+00	.	3.59E+01	3.27E+00	2.26E+00	6.06E-20	7.14E-01	1.92E-20	1.78E+01	4.77E-19
Copper (29)	Cu-59	2.68E+05	2.58E-06	5.30E+02	1.00E+00	1.70E+02	.	8.20E+01	6.69E+01	3.03E+01	3.50E-16	1.03E+01	1.19E-16	3.11E+00	3.59E-17
Copper (29)	Cu-60	1.54E+04	4.51E-05	5.30E+02	1.00E+00	1.45E+02	.	2.91E+01	4.21E+01	1.54E+01	3.15E-15	8.16E+00	1.67E-15		
Copper (29)	Cu-61	1.82E+03	3.80E-04	5.30E+02	1.00E+00	9.11E+01	.	1.47E+02	2.64E+01	1.80E+01	3.15E-14	9.52E+00	1.67E-14		
Copper (29)	Cu-62	3.77E+04	1.84E-05	5.30E+02	1.00E+00	.	.	1.19E+02	.	1.19E+02	1.03E-14	6.33E+01	5.46E-15		
Copper (29)	Cu-64	4.78E+02	1.45E-03	5.30E+02	1.00E+00	8.53E+01	.	6.56E+02	2.47E+01	1.86E+01	1.31E-13	9.87E+00	6.93E-14	1.77E+01	1.24E-13
Copper (29)	Cu-66	7.11E+04	9.74E-06	5.30E+02	1.00E+00	.	.	1.06E+03	.	1.06E+03	5.18E-14	5.64E+02	2.75E-14		
Copper (29)	Cu-67	9.82E+01	7.06E-03	5.30E+02	1.00E+00	3.12E+01	.	1.09E+03	9.04E+00	6.96E+00	2.49E-13	3.69E+00	1.32E-13		
Copper (29)	Cu-69	1.28E+05	5.42E-06	5.30E+02	1.00E+00	3.28E+02	.	2.17E+02	1.42E+01	1.28E+01	3.63E-16	1.16E+01	3.30E-16	2.11E+02	5.97E-15
Dysprosium (66)	Dy-148	1.10E+05	6.28E-06	1.50E+03	1.00E+00	1.88E-01	.	3.83E+01	7.95E-02	5.58E-02	3.93E-18	3.64E-02	2.56E-18		
Dysprosium (66)	Dy-149	8.67E+04	7.99E-06	1.50E+03	1.00E+00	1.24E+01	.	3.29E+01	5.20E+00	3.29E+00	2.97E-16	3.48E+00	3.13E-16		
Dysprosium (66)	Dy-150	5.08E+04	1.36E-05	1.50E+03	1.00E+00	1.18E-01	.	4.19E+01	5.03E-02	3.53E-02	5.46E-18	2.83E-02	4.38E-18		
Dysprosium (66)	Dy-151	2.03E+04	3.41E-05	1.50E+03	1.00E+00	3.08E+00	.	4.91E+01	1.31E+00	9.02E-01	3.51E-16	9.00E-01	3.50E-16	9.20E+00	3.58E-15
Dysprosium (66)	Dy-152	2.55E+03	2.72E-04	1.50E+03	1.00E+00	8.38E-02	.	6.68E+01	3.55E-02	2.49E-02	7.79E-17	1.82E-02	5.68E-17	2.13E-01	6.64E-16
Dysprosium (66)	Dy-153	9.49E+02	7.31E-04	1.50E+03	1.00E+00	1.38E+01	.	9.83E+01	5.82E+00	3.93E+00	3.33E-14	4.93E+00	4.17E-14	1.44E+01	1.22E-13
Dysprosium (66)	Dy-154	2.31E-07	3.00E+06	1.50E+03	1.00E+00	6.44E-02	.	.	2.73E-02	1.92E-02	6.71E-07	1.77E-02	6.19E-07		
Dysprosium (66)	Dy-155	6.13E+02	1.13E-03	1.50E+03	1.00E+00	2.54E+01	.	1.50E+02	1.07E+01	7.17E+00	9.51E-14	2.05E+01	2.72E-13		
Dysprosium (66)	Dy-157	7.46E+02	9.29E-04	1.50E+03	1.00E+00	1.04E+02	.	3.72E+02	4.40E+01	2.86E+01	3.15E-13	5.95E+01	6.57E-13		
Dysprosium (66)	Dy-159	1.75E+00	3.96E-01	1.50E+03	1.00E+00	9.62E+01	.	5.09E+03	4.07E+01	2.84E+01	1.35E-10	4.26E+01	2.03E-10		
Dysprosium (66)	Dy-165	2.60E+03	2.66E-04	1.50E+03	1.00E+00	9.11E+01	.	4.33E+03	3.85E+01	2.69E+01	8.94E-14	4.03E+01	1.34E-13	5.55E+01	1.85E-13
Dysprosium (66)	Dy-165m	2.90E+05	2.39E-06	1.50E+03	1.00E+00	9.32E+01	.	2.80E+03	3.94E+01	2.74E+01	8.18E-16	4.11E+01	1.23E-15	5.06E+00	1.51E-16
Dysprosium (66)	Dy-166	7.44E+01	9.32E-03	1.50E+03	1.00E+00	3.22E+00	.	1.89E+03	1.36E+00	9.54E-01	1.12E-13	1.12E+00	1.31E-13	3.10E+00	3.62E-13
Dysprosium (66)	Dy-167	5.87E+04	1.18E-05	1.50E+03	1.00E+00	1.16E+02	.	1.37E+02	4.90E+01	2.75E+01	4.10E-15	2.68E+01	4.00E-15		
Dysprosium (66)	Dy-168	4.19E+04	1.66E-05	1.50E+03	1.00E+00	.	.	9.46E+01	.	9.46E+01	1.99E-14	9.94E+01	2.09E-14		
Erbium (68)	Er-154	9.77E+04	7.10E-06	6.50E+02	1.00E+00	6.46E-02	.	6.14E+01	2.74E-02	1.92E-02	1.59E-18	1.77E-02	1.47E-18		
Erbium (68)	Er-156	1.87E+04	3.71E-05	6.50E+02	1.00E+00	7.88E+01	.	5.47E+01	3.34E+01	1.64E+01	7.19E-15	1.41E+01	6.19E-15		
Erbium (68)	Er-159	1.01E+04	6.85E-05	6.50E+02	1.00E+00	7.49E+01	.	9.04E+01	3.17E+01	1.79E+01	1.47E-14	1.89E+01	1.56E-14		
Erbium (68)	Er-161	1.89E+03	3.66E-04	6.50E+02	1.00E+00	1.08E+02	.	1.18E+02	4.62E+01	2.54E+01	1.14E-13	1.71E+01	7.65E-14		



Soil to Groundwater July 2023															
Radionuclides		Isotope-specific Information				Tap Water Dose Compliance Concentrations (DCCs)						Protection of Groundwater Soil Screening Levels			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	K <sub>d</sub> Distribution coefficient (L/kg)	DAF	Ingestion DCC DL=1 (Bq/L)	Inhalation DCC DL=1 (Bq/L)	Immersion DCC DL=1 (Bq/L)	Produce Consumption DCC DL=1 (Bq/L)	Total DCC DL=1 (Bq/L)	Total DCC DL=1 (mg/L)	SSL Dose-based DL=1 (Bq/g)	SSL Dose-based DL=1 (mg/kg)	SSL MCL-based (Bq/g)	SSL MCL-based (mg/kg)
Erbium (68)	Er-165	5.86E+02	1.18E-03	6.50E+02	1.00E+00	5.28E+02	.	5.68E+03	2.25E+02	1.54E+02	2.27E-12	9.99E+01	1.48E-12		
Erbium (68)	Er-167m	9.63E+06	7.19E-08	6.50E+02	1.00E+00	.	.	1.34E+03	.	1.34E+03	1.22E-15	8.70E+02	7.91E-16		
Erbium (68)	Er-169	2.69E+01	2.58E-02	6.50E+02	1.00E+00	2.63E+01	.	3.65E+05	1.12E+01	7.87E+00	2.59E-12	5.12E+00	1.68E-12	7.22E+00	2.38E-12
Erbium (68)	Er-171	8.08E+02	8.58E-04	6.50E+02	1.00E+00	2.14E+01	.	3.37E+02	9.13E+00	6.28E+00	6.98E-14	3.34E+00	3.71E-14	4.54E+00	5.04E-14
Erbium (68)	Er-172	1.23E+02	5.63E-03	6.50E+02	1.00E+00	3.65E+00	.	1.21E+02	1.55E+00	1.08E+00	7.89E-14	4.36E-01	3.19E-14		
Erbium (68)	Er-173	2.54E+05	2.73E-06	6.50E+02	1.00E+00	3.33E+01	.	9.99E+01	1.41E+01	9.01E+00	3.22E-16	3.07E+00	1.10E-16		
Einsteinium (99)	Es-249	3.56E+03	1.94E-04		1.00E+00	6.73E-03	.	8.97E+01	2.79E-03	1.97E-03	7.23E-18	5.03E-06	1.84E-20	1.76E-04	6.47E-19
Einsteinium (99)	Es-250	7.06E+02	9.82E-04		1.00E+00	3.18E-03	1.40E-01	4.00E+01	1.28E-03	9.08E-04	1.69E-17	5.33E-06	9.90E-20	1.08E-04	2.00E-18
Einsteinium (99)	Es-250m	2.73E+03	2.53E-04		1.00E+00	3.14E-03	1.40E-01	4.96E+01	1.26E-03	8.94E-04	4.29E-18	5.25E-06	2.52E-20	1.06E-04	5.08E-19
Einsteinium (99)	Es-251	1.84E+02	3.77E-03		1.00E+00	5.56E-03	2.74E-01	8.94E+01	2.29E-03	1.61E-03	1.15E-16	8.63E-06	6.17E-19	3.11E-04	2.23E-17
Einsteinium (99)	Es-253	1.24E+01	5.61E-02		1.00E+00	6.69E-03	.	1.27E+02	2.77E-03	1.96E-03	2.11E-15	5.03E-06	5.40E-18	1.76E-04	1.89E-16
Einsteinium (99)	Es-254	9.17E-01	7.55E-01		1.00E+00	3.10E-03	1.40E-01	4.30E+01	1.25E-03	8.85E-04	1.29E-14	5.25E-06	7.62E-17	1.06E-04	1.54E-15
Einsteinium (99)	Es-254m	1.54E+02	4.49E-03		1.00E+00	3.19E-03	1.40E-01	5.15E+01	1.28E-03	9.08E-04	7.83E-17	5.34E-06	4.61E-19	1.08E-04	9.30E-18
Einsteinium (99)	Es-255	6.36E+00	1.09E-01		1.00E+00	5.53E-03	2.74E-01	9.43E+01	2.27E-03	1.60E-03	3.37E-15	8.62E-06	1.81E-17	3.11E-04	6.55E-16
Einsteinium (99)	Es-256	1.43E+04	4.83E-05		1.00E+00	4.39E-02	1.02E-01	8.78E+00	1.73E-02	1.10E-02	1.03E-17	2.65E-05	2.48E-20	1.88E-03	1.76E-18
Europium (63)	Eu-142	9.34E+06	7.42E-08	3.00E+04	1.00E+00	5.58E+01	.	5.45E+01	2.38E+01	1.28E+01	1.02E-17	1.23E+01	9.79E-18		
Europium (63)	Eu-142m	2.98E+05	2.33E-06	3.00E+04	1.00E+00	5.58E+01	.	2.71E+01	2.38E+01	1.03E+01	2.58E-16	1.22E+01	3.05E-16		
Europium (63)	Eu-143	1.41E+05	4.93E-06	3.00E+04	1.00E+00	4.52E+01	.	6.11E+01	1.64E+01	1.00E+01	5.35E-16	5.12E+00	2.73E-16		
Europium (63)	Eu-144	2.14E+06	3.23E-07	3.00E+04	1.00E+00	.	.	1.06E+02	.	1.06E+02	3.75E-16	3.19E+03	1.13E-14		
Europium (63)	Eu-145	4.27E+01	1.62E-02	3.00E+04	1.00E+00	1.07E+01	.	8.87E+01	4.41E+00	3.02E+00	5.38E-13	5.72E+00	1.02E-12		
Europium (63)	Eu-146	5.49E+01	1.26E-02	3.00E+04	1.00E+00	1.89E-01	.	4.92E+01	8.09E-02	5.66E-02	7.90E-15	5.38E-02	7.51E-15		
Europium (63)	Eu-147	1.05E+01	6.60E-02	3.00E+04	1.00E+00	2.10E-01	.	2.67E+02	8.97E-02	6.28E-02	4.62E-14	5.90E-02	4.33E-14	5.16E-01	3.79E-13
Europium (63)	Eu-148	4.64E+00	1.49E-01	3.00E+04	1.00E+00	1.24E-01	.	5.39E+01	5.27E-02	3.69E-02	6.18E-14	2.88E-02	4.82E-14	2.12E-01	3.55E-13
Europium (63)	Eu-149	2.72E+00	2.55E-01	3.00E+04	1.00E+00	6.31E+01	.	2.61E+03	2.64E+01	1.85E+01	5.32E-11	5.55E+02	1.60E-09		
Europium (63)	Eu-150	1.88E-02	3.69E+01	3.00E+04	1.00E+00	8.64E+00	.	7.82E+01	3.62E+00	2.47E+00	1.03E-09	7.41E+01	3.10E-08		
Europium (63)	Eu-150m	4.74E+02	1.46E-03	3.00E+04	1.00E+00	1.10E-01	.	2.42E+03	4.68E-02	3.28E-02	5.44E-16	2.53E-02	4.19E-16		
Europium (63)	Eu-152	5.12E-02	1.35E+01	3.00E+04	1.00E+00	2.91E-01	.	1.01E+02	1.23E-01	8.65E-02	1.35E-11	6.51E-02	1.01E-11	7.59E-01	1.18E-10
Europium (63)	Eu-152m	6.52E+02	1.06E-03	3.00E+04	1.00E+00	1.16E-01	.	4.02E+02	4.93E-02	3.46E-02	4.24E-16	2.52E-02	3.09E-16	2.95E-01	3.61E-15
Europium (63)	Eu-152n	3.79E+03	1.83E-04	3.00E+04	1.00E+00	2.91E-01	.	9.61E+01	1.23E-01	8.64E-02	1.82E-16	6.51E-02	1.37E-16	7.59E-01	1.59E-15
Europium (63)	Eu-154	8.06E-02	8.59E+00	3.00E+04	1.00E+00	5.20E+00	.	9.45E+01	2.18E+00	1.51E+00	1.51E-10	4.53E+01	4.53E-09	6.66E+01	6.67E-09
Europium (63)	Eu-154m	7.92E+03	8.75E-05	3.00E+04	1.00E+00	5.18E+00	.	9.10E+01	2.17E+00	1.50E+00	1.53E-15	4.51E+01	4.60E-14	6.66E+01	6.79E-14
Europium (63)	Eu-155	1.46E-01	4.76E+00	3.00E+04	1.00E+00	3.00E+01	.	2.43E+03	1.26E+01	8.82E+00	4.93E-10	2.65E+02	1.48E-08	6.66E+02	3.72E-08
Europium (63)	Eu-156	1.67E+01	4.16E-02	3.00E+04	1.00E+00	4.42E+00	.	9.23E+01	1.85E+00	1.29E+00	6.32E-13	3.86E+01	1.90E-11		
Europium (63)	Eu-157	4.00E+02	1.73E-03	3.00E+04	1.00E+00	1.62E+01	.	4.42E+02	6.78E+00	4.73E+00	9.74E-14	1.42E+02	2.92E-12		
Europium (63)	Eu-158	7.94E+03	8.73E-05	3.00E+04	1.00E+00	1.12E+02	.	8.95E+01	4.69E+01	2.42E+01	2.52E-14	7.25E+02	7.57E-13		
Europium (63)	Eu-159	2.01E+04	3.44E-05	3.00E+04	1.00E+00	1.78E+01	.	3.55E+02	7.53E+00	5.22E+00	2.16E-15	3.75E+00	1.55E-15	4.81E+00	1.99E-15
Fluorine (9)	F-17	3.39E+05	2.04E-06	1.50E+02	1.00E+00	.	.	1.19E+02	.	1.19E+02	3.12E-16	1.78E+01	4.69E-17		
Fluorine (9)	F-18	3.32E+03	2.09E-04	1.50E+02	1.00E+00	2.17E+02	.	1.23E+02	7.84E+01	3.93E+01	1.12E-14	5.90E+00	1.68E-15	1.11E+01	3.16E-15
Iron (26)	Fe-52	7.34E+02	9.45E-04	8.80E+02	1.00E+00	6.92E+00	.	3.66E+01	2.11E+00	1.55E+00	5.76E-15	1.42E+00	5.28E-15	2.28E+02	8.49E-13
Iron (26)	Fe-53	4.28E+04	1.62E-05	8.80E+02	1.00E+00	3.28E+02	.	1.03E+02	4.90E+01	3.01E+01	1.96E-15	3.27E+01	2.12E-15		
Iron (26)	Fe-53m	1.44E+05	4.81E-06	8.80E+02	1.00E+00	3.28E+02	.	2.77E+01	4.90E+01	1.68E+01	3.23E-16	1.65E+01	3.18E-16		
Iron (26)	Fe-55	2.53E-01	2.74E+00	8.80E+02	1.00E+00	2.46E+01	.	7.93E+11	8.12E+00	6.11E+00	6.96E-11	5.38E+00	6.12E-11	6.51E+01	7.42E-10



Soil to Groundwater July 2023															
Radionuclides		Isotope-specific Information				Tap Water Dose Compliance Concentrations (DCCs)						Protection of Groundwater Soil Screening Levels			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	K <sub>d</sub> Distribution coefficient (L/kg)	DAF	Ingestion DCC DL=1 (Bq/L)	Inhalation DCC DL=1 (Bq/L)	Immersion DCC DL=1 (Bq/L)	Produce Consumption DCC DL=1 (Bq/L)	Total DCC DL=1 (Bq/L)	Total DCC DL=1 (mg/L)	SSL Dose-based DL=1 (Bq/g)	SSL Dose-based DL=1 (mg/kg)	SSL MCL-based (Bq/g)	SSL MCL-based (mg/kg)
Iron (26)	Fe-60	4.62E-07	1.50E+06	8.80E+02	1.00E+00	8.84E-02	.	4.58E+01	2.89E-02	2.18E-02	1.48E-07	1.85E-02	1.26E-07	1.78E+00	1.21E-05
Iron (26)	Fe-61	6.09E+04	1.14E-05	8.80E+02	1.00E+00	1.36E+02	.	7.74E+01	3.64E+01	2.09E+01	1.10E-15	1.14E+01	5.97E-16		
Iron (26)	Fe-62	3.21E+05	2.16E-06	8.80E+02	1.00E+00		.	5.37E+01		5.37E+01	5.44E-16	2.88E+01	2.91E-16		
Fermium (100)	Fm-251	1.15E+03	6.05E-04		1.00E+00	5.57E-03	2.74E-01	8.11E+01	2.29E-03	1.61E-03	1.85E-17	8.65E-06	9.94E-20	3.11E-04	3.58E-18
Fermium (100)	Fm-252	2.39E+02	2.90E-03		1.00E+00	5.07E-03	1.02E-01	4.86E+01	1.91E-03	1.37E-03	7.56E-17	2.19E-06	1.21E-19	1.43E-04	7.90E-18
Fermium (100)	Fm-253	8.43E+01	8.22E-03		1.00E+00	6.69E-03	.	1.20E+02	2.77E-03	1.96E-03	3.08E-16	5.03E-06	7.91E-19	1.76E-04	2.78E-17
Fermium (100)	Fm-254	1.87E+03	3.70E-04		1.00E+00	3.14E-03	1.40E-01	6.40E+01	1.26E-03	8.95E-04	6.36E-18	5.25E-06	3.73E-20	1.06E-04	7.54E-19
Fermium (100)	Fm-255	3.02E+02	2.29E-03		1.00E+00	5.55E-03	2.74E-01	9.49E+01	2.28E-03	1.61E-03	7.11E-17	8.62E-06	3.81E-19	3.11E-04	1.38E-17
Fermium (100)	Fm-256	2.31E+03	3.00E-04		1.00E+00	4.44E-02	1.02E-01	8.78E+00	1.75E-02	1.12E-02	6.48E-17	2.65E-05	1.54E-19	1.88E-03	1.09E-17
Fermium (100)	Fm-257	2.52E+00	2.75E-01		1.00E+00	6.60E-03	.	1.11E+02	2.74E-03	1.93E-03	1.04E-14	5.04E-06	2.70E-17	1.77E-04	9.47E-16
Francium (87)	Fr-212	1.82E+04	3.81E-05	2.50E+02	1.00E+00	6.21E-03	.	4.82E+01	2.64E-03	1.85E-03	1.13E-18	3.88E-04	2.37E-19	1.17E-01	7.14E-17
Francium (87)	Fr-219	1.09E+09	6.34E-10	2.50E+02	1.00E+00		.	2.14E+03		2.14E+03	2.25E-17	9.22E+02	9.70E-18	2.67E-01	2.80E-21
Francium (87)	Fr-220	7.98E+05	8.69E-07	2.50E+02	1.00E+00	3.87E+01	.	8.31E+01	8.44E+00	6.40E+00	9.25E-17	3.21E+00	4.64E-17	1.08E-01	1.57E-18
Francium (87)	Fr-221	7.43E+04	9.32E-06	2.50E+02	1.00E+00	3.96E+01	.	5.88E+02	9.49E+00	7.56E+00	1.18E-15	2.71E+00	4.23E-16	5.10E-03	7.96E-19
Francium (87)	Fr-222	2.57E+04	2.70E-05	2.50E+02	1.00E+00	4.89E-03	.	6.29E+02	1.97E-03	1.41E-03	6.38E-19	2.56E-04	1.16E-19	4.79E-02	2.17E-17
Francium (87)	Fr-223	1.66E+04	4.19E-05	2.50E+02	1.00E+00	6.15E-02	2.74E-01	3.40E+02	2.17E-02	1.52E-02	1.07E-17	1.96E-05	1.38E-20	6.57E-04	4.64E-19
Francium (87)	Fr-224	1.09E+05	6.34E-06	2.50E+02	1.00E+00	9.93E-02	1.46E+01	5.56E+01	3.51E-02	2.59E-02	2.78E-18	3.33E-05	3.58E-21	6.58E-04	7.07E-20
Francium (87)	Fr-227	1.47E+05	4.70E-06	2.50E+02	1.00E+00	2.17E-02	2.74E-01	1.20E+02	8.65E-03	6.05E-03	4.89E-19	1.95E-05	1.57E-21	6.60E-04	5.33E-20
Gallium (31)	Ga-64	1.39E+05	5.00E-06	3.00E+02	1.00E+00		.	3.33E+01		3.33E+01	8.05E-16	9.99E+00	2.42E-16		
Gallium (31)	Ga-65	2.40E+04	2.89E-05	3.00E+02	1.00E+00	2.82E+00	.	6.88E+01	1.23E-01	1.18E-01	1.68E-17	1.11E-01	1.59E-17	1.05E+01	1.50E-15
Gallium (31)	Ga-66	6.40E+02	1.08E-03	3.00E+02	1.00E+00	8.53E+00	.	4.39E+01	3.66E+00	2.42E+00	1.31E-14	7.27E-01	3.93E-15		
Gallium (31)	Ga-67	7.76E+01	8.93E-03	3.00E+02	1.00E+00	5.22E+01	.	8.15E+02	2.24E+01	1.54E+01	6.96E-13	4.62E+00	2.09E-13		
Gallium (31)	Ga-68	5.38E+03	1.29E-04	3.00E+02	1.00E+00	9.98E+01	.	1.27E+02	4.28E+01	2.43E+01	1.61E-14	7.28E+00	4.83E-15		
Gallium (31)	Ga-70	1.72E+04	4.02E-05	3.00E+02	1.00E+00	3.22E+02	.	8.95E+03	1.38E+02	9.55E+01	2.04E-14	2.87E+01	6.11E-15		
Gallium (31)	Ga-72	4.31E+02	1.61E-03	3.00E+02	1.00E+00	9.23E+00	.	4.17E+01	3.96E+00	2.60E+00	2.28E-14	7.80E-01	6.84E-15	1.11E+00	9.74E-15
Gallium (31)	Ga-73	1.25E+03	5.55E-04	3.00E+02	1.00E+00	3.78E+01	.	3.51E+02	1.62E+01	1.10E+01	3.37E-14	3.30E+00	1.01E-14		
Gallium (31)	Ga-74	4.49E+04	1.54E-05	3.00E+02	1.00E+00		.	3.53E+01		3.53E+01	3.05E-15	1.06E+01	9.16E-16		
Gadolinium (64)	Gd-142	3.11E+05	2.23E-06	6.50E+02	1.00E+00	5.58E+01	.	3.69E+01	2.38E+01	1.15E+01	2.75E-16	1.05E+01	2.52E-16		
Gadolinium (64)	Gd-143m	1.99E+05	3.49E-06	6.50E+02	1.00E+00	4.52E+01	.	2.92E+01	1.64E+01	8.51E+00	3.21E-16	4.49E+00	1.69E-16		
Gadolinium (64)	Gd-144	8.15E+04	8.50E-06	6.50E+02	1.00E+00		.	5.82E+01		5.82E+01	5.40E-15	8.14E+01	7.55E-15		
Gadolinium (64)	Gd-145	1.58E+04	4.38E-05	6.50E+02	1.00E+00	1.03E+01	.	3.04E+01	4.27E+00	2.75E+00	1.32E-15	4.45E+00	2.14E-15		
Gadolinium (64)	Gd-145m	2.57E+05	2.70E-06	6.50E+02	1.00E+00	1.03E+01	.	2.68E+01	4.27E+00	2.72E+00	8.04E-17	4.34E+00	1.28E-16		
Gadolinium (64)	Gd-146	5.24E+00	1.32E-01	6.50E+02	1.00E+00	1.86E-01	.	4.55E+01	7.94E-02	5.56E-02	8.13E-14	5.25E-02	7.67E-14		
Gadolinium (64)	Gd-147	1.59E+02	4.35E-03	6.50E+02	1.00E+00	2.08E-01	.	6.52E+01	8.86E-02	6.20E-02	3.00E-15	5.79E-02	2.80E-15	5.16E-01	2.50E-14
Gadolinium (64)	Gd-148	9.29E-03	7.46E+01	6.50E+02	1.00E+00	1.89E-01	.	7.97E-02	7.97E-02	5.60E-02	4.68E-11	3.64E-02	3.04E-11		
Gadolinium (64)	Gd-149	2.73E+01	2.54E-02	6.50E+02	1.00E+00	1.46E+01	.	2.21E+02	6.15E+00	4.24E+00	1.22E-12	3.56E+00	1.02E-12		
Gadolinium (64)	Gd-150	3.87E-07	1.79E+06	6.50E+02	1.00E+00	9.84E-02	.		4.18E-02	2.93E-02	5.96E-07	2.25E-02	4.57E-07		
Gadolinium (64)	Gd-151	2.04E+00	3.40E-01	6.50E+02	1.00E+00	4.42E+01	.	2.46E+03	1.87E+01	1.31E+01	5.07E-11	8.49E+00	3.30E-11	5.16E+07	2.00E-04
Gadolinium (64)	Gd-152	6.42E-15	1.08E+14	6.50E+02	1.00E+00	8.43E-02	.		3.57E-02	2.51E-02	3.12E+01	1.82E-02	2.26E+01	2.12E-01	2.64E+02
Gadolinium (64)	Gd-153	1.05E+00	6.59E-01	6.50E+02	1.00E+00	3.63E+01	.	1.68E+03	1.53E+01	1.07E+01	8.16E-11	6.96E+00	5.31E-11	1.44E+01	1.10E-10
Gadolinium (64)	Gd-159	3.29E+02	2.11E-03	6.50E+02	1.00E+00	1.95E+01	.	2.39E+03	8.25E+00	5.78E+00	1.47E-13	3.76E+00	9.55E-14	4.81E+00	1.22E-13
Gadolinium (64)	Gd-162	4.34E+04	1.60E-05	6.50E+02	1.00E+00		.	7.92E+01		7.92E+01	1.55E-14	1.48E+02	2.89E-14		

Soil to Groundwater July 2023															
Radionuclides		Isotope-specific Information				Tap Water Dose Compliance Concentrations (DCCs)						Protection of Groundwater Soil Screening Levels			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	K <sub>d</sub> Distribution coefficient (L/kg)	DAF	Ingestion DCC DL=1 (Bq/L)	Inhalation DCC DL=1 (Bq/L)	Immersion DCC DL=1 (Bq/L)	Produce Consumption DCC DL=1 (Bq/L)	Total DCC DL=1 (Bq/L)	Total DCC DL=1 (mg/L)	SSL Dose-based DL=1 (Bq/g)	SSL Dose-based DL=1 (mg/kg)	SSL MCL-based (Bq/g)	SSL MCL-based (mg/kg)
Germanium (32)	Ge-67	1.93E+04	3.60E-05	2.50E+01	1.00E+00	4.00E+01	.	7.60E+01	9.02E+00	6.71E+00	1.22E-15	2.82E-01	5.14E-17		
Germanium (32)	Ge-68	9.34E-01	7.42E-01	2.50E+01	1.00E+00	7.43E+00	.	1.27E+02	6.95E-01	6.32E-01	2.42E-12	1.63E-02	6.24E-14		
Germanium (32)	Ge-69	1.55E+02	4.46E-03	2.50E+01	1.00E+00	5.20E+01	.	1.24E+02	4.57E+00	4.07E+00	9.47E-14	1.02E-01	2.39E-15		
Germanium (32)	Ge-71	2.21E+01	3.13E-02	2.50E+01	1.00E+00	8.59E+02	.	5.68E+07	7.56E+01	6.95E+01	1.17E-11	1.75E+00	2.95E-13	5.59E+00	9.41E-13
Germanium (32)	Ge-75	4.40E+03	1.57E-04	2.50E+01	1.00E+00	2.19E+02	.	3.18E+03	1.93E+01	1.76E+01	1.58E-14	4.44E-01	3.97E-16		
Germanium (32)	Ge-77	5.37E+02	1.29E-03	2.50E+01	1.00E+00	1.43E+01	.	1.09E+02	1.95E+00	1.69E+00	1.27E-14	9.88E-04	7.43E-18	1.48E-03	1.11E-17
Germanium (32)	Ge-78	4.14E+03	1.67E-04	2.50E+01	1.00E+00	3.33E+01	.	7.30E+01	4.94E+00	4.06E+00	4.01E-15	1.80E-03	1.78E-18		
Hydrogen (1)	H-3	5.63E-02	1.23E+01	0.00E+00	1.00E+00	2.96E+02	1.12E+01	.	2.67E+00	2.14E+00	5.99E-12	4.28E-04	1.20E-15	1.48E-01	4.14E-13
Hafnium (72)	Hf-167	1.78E+05	3.90E-06	2.50E+03	1.00E+00	1.58E+01	.	4.46E+01	6.66E+00	4.24E+00	2.09E-16	1.64E+00	8.06E-17		
Hafnium (72)	Hf-169	1.12E+05	6.16E-06	2.50E+03	1.00E+00	7.64E+00	.	5.39E+01	3.24E+00	2.18E+00	1.72E-16	2.17E+00	1.71E-16		
Hafnium (72)	Hf-170	3.79E+02	1.83E-03	2.50E+03	1.00E+00	7.75E+00	.	3.80E+01	3.29E+00	2.18E+00	5.12E-14	8.49E+00	2.00E-13		
Hafnium (72)	Hf-172	3.71E-01	1.87E+00	2.50E+03	1.00E+00	4.31E+00	.	5.88E+01	1.82E+00	1.25E+00	3.05E-11	4.33E+00	1.05E-10		
Hafnium (72)	Hf-173	2.57E+02	2.69E-03	2.50E+03	1.00E+00	1.75E+01	.	2.36E+02	7.40E+00	5.09E+00	1.79E-13	1.85E+01	6.54E-13		
Hafnium (72)	Hf-174	3.47E-16	2.00E+15	2.50E+03	1.00E+00	4.31E-02	.	.	1.80E-02	1.27E-02	3.35E+02	3.18E-02	8.37E+02		
Hafnium (72)	Hf-175	3.61E+00	1.92E-01	2.50E+03	1.00E+00	2.57E+01	.	3.67E+02	1.08E+01	7.43E+00	1.89E-11	1.86E+01	4.72E-11		
Hafnium (72)	Hf-177m	7.09E+03	9.78E-05	2.50E+03	1.00E+00	1.26E+02	.	5.49E+01	5.26E+01	2.21E+01	2.90E-14	5.53E+01	7.25E-14		
Hafnium (72)	Hf-178m	2.24E-02	3.10E+01	2.50E+03	1.00E+00	2.73E+00	.	5.55E+01	1.14E+00	7.94E-01	3.32E-10	1.98E+00	8.29E-10		
Hafnium (72)	Hf-179m	1.01E+01	6.86E-02	2.50E+03	1.00E+00	8.08E+00	.	1.38E+02	3.38E+00	2.34E+00	2.18E-12	5.86E+00	5.44E-12		
Hafnium (72)	Hf-180m	1.10E+03	6.28E-04	2.50E+03	1.00E+00	6.14E+01	.	1.27E+02	2.57E+01	1.58E+01	1.36E-13	3.96E+01	3.39E-13		
Hafnium (72)	Hf-181	5.97E+00	1.16E-01	2.50E+03	1.00E+00	9.05E+00	.	2.34E+02	3.79E+00	2.64E+00	4.20E-12	6.60E+00	1.05E-11	1.85E+01	2.94E-11
Hafnium (72)	Hf-182	7.70E-08	9.00E+06	2.50E+03	1.00E+00	2.50E+00	.	7.74E+01	1.05E+00	7.33E-01	9.09E-05	1.01E+00	1.25E-04	2.89E+00	3.58E-04
Hafnium (72)	Hf-182m	5.92E+03	1.17E-04	2.50E+03	1.00E+00	3.89E+00	.	5.17E+01	1.64E+00	1.13E+00	1.81E-15	1.25E+00	2.01E-15	2.89E+00	4.65E-15
Hafnium (72)	Hf-183	5.69E+03	1.22E-04	2.50E+03	1.00E+00	7.00E+00	.	1.16E+02	2.96E+00	2.04E+00	3.44E-15	1.67E+00	2.81E-15		
Hafnium (72)	Hf-184	1.47E+03	4.70E-04	2.50E+03	1.00E+00	8.48E+00	.	6.73E+01	3.57E+00	2.42E+00	1.58E-14	2.68E+00	1.76E-14		
Mercury (80)	Hg-190	1.82E+04	3.81E-05	6.30E+03	1.00E+00	2.59E-01	.	4.40E+01	7.89E-02	6.04E-02	3.30E-17	5.33E-03	2.92E-18		
Mercury (80)	Hg-191m	7.17E+03	9.67E-05	6.30E+03	1.00E+00	2.08E+01	.	5.19E+01	4.39E+00	3.39E+00	4.74E-15	1.19E-01	1.66E-16	2.69E-01	3.75E-16
Mercury (80)	Hg-192	1.25E+03	5.54E-04	6.30E+03	1.00E+00	2.66E+01	.	5.22E+01	4.28E+00	3.44E+00	2.77E-14	2.69E+01	2.17E-13		
Mercury (80)	Hg-193	1.60E+03	4.34E-04	6.30E+03	1.00E+00	3.78E+01	.	1.21E+02	7.15E+00	5.73E+00	3.63E-14	1.17E+00	7.39E-15	2.69E+00	1.70E-14
Mercury (80)	Hg-193m	5.14E+02	1.35E-03	6.30E+03	1.00E+00	1.71E+01	.	8.59E+01	2.32E+00	2.00E+00	3.93E-14	1.10E+00	2.16E-14	2.69E+00	5.28E-14
Mercury (80)	Hg-194	1.58E-03	4.40E+02	6.30E+03	1.00E+00	6.54E+00	.	1.12E+02	8.79E-01	7.70E-01	4.97E-09	5.29E+00	3.42E-08		
Mercury (80)	Hg-195	5.77E+02	1.20E-03	6.30E+03	1.00E+00	2.76E+01	.	4.88E+02	6.49E+00	5.19E+00	9.22E-14	5.15E+01	9.14E-13		
Mercury (80)	Hg-195m	1.46E+02	4.75E-03	6.30E+03	1.00E+00	1.15E+01	.	3.45E+02	1.63E+00	1.42E+00	9.97E-14	9.96E+00	6.98E-13		
Mercury (80)	Hg-197	9.35E+01	7.41E-03	6.30E+03	1.00E+00	4.00E+01	.	2.18E+03	4.40E+00	3.95E+00	4.37E-13	2.49E+01	2.75E-12	2.10E+02	2.32E-11
Mercury (80)	Hg-197m	2.55E+02	2.72E-03	6.30E+03	1.00E+00	1.40E+01	.	8.93E+02	1.54E+00	1.39E+00	5.61E-14	8.73E+00	3.54E-13	8.69E+01	3.52E-12
Mercury (80)	Hg-199m	8.54E+03	8.12E-05	6.30E+03	1.00E+00	3.30E+02	.	7.16E+02	3.63E+01	3.12E+01	3.82E-14	1.97E+02	2.41E-13		
Mercury (80)	Hg-203	5.43E+00	1.28E-01	6.30E+03	1.00E+00	1.88E+01	.	5.20E+02	2.06E+00	1.85E+00	3.63E-12	1.17E+01	2.29E-11	1.40E+01	2.74E-11
Mercury (80)	Hg-205	7.00E+04	9.89E-06	6.30E+03	1.00E+00	.	.	1.23E+04	.	1.23E+04	1.88E-12	7.73E+04	1.19E-11		
Mercury (80)	Hg-206	4.47E+04	1.55E-05	6.30E+03	1.00E+00	.	.	9.55E+02	.	9.55E+02	2.31E-13	5.36E+03	1.29E-12		
Mercury (80)	Hg-207	1.26E+05	5.52E-06	6.30E+03	1.00E+00	.	.	4.25E+01	.	4.25E+01	3.68E-15	2.66E+02	2.30E-14		
Holmium (67)	Ho-150	2.85E+05	2.44E-06	9.30E+02	1.00E+00	1.18E-01	.	2.51E+01	5.03E-02	3.53E-02	9.74E-19	2.83E-02	7.82E-19		
Holmium (67)	Ho-153	1.81E+05	3.82E-06	9.30E+02	1.00E+00	1.38E+01	.	5.37E+01	5.83E+00	3.80E+00	1.68E-16	4.72E+00	2.09E-16	1.44E+01	6.39E-16
Holmium (67)	Ho-153m	3.92E+04	1.77E-05	9.30E+02	1.00E+00	1.38E+01	.	5.31E+01	5.82E+00	3.80E+00	7.79E-16	4.71E+00	9.65E-16	1.45E+01	2.96E-15

Soil to Groundwater July 2023															
Radionuclides		Isotope-specific Information				Tap Water Dose Compliance Concentrations (DCCs)						Protection of Groundwater Soil Screening Levels			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	K <sub>d</sub> Distribution coefficient (L/kg)	DAF	Ingestion	Inhalation	Immersion	Produce	Total	Total	SSL	SSL	SSL	SSL
						DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (mg/L)	Dose-based DL=1 (Bq/g)	Dose-based DL=1 (mg/kg)	MCL-based (Bq/g)	MCL-based (mg/kg)
Holmium (67)	Ho-154	3.10E+04	2.24E-05	9.30E+02	1.00E+00	6.44E-02	.	6.32E+01	2.73E-02	1.92E-02	5.00E-18	1.77E-02	4.62E-18		
Holmium (67)	Ho-154m	1.17E+05	5.90E-06	9.30E+02	1.00E+00	6.44E-02	.	4.98E+01	2.73E-02	1.92E-02	1.32E-18	1.77E-02	1.22E-18		
Holmium (67)	Ho-155	7.59E+03	9.13E-05	9.30E+02	1.00E+00	2.31E+01	.	8.60E+01	9.78E+00	6.36E+00	6.82E-15	1.47E+01	1.58E-14		
Holmium (67)	Ho-156	6.50E+03	1.07E-04	9.30E+02	1.00E+00	1.07E+02	.	5.57E+01	4.51E+01	2.02E+01	2.54E-14	1.88E+01	2.37E-14		
Holmium (67)	Ho-157	2.89E+04	2.40E-05	9.30E+02	1.00E+00	9.72E+01	.	1.38E+02	4.11E+01	2.39E+01	6.80E-15	4.14E+01	1.18E-14		
Holmium (67)	Ho-159	1.10E+04	6.29E-05	9.30E+02	1.00E+00	8.93E+01	.	3.29E+02	3.77E+01	2.45E+01	1.86E-14	3.40E+01	2.57E-14		
Holmium (67)	Ho-160	1.42E+04	4.87E-05	9.30E+02	1.00E+00	6.37E+02	.	7.12E+01	2.69E+02	5.17E+01	3.05E-14	4.81E+01	2.84E-14		
Holmium (67)	Ho-161	2.45E+03	2.83E-04	9.30E+02	1.00E+00	7.93E+02	.	3.86E+03	3.35E+02	2.22E+02	7.66E-13	2.07E+02	7.13E-13		
Holmium (67)	Ho-162	2.43E+04	2.85E-05	9.30E+02	1.00E+00	3.20E+03	.	8.26E+02	1.35E+03	4.42E+02	1.55E-13	4.11E+02	1.44E-13		
Holmium (67)	Ho-162m	5.44E+03	1.27E-04	9.30E+02	1.00E+00	3.84E+02	.	1.88E+02	1.62E+02	7.10E+01	1.11E-13	6.60E+01	1.03E-13		
Holmium (67)	Ho-163	1.52E-04	4.57E+03	9.30E+02	1.00E+00	3.39E+03	.	.	1.43E+03	1.01E+03	5.68E-05	9.37E+02	5.28E-05		
Holmium (67)	Ho-164	1.26E+04	5.52E-05	9.30E+02	1.00E+00	1.07E+03	.	6.71E+03	4.51E+02	3.03E+02	2.07E-13	2.82E+02	1.93E-13		
Holmium (67)	Ho-164m	9.59E+03	7.23E-05	9.30E+02	1.00E+00	3.88E+02	.	2.81E+03	1.64E+02	1.11E+02	9.92E-14	1.03E+02	9.23E-14		
Holmium (67)	Ho-166	2.27E+02	3.06E-03	9.30E+02	1.00E+00	7.03E+00	.	3.54E+03	2.97E+00	2.09E+00	8.02E-14	1.94E+00	7.46E-14	3.10E+00	1.19E-13
Holmium (67)	Ho-166m	5.78E-04	1.20E+03	9.30E+02	1.00E+00	5.32E+00	.	7.43E+01	2.25E+00	1.55E+00	2.33E-08	1.44E+00	2.17E-08		
Holmium (67)	Ho-167	1.96E+03	3.54E-04	9.30E+02	1.00E+00	1.16E+02	.	3.39E+02	4.90E+01	3.13E+01	1.40E-13	2.91E+01	1.30E-13		
Holmium (67)	Ho-168	1.22E+05	5.69E-06	9.30E+02	1.00E+00	.	.	1.35E+02	.	1.35E+02	9.77E-15	1.26E+02	9.09E-15		
Holmium (67)	Ho-168m	1.66E+05	4.19E-06	9.30E+02	1.00E+00	.	.	1.35E+02	.	1.35E+02	7.16E-15	1.25E+02	6.66E-15		
Holmium (67)	Ho-170	1.32E+05	5.25E-06	9.30E+02	1.00E+00	.	.	6.99E+01	.	6.99E+01	4.72E-15	6.50E+01	4.39E-15		
Iodine (53)	I-118	2.66E+04	2.61E-05	0.00E+00	1.00E+00	3.08E+00	.	4.20E+01	5.01E-01	4.26E-01	9.92E-17	1.85E-03	4.32E-19		
Iodine (53)	I-118m	4.29E+04	1.62E-05	0.00E+00	1.00E+00	3.29E+00	.	2.63E+01	5.19E-01	4.40E-01	6.36E-17	6.18E-03	8.93E-19		
Iodine (53)	I-119	1.91E+04	3.63E-05	0.00E+00	1.00E+00	3.39E+01	.	7.23E+01	7.02E+00	5.38E+00	1.76E-15	7.61E-03	2.49E-18		
Iodine (53)	I-120	4.46E+03	1.55E-04	0.00E+00	1.00E+00	3.31E+01	.	4.28E+01	9.70E+00	6.38E+00	9.00E-15	1.28E-03	1.80E-18		
Iodine (53)	I-120m	6.87E+03	1.01E-04	0.00E+00	1.00E+00	6.46E+01	.	3.35E+01	1.89E+01	1.02E+01	9.33E-15	2.04E-03	1.87E-18		
Iodine (53)	I-121	2.86E+03	2.42E-04	0.00E+00	1.00E+00	2.01E+01	.	1.29E+02	3.41E+00	2.85E+00	6.33E-15	5.59E-03	1.24E-17		
Iodine (53)	I-122	1.00E+05	6.91E-06	0.00E+00	1.00E+00	.	.	1.25E+02	.	1.25E+02	7.97E-15	2.50E-02	1.59E-18		
Iodine (53)	I-123	4.57E+02	1.51E-03	0.00E+00	1.00E+00	7.48E+00	.	8.15E+02	1.29E+00	1.10E+00	1.55E-14	1.87E-03	2.64E-17		
Iodine (53)	I-124	6.06E+01	1.14E-02	0.00E+00	1.00E+00	7.14E-01	.	1.06E+02	2.09E-01	1.62E-01	1.73E-14	3.23E-05	3.47E-18		
Iodine (53)	I-125	4.26E+00	1.63E-01	0.00E+00	1.00E+00	7.18E-01	.	1.33E+04	2.10E-01	1.63E-01	2.50E-13	3.25E-05	5.01E-17		
Iodine (53)	I-126	1.96E+01	3.54E-02	0.00E+00	1.00E+00	3.32E-01	.	2.83E+02	9.72E-02	7.52E-02	2.54E-14	1.50E-05	5.08E-18	2.22E-05	7.50E-18
Iodine (53)	I-128	1.46E+04	4.75E-05	0.00E+00	1.00E+00	2.18E+02	.	1.65E+03	6.38E+01	4.79E+01	2.21E-14	9.58E-03	4.41E-18		
Iodine (53)	I-129	4.41E-08	1.57E+07	0.00E+00	1.00E+00	1.12E-01	.	1.77E+04	3.29E-02	2.54E-02	3.89E-06	5.08E-06	7.79E-10	7.40E-06	1.13E-09
Iodine (53)	I-130	4.91E+02	1.41E-03	0.00E+00	1.00E+00	4.92E+00	.	5.62E+01	1.44E+00	1.09E+00	1.52E-14	2.18E-04	3.03E-18		
Iodine (53)	I-130m	4.12E+04	1.68E-05	0.00E+00	1.00E+00	5.85E+00	.	6.32E+01	1.71E+00	1.30E+00	2.15E-16	2.60E-04	4.30E-20		
Iodine (53)	I-131	3.15E+01	2.20E-02	0.00E+00	1.00E+00	4.33E-01	.	3.20E+02	1.27E-01	9.82E-02	2.14E-14	1.96E-05	4.28E-18	2.22E-05	4.84E-18
Iodine (53)	I-132	2.65E+03	2.62E-04	0.00E+00	1.00E+00	3.35E+01	.	5.23E+01	9.82E+00	6.63E+00	1.73E-14	1.33E-03	3.47E-18	6.66E-04	1.74E-18
Iodine (53)	I-132m	4.38E+03	1.58E-04	0.00E+00	1.00E+00	2.13E+01	.	5.20E+01	6.24E+00	4.42E+00	6.98E-15	8.83E-04	1.40E-18	7.74E-04	1.22E-18
Iodine (53)	I-133	2.92E+02	2.37E-03	0.00E+00	1.00E+00	2.06E+00	.	1.86E+02	6.02E-01	4.65E-01	1.11E-14	9.29E-05	2.22E-18	7.40E-05	1.77E-18
Iodine (53)	I-134	6.94E+03	9.99E-05	0.00E+00	1.00E+00	9.90E+01	.	4.53E+01	2.90E+01	1.50E+01	1.52E-14	3.00E-03	3.04E-18	7.40E-04	7.50E-19
Iodine (53)	I-134m	1.01E+05	6.85E-06	0.00E+00	1.00E+00	1.01E+02	.	4.20E+01	2.97E+01	1.49E+01	1.03E-15	2.97E-03	2.06E-19	7.57E-04	5.26E-20
Iodine (53)	I-135	9.24E+02	7.50E-04	0.00E+00	1.00E+00	3.44E+00	.	6.07E+01	1.13E+00	8.38E-01	6.42E-15	4.40E-04	3.37E-18	2.22E-04	1.70E-18
Indium (49)	In-103	3.64E+05	1.90E-06	4.80E+02	1.00E+00	4.27E+01	.	2.03E+01	9.15E+00	5.50E+00	8.15E-17	6.10E-02	9.04E-19	2.63E+00	3.89E-17
Indium (49)	In-105	7.18E+04	9.65E-06	4.80E+02	1.00E+00	2.11E+01	.	3.15E+01	3.47E+00	2.72E+00	2.09E-16	1.59E-02	1.22E-18	4.23E+00	3.24E-16



Soil to Groundwater July 2023															
Radionuclides		Isotope-specific Information				Tap Water Dose Compliance Concentrations (DCCs)						Protection of Groundwater Soil Screening Levels			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	K <sub>d</sub> Distribution coefficient (L/kg)	DAF	Ingestion DCC DL=1 (Bq/L)	Inhalation DCC DL=1 (Bq/L)	Immersion DCC DL=1 (Bq/L)	Produce Consumption DCC DL=1 (Bq/L)	Total DCC DL=1 (Bq/L)	Total DCC DL=1 (mg/L)	SSL Dose-based DL=1 (Bq/g)	SSL Dose-based DL=1 (mg/kg)	SSL MCL-based (Bq/g)	SSL MCL-based (mg/kg)
Indium (49)	In-106m	7.00E+04	9.89E-06	4.80E+02	1.00E+00	.	.	4.05E+01	.	4.05E+01	3.21E-15	1.94E+01	1.54E-15	.	.
Indium (49)	In-107	1.12E+04	6.16E-05	4.80E+02	1.00E+00	9.78E+01	.	7.52E+01	9.82E+00	7.98E+00	3.98E-15	1.21E-02	6.04E-18	.	.
Indium (49)	In-108	6.28E+03	1.10E-04	4.80E+02	1.00E+00	1.40E+02	.	3.01E+01	5.99E+01	1.75E+01	1.58E-14	8.41E+00	7.58E-15	.	.
Indium (49)	In-108m	9.20E+03	7.53E-05	4.80E+02	1.00E+00	1.28E+02	.	4.05E+01	5.49E+01	1.97E+01	1.21E-14	9.46E+00	5.83E-15	.	.
Indium (49)	In-109	1.45E+03	4.79E-04	4.80E+02	1.00E+00	5.23E+00	.	1.88E+02	3.66E-01	3.41E-01	1.35E-15	4.13E-04	1.63E-18	2.66E-02	1.05E-16
Indium (49)	In-109m	2.72E+05	2.55E-06	4.80E+02	1.00E+00	5.23E+00	.	9.66E+01	3.66E-01	3.41E-01	7.16E-18	4.13E-04	8.68E-21	2.66E-02	5.60E-19
Indium (49)	In-110	1.24E+03	5.59E-04	4.80E+02	1.00E+00	4.48E+01	.	3.86E+01	1.92E+01	9.97E+00	4.64E-14	4.79E+00	2.23E-14	.	.
Indium (49)	In-110m	5.27E+03	1.31E-04	4.80E+02	1.00E+00	1.01E+02	.	7.52E+01	4.35E+01	2.17E+01	2.37E-14	1.04E+01	1.14E-14	.	.
Indium (49)	In-111	9.02E+01	7.68E-03	4.80E+02	1.00E+00	3.58E+01	.	3.19E+02	1.54E+01	1.04E+01	6.71E-13	4.97E+00	3.21E-13	.	.
Indium (49)	In-111m	4.73E+04	1.46E-05	4.80E+02	1.00E+00	3.58E+01	.	1.43E+02	1.54E+01	1.00E+01	1.23E-15	4.78E+00	5.88E-16	.	.
Indium (49)	In-112	2.43E+04	2.85E-05	4.80E+02	1.00E+00	9.69E+02	.	4.61E+02	4.16E+02	1.78E+02	4.31E-14	8.57E+01	2.07E-14	.	.
Indium (49)	In-112m	1.77E+04	3.91E-05	4.80E+02	1.00E+00	3.69E+02	.	4.26E+02	1.58E+02	8.79E+01	2.91E-14	4.22E+01	1.40E-14	.	.
Indium (49)	In-113m	3.66E+03	1.89E-04	4.80E+02	1.00E+00	3.46E+02	.	4.80E+02	1.49E+02	8.54E+01	1.38E-13	4.10E+01	6.64E-14	5.33E+01	8.63E-14
Indium (49)	In-114	3.04E+05	2.28E-06	4.80E+02	1.00E+00	.	.	1.20E+04	.	1.20E+04	2.35E-13	5.75E+03	1.13E-13	.	.
Indium (49)	In-114m	5.11E+00	1.36E-01	4.80E+02	1.00E+00	2.34E+00	.	1.47E+03	1.00E+00	7.01E-01	8.20E-13	3.37E-01	3.94E-13	1.07E+00	1.25E-12
Indium (49)	In-115	1.57E-15	4.41E+14	4.80E+02	1.00E+00	3.82E-01	.	1.62E+05	1.64E-01	1.15E-01	4.40E+02	5.51E-02	2.12E+02	5.33E+00	2.05E+04
Indium (49)	In-115m	1.35E+03	5.12E-04	4.80E+02	1.00E+00	4.01E-01	.	7.84E+02	1.72E-01	1.20E-01	5.36E-16	5.78E-02	2.58E-16	4.26E+00	1.90E-14
Indium (49)	In-116m	6.69E+03	1.04E-04	4.80E+02	1.00E+00	1.65E+02	.	4.63E+01	7.07E+01	2.39E+01	2.17E-14	1.15E+01	1.04E-14	.	.
Indium (49)	In-117	8.43E+03	8.22E-05	4.80E+02	1.00E+00	3.12E+02	.	1.76E+02	1.09E+02	5.54E+01	4.03E-14	2.95E+01	2.15E-14	.	.
Indium (49)	In-117m	3.13E+03	2.21E-04	4.80E+02	1.00E+00	7.20E+01	.	2.94E+02	3.01E+01	1.98E+01	3.88E-14	9.68E+00	1.89E-14	.	.
Indium (49)	In-118	4.37E+06	1.59E-07	4.80E+02	1.00E+00	.	.	1.09E+03	.	1.09E+03	1.55E-15	5.25E+02	7.44E-16	.	.
Indium (49)	In-118m	8.35E+04	8.30E-06	4.80E+02	1.00E+00	.	.	4.17E+01	.	4.17E+01	3.09E-15	2.00E+01	1.49E-15	.	.
Indium (49)	In-119	1.52E+05	4.57E-06	4.80E+02	1.00E+00	2.94E+03	.	1.55E+02	3.23E+02	1.01E+02	4.16E-15	6.41E+01	2.64E-15	.	.
Indium (49)	In-119m	2.02E+04	3.42E-05	4.80E+02	1.00E+00	2.18E+02	.	9.92E+02	9.24E+01	6.09E+01	1.88E-14	2.95E+01	9.09E-15	.	.
Indium (49)	In-121	9.46E+05	7.32E-07	4.80E+02	1.00E+00	3.68E+01	.	1.26E+02	4.04E+00	3.54E+00	2.37E-17	5.31E+00	3.56E-17	.	.
Indium (49)	In-121m	9.39E+04	7.38E-06	4.80E+02	1.00E+00	4.27E+01	.	1.40E+03	4.69E+00	4.22E+00	2.85E-16	6.70E+00	4.53E-16	.	.
Iridium (77)	Ir-180	2.43E+05	2.85E-06	3.00E+00	1.00E+00	5.68E+02	.	4.15E+01	1.89E+02	3.21E+01	1.25E-15	1.84E-01	7.14E-18	.	.
Iridium (77)	Ir-182	2.43E+04	2.85E-05	3.00E+00	1.00E+00	1.13E+01	.	3.93E+01	2.70E+00	2.06E+00	8.11E-16	2.49E-02	9.79E-18	.	.
Iridium (77)	Ir-183	6.28E+03	1.10E-04	3.00E+00	1.00E+00	8.06E+00	.	5.24E+01	1.35E+00	1.13E+00	1.72E-15	9.25E-03	1.41E-17	.	.
Iridium (77)	Ir-184	1.96E+03	3.53E-04	3.00E+00	1.00E+00	5.56E+01	.	6.03E+01	1.85E+01	1.13E+01	5.55E-14	3.61E-02	1.78E-16	.	.
Iridium (77)	Ir-185	4.22E+02	1.64E-03	3.00E+00	1.00E+00	1.28E+01	.	7.75E+01	4.25E+00	3.06E+00	7.05E-14	2.37E-02	5.46E-16	3.33E+00	7.67E-14
Iridium (77)	Ir-186	3.65E+02	1.90E-03	3.00E+00	1.00E+00	3.11E-01	.	7.12E+01	1.04E-01	7.77E-02	2.08E-15	1.01E-02	2.69E-16	.	.
Iridium (77)	Ir-186m	3.16E+03	2.19E-04	3.00E+00	1.00E+00	3.14E-01	.	7.05E+01	1.05E-01	7.85E-02	2.42E-16	1.73E-02	5.33E-17	.	.
Iridium (77)	Ir-187	5.78E+02	1.20E-03	3.00E+00	1.00E+00	8.93E+01	.	3.85E+02	2.98E+01	2.11E+01	3.58E-13	6.75E-02	1.14E-15	.	.
Iridium (77)	Ir-188	1.46E+02	4.74E-03	3.00E+00	1.00E+00	1.41E+01	.	5.39E+01	4.70E+00	3.31E+00	2.23E-13	1.06E-02	7.14E-16	.	.
Iridium (77)	Ir-189	1.92E+01	3.62E-02	3.00E+00	1.00E+00	4.13E+01	.	1.97E+03	1.38E+01	1.03E+01	5.31E-12	3.30E-02	1.71E-14	.	.
Iridium (77)	Ir-190	2.15E+01	3.23E-02	3.00E+00	1.00E+00	9.98E+00	.	8.32E+01	3.33E+00	2.42E+00	1.12E-12	7.75E-03	3.60E-15	7.10E-02	3.30E-14
Iridium (77)	Ir-190m	5.42E+03	1.28E-04	3.00E+00	1.00E+00	9.91E+00	.	8.32E+01	3.30E+00	2.41E+00	4.42E-15	7.70E-03	1.42E-17	7.10E-02	1.31E-16
Iridium (77)	Ir-190n	1.97E+03	3.52E-04	3.00E+00	1.00E+00	5.06E+01	.	7.56E+01	1.69E+01	1.08E+01	5.49E-14	3.98E-02	2.02E-16	8.26E-01	4.19E-15
Iridium (77)	Ir-191m	4.42E+06	1.57E-07	3.00E+00	1.00E+00	.	.	1.98E+03	.	1.98E+03	4.49E-15	6.34E+00	1.44E-17	.	.
Iridium (77)	Ir-192	3.43E+00	2.02E-01	3.00E+00	1.00E+00	7.46E+00	.	1.50E+02	2.49E+00	1.84E+00	5.41E-12	5.89E-03	1.73E-14	1.18E-02	3.48E-14
Iridium (77)	Ir-192m	2.51E+05	2.76E-06	3.00E+00	1.00E+00	7.46E+00	.	1.50E+02	2.49E+00	1.84E+00	7.38E-17	5.89E-03	2.36E-19	1.18E-02	4.75E-19



Soil to Groundwater July 2023															
Radionuclides		Isotope-specific Information				Tap Water Dose Compliance Concentrations (DCCs)						Protection of Groundwater Soil Screening Levels			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	K <sub>d</sub> Distribution coefficient (L/kg)	DAF	Ingestion	Inhalation	Immersion	Produce	Total	Total	SSL	SSL	SSL	SSL
						DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (mg/L)	Dose-based DL=1 (Bq/g)	Dose-based DL=1 (mg/kg)	MCL-based (Bq/g)	MCL-based (mg/kg)
Iridium (77)	Ir-192n	2.88E-03	2.41E+02	3.00E+00	1.00E+00	4.43E+00	.	1.50E+02	1.48E+00	1.10E+00	3.85E-09	3.52E-03	1.23E-11	1.18E-02	4.15E-11
Iridium (77)	Ir-193m	2.40E+01	2.88E-02	3.00E+00	1.00E+00	3.39E+01	.	5.09E+05	1.13E+01	8.48E+00	3.57E-12	2.71E-02	1.14E-14		
Iridium (77)	Ir-194	3.15E+02	2.20E-03	3.00E+00	1.00E+00	7.37E+00	.	1.21E+03	2.46E+00	1.84E+00	5.95E-14	5.89E-03	1.90E-16	1.07E-02	3.44E-16
Iridium (77)	Ir-194m	1.48E+00	4.68E-01	3.00E+00	1.00E+00	5.16E+00	.	5.23E+01	1.72E+00	1.26E+00	8.66E-12	4.03E-03	2.77E-14		
Iridium (77)	Ir-195	2.43E+03	2.85E-04	3.00E+00	1.00E+00	9.83E+01	.	2.50E+03	3.28E+01	2.43E+01	1.03E-13	7.79E-02	3.28E-16		
Iridium (77)	Ir-195m	1.60E+03	4.34E-04	3.00E+00	1.00E+00	2.36E+01	.	3.09E+02	5.80E+00	4.59E+00	2.94E-14	4.00E-02	2.56E-16		
Iridium (77)	Ir-196	4.20E+05	1.65E-06	3.00E+00	1.00E+00	.	.	4.88E+02	.	4.88E+02	1.19E-14	1.56E+00	3.82E-17		
Iridium (77)	Ir-196m	4.34E+03	1.60E-04	3.00E+00	1.00E+00	9.49E+01	.	4.94E+01	3.16E+01	1.60E+01	3.80E-14	5.13E-02	1.22E-16		
Potassium (19)	K-38	4.77E+04	1.45E-05	1.30E+01	1.00E+00	.	.	3.52E+01	.	3.52E+01	1.47E-15	4.64E-01	1.94E-17		
Potassium (19)	K-40	5.54E-10	1.25E+09	1.30E+01	1.00E+00	1.65E+00	.	7.03E+02	1.46E-01	1.34E-01	5.07E-04	1.77E-03	6.69E-06		
Potassium (19)	K-42	4.91E+02	1.41E-03	1.30E+01	1.00E+00	2.30E+01	.	3.80E+02	2.03E+00	1.86E+00	8.34E-15	2.46E-02	1.10E-16	4.40E-01	1.97E-15
Potassium (19)	K-43	2.72E+02	2.55E-03	1.30E+01	1.00E+00	4.24E+01	.	1.26E+02	3.74E+00	3.35E+00	2.77E-14	4.42E-02	3.66E-16		
Potassium (19)	K-44	1.65E+04	4.21E-05	1.30E+01	1.00E+00	1.22E+02	.	4.60E+01	1.08E+01	8.16E+00	1.14E-15	1.08E-01	1.51E-17		
Potassium (19)	K-45	2.11E+04	3.29E-05	1.30E+01	1.00E+00	1.23E+01	.	6.06E+01	1.24E+00	1.10E+00	1.24E-16	9.35E-03	1.05E-18	3.03E-03	3.40E-19
Potassium (19)	K-46	2.08E+05	3.33E-06	1.30E+01	1.00E+00	.	.	3.73E+01	.	3.73E+01	4.32E-16	4.92E-01	5.70E-18		
Krypton (36)	Kr-74	3.17E+04	2.19E-05	.	1.00E+00	1.27E+02	.	1.97E+01	4.57E+01	1.24E+01	1.52E-15	7.68E-01	9.40E-17		
Krypton (36)	Kr-75	8.49E+04	8.16E-06	.	1.00E+00	3.93E+00	.	4.24E+01	1.62E-01	1.55E-01	7.18E-18	3.06E-02	1.42E-18	6.67E+00	3.09E-16
Krypton (36)	Kr-76	4.10E+02	1.69E-03	.	1.00E+00	2.29E+01	.	3.57E+01	8.26E+00	5.19E+00	5.04E-14	2.92E-01	2.83E-15		
Krypton (36)	Kr-77	4.90E+03	1.42E-04	.	1.00E+00	1.13E+02	.	9.04E+01	4.08E+01	2.25E+01	1.86E-14	1.53E+00	1.27E-15		
Krypton (36)	Kr-79	1.73E+02	4.00E-03	.	1.00E+00	.	.	4.88E+02	.	4.88E+02	1.17E-11	.	.		
Krypton (36)	Kr-81	3.03E-06	2.29E+05	.	1.00E+00	.	.	1.41E+05	.	1.41E+05	1.98E-01	.	.		
Krypton (36)	Kr-81m	1.67E+06	4.15E-07	.	1.00E+00	.	.	9.62E+02	.	9.62E+02	2.45E-15	.	.		
Krypton (36)	Kr-83m	3.32E+03	2.09E-04	.	1.00E+00	.	.	4.60E+06	.	4.60E+06	6.03E-09	.	.		
Krypton (36)	Kr-85	6.44E-02	1.08E+01	.	1.00E+00	.	.	3.15E+04	.	3.15E+04	2.18E-06	.	.		
Krypton (36)	Kr-85m	1.36E+03	5.11E-04	.	1.00E+00	.	.	7.89E+02	.	7.89E+02	2.59E-12	.	.		
Krypton (36)	Kr-87	4.77E+03	1.45E-04	.	1.00E+00	6.62E+00	.	1.39E+02	9.90E-01	8.56E-01	8.18E-16	1.81E-01	1.73E-16	2.33E+00	2.23E-15
Krypton (36)	Kr-88	2.14E+03	3.24E-04	.	1.00E+00	1.11E+02	.	4.20E+01	1.66E+01	1.08E+01	2.32E-14	2.80E+00	6.04E-15		
Krypton (36)	Kr-89	1.16E+05	5.99E-06	.	1.00E+00	3.70E+00	.	2.67E+01	3.76E-01	3.37E-01	1.36E-17	4.15E-04	1.67E-20	8.88E-04	3.58E-20
Lanthanum (57)	La-128	7.03E+04	9.86E-06	5.30E+03	1.00E+00	3.81E+00	.	3.16E+01	1.51E+00	1.05E+00	9.99E-17	6.49E-04	6.19E-20		
Lanthanum (57)	La-129	3.14E+04	2.21E-05	5.30E+03	1.00E+00	7.76E+01	.	7.65E+01	2.94E+01	1.67E+01	3.59E-15	2.78E-02	5.99E-18		
Lanthanum (57)	La-130	4.19E+04	1.66E-05	5.30E+03	1.00E+00	.	.	5.30E+01	.	5.30E+01	8.63E-15	2.81E+02	4.57E-14		
Lanthanum (57)	La-131	6.17E+03	1.12E-04	5.30E+03	1.00E+00	1.87E+01	.	1.11E+02	7.35E+00	5.04E+00	5.61E-15	3.69E-03	4.10E-18	1.33E-02	1.48E-17
Lanthanum (57)	La-132	1.26E+03	5.48E-04	5.30E+03	1.00E+00	2.51E+01	.	5.85E+01	1.05E+01	6.55E+00	3.59E-14	3.47E+01	1.90E-13		
Lanthanum (57)	La-132m	1.50E+04	4.62E-05	5.30E+03	1.00E+00	2.95E+01	.	5.43E+01	1.23E+01	7.49E+00	3.46E-15	3.97E+01	1.83E-14		
Lanthanum (57)	La-133	1.55E+03	4.47E-04	5.30E+03	1.00E+00	5.47E+00	.	2.39E+02	2.17E+00	1.54E+00	6.94E-15	9.43E-04	4.24E-18		
Lanthanum (57)	La-134	5.65E+04	1.23E-05	5.30E+03	1.00E+00	.	.	1.68E+02	.	1.68E+02	2.09E-14	8.92E+02	1.11E-13		
Lanthanum (57)	La-135	3.11E+02	2.23E-03	5.30E+03	1.00E+00	3.29E+02	.	6.83E+03	1.37E+02	9.56E+01	2.17E-12	5.07E+02	1.15E-11		
Lanthanum (57)	La-136	3.69E+04	1.88E-05	5.30E+03	1.00E+00	.	.	3.06E+02	.	3.06E+02	5.91E-14	1.62E+03	3.13E-13		
Lanthanum (57)	La-137	1.16E-05	6.00E+04	5.30E+03	1.00E+00	1.22E+02	.	1.64E+04	5.10E+01	3.59E+01	2.23E-05	1.90E+02	1.18E-04		
Lanthanum (57)	La-138	6.79E-12	1.02E+11	5.30E+03	1.00E+00	9.90E+00	.	9.37E+01	4.13E+00	2.83E+00	3.01E+00	1.50E+01	1.60E+01		
Lanthanum (57)	La-140	1.51E+02	4.60E-03	5.30E+03	1.00E+00	5.08E+00	.	4.94E+01	2.12E+00	1.45E+00	7.07E-14	7.69E+00	3.75E-13	1.18E+01	5.73E-13
Lanthanum (57)	La-141	1.55E+03	4.47E-04	5.30E+03	1.00E+00	9.12E+00	.	1.10E+03	3.81E+00	2.68E+00	1.28E-14	4.38E+00	2.09E-14	1.33E+01	6.36E-14
Lanthanum (57)	La-142	4.00E+03	1.73E-04	5.30E+03	1.00E+00	5.87E+01	.	4.61E+01	2.45E+01	1.26E+01	2.34E-14	6.67E+01	1.24E-13		

Soil to Groundwater July 2023															
Radionuclides		Isotope-specific Information				Tap Water Dose Compliance Concentrations (DCCs)						Protection of Groundwater Soil Screening Levels			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	K <sub>d</sub> Distribution coefficient (L/kg)	DAF	Ingestion DCC DL=1 (Bq/L)	Inhalation DCC DL=1 (Bq/L)	Immersion DCC DL=1 (Bq/L)	Produce Consumption DCC DL=1 (Bq/L)	Total DCC DL=1 (Bq/L)	Total DCC DL=1 (mg/L)	SSL Dose-based DL=1 (Bq/g)	SSL Dose-based DL=1 (mg/kg)	SSL MCL-based (Bq/g)	SSL MCL-based (mg/kg)
Lutetium (71)	Lu-165	3.39E+04	2.04E-05	5.10E+03	1.00E+00	2.61E+01	.	6.11E+01	1.11E+01	6.89E+00	1.76E-15	2.63E+00	6.71E-16		
Lutetium (71)	Lu-167	7.07E+03	9.80E-05	5.10E+03	1.00E+00	1.58E+01	.	5.75E+01	6.66E+00	4.33E+00	5.36E-15	1.64E+00	2.03E-15		
Lutetium (71)	Lu-169	1.78E+02	3.89E-03	5.10E+03	1.00E+00	7.64E+00	.	7.45E+01	3.24E+00	2.21E+00	1.10E-13	2.18E+00	1.09E-13		
Lutetium (71)	Lu-169m	1.37E+05	5.07E-06	5.10E+03	1.00E+00	7.64E+00	.	7.45E+01	3.24E+00	2.21E+00	1.43E-16	2.18E+00	1.42E-16		
Lutetium (71)	Lu-170	1.26E+02	5.51E-03	5.10E+03	1.00E+00	1.11E+01	.	4.36E+01	4.75E+00	3.09E+00	2.19E-13	1.58E+01	1.12E-12		
Lutetium (71)	Lu-171	3.07E+01	2.26E-02	5.10E+03	1.00E+00	1.50E+01	.	1.94E+02	6.40E+00	4.38E+00	1.28E-12	2.24E+01	6.53E-12		
Lutetium (71)	Lu-171m	2.77E+05	2.51E-06	5.10E+03	1.00E+00	1.50E+01	.	1.94E+02	6.40E+00	4.38E+00	1.42E-16	2.24E+01	7.25E-16		
Lutetium (71)	Lu-172	3.78E+01	1.84E-02	5.10E+03	1.00E+00	8.03E+00	.	6.09E+01	3.43E+00	2.31E+00	5.52E-13	1.18E+01	2.82E-12		
Lutetium (71)	Lu-172m	9.84E+04	7.04E-06	5.10E+03	1.00E+00	8.03E+00	.	6.09E+01	3.43E+00	2.31E+00	2.12E-16	1.18E+01	1.08E-15		
Lutetium (71)	Lu-173	5.06E-01	1.37E+00	5.10E+03	1.00E+00	2.79E+01	.	8.20E+02	1.19E+01	8.25E+00	1.48E-10	4.21E+01	7.55E-10		
Lutetium (71)	Lu-174	2.09E-01	3.31E+00	5.10E+03	1.00E+00	3.54E+01	.	1.20E+03	1.51E+01	1.05E+01	4.58E-10	5.36E+01	2.34E-09		
Lutetium (71)	Lu-174m	1.78E+00	3.89E-01	5.10E+03	1.00E+00	1.20E+01	.	8.55E+02	5.14E+00	3.58E+00	1.84E-11	1.83E+01	9.37E-11		
Lutetium (71)	Lu-176	1.80E-11	3.85E+10	5.10E+03	1.00E+00	5.61E+00	.	2.61E+02	2.39E+00	1.67E+00	8.55E-01	8.50E+00	4.36E+00		
Lutetium (71)	Lu-176m	1.67E+03	4.15E-04	5.10E+03	1.00E+00	5.98E+01	.	8.38E+03	2.55E+01	1.78E+01	9.86E-14	9.10E+01	5.03E-13		
Lutetium (71)	Lu-177	3.81E+01	1.82E-02	5.10E+03	1.00E+00	1.85E+01	.	3.63E+03	7.91E+00	5.54E+00	1.35E-12	2.82E+01	6.89E-12	5.66E+01	1.38E-11
Lutetium (71)	Lu-177m	1.58E+00	4.39E-01	5.10E+03	1.00E+00	5.59E+00	.	1.26E+02	2.38E+00	1.65E+00	9.71E-12	8.41E+00	4.95E-11	2.61E+02	1.54E-09
Lutetium (71)	Lu-178	1.28E+04	5.40E-05	5.10E+03	1.00E+00	2.17E+02	.	8.82E+02	9.27E+01	6.05E+01	4.40E-14	3.09E+02	2.25E-13		
Lutetium (71)	Lu-178m	1.58E+04	4.39E-05	5.10E+03	1.00E+00	3.09E+02	.	1.19E+02	1.32E+02	5.21E+01	3.09E-14	2.66E+02	1.57E-13		
Lutetium (71)	Lu-179	1.32E+03	5.24E-04	5.10E+03	1.00E+00	4.57E+01	.	3.66E+03	1.95E+01	1.36E+01	9.67E-14	6.95E+01	4.93E-13		
Lutetium (71)	Lu-180	6.39E+04	1.08E-05	5.10E+03	1.00E+00	.	.	7.72E+01	.	7.72E+01	1.14E-14	3.94E+02	5.82E-14		
Lutetium (71)	Lu-181	1.04E+05	6.66E-06	5.10E+03	1.00E+00	9.05E+00	.	1.11E+02	3.79E+00	2.61E+00	2.38E-16	6.56E+00	5.98E-16	1.85E+01	1.69E-15
Magnesium (12)	Mg-27	3.85E+04	1.80E-05	3.80E+00	1.00E+00	.	.	1.32E+02	.	1.32E+02	4.84E-15	5.26E-01	1.93E-17		
Magnesium (12)	Mg-28	2.90E+02	2.39E-03	3.80E+00	1.00E+00	4.81E+00	.	3.59E+01	1.60E+00	1.16E+00	5.89E-15	4.74E-03	2.40E-17		
Manganese (25)	Mn-50m	2.08E+05	3.33E-06	1.20E+03	1.00E+00	.	.	2.51E+01	.	2.51E+01	3.16E-16	3.01E+01	3.79E-16		
Manganese (25)	Mn-51	7.88E+03	8.79E-05	1.20E+03	1.00E+00	7.83E+01	.	1.17E+02	1.44E+01	1.10E+01	3.75E-15	1.58E-02	5.37E-18	4.44E-02	1.51E-17
Manganese (25)	Mn-52	4.52E+01	1.53E-02	1.20E+03	1.00E+00	6.00E+00	.	3.37E+01	8.98E-01	7.63E-01	4.60E-14	9.16E-01	5.52E-14	4.00E+00	2.41E-13
Manganese (25)	Mn-52m	1.73E+04	4.01E-05	1.20E+03	1.00E+00	1.03E+02	.	4.70E+01	1.55E+01	1.05E+01	1.65E-15	1.26E+01	1.98E-15	2.28E+02	3.61E-14
Manganese (25)	Mn-53	1.87E-07	3.70E+06	1.20E+03	1.00E+00	3.28E+02	.	.	4.90E+01	4.26E+01	6.33E-04	5.12E+01	7.59E-04		
Manganese (25)	Mn-54	8.10E-01	8.55E-01	1.20E+03	1.00E+00	1.52E+01	.	1.42E+02	2.28E+00	1.96E+00	6.83E-12	2.35E+00	8.20E-12	1.33E+01	4.66E-11
Manganese (25)	Mn-56	2.35E+03	2.94E-04	1.20E+03	1.00E+00	3.98E+01	.	6.71E+01	5.95E+00	4.81E+00	6.00E-15	5.77E+00	7.20E-15	1.33E+01	1.66E-14
Manganese (25)	Mn-57	2.56E+05	2.71E-06	1.20E+03	1.00E+00	.	.	1.10E+03	.	1.10E+03	1.29E-14	1.32E+03	1.55E-14		
Manganese (25)	Mn-58m	3.35E+05	2.07E-06	1.20E+03	1.00E+00	.	.	4.78E+01	.	4.78E+01	4.34E-16	5.74E+01	5.21E-16		
Molybdenum (42)	Mo-101	2.49E+04	2.78E-05	4.00E+01	1.00E+00	1.73E+02	.	6.43E+01	9.80E-01	9.60E-01	2.04E-16	1.99E-04	4.24E-20		
Molybdenum (42)	Mo-102	3.22E+04	2.15E-05	4.00E+01	1.00E+00	1.46E+02	.	9.08E+02	2.61E+01	2.16E+01	3.58E-15	1.73E-01	2.87E-17		
Molybdenum (42)	Mo-89	1.73E+05	4.01E-06	4.00E+01	1.00E+00	9.77E+00	.	3.13E+01	4.06E+00	2.63E+00	7.10E-17	1.03E+00	2.79E-17		
Molybdenum (42)	Mo-90	1.09E+03	6.35E-04	4.00E+01	1.00E+00	7.15E+00	.	2.26E+01	2.39E+00	1.66E+00	7.17E-15	2.62E-01	1.13E-15		
Molybdenum (42)	Mo-91	2.35E+04	2.95E-05	4.00E+01	1.00E+00	9.51E+01	.	1.22E+02	2.23E+01	1.57E+01	3.20E-15	8.44E-01	1.71E-16		
Molybdenum (42)	Mo-91m	3.38E+05	2.05E-06	4.00E+01	1.00E+00	3.53E+01	.	6.22E+01	1.23E+01	7.97E+00	1.12E-16	1.06E+00	1.50E-17		
Molybdenum (42)	Mo-93	1.73E-04	4.00E+03	4.00E+01	1.00E+00	4.14E+00	.	2.56E+05	7.61E-01	6.43E-01	1.81E-08	2.65E-02	7.47E-10	6.31E+01	1.78E-06
Molybdenum (42)	Mo-93m	8.86E+02	7.82E-04	4.00E+01	1.00E+00	3.97E+00	.	5.00E+01	7.28E-01	6.08E-01	3.34E-15	2.50E-02	1.38E-16	6.32E+01	3.48E-13
Molybdenum (42)	Mo-99	9.21E+01	7.53E-03	4.00E+01	1.00E+00	7.99E+00	.	4.71E+02	2.68E-02	2.67E-02	1.51E-15	5.40E-06	3.05E-19	6.36E-03	3.59E-16
Nitrogen (7)	N-13	3.66E+04	1.90E-05	5.00E-01	1.00E+00	.	.	1.19E+02	.	1.19E+02	2.22E-15	8.34E-02	1.56E-18		

Soil to Groundwater July 2023															
Radionuclides		Isotope-specific Information				Tap Water Dose Compliance Concentrations (DCCs)						Protection of Groundwater Soil Screening Levels			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	K <sub>d</sub> Distribution coefficient (L/kg)	DAF	Ingestion DCC DL=1 (Bq/L)	Inhalation DCC DL=1 (Bq/L)	Immersion DCC DL=1 (Bq/L)	Produce Consumption DCC DL=1 (Bq/L)	Total DCC DL=1 (Bq/L)	Total DCC DL=1 (mg/L)	SSL Dose-based DL=1 (Bq/g)	SSL Dose-based DL=1 (mg/kg)	SSL MCL-based (Bq/g)	SSL MCL-based (mg/kg)
Sodium (11)	Na-22	2.66E-01	2.60E+00	3.40E+00	1.00E+00	3.50E+00	.	5.37E+01	1.03E+00	7.85E-01	3.40E-12	2.83E-03	1.22E-14	5.33E-02	2.31E-13
Sodium (11)	Na-24	4.06E+02	1.71E-03	3.40E+00	1.00E+00	2.49E+01	.	2.62E+01	7.34E+00	4.66E+00	1.44E-14	1.68E-02	5.20E-17	7.99E-02	2.48E-16
Niobium (41)	Nb-87	9.71E+04	7.13E-06	1.50E+03	1.00E+00	1.06E+01	.	3.80E+01	3.93E+00	2.67E+00	1.25E-16	3.01E-02	1.42E-18	7.90E+02	3.71E-14
Niobium (41)	Nb-88	2.51E+04	2.76E-05	1.50E+03	1.00E+00	6.05E+00	.	1.60E+01	2.48E+00	1.58E+00	2.91E-16	1.04E-01	1.91E-17	.	.
Niobium (41)	Nb-88m	4.68E+04	1.48E-05	1.50E+03	1.00E+00	6.32E+00	.	1.61E+01	2.59E+00	1.65E+00	1.63E-16	1.04E-01	1.03E-17	.	.
Niobium (41)	Nb-89	2.99E+03	2.32E-04	1.50E+03	1.00E+00	9.77E+00	.	4.62E+01	4.06E+00	2.70E+00	4.21E-15	1.41E+00	2.19E-15	.	.
Niobium (41)	Nb-89m	5.52E+03	1.26E-04	1.50E+03	1.00E+00	1.19E+01	.	3.97E+01	5.00E+00	3.24E+00	2.74E-15	1.54E+00	1.30E-15	.	.
Niobium (41)	Nb-90	4.16E+02	1.67E-03	1.50E+03	1.00E+00	8.38E+00	.	2.66E+01	3.28E+00	2.17E+00	2.46E-14	3.25E+00	3.69E-14	.	.
Niobium (41)	Nb-91	1.02E-03	6.80E+02	1.50E+03	1.00E+00	2.18E+02	.	6.35E+04	8.55E+01	6.14E+01	2.87E-07	9.21E+01	4.31E-07	.	.
Niobium (41)	Nb-91m	4.16E+00	1.67E-01	1.50E+03	1.00E+00	2.17E+01	.	4.26E+03	8.51E+00	6.10E+00	7.01E-12	9.16E+00	1.05E-11	.	.
Niobium (41)	Nb-92	2.00E-08	3.47E+07	1.50E+03	1.00E+00	1.07E+01	.	7.98E+01	4.19E+00	2.90E+00	7.00E-04	4.35E+00	1.05E-03	.	.
Niobium (41)	Nb-92m	2.49E+01	2.78E-02	1.50E+03	1.00E+00	2.17E+01	.	1.23E+02	8.49E+00	5.81E+00	1.13E-12	8.72E+00	1.69E-12	.	.
Niobium (41)	Nb-93m	4.30E-02	1.61E+01	1.50E+03	1.00E+00	7.62E+01	.	1.66E+06	2.99E+01	2.15E+01	2.44E-09	3.22E+01	3.65E-09	5.55E+01	6.30E-09
Niobium (41)	Nb-94	3.41E-05	2.03E+04	1.50E+03	1.00E+00	6.08E+00	.	7.62E+01	2.38E+00	1.68E+00	2.42E-07	2.51E+00	3.63E-07	.	.
Niobium (41)	Nb-94m	5.82E+04	1.19E-05	1.50E+03	1.00E+00	6.12E+00	.	7.64E+01	2.40E+00	1.68E+00	1.43E-16	2.53E+00	2.14E-16	.	.
Niobium (41)	Nb-95	7.23E+00	9.59E-02	1.50E+03	1.00E+00	1.81E+01	.	1.56E+02	7.09E+00	4.93E+00	3.40E-12	7.40E+00	5.10E-12	1.67E+01	1.15E-11
Niobium (41)	Nb-95m	7.01E+01	9.89E-03	1.50E+03	1.00E+00	8.80E+00	.	1.52E+02	3.45E+00	2.44E+00	1.73E-13	3.66E+00	2.60E-13	1.76E+01	1.25E-12
Niobium (41)	Nb-96	2.60E+02	2.67E-03	1.50E+03	1.00E+00	9.56E+00	.	4.82E+01	3.74E+00	2.55E+00	4.93E-14	3.82E+00	7.40E-14	.	.
Niobium (41)	Nb-97	5.05E+03	1.37E-04	1.50E+03	1.00E+00	1.48E+02	.	1.80E+02	5.79E+01	3.38E+01	3.40E-14	5.07E+01	5.11E-14	1.67E+02	1.68E-13
Niobium (41)	Nb-98m	7.10E+03	9.76E-05	1.50E+03	1.00E+00	9.56E+01	.	4.13E+01	3.74E+01	1.63E+01	1.18E-14	2.44E+01	1.77E-14	.	.
Niobium (41)	Nb-99	1.46E+06	4.76E-07	1.50E+03	1.00E+00	7.99E+00	.	2.79E+02	2.68E-02	2.67E-02	9.53E-20	5.40E-06	1.93E-23	6.36E-03	2.27E-20
Niobium (41)	Nb-99m	1.40E+05	4.95E-06	1.50E+03	1.00E+00	7.99E+00	.	1.09E+02	2.68E-02	2.67E-02	9.91E-19	5.40E-06	2.00E-22	6.36E-03	2.36E-19
Neodymium (60)	Nd-134	4.29E+04	1.62E-05	6.50E+02	1.00E+00	3.63E+00	.	3.32E+01	1.52E+00	1.04E+00	1.70E-16	1.19E+00	1.96E-16	.	.
Neodymium (60)	Nd-135	2.94E+04	2.36E-05	6.50E+02	1.00E+00	2.65E+01	.	4.12E+01	1.11E+01	6.58E+00	1.59E-15	6.41E+00	1.55E-15	.	.
Neodymium (60)	Nd-136	7.19E+03	9.64E-05	6.50E+02	1.00E+00	7.77E+01	.	4.94E+01	3.26E+01	1.57E+01	1.55E-14	1.02E+01	1.01E-14	.	.
Neodymium (60)	Nd-137	9.46E+03	7.32E-05	6.50E+02	1.00E+00	5.11E+01	.	7.69E+01	2.13E+01	1.26E+01	9.56E-15	1.28E+01	9.71E-15	.	.
Neodymium (60)	Nd-138	1.20E+03	5.75E-04	6.50E+02	1.00E+00	1.56E+01	.	1.43E+02	6.58E+00	4.48E+00	2.69E-14	2.91E+00	1.75E-14	.	.
Neodymium (60)	Nd-139	1.23E+04	5.65E-05	6.50E+02	1.00E+00	3.23E+01	.	1.78E+02	1.35E+01	9.03E+00	5.37E-15	9.26E+00	5.51E-15	.	.
Neodymium (60)	Nd-139m	1.10E+03	6.28E-04	6.50E+02	1.00E+00	1.92E+01	.	6.38E+01	8.06E+00	5.21E+00	3.44E-14	4.30E+00	2.84E-14	.	.
Neodymium (60)	Nd-140	7.51E+01	9.23E-03	6.50E+02	1.00E+00	5.01E+00	.	2.20E+02	2.12E+00	1.48E+00	1.44E-13	9.60E-01	9.39E-14	.	.
Neodymium (60)	Nd-141	2.44E+03	2.84E-04	6.50E+02	1.00E+00	1.20E+03	.	2.04E+03	5.07E+02	3.04E+02	9.21E-13	1.97E+02	5.99E-13	.	.
Neodymium (60)	Nd-141m	3.52E+05	1.97E-06	6.50E+02	1.00E+00	1.20E+03	.	1.59E+02	5.07E+02	1.10E+02	2.31E-15	7.15E+01	1.50E-15	.	.
Neodymium (60)	Nd-144	3.03E-16	2.29E+15	6.50E+02	1.00E+00	2.57E-01	.	1.09E-01	7.63E-02	7.63E-02	1.90E+03	4.96E-02	1.24E+03	3.61E-01	9.01E+03
Neodymium (60)	Nd-147	2.30E+01	3.01E-02	6.50E+02	1.00E+00	2.06E-01	.	9.44E+02	8.79E-02	6.16E-02	2.06E-14	5.64E-02	1.89E-14	4.45E-01	1.49E-13
Neodymium (60)	Nd-149	3.51E+03	1.97E-04	6.50E+02	1.00E+00	8.82E+00	.	3.22E+02	3.24E+00	2.35E+00	5.23E-15	1.09E+00	2.43E-15	1.55E+00	3.44E-15
Neodymium (60)	Nd-151	2.93E+04	2.37E-05	6.50E+02	1.00E+00	1.16E+01	.	1.02E+02	4.29E+00	3.04E+00	8.22E-16	1.47E+00	3.97E-16	3.44E+01	9.31E-15
Neodymium (60)	Nd-152	3.20E+04	2.17E-05	6.50E+02	1.00E+00	2.09E+02	.	2.56E+02	8.82E+01	4.99E+01	1.25E-14	3.07E+01	7.66E-15	.	.
Neon (10)	Ne-19	1.27E+06	5.46E-07	1.00E+00	1.00E+00	.	.	1.18E+02	.	1.18E+02	9.29E-17	.	.	.	.
Neon (10)	Ne-24	1.08E+05	6.43E-06	1.00E+00	1.00E+00	2.49E+01	.	2.34E+01	7.34E+00	4.56E+00	5.33E-17	1.68E-02	1.96E-19	7.99E-02	9.33E-19
Nickel (28)	Ni-56	4.16E+01	1.66E-02	2.80E+02	1.00E+00	3.00E+00	.	2.14E+01	8.71E-01	6.54E-01	4.62E-14	2.76E-01	1.95E-14	.	.
Nickel (28)	Ni-57	1.71E+02	4.06E-03	2.80E+02	1.00E+00	9.15E+00	.	5.62E+01	3.27E+00	2.31E+00	4.05E-14	7.24E-01	1.27E-14	1.78E+01	3.11E-13
Nickel (28)	Ni-59	6.86E-06	1.01E+05	2.80E+02	1.00E+00	1.70E+02	.	7.87E+06	6.69E+01	4.80E+01	2.17E-05	1.35E+01	6.07E-06	3.11E+00	1.40E-06



Soil to Groundwater July 2023															
Radionuclides		Isotope-specific Information				Tap Water Dose Compliance Concentrations (DCCs)						Protection of Groundwater Soil Screening Levels			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	K <sub>d</sub> Distribution coefficient (L/kg)	DAF	Ingestion DCC DL=1 (Bq/L)	Inhalation DCC DL=1 (Bq/L)	Immersion DCC DL=1 (Bq/L)	Produce Consumption DCC DL=1 (Bq/L)	Total DCC DL=1 (Bq/L)	Total DCC DL=1 (mg/L)	SSL Dose-based DL=1 (Bq/g)	SSL Dose-based DL=1 (mg/kg)	SSL MCL-based (Bq/g)	SSL MCL-based (mg/kg)
Nickel (28)	Ni-65	2.41E+03	2.87E-04	2.80E+02	1.00E+00	5.52E+01	.	2.03E+02	2.16E+01	1.44E+01	2.04E-14	4.05E+00	5.72E-15	3.11E+00	4.40E-15
Nickel (28)	Ni-66	1.11E+02	6.23E-03	2.80E+02	1.00E+00	3.27E+00	.	1.06E+03	1.28E+00	9.21E-01	2.87E-14	2.58E-01	8.03E-15	.	.
Neptunium (93)	Np-232	2.48E+04	2.80E-05	2.00E-01	1.00E+00	2.07E-02	1.02E-01	4.34E+01	8.18E-03	5.54E-03	2.72E-18	4.90E-06	2.40E-21	6.22E-04	3.05E-19
Neptunium (93)	Np-233	1.01E+04	6.89E-05	2.00E-01	1.00E+00	1.41E-02	.	3.21E+02	5.72E-03	4.07E-03	4.95E-18	1.12E-05	1.36E-20	3.49E-03	4.24E-18
Neptunium (93)	Np-234	5.75E+01	1.21E-02	2.00E-01	1.00E+00	3.84E-03	1.40E-01	4.04E+01	1.52E-03	1.08E-03	2.31E-16	7.05E-06	1.51E-18	2.16E-04	4.61E-17
Neptunium (93)	Np-235	6.39E-01	1.09E+00	2.00E-01	1.00E+00	1.10E-02	2.74E-01	1.94E+02	4.33E-03	3.07E-03	5.93E-14	1.33E-05	2.58E-16	4.52E-04	8.73E-15
Neptunium (93)	Np-236	4.50E-06	1.54E+05	2.00E-01	1.00E+00	6.68E-03	1.02E-01	4.83E+01	2.45E-03	1.76E-03	4.85E-09	2.36E-06	6.49E-12	1.76E-04	4.84E-10
Neptunium (93)	Np-236m	2.70E+02	2.57E-03	2.00E-01	1.00E+00	9.02E-03	1.02E-01	5.75E+01	3.37E-03	2.39E-03	1.10E-16	3.06E-06	1.40E-19	2.39E-04	1.10E-17
Neptunium (93)	Np-237	3.23E-07	2.14E+06	2.00E-01	1.00E+00	1.25E-02	.	2.29E+02	5.04E-03	3.59E-03	1.38E-07	5.86E-06	2.25E-10	2.09E-04	8.03E-09
Neptunium (93)	Np-238	1.19E+02	5.80E-03	2.00E-01	1.00E+00	3.57E-03	1.40E-01	4.96E+01	1.43E-03	1.01E-03	1.06E-16	6.48E-06	6.76E-19	2.01E-04	2.10E-17
Neptunium (93)	Np-239	1.07E+02	6.46E-03	2.00E-01	1.00E+00	8.87E-03	2.74E-01	1.53E+02	3.57E-03	2.52E-03	2.95E-16	1.12E-05	1.31E-18	3.59E-04	4.20E-17
Neptunium (93)	Np-240	5.88E+03	1.18E-04	2.00E-01	1.00E+00	5.48E-03	1.02E-01	3.41E+01	2.04E-03	1.47E-03	3.14E-18	2.23E-06	4.77E-21	1.52E-04	3.25E-19
Neptunium (93)	Np-240m	5.04E+04	1.37E-05	2.00E-01	1.00E+00	5.48E-03	1.02E-01	4.29E+01	2.04E-03	1.47E-03	3.66E-19	2.23E-06	5.56E-22	1.52E-04	3.80E-20
Neptunium (93)	Np-241	2.62E+04	2.64E-05	2.00E-01	1.00E+00	1.02E-02	.	2.08E+02	4.17E-03	2.96E-03	1.43E-18	5.41E-06	2.61E-21	1.91E-04	9.21E-20
Neptunium (93)	Np-242	1.66E+05	4.19E-06	2.00E-01	1.00E+00	3.51E-03	1.40E-01	5.60E+01	1.40E-03	9.95E-04	7.62E-20	5.66E-06	4.34E-22	1.06E-04	8.11E-21
Neptunium (93)	Np-242m	6.62E+04	1.05E-05	2.00E-01	1.00E+00	3.51E-03	1.40E-01	4.33E+01	1.40E-03	9.95E-04	1.91E-19	5.66E-06	1.09E-21	1.06E-04	2.03E-20
Oxygen (8)	O-14	3.10E+05	2.24E-06	.	1.00E+00	.	.	3.36E+01	.	3.36E+01	7.96E-17	.	.	.	.
Oxygen (8)	O-15	1.79E+05	3.88E-06	.	1.00E+00	.	.	1.19E+02	.	1.19E+02	5.22E-16	.	.	.	.
Oxygen (8)	O-19	8.26E+05	8.39E-07	.	1.00E+00	.	.	1.20E+02	.	1.20E+02	1.45E-16	.	.	.	.
Osmium (76)	Os-180	1.69E+04	4.09E-05	4.50E+02	1.00E+00	5.68E+02	.	9.21E+01	1.89E+02	5.58E+01	3.11E-14	7.60E-01	4.24E-16	.	.
Osmium (76)	Os-181	3.47E+03	2.00E-04	4.50E+02	1.00E+00	1.70E+01	.	5.46E+01	2.07E+00	1.79E+00	4.89E-15	2.23E-02	6.11E-17	5.56E+00	1.52E-14
Osmium (76)	Os-182	2.75E+02	2.52E-03	4.50E+02	1.00E+00	1.21E+01	.	7.30E+01	2.81E+00	2.21E+00	7.69E-14	3.33E-02	1.16E-15	.	.
Osmium (76)	Os-183	4.67E+02	1.48E-03	4.50E+02	1.00E+00	8.45E+00	.	1.47E+02	1.38E+00	1.18E+00	2.42E-14	1.01E-02	2.08E-16	.	.
Osmium (76)	Os-183m	6.13E+02	1.13E-03	4.50E+02	1.00E+00	8.38E+00	.	9.75E+01	1.37E+00	1.17E+00	1.82E-14	1.01E-02	1.59E-16	.	.
Osmium (76)	Os-185	2.70E+00	2.56E-01	4.50E+02	1.00E+00	2.14E+01	.	1.78E+02	7.12E+00	5.19E+00	1.86E-11	2.33E+00	8.38E-12	3.33E+00	1.20E-11
Osmium (76)	Os-186	3.47E-16	2.00E+15	4.50E+02	1.00E+00	3.16E-01	.	.	1.05E-01	7.91E-02	2.23E+03	3.56E-02	1.00E+03	.	.
Osmium (76)	Os-189m	1.05E+03	6.62E-04	4.50E+02	1.00E+00	5.75E+02	.	4.96E+07	1.92E+02	1.44E+02	1.36E-12	6.47E+01	6.13E-13	.	.
Osmium (76)	Os-190m	3.68E+04	1.88E-05	4.50E+02	1.00E+00	.	.	7.72E+01	.	7.72E+01	2.09E-14	3.48E+01	9.41E-15	.	.
Osmium (76)	Os-191	1.64E+01	4.22E-02	4.50E+02	1.00E+00	1.71E+01	.	1.78E+03	5.70E+00	4.26E+00	2.60E-12	1.92E+00	1.17E-12	9.99E+00	6.10E-12
Osmium (76)	Os-191m	4.63E+02	1.50E-03	4.50E+02	1.00E+00	1.46E+01	.	1.68E+03	4.86E+00	3.64E+00	7.87E-14	1.64E+00	3.54E-14	9.37E+00	2.03E-13
Osmium (76)	Os-193	2.02E+02	3.44E-03	4.50E+02	1.00E+00	1.19E+01	.	1.84E+03	3.96E+00	2.97E+00	1.49E-13	1.14E+00	5.73E-14	3.33E+00	1.67E-13
Osmium (76)	Os-194	1.16E-01	6.00E+00	4.50E+02	1.00E+00	2.59E+00	.	1.20E+03	8.63E-01	6.47E-01	5.70E-11	5.81E-03	5.12E-13	1.07E-02	9.39E-13
Osmium (76)	Os-196	1.04E+04	6.64E-05	4.50E+02	1.00E+00	9.17E+01	.	3.70E+02	3.06E+01	2.16E+01	2.13E-14	1.35E+00	1.33E-15	.	.
Phosphorus (15)	P-30	1.46E+05	4.75E-06	9.00E+01	1.00E+00	.	.	1.17E+02	.	1.17E+02	1.26E-15	1.05E+01	1.14E-16	.	.
Phosphorus (15)	P-32	1.77E+01	3.91E-02	9.00E+01	1.00E+00	4.00E+00	.	1.83E+04	1.67E-01	1.60E-01	1.52E-14	1.44E-02	1.37E-15	1.00E-01	9.47E-15
Phosphorus (15)	P-33	9.98E+00	6.94E-02	9.00E+01	1.00E+00	4.03E+01	.	7.52E+05	1.68E+00	1.61E+00	2.79E-13	1.45E-01	2.52E-14	.	.
Protactinium (91)	Pa-227	9.51E+03	7.29E-05	2.00E+03	1.00E+00	3.83E-01	2.74E-01	8.52E+02	1.37E-01	7.38E-02	9.24E-17	1.30E-04	1.62E-19	4.34E-03	5.44E-18
Protactinium (91)	Pa-228	2.76E+02	2.51E-03	2.00E+03	1.00E+00	5.40E-02	1.02E-01	4.05E+01	2.07E-02	1.31E-02	5.66E-16	3.18E-05	1.38E-18	6.23E-04	2.70E-17
Protactinium (91)	Pa-229	1.69E+02	4.11E-03	2.00E+03	1.00E+00	1.51E-02	.	3.43E+02	6.14E-03	4.37E-03	3.11E-16	1.58E-05	1.13E-18	3.50E-03	2.49E-16
Protactinium (91)	Pa-230	1.45E+01	4.77E-02	2.00E+03	1.00E+00	3.96E-03	1.40E-01	5.15E+01	1.57E-03	1.12E-03	9.27E-16	9.11E-06	7.56E-18	2.36E-04	1.96E-16
Protactinium (91)	Pa-231	2.12E-05	3.28E+04	2.00E+03	1.00E+00	1.15E-02	2.74E-01	2.64E+02	4.53E-03	3.21E-03	1.84E-09	1.94E-05	1.11E-11	6.60E-04	3.78E-10
Protactinium (91)	Pa-232	1.93E+02	3.59E-03	2.00E+03	1.00E+00	2.06E-02	1.02E-01	4.75E+01	8.17E-03	5.53E-03	3.49E-16	4.90E-06	3.09E-19	6.22E-04	3.92E-17



Soil to Groundwater July 2023															
Radionuclides		Isotope-specific Information				Tap Water Dose Compliance Concentrations (DCCs)						Protection of Groundwater Soil Screening Levels			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	K <sub>d</sub> Distribution coefficient (L/kg)	DAF	Ingestion DCC DL=1 (Bq/L)	Inhalation DCC DL=1 (Bq/L)	Immersion DCC DL=1 (Bq/L)	Produce Consumption DCC DL=1 (Bq/L)	Total DCC DL=1 (Bq/L)	Total DCC DL=1 (mg/L)	SSL Dose-based DL=1 (Bq/g)	SSL Dose-based DL=1 (mg/kg)	SSL MCL-based (Bq/g)	SSL MCL-based (mg/kg)
Protactinium (91)	Pa-234	9.06E+02	7.65E-04	2.00E+03	1.00E+00	3.84E-03	1.40E-01	3.64E+01	1.52E-03	1.08E-03	1.47E-17	7.08E-06	9.59E-20	2.16E-04	2.93E-18
Protactinium (91)	Pa-234m	3.11E+05	2.23E-06	2.00E+03	1.00E+00	3.84E-03	1.40E-01	6.49E+01	1.52E-03	1.08E-03	4.27E-20	7.08E-06	2.79E-22	2.16E-04	8.52E-21
Protactinium (91)	Pa-235	1.49E+04	4.66E-05	2.00E+03	1.00E+00	1.10E-02	2.74E-01	1.93E+02	4.33E-03	3.07E-03	2.55E-18	1.34E-05	1.11E-20	4.52E-04	3.75E-19
Protactinium (91)	Pa-236	4.00E+04	1.73E-05	2.00E+03	1.00E+00	6.21E-03	1.02E-01	3.51E+01	2.27E-03	1.64E-03	5.06E-19	2.30E-06	7.11E-22	1.61E-04	4.97E-20
Protactinium (91)	Pa-237	4.19E+04	1.66E-05	2.00E+03	1.00E+00	1.25E-02	.	9.53E+01	5.04E-03	3.59E-03	1.07E-18	5.84E-06	1.74E-21	2.09E-04	6.20E-20
Lead (82)	Pb-194	3.04E+04	2.28E-05	1.50E+02	1.00E+00	6.27E+00	.	3.93E+01	8.67E-01	7.48E-01	2.51E-16	3.20E+00	1.07E-15		
Lead (82)	Pb-195m	2.43E+04	2.85E-05	1.50E+02	1.00E+00	2.43E+01	.	3.81E+01	5.97E+00	4.26E+00	1.79E-15	5.54E+00	2.33E-15		
Lead (82)	Pb-196	9.84E+03	7.04E-05	1.50E+02	1.00E+00	1.37E+02	.	4.98E+01	5.59E+01	2.21E+01	2.31E-14	9.10E+00	9.51E-15		
Lead (82)	Pb-197	4.55E+04	1.52E-05	1.50E+02	1.00E+00	3.68E+01	.	5.78E+01	4.30E+00	3.61E+00	8.19E-16	7.42E+00	1.68E-15	2.10E+02	4.76E-14
Lead (82)	Pb-197m	8.47E+03	8.18E-05	1.50E+02	1.00E+00	3.19E+01	.	6.12E+01	4.10E+00	3.43E+00	4.18E-15	4.30E+00	5.25E-15	2.10E+02	2.56E-13
Lead (82)	Pb-198	2.53E+03	2.74E-04	1.50E+02	1.00E+00	7.24E+01	.	4.79E+01	2.87E+01	1.44E+01	5.90E-14	4.43E+00	1.82E-14		
Lead (82)	Pb-199	4.05E+03	1.71E-04	1.50E+02	1.00E+00	1.62E+02	.	9.32E+01	6.37E+01	3.07E+01	7.91E-14	6.48E+00	1.67E-14		
Lead (82)	Pb-200	2.82E+02	2.45E-03	1.50E+02	1.00E+00	1.88E+01	.	7.98E+01	7.29E+00	4.93E+00	1.83E-13	1.08E+00	4.03E-14	5.55E+01	2.06E-12
Lead (82)	Pb-201	6.51E+02	1.07E-03	1.50E+02	1.00E+00	4.19E+01	.	1.47E+02	1.64E+01	1.09E+01	1.77E-13	2.38E+00	3.86E-14	5.00E+01	8.09E-13
Lead (82)	Pb-201m	3.58E+05	1.93E-06	1.50E+02	1.00E+00	4.19E+01	.	1.02E+02	1.64E+01	1.06E+01	3.11E-16	2.27E+00	6.69E-17	5.00E+01	1.47E-15
Lead (82)	Pb-202	1.32E-05	5.25E+04	1.50E+02	1.00E+00	6.32E-01	.	2.74E+02	2.35E-01	1.71E-01	1.37E-07	2.63E-02	2.11E-08	1.68E+01	1.35E-05
Lead (82)	Pb-202m	1.72E+03	4.03E-04	1.50E+02	1.00E+00	6.91E-01	.	4.92E+01	2.57E-01	1.86E-01	1.15E-15	2.87E-02	1.77E-16	1.68E+01	1.04E-13
Lead (82)	Pb-203	1.17E+02	5.92E-03	1.50E+02	1.00E+00	4.42E+01	.	4.10E+02	1.64E+01	1.16E+01	1.06E-12	1.74E+00	1.59E-13	5.56E+00	5.06E-13
Lead (82)	Pb-204m	5.42E+03	1.28E-04	1.50E+02	1.00E+00	2.26E+02	.	5.76E+01	8.36E+01	2.96E+01	5.85E-14	4.45E+00	8.79E-15		
Lead (82)	Pb-205	4.53E-08	1.53E+07	1.50E+02	1.00E+00	3.85E+01	.	1.04E+07	1.43E+01	1.04E+01	2.47E-03	1.57E+00	3.72E-04		
Lead (82)	Pb-209	1.87E+03	3.71E-04	1.50E+02	1.00E+00	1.82E+02	.	1.05E+05	6.73E+01	4.91E+01	2.88E-13	7.37E+00	4.33E-14		
Lead (82)	Pb-210	3.12E-02	2.22E+01	1.50E+02	1.00E+00	4.90E-03	.	2.90E+04	1.97E-03	1.41E-03	4.96E-13	2.56E-04	9.02E-14	8.11E-02	2.86E-11
Lead (82)	Pb-211	1.01E+04	6.87E-05	1.50E+02	1.00E+00	5.18E+01	.	9.98E+02	1.92E+01	1.38E+01	1.51E-14	2.08E+00	2.28E-15	2.67E-01	2.92E-16
Lead (82)	Pb-212	5.71E+02	1.21E-03	1.50E+02	1.00E+00	1.27E+00	.	7.62E+01	4.61E-01	3.37E-01	6.57E-15	5.26E-02	1.02E-15	1.08E-01	2.11E-15
Lead (82)	Pb-214	1.36E+04	5.10E-05	1.50E+02	1.00E+00	4.89E-03	.	6.61E+01	1.97E-03	1.41E-03	1.16E-18	2.56E-04	2.11E-19	4.06E-02	3.35E-17
Palladium (46)	Pd-100	6.97E+01	9.95E-03	1.80E+02	1.00E+00	6.69E+00	.	4.03E+01	1.71E+00	1.32E+00	9.90E-14	1.47E-02	1.11E-15		
Palladium (46)	Pd-101	7.17E+02	9.67E-04	1.80E+02	1.00E+00	3.09E+01	.	1.96E+02	8.98E+00	6.72E+00	4.97E-14	4.33E-02	3.20E-16		
Palladium (46)	Pd-103	1.49E+01	4.66E-02	1.80E+02	1.00E+00	5.06E+01	.	8.61E+04	1.11E+01	9.11E+00	3.31E-12	1.04E+00	3.78E-13	2.63E+00	9.53E-13
Palladium (46)	Pd-107	1.07E-07	6.50E+06	1.80E+02	1.00E+00	2.56E+02	.	.	5.60E+01	4.59E+01	2.42E-03	8.28E+00	4.36E-04		
Palladium (46)	Pd-109	4.43E+02	1.56E-03	1.80E+02	1.00E+00	1.76E+01	.	1.72E+04	3.85E+00	3.16E+00	4.08E-14	5.69E-01	7.35E-15	2.00E+00	2.58E-14
Palladium (46)	Pd-109m	7.77E+04	8.92E-06	1.80E+02	1.00E+00	1.76E+01	.	1.09E+03	3.85E+00	3.15E+00	2.32E-16	5.68E-01	4.18E-17	2.00E+00	1.47E-16
Palladium (46)	Pd-111	1.56E+04	4.45E-05	1.80E+02	1.00E+00	7.60E+00	.	1.35E+03	1.45E+00	1.21E+00	4.54E-16	4.45E-01	1.66E-16	1.42E+00	5.30E-16
Palladium (46)	Pd-112	2.89E+02	2.40E-03	1.80E+02	1.00E+00	3.30E+00	.	1.63E+02	7.05E-01	5.79E-01	1.18E-14	1.14E-01	2.31E-15		
Palladium (46)	Pd-114	1.51E+05	4.60E-06	1.80E+02	1.00E+00	.	.	3.62E+02	.	3.62E+02	1.44E-14	1.25E+02	4.98E-15		
Palladium (46)	Pd-96	1.79E+05	3.87E-06	1.80E+02	1.00E+00	.	.	2.33E+01	.	2.33E+01	6.55E-16	1.34E-01	3.78E-18		
Palladium (46)	Pd-97	1.17E+05	5.90E-06	1.80E+02	1.00E+00	3.87E+01	.	2.89E+01	2.60E-01	2.56E-01	1.11E-17	5.26E-05	2.28E-21	4.41E-02	1.91E-18
Palladium (46)	Pd-98	2.06E+04	3.37E-05	1.80E+02	1.00E+00	1.64E+02	.	5.41E+01	3.59E+01	1.91E+01	4.76E-15	2.61E-01	6.51E-17		
Palladium (46)	Pd-99	1.70E+04	4.07E-05	1.80E+02	1.00E+00	8.90E+01	.	6.20E+01	2.56E+01	1.51E+01	4.59E-15	1.12E-01	3.43E-17		
Promethium (61)	Pm-136	2.04E+05	3.39E-06	4.50E+02	1.00E+00	7.77E+01	.	2.32E+01	3.26E+01	1.16E+01	4.03E-16	6.72E+00	2.35E-16		
Promethium (61)	Pm-137m	1.52E+05	4.57E-06	4.50E+02	1.00E+00	5.11E+01	.	3.61E+01	2.13E+01	1.06E+01	5.03E-16	9.01E+00	4.27E-16		
Promethium (61)	Pm-139	8.78E+04	7.90E-06	4.50E+02	1.00E+00	3.23E+01	.	7.43E+01	1.35E+01	8.43E+00	7.00E-16	7.98E+00	6.63E-16		
Promethium (61)	Pm-140	2.38E+06	2.92E-07	4.50E+02	1.00E+00	5.01E+00	.	7.44E+01	2.12E+00	1.46E+00	4.51E-18	9.42E-01	2.91E-18		

Soil to Groundwater July 2023															
Radionuclides		Isotope-specific Information				Tap Water Dose Compliance Concentrations (DCCs)						Protection of Groundwater Soil Screening Levels			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	K <sub>d</sub> Distribution coefficient (L/kg)	DAF	Ingestion DCC DL=1 (Bq/L)	Inhalation DCC DL=1 (Bq/L)	Immersion DCC DL=1 (Bq/L)	Produce Consumption DCC DL=1 (Bq/L)	Total DCC DL=1 (Bq/L)	Total DCC DL=1 (mg/L)	SSL Dose-based DL=1 (Bq/g)	SSL Dose-based DL=1 (mg/kg)	SSL MCL-based (Bq/g)	SSL MCL-based (mg/kg)
Promethium (61)	Pm-141	1.74E+04	3.98E-05	4.50E+02	1.00E+00	2.34E+02	.	1.51E+02	8.72E+01	4.47E+01	1.90E-14	2.11E+01	8.95E-15		
Promethium (61)	Pm-142	5.40E+05	1.28E-06	4.50E+02	1.00E+00	.	.	1.39E+02	.	1.39E+02	1.92E-15	6.27E+01	8.65E-16		
Promethium (61)	Pm-143	9.55E-01	7.26E-01	4.50E+02	1.00E+00	4.52E+01	.	4.03E+02	1.64E+01	1.17E+01	9.17E-11	5.25E+00	4.13E-11		
Promethium (61)	Pm-144	6.97E-01	9.95E-01	4.50E+02	1.00E+00	2.51E-01	.	7.82E+01	1.06E-01	7.43E-02	8.05E-13	4.77E-02	5.17E-13	3.61E-01	3.91E-12
Promethium (61)	Pm-145	3.92E-02	1.77E+01	4.50E+02	1.00E+00	9.17E+01	.	9.23E+03	3.32E+01	2.43E+01	4.72E-09	1.09E+01	2.12E-09		
Promethium (61)	Pm-146	1.25E-01	5.53E+00	4.50E+02	1.00E+00	5.42E-01	.	1.63E+02	2.30E-01	1.61E-01	9.85E-12	1.42E-01	8.66E-12		
Promethium (61)	Pm-147	2.64E-01	2.62E+00	4.50E+02	1.00E+00	2.11E-01	.	1.23E+06	8.99E-02	6.30E-02	1.84E-12	5.82E-02	1.70E-12	4.91E-01	1.43E-11
Promethium (61)	Pm-148	4.71E+01	1.47E-02	4.50E+02	1.00E+00	1.22E-01	.	1.99E+02	5.14E-02	3.61E-02	5.95E-15	2.70E-02	4.45E-15	2.12E-01	3.50E-14
Promethium (61)	Pm-148m	6.13E+00	1.13E-01	4.50E+02	1.00E+00	1.23E-01	.	5.98E+01	5.21E-02	3.66E-02	4.63E-14	2.76E-02	3.49E-14	2.12E-01	2.69E-13
Promethium (61)	Pm-149	1.14E+02	6.06E-03	4.50E+02	1.00E+00	9.90E+00	.	8.38E+03	3.58E+00	2.63E+00	1.80E-13	1.18E+00	8.09E-14	1.67E+00	1.14E-13
Promethium (61)	Pm-150	2.27E+03	3.06E-04	4.50E+02	1.00E+00	3.89E+01	.	7.87E+01	1.41E+01	9.13E+00	3.17E-14	4.11E+00	1.43E-14		
Promethium (61)	Pm-151	2.14E+02	3.24E-03	4.50E+02	1.00E+00	1.20E+01	.	3.79E+02	4.42E+00	3.20E+00	1.19E-13	1.52E+00	5.65E-14	3.44E+01	1.28E-12
Promethium (61)	Pm-152	8.84E+04	7.84E-06	4.50E+02	1.00E+00	.	.	3.89E+02	.	3.89E+02	3.50E-14	1.75E+02	1.58E-14		
Promethium (61)	Pm-152m	4.84E+04	1.43E-05	4.50E+02	1.00E+00	.	.	7.72E+01	.	7.72E+01	1.27E-14	3.48E+01	5.72E-15		
Promethium (61)	Pm-153	6.94E+04	9.99E-06	4.50E+02	1.00E+00	1.34E+01	.	1.01E+03	5.74E+00	4.00E+00	4.63E-16	3.71E+00	4.30E-16	6.88E+00	7.96E-16
Promethium (61)	Pm-154	2.11E+05	3.29E-06	4.50E+02	1.00E+00	.	.	6.28E+01	.	6.28E+01	2.41E-15	2.83E+01	1.09E-15		
Promethium (61)	Pm-154m	1.36E+05	5.10E-06	4.50E+02	1.00E+00	.	.	6.42E+01	.	6.42E+01	3.81E-15	2.89E+01	1.72E-15		
Polonium (84)	Po-203	9.92E+03	6.98E-05	2.10E+02	1.00E+00	1.37E+01	.	2.71E+01	3.54E+00	2.55E+00	2.73E-15	7.77E-01	8.33E-16	5.56E+00	5.97E-15
Polonium (84)	Po-204	1.72E+03	4.03E-04	2.10E+02	1.00E+00	1.31E+01	.	2.79E+01	3.37E+00	2.45E+00	1.52E-14	9.12E-01	5.67E-15	8.41E+03	5.23E-11
Polonium (84)	Po-205	3.66E+03	1.89E-04	2.10E+02	1.00E+00	8.65E+00	.	3.56E+01	2.13E+00	1.63E+00	4.79E-15	5.56E-01	1.64E-15	1.25E+05	3.67E-10
Polonium (84)	Po-206	2.87E+01	2.41E-02	2.10E+02	1.00E+00	4.95E-01	.	2.76E+01	1.94E-01	1.38E-01	5.20E-14	3.10E-02	1.16E-14	1.87E+00	7.02E-13
Polonium (84)	Po-207	1.05E+03	6.62E-04	2.10E+02	1.00E+00	7.59E+00	.	4.22E+01	1.72E+00	1.36E+00	1.41E-14	6.05E-01	6.28E-15	3.55E+00	3.69E-14
Polonium (84)	Po-208	2.39E-01	2.90E+00	2.10E+02	1.00E+00	6.20E-03	.	1.38E+06	2.63E-03	1.85E-03	8.43E-14	3.88E-04	1.77E-14	1.17E-01	5.32E-12
Polonium (84)	Po-209	6.79E-03	1.02E+02	2.10E+02	1.00E+00	6.22E-03	.	1.96E+04	2.64E-03	1.86E-03	2.99E-12	3.90E-04	6.29E-13		
Polonium (84)	Po-210	1.83E+00	3.79E-01	2.10E+02	1.00E+00	7.75E-03	.	1.22E+07	3.29E-03	2.31E-03	1.39E-14	4.86E-04	2.93E-15	1.17E-01	7.03E-13
Polonium (84)	Po-211	4.24E+07	1.64E-08	2.10E+02	1.00E+00	.	.	1.46E+04	.	1.46E+04	3.82E-15	3.07E+03	8.03E-16		
Polonium (84)	Po-212	7.31E+13	9.48E-15	2.10E+02	1.00E+00	.	.	.	.	.	.			1.17E-01	1.77E-26
Polonium (84)	Po-212m	4.85E+05	1.43E-06	2.10E+02	1.00E+00	.	.	1.37E+03	.	1.37E+03	3.13E-14	2.87E+02	6.59E-15		
Polonium (84)	Po-213	5.20E+12	1.33E-13	2.10E+02	1.00E+00	1.82E+02	.	1.02E+05	6.73E+01	4.91E+01	1.05E-22	7.37E+00	1.58E-23	1.17E-01	2.50E-25
Polonium (84)	Po-214	1.33E+11	5.21E-12	2.10E+02	1.00E+00	4.90E-03	.	2.84E+04	1.97E-03	1.41E-03	1.19E-25	2.56E-04	2.16E-26	4.79E-02	4.04E-24
Polonium (84)	Po-215	1.23E+10	5.65E-11	2.10E+02	1.00E+00	5.18E+01	.	9.96E+02	1.92E+01	1.38E+01	1.27E-20	2.08E+00	1.91E-21	8.11E-02	7.46E-23
Polonium (84)	Po-216	1.51E+08	4.60E-09	2.10E+02	1.00E+00	1.27E+00	.	7.62E+01	4.61E-01	3.37E-01	2.53E-20	5.26E-02	3.95E-21	5.61E-02	4.22E-21
Polonium (84)	Po-218	1.17E+05	5.90E-06	2.10E+02	1.00E+00	4.89E-03	.	6.61E+01	1.97E-03	1.41E-03	1.37E-19	2.56E-04	2.49E-20	3.01E-02	2.93E-18
Praseodymium (59)	Pr-134	3.31E+04	2.09E-05	6.50E+02	1.00E+00	3.67E+00	.	3.08E+01	1.54E+00	1.05E+00	2.22E-16	1.22E+00	2.58E-16		
Praseodymium (59)	Pr-134m	2.14E+04	3.23E-05	6.50E+02	1.00E+00	3.63E+00	.	3.87E+01	1.52E+00	1.04E+00	3.41E-16	1.20E+00	3.95E-16		
Praseodymium (59)	Pr-135	1.52E+04	4.57E-05	6.50E+02	1.00E+00	3.13E+01	.	7.18E+01	1.31E+01	8.17E+00	3.81E-15	9.06E+00	4.22E-15		
Praseodymium (59)	Pr-136	2.78E+04	2.49E-05	6.50E+02	1.00E+00	3.04E+02	.	5.49E+01	1.25E+02	3.39E+01	8.70E-15	2.20E+01	5.65E-15		
Praseodymium (59)	Pr-137	4.74E+03	1.46E-04	6.50E+02	1.00E+00	6.94E+01	.	3.14E+02	2.89E+01	1.92E+01	2.90E-14	2.75E+01	4.17E-14		
Praseodymium (59)	Pr-138	2.51E+05	2.76E-06	6.50E+02	1.00E+00	.	.	1.47E+02	.	1.47E+02	4.24E-15	9.58E+01	2.76E-15		
Praseodymium (59)	Pr-138m	2.86E+03	2.42E-04	6.50E+02	1.00E+00	8.12E+01	.	4.82E+01	3.35E+01	1.59E+01	4.02E-14	1.03E+01	2.61E-14		
Praseodymium (59)	Pr-139	1.38E+03	5.03E-04	6.50E+02	1.00E+00	3.45E+01	.	4.86E+02	1.44E+01	9.96E+00	5.27E-14	1.09E+01	5.75E-14		
Praseodymium (59)	Pr-140	1.07E+05	6.45E-06	6.50E+02	1.00E+00	.	.	2.24E+02	.	2.24E+02	1.53E-14	1.46E+02	9.96E-15		

Soil to Groundwater July 2023															
Radionuclides		Isotope-specific Information				Tap Water Dose Compliance Concentrations (DCCs)						Protection of Groundwater Soil Screening Levels			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	K <sub>d</sub> Distribution coefficient (L/kg)	DAF	Ingestion DCC DL=1 (Bq/L)	Inhalation DCC DL=1 (Bq/L)	Immersion DCC DL=1 (Bq/L)	Produce Consumption DCC DL=1 (Bq/L)	Total DCC DL=1 (Bq/L)	Total DCC DL=1 (mg/L)	SSL Dose-based DL=1 (Bq/g)	SSL Dose-based DL=1 (mg/kg)	SSL MCL-based (Bq/g)	SSL MCL-based (mg/kg)
Praseodymium (59)	Pr-142m	2.49E+04	2.78E-05	6.50E+02	1.00E+00	7.36E+00	.	1.70E+03	3.03E+00	2.14E+00	6.40E-16	1.39E+00	4.16E-16	2.17E+00	6.46E-16
Praseodymium (59)	Pr-143	1.86E+01	3.72E-02	6.50E+02	1.00E+00	8.38E+00	.	5.32E+04	3.45E+00	2.44E+00	9.83E-13	1.59E+00	6.39E-13	2.41E+00	9.68E-13
Praseodymium (59)	Pr-144	2.11E+04	3.29E-05	6.50E+02	1.00E+00	2.57E-01	.	2.65E+03	1.08E-01	7.62E-02	2.73E-17	4.96E-02	1.78E-17	3.61E-01	1.29E-16
Praseodymium (59)	Pr-144m	5.06E+04	1.37E-05	6.50E+02	1.00E+00	2.57E-01	.	2.35E+03	1.08E-01	7.62E-02	1.14E-17	4.96E-02	7.40E-18	3.61E-01	5.39E-17
Praseodymium (59)	Pr-145	1.01E+03	6.83E-04	6.50E+02	1.00E+00	2.49E+01	.	4.80E+03	1.03E+01	7.26E+00	5.44E-14	4.72E+00	3.54E-14		
Praseodymium (59)	Pr-146	1.51E+04	4.59E-05	6.50E+02	1.00E+00	1.30E+02	.	1.11E+02	5.37E+01	2.84E+01	1.44E-14	1.84E+01	9.36E-15		
Praseodymium (59)	Pr-147	2.72E+04	2.55E-05	6.50E+02	1.00E+00	2.06E-01	.	1.99E+02	8.78E-02	6.15E-02	1.75E-17	5.63E-02	1.60E-17	4.45E-01	1.26E-16
Praseodymium (59)	Pr-148	1.59E+05	4.36E-06	6.50E+02	1.00E+00	.	.	1.15E+02	.	1.15E+02	5.60E-15	7.46E+01	3.64E-15		
Praseodymium (59)	Pr-148m	1.81E+05	3.82E-06	6.50E+02	1.00E+00	.	.	1.26E+02	.	1.26E+02	5.41E-15	8.21E+01	3.51E-15		
Platinum (78)	Pt-184	2.11E+04	3.29E-05	2.40E+01	1.00E+00	4.80E+01	.	4.50E+01	1.49E+01	9.08E+00	4.16E-15	3.50E-02	1.60E-17		
Platinum (78)	Pt-186	2.92E+03	2.37E-04	2.40E+01	1.00E+00	3.13E-01	.	5.08E+01	1.04E-01	7.79E-02	2.61E-16	1.47E-02	4.91E-17		
Platinum (78)	Pt-187	2.58E+03	2.68E-04	2.40E+01	1.00E+00	5.14E+01	.	1.33E+02	1.40E+01	1.02E+01	3.86E-14	5.91E-02	2.24E-16		
Platinum (78)	Pt-188	2.48E+01	2.79E-02	2.40E+01	1.00E+00	6.58E+00	.	4.99E+01	1.71E+00	1.32E+00	5.26E-13	8.84E-03	3.51E-15		
Platinum (78)	Pt-189	5.58E+02	1.24E-03	2.40E+01	1.00E+00	2.31E+01	.	2.31E+02	6.24E+00	4.81E+00	8.54E-14	2.87E-02	5.09E-16		
Platinum (78)	Pt-190	1.07E-12	6.50E+11	2.40E+01	1.00E+00	2.60E-01	.	.	7.90E-02	6.06E-02	5.66E-01	5.33E-03	4.98E-02		
Platinum (78)	Pt-191	9.03E+01	7.68E-03	2.40E+01	1.00E+00	2.78E+01	.	4.54E+02	6.07E+00	4.93E+00	5.47E-13	1.19E-01	1.32E-14	2.69E-01	2.98E-14
Platinum (78)	Pt-193	1.39E-02	5.00E+01	2.40E+01	1.00E+00	2.75E+02	.	1.80E+07	6.01E+01	4.93E+01	3.60E-08	1.19E+00	8.71E-10	2.69E+00	1.96E-09
Platinum (78)	Pt-193m	5.84E+01	1.19E-02	2.40E+01	1.00E+00	2.00E+01	.	1.47E+04	4.36E+00	3.58E+00	6.20E-13	8.66E-02	1.50E-14	1.34E+00	2.33E-13
Platinum (78)	Pt-195m	6.29E+01	1.10E-02	2.40E+01	1.00E+00	1.54E+01	.	2.14E+03	3.35E+00	2.75E+00	4.47E-13	6.65E-02	1.08E-14		
Platinum (78)	Pt-197	3.05E+02	2.27E-03	2.40E+01	1.00E+00	2.28E+01	.	5.62E+03	4.98E+00	4.08E+00	1.38E-13	9.88E-02	3.34E-15	2.69E-01	9.09E-15
Platinum (78)	Pt-197m	3.82E+03	1.82E-04	2.40E+01	1.00E+00	1.96E+01	.	1.30E+03	4.28E+00	3.51E+00	9.49E-15	8.49E-02	2.30E-16	2.52E-01	6.81E-16
Platinum (78)	Pt-199	1.18E+04	5.86E-05	2.40E+01	1.00E+00	2.05E+01	.	4.15E+02	8.02E+00	5.69E+00	5.02E-15	1.02E+00	8.97E-16	6.66E+02	5.88E-13
Platinum (78)	Pt-200	4.86E+02	1.43E-03	2.40E+01	1.00E+00	7.98E+00	.	3.53E+02	1.79E+00	1.45E+00	3.14E-14	3.65E-02	7.89E-16		
Platinum (78)	Pt-202	1.38E+02	5.02E-03	2.40E+01	1.00E+00	2.24E+00	.	6.18E+02	4.88E-01	4.00E-01	3.07E-14	9.69E-03	7.44E-16		
Plutonium (94)	Pu-232	1.08E+04	6.41E-05	5.00E+00	1.00E+00	2.68E-02	1.02E-01	5.48E+01	1.06E-02	7.08E-03	7.97E-18	6.36E-06	7.16E-21	8.06E-04	9.07E-19
Plutonium (94)	Pu-234	6.90E+02	1.00E-03	5.00E+00	1.00E+00	3.88E-03	1.40E-01	4.21E+01	1.54E-03	1.10E-03	1.95E-17	7.38E-06	1.31E-19	2.30E-04	4.09E-18
Plutonium (94)	Pu-235	1.44E+04	4.81E-05	5.00E+00	1.00E+00	1.10E-02	2.74E-01	1.72E+02	4.33E-03	3.07E-03	2.63E-18	1.33E-05	1.14E-20	4.52E-04	3.87E-19
Plutonium (94)	Pu-236	2.42E-01	2.86E+00	5.00E+00	1.00E+00	1.77E-02	1.02E-01	7.56E+01	7.09E-03	4.82E-03	2.46E-13	4.78E-06	2.44E-16	5.12E-04	2.61E-14
Plutonium (94)	Pu-237	5.60E+00	1.24E-01	5.00E+00	1.00E+00	1.25E-02	.	2.13E+02	5.04E-03	3.59E-03	7.98E-15	5.86E-06	1.30E-17	2.09E-04	4.64E-16
Plutonium (94)	Pu-238	7.90E-03	8.77E+01	5.00E+00	1.00E+00	3.57E-03	1.40E-01	6.59E+01	1.43E-03	1.01E-03	1.60E-12	6.51E-06	1.03E-14	2.01E-04	3.18E-13
Plutonium (94)	Pu-239	2.87E-05	2.41E+04	5.00E+00	1.00E+00	8.89E-03	2.74E-01	1.94E+02	3.57E-03	2.52E-03	1.10E-09	1.13E-05	4.93E-12	3.91E-04	1.70E-10
Plutonium (94)	Pu-240	1.06E-04	6.56E+03	5.00E+00	1.00E+00	5.48E-03	1.02E-01	4.86E+01	2.04E-03	1.47E-03	1.75E-10	2.23E-06	2.66E-13	1.52E-04	1.81E-11
Plutonium (94)	Pu-241	4.83E-02	1.44E+01	5.00E+00	1.00E+00	1.02E-02	.	2.23E+02	4.17E-03	2.96E-03	7.74E-13	5.41E-06	1.42E-15	1.91E-04	5.00E-14
Plutonium (94)	Pu-242	1.85E-06	3.75E+05	5.00E+00	1.00E+00	3.51E-03	1.40E-01	6.46E+01	1.40E-03	9.95E-04	6.83E-09	5.66E-06	3.89E-11	1.06E-04	7.27E-10
Plutonium (94)	Pu-243	1.22E+03	5.66E-04	5.00E+00	1.00E+00	7.69E-03	2.74E-01	1.41E+02	3.12E-03	2.20E-03	2.29E-17	9.71E-06	1.01E-19	3.11E-04	3.24E-18
Plutonium (94)	Pu-244	8.66E-09	8.00E+07	5.00E+00	1.00E+00	4.94E-03	1.02E-01	4.26E+01	1.86E-03	1.34E-03	1.97E-06	2.17E-06	3.20E-09	1.45E-04	2.14E-07
Plutonium (94)	Pu-245	5.78E+02	1.20E-03	5.00E+00	1.00E+00	8.63E-03	.	1.13E+02	3.55E-03	2.51E-03	5.59E-17	5.02E-06	1.12E-19	1.76E-04	3.92E-18
Plutonium (94)	Pu-246	2.33E+01	2.97E-02	5.00E+00	1.00E+00	3.30E-03	1.40E-01	4.02E+01	1.32E-03	9.39E-04	5.19E-16	5.24E-06	2.90E-18	1.06E-04	5.85E-17
Radium (88)	Ra-219	2.19E+09	3.17E-10	1.00E+00	1.00E+00	.	.	6.99E+02	.	6.99E+02	3.67E-18	8.80E-01	4.63E-21	6.66E-04	3.50E-24
Radium (88)	Ra-220	1.22E+09	5.68E-10	1.00E+00	1.00E+00	.	.	2.62E+04	.	2.62E+04	2.48E-16	3.14E+01	2.97E-19	1.17E-01	1.10E-21
Radium (88)	Ra-221	7.81E+05	8.88E-07	1.00E+00	1.00E+00	1.82E+02	.	3.52E+03	6.73E+01	4.84E+01	7.19E-16	2.75E+00	4.08E-17	1.17E-01	1.73E-18
Radium (88)	Ra-222	5.75E+05	1.20E-06	1.00E+00	1.00E+00	4.90E-03	.	8.62E+03	1.97E-03	1.41E-03	2.85E-20	2.56E-04	5.18E-21	4.79E-02	9.69E-19



Soil to Groundwater July 2023															
Radionuclides		Isotope-specific Information				Tap Water Dose Compliance Concentrations (DCCs)						Protection of Groundwater Soil Screening Levels			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	K <sub>d</sub> Distribution coefficient (L/kg)	DAF	Ingestion	Inhalation	Immersion	Produce	Total	Total	SSL	SSL	SSL	SSL
						DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (mg/L)	Dose-based DL=1 (Bq/g)	Dose-based DL=1 (mg/kg)	MCL-based (Bq/g)	MCL-based (mg/kg)
Radium (88)	Ra-223	2.21E+01	3.13E-02	1.00E+00	1.00E+00	6.25E-02	2.74E-01	3.92E+02	2.20E-02	1.54E-02	8.13E-15	1.96E-05	1.03E-17	6.61E-04	3.49E-16
Radium (88)	Ra-224	6.91E+01	1.00E-02	1.00E+00	1.00E+00	9.93E-02	1.46E+01	7.57E+01	3.51E-02	2.59E-02	4.40E-15	3.33E-05	5.66E-18	6.58E-04	1.12E-16
Radium (88)	Ra-225	1.70E+01	4.08E-02	1.00E+00	1.00E+00	4.67E-02	.	5.40E+02	1.70E-02	1.25E-02	8.66E-15	1.78E-05	1.24E-17	5.07E-03	3.53E-15
Radium (88)	Ra-226	4.33E-04	1.60E+03	1.00E+00	1.00E+00	4.21E-03	1.40E-01	6.59E+01	1.66E-03	1.18E-03	3.23E-11	8.82E-06	2.41E-13	2.20E-04	6.03E-12
Radium (88)	Ra-227	8.63E+03	8.03E-05	1.00E+00	1.00E+00	2.17E-02	2.74E-01	2.14E+02	8.65E-03	6.05E-03	8.35E-18	1.95E-05	2.68E-20	6.60E-04	9.10E-19
Radium (88)	Ra-228	1.21E-01	5.75E+00	1.00E+00	1.00E+00	7.32E-03	1.02E-01	4.86E+01	2.61E-03	1.89E-03	1.88E-13	2.45E-06	2.43E-16	1.64E-04	1.62E-14
Radium (88)	Ra-230	3.92E+03	1.77E-04	1.00E+00	1.00E+00	3.90E-03	1.40E-01	4.85E+01	1.55E-03	1.10E-03	3.39E-18	8.59E-06	2.64E-20	2.16E-04	6.66E-19
Rubidium (37)	Rb-77	9.66E+04	7.17E-06	2.10E+02	1.00E+00	1.13E+02	.	4.16E+01	4.08E+01	1.74E+01	7.28E-16	1.40E+00	5.86E-17	.	.
Rubidium (37)	Rb-78	2.06E+04	3.36E-05	2.10E+02	1.00E+00	1.46E+02	.	2.68E+01	2.18E+01	1.11E+01	2.20E-15	2.34E+00	4.63E-16	.	.
Rubidium (37)	Rb-78m	6.35E+04	1.09E-05	2.10E+02	1.00E+00	1.46E+03	.	3.17E+01	2.18E+02	2.72E+01	1.75E-15	5.72E+00	3.69E-16	.	.
Rubidium (37)	Rb-79	1.59E+04	4.36E-05	2.10E+02	1.00E+00	2.06E+02	.	7.15E+01	3.08E+01	1.95E+01	5.08E-15	4.27E+00	1.11E-15	.	.
Rubidium (37)	Rb-80	6.54E+05	1.06E-06	2.10E+02	1.00E+00	.	.	9.93E+01	.	9.93E+01	6.36E-16	2.09E+01	1.34E-16	.	.
Rubidium (37)	Rb-81	1.33E+03	5.22E-04	2.10E+02	1.00E+00	2.15E+02	.	1.95E+02	3.22E+01	2.45E+01	7.83E-14	5.27E+00	1.69E-14	.	.
Rubidium (37)	Rb-81m	1.19E+04	5.80E-05	2.10E+02	1.00E+00	1.83E+02	.	1.92E+02	2.74E+01	2.12E+01	7.54E-15	4.55E+00	1.62E-15	.	.
Rubidium (37)	Rb-82	2.86E+05	2.42E-06	2.10E+02	1.00E+00	.	.	1.08E+02	.	1.08E+02	1.63E-15	2.28E+01	3.42E-16	.	.
Rubidium (37)	Rb-82m	9.38E+02	7.39E-04	2.10E+02	1.00E+00	8.32E+01	.	4.06E+01	1.24E+01	8.55E+00	3.92E-14	1.80E+00	8.24E-15	.	.
Rubidium (37)	Rb-83	2.93E+00	2.36E-01	2.10E+02	1.00E+00	6.34E+00	.	2.52E+02	9.48E-01	8.22E-01	1.22E-12	1.73E-01	2.56E-13	.	.
Rubidium (37)	Rb-84	7.72E+00	8.98E-02	2.10E+02	1.00E+00	3.85E+00	.	1.32E+02	5.76E-01	4.99E-01	2.85E-13	1.05E-01	5.99E-14	.	.
Rubidium (37)	Rb-84m	1.80E+04	3.85E-05	2.10E+02	1.00E+00	3.84E+00	.	9.37E+01	5.75E-01	4.97E-01	1.22E-16	1.05E-01	2.56E-17	.	.
Rubidium (37)	Rb-86	1.36E+01	5.11E-02	2.10E+02	1.00E+00	3.56E+00	.	1.17E+03	5.32E-01	4.63E-01	1.54E-13	9.73E-02	3.24E-14	4.67E+00	1.55E-12
Rubidium (37)	Rb-86m	3.58E+05	1.93E-06	2.10E+02	1.00E+00	3.56E+00	.	1.87E+02	5.32E-01	4.62E-01	5.82E-18	9.71E-02	1.22E-18	4.67E+00	5.88E-17
Rubidium (37)	Rb-87	1.41E-11	4.92E+10	2.10E+02	1.00E+00	6.62E+00	.	3.03E+05	9.90E-01	8.61E-01	2.79E-01	1.81E-01	5.87E-02	2.33E+00	7.56E-01
Rubidium (37)	Rb-88	2.05E+04	3.38E-05	2.10E+02	1.00E+00	1.11E+02	.	1.66E+02	1.66E+01	1.33E+01	3.00E-15	2.80E+00	6.30E-16	.	.
Rubidium (37)	Rb-89	2.40E+04	2.88E-05	2.10E+02	1.00E+00	3.70E+00	.	4.99E+01	3.76E-01	3.39E-01	6.58E-17	4.15E-04	8.05E-20	8.88E-04	1.72E-19
Rubidium (37)	Rb-90	1.38E+05	5.01E-06	2.10E+02	1.00E+00	3.42E-01	.	5.05E+01	3.72E-02	3.35E-02	1.14E-18	4.15E-05	1.42E-21	3.54E-04	1.21E-20
Rubidium (37)	Rb-90m	8.47E+04	8.18E-06	2.10E+02	1.00E+00	3.42E-01	.	3.30E+01	3.72E-02	3.35E-02	1.87E-18	4.15E-05	2.31E-21	3.54E-04	1.97E-20
Rhenium (75)	Re-178	2.76E+04	2.51E-05	7.50E+00	1.00E+00	3.72E+01	.	6.27E+01	1.95E+00	1.80E+00	6.10E-16	1.23E-01	4.15E-17	.	.
Rhenium (75)	Re-179	1.87E+04	3.71E-05	7.50E+00	1.00E+00	1.34E+02	.	1.05E+02	3.39E+01	2.15E+01	1.08E-14	3.98E-01	2.00E-16	.	.
Rhenium (75)	Re-180	1.49E+05	4.64E-06	7.50E+00	1.00E+00	.	.	1.00E+02	.	1.00E+02	6.33E-15	7.71E-01	4.87E-17	.	.
Rhenium (75)	Re-181	3.05E+02	2.27E-03	7.50E+00	1.00E+00	1.99E+01	.	1.49E+02	2.19E+00	1.95E+00	6.06E-14	2.24E-02	6.97E-16	5.56E+00	1.73E-13
Rhenium (75)	Re-182	9.49E+01	7.31E-03	7.50E+00	1.00E+00	7.26E+00	.	6.71E+01	1.06E+00	9.13E-01	9.18E-14	7.03E-03	7.07E-16	.	.
Rhenium (75)	Re-182m	4.78E+02	1.45E-03	7.50E+00	1.00E+00	3.61E+01	.	9.68E+01	5.27E+00	4.39E+00	8.77E-14	3.38E-02	6.75E-16	.	.
Rhenium (75)	Re-183	3.61E+00	1.92E-01	7.50E+00	1.00E+00	1.04E+01	.	9.53E+02	1.51E+00	1.32E+00	3.50E-12	1.02E-02	2.70E-14	.	.
Rhenium (75)	Re-184	6.66E+00	1.04E-01	7.50E+00	1.00E+00	1.05E+01	.	1.36E+02	1.54E+00	1.33E+00	1.93E-12	1.02E-02	1.48E-14	.	.
Rhenium (75)	Re-184m	1.50E+00	4.63E-01	7.50E+00	1.00E+00	4.60E+00	.	1.17E+02	6.72E-01	5.83E-01	3.76E-12	4.49E-03	2.89E-14	.	.
Rhenium (75)	Re-186	6.80E+01	1.02E-02	7.50E+00	1.00E+00	3.25E-01	.	5.94E+03	1.02E-01	7.78E-02	1.12E-14	5.70E-03	8.18E-16	8.55E-02	1.23E-14
Rhenium (75)	Re-186m	3.47E-06	2.00E+05	7.50E+00	1.00E+00	3.03E-01	.	3.99E+03	8.84E-02	6.84E-02	1.93E-07	2.48E-03	6.97E-09	8.55E-02	2.41E-07
Rhenium (75)	Re-187	1.68E-11	4.12E+10	7.50E+00	1.00E+00	2.06E+03	.	.	3.01E+02	2.63E+02	1.53E+02	2.02E+00	1.18E+00	2.56E+00	1.49E+00
Rhenium (75)	Re-188	3.57E+02	1.94E-03	7.50E+00	1.00E+00	7.07E+00	.	1.79E+03	1.03E+00	9.01E-01	2.49E-14	6.93E-03	1.92E-16	5.70E-02	1.57E-15
Rhenium (75)	Re-188m	1.96E+04	3.54E-05	7.50E+00	1.00E+00	6.92E+00	.	1.01E+03	1.01E+00	8.81E-01	4.43E-16	6.79E-03	3.41E-18	5.70E-02	2.87E-17
Rhenium (75)	Re-189	2.50E+02	2.77E-03	7.50E+00	1.00E+00	1.30E+01	.	2.19E+03	1.90E+00	1.66E+00	6.59E-14	1.28E-02	5.08E-16	.	.
Rhenium (75)	Re-190	1.17E+05	5.90E-06	7.50E+00	1.00E+00	.	.	9.02E+01	.	9.02E+01	7.65E-15	6.94E-01	5.89E-17	.	.
Rhenium (75)	Re-190m	1.90E+03	3.65E-04	7.50E+00	1.00E+00	2.69E+01	.	7.91E+01	3.93E+00	3.29E+00	1.73E-14	2.53E-02	1.33E-16	.	.



Soil to Groundwater July 2023															
Radionuclides		Isotope-specific Information				Tap Water Dose Compliance Concentrations (DCCs)						Protection of Groundwater Soil Screening Levels			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	K <sub>d</sub> Distribution coefficient (L/kg)	DAF	Ingestion DCC DL=1 (Bq/L)	Inhalation DCC DL=1 (Bq/L)	Immersion DCC DL=1 (Bq/L)	Produce Consumption DCC DL=1 (Bq/L)	Total DCC DL=1 (Bq/L)	Total DCC DL=1 (mg/L)	SSL Dose-based DL=1 (Bq/g)	SSL Dose-based DL=1 (mg/kg)	SSL MCL-based (Bq/g)	SSL MCL-based (mg/kg)
Rhodium (45)	Rh-100m	7.92E+04	8.75E-06	4.00E+00	1.00E+00	1.63E+01	.	4.15E+01	5.43E+00	3.71E+00	2.45E-16	1.56E-02	1.03E-18		
Rhodium (45)	Rh-101	2.10E-01	3.30E+00	4.00E+00	1.00E+00	1.97E+01	.	4.58E+02	6.55E+00	4.86E+00	1.23E-10	2.04E-02	5.15E-13		
Rhodium (45)	Rh-101m	5.83E+01	1.19E-02	4.00E+00	1.00E+00	4.29E+01	.	4.21E+02	1.43E+01	1.05E+01	9.51E-13	4.39E-02	3.99E-15		
Rhodium (45)	Rh-102	1.22E+00	5.67E-01	4.00E+00	1.00E+00	8.53E+00	.	2.43E+02	2.84E+00	2.11E+00	9.26E-12	8.88E-03	3.89E-14		
Rhodium (45)	Rh-102m	1.85E-01	3.74E+00	4.00E+00	1.00E+00	4.08E+00	.	5.60E+01	1.36E+00	1.00E+00	2.90E-11	4.21E-03	1.22E-13		
Rhodium (45)	Rh-103m	6.49E+03	1.07E-04	4.00E+00	1.00E+00	2.66E+03	.	8.95E+05	8.85E+02	6.63E+02	5.52E-13	2.79E+00	2.32E-15	4.66E+00	3.88E-15
Rhodium (45)	Rh-104	5.17E+05	1.34E-06	4.00E+00	1.00E+00	.	.	5.23E+03	.	5.23E+03	5.52E-14	2.20E+01	2.32E-16		
Rhodium (45)	Rh-104m	8.39E+04	8.26E-06	4.00E+00	1.00E+00	.	.	2.72E+03	.	2.72E+03	1.77E-13	1.14E+01	7.42E-16		
Rhodium (45)	Rh-105	1.72E+02	4.04E-03	4.00E+00	1.00E+00	2.70E+01	.	1.58E+03	9.01E+00	6.73E+00	2.16E-13	2.83E-02	9.06E-16	4.66E-02	1.50E-15
Rhodium (45)	Rh-106	7.33E+05	9.45E-07	4.00E+00	1.00E+00	.	.	5.37E+02	.	5.37E+02	4.07E-15	2.26E+00	1.71E-17		
Rhodium (45)	Rh-106m	2.78E+03	2.49E-04	4.00E+00	1.00E+00	6.22E+01	.	4.13E+01	2.07E+01	1.13E+01	2.26E-14	4.75E-02	9.49E-17		
Rhodium (45)	Rh-107	1.68E+04	4.13E-05	4.00E+00	1.00E+00	1.60E+02	.	3.87E+02	4.01E+01	2.96E+01	9.90E-15	3.35E-01	1.12E-16		
Rhodium (45)	Rh-108	1.30E+06	5.33E-07	4.00E+00	1.00E+00	.	.	3.54E+02	.	3.54E+02	1.54E-15	1.49E+00	6.47E-18		
Rhodium (45)	Rh-109	2.73E+05	2.54E-06	4.00E+00	1.00E+00	1.76E+01	.	3.91E+02	3.85E+00	3.14E+00	6.56E-17	4.25E-01	8.90E-18	2.00E+00	4.19E-17
Rhodium (45)	Rh-94	3.10E+05	2.24E-06	4.00E+00	1.00E+00	5.20E+01	.	1.86E+01	1.83E-01	1.81E-01	2.88E-18	3.66E-05	5.84E-22		
Rhodium (45)	Rh-95	7.26E+04	9.55E-06	4.00E+00	1.00E+00	4.29E+01	.	2.55E+01	1.05E-01	1.04E-01	7.13E-18	2.09E-05	1.43E-21		
Rhodium (45)	Rh-95m	1.86E+05	3.73E-06	4.00E+00	1.00E+00	4.29E+01	.	2.25E+01	1.05E-01	1.04E-01	2.78E-18	2.09E-05	5.60E-22		
Rhodium (45)	Rh-96	3.68E+04	1.88E-05	4.00E+00	1.00E+00	.	.	3.01E+01	.	3.01E+01	4.11E-15	1.26E-01	1.73E-17		
Rhodium (45)	Rh-96m	2.41E+05	2.87E-06	4.00E+00	1.00E+00	.	.	3.23E+01	.	3.23E+01	6.74E-16	1.36E-01	2.83E-18		
Rhodium (45)	Rh-97	1.19E+04	5.84E-05	4.00E+00	1.00E+00	3.87E+01	.	7.17E+01	2.60E-01	2.57E-01	1.10E-16	5.26E-05	2.26E-20	4.41E-02	1.89E-17
Rhodium (45)	Rh-97m	7.88E+03	8.79E-05	4.00E+00	1.00E+00	3.85E+01	.	4.53E+01	2.60E-01	2.57E-01	1.66E-16	5.26E-05	3.39E-20	4.41E-02	2.84E-17
Rhodium (45)	Rh-98	4.19E+04	1.66E-05	4.00E+00	1.00E+00	.	.	6.56E+01	.	6.56E+01	8.06E-15	2.76E-01	3.38E-17		
Rhodium (45)	Rh-99	1.57E+01	4.41E-02	4.00E+00	1.00E+00	1.84E+01	.	2.24E+02	6.12E+00	4.50E+00	1.49E-12	1.89E-02	6.24E-15		
Rhodium (45)	Rh-99m	1.29E+03	5.37E-04	4.00E+00	1.00E+00	1.60E+02	.	1.88E+02	5.35E+01	3.31E+01	1.33E-13	1.39E-01	5.58E-16		
Radon (86)	Rn-207	3.94E+04	1.76E-05	0.00E+00	1.00E+00	7.54E+00	.	2.08E+01	1.62E+00	1.25E+00	3.45E-16	1.75E-02	4.84E-18	3.95E+00	1.09E-15
Radon (86)	Rn-209	1.28E+04	5.42E-05	0.00E+00	1.00E+00	7.81E-03	.	3.21E+01	3.32E-03	2.33E-03	2.00E-18	4.72E-04	4.05E-19	7.35E+05	6.30E-10
Radon (86)	Rn-210	2.53E+03	2.74E-04	0.00E+00	1.00E+00	1.41E-01	.	2.75E+01	5.85E-02	4.13E-02	1.80E-16	8.45E-03	3.68E-17	1.17E+00	5.08E-15
Radon (86)	Rn-211	4.16E+02	1.67E-03	0.00E+00	1.00E+00	1.16E+00	.	3.78E+01	1.74E-01	1.51E-01	4.01E-15	1.45E-03	3.86E-17	6.15E+00	1.64E-13
Radon (86)	Rn-212	1.52E+04	4.55E-05	0.00E+00	1.00E+00	6.20E-03	.	2.83E+05	2.63E-03	1.85E-03	1.35E-18	3.88E-04	2.83E-19	1.17E-01	8.51E-17
Radon (86)	Rn-215	9.50E+12	7.29E-14	0.00E+00	1.00E+00	.	.	1.46E+04	.	1.46E+04	1.73E-20	3.07E+03	3.65E-21		
Radon (86)	Rn-216	4.86E+11	1.43E-12	0.00E+00	1.00E+00	.	.	.	.	.	.	.	.	1.17E-01	2.72E-24
Radon (86)	Rn-217	4.05E+10	1.71E-11	0.00E+00	1.00E+00	1.82E+02	.	1.02E+05	6.73E+01	4.91E+01	1.38E-20	7.37E+00	2.07E-21	1.17E-01	3.28E-23
Radon (86)	Rn-218	6.24E+08	1.11E-09	0.00E+00	1.00E+00	4.90E-03	.	2.41E+04	1.97E-03	1.41E-03	2.57E-23	2.56E-04	4.68E-24	4.79E-02	8.76E-22
Radon (86)	Rn-219	5.52E+06	1.26E-07	0.00E+00	1.00E+00	5.18E+01	2.74E-01	6.77E+02	1.92E+01	2.69E-01	5.60E-19	3.69E-02	7.68E-20	8.11E-02	1.69E-19
Radon (86)	Rn-220	3.93E+05	1.76E-06	0.00E+00	1.00E+00	1.27E+00	1.02E-01	7.62E+01	4.61E-01	7.83E-02	2.30E-18	2.37E-03	6.97E-20	5.61E-02	1.65E-18
Radon (86)	Rn-222	6.62E+01	1.05E-02	0.00E+00	1.00E+00	4.89E-03	1.40E-01	6.61E+01	1.97E-03	1.39E-03	2.45E-16	1.50E-04	2.63E-17	3.01E-02	5.29E-15
Radon (86)	Rn-223	1.50E+04	4.62E-05	0.00E+00	1.00E+00	6.15E-02	2.74E-01	1.73E+02	2.17E-02	1.52E-02	1.18E-17	1.96E-05	1.53E-20	6.57E-04	5.13E-19
Ruthenium (44)	Ru-103	6.44E+00	1.08E-01	2.70E+02	1.00E+00	1.43E+01	.	2.46E+02	5.33E+00	3.83E+00	3.21E-12	7.60E-01	6.37E-13	1.40E+00	1.18E-12
Ruthenium (44)	Ru-105	1.37E+03	5.07E-04	2.70E+02	1.00E+00	1.55E+01	.	1.46E+02	5.39E+00	3.89E+00	1.57E-14	2.79E-02	1.13E-16	4.56E-02	1.83E-16
Ruthenium (44)	Ru-106	6.77E-01	1.02E+00	2.70E+02	1.00E+00	1.41E+00	.	5.37E+02	5.26E-01	3.83E-01	3.15E-12	9.91E-02	8.13E-13	3.00E-01	2.46E-12
Ruthenium (44)	Ru-107	9.71E+04	7.13E-06	2.70E+02	1.00E+00	1.60E+02	.	1.78E+02	4.01E+01	2.72E+01	1.57E-15	3.34E-01	1.93E-17		
Ruthenium (44)	Ru-108	8.01E+04	8.66E-06	2.70E+02	1.00E+00	.	.	2.99E+02	.	2.99E+02	2.12E-14	1.48E+00	1.05E-16		

Soil to Groundwater July 2023															
Radionuclides		Isotope-specific Information				Tap Water Dose Compliance Concentrations (DCCs)						Protection of Groundwater Soil Screening Levels			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	K <sub>d</sub> Distribution coefficient (L/kg)	DAF	Ingestion DCC DL=1 (Bq/L)	Inhalation DCC DL=1 (Bq/L)	Immersion DCC DL=1 (Bq/L)	Produce Consumption DCC DL=1 (Bq/L)	Total DCC DL=1 (Bq/L)	Total DCC DL=1 (mg/L)	SSL Dose-based DL=1 (Bq/g)	SSL Dose-based DL=1 (mg/kg)	SSL MCL-based (Bq/g)	SSL MCL-based (mg/kg)
Ruthenium (44)	Ru-94	7.03E+03	9.86E-05	2.70E+02	1.00E+00	5.20E+01	.	4.79E+01	1.83E-01	1.82E-01	1.28E-16	3.67E-05	2.57E-20	.	.
Ruthenium (44)	Ru-95	3.69E+03	1.88E-04	2.70E+02	1.00E+00	4.29E+01	.	5.89E+01	1.05E-01	1.04E-01	1.40E-16	2.09E-05	2.82E-20	.	.
Ruthenium (44)	Ru-97	8.72E+01	7.95E-03	2.70E+02	1.00E+00	4.69E+01	.	5.41E+02	2.61E-01	2.59E-01	1.51E-14	5.26E-05	3.07E-18	4.41E-02	2.57E-15
Sulfur (16)	S-35	2.89E+00	2.40E-01	3.00E+03	1.00E+00	7.80E+01	.	3.47E+06	4.91E+00	4.62E+00	2.93E-12	1.39E+01	8.80E-12	.	.
Sulphur (16)	S-37	7.21E+04	9.61E-06	3.00E+03	1.00E+00	.	.	3.54E+01	.	3.54E+01	9.51E-16	1.06E+02	2.85E-15	.	.
Sulfur (16)	S-38	2.14E+03	3.24E-04	3.00E+03	1.00E+00	2.30E+01	.	3.46E+01	3.85E-01	3.75E-01	3.49E-16	2.37E-04	2.20E-19	1.85E-02	1.72E-17
Antimony (51)	Sb-111	2.91E+05	2.38E-06	6.20E+01	1.00E+00	3.34E+01	.	5.11E+01	1.19E+01	7.50E+00	1.50E-16	2.41E+00	4.81E-17	.	.
Antimony (51)	Sb-113	5.46E+04	1.27E-05	6.20E+01	1.00E+00	1.32E+01	.	7.93E+01	1.49E+00	1.32E+00	1.43E-16	1.53E+00	1.66E-16	1.36E+01	1.48E-15
Antimony (51)	Sb-114	1.04E+05	6.64E-06	6.20E+01	1.00E+00	.	.	4.31E+01	.	4.31E+01	2.47E-15	2.68E+00	1.54E-16	.	.
Antimony (51)	Sb-115	1.13E+04	6.11E-05	6.20E+01	1.00E+00	4.31E+02	.	1.38E+02	1.75E+02	6.54E+01	3.48E-14	4.07E+00	2.16E-15	.	.
Antimony (51)	Sb-116	2.31E+04	3.01E-05	6.20E+01	1.00E+00	3.43E+02	.	5.07E+01	1.39E+02	3.35E+01	8.84E-15	2.08E+00	5.50E-16	.	.
Antimony (51)	Sb-116m	6.04E+03	1.15E-04	6.20E+01	1.00E+00	1.67E+02	.	3.80E+01	6.77E+01	2.12E+01	2.14E-14	1.32E+00	1.33E-15	.	.
Antimony (51)	Sb-117	2.17E+03	3.20E-04	6.20E+01	1.00E+00	5.73E+02	.	7.43E+02	2.32E+02	1.35E+02	3.82E-13	8.41E+00	2.38E-14	.	.
Antimony (51)	Sb-118	1.01E+05	6.85E-06	6.20E+01	1.00E+00	.	.	1.50E+02	.	1.50E+02	9.19E-15	9.35E+00	5.72E-16	.	.
Antimony (51)	Sb-118m	1.21E+03	5.71E-04	6.20E+01	1.00E+00	5.12E+01	.	4.53E+01	2.08E+01	1.11E+01	5.68E-14	6.93E-01	3.53E-15	.	.
Antimony (51)	Sb-119	1.59E+02	4.36E-03	6.20E+01	1.00E+00	1.21E+02	.	3.33E+04	4.91E+01	3.49E+01	1.37E-12	2.17E+00	8.53E-14	.	.
Antimony (51)	Sb-120	2.29E+04	3.02E-05	6.20E+01	1.00E+00	7.07E+02	.	2.73E+02	2.87E+02	1.17E+02	3.21E-14	7.27E+00	1.99E-15	.	.
Antimony (51)	Sb-120m	4.39E+01	1.58E-02	6.20E+01	1.00E+00	8.70E+00	.	4.80E+01	3.53E+00	2.39E+00	3.42E-13	1.48E-01	2.13E-14	.	.
Antimony (51)	Sb-122	9.29E+01	7.46E-03	6.20E+01	1.00E+00	5.87E+00	.	2.69E+02	2.38E+00	1.68E+00	1.16E-13	1.05E-01	7.22E-15	2.07E-01	1.43E-14
Antimony (51)	Sb-122m	8.69E+04	7.97E-06	6.20E+01	1.00E+00	5.87E+00	.	2.46E+02	2.38E+00	1.68E+00	1.24E-16	1.05E-01	7.71E-18	2.07E-01	1.52E-17
Antimony (51)	Sb-124	4.20E+00	1.65E-01	6.20E+01	1.00E+00	4.03E+00	.	6.22E+01	1.63E+00	1.14E+00	1.77E-12	7.09E-02	1.10E-13	1.38E-01	2.14E-13
Antimony (51)	Sb-124m	2.35E+05	2.95E-06	6.20E+01	1.00E+00	5.37E+00	.	6.37E+01	2.18E+00	1.51E+00	4.19E-17	9.41E-02	2.60E-18	1.84E-01	5.09E-18
Antimony (51)	Sb-124n	1.80E+04	3.84E-05	6.20E+01	1.00E+00	5.34E+00	.	6.37E+01	2.17E+00	1.50E+00	5.43E-16	9.36E-02	3.38E-17	1.84E-01	6.64E-17
Antimony (51)	Sb-125	2.51E-01	2.76E+00	6.20E+01	1.00E+00	7.74E+00	.	2.85E+02	2.51E+00	1.88E+00	4.91E-11	1.56E-01	4.07E-12	6.80E-01	1.78E-11
Antimony (51)	Sb-126	2.05E+01	3.38E-02	6.20E+01	1.00E+00	3.90E+00	.	4.36E+01	1.58E+00	1.10E+00	3.54E-13	6.82E-02	2.20E-14	.	.
Antimony (51)	Sb-126m	1.90E+04	3.64E-05	6.20E+01	1.00E+00	2.53E+01	.	6.22E+01	1.02E+01	6.52E+00	2.27E-15	4.06E-01	1.41E-16	.	.
Antimony (51)	Sb-127	6.57E+01	1.05E-02	6.20E+01	1.00E+00	4.39E+00	.	1.72E+02	1.25E+00	9.69E-01	9.82E-14	9.70E-02	9.84E-15	8.93E+00	9.05E-13
Antimony (51)	Sb-128	6.74E+02	1.03E-03	6.20E+01	1.00E+00	1.28E+01	.	3.87E+01	5.19E+00	3.37E+00	3.36E-14	2.10E-01	2.09E-15	.	.
Antimony (51)	Sb-128m	3.50E+04	1.98E-05	6.20E+01	1.00E+00	1.64E+02	.	5.91E+01	6.67E+01	2.63E+01	5.04E-15	1.64E+00	3.14E-16	.	.
Antimony (51)	Sb-129	1.38E+03	5.02E-04	6.20E+01	1.00E+00	1.11E-01	.	7.62E+01	3.22E-02	2.50E-02	1.22E-16	5.08E-06	2.49E-20	7.40E-06	3.63E-20
Antimony (51)	Sb-130	9.22E+03	7.52E-05	6.20E+01	1.00E+00	1.11E+02	.	3.62E+01	4.51E+01	1.70E+01	1.26E-14	1.06E+00	7.83E-16	.	.
Antimony (51)	Sb-130m	5.78E+04	1.20E-05	6.20E+01	1.00E+00	.	.	4.34E+01	.	4.34E+01	5.12E-15	2.70E+00	3.19E-16	.	.
Antimony (51)	Sb-131	1.58E+04	4.38E-05	6.20E+01	1.00E+00	4.27E-01	.	3.93E+01	1.24E-01	9.59E-02	4.17E-17	1.96E-05	8.53E-21	2.22E-05	9.64E-21
Antimony (51)	Sb-133	1.46E+05	4.76E-06	6.20E+01	1.00E+00	2.01E+00	.	2.42E+01	5.78E-01	4.41E-01	2.11E-17	9.29E-05	4.45E-21	7.40E-05	3.54E-21
Scandium (21)	Sc-42m	3.52E+05	1.97E-06	2.10E+03	1.00E+00	.	.	2.76E+01	.	2.76E+01	1.72E-16	5.80E+01	3.62E-16	.	.
Scandium (21)	Sc-43	1.56E+03	4.44E-04	2.10E+03	1.00E+00	4.66E+01	.	1.24E+02	1.97E+01	1.25E+01	1.80E-14	2.62E+01	3.78E-14	.	.
Scandium (21)	Sc-44	1.53E+03	4.53E-04	2.10E+03	1.00E+00	2.87E+01	.	5.52E+01	1.21E+01	7.39E+00	1.12E-14	1.55E+01	2.34E-14	.	.
Scandium (21)	Sc-44m	1.04E+02	6.69E-03	2.10E+03	1.00E+00	3.64E+00	.	4.96E+01	1.54E+00	1.06E+00	2.36E-14	2.22E+00	4.95E-14	.	.
Scandium (21)	Sc-46	3.02E+00	2.30E-01	2.10E+03	1.00E+00	7.22E+00	.	5.82E+01	3.05E+00	2.07E+00	1.65E-12	4.34E+00	3.47E-12	7.77E+00	6.21E-12
Scandium (21)	Sc-47	7.55E+01	9.18E-03	2.10E+03	1.00E+00	1.82E+01	.	1.15E+03	7.68E+00	5.38E+00	1.75E-13	1.13E+01	3.69E-13	2.33E+01	7.61E-13
Scandium (21)	Sc-48	1.39E+02	4.99E-03	2.10E+03	1.00E+00	6.34E+00	.	3.45E+01	2.68E+00	1.79E+00	3.23E-14	3.75E+00	6.79E-14	6.22E+00	1.13E-13
Scandium (21)	Sc-49	6.37E+03	1.09E-04	2.10E+03	1.00E+00	1.23E+02	.	1.28E+04	5.21E+01	3.65E+01	1.47E-14	7.67E+01	3.10E-14	.	.

Soil to Groundwater July 2023															
Radionuclides		Isotope-specific Information				Tap Water Dose Compliance Concentrations (DCCs)						Protection of Groundwater Soil Screening Levels			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	K <sub>d</sub> Distribution coefficient (L/kg)	DAF	Ingestion DCC DL=1 (Bq/L)	Inhalation DCC DL=1 (Bq/L)	Immersion DCC DL=1 (Bq/L)	Produce Consumption DCC DL=1 (Bq/L)	Total DCC DL=1 (Bq/L)	Total DCC DL=1 (mg/L)	SSL Dose-based DL=1 (Bq/g)	SSL Dose-based DL=1 (mg/kg)	SSL MCL-based (Bq/g)	SSL MCL-based (mg/kg)
Selenium (34)	Se-70	8.86E+03	7.82E-05	2.00E+02	1.00E+00	4.51E+01	.	2.36E+01	3.53E+00	2.88E+00	1.19E-15	1.93E-03	8.02E-19	.	.
Selenium (34)	Se-71	7.68E+04	9.02E-06	2.00E+02	1.00E+00	2.25E+01	.	5.48E+01	5.22E+00	3.93E+00	1.91E-16	8.83E-04	4.28E-20	5.59E+00	2.71E-16
Selenium (34)	Se-72	3.01E+01	2.30E-02	2.00E+02	1.00E+00	1.27E+00	.	6.62E+01	6.31E-02	6.00E-02	7.53E-15	2.11E-04	2.65E-17	.	.
Selenium (34)	Se-73	8.49E+02	8.16E-04	2.00E+02	1.00E+00	2.16E+01	.	1.12E+02	1.62E+00	1.49E+00	6.70E-15	1.50E-03	6.77E-18	7.40E-03	3.34E-17
Selenium (34)	Se-73m	9.15E+03	7.57E-05	2.00E+02	1.00E+00	2.30E+01	.	1.16E+02	1.83E+00	1.67E+00	7.01E-16	1.50E-03	6.28E-19	7.40E-03	3.10E-18
Selenium (34)	Se-75	2.11E+00	3.28E-01	2.00E+02	1.00E+00	4.05E+00	.	3.25E+02	1.62E-01	1.56E-01	2.91E-13	3.13E-02	5.82E-14	6.67E+00	1.24E-11
Selenium (34)	Se-77m	1.26E+06	5.50E-07	2.00E+02	1.00E+00	.	.	1.45E+03	.	1.45E+03	4.66E-15	2.91E+02	9.33E-16	.	.
Selenium (34)	Se-79	2.35E-06	2.95E+05	2.00E+02	1.00E+00	2.90E+00	.	3.49E+06	1.16E-01	1.12E-01	1.97E-07	2.24E-02	3.95E-08	.	.
Selenium (34)	Se-79m	9.29E+04	7.46E-06	2.00E+02	1.00E+00	2.90E+00	.	1.47E+04	1.16E-01	1.12E-01	4.99E-18	2.24E-02	9.99E-19	.	.
Selenium (34)	Se-81	1.97E+04	3.51E-05	2.00E+02	1.00E+00	3.76E+02	.	8.88E+03	1.51E+01	1.45E+01	3.11E-15	2.90E+00	6.23E-16	.	.
Selenium (34)	Se-81m	6.36E+03	1.09E-04	2.00E+02	1.00E+00	1.26E+02	.	4.62E+03	5.06E+00	4.86E+00	3.24E-15	9.72E-01	6.49E-16	.	.
Selenium (34)	Se-83	1.63E+04	4.24E-05	2.00E+02	1.00E+00	1.15E+02	.	4.39E+01	8.33E+00	6.60E+00	1.76E-15	1.02E+00	2.73E-16	.	.
Selenium (34)	Se-83m	3.12E+05	2.22E-06	2.00E+02	1.00E+00	2.27E+02	.	1.15E+02	8.18E+01	3.95E+01	5.51E-16	2.89E+00	4.04E-17	.	.
Selenium (34)	Se-84	1.17E+05	5.90E-06	2.00E+02	1.00E+00	1.15E+02	.	5.07E+01	4.15E+01	1.90E+01	7.14E-16	1.10E+00	4.14E-17	.	.
Silicon (14)	Si-31	2.32E+03	2.99E-04	1.30E+02	1.00E+00	6.37E+01	.	1.92E+04	2.30E+01	1.69E+01	1.18E-14	2.20E+00	1.54E-15	1.45E+01	1.01E-14
Silicon (14)	Si-32	5.25E-03	1.32E+02	1.30E+02	1.00E+00	3.24E+00	.	1.80E+04	1.62E-01	1.55E-01	4.94E-11	1.41E-02	4.51E-12	1.00E-01	3.20E-11
Samarium (62)	Sm-139	1.42E+05	4.89E-06	9.30E+02	1.00E+00	3.23E+01	.	3.90E+01	1.35E+01	7.65E+00	3.93E-16	7.22E+00	3.72E-16	.	.
Samarium (62)	Sm-140	2.46E+04	2.82E-05	9.30E+02	1.00E+00	4.78E+00	.	5.53E+01	2.02E+00	1.38E+00	4.14E-16	9.09E-01	2.72E-16	.	.
Samarium (62)	Sm-141	3.57E+04	1.94E-05	9.30E+02	1.00E+00	1.24E+02	.	5.41E+01	4.92E+01	2.13E+01	4.42E-15	1.36E+01	2.81E-15	.	.
Samarium (62)	Sm-141m	1.61E+04	4.30E-05	9.30E+02	1.00E+00	9.70E+01	.	4.35E+01	3.90E+01	1.70E+01	7.79E-15	1.15E+01	5.29E-15	.	.
Samarium (62)	Sm-142	5.02E+03	1.38E-04	9.30E+02	1.00E+00	5.58E+01	.	1.26E+02	2.38E+01	1.47E+01	2.19E-14	1.23E+01	1.83E-14	.	.
Samarium (62)	Sm-143	4.16E+04	1.66E-05	9.30E+02	1.00E+00	4.52E+01	.	1.47E+02	1.64E+01	1.11E+01	2.00E-15	5.13E+00	9.24E-16	.	.
Samarium (62)	Sm-143m	3.31E+05	2.09E-06	9.30E+02	1.00E+00	4.52E+01	.	7.99E+01	1.64E+01	1.04E+01	2.37E-16	4.97E+00	1.13E-16	.	.
Samarium (62)	Sm-145	7.44E-01	9.32E-01	9.30E+02	1.00E+00	3.13E+01	.	2.85E+03	1.26E+01	8.94E+00	9.14E-11	5.97E+00	6.10E-11	.	.
Samarium (62)	Sm-146	6.73E-09	1.03E+08	9.30E+02	1.00E+00	1.94E-01	.	.	8.26E-02	5.79E-02	6.59E-05	5.39E-02	6.13E-05	.	.
Samarium (62)	Sm-147	6.54E-12	1.06E+11	9.30E+02	1.00E+00	2.12E-01	.	.	9.05E-02	6.34E-02	7.48E-02	5.90E-02	6.96E-02	5.16E-01	6.09E-01
Samarium (62)	Sm-148	9.90E-17	7.00E+15	9.30E+02	1.00E+00	1.26E-01	.	.	5.35E-02	3.75E-02	2.94E+03	2.88E-02	2.26E+03	2.12E-01	1.67E+04
Samarium (62)	Sm-151	7.70E-03	9.00E+01	9.30E+02	1.00E+00	1.01E+02	.	1.91E+08	4.29E+01	3.01E+01	3.09E-08	2.80E+01	2.88E-08	3.44E+01	3.54E-08
Samarium (62)	Sm-153	1.31E+02	5.31E-03	9.30E+02	1.00E+00	1.34E+01	.	2.54E+03	5.74E+00	4.01E+00	2.47E-13	3.73E+00	2.29E-13	6.88E+00	4.23E-13
Samarium (62)	Sm-155	1.63E+04	4.24E-05	9.30E+02	1.00E+00	2.76E+01	.	8.25E+02	1.16E+01	8.07E+00	4.02E-15	6.61E+01	3.29E-14	6.66E+02	3.31E-13
Samarium (62)	Sm-156	6.46E+02	1.07E-03	9.30E+02	1.00E+00	3.97E+00	.	8.53E+01	1.66E+00	1.16E+00	1.47E-14	8.40E+00	1.06E-13	.	.
Samarium (62)	Sm-157	4.54E+04	1.53E-05	9.30E+02	1.00E+00	1.62E+01	.	1.75E+02	6.78E+00	4.66E+00	8.45E-16	9.29E+01	1.69E-14	.	.
Tin (50)	Sn-106	1.90E+05	3.65E-06	1.60E+03	1.00E+00	.	.	2.89E+01	.	2.89E+01	8.46E-16	1.73E+01	5.08E-16	.	.
Tin (50)	Sn-108	3.54E+04	1.96E-05	1.60E+03	1.00E+00	1.01E+02	.	3.31E+01	2.68E+01	1.29E+01	2.07E-15	8.17E+00	1.31E-15	.	.
Tin (50)	Sn-109	2.02E+04	3.42E-05	1.60E+03	1.00E+00	5.18E+00	.	3.84E+01	3.64E-01	3.37E-01	9.52E-17	4.13E-04	1.17E-19	2.66E-02	7.53E-18
Tin (50)	Sn-110	1.48E+03	4.69E-04	1.60E+03	1.00E+00	2.17E+01	.	6.44E+01	2.84E+00	2.42E+00	9.43E-15	3.07E+00	1.20E-14	.	.
Tin (50)	Sn-111	1.03E+04	6.72E-05	1.60E+03	1.00E+00	3.34E+01	.	1.39E+02	1.19E+01	8.27E+00	4.67E-15	4.61E+00	2.60E-15	.	.
Tin (50)	Sn-113	2.20E+00	3.15E-01	1.60E+03	1.00E+00	1.29E+01	.	4.66E+02	1.46E+00	1.31E+00	3.53E-12	2.02E+00	5.45E-12	1.33E+01	3.59E-11
Tin (50)	Sn-113m	1.70E+04	4.07E-05	1.60E+03	1.00E+00	1.41E+01	.	5.06E+02	1.60E+00	1.43E+00	4.98E-16	2.21E+00	7.70E-16	1.46E+01	5.09E-15
Tin (50)	Sn-117m	1.84E+01	3.77E-02	1.60E+03	1.00E+00	1.40E+01	.	8.75E+02	1.54E+00	1.38E+00	4.61E-13	2.21E+00	7.38E-13	.	.
Tin (50)	Sn-119m	8.63E-01	8.03E-01	1.60E+03	1.00E+00	2.79E+01	.	5.44E+04	3.06E+00	2.76E+00	1.99E-11	4.41E+00	3.19E-11	.	.
Tin (50)	Sn-121	2.25E+02	3.09E-03	1.60E+03	1.00E+00	4.28E+01	.	2.71E+05	4.70E+00	4.24E+00	1.20E-13	6.78E+00	1.92E-13	.	.



Soil to Groundwater July 2023															
Radionuclides		Isotope-specific Information				Tap Water Dose Compliance Concentrations (DCCs)						Protection of Groundwater Soil Screening Levels			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	K <sub>d</sub> Distribution coefficient (L/kg)	DAF	Ingestion DCC DL=1 (Bq/L)	Inhalation DCC DL=1 (Bq/L)	Immersion DCC DL=1 (Bq/L)	Produce Consumption DCC DL=1 (Bq/L)	Total DCC DL=1 (Bq/L)	Total DCC DL=1 (mg/L)	SSL Dose-based DL=1 (Bq/g)	SSL Dose-based DL=1 (mg/kg)	SSL MCL-based (Bq/g)	SSL MCL-based (mg/kg)
Tin (50)	Sn-123	1.96E+00	3.54E-01	1.60E+03	1.00E+00	4.65E+00	.	1.03E+04	5.10E-01	4.60E-01	1.52E-12	7.36E-01	2.42E-12		
Tin (50)	Sn-123m	9.09E+03	7.62E-05	1.60E+03	1.00E+00	2.62E+02	.	8.82E+02	2.88E+01	2.52E+01	1.79E-14	4.03E+01	2.86E-14		
Tin (50)	Sn-125	2.62E+01	2.64E-02	1.60E+03	1.00E+00	2.28E+00	.	1.55E+02	3.12E-01	2.74E-01	6.84E-14	1.20E-01	2.99E-14	5.71E-01	1.43E-13
Tin (50)	Sn-125m	3.83E+04	1.81E-05	1.60E+03	1.00E+00	7.74E+00	.	1.56E+02	2.51E+00	1.87E+00	3.21E-16	1.56E-01	2.67E-17	6.80E-01	1.17E-16
Tin (50)	Sn-126	3.01E-06	2.30E+05	1.60E+03	1.00E+00	1.96E+00	.	6.09E+01	2.28E-01	2.04E-01	4.47E-07	1.84E-01	4.03E-07		
Tin (50)	Sn-127	2.89E+03	2.40E-04	1.60E+03	1.00E+00	4.05E+00	.	4.48E+01	1.03E+00	8.03E-01	1.85E-15	9.58E-02	2.21E-16	8.93E+00	2.06E-14
Tin (50)	Sn-127m	8.82E+04	7.86E-06	1.60E+03	1.00E+00	4.39E+00	.	9.39E+01	1.25E+00	9.65E-01	7.28E-17	9.70E-02	7.32E-18	8.93E+00	6.74E-16
Tin (50)	Sn-128	6.17E+03	1.12E-04	1.60E+03	1.00E+00	4.73E+01	.	4.63E+01	6.58E+00	5.14E+00	5.60E-15	1.41E+00	1.54E-15		
Tin (50)	Sn-129	1.63E+05	4.24E-06	1.60E+03	1.00E+00	1.11E-01	.	4.60E+01	3.22E-02	2.49E-02	1.03E-18	5.08E-06	2.10E-22	7.40E-06	3.06E-22
Tin (50)	Sn-130	9.79E+04	7.08E-06	1.60E+03	1.00E+00	.	.	3.26E+01	.	3.26E+01	2.27E-15	2.67E+00	1.86E-16		
Tin (50)	Sn-130m	2.14E+05	3.23E-06	1.60E+03	1.00E+00	1.29E+02	.	2.89E+01	5.25E+01	1.63E+01	5.19E-16	1.15E+00	3.66E-17		
Strontium (38)	Sr-79	1.62E+05	4.28E-06	1.00E+00	1.00E+00	2.06E+02	.	4.20E+01	3.08E+01	1.64E+01	4.19E-16	1.19E-01	3.04E-18		
Strontium (38)	Sr-80	3.43E+03	2.02E-04	1.00E+00	1.00E+00	2.71E+01	.	7.35E+01	2.74E+00	2.41E+00	2.95E-15	2.96E-03	3.63E-18		
Strontium (38)	Sr-81	1.63E+04	4.24E-05	1.00E+00	1.00E+00	8.96E+01	.	6.04E+01	1.05E+01	8.12E+00	2.11E-15	1.45E-02	3.78E-18		
Strontium (38)	Sr-82	9.97E+00	6.95E-02	1.00E+00	1.00E+00	1.61E+00	.	1.08E+02	1.63E-01	1.48E-01	6.37E-14	1.78E-04	7.65E-17		
Strontium (38)	Sr-83	1.87E+02	3.70E-03	1.00E+00	1.00E+00	4.87E+00	.	9.29E+01	6.56E-01	5.74E-01	1.33E-14	2.26E-03	5.24E-17		
Strontium (38)	Sr-85	3.90E+00	1.78E-01	1.00E+00	1.00E+00	1.71E+01	.	2.48E+02	1.73E+00	1.56E+00	1.78E-12	1.87E-03	2.14E-15	4.00E-02	4.57E-14
Strontium (38)	Sr-85m	5.39E+03	1.29E-04	1.00E+00	1.00E+00	1.95E+01	.	1.90E+02	1.98E+00	1.78E+00	1.47E-15	2.13E-03	1.77E-18	4.39E-02	3.63E-17
Strontium (38)	Sr-87m	2.16E+03	3.21E-04	1.00E+00	1.00E+00	3.03E+02	.	3.85E+02	3.21E+01	2.70E+01	5.71E-14	3.57E-02	7.56E-17	7.78E+02	1.65E-12
Strontium (38)	Sr-89	5.01E+00	1.38E-01	1.00E+00	1.00E+00	3.76E+00	.	2.25E+04	3.80E-01	3.45E-01	3.22E-13	4.15E-04	3.87E-16	8.88E-04	8.28E-16
Strontium (38)	Sr-90	2.41E-02	2.88E+01	1.00E+00	1.00E+00	3.42E-01	.	1.08E+04	3.72E-02	3.35E-02	6.58E-12	4.15E-05	8.14E-15	3.54E-04	6.94E-14
Strontium (38)	Sr-91	6.30E+02	1.10E-03	1.00E+00	1.00E+00	3.29E+00	.	1.16E+02	8.24E-01	6.55E-01	4.96E-15	1.70E-03	1.29E-17	8.40E-03	6.36E-17
Strontium (38)	Sr-92	2.28E+03	3.04E-04	1.00E+00	1.00E+00	1.11E+01	.	7.10E+01	1.92E+00	1.60E+00	3.39E-15	2.65E-03	5.61E-18	8.66E-03	1.83E-17
Strontium (38)	Sr-93	4.91E+04	1.41E-05	1.00E+00	1.00E+00	4.89E+00	.	4.87E+01	2.01E+00	1.38E+00	1.38E-16	3.90E-02	3.88E-18	1.56E-01	1.55E-17
Strontium (38)	Sr-94	2.90E+05	2.39E-06	1.00E+00	1.00E+00	1.20E+02	.	5.13E+01	4.86E+01	2.07E+01	3.51E-16	8.87E-02	1.51E-18		
Tantalum (73)	Ta-170	5.39E+04	1.29E-05	7.80E+02	1.00E+00	7.75E+00	.	2.84E+01	3.29E+00	2.14E+00	3.53E-16	7.74E+00	1.28E-15		
Tantalum (73)	Ta-172	9.90E+03	7.00E-05	7.80E+02	1.00E+00	4.21E+00	.	3.19E+01	1.78E+00	1.20E+00	1.10E-15	3.66E+00	3.33E-15		
Tantalum (73)	Ta-173	1.93E+03	3.58E-04	7.80E+02	1.00E+00	1.47E+01	.	1.12E+02	6.24E+00	4.22E+00	1.98E-14	9.45E+00	4.44E-14		
Tantalum (73)	Ta-174	5.33E+03	1.30E-04	7.80E+02	1.00E+00	4.31E-02	.	1.22E+02	1.80E-02	1.27E-02	2.18E-17	3.17E-02	5.44E-17		
Tantalum (73)	Ta-175	5.78E+02	1.20E-03	7.80E+02	1.00E+00	1.63E+01	.	8.25E+01	6.85E+00	4.56E+00	7.23E-14	6.15E+00	9.76E-14		
Tantalum (73)	Ta-176	7.50E+02	9.24E-04	7.80E+02	1.00E+00	3.39E+01	.	5.09E+01	1.43E+01	8.41E+00	1.03E-13	6.56E+00	8.07E-14		
Tantalum (73)	Ta-177	1.07E+02	6.46E-03	7.80E+02	1.00E+00	9.29E+01	.	2.41E+03	3.93E+01	2.73E+01	2.36E-12	2.13E+01	1.84E-12		
Tantalum (73)	Ta-178	3.91E+04	1.77E-05	7.80E+02	1.00E+00	.	.	1.14E+03	.	1.14E+03	2.71E-13	8.86E+02	2.11E-13		
Tantalum (73)	Ta-178m	2.57E+03	2.69E-04	7.80E+02	1.00E+00	1.22E+02	.	1.09E+02	5.16E+01	2.73E+01	9.89E-14	2.13E+01	7.72E-14		
Tantalum (73)	Ta-179	3.81E-01	1.82E+00	7.80E+02	1.00E+00	1.70E+02	.	7.43E+03	7.19E+01	5.02E+01	1.24E-09	3.92E+01	9.66E-10		
Tantalum (73)	Ta-180	7.45E+02	9.31E-04	7.80E+02	1.00E+00	1.79E+02	.	3.67E+03	7.58E+01	5.25E+01	6.66E-13	4.10E+01	5.20E-13		
Tantalum (73)	Ta-182	2.21E+00	3.14E-01	7.80E+02	1.00E+00	6.82E+00	.	9.09E+01	2.88E+00	1.98E+00	8.55E-12	1.55E+00	6.67E-12	2.89E+00	1.25E-11
Tantalum (73)	Ta-182m	2.30E+04	3.01E-05	7.80E+02	1.00E+00	6.76E+00	.	7.72E+01	2.86E+00	1.96E+00	8.13E-16	1.53E+00	6.34E-16	2.89E+00	1.20E-15
Tantalum (73)	Ta-183	4.96E+01	1.40E-02	7.80E+02	1.00E+00	7.37E+00	.	4.49E+02	3.12E+00	2.18E+00	4.22E-13	1.70E+00	3.29E-13		
Tantalum (73)	Ta-184	6.98E+02	9.93E-04	7.80E+02	1.00E+00	1.52E+01	.	7.67E+01	6.40E+00	4.25E+00	5.88E-14	3.32E+00	4.59E-14		
Tantalum (73)	Ta-185	7.37E+03	9.40E-05	7.80E+02	1.00E+00	1.94E+01	.	8.23E+02	1.08E+00	1.02E+00	1.34E-15	1.56E-01	2.06E-16	1.67E+00	2.19E-15
Tantalum (73)	Ta-186	3.47E+04	2.00E-05	7.80E+02	1.00E+00	2.91E+02	.	8.50E+01	1.23E+02	4.29E+01	1.21E-14	3.34E+01	9.40E-15		



Soil to Groundwater July 2023															
Radionuclides		Isotope-specific Information				Tap Water Dose Compliance Concentrations (DCCs)						Protection of Groundwater Soil Screening Levels			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	K <sub>d</sub> Distribution coefficient (L/kg)	DAF	Ingestion DCC DL=1 (Bq/L)	Inhalation DCC DL=1 (Bq/L)	Immersion DCC DL=1 (Bq/L)	Produce Consumption DCC DL=1 (Bq/L)	Total DCC DL=1 (Bq/L)	Total DCC DL=1 (mg/L)	SSL Dose-based DL=1 (Bq/g)	SSL Dose-based DL=1 (mg/kg)	SSL MCL-based (Bq/g)	SSL MCL-based (mg/kg)
Terbium (65)	Tb-147	3.70E+03	1.87E-04	6.00E+03	1.00E+00	2.07E-01	.	2.94E+01	8.83E-02	6.18E-02	1.29E-16	5.78E-02	1.20E-16	5.16E-01	1.08E-15
Terbium (65)	Tb-147m	1.95E+05	3.56E-06	6.00E+03	1.00E+00	2.08E-01	.	3.12E+01	8.86E-02	6.19E-02	2.45E-18	5.79E-02	2.29E-18	5.16E-01	2.04E-17
Terbium (65)	Tb-148	6.07E+03	1.14E-04	6.00E+03	1.00E+00	1.88E-01	.	4.92E+01	7.95E-02	5.59E-02	7.14E-17	3.64E-02	4.66E-17		
Terbium (65)	Tb-148m	1.66E+05	4.19E-06	6.00E+03	1.00E+00	1.89E-01	.	3.82E+01	7.97E-02	5.60E-02	2.62E-18	3.64E-02	1.71E-18		
Terbium (65)	Tb-149	1.47E+03	4.70E-04	6.00E+03	1.00E+00	1.11E+01	.	5.83E+01	4.65E+00	3.10E+00	1.64E-14	3.63E+00	1.93E-14		
Terbium (65)	Tb-149m	8.76E+04	7.91E-06	6.00E+03	1.00E+00	1.46E+01	.	6.30E+01	6.15E+00	4.05E+00	3.61E-16	3.53E+00	3.15E-16		
Terbium (65)	Tb-150	1.74E+03	3.97E-04	6.00E+03	1.00E+00	9.82E-02	.	4.65E+01	4.17E-02	2.93E-02	1.32E-16	2.25E-02	1.01E-16		
Terbium (65)	Tb-150m	6.28E+04	1.10E-05	6.00E+03	1.00E+00	9.84E-02	.	4.84E+01	4.18E-02	2.93E-02	3.67E-18	2.25E-02	2.82E-18		
Terbium (65)	Tb-151	3.45E+02	2.01E-03	6.00E+03	1.00E+00	1.74E+01	.	1.19E+02	7.36E+00	4.96E+00	1.14E-13	7.14E+00	1.64E-13	5.43E+03	1.25E-10
Terbium (65)	Tb-151m	8.74E+05	7.93E-07	6.00E+03	1.00E+00	1.81E+01	.	1.18E+02	7.66E+00	5.15E+00	4.67E-17	7.21E+00	6.53E-17	5.82E+03	5.27E-14
Terbium (65)	Tb-152	3.47E+02	2.00E-03	6.00E+03	1.00E+00	8.38E-02	.	7.82E+01	3.55E-02	2.49E-02	5.73E-16	1.82E-02	4.17E-16	2.12E-01	4.88E-15
Terbium (65)	Tb-152m	8.67E+04	7.99E-06	6.00E+03	1.00E+00	8.39E-02	.	6.20E+01	3.56E-02	2.50E-02	2.30E-18	1.82E-02	1.67E-18	2.12E-01	1.95E-17
Terbium (65)	Tb-153	1.08E+02	6.41E-03	6.00E+03	1.00E+00	1.80E+01	.	3.21E+02	7.62E+00	5.27E+00	3.91E-13	6.26E+00	4.65E-13	1.44E+01	1.07E-12
Terbium (65)	Tb-154	2.82E+02	2.45E-03	6.00E+03	1.00E+00	1.71E+01	.	4.92E+01	7.24E+00	4.61E+00	1.32E-13	2.77E+01	7.91E-13		
Terbium (65)	Tb-155	4.75E+01	1.46E-02	6.00E+03	1.00E+00	3.87E+01	.	8.44E+02	1.63E+01	1.13E+01	1.94E-12	6.80E+01	1.16E-11		
Terbium (65)	Tb-156	4.73E+01	1.47E-02	6.00E+03	1.00E+00	9.17E+00	.	6.12E+01	3.87E+00	2.61E+00	4.51E-13	1.56E+01	2.71E-12		
Terbium (65)	Tb-156m	2.49E+02	2.79E-03	6.00E+03	1.00E+00	8.01E+00	.	6.05E+01	3.39E+00	2.29E+00	7.53E-14	1.37E+01	4.52E-13		
Terbium (65)	Tb-156n	1.15E+03	6.05E-04	6.00E+03	1.00E+00	8.50E+00	.	6.11E+01	3.59E+00	2.42E+00	1.73E-14	1.45E+01	1.04E-13		
Terbium (65)	Tb-157	9.76E-03	7.10E+01	6.00E+03	1.00E+00	2.57E+02	.	5.18E+04	1.09E+02	7.64E+01	6.44E-08	4.58E+02	3.86E-07		
Terbium (65)	Tb-158	3.85E-03	1.80E+02	6.00E+03	1.00E+00	9.36E+00	.	1.51E+02	3.95E+00	2.73E+00	5.87E-09	1.64E+01	3.52E-08		
Terbium (65)	Tb-160	3.50E+00	1.98E-01	6.00E+03	1.00E+00	6.31E+00	.	1.05E+02	2.67E+00	1.84E+00	4.42E-12	1.10E+01	2.65E-11	2.22E+01	5.32E-11
Terbium (65)	Tb-161	3.66E+01	1.89E-02	6.00E+03	1.00E+00	1.33E+01	.	5.88E+03	5.62E+00	3.95E+00	9.10E-13	2.37E+01	5.46E-12		
Terbium (65)	Tb-162	4.79E+04	1.45E-05	6.00E+03	1.00E+00	4.79E+00	.	1.08E+02		1.08E+02	1.92E-14	6.50E+02	1.15E-13		
Terbium (65)	Tb-163	1.87E+04	3.71E-05	6.00E+03	1.00E+00	4.83E+02	.	1.55E+02	2.04E+02	7.45E+01	3.41E-14	4.47E+02	2.05E-13		
Terbium (65)	Tb-164	1.21E+05	5.71E-06	6.00E+03	1.00E+00	.	.	4.78E+01		4.78E+01	3.39E-15	2.87E+02	2.03E-14		
Terbium (65)	Tb-165	1.73E+05	4.01E-06	6.00E+03	1.00E+00	9.29E+01	.	1.30E+02	3.93E+01	2.28E+01	1.14E-15	3.91E+01	1.96E-15	5.62E+00	2.82E-16
Technetium (43)	Tc-101	2.57E+04	2.70E-05	0.00E+00	1.00E+00	5.43E+02	.	3.60E+02	1.00E+00	9.97E-01	2.06E-16	1.99E-04	4.12E-20		
Technetium (43)	Tc-102	4.14E+06	1.67E-07	0.00E+00	1.00E+00		.	1.07E+03		1.07E+03	1.39E-15	2.15E-01	2.78E-19		
Technetium (43)	Tc-102m	8.37E+04	8.28E-06	0.00E+00	1.00E+00		.	4.61E+01		4.61E+01	2.95E-15	9.22E-03	5.89E-19		
Technetium (43)	Tc-104	1.99E+04	3.48E-05	0.00E+00	1.00E+00	1.24E+02	.	4.98E+01	2.30E-01	2.28E-01	6.26E-17	4.57E-05	1.25E-20		
Technetium (43)	Tc-105	4.79E+04	1.45E-05	0.00E+00	1.00E+00	1.55E+01	.	7.30E+01	5.39E+00	3.79E+00	4.35E-16	1.43E-02	1.64E-18	4.56E-02	5.23E-18
Technetium (43)	Tc-91	1.16E+05	5.97E-06	0.00E+00	1.00E+00	9.40E+01	.	3.30E+01	2.22E+01	1.16E+01	4.79E-16	8.99E-03	3.70E-19		
Technetium (43)	Tc-91m	1.10E+05	6.28E-06	0.00E+00	1.00E+00	3.58E+01	.	3.58E+01	1.24E+01	7.34E+00	3.17E-16	1.64E-02	7.08E-19		
Technetium (43)	Tc-92	8.57E+04	8.09E-06	0.00E+00	1.00E+00		.	3.04E+01		3.04E+01	1.71E-15	6.09E-03	3.43E-19		
Technetium (43)	Tc-93	2.21E+03	3.14E-04	0.00E+00	1.00E+00	4.03E+00	.	7.29E+01	2.06E-01	1.96E-01	4.33E-16	5.62E-05	1.24E-19	6.31E+01	1.39E-13
Technetium (43)	Tc-93m	8.37E+03	8.28E-05	0.00E+00	1.00E+00	4.01E+00	.	5.25E+01	1.77E-01	1.69E-01	9.83E-17	4.57E-05	2.66E-20	6.31E+01	3.67E-14
Technetium (43)	Tc-94	1.24E+03	5.57E-04	0.00E+00	1.00E+00	5.36E+01	.	4.49E+01	9.90E-02	9.86E-02	3.91E-16	1.97E-05	7.82E-20		
Technetium (43)	Tc-94m	7.00E+03	9.89E-05	0.00E+00	1.00E+00	9.98E+01	.	6.00E+01	1.84E-01	1.83E-01	1.29E-16	3.67E-05	2.58E-20		
Technetium (43)	Tc-95	3.04E+02	2.28E-03	0.00E+00	1.00E+00	6.00E+01	.	1.52E+02	1.11E-01	1.11E-01	1.81E-15	2.21E-05	3.63E-19		
Technetium (43)	Tc-95m	4.15E+00	1.67E-01	0.00E+00	1.00E+00	1.86E+01	.	1.70E+02	3.44E-02	3.43E-02	4.13E-14	6.87E-06	8.25E-18		
Technetium (43)	Tc-96	5.91E+01	1.17E-02	0.00E+00	1.00E+00	9.83E+00	.	4.76E+01	1.82E-02	1.81E-02	1.54E-15	3.62E-06	3.09E-19	2.22E-03	1.89E-16
Technetium (43)	Tc-96m	7.07E+03	9.80E-05	0.00E+00	1.00E+00	9.92E+00	.	4.78E+01	1.83E-02	1.83E-02	1.30E-17	3.65E-06	2.60E-21	2.24E-03	1.60E-18

Soil to Groundwater July 2023															
Radionuclides		Isotope-specific Information				Tap Water Dose Compliance Concentrations (DCCs)						Protection of Groundwater Soil Screening Levels			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	K <sub>d</sub> Distribution coefficient (L/kg)	DAF	Ingestion DCC DL=1 (Bq/L)	Inhalation DCC DL=1 (Bq/L)	Immersion DCC DL=1 (Bq/L)	Produce	Total DCC DL=1 (Bq/L)	Total DCC DL=1 (mg/L)	SSL Dose-based DL=1 (Bq/g)	SSL Dose-based DL=1 (mg/kg)	SSL MCL-based (Bq/g)	SSL MCL-based (mg/kg)
									Consumption DCC DL=1 (Bq/L)						
Techneium (43)	Tc-97	2.67E-07	2.60E+06	0.00E+00	1.00E+00	1.43E+02	.	2.27E+05	2.65E-01	2.64E-01	5.04E-06	5.28E-05	1.01E-09	4.44E-02	8.47E-07
Techneium (43)	Tc-97m	2.81E+00	2.47E-01	0.00E+00	1.00E+00	1.57E+01	.	8.88E+04	2.90E-02	2.89E-02	5.24E-14	5.78E-06	1.05E-17	6.34E-03	1.15E-14
Techneium (43)	Tc-98	1.65E-07	4.20E+06	0.00E+00	1.00E+00	5.58E+00	.	8.50E+01	1.03E-02	1.03E-02	3.20E-07	2.06E-06	6.41E-11		
Techneium (43)	Tc-99	3.28E-06	2.11E+05	0.00E+00	1.00E+00	1.51E+01	.	3.76E+05	2.78E-02	2.78E-02	4.39E-08	5.56E-06	8.79E-12	6.66E-03	1.05E-08
Techneium (43)	Tc-99m	1.01E+03	6.87E-04	0.00E+00	1.00E+00	1.46E+01	.	1.01E+03	2.70E-02	2.69E-02	1.38E-16	5.38E-06	2.77E-20	6.37E-03	3.28E-17
Tellurium (52)	Te-113	2.14E+05	3.23E-06	4.80E+02	1.00E+00	1.32E+01	.	3.14E+01	1.49E+00	1.28E+00	3.55E-17	1.44E+00	3.99E-17	1.36E+01	3.76E-16
Tellurium (52)	Te-114	2.40E+04	2.89E-05	4.80E+02	1.00E+00	1.56E+02	.	2.94E+01	2.46E+01	1.23E+01	3.08E-15	2.03E+00	5.05E-16		
Tellurium (52)	Te-115	6.28E+04	1.10E-05	4.80E+02	1.00E+00	4.31E+02	.	3.79E+01	1.75E+02	2.91E+01	2.79E-15	3.50E+00	3.36E-16		
Tellurium (52)	Te-115m	5.44E+04	1.27E-05	4.80E+02	1.00E+00	4.31E+02	.	3.37E+01	1.75E+02	2.65E+01	2.94E-15	3.42E+00	3.79E-16		
Tellurium (52)	Te-116	2.44E+03	2.84E-04	4.80E+02	1.00E+00	4.56E+01	.	4.90E+01	7.83E+00	5.88E+00	1.47E-14	1.30E+00	3.23E-15		
Tellurium (52)	Te-117	5.87E+03	1.18E-04	4.80E+02	1.00E+00	1.48E+02	.	6.83E+01	2.78E+01	1.75E+01	1.82E-14	4.49E+00	4.69E-15		
Tellurium (52)	Te-118	4.22E+01	1.64E-02	4.80E+02	1.00E+00	3.29E+00	.	1.50E+02	5.19E-01	4.47E-01	6.55E-14	2.10E-01	3.09E-14		
Tellurium (52)	Te-119	3.78E+02	1.83E-03	4.80E+02	1.00E+00	4.04E+01	.	1.58E+02	8.00E+00	6.41E+00	1.06E-13	1.38E+00	2.27E-14		
Tellurium (52)	Te-119m	5.38E+01	1.29E-02	4.80E+02	1.00E+00	1.35E+01	.	7.80E+01	2.28E+00	1.90E+00	2.21E-13	6.69E-01	7.75E-14		
Tellurium (52)	Te-121	1.32E+01	5.25E-02	4.80E+02	1.00E+00	2.40E+01	.	2.17E+02	3.79E+00	3.23E+00	1.55E-12	1.55E+00	7.44E-13		
Tellurium (52)	Te-121m	1.64E+00	4.22E-01	4.80E+02	1.00E+00	3.84E+00	.	1.73E+02	6.07E-01	5.22E-01	2.02E-12	2.51E-01	9.69E-13		
Tellurium (52)	Te-123	1.16E-15	6.00E+14	4.80E+02	1.00E+00	9.11E+00	.	1.91E+07	1.44E+00	1.24E+00	6.93E+03	5.96E-01	3.33E+03		
Tellurium (52)	Te-123m	2.12E+00	3.27E-01	4.80E+02	1.00E+00	4.04E+00	.	9.23E+02	6.37E-01	5.50E-01	1.67E-12	2.64E-01	8.03E-13		
Tellurium (52)	Te-125m	4.41E+00	1.57E-01	4.80E+02	1.00E+00	1.11E+01	.	1.52E+04	1.76E+00	1.52E+00	2.26E-12	7.28E-01	1.08E-12	1.07E+01	1.59E-11
Tellurium (52)	Te-127	6.49E+02	1.07E-03	4.80E+02	1.00E+00	5.90E+01	.	1.96E+04	9.31E+00	8.04E+00	8.25E-14	3.86E+00	3.96E-14	1.60E+01	1.64E-13
Tellurium (52)	Te-127m	2.32E+00	2.99E-01	4.80E+02	1.00E+00	3.74E+00	.	1.40E+04	5.91E-01	5.10E-01	1.46E-12	2.45E-01	7.03E-13	2.92E+00	8.38E-12
Tellurium (52)	Te-129	5.23E+03	1.32E-04	4.80E+02	1.00E+00	1.12E-01	.	1.74E+03	3.28E-02	2.54E-02	3.28E-17	5.08E-06	6.57E-21	7.40E-06	9.57E-21
Tellurium (52)	Te-129m	7.53E+00	9.21E-02	4.80E+02	1.00E+00	1.08E-01	.	1.52E+03	3.08E-02	2.40E-02	2.16E-14	5.08E-06	4.57E-18	7.40E-06	6.65E-18
Tellurium (52)	Te-131	1.46E+04	4.76E-05	4.80E+02	1.00E+00	4.32E-01	.	1.51E+02	1.26E-01	9.75E-02	4.60E-17	1.96E-05	9.26E-21	2.22E-05	1.05E-20
Tellurium (52)	Te-131m	2.02E+02	3.42E-03	4.80E+02	1.00E+00	3.99E-01	.	6.18E+01	1.09E-01	8.57E-02	2.91E-15	1.96E-05	6.67E-19	2.22E-05	7.54E-19
Tellurium (52)	Te-132	7.89E+01	8.78E-03	4.80E+02	1.00E+00	2.35E+00	.	4.79E+01	3.84E-01	3.28E-01	2.87E-14	1.32E-03	1.15E-16	6.66E-04	5.84E-17
Tellurium (52)	Te-133	2.91E+04	2.38E-05	4.80E+02	1.00E+00	2.02E+00	.	6.34E+01	5.86E-01	4.51E-01	1.08E-16	9.29E-05	2.22E-20	7.40E-05	1.77E-20
Tellurium (52)	Te-133m	6.57E+03	1.05E-04	4.80E+02	1.00E+00	1.94E+00	.	4.34E+01	5.44E-01	4.21E-01	4.46E-16	9.29E-05	9.86E-20	7.40E-05	7.85E-20
Tellurium (52)	Te-134	8.71E+03	7.95E-05	4.80E+02	1.00E+00	5.03E+01	.	3.42E+01	1.04E+01	6.86E+00	5.54E-15	3.00E-03	2.42E-18	7.40E-04	5.97E-19
Thorium (90)	Th-223	3.64E+07	1.90E-08	2.00E+01	1.00E+00	.	.	5.12E+02	.	5.12E+02	1.64E-16	8.61E-01	2.76E-19	6.66E-04	2.14E-22
Thorium (90)	Th-224	2.08E+07	3.33E-08	2.00E+01	1.00E+00	.	.	4.56E+03	.	4.56E+03	2.57E-15	2.45E+01	1.38E-17	1.17E-01	6.58E-20
Thorium (90)	Th-226	1.19E+04	5.82E-05	2.00E+01	1.00E+00	4.89E-03	.	5.68E+03	1.97E-03	1.41E-03	1.40E-18	2.55E-04	2.54E-19	4.79E-02	4.76E-17
Thorium (90)	Th-227	1.35E+01	5.12E-02	2.00E+01	1.00E+00	5.85E-02	2.74E-01	2.84E+02	2.09E-02	1.46E-02	1.28E-14	1.95E-05	1.71E-17	6.61E-04	5.81E-16
Thorium (90)	Th-228	3.63E-01	1.91E+00	2.00E+01	1.00E+00	5.37E-02	1.02E-01	7.56E+01	2.06E-02	1.30E-02	4.29E-13	3.18E-05	1.05E-15	6.22E-04	2.05E-14
Thorium (90)	Th-229	9.44E-05	7.34E+03	2.00E+01	1.00E+00	1.51E-02	.	4.03E+02	6.11E-03	4.35E-03	5.53E-10	1.58E-05	2.00E-12	3.49E-03	4.44E-10
Thorium (90)	Th-230	9.19E-06	7.54E+04	2.00E+01	1.00E+00	3.90E-03	1.40E-01	6.59E+01	1.55E-03	1.10E-03	1.44E-09	8.59E-06	1.13E-11	2.16E-04	2.84E-10
Thorium (90)	Th-231	2.38E+02	2.91E-03	2.00E+01	1.00E+00	1.15E-02	2.74E-01	2.58E+02	4.53E-03	3.21E-03	1.63E-16	1.94E-05	9.90E-19	6.60E-04	3.36E-17
Thorium (90)	Th-232	4.93E-11	1.41E+10	2.00E+01	1.00E+00	6.37E-03	1.02E-01	4.86E+01	2.32E-03	1.67E-03	4.13E-04	2.43E-06	5.99E-07	1.61E-04	3.98E-05
Thorium (90)	Th-233	1.63E+04	4.24E-05	2.00E+01	1.00E+00	1.41E-02	.	2.22E+02	5.72E-03	4.07E-03	3.04E-18	1.12E-05	8.39E-21	3.49E-03	2.61E-18
Thorium (90)	Th-234	1.05E+01	6.60E-02	2.00E+01	1.00E+00	3.83E-03	1.40E-01	6.46E+01	1.52E-03	1.08E-03	1.26E-15	7.08E-06	8.28E-18	2.16E-04	2.53E-16
Thorium (90)	Th-235	5.13E+04	1.35E-05	2.00E+01	1.00E+00	1.10E-02	2.74E-01	1.76E+02	4.33E-03	3.07E-03	7.38E-19	1.34E-05	3.21E-21	4.52E-04	1.09E-19
Thorium (90)	Th-236	9.71E+03	7.13E-05	2.00E+01	1.00E+00	6.21E-03	1.02E-01	3.47E+01	2.27E-03	1.64E-03	2.08E-18	2.30E-06	2.93E-21	1.61E-04	2.05E-19
Titanium (22)	Ti-44	1.16E-02	6.00E+01	1.00E+03	1.00E+00	1.72E+00	.	5.25E+01	7.34E-01	5.10E-01	1.02E-10	5.29E-01	1.06E-10		

Soil to Groundwater July 2023															
Radionuclides		Isotope-specific Information				Tap Water Dose Compliance Concentrations (DCCs)						Protection of Groundwater Soil Screening Levels			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	K <sub>d</sub> Distribution coefficient (L/kg)	DAF	Ingestion	Inhalation	Immersion	Produce	Total	Total	SSL	SSL	SSL	SSL
						DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (mg/L)	Dose-based DL=1 (Bq/g)	Dose-based DL=1 (mg/kg)	MCL-based (Bq/g)	MCL-based (mg/kg)
Titanium (22)	Ti-45	1.97E+03	3.52E-04	1.00E+03	1.00E+00	6.75E+01	.	1.40E+02	2.88E+01	1.76E+01	2.11E-14	1.76E+01	2.11E-14	.	.
Titanium (22)	Ti-51	6.32E+04	1.10E-05	1.00E+03	1.00E+00	.	.	3.23E+02	.	3.23E+02	1.37E-14	3.23E+02	1.37E-14	.	.
Titanium (22)	Ti-52	2.14E+05	3.23E-06	1.00E+03	1.00E+00	.	.	7.19E+01	.	7.19E+01	9.16E-16	2.28E+01	2.90E-16	.	.
Thallium (81)	Tl-190	1.40E+05	4.95E-06	1.50E+03	1.00E+00	2.59E-01	.	2.98E+01	7.89E-02	6.03E-02	4.29E-18	5.33E-03	3.79E-19	.	.
Thallium (81)	Tl-190m	9.84E+04	7.04E-06	1.50E+03	1.00E+00	2.59E-01	.	2.32E+01	7.89E-02	6.03E-02	6.10E-18	5.33E-03	5.40E-19	.	.
Thallium (81)	Tl-194	1.10E+04	6.28E-05	1.50E+03	1.00E+00	6.35E+00	.	6.10E+01	8.71E-01	7.57E-01	6.98E-16	4.91E+00	4.52E-15	.	.
Thallium (81)	Tl-194m	1.11E+04	6.24E-05	1.50E+03	1.00E+00	6.38E+00	.	3.37E+01	8.73E-01	7.51E-01	6.88E-16	4.74E+00	4.34E-15	.	.
Thallium (81)	Tl-195	5.23E+03	1.32E-04	1.50E+03	1.00E+00	2.58E+01	.	7.92E+01	6.21E+00	4.71E+00	9.20E-15	3.14E+01	6.14E-14	.	.
Thallium (81)	Tl-196	3.30E+03	2.10E-04	1.50E+03	1.00E+00	2.11E+02	.	6.18E+01	9.07E+01	3.13E+01	9.76E-14	4.70E+01	1.46E-13	.	.
Thallium (81)	Tl-197	2.14E+03	3.24E-04	1.50E+03	1.00E+00	3.68E+01	.	2.39E+02	4.30E+00	3.79E+00	1.83E-14	2.11E+01	1.02E-13	2.10E+02	1.01E-12
Thallium (81)	Tl-198	1.15E+03	6.05E-04	1.50E+03	1.00E+00	1.50E+02	.	5.73E+01	6.45E+01	2.53E+01	2.29E-13	3.79E+01	3.43E-13	.	.
Thallium (81)	Tl-198m	3.25E+03	2.13E-04	1.50E+03	1.00E+00	1.22E+02	.	5.58E+01	5.22E+01	2.21E+01	7.06E-14	3.31E+01	1.06E-13	.	.
Thallium (81)	Tl-199	8.18E+02	8.47E-04	1.50E+03	1.00E+00	3.90E+02	.	5.20E+02	1.67E+02	9.56E+01	1.22E-12	1.43E+02	1.83E-12	.	.
Thallium (81)	Tl-200	2.33E+02	2.98E-03	1.50E+03	1.00E+00	5.49E+01	.	9.09E+01	2.36E+01	1.40E+01	6.30E-13	2.09E+01	9.44E-13	5.55E+01	2.50E-12
Thallium (81)	Tl-201	8.33E+01	8.32E-03	1.50E+03	1.00E+00	1.07E+02	.	1.61E+03	4.58E+01	3.15E+01	3.98E-12	4.72E+01	5.97E-12	5.00E+01	6.32E-12
Thallium (81)	Tl-202	2.07E+01	3.35E-02	1.50E+03	1.00E+00	2.42E+01	.	2.71E+02	1.04E+01	7.08E+00	3.63E-12	1.06E+01	5.44E-12	1.67E+01	8.53E-12
Thallium (81)	Tl-204	1.83E-01	3.78E+00	1.50E+03	1.00E+00	8.43E+00	.	4.84E+04	3.62E+00	2.53E+00	1.48E-10	3.80E+00	2.22E-10	1.67E+01	9.72E-10
Thallium (81)	Tl-206	8.67E+04	7.99E-06	1.50E+03	1.00E+00	.	.	2.49E+04	.	2.49E+04	3.10E-12	3.73E+04	4.65E-12	.	.
Thallium (81)	Tl-206m	9.74E+04	7.12E-06	1.50E+03	1.00E+00	.	.	4.97E+01	.	4.97E+01	5.52E-15	7.46E+01	8.28E-15	.	.
Thallium (81)	Tl-207	7.64E+04	9.08E-06	1.50E+03	1.00E+00	.	.	1.82E+04	.	1.82E+04	2.58E-12	2.73E+04	3.88E-12	.	.
Thallium (81)	Tl-208	1.19E+05	5.81E-06	1.50E+03	1.00E+00	.	.	3.25E+01	.	3.25E+01	2.97E-15	4.87E+01	4.45E-15	.	.
Thallium (81)	Tl-209	1.69E+05	4.11E-06	1.50E+03	1.00E+00	1.82E+02	.	5.37E+01	6.73E+01	2.56E+01	1.67E-15	6.75E+00	4.39E-16	.	.
Thallium (81)	Tl-210	2.80E+05	2.47E-06	1.50E+03	1.00E+00	4.90E-03	.	4.14E+01	1.97E-03	1.41E-03	5.53E-20	2.56E-04	1.01E-20	8.11E-02	3.19E-18
Thulium (69)	Tm-161	1.21E+04	5.75E-05	3.30E+02	1.00E+00	7.73E+01	.	5.18E+01	3.29E+01	1.60E+01	1.12E-14	7.74E+00	5.42E-15	.	.
Thulium (69)	Tm-162	1.68E+04	4.13E-05	3.30E+02	1.00E+00	2.62E+02	.	5.97E+01	1.11E+02	3.38E+01	1.71E-14	1.12E+01	5.65E-15	.	.
Thulium (69)	Tm-163	3.35E+03	2.07E-04	3.30E+02	1.00E+00	1.76E+02	.	8.86E+01	7.44E+01	3.29E+01	8.38E-14	1.13E+01	2.88E-14	.	.
Thulium (69)	Tm-164	1.82E+05	3.81E-06	3.30E+02	1.00E+00	.	.	1.53E+02	.	1.53E+02	7.24E-15	5.07E+01	2.39E-15	.	.
Thulium (69)	Tm-165	2.02E+02	3.43E-03	3.30E+02	1.00E+00	2.77E+01	.	2.17E+02	1.17E+01	7.92E+00	3.39E-13	2.68E+00	1.15E-13	.	.
Thulium (69)	Tm-166	7.88E+02	8.79E-04	3.30E+02	1.00E+00	3.75E+01	.	5.85E+01	1.58E+01	9.35E+00	1.03E-13	3.09E+00	3.41E-14	.	.
Thulium (69)	Tm-167	2.73E+01	2.53E-02	3.30E+02	1.00E+00	1.72E+01	.	9.76E+02	7.25E+00	5.07E+00	1.62E-12	1.67E+00	5.36E-13	.	.
Thulium (69)	Tm-168	2.72E+00	2.55E-01	3.30E+02	1.00E+00	1.01E+01	.	9.84E+01	4.28E+00	2.92E+00	9.46E-12	9.64E-01	3.12E-12	.	.
Thulium (69)	Tm-170	1.97E+00	3.52E-01	3.30E+02	1.00E+00	7.50E+00	.	2.30E+04	3.17E+00	2.23E+00	1.01E-11	7.35E-01	3.33E-12	1.22E+00	5.54E-12
Thulium (69)	Tm-171	3.61E-01	1.92E+00	3.30E+02	1.00E+00	9.17E+01	.	3.04E+05	3.87E+01	2.72E+01	6.76E-10	8.99E+00	2.23E-10	1.22E+01	3.04E-10
Thulium (69)	Tm-172	9.55E+01	7.26E-03	3.30E+02	1.00E+00	5.85E+00	.	2.40E+02	2.47E+00	1.72E+00	1.63E-13	5.69E-01	5.38E-14	.	.
Thulium (69)	Tm-173	7.37E+02	9.41E-04	3.30E+02	1.00E+00	3.33E+01	.	3.16E+02	1.41E+01	9.60E+00	1.18E-13	3.17E+00	3.90E-14	.	.
Thulium (69)	Tm-174	6.75E+04	1.03E-05	3.30E+02	1.00E+00	6.75E+04	.	1.03E+05	.	6.75E+04	9.13E-15	2.23E+01	3.02E-15	.	.
Thulium (69)	Tm-175	2.40E+04	2.89E-05	3.30E+02	1.00E+00	2.13E+01	.	1.07E+02	9.00E+00	5.97E+00	2.29E-15	3.52E+00	1.35E-15	.	.
Thulium (69)	Tm-176	1.97E+05	3.52E-06	3.30E+02	1.00E+00	.	.	5.82E+01	.	5.82E+01	2.73E-15	1.92E+01	9.01E-16	.	.
Uranium (92)	U-227	3.31E+05	2.09E-06	4.00E-01	1.00E+00	.	.	3.50E+02	.	3.50E+02	1.26E-14	3.74E-01	1.35E-17	6.66E-04	2.39E-20
Uranium (92)	U-228	4.00E+04	1.73E-05	4.00E-01	1.00E+00	.	.	4.10E+03	.	4.10E+03	1.23E-12	1.12E+01	3.34E-15	1.20E-01	3.57E-17
Uranium (92)	U-230	1.22E+01	5.70E-02	4.00E-01	1.00E+00	4.77E-03	.	5.42E+03	1.92E-03	1.37E-03	1.36E-15	2.88E-05	2.86E-17	4.79E-02	4.75E-14
Uranium (92)	U-231	6.02E+01	1.15E-02	4.00E-01	1.00E+00	1.15E-02	2.74E-01	2.33E+02	4.53E-03	3.21E-03	6.46E-16	1.94E-05	3.90E-18	6.60E-04	1.33E-16
Uranium (92)	U-232	1.01E-02	6.89E+01	4.00E-01	1.00E+00	2.07E-02	1.02E-01	7.56E+01	8.18E-03	5.54E-03	6.70E-12	4.90E-06	5.93E-15	6.22E-04	7.52E-13



Soil to Groundwater July 2023															
Radionuclides		Isotope-specific Information				Tap Water Dose Compliance Concentrations (DCCs)						Protection of Groundwater Soil Screening Levels			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	K <sub>d</sub> Distribution coefficient (L/kg)	DAF	Ingestion DCC DL=1 (Bq/L)	Inhalation DCC DL=1 (Bq/L)	Immersion DCC DL=1 (Bq/L)	Produce Consumption DCC DL=1 (Bq/L)	Total DCC DL=1 (Bq/L)	Total DCC DL=1 (mg/L)	SSL Dose-based DL=1 (Bq/g)	SSL Dose-based DL=1 (mg/kg)	SSL MCL-based (Bq/g)	SSL MCL-based (mg/kg)
Uranium (92)	U-234	2.82E-06	2.46E+05	4.00E-01	1.00E+00	3.84E-03	1.40E-01	6.59E+01	1.52E-03	1.08E-03	4.71E-09	7.08E-06	3.08E-11	2.16E-04	9.40E-10
Uranium (92)	U-235	9.84E-10	7.04E+08	4.00E-01	1.00E+00	1.10E-02	2.74E-01	1.94E+02	4.34E-03	3.07E-03	3.85E-05	1.34E-05	1.67E-07	4.52E-04	5.66E-06
Uranium (92)	U-235m	1.40E+04	4.95E-05	4.00E-01	1.00E+00	1.10E-02	2.74E-01	1.94E+02	4.34E-03	3.07E-03	2.70E-18	1.34E-05	1.17E-20	4.52E-04	3.98E-19
Uranium (92)	U-236	2.96E+08	2.34E+07	4.00E-01	1.00E+00	6.21E-03	1.02E-01	4.86E+01	2.27E-03	1.64E-03	6.84E-07	2.30E-06	9.62E-10	1.61E-04	6.72E-08
Uranium (92)	U-237	3.75E+01	1.85E-02	4.00E-01	1.00E+00	1.25E-02	.	1.87E+02	5.04E-03	3.59E-03	1.19E-15	5.84E-06	1.94E-18	2.09E-04	6.92E-17
Uranium (92)	U-238	1.55E-10	4.47E+09	4.00E-01	1.00E+00	3.78E-03	1.40E-01	6.46E+01	1.50E-03	1.07E-03	8.58E-05	6.11E-06	4.92E-07	1.10E-04	8.84E-06
Uranium (92)	U-239	1.55E+04	4.46E-05	4.00E-01	1.00E+00	8.88E-03	2.74E-01	1.45E+02	3.57E-03	2.52E-03	2.04E-18	1.12E-05	9.05E-21	3.59E-04	2.90E-19
Uranium (92)	U-240	4.31E+02	1.61E-03	4.00E-01	1.00E+00	5.48E-03	1.02E-01	4.29E+01	2.04E-03	1.47E-03	4.28E-17	2.23E-06	6.51E-20	1.52E-04	4.45E-18
Uranium (92)	U-242	2.17E+04	3.20E-05	4.00E-01	1.00E+00	3.51E-03	1.40E-01	5.49E+01	1.40E-03	9.95E-04	5.82E-19	5.66E-06	3.31E-21	1.06E-04	6.20E-20
Vanadium (23)	V-47	1.12E+04	6.20E-05	3.00E+02	1.00E+00	1.62E+02	.	1.22E+02	6.36E+01	3.32E+01	7.33E-15	9.97E+00	2.20E-15	.	.
Vanadium (23)	V-48	1.58E+01	4.38E-02	3.00E+02	1.00E+00	5.34E+00	.	4.00E+01	2.10E+00	1.45E+00	2.31E-13	4.36E-01	6.92E-14	1.00E+00	1.59E-13
Vanadium (23)	V-49	7.67E-01	9.04E-01	3.00E+02	1.00E+00	5.36E+02	.	.	2.10E+02	1.51E+02	5.07E-10	4.54E+01	1.52E-10	.	.
Vanadium (23)	V-50	4.62E-18	1.50E+17	3.00E+02	1.00E+00	3.62E+00	.	7.93E+01	1.42E+00	1.01E+00	5.71E+05	3.02E-01	1.72E+05	.	.
Vanadium (23)	V-52	9.73E+04	7.12E-06	3.00E+02	1.00E+00	.	.	7.77E+01	.	7.77E+01	2.18E-15	2.33E+01	6.54E-16	.	.
Vanadium (23)	V-53	2.26E+05	3.06E-06	3.00E+02	1.00E+00	.	.	1.11E+02	.	1.11E+02	1.37E-15	3.35E+01	4.11E-16	.	.
Tungsten (74)	W-177	2.76E+03	2.51E-04	1.50E+02	1.00E+00	6.23E+01	.	1.29E+02	7.49E+00	6.35E+00	2.14E-14	1.17E+00	3.95E-15	.	.
Tungsten (74)	W-178	1.17E+01	5.92E-02	1.50E+02	1.00E+00	4.14E+01	.	1.04E+03	2.03E+00	1.93E+00	1.54E-12	2.90E-01	2.31E-13	.	.
Tungsten (74)	W-179	9.83E+03	7.05E-05	1.50E+02	1.00E+00	1.61E+02	.	2.41E+03	4.76E+01	3.62E+01	3.45E-14	1.30E+01	1.24E-14	.	.
Tungsten (74)	W-179m	5.69E+04	1.22E-05	1.50E+02	1.00E+00	1.61E+02	.	1.27E+03	4.77E+01	3.57E+01	5.89E-15	1.26E+01	2.08E-15	.	.
Tungsten (74)	W-181	2.09E+00	3.32E-01	1.50E+02	1.00E+00	1.20E+02	.	4.49E+03	5.88E+00	5.60E+00	2.55E-11	8.42E-01	3.83E-12	5.56E+00	2.53E-11
Tungsten (74)	W-185	3.37E+00	2.06E-01	1.50E+02	1.00E+00	2.24E+01	.	2.08E+05	1.10E+00	1.05E+00	3.01E-12	1.57E-01	4.53E-13	1.67E+00	4.80E-12
Tungsten (74)	W-185m	2.28E+05	3.04E-06	1.50E+02	1.00E+00	2.24E+01	.	5.61E+03	1.10E+00	1.05E+00	4.45E-17	1.57E-01	6.68E-18	1.67E+00	7.09E-17
Tungsten (74)	W-187	2.56E+02	2.71E-03	1.50E+02	1.00E+00	1.69E+01	.	2.73E+02	8.31E-01	7.90E-01	3.03E-14	1.12E-01	4.31E-15	7.75E-01	2.97E-14
Tungsten (74)	W-188	3.62E+00	1.91E-01	1.50E+02	1.00E+00	2.84E+00	.	1.74E+03	1.90E-01	1.78E-01	4.85E-13	5.74E-03	1.56E-14	5.70E-02	1.55E-13
Tungsten (74)	W-190	1.21E+04	5.71E-05	1.50E+02	1.00E+00	1.22E+02	.	8.23E+01	5.99E+00	5.34E+00	4.38E-15	3.83E-01	3.14E-16	.	.
Xenon (54)	Xe-120	9.11E+03	7.61E-05	.	1.00E+00	3.31E+01	.	3.79E+01	9.70E+00	6.26E+00	4.33E-15	1.28E-03	8.82E-19	.	.
Xenon (54)	Xe-121	9.08E+03	7.63E-05	.	1.00E+00	2.01E+01	.	4.89E+01	3.41E+00	2.75E+00	1.92E-15	5.59E-03	3.90E-18	.	.
Xenon (54)	Xe-122	3.02E+02	2.29E-03	.	1.00E+00	.	.	1.19E+02	.	1.19E+02	2.52E-12	2.50E-02	5.30E-16	.	.
Xenon (54)	Xe-123	2.92E+03	2.37E-04	.	1.00E+00	7.48E+00	.	1.54E+02	1.29E+00	1.09E+00	2.41E-15	1.87E-03	4.13E-18	.	.
Xenon (54)	Xe-125	3.59E+02	1.93E-03	.	1.00E+00	7.18E-01	.	4.80E+02	2.10E-01	1.63E-01	2.97E-15	3.25E-05	5.94E-19	.	.
Xenon (54)	Xe-127	6.95E+00	9.97E-02	.	1.00E+00	.	.	4.76E+02	.	4.76E+02	4.57E-10	.	.	.	.
Xenon (54)	Xe-127m	3.16E+05	2.19E-06	.	1.00E+00	.	.	3.01E+02	.	3.01E+02	6.34E-15	.	.	.	.
Xenon (54)	Xe-129m	2.85E+01	2.43E-02	.	1.00E+00	.	.	5.88E+03	.	5.88E+03	1.40E-09	.	.	.	.
Xenon (54)	Xe-131m	2.14E+01	3.24E-02	.	1.00E+00	.	.	1.55E+04	.	1.55E+04	4.97E-09	.	.	.	.
Xenon (54)	Xe-133	4.82E+01	1.44E-02	.	1.00E+00	.	.	3.86E+03	.	3.86E+03	5.58E-10	.	.	.	.
Xenon (54)	Xe-133m	1.16E+02	6.00E-03	.	1.00E+00	.	.	2.03E+03	.	2.03E+03	1.23E-10	.	.	.	.
Xenon (54)	Xe-135	6.64E+02	1.04E-03	.	1.00E+00	5.14E+00	.	4.94E+02	1.80E+00	1.33E+00	1.41E-14	1.36E-02	1.45E-16	3.40E-01	3.62E-15
Xenon (54)	Xe-135m	2.38E+04	2.91E-05	.	1.00E+00	5.14E+00	.	1.83E+02	1.80E+00	1.32E+00	3.93E-16	1.36E-02	4.03E-18	3.40E-01	1.01E-16
Xenon (54)	Xe-137	9.54E+04	7.26E-06	.	1.00E+00	1.02E+00	.	1.55E+02	3.57E-01	2.64E-01	1.99E-17	2.64E-03	1.99E-19	7.55E-02	5.68E-18
Xenon (54)	Xe-138	2.59E+04	2.68E-05	.	1.00E+00	1.06E+02	.	3.23E+01	3.70E+01	1.48E+01	4.15E-15	1.78E-01	4.97E-17	.	.
Yttrium (39)	Y-81	3.10E+05	2.23E-06	4.70E+01	1.00E+00	8.96E+01	.	3.80E+01	1.05E+01	7.52E+00	1.03E-16	1.45E-02	1.98E-19	.	.
Yttrium (39)	Y-83	5.14E+04	1.35E-05	4.70E+01	1.00E+00	4.87E+00	.	4.54E+01	6.56E-01	5.71E-01	4.83E-17	2.26E-03	1.91E-19	.	.



Soil to Groundwater July 2023																
Radionuclides		Isotope-specific Information				Tap Water Dose Compliance Concentrations (DCCs)						Protection of Groundwater Soil Screening Levels				
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	K <sub>d</sub> Distribution coefficient (L/kg)	DAF	Ingestion DCC DL=1 (Bq/L)	Inhalation DCC DL=1 (Bq/L)	Immersion DCC DL=1 (Bq/L)	Produce		Total DCC DL=1 (Bq/L)	Total DCC DL=1 (mg/L)	SSL Dose-based DL=1 (Bq/g)	SSL Dose-based DL=1 (mg/kg)	SSL MCL-based (Bq/g)	SSL MCL-based (mg/kg)
									Consumption DCC DL=1 (Bq/L)	Total DCC DL=1 (mg/L)						
Yttrium (39)	Y-83m	1.28E+05	5.42E-06	4.70E+01	1.00E+00	4.87E+00	.	4.51E+01	6.56E-01	5.71E-01	1.94E-17	2.26E-03	7.68E-20			
Yttrium (39)	Y-84m	9.22E+03	7.52E-05	4.70E+01	1.00E+00	7.58E+01	.	2.97E+01	3.07E+01	1.26E+01	6.01E-15	5.94E-01	2.84E-16			
Yttrium (39)	Y-85	2.27E+03	3.06E-04	4.70E+01	1.00E+00	1.45E+01	.	7.07E+01	1.82E+00	1.58E+00	3.11E-15	2.13E-03	4.18E-18	4.39E-02	8.63E-17	
Yttrium (39)	Y-85m	1.25E+03	5.55E-04	4.70E+01	1.00E+00	1.06E+01	.	6.48E+01	1.50E+00	1.29E+00	4.60E-15	1.87E-03	6.68E-18	4.01E-02	1.43E-16	
Yttrium (39)	Y-86	4.12E+02	1.68E-03	4.70E+01	1.00E+00	1.11E+01	.	3.25E+01	4.51E+00	2.92E+00	3.20E-14	1.38E-01	1.51E-15			
Yttrium (39)	Y-86m	7.59E+03	9.13E-05	4.70E+01	1.00E+00	1.06E+01	.	3.09E+01	4.28E+00	2.77E+00	1.65E-15	1.31E-01	7.78E-17			
Yttrium (39)	Y-87	7.61E+01	9.11E-03	4.70E+01	1.00E+00	1.79E+01	.	1.62E+02	6.22E+00	4.49E+00	2.69E-13	3.13E-02	1.88E-15	7.78E+02	4.66E-11	
Yttrium (39)	Y-87m	4.54E+02	1.53E-03	4.70E+01	1.00E+00	1.31E+01	.	1.17E+02	4.75E+00	3.38E+00	3.40E-14	3.03E-02	3.04E-16	7.90E+02	7.94E-12	
Yttrium (39)	Y-88	2.37E+00	2.92E-01	4.70E+01	1.00E+00	8.43E+00	.	4.19E+01	3.41E+00	2.30E+00	4.47E-12	1.08E-01	2.11E-13			
Yttrium (39)	Y-89m	1.40E+06	4.97E-07	4.70E+01	1.00E+00	.	.	1.31E+02	.	1.31E+02	4.38E-16	6.18E+00	2.07E-17			
Yttrium (39)	Y-90	9.47E+01	7.32E-03	4.70E+01	1.00E+00	3.67E+00	.	1.20E+04	1.49E+00	1.06E+00	5.27E-14	4.99E-02	2.49E-15	1.05E-01	5.22E-15	
Yttrium (39)	Y-90m	1.90E+03	3.64E-04	4.70E+01	1.00E+00	3.45E+00	.	1.91E+02	1.40E+00	9.89E-01	2.45E-15	4.67E-02	1.16E-16	1.05E-01	2.60E-16	
Yttrium (39)	Y-91	4.32E+00	1.60E-01	4.70E+01	1.00E+00	4.15E+00	.	1.37E+04	1.68E+00	1.20E+00	1.32E-12	5.65E-02	6.23E-14	1.57E-01	1.74E-13	
Yttrium (39)	Y-91m	7.33E+03	9.46E-05	4.70E+01	1.00E+00	4.13E+00	.	2.26E+02	1.67E+00	1.18E+00	7.72E-16	5.59E-02	3.64E-17	1.56E-01	1.01E-16	
Yttrium (39)	Y-92	1.71E+03	4.04E-04	4.70E+01	1.00E+00	2.00E+01	.	4.31E+02	8.10E+00	5.69E+00	1.60E-14	2.68E-01	7.55E-16	3.49E-01	9.83E-16	
Yttrium (39)	Y-93	5.96E+02	1.16E-03	4.70E+01	1.00E+00	4.89E+00	.	1.04E+03	2.01E+00	1.42E+00	1.16E-14	1.07E-01	8.78E-16	1.56E-01	1.28E-15	
Yttrium (39)	Y-94	1.95E+04	3.56E-05	4.70E+01	1.00E+00	1.20E+02	.	1.45E+02	4.86E+01	2.80E+01	7.08E-15	1.32E+00	3.34E-16			
Yttrium (39)	Y-95	3.54E+04	1.96E-05	4.70E+01	1.00E+00	6.54E+00	.	4.36E+01	2.69E+00	1.83E+00	2.57E-16	6.94E-01	9.77E-17	2.57E+00	3.62E-16	
Ytterbium (70)	Yb-162	1.93E+04	3.59E-05	6.50E+02	1.00E+00	1.47E+02	.	5.37E+01	6.22E+01	2.41E+01	1.06E-14	9.26E+00	4.08E-15			
Ytterbium (70)	Yb-163	3.30E+04	2.10E-05	6.50E+02	1.00E+00	1.39E+02	.	5.77E+01	5.86E+01	2.41E+01	6.24E-15	9.45E+00	2.45E-15			
Ytterbium (70)	Yb-164	4.81E+03	1.44E-04	6.50E+02	1.00E+00	1.11E+02	.	1.46E+02	4.70E+01	2.70E+01	4.82E-14	1.50E+01	2.68E-14			
Ytterbium (70)	Yb-165	3.68E+04	1.88E-05	6.50E+02	1.00E+00	2.77E+01	.	1.40E+02	1.17E+01	7.76E+00	1.82E-15	2.65E+00	6.24E-16			
Ytterbium (70)	Yb-166	1.07E+02	6.47E-03	6.50E+02	1.00E+00	8.52E+00	.	5.69E+01	3.60E+00	2.42E+00	1.97E-13	1.26E+00	1.02E-13			
Ytterbium (70)	Yb-167	2.08E+04	3.33E-05	6.50E+02	1.00E+00	1.70E+01	.	3.53E+02	7.17E+00	4.97E+00	2.09E-15	1.66E+00	6.97E-16			
Ytterbium (70)	Yb-169	7.90E+00	8.77E-02	6.50E+02	1.00E+00	1.23E+01	.	4.46E+02	5.21E+00	3.63E+00	4.08E-12	2.36E+00	2.65E-12			
Ytterbium (70)	Yb-175	6.04E+01	1.15E-02	6.50E+02	1.00E+00	2.25E+01	.	3.17E+03	9.51E+00	6.67E+00	1.01E-12	4.34E+00	6.58E-13			
Ytterbium (70)	Yb-177	3.18E+03	2.18E-04	6.50E+02	1.00E+00	1.58E+01	.	5.19E+02	6.75E+00	4.69E+00	1.37E-14	1.17E+01	3.41E-14	5.66E+01	1.65E-13	
Ytterbium (70)	Yb-178	4.92E+03	1.41E-04	6.50E+02	1.00E+00	6.15E+01	.	6.89E+02	2.61E+01	1.78E+01	3.38E-14	1.56E+01	2.96E-14			
Ytterbium (70)	Yb-179	4.55E+04	1.52E-05	6.50E+02	1.00E+00	4.57E+01	.	1.20E+02	1.95E+01	1.23E+01	2.53E-15	3.73E+01	7.70E-15			
Zinc (30)	Zn-60	1.53E+05	4.53E-06	9.50E+02	1.00E+00	1.45E+02	.	2.13E+01	4.21E+01	1.29E+01	2.65E-16	7.36E+00	1.51E-16			
Zinc (30)	Zn-61	2.45E+05	2.83E-06	9.50E+02	1.00E+00	9.11E+01	.	5.02E+01	2.64E+01	1.45E+01	1.90E-16	8.42E+00	1.10E-16			
Zinc (30)	Zn-62	6.61E+02	1.05E-03	9.50E+02	1.00E+00	1.11E+01	.	8.37E+01	4.83E-01	4.60E-01	2.26E-15	4.36E-01	2.14E-15			
Zinc (30)	Zn-63	9.47E+03	7.32E-05	9.50E+02	1.00E+00	1.28E+02	.	1.09E+02	5.56E+00	5.08E+00	1.77E-15	4.83E+00	1.68E-15			
Zinc (30)	Zn-65	1.04E+00	6.69E-01	9.50E+02	1.00E+00	2.84E+00	.	2.01E+02	1.23E-01	1.18E-01	3.89E-13	1.12E-01	3.70E-13	1.05E+01	3.47E-11	
Zinc (30)	Zn-69	6.46E+03	1.07E-04	9.50E+02	1.00E+00	3.28E+02	.	5.18E+04	1.42E+01	1.36E+01	7.64E-15	1.30E+01	7.26E-15	2.11E+02	1.18E-13	
Zinc (30)	Zn-69m	4.41E+02	1.57E-03	9.50E+02	1.00E+00	2.86E+01	.	2.93E+02	1.24E+00	1.19E+00	9.72E-15	1.13E+00	9.24E-15	6.80E+00	5.58E-14	
Zinc (30)	Zn-71	1.49E+05	4.66E-06	9.50E+02	1.00E+00	.	.	3.67E+02	.	3.67E+02	9.19E-15	3.49E+02	8.73E-15			
Zinc (30)	Zn-71m	1.53E+03	4.52E-04	9.50E+02	1.00E+00	4.38E+01	.	7.72E+01	1.90E+00	1.78E+00	4.32E-15	1.69E+00	4.11E-15			
Zinc (30)	Zn-72	1.31E+02	5.31E-03	9.50E+02	1.00E+00	4.12E+00	.	3.98E+01	2.99E-01	2.77E-01	8.01E-15	2.14E-01	6.19E-15	1.11E+00	3.21E-14	
Zirconium (40)	Zr-85	4.63E+04	1.50E-05	4.10E+02	1.00E+00	1.07E+01	.	3.61E+01	1.51E+00	1.28E+00	1.23E-16	1.88E-03	1.81E-19	4.02E-02	3.87E-18	
Zirconium (40)	Zr-86	3.68E+02	1.88E-03	4.10E+02	1.00E+00	5.85E+00	.	3.03E+01	2.42E+00	1.62E+00	1.99E-14	1.26E-01	1.55E-15			
Zirconium (40)	Zr-87	3.61E+03	1.92E-04	4.10E+02	1.00E+00	1.06E+01	.	6.15E+01	3.93E+00	2.74E+00	3.46E-15	3.01E-02	3.80E-17	7.90E+02	9.98E-13	
Zirconium (40)	Zr-88	3.03E+00	2.28E-01	4.10E+02	1.00E+00	6.32E+00	.	3.71E+01	2.59E+00	1.75E+00	2.66E-12	1.05E-01	1.59E-13			

Soil to Groundwater July 2023															
Radionuclides		Isotope-specific Information				Tap Water Dose Compliance Concentrations (DCCs)						Protection of Groundwater Soil Screening Levels			
Element (Atomic Number)	Isotope	Lambda (1/yr)	Halflife (years)	K <sub>d</sub> Distribution coefficient (L/kg)	DAF	Ingestion	Inhalation	Immersion	Produce	Total	Total	SSL	SSL	SSL	SSL
						DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	Consumption DCC DL=1 (Bq/L)	DCC DL=1 (Bq/L)	DCC DL=1 (mg/L)	Dose-based DL=1 (Bq/g)	Dose-based DL=1 (mg/kg)	MCL-based (Bq/g)	MCL-based (mg/kg)
Zirconium (40)	Zr-89	7.74E+01	8.95E-03	4.10E+02	1.00E+00	1.33E+01	.	1.03E+02	5.64E+00	3.81E+00	2.30E-13	1.56E+00	9.43E-14		
Zirconium (40)	Zr-89m	8.75E+04	7.92E-06	4.10E+02	1.00E+00	1.42E+01	.	6.94E+01	6.02E+00	3.98E+00	2.12E-16	1.63E+00	8.71E-17		
Zirconium (40)	Zr-93	4.53E-07	1.53E+06	4.10E+02	1.00E+00	1.16E+01	.	1.70E+06	4.84E+00	3.41E+00	3.68E-05	1.58E+00	1.70E-05	1.98E+01	2.13E-04
Zirconium (40)	Zr-95	3.95E+00	1.75E-01	4.10E+02	1.00E+00	6.72E+00	.	7.99E+01	2.77E+00	1.91E+00	2.41E-12	1.10E+00	1.38E-12	2.57E+00	3.24E-12
Zirconium (40)	Zr-97	3.63E+02	1.91E-03	4.10E+02	1.00E+00	4.69E+00	.	7.70E+01	1.98E+00	1.37E+00	1.92E-14	5.79E-01	8.12E-15	9.06E-01	1.27E-14

Dose Conversion Factors July 2023														
Radionuclides		Isotope-specific Information and Dose Conversion Factors												
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Ingestion DCF (Sv/Bq)	Adult Ingestion DCF (Sv/Bq)	Inhalation DCF (Sv/Bq)	Exposure DCF (Infinite Volume) (Sv/s per Bq/g)	External Exposure DCF (1 cm) (Sv/s per Bq/g)	External Exposure DCF (5 cm) (Sv/s per Bq/g)	External Exposure DCF (15 cm) (Sv/s per Bq/g)	External Exposure DCF (Ground Plane) (Sv/s per Bq/cm <sup>2</sup> )	External Exposure DCF (Submersion) (Sv/s per Bq/m <sup>3</sup> )	External Exposure DCF (Immersion) (Sv/s per Bq/L)
Actinium (89)	Ac-223	-	1.73E+05	4.00E-06	0.00E+00	0.00E+00	0.00E+00	4.16E-19	1.00E-19	2.74E-19	3.94E-19	1.62E-17	7.28E-16	1.60E-18
Actinium (89)	Ac-224	S	2.18E+03	3.17E-04	2.78E-09	1.56E-09	1.24E-07	4.84E-18	1.28E-18	3.44E-18	4.72E-18	2.05E-16	9.33E-15	2.06E-17
Actinium (89)	Ac-225	S	2.53E+01	2.74E-02	5.23E-08	3.86E-08	9.18E-06	2.83E-19	7.81E-20	2.04E-19	2.75E-19	1.32E-17	5.66E-16	1.26E-18
Actinium (89)	Ac-226	S	2.07E+02	3.35E-03	1.45E-08	1.04E-08	1.41E-06	3.10E-18	7.64E-19	2.11E-18	2.99E-18	1.37E-16	5.68E-15	1.23E-17
Actinium (89)	Ac-227	S	3.18E-02	2.18E+01	3.92E-07	3.22E-07	5.91E-05	1.40E-21	5.04E-22	1.09E-21	1.38E-21	2.37E-19	3.65E-18	8.25E-21
Actinium (89)	Ac-228	S	9.87E+02	7.02E-04	5.14E-10	3.78E-10	1.61E-08	2.70E-17	5.15E-18	1.48E-17	2.33E-17	8.39E-16	4.01E-14	8.67E-17
Actinium (89)	Ac-230	-	1.79E+05	3.87E-06	0.00E+00	0.00E+00	0.00E+00	1.81E-17	3.28E-18	9.33E-18	1.51E-17	5.91E-16	2.66E-14	5.70E-17
Actinium (89)	Ac-231	-	4.86E+04	1.43E-05	0.00E+00	0.00E+00	0.00E+00	1.07E-17	2.51E-18	6.97E-18	1.02E-17	4.48E-16	1.84E-14	3.98E-17
Actinium (89)	Ac-232	-	1.84E+05	3.77E-06	0.00E+00	0.00E+00	0.00E+00	3.90E-17	6.79E-18	1.96E-17	3.19E-17	1.14E-15	5.65E-14	1.22E-16
Actinium (89)	Ac-233	-	1.51E+05	4.60E-06	0.00E+00	0.00E+00	0.00E+00	1.49E-17	3.13E-18	8.78E-18	1.35E-17	5.74E-16	2.29E-14	4.92E-17
Silver (47)	Ag-100m	-	1.63E+05	4.26E-06	0.00E+00	0.00E+00	0.00E+00	8.98E-17	1.72E-17	4.90E-17	7.76E-17	2.81E-15	1.33E-13	2.87E-16
Silver (47)	Ag-101	S	3.28E+04	2.11E-05	4.27E-11	3.23E-11	1.65E-11	4.76E-17	9.52E-17	2.71E-17	4.21E-17	1.57E-15	7.19E-14	1.56E-16
Silver (47)	Ag-102	S	2.82E+04	2.45E-05	5.36E-11	4.11E-11	2.21E-11	1.09E-16	2.03E-17	5.83E-17	9.29E-17	3.24E-15	1.60E-13	3.47E-16
Silver (47)	Ag-102m	-	4.73E+04	1.46E-05	0.00E+00	0.00E+00	0.00E+00	6.69E-17	1.15E-17	3.34E-17	5.46E-17	1.81E-15	9.72E-14	2.10E-16
Silver (47)	Ag-103	S	5.54E+03	1.25E-04	4.96E-11	3.81E-11	3.07E-11	2.48E-17	4.98E-18	1.42E-17	2.19E-17	8.05E-16	3.79E-14	8.23E-17
Silver (47)	Ag-104	S	5.26E+03	1.32E-04	7.63E-11	6.14E-11	4.57E-11	8.46E-17	1.61E-17	4.63E-17	7.33E-17	2.54E-15	1.24E-13	2.70E-16
Silver (47)	Ag-104m	S	1.09E+04	6.37E-05	8.74E-11	6.64E-11	3.59E-11	5.70E-17	1.08E-17	3.08E-17	4.89E-17	1.74E-15	8.45E-14	1.83E-16
Silver (47)	Ag-105	S	6.13E+00	1.13E-01	5.91E-10	4.62E-10	9.29E-10	1.42E-17	3.00E-18	8.51E-18	1.29E-17	4.78E-16	2.21E-14	4.81E-17
Silver (47)	Ag-105m	-	5.04E+04	1.38E-05	0.00E+00	0.00E+00	0.00E+00	2.82E-20	5.98E-21	1.70E-20	2.59E-20	9.60E-19	4.42E-17	9.63E-20
Silver (47)	Ag-106	S	1.52E+04	4.56E-05	4.21E-11	3.17E-11	1.82E-11	2.05E-17	4.27E-18	1.21E-17	1.86E-17	7.28E-16	3.13E-14	6.77E-17
Silver (47)	Ag-106m	S	3.05E+01	2.27E-02	1.83E-09	1.47E-09	1.30E-09	8.72E-17	1.67E-17	4.80E-17	7.58E-17	2.63E-15	1.29E-13	2.79E-16
Silver (47)	Ag-108	-	1.54E+05	4.51E-06	0.00E+00	0.00E+00	0.00E+00	6.31E-19	1.63E-19	3.87E-19	5.73E-19	8.98E-17	1.27E-15	2.32E-18
Silver (47)	Ag-108m	S	1.66E-03	4.18E+02	2.95E-09	2.35E-09	4.03E-08	4.81E-17	9.74E-18	2.78E-17	4.31E-17	1.54E-15	7.23E-14	1.57E-16
Silver (47)	Ag-109m	-	5.52E+05	1.26E-06	0.00E+00	0.00E+00	0.00E+00	5.45E-20	2.21E-20	4.58E-20	5.46E-20	7.41E-18	1.58E-16	3.56E-19
Silver (47)	Ag-110	-	8.88E+05	7.80E-07	0.00E+00	0.00E+00	0.00E+00	1.27E-18	3.75E-19	7.97E-19	1.15E-18	1.63E-16	2.46E-15	4.38E-18
Silver (47)	Ag-110m	S	1.01E+00	6.84E-01	3.55E-09	2.82E-09	1.38E-08	8.71E-17	1.65E-17	4.75E-17	7.53E-17	2.59E-15	1.28E-13	2.77E-16
Silver (47)	Ag-111	S	3.40E+01	2.04E-02	1.73E-09	1.25E-09	1.94E-09	7.51E-19	1.72E-19	4.73E-19	7.04E-19	5.29E-17	1.39E-15	2.80E-18
Silver (47)	Ag-111m	-	3.37E+05	2.05E-06	0.00E+00	0.00E+00	0.00E+00	9.32E-20	2.31E-20	5.93E-20	8.66E-20	5.79E-18	1.68E-16	3.71E-19
Silver (47)	Ag-112	S	1.94E+03	3.57E-04	5.73E-10	4.22E-10	2.10E-10	2.28E-17	4.32E-18	1.21E-17	1.93E-17	7.72E-16	3.39E-14	7.24E-17
Silver (47)	Ag-113	S	1.13E+03	6.13E-04	5.40E-10	3.93E-10	1.97E-10	2.21E-18	5.16E-19	1.35E-18	2.02E-18	1.59E-16	3.83E-15	7.75E-18
Silver (47)	Ag-113m	-	3.18E+05	2.18E-06	0.00E+00	0.00E+00	0.00E+00	6.04E-18	1.30E-18	3.67E-18	5.56E-18	2.23E-16	9.55E-15	2.07E-17
Silver (47)	Ag-114	-	4.75E+06	1.46E-07	0.00E+00	0.00E+00	0.00E+00	9.33E-18	2.00E-18	5.15E-18	8.00E-18	4.31E-16	1.46E-14	2.97E-17
Silver (47)	Ag-115	S	1.82E+04	3.81E-05	8.30E-11	6.17E-11	3.37E-11	1.60E-17	2.98E-18	8.38E-18	1.34E-17	5.54E-16	2.40E-14	5.12E-17
Silver (47)	Ag-116	-	1.36E+05	5.10E-06	0.00E+00	0.00E+00	0.00E+00	7.31E-17	1.27E-17	3.65E-17	5.96E-17	2.07E-15	1.07E-13	2.29E-16
Silver (47)	Ag-117	-	2.97E+05	2.33E-06	0.00E+00	0.00E+00	0.00E+00	4.44E-17	7.65E-18	2.20E-17	3.59E-17	1.28E-15	6.50E-14	1.40E-16
Silver (47)	Ag-99	-	1.76E+05	3.93E-06	0.00E+00	0.00E+00	0.00E+00	7.23E-17	1.39E-17	3.98E-17	6.27E-17	2.28E-15	1.08E-13	2.33E-16
Aluminum (13)	Al-26	S	9.67E-07	7.17E+05	4.59E-09	3.49E-09	1.14E-07	8.84E-17	1.56E-17	4.53E-17	7.35E-17	2.47E-15	1.28E-13	2.78E-16
Aluminum (13)	Al-28	-	1.63E+05	4.26E-06	0.00E+00	0.00E+00	0.00E+00	6.19E-17	1.04E-17	3.01E-17	4.98E-17	1.71E-15	8.88E-14	1.91E-16
Aluminum (13)	Al-29	-	5.55E+04	1.25E-05	0.00E+00	0.00E+00	0.00E+00	4.63E-17	8.18E-18	2.36E-17	3.83E-17	1.37E-15	6.71E-14	1.44E-16
Americium (95)	Am-237	S	4.99E+03	1.39E-04	2.38E-11	1.83E-11	3.05E-11	9.17E-18	2.12E-18	5.89E-18	8.60E-18	3.38E-16	1.55E-14	3.41E-17
Americium (95)	Am-238	S	3.72E+03	1.86E-04	4.05E-11	3.22E-11	6.01E-11	2.72E-17	5.28E-18	1.51E-17	2.36E-17	8.34E-16	4.09E-14	8.88E-17
Americium (95)	Am-239	S	5.10E+02	1.36E-03	3.32E-10	2.45E-10	2.77E-10	4.78E-18	1.29E-18	3.43E-18	4.67E-18	2.09E-16	9.37E-15	2.07E-17
Americium (95)	Am-240	S	1.20E+02	5.80E-03	7.63E-10	5.93E-10	5.12E-10	3.14E-17	6.07E-18	1.73E-17	2.73E-17	9.60E-16	4.69E-14	1.02E-16
Americium (95)	Am-241	F	1.60E-03	4.32E+02	2.38E-07	2.04E-07	9.81E-05	1.99E-19	9.80E-20	1.85E-19	1.99E-19	2.18E-17	6.72E-16	1.54E-18
Americium (95)	Am-242	S	3.79E+02	1.83E-03	4.22E-10	2.99E-10	2.16E-08	2.41E-19	7.47E-20	1.88E-19	2.40E-19	1.61E-17	6.11E-16	1.27E-18
Americium (95)	Am-242m	F	4.91E-03	1.41E+02	2.16E-07	1.90E-07	9.28E-05	5.68E-21	2.75E-21	4.72E-21	5.64E-21	2.07E-18	1.98E-17	4.53E-20
Americium (95)	Am-243	F	9.40E-05	7.37E+03	2.36E-07	2.03E-07	9.75E-05	6.88E-19	2.72E-19	5.98E-19	6.88E-19	4.96E-17	1.92E-15	4.34E-18

Dose Conversion Factors July 2023														
Radionuclides		Isotope-specific Information and Dose Conversion Factors												
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Ingestion DCF (Sv/Bq)	Adult Ingestion DCF (Sv/Bq)	Inhalation DCF (Sv/Bq)	Exposure DCF (Infinite Volume) (Sv/s per Bq/g)	External Exposure DCF (1 cm) (Sv/s per Bq/g)	External Exposure DCF (5 cm) (Sv/s per Bq/g)	External Exposure DCF (15 cm) (Sv/s per Bq/g)	External Exposure DCF (Ground Plane) (Sv/s per Bq/cm <sup>2</sup> )	External Exposure DCF (Submersion) (Sv/s per Bq/m <sup>3</sup> )	External Exposure DCF (Immersion) (Sv/s per Bq/L)
Americium (95)	Am-244	S	6.01E+02	1.15E-03	6.14E-10	4.58E-10	1.32E-09	2.40E-17	4.72E-18	1.35E-17	2.11E-17	7.55E-16	3.58E-14	7.77E-17
Americium (95)	Am-244m	S	1.40E+04	4.95E-05	4.01E-11	2.98E-11	6.36E-11	5.08E-19	1.21E-19	2.94E-19	4.45E-19	7.01E-17	1.04E-15	1.89E-18
Americium (95)	Am-245	S	2.96E+03	2.34E-04	8.45E-11	6.23E-11	6.46E-11	7.11E-19	1.83E-19	4.93E-19	6.89E-19	4.10E-17	1.45E-15	3.03E-18
Americium (95)	Am-246	S	9.34E+03	7.42E-05	8.51E-11	6.38E-11	8.85E-11	2.11E-17	4.36E-18	1.23E-17	1.90E-17	7.28E-16	3.27E-14	7.09E-17
Americium (95)	Am-246m	S	1.46E+04	4.76E-05	4.58E-11	3.47E-11	2.76E-11	3.10E-17	5.83E-18	1.68E-17	2.67E-17	9.59E-16	4.57E-14	9.86E-17
Americium (95)	Am-247	S	1.58E+04	4.38E-05	4.09E-11	3.04E-11	3.17E-11	3.10E-18	7.84E-19	2.11E-18	2.98E-18	1.69E-16	5.85E-15	1.25E-17
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	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	0.00E+00	0.00E+00	0.00E+00	4.31E-21	1.58E-21	3.38E-21	4.25E-21	2.52E-18	1.15E-16	1.28E-19
Argon (18)	Ar-41	-	3.32E+03	2.09E-04	0.00E+00	0.00E+00	0.00E+00	4.25E-17	7.56E-18	2.19E-17	3.55E-17	1.22E-15	6.15E-14	1.33E-16
Argon (18)	Ar-42	-	2.11E-02	3.29E+01	0.00E+00	0.00E+00	0.00E+00	5.18E-21	1.98E-21	4.07E-21	5.10E-21	4.08E-18	1.26E-16	1.41E-19
Argon (18)	Ar-43	-	6.78E+04	1.02E-05	0.00E+00	0.00E+00	0.00E+00	5.19E-17	9.16E-18	2.63E-17	4.27E-17	1.52E-15	7.55E-14	1.62E-16
Argon (18)	Ar-44	-	3.07E+04	2.26E-05	0.00E+00	0.00E+00	0.00E+00	6.53E-17	1.12E-17	3.26E-17	5.33E-17	1.78E-15	9.46E-14	2.04E-16
Arsenic (33)	As-68	-	1.44E+05	4.81E-06	0.00E+00	0.00E+00	0.00E+00	1.20E-16	2.24E-17	6.40E-17	1.02E-16	3.61E-15	1.76E-13	3.80E-16
Arsenic (33)	As-69	S	2.39E+04	2.90E-05	7.26E-11	5.46E-11	2.57E-11	3.43E-17	7.10E-18	2.00E-17	3.08E-17	1.22E-15	5.25E-14	1.13E-16
Arsenic (33)	As-70	S	6.92E+03	1.00E-04	1.76E-10	1.37E-10	8.64E-11	1.36E-16	2.53E-17	7.28E-17	1.16E-16	4.04E-15	2.00E-13	4.32E-16
Arsenic (33)	As-71	S	9.30E+01	7.45E-03	5.86E-10	4.56E-10	4.39E-10	1.62E-17	3.44E-18	9.75E-18	1.48E-17	5.44E-16	2.55E-14	5.56E-17
Arsenic (33)	As-72	S	2.33E+02	2.97E-03	2.42E-09	1.85E-09	1.14E-09	5.48E-17	1.09E-17	3.09E-17	4.84E-17	1.80E-15	8.21E-14	1.77E-16
Arsenic (33)	As-73	S	3.15E+00	2.20E-01	3.51E-10	2.59E-10	1.52E-09	4.18E-20	2.30E-20	4.01E-20	4.18E-20	5.14E-18	1.54E-16	3.55E-19
Arsenic (33)	As-74	S	1.42E+01	4.87E-02	1.68E-09	1.28E-09	2.78E-09	2.26E-17	4.60E-18	1.31E-17	2.03E-17	7.46E-16	3.40E-14	7.38E-17
Arsenic (33)	As-76	S	2.35E+02	2.95E-03	2.11E-09	1.59E-09	9.12E-10	1.31E-17	2.67E-18	7.41E-18	1.16E-17	5.13E-16	2.00E-14	4.25E-17
Arsenic (33)	As-77	S	1.56E+02	4.43E-03	5.27E-10	3.95E-10	4.83E-10	2.30E-19	5.21E-20	1.46E-19	2.15E-19	1.33E-17	4.86E-16	9.34E-19
Arsenic (33)	As-78	S	4.02E+03	1.73E-04	2.61E-10	1.97E-10	1.08E-10	4.26E-17	7.94E-18	2.26E-17	3.62E-17	1.33E-15	6.27E-14	1.35E-16
Arsenic (33)	As-79	-	4.04E+04	1.71E-05	0.00E+00	0.00E+00	0.00E+00	1.19E-18	3.14E-19	7.34E-19	1.08E-18	1.38E-16	2.25E-15	4.20E-18
Astatine (85)	At-204	-	3.96E+04	1.75E-05	0.00E+00	0.00E+00	0.00E+00	6.87E-17	1.41E-17	4.00E-17	6.17E-17	2.25E-15	1.04E-13	2.26E-16
Astatine (85)	At-205	S	1.19E+04	4.98E-05	7.85E-11	5.96E-11	7.83E-10	3.46E-17	6.79E-18	1.93E-17	3.01E-17	1.09E-15	5.22E-14	1.13E-16
Astatine (85)	At-206	S	1.19E+04	5.82E-05	8.70E-11	6.69E-11	2.62E-10	7.46E-17	1.49E-17	4.24E-17	6.60E-17	2.36E-15	1.12E-13	2.44E-16
Astatine (85)	At-207	S	3.37E+03	2.05E-04	3.02E-10	2.27E-10	2.41E-09	6.30E-17	1.18E-17	3.39E-17	5.38E-17	1.85E-15	9.34E-14	2.03E-16
Astatine (85)	At-208	S	3.72E+03	1.86E-04	1.18E-10	9.28E-11	6.56E-10	9.38E-17	1.80E-17	5.16E-17	8.13E-17	2.83E-15	1.40E-13	3.03E-16
Astatine (85)	At-209	S	1.12E+03	6.18E-04	5.04E-10	3.80E-10	3.04E-09	6.84E-17	1.36E-17	3.87E-17	6.03E-17	2.15E-15	1.03E-13	2.24E-16
Astatine (85)	At-210	S	7.49E+02	9.25E-04	1.17E-09	8.78E-10	1.17E-08	9.54E-17	1.73E-17	4.99E-17	8.02E-17	2.70E-15	1.40E-13	3.03E-16
Astatine (85)	At-211	S	8.42E+02	8.24E-04	1.48E-08	1.09E-08	1.30E-07	5.14E-19	1.78E-19	4.18E-19	5.08E-19	3.06E-17	1.27E-15	2.86E-18
Astatine (85)	At-215	-	2.19E+11	3.17E-12	0.00E+00	0.00E+00	0.00E+00	4.79E-21	1.03E-21	2.93E-21	4.42E-21	1.63E-19	7.53E-18	1.64E-20
Astatine (85)	At-216	-	7.28E+10	9.51E-12	0.00E+00	0.00E+00	0.00E+00	4.45E-20	1.32E-20	3.32E-20	4.34E-20	2.19E-18	9.52E-17	2.12E-19
Astatine (85)	At-217	-	6.77E+08	1.02E-09	0.00E+00	0.00E+00	0.00E+00	6.35E-21	1.44E-21	4.02E-21	5.94E-21	2.27E-19	1.06E-17	2.31E-20
Astatine (85)	At-218	-	1.46E+07	4.76E-08	0.00E+00	0.00E+00	0.00E+00	2.98E-22	1.69E-22	2.37E-22	2.86E-22	1.25E-19	9.80E-19	1.25E-21
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	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	0.00E+00	0.00E+00	0.00E+00	1.27E-17	2.89E-18	7.94E-18	1.18E-17	5.48E-16	2.09E-14	4.46E-17
Gold (79)	Au-186	S	3.40E+04	2.04E-05	5.91E-11	4.49E-11	2.43E-11	4.48E-17	9.12E-18	2.57E-17	3.97E-17	1.50E-15	6.87E-14	1.49E-16
Gold (79)	Au-187	-	4.34E+04	1.60E-05	0.00E+00	0.00E+00	0.00E+00	3.33E-17	6.17E-18	1.76E-17	2.81E-17	9.75E-16	4.96E-14	1.08E-16
Gold (79)	Au-190	S	8.51E+03	8.14E-05	5.41E-11	4.27E-11	2.90E-11	7.88E-17	1.36E-17	3.94E-17	6.41E-17	2.11E-15	1.16E-13	2.51E-16
Gold (79)	Au-191	S	1.91E+03	3.63E-04	9.47E-11	7.31E-11	7.56E-11	1.58E-17	3.47E-18	9.64E-18	1.44E-17	5.54E-16	2.55E-14	5.58E-17
Gold (79)	Au-192	S	1.23E+03	5.64E-04	2.19E-10	1.74E-10	1.15E-10	6.32E-17	1.11E-17	3.22E-17	5.21E-17	1.73E-15	9.29E-14	2.02E-16
Gold (79)	Au-193	S	3.44E+02	2.01E-03	1.71E-10	1.29E-10	1.23E-10	3.20E-18	8.90E-19	2.26E-18	3.07E-18	1.49E-16	6.41E-15	1.42E-17
Gold (79)	Au-193m	-	5.60E+06	1.24E-07	0.00E+00	0.00E+00	0.00E+00	4.89E-18	1.15E-18	3.21E-18	4.67E-18	1.80E-16	8.37E-15	1.83E-17
Gold (79)	Au-194	S	1.60E+02	4.34E-03	5.16E-10	4.09E-10	2.79E-10	3.20E-17	6.03E-18	1.72E-17	2.73E-17	9.45E-16	4.81E-14	1.05E-16
Gold (79)	Au-195	S	1.36E+00	5.10E-01	3.55E-10	2.65E-10	2.00E-09	9.60E-19	3.83E-19	8.34E-19	9.60E-19	6.93E-17	2.70E-15	6.10E-18
Gold (79)	Au-195m	-	7.17E+05	9.67E-07	0.00E+00	0.00E+00	0.00E+00	4.99E-18	1.17E-18	3.26E-18	4.75E-18	1.84E-16	8.52E-15	1.87E-17



Dose Conversion Factors July 2023														
Radionuclides		Isotope-specific Information and Dose Conversion Factors												
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Ingestion DCF (Sv/Bq)	Adult Ingestion DCF (Sv/Bq)	Inhalation DCF (Sv/Bq)	Exposure DCF (Infinite Volume) (Sv/s per Bq/g)	External Exposure DCF (1 cm) (Sv/s per Bq/g)	External Exposure DCF (5 cm) (Sv/s per Bq/g)	External Exposure DCF (15 cm) (Sv/s per Bq/g)	External Exposure DCF (Ground Plane) (Sv/s per Bq/cm <sup>2</sup> )	External Exposure DCF (Submersion) (Sv/s per Bq/m <sup>3</sup> )	External Exposure DCF (Immersion) (Sv/s per Bq/L)
Gold (79)	Au-196	S	4.09E+01	1.69E-02	4.54E-10	3.55E-10	3.75E-10	1.23E-17	2.79E-18	7.76E-18	1.15E-17	4.43E-16	2.02E-14	4.42E-17
Gold (79)	Au-196m	S	6.32E+02	1.10E-03	5.28E-10	3.90E-10	5.00E-10	4.87E-18	1.33E-18	3.49E-18	4.75E-18	2.16E-16	9.70E-15	2.14E-17
Gold (79)	Au-198	S	9.39E+01	7.38E-03	1.39E-09	1.03E-09	9.84E-10	1.15E-17	2.45E-18	6.97E-18	1.06E-17	4.05E-16	1.80E-14	3.90E-17
Gold (79)	Au-198m	S	1.11E+02	6.22E-03	1.61E-09	1.21E-09	2.05E-09	1.19E-17	3.03E-18	8.22E-18	1.15E-17	4.82E-16	2.21E-14	4.87E-17
Gold (79)	Au-199	S	8.06E+01	8.60E-03	6.08E-10	4.49E-10	8.99E-10	2.05E-18	5.41E-19	1.46E-18	2.01E-18	8.61E-17	3.97E-15	8.74E-18
Gold (79)	Au-200	S	7.53E+03	9.21E-05	9.08E-11	6.74E-11	4.14E-11	8.79E-18	1.71E-18	4.79E-18	7.57E-18	3.37E-16	1.33E-14	2.84E-17
Gold (79)	Au-200m	S	3.25E+02	2.13E-03	1.32E-09	1.01E-09	7.95E-10	5.73E-17	1.19E-17	3.40E-17	5.21E-17	1.88E-15	8.84E-14	1.92E-16
Gold (79)	Au-201	S	1.40E+04	4.95E-05	3.27E-11	2.43E-11	2.03E-11	1.01E-18	2.26E-19	6.10E-19	9.22E-19	7.31E-17	1.79E-15	3.62E-18
Gold (79)	Au-202	-	7.59E+05	9.13E-07	0.00E+00	0.00E+00	0.00E+00	5.67E-18	1.19E-18	3.18E-18	4.94E-18	2.81E-16	8.90E-15	1.85E-17
Barium (56)	Ba-124	S	3.31E+04	2.09E-05	9.23E-11	6.91E-11	2.71E-11	1.64E-17	3.34E-18	9.45E-18	1.46E-17	5.53E-16	2.51E-14	5.46E-17
Barium (56)	Ba-126	S	3.64E+03	1.90E-04	3.36E-10	2.54E-10	1.33E-10	1.68E-17	3.36E-18	9.56E-18	1.49E-17	5.40E-16	2.56E-14	5.57E-17
Barium (56)	Ba-127	S	2.87E+04	2.42E-05	3.28E-11	2.48E-11	1.34E-11	2.14E-17	4.39E-18	1.24E-17	1.91E-17	7.54E-16	3.28E-14	7.08E-17
Barium (56)	Ba-128	S	1.04E+02	6.66E-03	3.56E-09	2.74E-09	1.65E-09	1.17E-18	2.96E-19	7.67E-19	1.11E-18	5.86E-17	2.12E-15	4.67E-18
Barium (56)	Ba-129	S	2.72E+03	2.55E-04	6.26E-11	4.87E-11	3.44E-11	9.33E-18	1.91E-18	5.39E-18	8.31E-18	3.23E-16	1.44E-14	3.13E-17
Barium (56)	Ba-129m	S	2.81E+03	2.47E-04	8.81E-11	7.20E-11	5.57E-11	4.82E-17	9.30E-18	2.66E-17	4.19E-17	1.47E-15	7.20E-14	1.56E-16
Barium (56)	Ba-131	S	2.20E+01	3.15E-02	6.08E-10	4.63E-10	9.52E-10	1.25E-17	2.73E-18	7.64E-18	1.15E-17	4.45E-16	2.00E-14	4.36E-17
Barium (56)	Ba-131m	S	2.49E+04	2.78E-05	6.65E-12	4.99E-12	8.94E-12	1.16E-18	3.70E-19	9.07E-19	1.16E-18	6.73E-17	2.65E-15	5.93E-18
Barium (56)	Ba-133	S	6.59E-02	1.05E+01	2.44E-09	1.54E-09	1.12E-08	9.75E-18	2.24E-18	6.18E-18	9.14E-18	3.73E-16	1.62E-14	3.56E-17
Barium (56)	Ba-133m	S	1.56E+02	4.44E-03	7.19E-10	5.52E-10	5.43E-10	1.36E-18	3.31E-19	8.85E-19	1.29E-18	6.08E-17	2.49E-15	5.36E-18
Barium (56)	Ba-135m	S	2.12E+02	3.28E-03	5.66E-10	4.35E-10	4.16E-10	1.16E-18	2.87E-19	7.58E-19	1.10E-18	5.38E-17	2.16E-15	4.65E-18
Barium (56)	Ba-137m	-	1.43E+05	4.86E-06	0.00E+00	0.00E+00	0.00E+00	1.81E-17	3.60E-18	1.03E-17	1.61E-17	5.77E-16	2.69E-14	5.83E-17
Barium (56)	Ba-139	S	4.39E+03	1.58E-04	1.64E-10	1.22E-10	7.00E-11	1.26E-18	3.75E-19	8.76E-19	1.21E-18	1.49E-16	2.67E-15	5.17E-18
Barium (56)	Ba-140	S	1.98E+01	3.49E-02	3.63E-09	2.62E-09	6.52E-09	5.13E-18	1.09E-18	3.06E-18	4.68E-18	1.91E-16	8.06E-15	1.74E-17
Barium (56)	Ba-141	S	1.99E+04	3.48E-05	9.85E-11	7.40E-11	4.17E-11	2.82E-17	5.62E-18	1.59E-17	2.48E-17	9.67E-16	4.32E-14	9.32E-17
Barium (56)	Ba-142	S	3.44E+04	2.02E-05	4.46E-11	3.40E-11	2.53E-11	3.24E-17	6.22E-18	1.78E-17	2.81E-17	1.01E-15	4.84E-14	1.05E-16
Beryllium (4)	Be-10	S	4.59E-07	1.51E+06	1.56E-09	1.14E-09	3.66E-08	5.43E-21	1.98E-21	4.25E-21	5.35E-21	3.44E-18	1.39E-16	1.55E-19
Beryllium (4)	Be-7	S	4.75E+00	1.46E-01	3.48E-11	2.80E-11	6.40E-11	1.45E-18	3.03E-19	8.63E-19	1.32E-18	4.76E-17	2.21E-15	4.81E-18
Bismuth (83)	Bi-197	-	3.92E+04	1.77E-05	0.00E+00	0.00E+00	0.00E+00	5.29E-17	1.01E-17	2.87E-17	4.55E-17	1.60E-15	7.85E-14	1.70E-16
Bismuth (83)	Bi-200	S	1.00E+04	6.93E-05	7.16E-11	5.61E-11	4.39E-11	7.23E-17	1.46E-17	4.14E-17	6.42E-17	2.31E-15	1.10E-13	2.39E-16
Bismuth (83)	Bi-201	S	3.37E+03	2.05E-04	1.49E-10	1.17E-10	8.98E-11	5.51E-17	1.01E-17	2.90E-17	4.65E-17	1.58E-15	8.11E-14	1.76E-16
Bismuth (83)	Bi-202	S	3.53E+03	1.96E-04	1.26E-10	1.01E-10	7.53E-11	8.45E-17	1.64E-17	4.69E-17	7.37E-17	2.58E-15	1.26E-13	2.74E-16
Bismuth (83)	Bi-203	S	5.16E+02	1.34E-03	6.26E-10	4.96E-10	3.42E-10	7.72E-17	1.39E-17	4.01E-17	6.45E-17	2.17E-15	1.13E-13	2.44E-16
Bismuth (83)	Bi-204	S	5.41E+02	1.28E-03	7.22E-10	5.76E-10	3.81E-10	9.08E-17	1.73E-17	4.95E-17	7.83E-17	2.71E-15	1.35E-13	2.92E-16
Bismuth (83)	Bi-205	S	1.65E+01	4.19E-02	1.15E-09	9.16E-10	1.23E-09	5.46E-17	9.83E-18	2.83E-17	4.56E-17	1.53E-15	7.99E-14	1.73E-16
Bismuth (83)	Bi-206	S	4.05E+01	1.71E-02	2.47E-09	1.95E-09	2.15E-09	1.02E-16	1.94E-17	5.57E-17	8.79E-17	3.05E-15	1.51E-13	3.28E-16
Bismuth (83)	Bi-207	S	2.11E-02	3.29E+01	1.65E-09	1.28E-09	4.08E-08	4.72E-17	9.12E-18	2.60E-17	4.10E-17	1.45E-15	7.03E-14	1.53E-16
Bismuth (83)	Bi-208	S	1.88E-06	3.68E+05	1.44E-09	1.16E-09	3.83E-08	9.45E-17	1.46E-17	4.29E-17	7.26E-17	2.21E-15	1.35E-13	2.93E-16
Bismuth (83)	Bi-210	S	5.05E+01	1.37E-02	1.80E-09	1.31E-09	1.46E-07	2.93E-20	1.68E-20	2.43E-20	2.87E-20	3.51E-17	2.58E-16	2.98E-19
Bismuth (83)	Bi-210m	S	2.28E-07	3.04E+06	2.01E-08	1.50E-08	1.07E-05	6.95E-18	1.56E-18	4.40E-18	6.53E-18	2.44E-16	1.14E-14	2.49E-17
Bismuth (83)	Bi-211	-	1.70E+05	4.07E-06	0.00E+00	0.00E+00	0.00E+00	1.29E-18	2.84E-19	8.02E-19	1.20E-18	4.45E-17	2.07E-15	4.51E-18
Bismuth (83)	Bi-212	S	6.02E+03	1.15E-04	3.52E-10	2.61E-10	1.65E-08	3.35E-18	6.69E-19	1.84E-18	2.89E-18	1.54E-16	5.17E-15	1.08E-17
Bismuth (83)	Bi-212n	-	5.20E+04	1.33E-05	0.00E+00	0.00E+00	0.00E+00	6.52E-20	3.94E-20	5.43E-20	6.37E-20	6.03E-17	3.89E-16	4.61E-19
Bismuth (83)	Bi-213	S	7.99E+03	8.67E-05	2.68E-10	1.98E-10	3.55E-08	3.68E-18	7.95E-19	2.22E-18	3.37E-18	1.64E-16	5.94E-15	1.26E-17
Bismuth (83)	Bi-214	S	1.83E+04	3.79E-05	1.49E-10	1.12E-10	9.90E-09	4.89E-17	8.72E-18	2.52E-17	4.08E-17	1.42E-15	7.11E-14	1.54E-16
Bismuth (83)	Bi-215	-	4.79E+04	1.45E-05	0.00E+00	0.00E+00	0.00E+00	7.33E-18	1.56E-18	4.34E-18	6.60E-18	3.07E-16	1.18E-14	2.52E-17
Bismuth (83)	Bi-216	-	1.68E+05	4.13E-06	0.00E+00	0.00E+00	0.00E+00	2.21E-17	4.71E-18	1.31E-17	2.00E-17	8.46E-16	3.41E-14	7.31E-17
Berkelium (97)	Bk-245	S	5.12E+01	1.35E-02	7.83E-10	5.79E-10	2.48E-09	4.84E-18	1.27E-18	3.43E-18	4.71E-18	2.06E-16	9.29E-15	2.05E-17

Dose Conversion Factors July 2023														
Radionuclides		Isotope-specific Information and Dose Conversion Factors												
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Ingestion DCF (Sv/Bq)	Adult Ingestion DCF (Sv/Bq)	Inhalation DCF (Sv/Bq)	Exposure DCF (Infinite Volume) (Sv/s per Bq/g)	External Exposure DCF (1 cm) (Sv/s per Bq/g)	External Exposure DCF (5 cm) (Sv/s per Bq/g)	External Exposure DCF (15 cm) (Sv/s per Bq/g)	External Exposure DCF (Ground Plane) (Sv/s per Bq/cm <sup>2</sup> )	External Exposure DCF (Submersion) (Sv/s per Bq/m <sup>3</sup> )	External Exposure DCF (Immersion) (Sv/s per Bq/L)
Berkelium (97)	Bk-246	S	1.41E+02	4.93E-03	5.82E-10	4.52E-10	3.34E-10	2.54E-17	5.00E-18	1.42E-17	2.22E-17	7.93E-16	3.82E-14	8.30E-17
Berkelium (97)	Bk-247	F	5.02E-04	1.38E+03	4.43E-07	3.50E-07	1.77E-04	3.17E-18	8.23E-19	2.21E-18	3.06E-18	1.32E-16	5.99E-15	1.32E-17
Berkelium (97)	Bk-248m	S	2.56E+02	2.71E-03	6.05E-10	4.28E-10	1.75E-08	1.26E-18	3.02E-19	8.20E-19	1.18E-18	5.75E-17	2.28E-15	4.91E-18
Berkelium (97)	Bk-249	F	7.67E-01	9.04E-01	1.25E-09	9.93E-10	4.40E-07	3.40E-23	1.52E-23	2.73E-23	3.30E-23	5.67E-21	4.37E-19	5.42E-22
Berkelium (97)	Bk-250	S	1.89E+03	3.67E-04	1.83E-10	1.38E-10	5.23E-10	2.85E-17	5.34E-18	1.54E-17	2.45E-17	8.52E-16	4.18E-14	9.03E-17
Berkelium (97)	Bk-251	S	6.55E+03	1.06E-04	5.11E-11	3.78E-11	4.74E-11	1.66E-18	4.71E-19	1.23E-18	1.64E-18	9.39E-17	3.56E-15	7.70E-18
Bromine (35)	Br-72	-	2.78E+05	2.49E-06	0.00E+00	0.00E+00	0.00E+00	9.48E-17	1.83E-17	5.19E-17	8.19E-17	2.99E-15	1.41E-13	3.03E-16
Bromine (35)	Br-73	-	1.07E+05	6.47E-06	0.00E+00	0.00E+00	0.00E+00	4.25E-17	8.87E-18	2.49E-17	3.83E-17	1.51E-15	6.52E-14	1.41E-16
Bromine (35)	Br-74	S	1.43E+04	4.83E-05	1.07E-10	8.18E-11	4.75E-11	1.58E-16	2.62E-17	7.62E-17	1.26E-16	4.10E-15	2.30E-13	4.98E-16
Bromine (35)	Br-74m	S	7.92E+03	8.75E-05	1.76E-10	1.35E-10	8.06E-11	1.36E-16	2.43E-17	7.01E-17	1.13E-16	3.85E-15	2.00E-13	4.33E-16
Bromine (35)	Br-75	S	3.77E+03	1.84E-04	1.03E-10	7.85E-11	6.63E-11	3.47E-17	7.29E-18	2.07E-17	3.17E-17	1.20E-15	5.36E-14	1.16E-16
Bromine (35)	Br-76	S	3.75E+02	1.85E-03	5.92E-10	4.63E-10	5.09E-10	9.18E-17	1.63E-17	4.72E-17	7.63E-17	2.58E-15	1.34E-13	2.91E-16
Bromine (35)	Br-76m	-	1.67E+07	4.15E-08	0.00E+00	0.00E+00	0.00E+00	3.71E-19	1.41E-19	2.79E-19	3.49E-19	3.23E-17	9.66E-16	2.19E-18
Bromine (35)	Br-77	S	1.06E+02	6.51E-03	1.20E-10	9.78E-11	1.07E-10	9.04E-18	1.90E-18	5.42E-18	8.26E-18	2.99E-16	1.40E-14	3.05E-17
Bromine (35)	Br-77m	-	8.51E+04	8.14E-06	0.00E+00	0.00E+00	0.00E+00	2.67E-19	8.15E-20	2.08E-19	2.66E-19	1.37E-17	5.96E-16	1.32E-18
Bromine (35)	Br-78	-	5.64E+04	1.23E-05	0.00E+00	0.00E+00	0.00E+00	3.07E-17	6.43E-18	1.81E-17	2.78E-17	1.11E-15	4.69E-14	1.01E-16
Bromine (35)	Br-80	S	2.06E+04	3.36E-05	4.18E-11	3.11E-11	1.73E-11	2.40E-18	5.40E-19	1.42E-18	2.17E-18	1.60E-16	3.98E-15	8.09E-18
Bromine (35)	Br-80m	S	1.37E+03	5.05E-04	1.55E-10	1.15E-10	1.25E-10	4.79E-20	3.70E-20	4.77E-20	4.79E-20	1.38E-17	2.38E-16	5.56E-19
Bromine (35)	Br-82	S	1.72E+02	4.03E-03	6.75E-10	5.49E-10	7.72E-10	8.27E-17	1.58E-17	4.54E-17	7.19E-17	2.48E-15	1.22E-13	2.64E-16
Bromine (35)	Br-82m	-	5.94E+04	1.17E-05	0.00E+00	0.00E+00	0.00E+00	9.58E-20	2.22E-20	5.52E-20	8.42E-20	6.67E-18	1.59E-16	3.19E-19
Bromine (35)	Br-83	S	2.53E+03	2.74E-04	5.98E-11	4.43E-11	6.04E-11	2.20E-19	5.06E-20	1.33E-19	2.00E-19	2.88E-17	5.10E-16	8.98E-19
Bromine (35)	Br-84	S	1.15E+04	6.05E-05	1.18E-10	8.84E-11	4.62E-11	6.13E-17	1.02E-17	2.95E-17	4.88E-17	1.65E-15	8.88E-14	1.92E-16
Bromine (35)	Br-84m	-	6.07E+04	1.14E-05	0.00E+00	0.00E+00	0.00E+00	8.93E-17	1.65E-17	4.75E-17	7.59E-17	2.66E-15	1.31E-13	2.83E-16
Bromine (35)	Br-85	-	1.26E+05	5.52E-06	0.00E+00	0.00E+00	0.00E+00	2.37E-18	5.44E-19	1.34E-18	2.06E-18	1.83E-16	3.98E-15	7.81E-18
Carbon (6)	C-10	-	1.14E+06	6.11E-07	0.00E+00	0.00E+00	0.00E+00	5.24E-17	1.07E-17	3.03E-17	4.70E-17	1.76E-15	7.90E-14	1.71E-16
Carbon (6)	C-11	S	1.79E+04	3.88E-05	3.10E-11	2.36E-11	2.18E-11	3.00E-17	6.21E-18	1.77E-17	2.72E-17	1.00E-15	4.56E-14	9.90E-17
Carbon (6)	C-14	S	1.22E-04	5.70E+03	6.33E-10	5.81E-10	6.15E-09	5.92E-23	3.47E-23	5.54E-23	5.92E-23	1.28E-20	2.60E-18	2.89E-21
Calcium (20)	Ca-41	S	6.79E-06	1.02E+05	2.96E-10	2.27E-10	2.30E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Calcium (20)	Ca-45	S	1.55E+00	4.46E-01	1.04E-09	7.09E-10	3.99E-09	2.86E-22	1.33E-22	2.51E-22	2.86E-22	3.78E-20	1.52E-17	1.66E-20
Calcium (20)	Ca-47	S	5.58E+01	1.24E-02	2.05E-09	1.60E-09	2.38E-09	3.46E-17	6.21E-18	1.80E-17	2.90E-17	9.90E-16	5.02E-14	1.08E-16
Calcium (20)	Ca-49	-	4.18E+04	1.66E-05	0.00E+00	0.00E+00	0.00E+00	1.16E-16	1.72E-17	5.08E-17	8.71E-17	2.67E-15	1.67E-13	3.61E-16
Cadmium (48)	Cd-101	-	2.68E+05	2.59E-06	0.00E+00	0.00E+00	0.00E+00	7.93E-17	1.47E-17	4.23E-17	6.74E-17	2.39E-15	1.17E-13	2.53E-16
Cadmium (48)	Cd-102	-	6.62E+04	1.05E-05	0.00E+00	0.00E+00	0.00E+00	2.47E-17	4.96E-18	1.41E-17	2.20E-17	7.91E-16	3.73E-14	8.10E-17
Cadmium (48)	Cd-103	-	4.99E+04	1.39E-05	0.00E+00	0.00E+00	0.00E+00	6.89E-17	1.21E-17	3.51E-17	5.70E-17	1.91E-15	1.00E-13	2.17E-16
Cadmium (48)	Cd-104	S	6.31E+03	1.10E-04	1.34E-10	1.01E-10	5.86E-11	6.32E-18	1.37E-18	3.77E-18	5.69E-18	2.29E-16	1.01E-14	2.21E-17
Cadmium (48)	Cd-105	S	6.56E+03	1.06E-04	5.47E-11	4.23E-11	2.86E-11	4.20E-17	7.57E-18	2.19E-17	3.53E-17	1.20E-15	6.13E-14	1.33E-16
Cadmium (48)	Cd-107	S	9.34E+02	7.42E-04	8.59E-11	6.25E-11	9.14E-11	2.27E-19	6.79E-20	1.54E-19	2.12E-19	2.28E-17	4.90E-16	1.09E-18
Cadmium (48)	Cd-109	S	5.48E-01	1.26E+00	2.52E-09	2.00E-09	6.90E-09	6.51E-20	3.25E-20	5.64E-20	6.52E-20	1.65E-17	2.27E-16	5.20E-19
Cadmium (48)	Cd-111m	S	7.51E+03	9.23E-05	1.81E-11	1.38E-11	2.66E-11	7.02E-18	1.64E-18	6.73E-18	6.73E-18	2.60E-16	1.20E-14	2.64E-17
Cadmium (48)	Cd-113	F	9.00E-17	7.70E+15	2.63E-08	2.45E-08	1.24E-07	5.16E-22	2.20E-22	4.38E-22	5.14E-22	5.74E-20	2.49E-17	2.72E-20
Cadmium (48)	Cd-113m	F	4.91E-02	1.41E+01	2.57E-08	2.34E-08	1.17E-07	4.81E-21	1.56E-21	3.56E-21	4.68E-21	1.78E-18	9.28E-17	1.06E-19
Cadmium (48)	Cd-115	S	1.14E+02	6.10E-03	1.90E-09	1.39E-09	1.25E-09	5.64E-18	1.18E-18	3.33E-18	5.12E-18	2.07E-16	8.73E-15	1.88E-17
Cadmium (48)	Cd-115m	S	5.67E+00	1.22E-01	4.35E-09	3.29E-09	8.50E-09	1.14E-18	2.47E-19	6.35E-19	9.84E-19	1.02E-16	1.99E-15	3.87E-18
Cadmium (48)	Cd-117	S	2.44E+03	2.84E-04	3.73E-10	2.78E-10	2.02E-10	3.47E-17	6.39E-18	1.84E-17	2.94E-17	1.03E-15	5.11E-14	1.10E-16
Cadmium (48)	Cd-117m	S	1.81E+03	3.84E-04	3.71E-10	2.84E-10	2.44E-10	6.85E-17	1.19E-17	3.45E-17	5.63E-17	1.84E-15	9.88E-14	2.14E-16
Cadmium (48)	Cd-118	S	7.24E+03	9.57E-05	2.50E-10	1.84E-10	9.60E-11	2.23E-21	8.12E-22	1.77E-21	2.20E-21	5.80E-19	7.25E-17	8.02E-20
Cadmium (48)	Cd-119	-	1.35E+05	5.12E-06	0.00E+00	0.00E+00	0.00E+00	5.46E-17	9.59E-18	2.77E-17	4.51E-17	1.56E-15	7.96E-14	1.72E-16

Dose Conversion Factors July 2023														
Radionuclides		Isotope-specific Information and Dose Conversion Factors												
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Ingestion DCF (Sv/Bq)	Adult Ingestion DCF (Sv/Bq)	Inhalation DCF (Sv/Bq)	Exposure DCF (Infinite Volume) (Sv/s per Bq/g)	External Exposure DCF (1 cm) (Sv/s per Bq/g)	External Exposure DCF (5 cm) (Sv/s per Bq/g)	External Exposure DCF (15 cm) (Sv/s per Bq/g)	External Exposure DCF (Ground Plane) (Sv/s per Bq/cm <sup>2</sup> )	External Exposure DCF (Submersion) (Sv/s per Bq/m <sup>3</sup> )	External Exposure DCF (Immersion) (Sv/s per Bq/L)
Cadmium (48)	Cd-119m	-	1.66E+05	4.19E-06	0.00E+00	0.00E+00	0.00E+00	7.70E-17	1.34E-17	3.90E-17	6.35E-17	2.15E-15	1.11E-13	2.41E-16
Cerium (58)	Ce-130	S	1.59E+04	4.36E-05	9.37E-11	7.13E-11	4.27E-11	1.35E-17	2.84E-18	7.95E-18	1.21E-17	4.65E-16	2.14E-14	4.66E-17
Cerium (58)	Ce-131	S	3.57E+04	1.94E-05	3.62E-11	2.76E-11	1.68E-11	4.94E-17	9.71E-18	2.77E-17	4.33E-17	1.58E-15	7.43E-14	1.61E-16
Cerium (58)	Ce-132	S	1.73E+03	4.01E-04	4.42E-10	3.32E-10	1.72E-10	6.18E-18	1.50E-18	4.11E-18	5.92E-18	2.49E-16	1.09E-14	2.40E-17
Cerium (58)	Ce-133	S	3.76E+03	1.85E-04	1.21E-10	8.83E-11	6.21E-11	1.42E-17	3.13E-18	8.60E-18	1.29E-17	5.49E-16	2.28E-14	4.96E-17
Cerium (58)	Ce-133m	S	1.24E+03	5.59E-04	2.69E-10	2.11E-10	1.42E-10	5.35E-17	1.01E-17	2.90E-17	4.60E-17	1.61E-15	7.95E-14	1.73E-16
Cerium (58)	Ce-134	S	8.00E+01	8.66E-03	3.63E-09	2.66E-09	1.71E-09	1.05E-19	6.46E-20	9.27E-20	1.04E-19	2.30E-17	4.20E-16	9.72E-19
Cerium (58)	Ce-135	S	3.43E+02	2.02E-03	3.35E-10	2.64E-10	1.68E-10	2.34E-17	4.85E-18	1.37E-17	2.11E-17	7.75E-16	3.61E-14	7.85E-17
Cerium (58)	Ce-137	S	6.75E+02	1.03E-03	3.57E-11	2.65E-11	1.35E-11	3.88E-19	1.23E-19	2.58E-19	3.60E-19	3.25E-17	8.48E-16	1.90E-18
Cerium (58)	Ce-137m	S	1.76E+02	3.93E-03	7.59E-10	5.54E-10	5.20E-10	1.01E-18	2.57E-19	6.58E-19	9.53E-19	4.97E-17	1.94E-15	4.18E-18
Cerium (58)	Ce-139	S	1.84E+00	3.77E-01	3.50E-10	2.64E-10	2.13E-09	3.10E-18	8.26E-19	2.19E-18	3.03E-18	1.43E-16	5.98E-15	1.32E-17
Cerium (58)	Ce-141	S	7.78E+00	8.91E-02	9.78E-10	7.14E-10	4.12E-09	1.56E-18	4.23E-19	1.13E-18	1.54E-18	6.97E-17	3.13E-15	6.87E-18
Cerium (58)	Ce-143	S	1.84E+02	3.77E-03	1.54E-09	1.13E-09	9.64E-10	7.29E-18	1.61E-18	4.45E-18	6.69E-18	2.99E-16	1.19E-14	2.58E-17
Cerium (58)	Ce-144	S	8.88E-01	7.81E-01	7.25E-09	5.23E-09	5.76E-08	3.38E-19	9.95E-20	2.53E-19	3.35E-19	1.73E-17	7.35E-16	1.61E-18
Cerium (58)	Ce-145	-	1.21E+05	5.73E-06	0.00E+00	0.00E+00	0.00E+00	2.39E-17	4.82E-18	1.36E-17	2.11E-17	8.40E-16	3.64E-14	7.87E-17
Californium (98)	Cf-244	S	1.88E+04	3.69E-05	9.55E-11	7.03E-11	1.58E-08	6.09E-22	6.04E-22	6.09E-22	6.09E-22	7.62E-19	4.32E-18	1.01E-20
Californium (98)	Cf-246	S	1.70E+02	4.08E-03	4.63E-09	3.29E-09	5.42E-07	1.54E-21	6.61E-22	1.08E-21	1.40E-21	5.65E-19	4.90E-18	1.12E-20
Californium (98)	Cf-247	S	1.95E+03	3.55E-04	2.90E-11	2.16E-11	4.17E-11	1.73E-18	4.93E-19	1.29E-18	1.71E-18	8.45E-17	3.58E-15	7.95E-18
Californium (98)	Cf-248	S	7.57E-01	9.15E-01	4.68E-08	2.83E-08	8.60E-06	1.15E-20	2.49E-21	6.18E-21	9.60E-21	9.49E-19	2.00E-17	4.40E-20
Californium (98)	Cf-249	F	1.97E-03	3.51E+02	4.46E-07	3.51E-07	1.78E-04	9.03E-18	1.96E-18	5.57E-18	8.39E-18	3.08E-16	1.43E-14	3.11E-17
Californium (98)	Cf-250	S	5.30E+02	1.31E+01	2.22E-07	1.61E-07	1.56E-05	3.27E-19	5.79E-20	1.66E-19	2.69E-19	9.75E-18	4.82E-16	1.04E-18
Californium (98)	Cf-251	F	7.70E-04	9.00E+02	4.55E-07	3.58E-07	1.81E-04	2.47E-18	6.59E-19	1.77E-18	2.42E-18	1.07E-16	4.84E-15	1.07E-17
Californium (98)	Cf-252	S	2.62E-01	2.65E+00	1.51E-07	9.05E-08	1.53E-05	1.52E-17	2.67E-18	7.69E-18	1.25E-17	4.32E-16	2.23E-14	4.81E-17
Californium (98)	Cf-253	S	1.42E+01	4.88E-02	2.76E-09	1.48E-09	1.76E-06	3.36E-21	2.73E-21	3.31E-21	3.36E-21	2.12E-18	3.15E-17	5.64E-20
Californium (98)	Cf-254	S	4.18E+00	1.66E-01	6.02E-07	4.02E-07	4.81E-05	5.61E-16	9.89E-17	2.84E-16	4.61E-16	1.60E-14	8.24E-13	1.78E-15
Californium (98)	Cf-255	S	4.29E+03	1.62E-04	5.46E-11	3.82E-11	7.35E-09	5.54E-21	2.36E-21	4.42E-21	5.45E-21	5.78E-18	1.16E-16	1.30E-19
Chlorine (17)	Cl-34	-	1.43E+07	4.84E-08	0.00E+00	0.00E+00	0.00E+00	3.10E-17	6.66E-18	1.84E-17	2.81E-17	1.17E-15	4.77E-14	1.02E-16
Chlorine (17)	Cl-34m	S	1.14E+04	6.09E-05	1.37E-10	1.04E-10	5.50E-11	7.08E-17	1.21E-17	3.53E-17	5.76E-17	1.91E-15	1.03E-13	2.24E-16
Chlorine (17)	Cl-36	S	2.30E-06	3.01E+05	1.24E-09	9.28E-10	3.99E-08	1.30E-20	4.79E-21	9.54E-21	1.25E-20	1.11E-17	1.66E-16	1.94E-19
Chlorine (17)	Cl-38	S	9.78E+03	7.09E-05	1.56E-10	1.17E-10	5.70E-11	5.12E-17	8.52E-18	2.45E-17	4.07E-17	1.40E-15	7.36E-14	1.58E-16
Chlorine (17)	Cl-39	S	6.55E+03	1.06E-04	1.13E-10	8.51E-11	5.79E-11	4.77E-17	8.60E-18	2.48E-17	4.00E-17	1.42E-15	6.97E-14	1.50E-16
Chlorine (17)	Cl-40	-	2.70E+05	2.57E-06	0.00E+00	0.00E+00	0.00E+00	1.45E-16	2.30E-17	6.71E-17	1.13E-16	3.60E-15	2.09E-13	4.53E-16
Curium (96)	Cm-238	S	2.53E+03	2.74E-04	8.17E-11	6.32E-11	2.08E-09	1.40E-18	4.21E-19	1.08E-18	1.39E-18	6.98E-17	3.05E-15	6.80E-18
Curium (96)	Cm-239	S	2.09E+03	3.31E-04	1.09E-10	8.18E-11	8.06E-11	5.46E-18	1.44E-18	3.89E-18	5.35E-18	2.30E-16	1.05E-14	2.32E-17
Curium (96)	Cm-240	S	9.37E+00	7.40E-02	1.12E-08	7.65E-09	3.78E-06	8.43E-22	6.21E-22	7.69E-22	8.37E-22	7.49E-19	4.54E-18	1.06E-20
Curium (96)	Cm-241	S	7.71E+00	8.99E-02	1.24E-09	9.25E-10	4.03E-08	1.31E-17	2.90E-18	8.12E-18	1.21E-17	4.64E-16	2.12E-14	4.63E-17
Curium (96)	Cm-242	S	1.55E+00	4.46E-01	1.92E-08	1.17E-08	6.47E-06	6.89E-22	5.32E-22	6.29E-22	6.79E-22	6.68E-19	3.90E-18	9.09E-21
Curium (96)	Cm-243	S	2.38E-02	2.91E+01	1.80E-07	1.50E-07	1.56E-05	2.87E-18	7.29E-19	1.98E-18	2.78E-18	1.18E-16	5.33E-15	1.17E-17
Curium (96)	Cm-244	S	3.83E-02	1.81E+01	1.51E-07	1.23E-07	1.44E-05	1.07E-21	5.33E-22	7.72E-22	9.71E-22	5.85E-19	4.00E-18	9.22E-21
Curium (96)	Cm-245	F	8.15E-05	8.50E+03	2.42E-07	2.08E-07	1.00E-04	1.89E-18	5.52E-19	1.43E-18	1.87E-18	9.11E-17	4.00E-15	8.90E-18
Curium (96)	Cm-246	F	1.46E-04	4.76E+03	2.41E-07	2.07E-07	9.99E-05	1.21E-19	2.15E-20	6.13E-20	9.92E-20	3.87E-18	1.79E-16	3.87E-19
Curium (96)	Cm-247	F	4.44E-08	1.56E+07	2.22E-07	1.91E-07	9.16E-05	8.84E-18	1.90E-18	5.41E-18	8.18E-18	2.98E-16	1.38E-14	3.01E-17
Curium (96)	Cm-248	F	1.99E-06	3.48E+05	9.03E-07	7.75E-07	3.68E-04	4.37E-17	7.69E-18	2.21E-17	3.59E-17	1.25E-15	6.41E-14	1.39E-16
Curium (96)	Cm-249	S	5.68E+03	1.22E-04	4.23E-11	3.12E-11	3.80E-11	5.76E-19	1.21E-19	3.38E-19	5.19E-19	3.30E-17	1.02E-15	2.04E-18
Curium (96)	Cm-250	F	8.35E-05	8.30E+03	6.18E-06	5.30E-06	2.51E-03	4.44E-16	7.83E-17	2.25E-16	3.65E-16	1.27E-14	6.52E-13	1.41E-15
Curium (96)	Cm-251	S	2.17E+04	3.20E-05	3.87E-11	2.87E-11	2.79E-11	3.22E-18	6.87E-19	1.92E-18	2.92E-18	1.47E-16	5.20E-15	1.10E-17
Cobalt (27)	Co-54m	-	2.46E+05	2.82E-06	0.00E+00	0.00E+00	0.00E+00	1.25E-16	2.38E-17	6.80E-17	1.08E-16	3.85E-15	1.85E-13	3.99E-16

Dose Conversion Factors July 2023														
Radionuclides		Isotope-specific Information and Dose Conversion Factors												
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Ingestion DCF (Sv/Bq)	Adult Ingestion DCF (Sv/Bq)	Inhalation DCF (Sv/Bq)	Exposure DCF (Infinite Volume) (Sv/s per Bq/g)	External Exposure DCF (1 cm) (Sv/s per Bq/g)	External Exposure DCF (5 cm) (Sv/s per Bq/g)	External Exposure DCF (15 cm) (Sv/s per Bq/g)	External Exposure DCF (Ground Plane) (Sv/s per Bq/cm <sup>2</sup> )	External Exposure DCF (Submersion) (Sv/s per Bq/m <sup>3</sup> )	External Exposure DCF (Immersion) (Sv/s per Bq/L)
Cobalt (27)	Co-55	S	3.46E+02	2.00E-03	1.27E-09	1.03E-09	6.45E-10	6.18E-17	1.20E-17	3.44E-17	5.41E-17	1.92E-15	9.18E-14	1.99E-16
Cobalt (27)	Co-56	S	3.28E+00	2.12E-01	3.44E-09	2.53E-09	7.38E-09	1.22E-16	2.11E-17	6.12E-17	9.99E-17	3.27E-15	1.76E-13	3.82E-16
Cobalt (27)	Co-57	S	9.31E-01	7.44E-01	3.13E-10	2.11E-10	1.12E-09	2.44E-18	6.86E-19	1.82E-18	2.41E-18	1.09E-16	4.98E-15	1.11E-17
Cobalt (27)	Co-58	S	3.57E+00	1.94E-01	1.01E-09	7.48E-10	2.34E-09	3.00E-17	5.86E-18	1.68E-17	2.64E-17	9.22E-16	4.44E-14	9.63E-17
Cobalt (27)	Co-58m	S	6.72E+02	1.03E-03	3.10E-11	2.39E-11	1.93E-11	9.56E-24	9.36E-24	9.58E-24	9.56E-24	6.68E-21	6.09E-20	1.43E-22
Cobalt (27)	Co-60	S	1.31E-01	5.27E+00	5.49E-09	3.42E-09	3.30E-08	8.24E-17	1.47E-17	4.27E-17	6.91E-17	2.30E-15	1.19E-13	2.58E-16
Cobalt (27)	Co-60m	S	3.48E+04	1.99E-05	2.27E-12	1.68E-12	1.50E-12	1.20E-19	2.47E-20	6.59E-20	1.01E-19	4.24E-18	1.94E-16	4.23E-19
Cobalt (27)	Co-61	S	3.68E+03	1.88E-04	1.00E-10	7.51E-11	5.95E-11	1.92E-18	5.36E-19	1.29E-18	1.76E-18	1.36E-16	4.06E-15	8.67E-18
Cobalt (27)	Co-62	-	2.43E+05	2.85E-06	0.00E+00	0.00E+00	0.00E+00	5.45E-17	9.64E-18	2.76E-17	4.49E-17	1.61E-15	7.92E-14	1.70E-16
Cobalt (27)	Co-62m	S	2.62E+04	2.65E-05	6.48E-11	4.92E-11	2.52E-11	8.98E-17	1.59E-17	4.59E-17	7.46E-17	2.57E-15	1.30E-13	2.81E-16
Chromium (24)	Cr-48	S	2.82E+02	2.46E-03	2.47E-10	1.97E-10	2.43E-10	1.10E-17	2.58E-18	7.20E-18	1.05E-17	4.05E-16	1.88E-14	4.12E-17
Chromium (24)	Cr-49	S	8.61E+03	8.05E-05	8.13E-11	6.15E-11	4.18E-11	2.99E-17	6.39E-18	1.80E-17	2.73E-17	1.07E-15	4.68E-14	1.02E-16
Chromium (24)	Cr-51	S	9.13E+00	7.59E-02	5.03E-11	3.86E-11	4.34E-11	8.74E-19	1.92E-19	5.47E-19	8.20E-19	2.99E-17	1.40E-15	3.05E-18
Chromium (24)	Cr-55	-	1.04E+05	6.65E-06	0.00E+00	0.00E+00	0.00E+00	3.10E-19	1.69E-19	2.41E-19	2.95E-19	1.29E-16	1.00E-15	1.30E-18
Chromium (24)	Cr-56	-	6.13E+04	1.13E-05	0.00E+00	0.00E+00	0.00E+00	1.24E-18	4.73E-19	1.04E-18	1.24E-18	1.48E-16	3.47E-15	7.36E-18
Cesium (55)	Cs-121	-	1.41E+05	4.92E-06	0.00E+00	0.00E+00	0.00E+00	3.50E-17	7.44E-18	2.07E-17	3.17E-17	1.28E-15	5.41E-14	1.16E-16
Cesium (55)	Cs-121m	-	1.79E+05	3.87E-06	0.00E+00	0.00E+00	0.00E+00	3.47E-17	7.37E-18	2.06E-17	3.15E-17	1.25E-15	5.38E-14	1.16E-16
Cesium (55)	Cs-123	-	6.19E+04	1.12E-05	0.00E+00	0.00E+00	0.00E+00	3.19E-17	6.65E-18	1.87E-17	2.87E-17	1.13E-15	4.89E-14	1.06E-16
Cesium (55)	Cs-124	-	7.10E+05	9.77E-07	0.00E+00	0.00E+00	0.00E+00	3.54E-17	7.45E-18	2.07E-17	3.18E-17	1.28E-15	5.43E-14	1.16E-16
Cesium (55)	Cs-125	S	8.09E+03	8.56E-05	4.56E-11	3.46E-11	2.46E-11	2.22E-17	4.52E-18	1.28E-17	1.98E-17	7.54E-16	3.37E-14	7.31E-17
Cesium (55)	Cs-126	-	2.22E+05	3.12E-06	0.00E+00	0.00E+00	0.00E+00	3.46E-17	7.22E-18	2.03E-17	3.12E-17	1.23E-15	5.29E-14	1.14E-16
Cesium (55)	Cs-127	S	9.71E+02	7.13E-04	3.09E-11	2.49E-11	4.72E-11	1.18E-17	2.51E-18	7.07E-18	1.08E-17	4.08E-16	1.84E-14	4.01E-17
Cesium (55)	Cs-128	-	1.00E+05	6.93E-06	0.00E+00	0.00E+00	0.00E+00	2.64E-17	5.51E-18	1.55E-17	2.38E-17	9.47E-16	4.04E-14	8.71E-17
Cesium (55)	Cs-129	S	1.89E+02	3.66E-03	7.50E-11	6.06E-11	9.36E-11	7.05E-18	1.55E-18	4.32E-18	6.51E-18	2.60E-16	1.12E-14	2.46E-17
Cesium (55)	Cs-130	S	1.25E+04	5.56E-05	3.56E-11	2.68E-11	1.62E-11	1.46E-17	3.04E-18	8.56E-18	1.32E-17	5.25E-16	2.23E-14	4.83E-17
Cesium (55)	Cs-130m	-	1.05E+05	6.58E-06	0.00E+00	0.00E+00	0.00E+00	7.85E-19	2.86E-19	6.25E-19	7.73E-19	6.26E-17	2.01E-15	4.53E-18
Cesium (55)	Cs-131	S	2.61E+01	2.65E-02	7.22E-11	5.81E-11	5.71E-11	4.22E-20	3.79E-20	4.22E-20	4.22E-20	1.80E-17	2.40E-16	5.63E-19
Cesium (55)	Cs-132	S	3.90E+01	1.78E-02	6.00E-10	5.14E-10	3.66E-10	2.11E-17	4.23E-18	1.20E-17	1.88E-17	6.77E-16	3.15E-14	6.85E-17
Cesium (55)	Cs-134	S	3.36E-01	2.06E+00	1.87E-08	1.93E-08	2.22E-08	4.76E-17	9.39E-18	2.69E-17	4.21E-17	1.48E-15	7.07E-14	1.53E-16
Cesium (55)	Cs-134m	S	2.09E+03	3.31E-04	2.61E-11	2.02E-11	6.79E-11	3.50E-19	1.10E-19	2.65E-19	3.47E-19	2.25E-17	8.00E-16	1.77E-18
Cesium (55)	Cs-135	S	3.01E-07	2.30E+06	2.64E-09	2.65E-09	1.25E-08	4.19E-22	1.87E-22	3.62E-22	4.18E-22	5.06E-20	2.17E-17	2.37E-20
Cesium (55)	Cs-135m	S	6.87E+03	1.01E-04	2.37E-11	1.94E-11	1.93E-11	4.97E-17	9.61E-18	2.76E-17	4.34E-17	1.52E-15	7.31E-14	1.59E-16
Cesium (55)	Cs-136	S	1.92E+01	3.61E-02	3.45E-09	3.03E-09	3.04E-09	6.63E-17	1.27E-17	3.65E-17	5.76E-17	1.99E-15	9.81E-14	2.13E-16
Cesium (55)	Cs-137	S	2.30E-02	3.02E+01	1.33E-08	1.36E-08	4.17E-08	4.65E-21	2.15E-21	3.75E-21	4.57E-21	3.13E-18	9.40E-17	1.05E-19
Cesium (55)	Cs-138	S	1.09E+04	6.36E-05	1.28E-10	9.66E-11	5.40E-11	7.92E-17	1.39E-17	4.02E-17	6.53E-17	2.26E-15	1.15E-13	2.48E-16
Cesium (55)	Cs-138m	-	1.25E+05	5.54E-06	0.00E+00	0.00E+00	0.00E+00	1.28E-17	2.43E-18	6.90E-18	1.09E-17	4.07E-16	1.92E-14	4.14E-17
Cesium (55)	Cs-139	-	3.93E+04	1.76E-05	0.00E+00	0.00E+00	0.00E+00	1.10E-17	2.07E-18	5.58E-18	8.99E-18	4.33E-16	1.66E-14	3.45E-17
Cesium (55)	Cs-140	-	3.43E+05	2.02E-06	0.00E+00	0.00E+00	0.00E+00	6.10E-17	1.06E-17	3.03E-17	4.95E-17	1.74E-15	8.89E-14	1.91E-16
Copper (29)	Cu-57	-	1.11E+08	6.22E-09	0.00E+00	0.00E+00	0.00E+00	3.67E-17	7.89E-18	2.15E-17	3.29E-17	1.36E-15	5.65E-14	1.19E-16
Copper (29)	Cu-59	-	2.68E+05	2.58E-06	0.00E+00	0.00E+00	0.00E+00	4.42E-17	8.99E-18	2.53E-17	3.93E-17	1.52E-15	6.68E-14	1.44E-16
Copper (29)	Cu-60	S	1.54E+04	4.51E-05	9.33E-11	7.19E-11	4.22E-11	1.29E-16	2.30E-17	6.64E-17	1.07E-16	3.65E-15	1.88E-13	4.06E-16
Copper (29)	Cu-61	S	1.82E+03	3.80E-04	1.49E-10	1.16E-10	9.02E-11	2.43E-17	5.00E-18	1.42E-17	2.20E-17	8.15E-16	3.70E-14	8.02E-17
Copper (29)	Cu-62	-	3.77E+04	1.84E-05	0.00E+00	0.00E+00	0.00E+00	3.00E-17	6.33E-18	1.77E-17	2.72E-17	1.11E-15	4.60E-14	9.90E-17
Copper (29)	Cu-64	S	4.78E+02	1.45E-03	1.59E-10	1.23E-10	1.36E-10	5.44E-18	1.12E-18	3.19E-18	4.92E-18	1.78E-16	8.29E-15	1.80E-17
Copper (29)	Cu-66	-	7.11E+04	9.74E-06	0.00E+00	0.00E+00	0.00E+00	3.41E-18	7.40E-19	1.90E-18	2.94E-18	2.15E-16	5.50E-15	1.11E-17
Copper (29)	Cu-67	S	9.82E+01	7.06E-03	4.35E-10	3.30E-10	6.61E-10	2.61E-18	6.66E-19	1.82E-18	2.54E-18	1.05E-16	4.91E-15	1.08E-17
Copper (29)	Cu-69	-	1.28E+05	5.42E-06	0.00E+00	0.00E+00	0.00E+00	1.70E-17	3.27E-18	9.24E-18	1.46E-17	5.97E-16	2.53E-14	5.41E-17



Dose Conversion Factors July 2023														
Radionuclides		Isotope-specific Information and Dose Conversion Factors												
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Ingestion DCF (Sv/Bq)	Adult Ingestion DCF (Sv/Bq)	Inhalation DCF (Sv/Bq)	Exposure DCF (Infinite Volume) (Sv/s per Bq/g)	External Exposure DCF (1 cm) (Sv/s per Bq/g)	External Exposure DCF (5 cm) (Sv/s per Bq/g)	External Exposure DCF (15 cm) (Sv/s per Bq/g)	External Exposure DCF (Ground Plane) (Sv/s per Bq/cm <sup>2</sup> )	External Exposure DCF (Submersion) (Sv/s per Bq/m <sup>3</sup> )	External Exposure DCF (Immersion) (Sv/s per Bq/L)
Dysprosium (66)	Dy-148	-	1.10E+05	6.28E-06	0.00E+00	0.00E+00	0.00E+00	2.08E-17	4.25E-18	1.20E-17	1.86E-17	6.81E-16	3.15E-14	6.85E-17
Dysprosium (66)	Dy-149	-	8.67E+04	7.99E-06	0.00E+00	0.00E+00	0.00E+00	5.10E-17	9.42E-18	2.69E-17	4.31E-17	1.49E-15	7.52E-14	1.63E-16
Dysprosium (66)	Dy-150	-	5.08E+04	1.36E-05	0.00E+00	0.00E+00	0.00E+00	7.35E-18	1.63E-18	4.53E-18	6.80E-18	2.63E-16	1.18E-14	2.57E-17
Dysprosium (66)	Dy-151	S	2.03E+04	3.41E-05	2.52E-11	1.97E-11	1.51E-10	4.23E-17	8.04E-18	2.30E-17	3.64E-17	1.27E-15	6.28E-14	1.36E-16
Dysprosium (66)	Dy-152	S	2.55E+03	2.72E-04	1.42E-10	1.09E-10	7.46E-11	6.81E-18	1.62E-18	4.46E-18	6.49E-18	2.64E-16	1.18E-14	2.59E-17
Dysprosium (66)	Dy-153	S	9.49E+02	7.31E-04	2.32E-10	1.79E-10	1.51E-10	2.46E-17	4.97E-18	1.39E-17	2.15E-17	8.05E-16	3.82E-14	8.34E-17
Dysprosium (66)	Dy-154	S	2.31E-07	3.00E+06	7.27E-08	5.57E-08	6.10E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Dysprosium (66)	Dy-155	S	6.13E+02	1.13E-03	1.84E-10	1.45E-10	1.09E-10	1.91E-17	3.86E-18	1.09E-17	1.68E-17	6.18E-16	2.96E-14	6.45E-17
Dysprosium (66)	Dy-157	S	7.46E+02	9.29E-04	7.76E-11	6.15E-11	3.77E-11	8.68E-18	1.99E-18	5.50E-18	8.14E-18	3.24E-16	1.44E-14	3.15E-17
Dysprosium (66)	Dy-159	S	1.75E+00	3.96E-01	1.41E-10	1.06E-10	5.13E-10	2.42E-19	1.53E-19	2.37E-19	2.42E-19	3.91E-17	1.00E-15	2.32E-18
Dysprosium (66)	Dy-165	S	2.60E+03	2.66E-04	1.49E-10	1.09E-10	7.52E-11	6.78E-19	1.72E-19	4.28E-19	6.21E-19	6.94E-17	1.39E-15	2.73E-18
Dysprosium (66)	Dy-165m	-	2.90E+05	2.39E-06	0.00E+00	0.00E+00	0.00E+00	3.83E-19	9.67E-20	2.50E-19	3.57E-19	1.71E-17	7.08E-16	1.55E-18
Dysprosium (66)	Dy-166	S	7.44E+01	9.32E-03	2.29E-09	1.66E-09	2.40E-09	4.57E-19	1.84E-19	3.75E-19	4.48E-19	3.76E-17	1.31E-15	2.91E-18
Dysprosium (66)	Dy-167	-	5.87E+04	1.18E-05	0.00E+00	0.00E+00	0.00E+00	1.52E-17	3.24E-18	9.10E-18	1.38E-17	5.81E-16	2.40E-14	5.17E-17
Dysprosium (66)	Dy-168	-	4.19E+04	1.66E-05	0.00E+00	0.00E+00	0.00E+00	1.07E-17	2.34E-18	6.55E-18	9.86E-18	4.01E-16	1.73E-14	3.74E-17
Erbium (68)	Er-154	-	9.77E+04	7.10E-06	0.00E+00	0.00E+00	0.00E+00	1.07E-18	3.20E-19	7.24E-19	9.93E-19	6.72E-17	2.24E-15	5.00E-18
Erbium (68)	Er-156	S	1.87E+04	3.71E-05	4.52E-11	3.44E-11	2.38E-11	6.31E-19	2.52E-19	4.98E-19	6.12E-19	5.67E-17	1.72E-15	3.89E-18
Erbium (68)	Er-159	S	1.01E+04	6.85E-05	2.92E-11	2.31E-11	2.07E-11	2.90E-17	5.64E-18	1.60E-17	2.52E-17	8.98E-16	4.36E-14	9.47E-17
Erbium (68)	Er-161	S	1.89E+03	3.66E-04	1.08E-10	8.49E-11	6.43E-11	2.98E-17	5.81E-18	1.65E-17	2.59E-17	9.25E-16	4.46E-14	9.70E-17
Erbium (68)	Er-163	S	4.86E+03	1.43E-04	3.39E-12	2.63E-12	1.56E-12	2.67E-19	1.48E-19	2.47E-19	2.63E-19	3.47E-17	9.82E-16	2.26E-18
Erbium (68)	Er-165	S	5.86E+02	1.18E-03	2.57E-11	1.96E-11	1.04E-11	2.27E-19	1.36E-19	2.21E-19	2.27E-19	3.25E-17	9.01E-16	2.08E-18
Erbium (68)	Er-167m	-	9.63E+06	7.19E-08	0.00E+00	0.00E+00	0.00E+00	2.22E-18	5.49E-19	1.50E-18	2.15E-18	8.81E-17	4.03E-15	8.83E-18
Erbium (68)	Er-169	S	2.69E+01	2.58E-02	5.16E-10	3.74E-10	1.28E-09	6.79E-22	2.79E-22	5.69E-22	6.76E-22	6.98E-20	2.95E-17	3.24E-20
Erbium (68)	Er-171	S	8.08E+02	8.58E-04	4.85E-10	3.57E-10	2.70E-10	9.47E-18	2.19E-18	6.08E-18	8.92E-18	3.77E-16	1.61E-14	3.50E-17
Erbium (68)	Er-172	S	1.23E+02	5.63E-03	1.40E-09	1.04E-09	1.39E-09	1.43E-17	3.05E-18	8.54E-18	1.30E-17	4.90E-16	2.24E-14	4.88E-17
Erbium (68)	Er-173	-	2.54E+05	2.73E-06	0.00E+00	0.00E+00	0.00E+00	2.35E-17	4.94E-18	1.38E-17	2.10E-17	8.47E-16	3.73E-14	8.08E-17
Einsteinium (99)	Es-249	S	3.56E+03	1.94E-04	2.73E-11	2.13E-11	2.40E-10	1.09E-17	2.39E-18	6.68E-18	9.98E-18	3.80E-16	1.77E-14	3.86E-17
Einsteinium (99)	Es-250	S	7.06E+02	9.82E-04	6.20E-10	4.66E-10	1.48E-09	3.35E-17	6.99E-18	1.97E-17	3.01E-17	1.12E-15	5.25E-14	1.14E-16
Einsteinium (99)	Es-250m	S	2.73E+03	2.53E-04	3.93E-11	3.07E-11	3.12E-10	1.64E-17	3.20E-18	9.10E-18	1.42E-17	5.08E-16	2.49E-14	5.42E-17
Einsteinium (99)	Es-251	S	1.84E+02	3.77E-03	2.45E-10	1.80E-10	2.32E-09	1.71E-18	4.93E-19	1.29E-18	1.70E-18	8.31E-17	3.58E-15	7.96E-18
Einsteinium (99)	Es-253	S	1.24E+01	5.61E-02	9.21E-09	6.06E-09	3.43E-06	8.50E-21	2.06E-21	5.42E-21	7.93E-21	5.00E-19	1.50E-17	3.30E-20
Einsteinium (99)	Es-254	S	9.17E-01	7.55E-01	4.59E-08	2.81E-08	8.67E-06	5.79E-20	2.08E-20	4.30E-20	5.57E-20	8.85E-18	1.47E-16	3.33E-19
Einsteinium (99)	Es-254m	S	1.54E+02	4.49E-03	5.99E-09	4.32E-09	5.64E-07	1.42E-17	2.84E-18	8.11E-18	1.27E-17	4.59E-16	2.13E-14	4.61E-17
Einsteinium (99)	Es-255	S	6.36E+00	1.09E-01	9.91E-09	5.96E-09	4.95E-06	2.30E-20	4.13E-21	1.18E-20	1.89E-20	6.83E-19	4.95E-17	8.96E-20
Einsteinium (99)	Es-256	S	1.43E+04	4.83E-05	3.87E-09	2.95E-09	4.55E-08	7.88E-20	4.83E-20	6.58E-20	7.69E-20	6.66E-17	4.33E-16	5.29E-19
Europium (63)	Eu-142	-	9.34E+06	7.42E-08	0.00E+00	0.00E+00	0.00E+00	3.79E-17	7.91E-18	2.18E-17	3.37E-17	1.36E-15	5.78E-14	1.23E-16
Europium (63)	Eu-142m	-	2.98E+05	2.33E-06	0.00E+00	0.00E+00	0.00E+00	1.06E-16	2.10E-17	5.97E-17	9.35E-17	3.40E-15	1.58E-13	3.42E-16
Europium (63)	Eu-143	-	1.41E+05	4.93E-06	0.00E+00	0.00E+00	0.00E+00	3.49E-17	6.97E-18	1.96E-17	3.06E-17	1.18E-15	5.26E-14	1.13E-16
Europium (63)	Eu-144	-	2.14E+06	3.23E-07	0.00E+00	0.00E+00	0.00E+00	3.40E-17	7.04E-18	1.95E-17	3.02E-17	1.21E-15	5.18E-14	1.11E-16
Europium (63)	Eu-145	S	4.27E+01	1.62E-02	8.36E-10	6.66E-10	6.09E-10	4.06E-17	7.45E-18	2.14E-17	3.43E-17	1.18E-15	5.95E-14	1.29E-16
Europium (63)	Eu-146	S	5.49E+01	1.26E-02	1.51E-09	1.21E-09	9.31E-10	7.51E-17	1.42E-17	4.08E-17	6.47E-17	2.24E-15	1.11E-13	2.40E-16
Europium (63)	Eu-147	S	1.05E+01	6.60E-02	5.74E-10	4.44E-10	1.31E-09	1.29E-17	2.68E-18	7.46E-18	1.15E-17	4.38E-16	2.03E-14	4.42E-17
Europium (63)	Eu-148	F	4.64E+00	1.49E-01	1.62E-09	1.30E-09	4.14E-09	6.76E-17	1.33E-17	3.80E-17	5.95E-17	2.10E-15	1.01E-13	2.19E-16
Europium (63)	Eu-149	S	2.72E+00	2.55E-01	2.15E-10	1.61E-10	4.88E-10	1.03E-18	2.89E-19	6.88E-19	9.67E-19	5.85E-17	2.03E-15	4.53E-18
Europium (63)	Eu-150	F	1.88E-02	3.69E+01	1.57E-09	1.25E-09	1.34E-07	4.55E-17	9.27E-18	2.64E-17	4.08E-17	1.47E-15	6.92E-14	1.51E-16
Europium (63)	Eu-150m	S	4.74E+02	1.46E-03	5.27E-10	3.83E-10	2.44E-10	1.39E-18	2.96E-19	8.19E-19	1.25E-18	7.01E-17	2.33E-15	4.88E-18
Europium (63)	Eu-152	F	5.12E-02	1.35E+01	1.74E-09	1.34E-09	9.93E-08	3.61E-17	6.88E-18	1.97E-17	3.11E-17	1.09E-15	5.38E-14	1.17E-16

Dose Conversion Factors July 2023														
Radionuclides		Isotope-specific Information and Dose Conversion Factors												
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Ingestion DCF (Sv/Bq)	Adult Ingestion DCF (Sv/Bq)	Inhalation DCF (Sv/Bq)	Exposure DCF (Infinite Volume) (Sv/s per Bq/g)	External Exposure DCF (1 cm) (Sv/s per Bq/g)	External Exposure DCF (5 cm) (Sv/s per Bq/g)	External Exposure DCF (15 cm) (Sv/s per Bq/g)	External Exposure DCF (Ground Plane) (Sv/s per Bq/cm <sup>2</sup> )	External Exposure DCF (Submersion) (Sv/s per Bq/m <sup>3</sup> )	External Exposure DCF (Immersion) (Sv/s per Bq/L)
Europium (63)	Eu-152m	S	6.52E+02	1.06E-03	6.82E-10	4.99E-10	2.51E-10	9.01E-18	1.79E-18	5.00E-18	7.84E-18	3.36E-16	1.37E-14	2.94E-17
Europium (63)	Eu-152n	S	3.79E+03	1.83E-04	1.76E-11	1.30E-11	9.60E-12	1.05E-18	3.70E-19	8.66E-19	1.05E-18	6.50E-17	2.63E-15	5.92E-18
Europium (63)	Eu-154	F	8.06E-02	8.59E+00	2.61E-09	1.97E-09	1.15E-07	3.90E-17	7.39E-18	2.12E-17	3.36E-17	1.17E-15	5.78E-14	1.25E-16
Europium (63)	Eu-154m	S	7.92E+03	8.75E-05	1.06E-11	7.97E-12	4.76E-12	7.89E-19	3.07E-19	6.67E-19	7.89E-19	5.98E-17	2.15E-15	4.87E-18
Europium (63)	Eu-155	S	1.46E-01	4.76E+00	4.52E-10	3.32E-10	6.51E-09	8.74E-19	3.05E-19	7.14E-19	8.74E-19	5.39E-17	2.17E-15	4.87E-18
Europium (63)	Eu-156	S	1.67E+01	4.16E-02	3.07E-09	2.29E-09	4.41E-09	4.09E-17	7.22E-18	2.09E-17	3.39E-17	1.16E-15	5.94E-14	1.28E-16
Europium (63)	Eu-157	S	4.00E+02	1.73E-03	8.37E-10	6.14E-10	3.80E-10	7.47E-18	1.68E-18	4.58E-18	6.85E-18	3.05E-16	1.23E-14	2.67E-17
Europium (63)	Eu-158	S	7.94E+03	8.73E-05	1.21E-10	9.13E-11	5.84E-11	4.17E-17	7.75E-18	2.22E-17	3.54E-17	1.30E-15	6.14E-14	1.32E-16
Europium (63)	Eu-159	S	2.01E+04	3.44E-05	6.57E-11	4.88E-11	2.85E-11	7.87E-18	1.77E-18	4.64E-18	6.98E-18	3.80E-16	1.32E-14	2.83E-17
Fluorine (9)	F-17	-	3.39E+05	2.04E-06	0.00E+00	0.00E+00	0.00E+00	3.01E-17	6.28E-18	1.78E-17	2.73E-17	1.07E-15	4.60E-14	9.95E-17
Fluorine (9)	F-18	S	3.32E+03	2.09E-04	6.24E-11	4.78E-11	6.64E-11	2.91E-17	6.01E-18	1.71E-17	2.64E-17	9.49E-16	4.41E-14	9.58E-17
Iron (26)	Fe-52	S	7.34E+02	9.45E-04	1.83E-09	1.38E-09	7.70E-10	2.08E-17	4.46E-18	1.26E-17	1.91E-17	7.10E-16	3.28E-14	7.13E-17
Iron (26)	Fe-53	-	4.28E+04	1.62E-05	0.00E+00	0.00E+00	0.00E+00	3.49E-17	7.31E-18	2.06E-17	3.16E-17	1.25E-15	5.35E-14	1.15E-16
Iron (26)	Fe-53m	-	1.44E+05	4.81E-06	0.00E+00	0.00E+00	0.00E+00	9.93E-17	1.80E-17	5.21E-17	8.39E-17	2.81E-15	1.44E-13	3.12E-16
Iron (26)	Fe-55	F	2.53E-01	2.74E+00	5.51E-10	3.31E-10	9.03E-10	3.29E-27	9.22E-28	2.45E-27	3.26E-27	1.45E-25	6.69E-24	1.49E-26
Iron (26)	Fe-59	S	5.68E+00	1.22E-01	2.74E-09	1.79E-09	4.45E-09	3.87E-17	7.02E-18	2.03E-17	3.27E-17	1.10E-15	5.62E-14	1.22E-16
Iron (26)	Fe-60	F	4.62E-07	1.50E+06	1.48E-07	1.16E-07	2.97E-07	1.30E-22	6.97E-23	1.19E-22	1.30E-22	2.29E-20	6.93E-18	7.59E-21
Iron (26)	Fe-61	-	6.09E+04	1.14E-05	0.00E+00	0.00E+00	0.00E+00	4.55E-17	8.35E-18	2.39E-17	3.84E-17	1.40E-15	6.68E-14	1.44E-16
Iron (26)	Fe-62	-	3.21E+05	2.16E-06	0.00E+00	0.00E+00	0.00E+00	1.50E-17	3.17E-18	8.90E-18	1.36E-17	5.85E-16	2.32E-14	4.98E-17
Fermium (100)	Fm-251	S	1.15E+03	6.05E-04	9.83E-11	7.31E-11	2.16E-09	3.57E-18	8.61E-19	2.34E-18	3.35E-18	1.40E-16	6.35E-15	1.40E-17
Fermium (100)	Fm-252	S	2.39E+02	2.90E-03	4.01E-09	2.86E-09	4.17E-07	9.09E-21	2.17E-21	5.08E-21	7.69E-21	8.98E-19	1.71E-17	3.78E-20
Fermium (100)	Fm-253	S	8.43E+01	8.22E-03	1.74E-09	1.18E-09	4.98E-07	1.14E-18	3.19E-19	8.38E-19	1.12E-18	5.61E-17	2.32E-15	5.15E-18
Fermium (100)	Fm-254	S	1.87E+03	3.70E-04	6.29E-10	4.58E-10	7.44E-08	2.34E-19	4.16E-20	1.19E-19	1.92E-19	7.25E-18	3.47E-16	7.50E-19
Fermium (100)	Fm-255	S	3.02E+02	2.29E-03	3.55E-09	2.55E-09	3.19E-07	2.88E-20	1.34E-20	2.44E-20	2.86E-20	7.16E-18	9.47E-17	2.16E-19
Fermium (100)	Fm-256	S	2.31E+03	3.00E-04	2.50E-08	1.91E-08	2.85E-07	4.13E-16	7.27E-17	2.10E-16	3.40E-16	1.17E-14	6.07E-13	1.31E-15
Fermium (100)	Fm-257	S	2.52E+00	2.75E-01	2.94E-08	1.63E-08	9.15E-06	3.33E-18	7.99E-19	2.18E-18	3.11E-18	1.32E-16	6.02E-15	1.32E-17
Francium (87)	Fr-212	S	1.82E+04	3.81E-05	8.82E-10	7.05E-10	6.98E-09	3.51E-17	6.68E-18	1.91E-17	3.02E-17	1.05E-15	5.26E-14	1.14E-16
Francium (87)	Fr-219	-	1.09E+09	6.34E-10	0.00E+00	0.00E+00	0.00E+00	9.83E-20	2.15E-20	6.07E-20	9.11E-20	3.37E-18	1.57E-16	3.41E-19
Francium (87)	Fr-220	-	7.98E+05	8.69E-07	0.00E+00	0.00E+00	0.00E+00	1.57E-19	4.89E-20	1.21E-19	1.55E-19	8.45E-18	3.52E-16	7.85E-19
Francium (87)	Fr-221	-	7.43E+04	9.32E-06	0.00E+00	0.00E+00	0.00E+00	7.13E-19	1.71E-19	4.78E-19	6.86E-19	2.69E-17	1.25E-15	2.75E-18
Francium (87)	Fr-222	S	2.57E+04	2.70E-05	8.94E-10	7.12E-10	3.08E-08	4.64E-18	1.09E-18	2.97E-18	4.33E-18	2.36E-16	8.17E-15	1.74E-17
Francium (87)	Fr-223	S	1.66E+04	4.19E-05	3.23E-09	2.38E-09	1.33E-08	9.41E-19	2.82E-19	6.67E-19	8.94E-19	7.73E-17	2.15E-15	4.55E-18
Francium (87)	Fr-224	-	1.09E+05	6.34E-06	0.00E+00	0.00E+00	0.00E+00	1.72E-17	3.34E-18	9.42E-18	1.48E-17	6.00E-16	2.62E-14	5.63E-17
Francium (87)	Fr-227	-	1.47E+05	4.70E-06	0.00E+00	0.00E+00	0.00E+00	1.22E-17	2.70E-18	7.40E-18	1.11E-17	5.03E-16	2.00E-14	4.32E-17
Gallium (31)	Ga-64	-	1.39E+05	5.00E-06	0.00E+00	0.00E+00	0.00E+00	1.12E-16	1.99E-17	5.72E-17	9.26E-17	3.18E-15	1.64E-13	3.55E-16
Gallium (31)	Ga-65	S	2.40E+04	2.89E-05	4.86E-11	3.67E-11	2.06E-11	3.38E-17	7.10E-18	2.00E-17	3.06E-17	1.20E-15	5.23E-14	1.13E-16
Gallium (31)	Ga-66	S	6.40E+02	1.08E-03	1.59E-09	1.18E-09	5.70E-10	8.52E-17	1.43E-17	4.15E-17	6.83E-17	2.26E-15	1.24E-13	2.69E-16
Gallium (31)	Ga-67	S	7.76E+01	8.93E-03	2.60E-10	1.96E-10	3.01E-10	3.68E-18	9.03E-19	2.47E-18	3.52E-18	1.43E-16	6.57E-15	1.45E-17
Gallium (31)	Ga-68	S	5.38E+03	1.29E-04	1.36E-10	1.02E-10	6.14E-11	2.81E-17	5.84E-18	1.65E-17	2.55E-17	9.97E-16	4.29E-14	9.27E-17
Gallium (31)	Ga-70	S	1.72E+04	4.02E-05	4.22E-11	3.13E-11	1.95E-11	3.24E-19	1.01E-19	2.03E-19	2.90E-19	8.45E-17	8.27E-16	1.32E-18
Gallium (31)	Ga-72	S	4.31E+02	1.61E-03	1.47E-09	1.12E-09	6.72E-10	9.05E-17	1.58E-17	4.57E-17	7.45E-17	2.48E-15	1.31E-13	2.83E-16
Gallium (31)	Ga-73	S	1.25E+03	5.55E-04	3.59E-10	2.64E-10	1.83E-10	9.61E-18	2.10E-18	5.94E-18	8.92E-18	3.71E-16	1.56E-14	3.37E-17
Gallium (31)	Ga-74	-	4.49E+04	1.54E-05	0.00E+00	0.00E+00	0.00E+00	1.07E-16	1.83E-17	5.30E-17	8.70E-17	2.90E-15	1.55E-13	3.35E-16
Gadolinium (64)	Gd-142	-	3.11E+05	2.23E-06	0.00E+00	0.00E+00	0.00E+00	3.16E-17	6.33E-18	1.79E-17	2.79E-17	1.06E-15	4.78E-14	1.03E-16
Gadolinium (64)	Gd-143m	-	1.99E+05	3.49E-06	0.00E+00	0.00E+00	0.00E+00	6.47E-17	1.28E-17	3.63E-17	5.68E-17	2.10E-15	9.77E-14	2.11E-16
Gadolinium (64)	Gd-144	-	8.15E+04	8.50E-06	0.00E+00	0.00E+00	0.00E+00	2.84E-17	5.40E-18	1.53E-17	2.43E-17	8.98E-16	4.25E-14	9.19E-17
Gadolinium (64)	Gd-145	S	1.58E+04	4.38E-05	4.40E-11	3.43E-11	2.11E-11	8.17E-17	1.39E-17	4.04E-17	6.63E-17	2.19E-15	1.18E-13	2.55E-16

Dose Conversion Factors July 2023														
Radionuclides		Isotope-specific Information and Dose Conversion Factors												
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Ingestion DCF (Sv/Bq)	Adult Ingestion DCF (Sv/Bq)	Inhalation DCF (Sv/Bq)	Exposure DCF (Infinite Volume) (Sv/s per Bq/g)	External Exposure DCF (1 cm) (Sv/s per Bq/g)	External Exposure DCF (5 cm) (Sv/s per Bq/g)	External Exposure DCF (15 cm) (Sv/s per Bq/g)	External Exposure DCF (Ground Plane) (Sv/s per Bq/cm <sup>2</sup> )	External Exposure DCF (Submersion) (Sv/s per Bq/m <sup>3</sup> )	External Exposure DCF (Immersion) (Sv/s per Bq/L)
Gadolinium (64)	Gd-145m	-	2.57E+05	2.70E-06	0.00E+00	0.00E+00	0.00E+00	2.06E-17	4.11E-18	1.17E-17	1.83E-17	6.67E-16	3.08E-14	6.67E-17
Gadolinium (64)	Gd-146	S	5.24E+00	1.32E-01	1.26E-09	9.54E-10	7.79E-09	3.91E-18	1.23E-18	2.97E-18	3.87E-18	2.24E-16	8.74E-15	1.95E-17
Gadolinium (64)	Gd-147	S	1.59E+02	4.35E-03	8.15E-10	6.42E-10	5.20E-10	4.14E-17	8.29E-18	2.36E-17	3.66E-17	1.31E-15	6.29E-14	1.37E-16
Gadolinium (64)	Gd-148	S	9.29E-03	7.46E+01	7.19E-08	5.47E-08	6.63E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Gadolinium (64)	Gd-149	S	2.73E+01	2.54E-02	7.15E-10	5.48E-10	1.05E-09	1.38E-17	3.04E-18	8.43E-18	1.26E-17	4.94E-16	2.24E-14	4.89E-17
Gadolinium (64)	Gd-150	S	3.87E-07	1.79E+06	6.78E-08	5.23E-08	5.68E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Gadolinium (64)	Gd-151	S	2.04E+00	3.40E-01	3.07E-10	2.27E-10	1.31E-09	9.82E-19	3.06E-19	7.09E-19	9.51E-19	6.17E-17	2.15E-15	4.81E-18
Gadolinium (64)	Gd-152	F	6.42E-15	1.08E+14	5.32E-08	4.10E-08	2.01E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Gadolinium (64)	Gd-153	S	1.05E+00	6.59E-01	3.74E-10	2.79E-10	2.65E-09	1.14E-18	4.48E-19	9.50E-19	1.14E-18	9.21E-17	3.11E-15	7.05E-18
Gadolinium (64)	Gd-159	S	3.29E+02	2.11E-03	6.95E-10	5.05E-10	3.51E-10	1.30E-18	3.08E-19	8.24E-19	1.21E-18	6.97E-17	2.35E-15	4.95E-18
Gadolinium (64)	Gd-162	-	4.34E+04	1.60E-05	0.00E+00	0.00E+00	0.00E+00	1.19E-17	2.53E-18	7.19E-18	1.09E-17	4.18E-16	1.86E-14	4.02E-17
Germanium (32)	Ge-66	S	2.69E+03	2.58E-04	1.28E-10	1.02E-10	1.10E-10	1.90E-17	4.02E-18	1.14E-17	1.73E-17	6.41E-16	2.97E-14	6.46E-17
Germanium (32)	Ge-67	S	1.93E+04	3.60E-05	7.91E-11	5.95E-11	2.97E-11	4.26E-17	8.74E-18	2.47E-17	3.80E-17	1.47E-15	6.54E-14	1.41E-16
Germanium (32)	Ge-68	S	9.34E-01	7.42E-01	1.69E-09	1.28E-09	3.35E-08	6.05E-24	6.05E-24	6.05E-24	6.05E-24	3.61E-20	8.87E-20	2.05E-22
Germanium (32)	Ge-69	S	1.55E+02	4.46E-03	2.61E-10	2.08E-10	2.93E-10	2.97E-17	5.67E-18	1.63E-17	2.58E-17	8.99E-16	4.38E-14	9.49E-17
Germanium (32)	Ge-71	S	2.21E+01	3.13E-02	1.58E-11	1.18E-11	1.44E-11	6.14E-24	6.14E-24	6.14E-24	6.14E-24	3.66E-20	9.00E-20	2.08E-22
Germanium (32)	Ge-75	S	4.40E+03	1.57E-04	6.19E-11	4.63E-11	4.48E-11	9.72E-19	2.31E-19	6.29E-19	9.22E-19	7.30E-17	1.83E-15	3.71E-18
Germanium (32)	Ge-77	S	5.37E+02	1.29E-03	4.21E-10	3.27E-10	4.50E-10	3.22E-17	6.51E-18	1.85E-17	2.87E-17	1.08E-15	4.95E-14	1.07E-16
Germanium (32)	Ge-78	S	4.14E+03	1.67E-04	1.47E-10	1.14E-10	1.15E-10	7.47E-18	1.67E-18	4.77E-18	7.08E-18	2.66E-16	1.23E-14	2.68E-17
Hydrogen (1)	H-3	S	5.63E-02	1.23E+01	4.58E-11	4.19E-11	2.89E-10	0.00E+00	0.00E+00	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	0.00E+00	0.00E+00	0.00E+00	1.72E-17	3.76E-18	1.05E-17	1.58E-17	6.39E-16	2.73E-14	5.91E-17
Hafnium (72)	Hf-169	-	1.12E+05	6.16E-06	0.00E+00	0.00E+00	0.00E+00	1.77E-17	3.81E-18	1.06E-17	1.62E-17	6.22E-16	2.78E-14	6.05E-17
Hafnium (72)	Hf-170	S	3.79E+02	1.83E-03	5.30E-10	4.14E-10	3.41E-10	1.10E-17	2.51E-18	6.81E-18	1.01E-17	4.09E-16	1.83E-14	4.01E-17
Hafnium (72)	Hf-172	S	3.71E-01	1.87E+00	1.46E-09	1.06E-09	2.72E-08	1.07E-18	4.47E-19	9.20E-19	1.07E-18	8.91E-17	3.09E-15	7.02E-18
Hafnium (72)	Hf-173	S	2.57E+02	2.69E-03	2.90E-10	2.24E-10	2.03E-10	8.84E-18	2.23E-18	5.93E-18	8.39E-18	3.63E-16	1.62E-14	3.57E-17
Hafnium (72)	Hf-174	S	3.47E-16	2.00E+15	3.15E-07	2.55E-07	5.30E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Hafnium (72)	Hf-175	S	3.61E+00	1.92E-01	5.28E-10	4.04E-10	1.55E-09	8.73E-18	2.03E-18	5.56E-18	8.18E-18	3.29E-16	1.47E-14	3.22E-17
Hafnium (72)	Hf-177m	S	7.09E+03	9.78E-05	1.08E-10	8.33E-11	1.11E-10	5.91E-17	1.35E-17	3.77E-17	5.56E-17	2.13E-15	9.84E-14	2.15E-16
Hafnium (72)	Hf-178m	F	2.24E-02	3.10E+01	4.97E-09	3.97E-09	2.30E-07	6.15E-17	1.34E-17	3.77E-17	5.68E-17	2.11E-15	9.78E-14	2.13E-16
Hafnium (72)	Hf-179m	S	1.01E+01	6.86E-02	1.68E-09	1.27E-09	4.90E-09	2.37E-17	5.40E-18	1.50E-17	2.21E-17	8.60E-16	3.92E-14	8.59E-17
Hafnium (72)	Hf-180m	S	1.10E+03	6.28E-04	2.21E-10	1.71E-10	1.67E-10	2.63E-17	5.86E-18	1.64E-17	2.45E-17	9.29E-16	4.27E-14	9.33E-17
Hafnium (72)	Hf-181	S	5.97E+00	1.16E-01	1.50E-09	1.11E-09	6.52E-09	1.45E-17	3.17E-18	8.90E-18	1.34E-17	5.02E-16	2.32E-14	5.05E-17
Hafnium (72)	Hf-182	F	7.70E-08	9.00E+06	3.43E-09	2.83E-09	3.04E-07	6.17E-18	1.42E-18	4.00E-18	5.87E-18	2.23E-16	1.04E-14	2.27E-17
Hafnium (72)	Hf-182m	S	5.92E+03	1.17E-04	5.94E-11	4.56E-11	6.11E-11	2.51E-17	5.38E-18	1.51E-17	2.28E-17	8.59E-16	3.99E-14	8.69E-17
Hafnium (72)	Hf-183	S	5.69E+03	1.22E-04	9.87E-11	7.42E-11	7.30E-11	2.29E-17	4.63E-18	1.31E-17	2.03E-17	7.73E-16	3.50E-14	7.58E-17
Hafnium (72)	Hf-184	S	1.47E+03	4.70E-04	7.06E-10	5.24E-10	4.08E-10	5.50E-18	1.34E-18	3.66E-18	5.24E-18	2.36E-16	9.88E-15	2.15E-17
Mercury (80)	Hg-190	V	1.82E+04	3.81E-05	2.78E-11	2.18E-11	8.33E-11	3.65E-18	1.07E-18	2.73E-18	3.58E-18	1.77E-16	7.74E-15	1.72E-17
Mercury (80)	Hg-191m	V	7.17E+03	9.67E-05	6.88E-11	5.38E-11	3.47E-10	4.40E-17	8.77E-18	2.49E-17	3.87E-17	1.38E-15	6.73E-14	1.46E-16
Mercury (80)	Hg-192	V	1.25E+03	5.54E-04	2.91E-10	2.27E-10	1.08E-09	5.96E-18	1.52E-18	4.07E-18	5.71E-18	2.47E-16	1.10E-14	2.44E-17
Mercury (80)	Hg-193	V	1.60E+03	4.34E-04	1.39E-10	1.08E-10	9.44E-10	2.51E-17	4.85E-18	1.37E-17	2.16E-17	7.65E-16	3.81E-14	8.29E-17
Mercury (80)	Hg-193m	V	5.14E+02	1.35E-03	5.62E-10	4.33E-10	3.25E-09	3.10E-17	6.02E-18	1.71E-17	2.69E-17	9.48E-16	4.67E-14	1.01E-16
Mercury (80)	Hg-194	S	1.58E-03	4.40E+02	1.56E-09	1.39E-09	2.46E-08	4.11E-23	4.11E-23	4.11E-23	4.11E-23	1.62E-19	4.49E-19	1.04E-21
Mercury (80)	Hg-195	V	5.77E+02	1.20E-03	1.37E-10	1.03E-10	1.63E-09	4.85E-18	1.10E-18	2.95E-18	4.34E-18	1.81E-16	8.23E-15	1.81E-17
Mercury (80)	Hg-195m	V	1.46E+02	4.75E-03	7.47E-10	5.53E-10	8.80E-09	4.93E-18	1.14E-18	3.13E-18	4.58E-18	1.83E-16	8.37E-15	1.83E-17
Mercury (80)	Hg-197	V	9.35E+01	7.41E-03	3.39E-10	2.50E-10	5.06E-09	8.51E-19	3.39E-19	7.41E-19	8.50E-19	6.09E-17	2.39E-15	5.41E-18
Mercury (80)	Hg-197m	V	2.55E+02	2.72E-03	6.58E-10	4.82E-10	6.38E-09	1.79E-18	5.12E-19	1.32E-18	1.75E-18	8.38E-17	3.75E-15	8.28E-18
Mercury (80)	Hg-199m	V	8.54E+03	8.12E-05	4.11E-11	3.07E-11	1.91E-10	3.88E-18	1.02E-18	2.70E-18	3.74E-18	1.64E-16	7.53E-15	1.65E-17

Dose Conversion Factors July 2023														
Radionuclides		Isotope-specific Information and Dose Conversion Factors												
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Ingestion DCF (Sv/Bq)	Adult Ingestion DCF (Sv/Bq)	Inhalation DCF (Sv/Bq)	Exposure DCF (Infinite Volume) (Sv/s per Bq/g)	External Exposure DCF (1 cm) (Sv/s per Bq/g)	External Exposure DCF (5 cm) (Sv/s per Bq/g)	External Exposure DCF (15 cm) (Sv/s per Bq/g)	External Exposure DCF (Ground Plane) (Sv/s per Bq/cm <sup>2</sup> )	External Exposure DCF (Submersion) (Sv/s per Bq/m <sup>3</sup> )	External Exposure DCF (Immersion) (Sv/s per Bq/L)
Mercury (80)	Hg-203	V	5.43E+00	1.28E-01	7.23E-10	5.39E-10	7.71E-09	6.24E-18	1.42E-18	4.01E-18	5.91E-18	2.22E-16	1.04E-14	2.27E-17
Mercury (80)	Hg-205	-	7.00E+04	9.89E-06	0.00E+00	0.00E+00	0.00E+00	1.94E-19	7.07E-20	1.40E-19	1.87E-19	6.56E-17	6.19E-16	9.63E-19
Mercury (80)	Hg-206	-	4.47E+04	1.55E-05	0.00E+00	0.00E+00	0.00E+00	3.28E-18	7.42E-19	2.07E-18	3.07E-18	1.49E-16	5.56E-15	1.19E-17
Mercury (80)	Hg-207	-	1.26E+05	5.52E-06	0.00E+00	0.00E+00	0.00E+00	8.78E-17	1.56E-17	4.50E-17	7.29E-17	2.49E-15	1.28E-13	2.77E-16
Holmium (67)	Ho-150	-	2.85E+05	2.44E-06	0.00E+00	0.00E+00	0.00E+00	5.79E-17	1.18E-17	3.33E-17	5.16E-17	1.97E-15	8.73E-14	1.88E-16
Holmium (67)	Ho-153	-	1.81E+05	3.82E-06	0.00E+00	0.00E+00	0.00E+00	2.99E-17	6.20E-18	1.75E-17	2.69E-17	1.03E-15	4.61E-14	9.99E-17
Holmium (67)	Ho-153m	-	3.92E+04	1.77E-05	0.00E+00	0.00E+00	0.00E+00	3.02E-17	6.42E-18	1.80E-17	2.74E-17	1.07E-15	4.72E-14	1.02E-16
Holmium (67)	Ho-154	S	3.10E+04	2.24E-05	5.40E-11	4.08E-11	1.82E-11	5.70E-17	1.15E-17	3.25E-17	5.05E-17	1.88E-15	8.63E-14	1.87E-16
Holmium (67)	Ho-154m	-	1.17E+05	5.90E-06	0.00E+00	0.00E+00	0.00E+00	7.16E-17	1.47E-17	4.19E-17	6.45E-17	2.37E-15	1.09E-13	2.37E-16
Holmium (67)	Ho-155	S	7.59E+03	9.13E-05	5.13E-11	3.95E-11	2.87E-11	1.73E-17	3.57E-18	9.98E-18	1.54E-17	5.89E-16	2.71E-14	5.89E-17
Holmium (67)	Ho-156	S	6.50E+03	1.07E-04	1.27E-10	9.73E-11	6.56E-11	6.51E-17	1.25E-17	3.55E-17	5.61E-17	2.00E-15	9.78E-14	2.12E-16
Holmium (67)	Ho-157	S	2.89E+04	2.40E-05	9.32E-12	7.29E-12	5.87E-12	1.52E-17	3.31E-18	9.12E-18	1.38E-17	5.45E-16	2.46E-14	5.38E-17
Holmium (67)	Ho-159	S	1.10E+04	6.29E-05	1.09E-11	8.57E-12	7.95E-12	8.47E-18	2.09E-18	5.51E-18	7.91E-18	3.52E-16	1.52E-14	3.36E-17
Holmium (67)	Ho-160	S	1.42E+04	4.87E-05	2.13E-11	1.71E-11	1.63E-11	5.12E-17	1.00E-17	2.86E-17	4.48E-17	1.59E-15	7.64E-14	1.66E-16
Holmium (67)	Ho-161	S	2.45E+03	2.83E-04	1.71E-11	1.26E-11	8.98E-12	3.92E-19	1.98E-19	3.52E-19	3.90E-19	4.84E-17	1.33E-15	3.06E-18
Holmium (67)	Ho-162	S	2.43E+04	2.85E-05	4.24E-12	3.24E-12	3.43E-12	3.95E-18	8.61E-19	2.27E-18	3.44E-18	1.51E-16	6.54E-15	1.43E-17
Holmium (67)	Ho-162m	S	5.44E+03	1.27E-04	3.27E-11	2.54E-11	2.51E-11	1.61E-17	3.20E-18	8.96E-18	1.40E-17	5.15E-16	2.48E-14	5.40E-17
Holmium (67)	Ho-163	F	1.52E-04	4.57E+03	4.00E-12	2.88E-12	2.82E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Holmium (67)	Ho-164	S	1.26E+04	5.52E-05	1.27E-11	9.47E-12	1.02E-11	2.04E-19	1.12E-19	1.92E-19	2.04E-19	3.36E-17	8.04E-16	1.76E-18
Holmium (67)	Ho-164m	S	9.59E+03	7.23E-05	2.23E-11	1.66E-11	1.35E-11	2.68E-19	1.60E-19	2.60E-19	2.68E-19	3.86E-17	1.06E-15	2.44E-18
Holmium (67)	Ho-166	S	2.27E+02	3.06E-03	1.93E-09	1.40E-09	8.42E-10	8.51E-19	2.24E-19	5.07E-19	7.37E-19	1.06E-16	1.75E-15	3.34E-18
Holmium (67)	Ho-166m	F	5.78E-04	1.20E+03	2.55E-09	1.97E-09	2.96E-07	4.80E-17	9.72E-18	2.77E-17	4.28E-17	1.53E-15	7.29E-14	1.59E-16
Holmium (67)	Ho-167	S	1.96E+03	3.54E-04	1.17E-10	8.72E-11	9.12E-11	9.84E-18	2.18E-18	6.16E-18	9.20E-18	3.52E-16	1.60E-14	3.48E-17
Holmium (67)	Ho-168	-	1.22E+05	5.69E-06	0.00E+00	0.00E+00	0.00E+00	2.71E-17	5.32E-18	1.51E-17	2.37E-17	9.17E-16	4.06E-14	8.74E-17
Holmium (67)	Ho-168m	-	1.66E+05	4.19E-06	0.00E+00	0.00E+00	0.00E+00	3.79E-20	2.27E-20	3.69E-20	3.79E-20	5.42E-18	1.50E-16	3.46E-19
Holmium (67)	Ho-170	-	1.32E+05	5.25E-06	0.00E+00	0.00E+00	0.00E+00	5.20E-17	1.02E-17	2.90E-17	4.54E-17	1.68E-15	7.83E-14	1.69E-16
Iodine (53)	I-118	V	2.66E+04	2.61E-05	2.76E-10	1.95E-10	2.03E-10	6.24E-17	1.26E-17	3.54E-17	5.52E-17	2.08E-15	9.38E-14	2.02E-16
Iodine (53)	I-118m	-	4.29E+04	1.62E-05	0.00E+00	0.00E+00	0.00E+00	1.15E-16	2.28E-17	6.49E-17	1.02E-16	3.67E-15	1.71E-13	3.71E-16
Iodine (53)	I-119	V	1.91E+04	3.63E-05	5.75E-11	4.24E-11	5.66E-11	2.61E-17	5.51E-18	1.56E-17	2.38E-17	9.21E-16	4.06E-14	8.79E-17
Iodine (53)	I-120	V	4.46E+03	1.55E-04	4.10E-10	2.91E-10	3.24E-10	8.70E-17	1.57E-17	4.52E-17	7.27E-17	2.52E-15	1.28E-13	2.76E-16
Iodine (53)	I-120m	V	6.87E+03	1.01E-04	2.10E-10	1.55E-10	1.62E-10	1.10E-16	2.11E-17	6.06E-17	9.56E-17	3.39E-15	1.63E-13	3.53E-16
Iodine (53)	I-121	V	2.86E+03	2.42E-04	1.00E-10	7.59E-11	9.60E-11	1.05E-17	2.30E-18	6.48E-18	9.71E-18	3.75E-16	1.69E-14	3.70E-17
Iodine (53)	I-122	-	1.00E+05	6.91E-06	0.00E+00	0.00E+00	0.00E+00	2.87E-17	6.00E-18	1.68E-17	2.59E-17	1.04E-15	4.39E-14	9.45E-17
Iodine (53)	I-123	V	4.57E+02	1.51E-03	3.24E-10	2.21E-10	2.85E-10	3.51E-18	9.00E-19	2.43E-18	3.40E-18	1.54E-16	6.55E-15	1.45E-17
Iodine (53)	I-124	V	6.06E+01	1.14E-02	1.90E-08	1.31E-08	1.57E-08	3.46E-17	6.57E-18	1.88E-17	2.99E-17	1.05E-15	5.11E-14	1.11E-16
Iodine (53)	I-125	V	4.26E+00	1.63E-01	1.89E-08	1.55E-08	1.65E-08	6.42E-20	5.94E-20	6.43E-20	6.42E-20	3.19E-17	3.78E-16	8.88E-19
Iodine (53)	I-126	V	1.96E+01	3.54E-02	4.09E-08	2.93E-08	3.44E-08	1.26E-17	2.59E-18	7.36E-18	1.14E-17	4.23E-16	1.92E-14	4.17E-17
Iodine (53)	I-128	V	1.46E+04	4.75E-05	6.23E-11	4.57E-11	7.26E-11	2.07E-18	4.90E-19	1.26E-18	1.89E-18	1.54E-16	3.55E-15	7.16E-18
Iodine (53)	I-129	V	4.41E-08	1.57E+07	1.21E-07	1.08E-07	1.08E-07	5.19E-20	4.47E-20	5.19E-20	5.19E-20	1.99E-17	2.86E-16	6.68E-19
Iodine (53)	I-130	V	4.91E+02	1.41E-03	2.76E-09	1.87E-09	2.36E-09	6.49E-17	1.29E-17	3.70E-17	5.77E-17	2.05E-15	9.68E-14	2.10E-16
Iodine (53)	I-130m	-	4.12E+04	1.68E-05	0.00E+00	0.00E+00	0.00E+00	3.19E-18	6.57E-19	1.84E-18	2.84E-18	1.20E-16	4.88E-15	1.05E-17
Iodine (53)	I-131	V	3.15E+01	2.20E-02	3.13E-08	2.17E-08	2.61E-08	1.08E-17	2.31E-18	6.58E-18	9.97E-18	3.65E-16	1.70E-14	3.69E-17
Iodine (53)	I-132	V	2.65E+03	2.62E-04	4.05E-10	2.84E-10	3.87E-10	7.05E-17	1.36E-17	3.91E-17	6.16E-17	2.18E-15	1.04E-13	2.26E-16
Iodine (53)	I-132m	V	4.38E+03	1.58E-04	2.89E-10	1.98E-10	2.96E-10	9.93E-18	2.01E-18	5.71E-18	8.86E-18	3.27E-16	1.50E-14	3.26E-17
Iodine (53)	I-133	V	2.92E+02	2.37E-03	6.60E-09	4.32E-09	5.48E-09	1.84E-17	3.72E-18	1.06E-17	1.65E-17	6.22E-16	2.78E-14	6.02E-17
Iodine (53)	I-134	V	6.94E+03	9.99E-05	1.37E-10	1.01E-10	1.62E-10	8.21E-17	1.55E-17	4.46E-17	7.08E-17	2.49E-15	1.21E-13	2.61E-16
Iodine (53)	I-134m	-	1.01E+05	6.85E-06	0.00E+00	0.00E+00	0.00E+00	7.21E-18	1.62E-18	4.53E-18	6.74E-18	2.69E-16	1.19E-14	2.60E-17



Dose Conversion Factors July 2023														
Radionuclides		Isotope-specific Information and Dose Conversion Factors												
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Ingestion DCF (Sv/Bq)	Adult Ingestion DCF (Sv/Bq)	Inhalation DCF (Sv/Bq)	Exposure DCF (Infinite Volume) (Sv/s per Bq/g)	External Exposure DCF (1 cm) (Sv/s per Bq/g)	External Exposure DCF (5 cm) (Sv/s per Bq/g)	External Exposure DCF (15 cm) (Sv/s per Bq/g)	External Exposure DCF (Ground Plane) (Sv/s per Bq/cm <sup>2</sup> )	External Exposure DCF (Submersion) (Sv/s per Bq/m <sup>3</sup> )	External Exposure DCF (Immersion) (Sv/s per Bq/L)
Iodine (53)	I-135	V	9.24E+02	7.50E-04	1.31E-09	8.83E-10	1.16E-09	5.23E-17	9.28E-18	2.69E-17	4.36E-17	1.47E-15	7.57E-14	1.64E-16
Indium (49)	In-103	-	3.64E+05	1.90E-06	0.00E+00	0.00E+00	0.00E+00	8.78E-17	1.65E-17	4.71E-17	7.49E-17	2.67E-15	1.30E-13	2.82E-16
Indium (49)	In-105	-	7.18E+04	9.65E-06	0.00E+00	0.00E+00	0.00E+00	5.98E-17	1.16E-17	3.31E-17	5.19E-17	1.90E-15	8.97E-14	1.94E-16
Indium (49)	In-106	-	5.87E+04	1.18E-05	0.00E+00	0.00E+00	0.00E+00	1.10E-16	2.16E-17	6.15E-17	9.65E-17	3.47E-15	1.63E-13	3.53E-16
Indium (49)	In-106m	-	7.00E+04	9.89E-06	0.00E+00	0.00E+00	0.00E+00	9.16E-17	1.69E-17	4.83E-17	7.74E-17	2.73E-15	1.35E-13	2.92E-16
Indium (49)	In-107	S	1.12E+04	6.16E-05	5.29E-11	4.05E-11	3.06E-11	4.85E-17	8.96E-18	2.58E-17	4.12E-17	1.43E-15	7.18E-14	1.56E-16
Indium (49)	In-108	S	6.28E+03	1.10E-04	9.72E-11	7.80E-11	5.71E-11	1.23E-16	2.33E-17	6.69E-17	1.06E-16	3.66E-15	1.81E-13	3.93E-16
Indium (49)	In-108m	S	9.20E+03	7.53E-05	1.06E-10	8.10E-11	4.53E-11	9.24E-17	1.59E-17	4.62E-17	7.54E-17	2.52E-15	1.35E-13	2.92E-16
Indium (49)	In-109	S	1.45E+03	4.79E-04	7.46E-11	5.88E-11	4.69E-11	1.87E-17	3.74E-18	1.07E-17	1.65E-17	5.94E-16	2.86E-14	6.23E-17
Indium (49)	In-109m	-	2.72E+05	2.55E-06	0.00E+00	0.00E+00	0.00E+00	1.84E-17	3.68E-18	1.05E-17	1.64E-17	5.86E-16	2.74E-14	5.95E-17
Indium (49)	In-110	S	1.24E+03	5.59E-04	3.03E-10	2.45E-10	1.64E-10	9.59E-17	1.85E-17	5.31E-17	8.38E-17	2.92E-15	1.41E-13	3.06E-16
Indium (49)	In-110m	S	5.27E+03	1.31E-04	1.34E-10	1.02E-10	6.01E-11	4.87E-17	9.49E-18	2.71E-17	4.26E-17	1.55E-15	7.26E-14	1.57E-16
Indium (49)	In-111	S	9.02E+01	7.68E-03	3.79E-10	2.92E-10	2.87E-10	9.69E-18	2.31E-18	6.46E-18	9.32E-18	3.69E-16	1.69E-14	3.70E-17
Indium (49)	In-111m	-	4.73E+04	1.46E-05	0.00E+00	0.00E+00	0.00E+00	1.39E-17	2.85E-18	8.12E-18	1.25E-17	4.56E-16	2.10E-14	4.55E-17
Indium (49)	In-112	S	2.43E+04	2.85E-05	1.40E-11	1.05E-11	9.42E-12	7.76E-18	1.61E-18	4.55E-18	7.02E-18	2.74E-16	1.19E-14	2.56E-17
Indium (49)	In-112m	S	1.77E+04	3.91E-05	2.28E-11	1.70E-11	2.60E-11	4.76E-19	1.32E-19	3.40E-19	4.67E-19	2.80E-17	9.86E-16	2.15E-18
Indium (49)	In-113m	S	3.66E+03	1.89E-04	3.92E-11	2.89E-11	2.50E-11	7.21E-18	1.55E-18	4.40E-18	6.67E-18	2.46E-16	1.13E-14	2.46E-17
Indium (49)	In-114	-	3.04E+05	2.28E-06	0.00E+00	0.00E+00	0.00E+00	2.17E-19	1.00E-19	1.57E-19	2.01E-19	9.64E-17	7.27E-16	9.87E-19
Indium (49)	In-114m	S	5.11E+00	1.36E-01	5.81E-09	4.14E-09	1.50E-08	1.99E-18	4.35E-19	1.22E-18	1.83E-18	7.28E-17	3.26E-15	7.07E-18
Indium (49)	In-115	F	1.57E-15	4.41E+14	3.55E-08	3.27E-08	4.09E-07	1.93E-21	7.08E-22	1.54E-21	1.91E-21	3.74E-19	6.60E-17	7.29E-20
Indium (49)	In-115m	S	1.35E+03	5.12E-04	1.19E-10	8.78E-11	7.41E-11	4.28E-18	9.41E-19	2.67E-18	4.01E-18	1.52E-16	6.94E-15	1.50E-17
Indium (49)	In-116m	S	6.69E+03	1.04E-04	8.24E-11	6.44E-11	5.65E-11	8.13E-17	1.45E-17	4.20E-17	6.79E-17	2.27E-15	1.18E-13	2.55E-16
Indium (49)	In-117	S	8.43E+03	8.22E-05	4.01E-11	3.06E-11	3.53E-11	1.96E-17	4.17E-18	1.18E-17	1.79E-17	6.65E-16	3.08E-14	6.69E-17
Indium (49)	In-117m	S	3.13E+03	2.21E-04	1.68E-10	1.24E-10	8.94E-11	2.30E-18	5.50E-19	1.50E-18	2.18E-18	1.25E-16	4.08E-15	8.63E-18
Indium (49)	In-118	-	4.37E+06	1.59E-07	0.00E+00	0.00E+00	0.00E+00	3.36E-18	8.58E-19	1.93E-18	2.91E-18	2.52E-16	5.72E-15	1.08E-17
Indium (49)	In-118m	-	8.35E+04	8.30E-06	0.00E+00	0.00E+00	0.00E+00	8.97E-17	1.65E-17	4.76E-17	7.62E-17	2.65E-15	1.31E-13	2.83E-16
Indium (49)	In-119	-	1.52E+05	4.57E-06	0.00E+00	0.00E+00	0.00E+00	2.37E-17	4.67E-18	1.33E-17	2.09E-17	7.99E-16	3.54E-14	7.63E-17
Indium (49)	In-119m	S	2.02E+04	3.42E-05	6.20E-11	4.60E-11	2.19E-11	2.30E-18	5.31E-19	1.31E-18	2.00E-18	1.77E-16	3.89E-15	7.63E-18
Indium (49)	In-121	-	9.46E+05	7.32E-07	0.00E+00	0.00E+00	0.00E+00	2.93E-17	5.69E-18	1.61E-17	2.55E-17	9.89E-16	4.36E-14	9.37E-17
Indium (49)	In-121m	-	9.39E+04	7.38E-06	0.00E+00	0.00E+00	0.00E+00	2.03E-18	5.92E-19	1.23E-18	1.77E-18	2.12E-16	3.92E-15	7.29E-18
Iridium (77)	Ir-180	-	2.43E+05	2.85E-06	0.00E+00	0.00E+00	0.00E+00	4.70E-17	9.81E-18	2.75E-17	4.22E-17	1.62E-15	7.24E-14	1.56E-16
Iridium (77)	Ir-182	S	2.43E+04	2.85E-05	6.95E-11	5.25E-11	3.07E-11	4.15E-17	8.60E-18	2.42E-17	3.71E-17	1.42E-15	6.42E-14	1.39E-16
Iridium (77)	Ir-183	S	6.28E+03	1.10E-04	6.81E-11	5.33E-11	4.71E-11	3.64E-17	6.88E-18	1.96E-17	3.09E-17	1.09E-15	5.48E-14	1.19E-16
Iridium (77)	Ir-184	S	1.96E+03	3.53E-04	2.44E-10	1.88E-10	1.49E-10	5.97E-17	1.16E-17	3.30E-17	5.18E-17	1.84E-15	9.01E-14	1.96E-16
Iridium (77)	Ir-185	S	4.22E+02	1.64E-03	4.28E-10	3.28E-10	2.76E-10	2.62E-17	4.86E-18	1.38E-17	2.19E-17	7.67E-16	3.95E-14	8.59E-17
Iridium (77)	Ir-186	S	3.65E+02	1.90E-03	7.27E-10	5.64E-10	4.21E-10	5.03E-17	9.75E-18	2.78E-17	4.35E-17	1.53E-15	7.63E-14	1.66E-16
Iridium (77)	Ir-186m	S	3.16E+03	2.19E-04	9.38E-11	7.35E-11	5.97E-11	3.90E-17	7.32E-18	2.09E-17	3.32E-17	1.15E-15	5.81E-14	1.26E-16
Iridium (77)	Ir-187	S	5.78E+02	1.20E-03	1.52E-10	1.16E-10	9.10E-11	8.65E-18	1.88E-18	5.14E-18	7.73E-18	3.06E-16	1.40E-14	3.07E-17
Iridium (77)	Ir-188	S	1.46E+02	4.74E-03	9.62E-10	7.66E-10	5.71E-10	6.94E-17	1.20E-17	3.47E-17	5.66E-17	1.86E-15	1.01E-13	2.19E-16
Iridium (77)	Ir-189	S	1.92E+01	3.62E-02	3.27E-10	2.43E-10	6.26E-10	1.11E-18	3.77E-19	8.67E-19	1.09E-18	6.74E-17	2.67E-15	5.99E-18
Iridium (77)	Ir-190	S	2.15E+01	3.23E-02	1.36E-09	1.07E-09	1.56E-09	4.19E-17	8.83E-18	2.50E-17	3.81E-17	1.40E-15	6.51E-14	1.42E-16
Iridium (77)	Ir-190m	S	5.42E+03	1.28E-04	9.18E-12	7.00E-12	6.98E-12	9.03E-24	9.03E-24	9.03E-24	9.03E-24	4.43E-20	1.14E-19	2.65E-22
Iridium (77)	Ir-190n	S	1.97E+03	3.52E-04	1.51E-10	1.18E-10	9.93E-11	6.41E-19	2.60E-19	5.52E-19	6.37E-19	4.87E-17	1.82E-15	4.12E-18
Iridium (77)	Ir-191m	-	4.42E+06	1.57E-07	0.00E+00	0.00E+00	0.00E+00	1.11E-18	3.72E-19	8.86E-19	1.10E-18	6.40E-17	2.66E-15	5.96E-18
Iridium (77)	Ir-192	S	3.43E+00	2.02E-01	1.82E-09	1.37E-09	7.30E-09	2.29E-17	4.93E-18	1.40E-17	2.12E-17	7.75E-16	3.61E-14	7.86E-17
Iridium (77)	Ir-192m	-	2.51E+05	2.76E-06	0.00E+00	0.00E+00	0.00E+00	1.24E-21	3.48E-22	8.41E-22	1.17E-21	2.13E-19	2.68E-18	5.92E-21
Iridium (77)	Ir-192n	S	2.88E-03	2.41E+02	1.24E-09	9.15E-10	6.12E-08	8.21E-21	3.02E-21	6.75E-21	8.14E-21	8.49E-19	6.65E-17	9.60E-20

Dose Conversion Factors July 2023														
Radionuclides		Isotope-specific Information and Dose Conversion Factors												
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Ingestion DCF (Sv/Bq)	Adult Ingestion DCF (Sv/Bq)	Inhalation DCF (Sv/Bq)	Exposure DCF (Infinite Volume) (Sv/s per Bq/g)	External Exposure DCF (1 cm) (Sv/s per Bq/g)	External Exposure DCF (5 cm) (Sv/s per Bq/g)	External Exposure DCF (15 cm) (Sv/s per Bq/g)	External Exposure DCF (Ground Plane) (Sv/s per Bq/cm <sup>2</sup> )	External Exposure DCF (Submersion) (Sv/s per Bq/m <sup>3</sup> )	External Exposure DCF (Immersion) (Sv/s per Bq/L)
Iridium (77)	Ir-193m	S	2.40E+01	2.88E-02	4.00E-10	2.90E-10	1.35E-09	3.29E-21	1.43E-21	2.96E-21	3.29E-21	3.18E-19	1.04E-17	2.32E-20
Iridium (77)	Ir-194	S	3.15E+02	2.20E-03	1.84E-09	1.33E-09	6.75E-10	2.83E-18	6.43E-19	1.69E-18	2.56E-18	1.81E-16	4.77E-15	9.74E-18
Iridium (77)	Ir-194m	S	1.48E+00	4.68E-01	2.63E-09	2.06E-09	1.33E-08	6.81E-17	1.41E-17	4.03E-17	6.18E-17	2.22E-15	1.04E-13	2.26E-16
Iridium (77)	Ir-195	S	2.43E+03	2.85E-04	1.38E-10	1.01E-10	8.32E-11	7.90E-19	2.91E-19	6.54E-19	7.85E-19	7.38E-17	2.20E-15	4.72E-18
Iridium (77)	Ir-195m	S	1.60E+03	4.34E-04	1.83E-10	1.36E-10	1.47E-10	1.00E-17	2.22E-18	6.20E-18	9.27E-18	3.60E-16	1.63E-14	3.56E-17
Iridium (77)	Ir-196	-	4.20E+05	1.65E-06	0.00E+00	0.00E+00	0.00E+00	7.30E-18	1.58E-18	4.26E-18	6.52E-18	3.48E-16	1.16E-14	2.42E-17
Iridium (77)	Ir-196m	S	4.34E+03	1.60E-04	1.43E-10	1.11E-10	1.08E-10	7.19E-17	1.49E-17	4.25E-17	6.52E-17	2.36E-15	1.10E-13	2.39E-16
Potassium (19)	K-38	-	4.77E+04	1.45E-05	0.00E+00	0.00E+00	0.00E+00	1.07E-16	1.86E-17	5.38E-17	8.77E-17	2.97E-15	1.56E-13	3.36E-16
Potassium (19)	K-40	S	5.54E-10	1.25E+09	8.22E-09	6.15E-09	8.87E-08	5.34E-18	9.52E-19	2.71E-18	4.40E-18	2.04E-16	7.94E-15	1.68E-17
Potassium (19)	K-42	S	4.91E+02	1.41E-03	5.89E-10	4.37E-10	4.08E-10	9.94E-18	1.88E-18	5.10E-18	8.21E-18	4.00E-16	1.49E-14	3.11E-17
Potassium (19)	K-43	S	2.72E+02	2.55E-03	3.20E-10	2.49E-10	4.32E-10	2.83E-17	5.85E-18	1.67E-17	2.57E-17	9.35E-16	4.33E-14	9.39E-17
Potassium (19)	K-44	S	1.65E+04	4.21E-05	1.11E-10	8.36E-11	3.99E-11	8.25E-17	1.39E-17	4.02E-17	6.63E-17	2.23E-15	1.19E-13	2.57E-16
Potassium (19)	K-45	S	2.11E+04	3.29E-05	6.48E-11	4.89E-11	2.63E-11	6.21E-17	1.07E-17	3.09E-17	5.05E-17	1.74E-15	9.05E-14	1.95E-16
Potassium (19)	K-46	-	2.08E+05	3.33E-06	0.00E+00	0.00E+00	0.00E+00	1.02E-16	1.66E-17	4.81E-17	8.01E-17	2.66E-15	1.47E-13	3.17E-16
Krypton (36)	Kr-74	-	3.17E+04	2.19E-05	0.00E+00	0.00E+00	0.00E+00	2.99E-17	6.41E-18	1.80E-17	2.74E-17	1.07E-15	4.70E-14	1.02E-16
Krypton (36)	Kr-75	-	8.49E+04	8.16E-06	0.00E+00	0.00E+00	0.00E+00	3.75E-17	7.99E-18	2.23E-17	3.39E-17	1.37E-15	5.85E-14	1.26E-16
Krypton (36)	Kr-76	-	4.10E+02	1.69E-03	0.00E+00	0.00E+00	0.00E+00	1.15E-17	2.51E-18	7.10E-18	1.07E-17	3.96E-16	1.83E-14	4.00E-17
Krypton (36)	Kr-77	-	4.90E+03	1.42E-04	0.00E+00	0.00E+00	0.00E+00	2.93E-17	6.32E-18	1.78E-17	2.68E-17	1.06E-15	4.63E-14	1.00E-16
Krypton (36)	Kr-79	-	1.73E+02	4.00E-03	0.00E+00	0.00E+00	0.00E+00	7.21E-18	1.50E-18	4.29E-18	6.56E-18	2.37E-16	1.11E-14	2.42E-17
Krypton (36)	Kr-81	-	3.03E-06	2.29E+05	0.00E+00	0.00E+00	0.00E+00	2.22E-20	5.13E-21	1.43E-20	2.10E-20	1.57E-18	3.82E-17	8.39E-20
Krypton (36)	Kr-81m	-	1.67E+06	4.15E-07	0.00E+00	0.00E+00	0.00E+00	3.13E-18	7.58E-19	2.12E-18	3.03E-18	1.18E-16	5.57E-15	1.22E-17
Krypton (36)	Kr-83m	-	3.32E+03	2.09E-04	0.00E+00	0.00E+00	0.00E+00	1.25E-22	1.20E-22	1.25E-22	1.25E-22	3.26E-19	1.10E-18	2.57E-21
Krypton (36)	Kr-85	-	6.44E-02	1.08E+01	0.00E+00	0.00E+00	0.00E+00	7.29E-20	1.67E-20	4.44E-20	6.67E-20	1.05E-17	2.41E-16	3.75E-19
Krypton (36)	Kr-85m	-	1.36E+03	5.11E-04	0.00E+00	0.00E+00	0.00E+00	3.71E-18	9.24E-19	2.55E-18	3.60E-18	1.56E-16	6.85E-15	1.49E-17
Krypton (36)	Kr-87	-	4.77E+03	1.45E-04	0.00E+00	0.00E+00	0.00E+00	2.68E-17	4.79E-18	1.36E-17	2.20E-17	8.38E-16	3.97E-14	8.51E-17
Krypton (36)	Kr-88	-	2.14E+03	3.24E-04	0.00E+00	0.00E+00	0.00E+00	6.76E-17	1.11E-17	3.25E-17	5.39E-17	1.72E-15	9.71E-14	2.10E-16
Krypton (36)	Kr-89	-	1.16E+05	5.99E-06	0.00E+00	0.00E+00	0.00E+00	6.54E-17	1.13E-17	3.26E-17	5.33E-17	1.84E-15	9.56E-14	2.06E-16
Lanthanum (57)	La-128	-	7.03E+04	9.86E-06	0.00E+00	0.00E+00	0.00E+00	8.68E-17	1.72E-17	4.89E-17	7.64E-17	2.79E-15	1.30E-13	2.82E-16
Lanthanum (57)	La-129	S	3.14E+04	2.21E-05	3.53E-11	2.67E-11	1.48E-11	2.65E-17	5.58E-18	1.57E-17	2.41E-17	9.41E-16	4.11E-14	8.90E-17
Lanthanum (57)	La-130	-	4.19E+04	1.66E-05	0.00E+00	0.00E+00	0.00E+00	6.88E-17	1.35E-17	3.85E-17	6.03E-17	2.20E-15	1.03E-13	2.23E-16
Lanthanum (57)	La-131	S	6.17E+03	1.12E-04	4.39E-11	3.36E-11	2.80E-11	1.84E-17	3.90E-18	1.10E-17	1.67E-17	6.44E-16	2.88E-14	6.26E-17
Lanthanum (57)	La-132	S	1.26E+03	5.48E-04	5.41E-10	4.09E-10	2.19E-10	6.31E-17	1.18E-17	3.39E-17	5.39E-17	1.89E-15	9.34E-14	2.02E-16
Lanthanum (57)	La-132m	S	1.50E+04	4.62E-05	4.83E-11	3.68E-11	2.51E-11	1.91E-17	3.96E-18	1.12E-17	1.71E-17	6.36E-16	2.95E-14	6.42E-17
Lanthanum (57)	La-133	S	1.55E+03	4.47E-04	4.21E-11	3.18E-11	2.08E-11	4.06E-18	8.67E-19	2.40E-18	3.67E-18	1.51E-16	6.39E-15	1.39E-17
Lanthanum (57)	La-134	-	5.65E+04	1.23E-05	0.00E+00	0.00E+00	0.00E+00	2.13E-17	4.44E-18	1.25E-17	1.92E-17	7.73E-16	3.26E-14	7.02E-17
Lanthanum (57)	La-135	S	3.11E+02	2.23E-03	4.12E-11	3.10E-11	1.84E-11	3.59E-19	1.12E-19	2.35E-19	3.30E-19	3.05E-17	7.73E-16	1.73E-18
Lanthanum (57)	La-136	-	3.69E+04	1.88E-05	0.00E+00	0.00E+00	0.00E+00	1.16E-17	2.43E-18	6.84E-18	1.05E-17	4.22E-16	1.79E-14	3.86E-17
Lanthanum (57)	La-137	F	1.16E-05	6.00E+04	1.11E-10	8.40E-11	9.43E-09	5.73E-20	4.84E-20	5.72E-20	5.73E-20	2.01E-17	3.07E-16	7.20E-19
Lanthanum (57)	La-138	F	6.79E-12	1.02E+11	1.37E-09	1.09E-09	1.62E-07	4.03E-17	7.18E-18	2.08E-17	3.36E-17	1.12E-15	5.82E-14	1.26E-16
Lanthanum (57)	La-140	S	1.51E+02	4.60E-03	2.67E-09	2.01E-09	1.35E-09	7.63E-17	1.35E-17	3.92E-17	6.35E-17	2.15E-15	1.11E-13	2.39E-16
Lanthanum (57)	La-141	S	1.55E+03	4.47E-04	5.10E-10	3.71E-10	1.93E-10	1.14E-18	2.95E-19	6.46E-19	9.71E-19	1.40E-16	2.14E-15	3.86E-18
Lanthanum (57)	La-142	S	4.00E+03	1.73E-04	2.31E-10	1.75E-10	1.07E-10	8.22E-17	1.36E-17	3.96E-17	6.56E-17	2.16E-15	1.19E-13	2.56E-16
Lanthanum (57)	La-143	S	2.57E+04	2.70E-05	7.51E-11	5.57E-11	2.71E-11	9.19E-18	1.76E-18	4.77E-18	7.64E-18	3.76E-16	1.39E-14	2.91E-17
Lutetium (71)	Lu-165	S	3.39E+04	2.04E-05	2.85E-11	2.18E-11	1.63E-11	3.27E-17	6.49E-18	1.83E-17	2.84E-17	1.06E-15	5.02E-14	1.09E-16
Lutetium (71)	Lu-167	S	7.07E+03	9.80E-05	6.14E-11	4.82E-11	4.56E-11	5.39E-17	9.73E-18	2.80E-17	4.50E-17	1.53E-15	7.94E-14	1.72E-16
Lutetium (71)	Lu-169	S	1.78E+02	3.89E-03	6.77E-10	5.35E-10	5.16E-10	4.08E-17	7.62E-18	2.17E-17	3.46E-17	1.20E-15	6.07E-14	1.32E-16
Lutetium (71)	Lu-169m	-	1.37E+05	5.07E-06	0.00E+00	0.00E+00	0.00E+00	1.99E-24	1.95E-24	1.99E-24	1.99E-24	9.37E-21	2.52E-20	5.83E-23

Dose Conversion Factors July 2023														
Radionuclides		Isotope-specific Information and Dose Conversion Factors												
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Ingestion DCF (Sv/Bq)	Adult Ingestion DCF (Sv/Bq)	Inhalation DCF (Sv/Bq)	Exposure DCF (Infinite Volume) (Sv/s per Bq/g)	External Exposure DCF (1 cm) (Sv/s per Bq/g)	External Exposure DCF (5 cm) (Sv/s per Bq/g)	External Exposure DCF (15 cm) (Sv/s per Bq/g)	External Exposure DCF (Ground Plane) (Sv/s per Bq/cm <sup>2</sup> )	External Exposure DCF (Submersion) (Sv/s per Bq/m <sup>3</sup> )	External Exposure DCF (Immersion) (Sv/s per Bq/L)
Lutetium (71)	Lu-170	S	1.26E+02	5.51E-03	1.22E-09	9.69E-10	7.57E-10	8.64E-17	1.46E-17	4.23E-17	6.96E-17	2.26E-15	1.25E-13	2.71E-16
Lutetium (71)	Lu-171	S	3.07E+01	2.26E-02	9.05E-10	6.91E-10	1.11E-09	1.80E-17	3.74E-18	1.04E-17	1.60E-17	6.07E-16	2.79E-14	6.09E-17
Lutetium (71)	Lu-171m	-	2.77E+05	2.51E-06	0.00E+00	0.00E+00	0.00E+00	3.09E-21	1.42E-21	2.82E-21	3.09E-21	2.89E-19	9.86E-18	2.24E-20
Lutetium (71)	Lu-172	S	3.78E+01	1.84E-02	1.69E-09	1.33E-09	1.80E-09	6.02E-17	1.15E-17	3.28E-17	5.19E-17	1.82E-15	8.96E-14	1.94E-16
Lutetium (71)	Lu-172m	-	9.84E+04	7.04E-06	0.00E+00	0.00E+00	0.00E+00	7.43E-24	5.36E-24	7.40E-24	7.43E-24	4.55E-21	3.90E-20	9.04E-23
Lutetium (71)	Lu-173	S	5.06E-01	1.37E+00	4.87E-10	3.66E-10	3.93E-09	3.08E-18	9.14E-19	2.19E-18	2.95E-18	1.64E-16	6.47E-15	1.44E-17
Lutetium (71)	Lu-174	S	2.09E-01	3.31E+00	3.83E-10	2.85E-10	4.94E-09	2.52E-18	5.87E-19	1.48E-18	2.18E-18	1.03E-16	4.46E-15	9.84E-18
Lutetium (71)	Lu-174m	S	1.78E+00	3.89E-01	7.47E-10	5.45E-10	4.86E-09	6.46E-19	2.57E-19	5.17E-19	6.17E-19	5.20E-17	1.78E-15	4.04E-18
Lutetium (71)	Lu-176	F	1.80E-11	3.85E+10	2.42E-09	1.81E-09	1.61E-07	1.22E-17	2.82E-18	7.91E-18	1.16E-17	4.47E-16	2.07E-14	4.52E-17
Lutetium (71)	Lu-176m	S	1.67E+03	4.15E-04	2.27E-10	1.65E-10	1.32E-10	2.12E-19	9.01E-20	1.80E-19	2.11E-19	5.62E-17	7.71E-16	1.41E-18
Lutetium (71)	Lu-177	S	3.81E+01	1.82E-02	7.32E-10	5.33E-10	1.32E-09	7.77E-19	1.99E-19	5.39E-19	7.54E-19	3.21E-17	1.50E-15	3.25E-18
Lutetium (71)	Lu-177m	S	1.58E+00	4.39E-01	2.27E-09	1.71E-09	1.76E-08	2.47E-17	5.82E-18	1.61E-17	2.34E-17	9.27E-16	4.23E-14	9.29E-17
Lutetium (71)	Lu-178	S	1.28E+04	5.40E-05	6.25E-11	4.64E-11	2.95E-11	4.09E-18	8.06E-19	2.18E-18	3.45E-18	2.00E-16	6.44E-15	1.34E-17
Lutetium (71)	Lu-178m	S	1.58E+04	4.39E-05	4.39E-11	3.34E-11	3.71E-11	2.74E-17	6.21E-18	1.73E-17	2.56E-17	1.01E-15	4.53E-14	9.89E-17
Lutetium (71)	Lu-179	S	1.32E+03	5.24E-04	2.97E-10	2.16E-10	1.30E-10	8.04E-19	2.06E-19	5.36E-19	7.68E-19	7.96E-17	1.63E-15	3.23E-18
Lutetium (71)	Lu-180	-	6.39E+04	1.08E-05	0.00E+00	0.00E+00	0.00E+00	4.78E-17	8.98E-18	2.57E-17	4.09E-17	1.46E-15	7.09E-14	1.53E-16
Lutetium (71)	Lu-181	-	1.04E+05	6.66E-06	0.00E+00	0.00E+00	0.00E+00	1.64E-17	3.48E-18	9.69E-18	1.48E-17	6.29E-16	2.58E-14	5.57E-17
Magnesium (12)	Mg-27	-	3.85E+04	1.80E-05	0.00E+00	0.00E+00	0.00E+00	2.81E-17	5.41E-18	1.54E-17	2.44E-17	9.25E-16	4.16E-14	8.98E-17
Magnesium (12)	Mg-28	S	2.90E+02	2.39E-03	2.82E-09	2.16E-09	1.50E-09	4.37E-17	8.01E-18	2.31E-17	3.70E-17	1.26E-15	6.38E-14	1.38E-16
Manganese (25)	Mn-50m	-	2.08E+05	3.33E-06	0.00E+00	0.00E+00	0.00E+00	1.48E-16	2.79E-17	7.99E-17	1.27E-16	4.47E-15	2.18E-13	4.71E-16
Manganese (25)	Mn-51	S	7.88E+03	8.79E-05	1.23E-10	9.26E-11	5.17E-11	2.95E-17	6.18E-18	1.75E-17	2.68E-17	1.07E-15	4.52E-14	9.76E-17
Manganese (25)	Mn-52	S	4.52E+01	1.53E-02	2.26E-09	1.81E-09	1.66E-09	1.11E-16	2.05E-17	5.92E-17	9.47E-17	3.21E-15	1.62E-13	3.51E-16
Manganese (25)	Mn-52m	S	1.73E+04	4.01E-05	9.17E-11	6.95E-11	3.55E-11	7.70E-17	1.45E-17	4.15E-17	6.60E-17	2.36E-15	1.13E-13	2.45E-16
Manganese (25)	Mn-53	S	1.87E-07	3.70E+06	4.14E-11	2.98E-11	3.65E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Manganese (25)	Mn-54	S	8.10E-01	8.55E-01	8.90E-10	7.21E-10	3.60E-09	2.60E-17	5.02E-18	1.44E-17	2.27E-17	7.89E-16	3.83E-14	8.30E-17
Manganese (25)	Mn-56	S	2.35E+03	2.94E-04	3.41E-10	2.56E-10	1.54E-10	5.63E-17	1.00E-17	2.88E-17	4.67E-17	1.62E-15	8.17E-14	1.76E-16
Manganese (25)	Mn-57	-	2.56E+05	2.71E-06	0.00E+00	0.00E+00	0.00E+00	3.07E-18	7.35E-19	1.84E-18	2.75E-18	2.17E-16	5.30E-15	1.07E-17
Manganese (25)	Mn-58m	-	3.35E+05	2.07E-06	0.00E+00	0.00E+00	0.00E+00	7.84E-17	1.44E-17	4.12E-17	6.61E-17	2.36E-15	1.15E-13	2.47E-16
Molybdenum (42)	Mo-101	S	2.49E+04	2.78E-05	5.33E-11	4.03E-11	3.09E-11	4.75E-17	8.70E-18	2.51E-17	4.02E-17	1.40E-15	6.97E-14	1.51E-16
Molybdenum (42)	Mo-102	S	3.22E+04	2.15E-05	9.32E-11	6.92E-11	3.00E-11	4.70E-19	1.20E-19	3.21E-19	4.55E-19	4.41E-17	1.02E-15	2.01E-18
Molybdenum (42)	Mo-89	-	1.73E+05	4.01E-06	0.00E+00	0.00E+00	0.00E+00	3.74E-17	7.78E-18	2.17E-17	3.35E-17	1.34E-15	5.70E-14	1.22E-16
Molybdenum (42)	Mo-90	S	1.09E+03	6.35E-04	2.77E-10	2.20E-10	4.28E-10	2.32E-17	4.90E-18	1.39E-17	2.10E-17	7.83E-16	3.66E-14	7.98E-17
Molybdenum (42)	Mo-91	S	2.35E+04	2.95E-05	8.03E-11	6.00E-11	2.48E-11	2.93E-17	6.20E-18	1.73E-17	2.65E-17	1.08E-15	4.50E-14	9.66E-17
Molybdenum (42)	Mo-91m	-	3.38E+05	2.05E-06	0.00E+00	0.00E+00	0.00E+00	4.37E-17	8.35E-18	2.39E-17	3.78E-17	1.36E-15	6.45E-14	1.40E-16
Molybdenum (42)	Mo-93	S	1.73E-04	4.00E+03	3.12E-09	2.89E-09	2.36E-09	2.19E-21	2.20E-21	2.19E-21	2.19E-21	3.83E-18	1.70E-17	3.99E-20
Molybdenum (42)	Mo-93m	S	8.86E+02	7.82E-04	1.47E-10	1.20E-10	2.15E-10	7.48E-17	1.37E-17	3.95E-17	6.33E-17	2.13E-15	1.09E-13	2.36E-16
Molybdenum (42)	Mo-99	S	9.21E+01	7.53E-03	7.73E-10	6.05E-10	1.14E-09	4.43E-18	9.06E-19	2.56E-18	3.95E-18	1.77E-16	6.92E-15	1.48E-17
Nitrogen (7)	N-13	-	3.66E+04	1.90E-05	0.00E+00	0.00E+00	0.00E+00	3.00E-17	6.23E-18	1.77E-17	2.72E-17	1.03E-15	4.57E-14	9.91E-17
Nitrogen (7)	N-16	-	3.07E+06	2.26E-07	0.00E+00	0.00E+00	0.00E+00	1.73E-16	2.28E-17	6.73E-17	1.19E-16	3.44E-15	2.59E-13	5.63E-16
Sodium (11)	Na-22	S	2.66E-01	2.60E+00	3.88E-09	3.17E-09	3.15E-08	6.90E-17	1.31E-17	3.76E-17	5.97E-17	2.05E-15	1.02E-13	2.20E-16
Sodium (11)	Na-24	S	4.06E+02	1.71E-03	5.46E-10	4.34E-10	5.83E-10	1.46E-16	2.31E-17	6.79E-17	1.14E-16	3.59E-15	2.08E-13	4.51E-16
Niobium (41)	Nb-87	-	9.71E+04	7.13E-06	0.00E+00	0.00E+00	0.00E+00	3.51E-17	7.67E-18	2.13E-17	3.22E-17	1.32E-15	5.54E-14	1.19E-16
Niobium (41)	Nb-88	S	2.51E+04	2.76E-05	9.43E-11	7.20E-11	3.67E-11	1.31E-16	2.55E-17	7.28E-17	1.14E-16	4.11E-15	1.94E-13	4.20E-16
Niobium (41)	Nb-88m	-	4.68E+04	1.48E-05	0.00E+00	0.00E+00	0.00E+00	1.29E-16	2.48E-17	7.09E-17	1.12E-16	3.99E-15	1.91E-13	4.13E-16
Niobium (41)	Nb-89	S	2.99E+03	2.32E-04	3.69E-10	2.67E-10	1.44E-10	4.38E-17	8.22E-18	2.34E-17	3.73E-17	1.37E-15	6.51E-14	1.40E-16
Niobium (41)	Nb-89m	S	5.52E+03	1.26E-04	1.80E-10	1.37E-10	8.39E-11	3.86E-17	8.02E-18	2.27E-17	3.50E-17	1.34E-15	5.88E-14	1.27E-16
Niobium (41)	Nb-90	S	4.16E+02	1.67E-03	1.62E-09	1.25E-09	7.95E-10	1.41E-16	2.42E-17	7.04E-17	1.15E-16	3.78E-15	2.05E-13	4.44E-16

Dose Conversion Factors July 2023														
Radionuclides		Isotope-specific Information and Dose Conversion Factors												
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Ingestion DCF (Sv/Bq)	Adult Ingestion DCF (Sv/Bq)	Inhalation DCF (Sv/Bq)	Exposure DCF (Infinite Volume) (Sv/s per Bq/g)	External Exposure DCF (1 cm) (Sv/s per Bq/g)	External Exposure DCF (5 cm) (Sv/s per Bq/g)	External Exposure DCF (15 cm) (Sv/s per Bq/g)	External Exposure DCF (Ground Plane) (Sv/s per Bq/cm <sup>2</sup> )	External Exposure DCF (Submersion) (Sv/s per Bq/m <sup>3</sup> )	External Exposure DCF (Immersion) (Sv/s per Bq/L)
Niobium (41)	Nb-91	S	1.02E-03	6.80E+02	6.22E-11	4.39E-11	1.97E-09	4.88E-20	1.14E-20	2.94E-20	4.44E-20	4.74E-18	8.45E-17	1.86E-19
Niobium (41)	Nb-91m	S	4.16E+00	1.67E-01	5.65E-10	4.10E-10	4.57E-09	8.09E-19	1.49E-19	4.26E-19	6.83E-19	2.62E-17	1.20E-15	2.59E-18
Niobium (41)	Nb-92	S	2.00E-08	3.47E+07	1.27E-09	1.02E-09	2.84E-08	4.62E-17	9.00E-18	2.58E-17	4.06E-17	1.42E-15	6.83E-14	1.48E-16
Niobium (41)	Nb-92m	S	2.49E+01	2.78E-02	6.26E-10	5.02E-10	5.19E-10	3.03E-17	5.73E-18	1.65E-17	2.62E-17	9.03E-16	4.44E-14	9.63E-17
Niobium (41)	Nb-93m	S	4.30E-02	1.61E+01	1.78E-10	1.29E-10	2.09E-09	3.91E-22	3.92E-22	3.91E-22	3.91E-22	6.83E-19	3.04E-18	7.13E-21
Niobium (41)	Nb-94	S	3.41E-05	2.03E+04	2.23E-09	1.73E-09	5.11E-08	4.83E-17	9.38E-18	2.69E-17	4.24E-17	1.48E-15	7.13E-14	1.55E-16
Niobium (41)	Nb-94m	-	5.82E+04	1.19E-05	0.00E+00	0.00E+00	0.00E+00	1.39E-19	2.80E-20	7.73E-20	1.21E-19	6.97E-18	2.15E-16	4.67E-19
Niobium (41)	Nb-95	S	7.23E+00	9.59E-02	7.50E-10	5.87E-10	1.93E-09	2.36E-17	4.61E-18	1.32E-17	2.08E-17	7.26E-16	3.49E-14	7.56E-17
Niobium (41)	Nb-95m	S	7.01E+01	9.89E-03	8.34E-10	6.08E-10	1.00E-09	1.62E-18	3.75E-19	1.06E-18	1.55E-18	6.25E-17	2.83E-15	6.10E-18
Niobium (41)	Nb-96	S	2.60E+02	2.67E-03	1.42E-09	1.10E-09	7.86E-10	7.67E-17	1.48E-17	4.24E-17	6.69E-17	2.33E-15	1.13E-13	2.45E-16
Niobium (41)	Nb-97	S	5.05E+03	1.37E-04	9.18E-11	6.90E-11	5.33E-11	2.03E-17	4.05E-18	1.16E-17	1.80E-17	6.82E-16	3.04E-14	6.56E-17
Niobium (41)	Nb-98m	S	7.10E+03	9.76E-05	1.42E-10	1.09E-10	7.06E-11	9.01E-17	1.68E-17	4.84E-17	7.72E-17	2.71E-15	1.32E-13	2.86E-16
Niobium (41)	Nb-99	-	1.46E+06	4.76E-07	0.00E+00	0.00E+00	0.00E+00	3.88E-18	1.22E-18	2.90E-18	3.82E-18	3.08E-16	8.32E-15	1.72E-17
Niobium (41)	Nb-99m	-	1.40E+05	4.95E-06	0.00E+00	0.00E+00	0.00E+00	2.63E-17	4.57E-18	1.29E-17	2.12E-17	8.03E-16	3.86E-14	8.26E-17
Neodymium (60)	Nd-134	-	4.29E+04	1.62E-05	0.00E+00	0.00E+00	0.00E+00	1.43E-17	3.16E-18	8.80E-18	1.32E-17	5.25E-16	2.32E-14	5.06E-17
Neodymium (60)	Nd-135	S	2.94E+04	2.36E-05	7.77E-11	5.86E-11	3.18E-11	3.62E-17	7.67E-18	2.15E-17	3.28E-17	1.30E-15	5.63E-14	1.22E-16
Neodymium (60)	Nd-136	S	7.19E+03	9.64E-05	1.30E-10	9.95E-11	6.38E-11	6.61E-18	1.50E-18	4.03E-18	6.01E-18	2.59E-16	1.10E-14	2.41E-17
Neodymium (60)	Nd-137	S	9.46E+03	7.32E-05	7.03E-11	5.36E-11	3.39E-11	3.54E-17	6.94E-18	1.97E-17	3.09E-17	1.13E-15	5.33E-14	1.16E-16
Neodymium (60)	Nd-138	S	1.20E+03	5.75E-04	8.71E-10	6.40E-10	3.03E-10	4.78E-19	1.57E-19	3.37E-19	4.55E-19	3.80E-17	1.08E-15	2.44E-18
Neodymium (60)	Nd-139	S	1.23E+04	5.65E-05	2.73E-11	2.07E-11	1.31E-11	1.28E-17	2.62E-18	7.36E-18	1.14E-17	4.43E-16	1.95E-14	4.22E-17
Neodymium (60)	Nd-139m	S	1.10E+03	6.28E-04	3.10E-10	2.42E-10	1.81E-10	4.82E-17	9.31E-18	2.66E-17	4.19E-17	1.48E-15	7.19E-14	1.56E-16
Neodymium (60)	Nd-140	S	7.51E+01	9.23E-03	2.71E-09	1.99E-09	1.33E-09	8.98E-20	6.93E-20	8.95E-20	8.98E-20	2.39E-17	4.44E-16	1.04E-18
Neodymium (60)	Nd-141	S	2.44E+03	2.84E-04	1.13E-11	8.61E-12	6.38E-12	1.56E-18	3.56E-19	9.13E-19	1.38E-18	6.94E-17	2.64E-15	5.79E-18
Neodymium (60)	Nd-141m	-	3.52E+05	1.97E-06	0.00E+00	0.00E+00	0.00E+00	2.14E-17	4.19E-18	1.20E-17	1.88E-17	6.68E-16	3.16E-14	6.85E-17
Neodymium (60)	Nd-144	F	3.03E-16	2.29E+15	5.28E-08	4.08E-08	2.01E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Neodymium (60)	Nd-147	S	2.30E+01	3.01E-02	1.48E-09	1.08E-09	2.67E-09	3.31E-18	7.77E-19	2.08E-18	3.05E-18	1.40E-16	5.74E-15	1.25E-17
Neodymium (60)	Nd-149	S	3.51E+03	1.97E-04	1.69E-10	1.25E-10	1.06E-10	9.78E-18	2.20E-18	6.13E-18	9.10E-18	3.94E-16	1.63E-14	3.53E-17
Neodymium (60)	Nd-151	S	2.93E+04	2.37E-05	3.82E-11	2.86E-11	2.05E-11	2.57E-17	5.08E-18	1.44E-17	2.25E-17	8.56E-16	3.93E-14	8.49E-17
Neodymium (60)	Nd-152	S	3.20E+04	2.17E-05	6.50E-11	4.83E-11	2.80E-11	4.36E-18	9.81E-19	2.77E-18	4.11E-18	1.75E-16	7.29E-15	1.57E-17
Neon (10)	Ne-19	-	1.27E+06	5.46E-07	0.00E+00	0.00E+00	0.00E+00	3.02E-17	6.33E-18	1.79E-17	2.74E-17	1.09E-15	4.63E-14	9.98E-17
Neon (10)	Ne-24	-	1.08E+05	6.43E-06	0.00E+00	0.00E+00	0.00E+00	1.61E-17	3.38E-18	9.50E-18	1.46E-17	6.15E-16	2.48E-14	5.33E-17
Nickel (28)	Ni-56	V	4.16E+01	1.66E-02	1.08E-09	8.71E-10	1.46E-09	5.19E-17	1.03E-17	2.94E-17	4.58E-17	1.61E-15	7.82E-14	1.70E-16
Nickel (28)	Ni-57	S	1.71E+02	4.06E-03	1.17E-09	9.13E-10	6.57E-10	6.31E-17	1.14E-17	3.29E-17	5.30E-17	1.78E-15	9.19E-14	1.99E-16
Nickel (28)	Ni-59	V	6.86E-06	1.01E+05	7.96E-11	6.23E-11	9.13E-10	4.57E-22	9.44E-23	2.69E-22	4.14E-22	1.48E-20	6.92E-19	1.50E-21
Nickel (28)	Ni-63	V	6.92E-03	1.00E+02	1.98E-10	1.55E-10	2.23E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nickel (28)	Ni-65	V	2.41E+03	2.87E-04	2.46E-10	1.82E-10	4.05E-10	1.86E-17	3.34E-18	9.58E-18	1.55E-17	5.77E-16	2.72E-14	5.83E-17
Nickel (28)	Ni-66	S	1.11E+02	6.23E-03	4.15E-09	3.03E-09	2.14E-09	2.55E-22	1.20E-22	2.24E-22	2.54E-22	3.45E-20	1.36E-17	1.48E-20
Neptunium (93)	Np-232	S	2.48E+04	2.80E-05	1.24E-11	9.86E-12	2.74E-11	3.50E-17	7.07E-18	2.01E-17	3.11E-17	1.12E-15	5.35E-14	1.16E-16
Neptunium (93)	Np-233	S	1.01E+04	6.89E-05	2.94E-12	2.27E-12	2.27E-12	1.57E-18	4.67E-19	1.19E-18	1.55E-18	7.72E-17	3.38E-15	7.52E-18
Neptunium (93)	Np-234	S	5.75E+01	1.21E-02	8.26E-10	6.46E-10	5.33E-10	3.57E-17	6.39E-18	1.84E-17	2.97E-17	9.99E-16	5.23E-14	1.13E-16
Neptunium (93)	Np-235	S	6.39E-01	1.09E+00	7.96E-11	5.66E-11	6.29E-10	1.01E-20	3.88E-21	8.21E-21	1.01E-20	2.16E-18	2.84E-17	6.43E-20
Neptunium (93)	Np-236	F	4.50E-06	1.54E+05	2.70E-08	2.48E-08	1.14E-05	2.68E-18	7.64E-19	2.00E-18	2.65E-18	1.28E-16	5.57E-15	1.23E-17
Neptunium (93)	Np-236m	S	2.70E+02	2.57E-03	2.67E-10	1.96E-10	4.62E-09	9.04E-19	2.58E-19	6.63E-19	8.78E-19	4.32E-17	1.90E-15	4.18E-18
Neptunium (93)	Np-237	S	3.23E-07	2.14E+06	1.25E-07	1.07E-07	1.26E-05	3.59E-19	1.20E-19	2.86E-19	3.58E-19	2.44E-17	8.60E-16	1.93E-18
Neptunium (93)	Np-238	S	1.19E+02	5.80E-03	1.20E-09	8.94E-10	1.66E-09	1.85E-17	3.48E-18	1.00E-17	1.59E-17	5.63E-16	2.72E-14	5.88E-17
Neptunium (93)	Np-239	S	1.07E+02	6.46E-03	1.11E-09	8.14E-10	1.17E-09	3.88E-18	1.00E-18	2.71E-18	3.76E-18	1.62E-16	7.35E-15	1.62E-17
Neptunium (93)	Np-240	S	5.88E+03	1.18E-04	9.59E-11	7.25E-11	8.47E-11	3.13E-17	6.22E-18	1.77E-17	2.76E-17	1.00E-15	4.73E-14	1.03E-16



Dose Conversion Factors July 2023														
Radionuclides		Isotope-specific Information and Dose Conversion Factors												
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Ingestion DCF (Sv/Bq)	Adult Ingestion DCF (Sv/Bq)	Inhalation DCF (Sv/Bq)	Exposure DCF (Infinite Volume) (Sv/s per Bq/g)	External Exposure DCF (1 cm) (Sv/s per Bq/g)	External Exposure DCF (5 cm) (Sv/s per Bq/g)	External Exposure DCF (15 cm) (Sv/s per Bq/g)	External Exposure DCF (Ground Plane) (Sv/s per Bq/cm <sup>2</sup> )	External Exposure DCF (Submersion) (Sv/s per Bq/m <sup>3</sup> )	External Exposure DCF (Immersion) (Sv/s per Bq/L)
Neptunium (93)	Np-240m	-	5.04E+04	1.37E-05	0.00E+00	0.00E+00	0.00E+00	9.82E-18	1.97E-18	5.55E-18	8.66E-18	3.75E-16	1.49E-14	3.20E-17
Neptunium (93)	Np-241	S	2.62E+04	2.64E-05	2.09E-11	1.56E-11	1.41E-11	7.96E-19	2.28E-19	5.76E-19	7.74E-19	7.28E-17	1.79E-15	3.67E-18
Neptunium (93)	Np-242	-	1.66E+05	4.19E-06	0.00E+00	0.00E+00	0.00E+00	8.90E-18	1.68E-18	4.67E-18	7.48E-18	3.44E-16	1.33E-14	2.82E-17
Neptunium (93)	Np-242m	-	6.62E+04	1.05E-05	0.00E+00	0.00E+00	0.00E+00	2.76E-17	5.45E-18	1.55E-17	2.43E-17	9.19E-16	4.16E-14	8.99E-17
Oxygen (8)	O-14	-	3.10E+05	2.24E-06	0.00E+00	0.00E+00	0.00E+00	1.12E-16	1.91E-17	5.56E-17	9.11E-17	3.03E-15	1.63E-13	3.52E-16
Oxygen (8)	O-15	-	1.79E+05	3.88E-06	0.00E+00	0.00E+00	0.00E+00	3.01E-17	6.28E-18	1.78E-17	2.73E-17	1.07E-15	4.60E-14	9.95E-17
Oxygen (8)	O-19	-	8.26E+05	8.39E-07	0.00E+00	0.00E+00	0.00E+00	3.04E-17	5.87E-18	1.64E-17	2.59E-17	1.03E-15	4.60E-14	9.83E-17
Osmium (76)	Os-180	S	1.69E+04	4.09E-05	2.39E-11	1.86E-11	1.77E-11	2.48E-18	6.47E-19	1.63E-18	2.30E-18	1.12E-16	4.67E-15	1.03E-17
Osmium (76)	Os-181	S	3.47E+03	2.00E-04	1.18E-10	9.21E-11	7.54E-11	4.17E-17	8.06E-18	2.29E-17	3.60E-17	1.27E-15	6.31E-14	1.37E-16
Osmium (76)	Os-182	S	2.75E+02	2.52E-03	7.50E-10	5.80E-10	4.69E-10	1.10E-17	2.50E-18	6.88E-18	1.02E-17	4.02E-16	1.82E-14	3.98E-17
Osmium (76)	Os-183	S	4.67E+02	1.48E-03	2.95E-10	2.27E-10	2.20E-10	1.61E-17	3.62E-18	9.93E-18	1.47E-17	5.83E-16	2.66E-14	5.83E-17
Osmium (76)	Os-183m	S	6.13E+02	1.13E-03	2.64E-10	2.08E-10	1.74E-10	3.12E-17	5.89E-18	1.68E-17	2.67E-17	9.31E-16	4.63E-14	1.00E-16
Osmium (76)	Os-185	S	2.70E+00	2.56E-01	6.35E-10	5.03E-10	1.73E-09	2.01E-17	4.10E-18	1.16E-17	1.79E-17	6.54E-16	3.06E-14	6.65E-17
Osmium (76)	Os-186	S	3.47E-16	2.00E+15	4.29E-08	3.20E-08	4.51E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Osmium (76)	Os-189m	S	1.05E+03	6.62E-04	2.36E-11	1.71E-11	6.42E-12	7.82E-24	7.80E-24	7.82E-24	7.82E-24	4.03E-20	1.03E-19	2.38E-22
Osmium (76)	Os-190m	-	3.68E+04	1.88E-05	0.00E+00	0.00E+00	0.00E+00	4.56E-17	9.58E-18	2.72E-17	4.16E-17	1.51E-15	7.04E-14	1.53E-16
Osmium (76)	Os-191	S	1.64E+01	4.22E-02	7.94E-10	5.82E-10	2.21E-09	1.23E-18	4.14E-19	9.84E-19	1.22E-18	7.11E-17	2.95E-15	6.62E-18
Osmium (76)	Os-191m	S	4.63E+02	1.50E-03	1.36E-10	9.87E-11	1.84E-10	5.87E-20	2.63E-20	5.33E-20	5.87E-20	5.04E-18	1.82E-16	4.15E-19
Osmium (76)	Os-193	S	2.02E+02	3.44E-03	1.14E-09	8.26E-10	6.32E-10	1.68E-18	3.99E-19	1.07E-18	1.56E-18	9.02E-17	3.03E-15	6.41E-18
Osmium (76)	Os-194	S	1.16E-01	6.00E+00	3.40E-09	2.48E-09	9.09E-08	1.18E-20	7.79E-21	1.16E-20	1.18E-20	2.21E-18	5.09E-17	1.18E-19
Osmium (76)	Os-196	S	1.04E+04	6.64E-05	1.48E-10	1.10E-10	6.64E-11	2.05E-18	4.82E-19	1.31E-18	1.91E-18	1.05E-16	3.64E-15	7.73E-18
Phosphorus (15)	P-30	-	1.46E+05	4.75E-06	0.00E+00	0.00E+00	0.00E+00	3.05E-17	6.47E-18	1.81E-17	2.77E-17	1.13E-15	4.69E-14	1.01E-16
Phosphorus (15)	P-32	S	1.77E+01	3.91E-02	3.39E-09	2.40E-09	4.38E-09	1.09E-19	6.64E-20	9.05E-20	1.06E-19	8.52E-17	5.36E-16	6.45E-19
Phosphorus (15)	P-33	S	9.98E+00	6.94E-02	3.37E-10	2.45E-10	1.96E-09	2.69E-22	1.27E-22	2.36E-22	2.68E-22	3.64E-20	1.44E-17	1.57E-20
Protactinium (91)	Pa-227	S	9.51E+03	7.29E-05	6.17E-10	4.55E-10	8.57E-08	2.92E-19	1.01E-19	2.38E-19	2.92E-19	1.80E-17	7.18E-16	1.61E-18
Protactinium (91)	Pa-228	S	2.76E+02	2.51E-03	1.08E-09	7.97E-10	7.78E-08	4.13E-17	8.01E-18	2.29E-17	3.59E-17	1.26E-15	6.21E-14	1.35E-16
Protactinium (91)	Pa-229	S	1.69E+02	4.11E-03	1.13E-10	8.32E-11	7.78E-09	1.00E-18	3.24E-19	8.02E-19	1.00E-18	5.46E-17	2.33E-15	5.22E-18
Protactinium (91)	Pa-230	S	1.45E+01	4.77E-02	1.21E-09	8.30E-10	7.34E-07	1.97E-17	3.93E-18	1.11E-17	1.73E-17	6.22E-16	2.99E-14	6.50E-17
Protactinium (91)	Pa-231	F	2.12E-05	3.28E+04	5.59E-07	4.79E-07	2.37E-04	8.61E-19	2.00E-19	5.53E-19	8.13E-19	3.47E-17	1.45E-15	3.18E-18
Protactinium (91)	Pa-232	S	1.93E+02	3.59E-03	8.87E-10	6.73E-10	2.60E-09	2.87E-17	5.58E-18	1.60E-17	2.51E-17	8.80E-16	4.26E-14	9.25E-17
Protactinium (91)	Pa-233	S	9.38E+00	7.39E-02	1.32E-09	9.66E-10	4.56E-09	5.45E-18	1.27E-18	3.53E-18	5.16E-18	2.02E-16	9.27E-15	2.03E-17
Protactinium (91)	Pa-234	S	9.06E+02	7.65E-04	5.56E-10	4.19E-10	3.98E-10	4.43E-17	8.67E-18	2.48E-17	3.88E-17	1.38E-15	6.67E-14	1.45E-16
Protactinium (91)	Pa-234m	-	3.11E+05	2.23E-06	0.00E+00	0.00E+00	0.00E+00	6.73E-19	1.94E-19	4.10E-19	5.96E-19	1.12E-16	1.42E-15	2.45E-18
Protactinium (91)	Pa-235	S	1.49E+04	4.66E-05	3.57E-11	2.64E-11	1.98E-11	4.98E-20	2.98E-20	4.15E-20	4.87E-20	5.05E-17	3.35E-16	3.93E-19
Protactinium (91)	Pa-236	-	4.00E+04	1.73E-05	0.00E+00	0.00E+00	0.00E+00	2.96E-17	5.43E-18	1.56E-17	2.50E-17	9.20E-16	4.36E-14	9.38E-17
Protactinium (91)	Pa-237	-	4.19E+04	1.66E-05	0.00E+00	0.00E+00	0.00E+00	1.88E-17	3.71E-18	1.06E-17	1.66E-17	6.40E-16	2.82E-14	6.07E-17
Lead (82)	Pb-194	S	3.04E+04	2.28E-05	2.66E-11	2.04E-11	1.57E-11	3.26E-17	6.31E-18	1.79E-17	2.81E-17	9.95E-16	4.94E-14	1.07E-16
Lead (82)	Pb-195m	S	2.43E+04	2.85E-05	3.20E-11	2.49E-11	2.73E-11	4.84E-17	9.88E-18	2.80E-17	4.33E-17	1.57E-15	7.40E-14	1.61E-16
Lead (82)	Pb-196	S	9.84E+03	7.04E-05	3.45E-11	2.72E-11	2.99E-11	1.27E-17	2.87E-18	7.91E-18	1.17E-17	4.58E-16	2.10E-14	4.60E-17
Lead (82)	Pb-197	-	4.55E+04	1.52E-05	0.00E+00	0.00E+00	0.00E+00	4.81E-17	8.95E-18	2.57E-17	4.08E-17	1.40E-15	7.14E-14	1.55E-16
Lead (82)	Pb-197m	S	8.47E+03	8.18E-05	5.73E-11	4.47E-11	5.54E-11	3.37E-17	6.95E-18	1.97E-17	3.02E-17	1.10E-15	5.22E-14	1.14E-16
Lead (82)	Pb-198	S	2.53E+03	2.74E-04	9.71E-11	7.92E-11	7.66E-11	1.10E-17	2.54E-18	6.99E-18	1.03E-17	4.05E-16	1.86E-14	4.07E-17
Lead (82)	Pb-199	S	4.05E+03	1.71E-04	4.89E-11	3.95E-11	3.62E-11	3.19E-17	6.06E-18	1.73E-17	2.73E-17	9.54E-16	4.79E-14	1.04E-16
Lead (82)	Pb-200	S	2.82E+02	2.45E-03	4.76E-10	3.87E-10	4.05E-10	4.08E-18	1.13E-18	2.92E-18	3.95E-18	1.85E-16	8.16E-15	1.81E-17
Lead (82)	Pb-201	S	6.51E+02	1.07E-03	1.97E-10	1.63E-10	1.42E-10	2.13E-17	4.46E-18	1.25E-17	1.91E-17	7.05E-16	3.34E-14	7.28E-17
Lead (82)	Pb-201m	-	3.58E+05	1.93E-06	0.00E+00	0.00E+00	0.00E+00	1.06E-17	2.19E-18	6.18E-18	9.52E-18	3.79E-16	1.63E-14	3.54E-17
Lead (82)	Pb-202	S	1.32E-05	5.25E+04	2.09E-08	1.56E-08	5.29E-08	3.81E-23	3.81E-23	3.81E-23	3.81E-23	1.88E-19	4.85E-19	1.12E-21

Dose Conversion Factors July 2023														
Radionuclides		Isotope-specific Information and Dose Conversion Factors												
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Ingestion DCF (Sv/Bq)	Adult Ingestion DCF (Sv/Bq)	Inhalation DCF (Sv/Bq)	Exposure DCF (Infinite Volume) (Sv/s per Bq/g)	External Exposure DCF (1 cm) (Sv/s per Bq/g)	External Exposure DCF (5 cm) (Sv/s per Bq/g)	External Exposure DCF (15 cm) (Sv/s per Bq/g)	External Exposure DCF (Ground Plane) (Sv/s per Bq/cm <sup>2</sup> )	External Exposure DCF (Submersion) (Sv/s per Bq/m <sup>3</sup> )	External Exposure DCF (Immersion) (Sv/s per Bq/L)
Lead (82)	Pb-202m	S	1.72E+03	4.03E-04	1.80E-10	1.48E-10	1.24E-10	6.08E-17	1.20E-17	3.43E-17	5.36E-17	1.89E-15	9.06E-14	1.97E-16
Lead (82)	Pb-203	S	1.17E+02	5.92E-03	3.07E-10	2.50E-10	2.58E-10	7.45E-18	1.80E-18	4.92E-18	7.07E-18	2.87E-16	1.31E-14	2.88E-17
Lead (82)	Pb-204m	S	5.42E+03	1.28E-04	6.01E-11	4.87E-11	3.54E-11	6.37E-17	1.24E-17	3.55E-17	5.58E-17	1.96E-15	9.45E-14	2.05E-16
Lead (82)	Pb-205	S	4.53E-08	1.53E+07	3.52E-10	2.71E-10	8.88E-10	3.86E-23	3.86E-23	3.86E-23	3.86E-23	1.90E-19	4.92E-19	1.14E-21
Lead (82)	Pb-209	S	1.87E+03	3.71E-04	7.47E-11	5.67E-11	6.98E-11	4.03E-21	1.58E-21	3.19E-21	3.97E-21	3.19E-18	1.00E-16	1.12E-19
Lead (82)	Pb-210	S	3.12E-02	2.22E+01	1.02E-06	6.96E-07	6.03E-06	1.12E-20	7.12E-21	1.10E-20	1.12E-20	2.17E-18	4.71E-17	1.09E-19
Lead (82)	Pb-211	S	1.01E+04	6.87E-05	2.62E-10	1.78E-10	1.36E-08	1.97E-18	4.15E-19	1.14E-18	1.76E-18	1.08E-16	3.22E-15	6.68E-18
Lead (82)	Pb-212	S	5.71E+02	1.21E-03	1.03E-08	6.00E-09	1.05E-07	3.38E-18	8.32E-19	2.28E-18	3.24E-18	1.32E-16	6.11E-15	1.34E-17
Lead (82)	Pb-214	S	1.36E+04	5.10E-05	1.99E-10	1.39E-10	1.26E-08	6.73E-18	1.50E-18	4.23E-18	6.29E-18	2.43E-16	1.11E-14	2.41E-17
Palladium (46)	Pd-100	S	6.97E+01	9.95E-03	1.18E-09	9.19E-10	9.38E-10	1.41E-18	5.11E-19	1.17E-18	1.41E-18	9.98E-17	3.64E-15	8.19E-18
Palladium (46)	Pd-101	S	7.17E+02	9.67E-04	1.22E-10	9.35E-11	7.37E-11	9.73E-18	1.97E-18	5.61E-18	8.69E-18	3.21E-16	1.48E-14	3.22E-17
Palladium (46)	Pd-103	S	1.49E+01	4.66E-02	2.63E-10	1.90E-10	5.00E-10	1.00E-20	7.60E-21	8.84E-21	9.78E-21	7.66E-18	5.29E-17	1.24E-19
Palladium (46)	Pd-107	S	1.07E-07	6.50E+06	5.29E-11	3.84E-11	6.59E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Palladium (46)	Pd-109	S	4.43E+02	1.56E-03	7.69E-10	5.58E-10	4.40E-10	9.64E-20	3.86E-20	7.58E-20	9.42E-20	3.72E-17	4.20E-16	6.88E-19
Palladium (46)	Pd-109m	-	7.77E+04	8.92E-06	0.00E+00	0.00E+00	0.00E+00	2.56E-18	6.24E-19	1.74E-18	2.48E-18	1.00E-16	4.59E-15	1.01E-17
Palladium (46)	Pd-111	S	1.56E+04	4.45E-05	6.75E-11	5.00E-11	3.14E-11	1.66E-18	3.86E-19	9.54E-19	1.45E-18	1.46E-16	2.89E-15	5.62E-18
Palladium (46)	Pd-112	S	2.89E+02	2.40E-03	3.54E-09	2.58E-09	1.32E-09	1.82E-21	1.67E-21	1.78E-21	1.82E-21	2.22E-18	2.68E-17	4.33E-20
Palladium (46)	Pd-114	-	1.51E+05	4.60E-06	0.00E+00	0.00E+00	0.00E+00	7.00E-19	1.89E-19	4.76E-19	6.72E-19	8.36E-17	1.49E-15	2.89E-18
Palladium (46)	Pd-96	-	1.79E+05	3.87E-06	0.00E+00	0.00E+00	0.00E+00	4.32E-17	8.59E-18	2.45E-17	3.82E-17	1.38E-15	6.51E-14	1.41E-16
Palladium (46)	Pd-97	-	1.17E+05	5.90E-06	0.00E+00	0.00E+00	0.00E+00	7.60E-17	1.41E-17	4.06E-17	6.46E-17	2.26E-15	1.12E-13	2.43E-16
Palladium (46)	Pd-98	S	2.06E+04	3.37E-05	8.25E-11	6.23E-11	3.35E-11	1.11E-17	2.36E-18	6.60E-18	9.96E-18	3.82E-16	1.76E-14	3.85E-17
Palladium (46)	Pd-99	S	1.70E+04	4.07E-05	4.59E-11	3.52E-11	2.28E-11	3.88E-17	7.62E-18	2.17E-17	3.39E-17	1.24E-15	5.88E-14	1.28E-16
Promethium (61)	Pm-136	-	2.04E+05	3.39E-06	0.00E+00	0.00E+00	0.00E+00	8.24E-17	1.69E-17	4.77E-17	7.38E-17	2.77E-15	1.25E-13	2.69E-16
Promethium (61)	Pm-137m	-	1.52E+05	4.57E-06	0.00E+00	0.00E+00	0.00E+00	5.18E-17	1.08E-17	3.04E-17	4.66E-17	1.79E-15	8.01E-14	1.74E-16
Promethium (61)	Pm-139	-	8.78E+04	7.90E-06	0.00E+00	0.00E+00	0.00E+00	2.81E-17	5.83E-18	1.63E-17	2.52E-17	9.99E-16	4.29E-14	9.24E-17
Promethium (61)	Pm-140	-	2.38E+06	2.92E-07	0.00E+00	0.00E+00	0.00E+00	3.22E-17	6.82E-18	1.89E-17	2.90E-17	1.18E-15	4.93E-14	1.05E-16
Promethium (61)	Pm-140m	-	6.12E+04	1.13E-05	0.00E+00	0.00E+00	0.00E+00	9.32E-17	1.84E-17	5.24E-17	8.20E-17	2.97E-15	1.39E-13	3.01E-16
Promethium (61)	Pm-141	S	1.74E+04	3.98E-05	4.66E-11	3.51E-11	1.73E-11	2.21E-17	4.46E-18	1.26E-17	1.96E-17	7.60E-16	3.35E-14	7.24E-17
Promethium (61)	Pm-142	-	5.40E+05	1.28E-06	0.00E+00	0.00E+00	0.00E+00	2.58E-17	5.42E-18	1.51E-17	2.32E-17	9.46E-16	3.95E-14	8.48E-17
Promethium (61)	Pm-143	F	9.55E-01	7.26E-01	3.00E-10	2.35E-10	3.27E-09	8.90E-18	1.80E-18	5.04E-18	7.86E-18	2.97E-16	1.35E-14	2.93E-17
Promethium (61)	Pm-144	F	6.97E-01	9.95E-01	1.24E-09	9.86E-10	1.91E-08	4.64E-17	9.36E-18	2.67E-17	4.14E-17	1.49E-15	6.95E-14	1.51E-16
Promethium (61)	Pm-145	F	3.92E-02	1.77E+01	1.48E-10	1.11E-10	8.62E-09	1.22E-19	8.47E-20	1.20E-19	1.22E-19	2.64E-17	5.50E-16	1.28E-18
Promethium (61)	Pm-146	F	1.25E-01	5.53E+00	1.18E-09	8.96E-10	4.78E-08	2.20E-17	4.48E-18	1.27E-17	1.97E-17	7.17E-16	3.33E-14	7.23E-17
Promethium (61)	Pm-147	S	2.64E-01	2.62E+00	3.63E-10	2.61E-10	5.31E-09	2.31E-22	1.01E-22	1.97E-22	2.30E-22	2.81E-20	8.66E-18	9.64E-21
Promethium (61)	Pm-148	S	4.71E+01	1.47E-02	3.68E-09	2.69E-09	2.51E-09	1.87E-17	3.48E-18	9.93E-18	1.59E-17	6.11E-16	2.76E-14	5.93E-17
Promethium (61)	Pm-148m	S	6.13E+00	1.13E-01	2.28E-09	1.76E-09	6.29E-09	6.01E-17	1.20E-17	3.44E-17	5.35E-17	1.90E-15	8.99E-14	1.95E-16
Promethium (61)	Pm-149	S	1.14E+02	6.06E-03	1.37E-09	9.93E-10	8.38E-10	3.53E-19	8.46E-20	2.23E-19	3.29E-19	4.14E-17	7.60E-16	1.41E-18
Promethium (61)	Pm-150	S	2.27E+03	3.06E-04	3.49E-10	2.61E-10	1.56E-10	4.72E-17	8.78E-18	2.52E-17	4.02E-17	1.44E-15	6.97E-14	1.50E-16
Promethium (61)	Pm-151	S	2.14E+02	3.24E-03	9.97E-10	7.34E-10	5.55E-10	8.85E-18	1.94E-18	5.44E-18	8.16E-18	3.25E-16	1.44E-14	3.12E-17
Promethium (61)	Pm-152	-	8.84E+04	7.84E-06	0.00E+00	0.00E+00	0.00E+00	9.30E-18	1.91E-18	5.13E-18	8.00E-18	4.04E-16	1.45E-14	3.04E-17
Promethium (61)	Pm-152m	-	4.84E+04	1.43E-05	0.00E+00	0.00E+00	0.00E+00	4.68E-17	9.04E-18	2.58E-17	4.05E-17	1.50E-15	7.07E-14	1.53E-16
Promethium (61)	Pm-153	-	6.94E+04	9.99E-06	0.00E+00	0.00E+00	0.00E+00	1.56E-18	4.63E-19	1.12E-18	1.51E-18	1.48E-16	3.40E-15	7.02E-18
Promethium (61)	Pm-154	-	2.11E+05	3.29E-06	0.00E+00	0.00E+00	0.00E+00	6.02E-17	1.04E-17	3.02E-17	4.93E-17	1.70E-15	8.73E-14	1.88E-16
Promethium (61)	Pm-154m	-	1.36E+05	5.10E-06	0.00E+00	0.00E+00	0.00E+00	5.73E-17	1.06E-17	3.04E-17	4.85E-17	1.75E-15	8.50E-14	1.84E-16
Polonium (84)	Po-203	S	9.92E+03	6.98E-05	5.92E-11	4.73E-11	5.42E-11	5.07E-17	9.61E-18	2.75E-17	4.35E-17	1.52E-15	7.55E-14	1.64E-16
Polonium (84)	Po-204	S	1.72E+03	4.03E-04	3.04E-10	2.41E-10	4.61E-10	3.32E-17	6.80E-18	1.91E-17	2.94E-17	1.08E-15	5.16E-14	1.12E-16
Polonium (84)	Po-205	S	3.66E+03	1.89E-04	6.82E-11	5.52E-11	5.41E-11	4.92E-17	9.33E-18	2.67E-17	4.22E-17	1.47E-15	7.31E-14	1.59E-16

Dose Conversion Factors July 2023														
Radionuclides		Isotope-specific Information and Dose Conversion Factors												
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Ingestion DCF (Sv/Bq)	Adult Ingestion DCF (Sv/Bq)	Inhalation DCF (Sv/Bq)	Exposure DCF (Infinite Volume) (Sv/s per Bq/g)	External Exposure DCF (1 cm) (Sv/s per Bq/g)	External Exposure DCF (5 cm) (Sv/s per Bq/g)	External Exposure DCF (15 cm) (Sv/s per Bq/g)	External Exposure DCF (Ground Plane) (Sv/s per Bq/cm <sup>2</sup> )	External Exposure DCF (Submersion) (Sv/s per Bq/m <sup>3</sup> )	External Exposure DCF (Immersion) (Sv/s per Bq/L)
Polonium (84)	Po-206	S	2.87E+01	2.41E-02	2.39E-08	1.67E-08	7.09E-08	3.49E-17	7.04E-18	2.00E-17	3.09E-17	1.11E-15	5.33E-14	1.16E-16
Polonium (84)	Po-207	S	1.05E+03	6.62E-04	1.37E-10	1.11E-10	1.11E-10	3.92E-17	7.59E-18	2.16E-17	3.40E-17	1.20E-15	5.86E-14	1.27E-16
Polonium (84)	Po-208	S	2.39E-01	2.90E+00	2.19E-06	1.52E-06	7.42E-06	6.00E-22	1.26E-22	3.55E-22	5.41E-22	2.00E-20	9.36E-19	2.04E-21
Polonium (84)	Po-209	S	6.79E-03	1.02E+02	2.18E-06	1.51E-06	1.02E-05	1.78E-19	3.65E-20	1.03E-19	1.58E-19	5.77E-18	2.76E-16	6.01E-19
Polonium (84)	Po-210	S	1.83E+00	3.79E-01	1.75E-06	1.21E-06	4.68E-06	3.02E-22	5.86E-23	1.68E-22	2.64E-22	9.22E-21	4.45E-19	9.65E-22
Polonium (84)	Po-211	-	4.24E+07	1.64E-08	0.00E+00	0.00E+00	0.00E+00	2.52E-19	4.92E-20	1.41E-19	2.21E-19	7.76E-18	3.73E-16	8.08E-19
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	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	0.00E+00	0.00E+00	0.00E+00	2.79E-18	4.43E-19	1.30E-18	2.18E-18	6.76E-17	3.99E-15	8.65E-18
Polonium (84)	Po-213	-	5.20E+12	1.33E-13	0.00E+00	0.00E+00	0.00E+00	1.16E-21	2.26E-22	6.47E-22	1.02E-21	3.57E-20	1.71E-18	3.71E-21
Polonium (84)	Po-214	-	1.33E+11	5.21E-12	0.00E+00	0.00E+00	0.00E+00	2.57E-21	5.00E-22	1.43E-21	2.26E-21	7.87E-20	3.80E-18	8.23E-21
Polonium (84)	Po-215	-	1.23E+10	5.65E-11	0.00E+00	0.00E+00	0.00E+00	5.06E-21	1.07E-21	3.05E-21	4.64E-21	1.68E-19	7.80E-18	1.70E-20
Polonium (84)	Po-216	-	1.51E+08	4.60E-09	0.00E+00	0.00E+00	0.00E+00	4.75E-22	9.21E-23	2.64E-22	4.16E-22	1.45E-20	7.00E-19	1.52E-21
Polonium (84)	Po-218	-	1.17E+05	5.90E-06	0.00E+00	0.00E+00	2.06E-09	4.94E-26	2.32E-26	4.34E-26	4.94E-26	6.65E-24	2.62E-21	2.86E-24
Praseodymium (59)	Pr-134	S	3.31E+04	2.09E-05	6.46E-11	4.91E-11	2.52E-11	9.57E-17	1.91E-17	5.43E-17	8.47E-17	3.08E-15	1.44E-13	3.12E-16
Praseodymium (59)	Pr-134m	S	2.14E+04	3.23E-05	1.12E-10	8.45E-11	3.83E-11	7.27E-17	1.40E-17	3.99E-17	6.29E-17	2.29E-15	1.08E-13	2.34E-16
Praseodymium (59)	Pr-135	S	1.52E+04	4.57E-05	5.73E-11	4.35E-11	2.45E-11	2.52E-17	5.24E-18	1.47E-17	2.26E-17	8.87E-16	3.89E-14	8.42E-17
Praseodymium (59)	Pr-136	S	2.78E+04	2.49E-05	4.47E-11	3.41E-11	1.68E-11	6.69E-17	1.28E-17	3.67E-17	5.80E-17	2.08E-15	9.95E-14	2.15E-16
Praseodymium (59)	Pr-137	S	4.74E+03	1.46E-04	4.87E-11	3.67E-11	2.30E-11	1.06E-17	2.17E-18	6.09E-18	9.42E-18	3.71E-16	1.62E-14	3.50E-17
Praseodymium (59)	Pr-138	-	2.51E+05	2.76E-06	0.00E+00	0.00E+00	0.00E+00	2.43E-17	5.14E-18	1.43E-17	2.20E-17	9.00E-16	3.73E-14	8.02E-17
Praseodymium (59)	Pr-138m	S	2.86E+03	2.42E-04	1.67E-10	1.29E-10	9.08E-11	7.60E-17	1.48E-17	4.23E-17	6.65E-17	2.35E-15	1.13E-13	2.45E-16
Praseodymium (59)	Pr-139	S	1.38E+03	5.03E-04	4.34E-11	3.26E-11	2.41E-11	3.21E-18	6.87E-19	1.87E-18	2.87E-18	1.24E-16	5.10E-15	1.11E-17
Praseodymium (59)	Pr-140	-	1.07E+05	6.45E-06	0.00E+00	0.00E+00	0.00E+00	1.59E-17	3.34E-18	9.37E-18	1.44E-17	5.86E-16	2.44E-14	5.27E-17
Praseodymium (59)	Pr-142	S	3.18E+02	2.18E-03	1.82E-09	1.32E-09	6.67E-10	2.15E-18	4.37E-19	1.12E-18	1.78E-18	1.47E-16	3.49E-15	6.94E-18
Praseodymium (59)	Pr-142m	S	2.49E+04	2.78E-05	2.32E-11	1.68E-11	8.49E-12	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Praseodymium (59)	Pr-143	S	1.86E+01	3.72E-02	1.62E-09	1.17E-09	2.72E-09	1.57E-20	8.24E-21	1.28E-20	1.54E-20	2.08E-17	1.95E-16	2.22E-19
Praseodymium (59)	Pr-144	S	2.11E+04	3.29E-05	6.82E-11	5.06E-11	2.18E-11	1.32E-18	3.65E-19	7.66E-19	1.13E-18	1.61E-16	2.51E-15	4.45E-18
Praseodymium (59)	Pr-144m	-	5.06E+04	1.37E-05	0.00E+00	0.00E+00	0.00E+00	8.84E-20	3.70E-20	6.34E-20	8.04E-20	1.09E-17	2.52E-16	5.76E-19
Praseodymium (59)	Pr-145	S	1.01E+03	6.83E-04	5.44E-10	3.95E-10	2.01E-10	6.79E-19	1.76E-19	4.05E-19	6.02E-19	9.87E-17	1.37E-15	2.46E-18
Praseodymium (59)	Pr-146	S	1.51E+04	4.59E-05	1.04E-10	7.77E-11	3.58E-11	3.33E-17	6.17E-18	1.75E-17	2.81E-17	1.06E-15	4.92E-14	1.06E-16
Praseodymium (59)	Pr-147	S	2.72E+04	2.55E-05	4.52E-11	3.37E-11	2.12E-11	1.38E-17	2.88E-18	7.91E-18	1.22E-17	5.50E-16	2.18E-14	4.69E-17
Praseodymium (59)	Pr-148	-	1.59E+05	4.36E-06	0.00E+00	0.00E+00	0.00E+00	3.22E-17	6.16E-18	1.73E-17	2.75E-17	1.07E-15	4.83E-14	1.03E-16
Praseodymium (59)	Pr-148m	-	1.81E+05	3.82E-06	0.00E+00	0.00E+00	0.00E+00	2.82E-17	5.95E-18	1.66E-17	2.54E-17	1.05E-15	4.37E-14	9.36E-17
Platinum (78)	Pt-184	S	2.11E+04	3.29E-05	3.89E-11	2.99E-11	3.06E-11	1.77E-17	4.13E-18	1.12E-17	1.64E-17	6.68E-16	3.02E-14	6.63E-17
Platinum (78)	Pt-186	S	2.92E+03	2.37E-04	1.40E-10	1.09E-10	8.46E-11	1.92E-17	4.02E-18	1.13E-17	1.72E-17	6.43E-16	2.99E-14	6.51E-17
Platinum (78)	Pt-187	S	2.58E+03	2.68E-04	1.12E-10	8.55E-11	8.29E-11	1.64E-17	3.56E-18	9.81E-18	1.48E-17	5.77E-16	2.66E-14	5.81E-17
Platinum (78)	Pt-188	S	2.48E+01	2.79E-02	1.10E-09	8.47E-10	2.28E-09	4.20E-18	1.11E-18	2.90E-18	4.02E-18	1.84E-16	8.04E-15	1.78E-17
Platinum (78)	Pt-189	S	5.58E+02	1.24E-03	2.59E-10	1.97E-10	2.06E-10	1.26E-17	2.77E-18	7.57E-18	1.13E-17	4.49E-16	2.06E-14	4.51E-17
Platinum (78)	Pt-190	S	1.07E-12	6.50E+11	9.38E-09	6.94E-09	5.58E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Platinum (78)	Pt-191	S	9.03E+01	7.68E-03	4.88E-10	3.69E-10	4.21E-10	6.59E-18	1.63E-18	4.30E-18	6.14E-18	2.70E-16	1.18E-14	2.60E-17
Platinum (78)	Pt-193	S	1.39E-02	5.00E+01	4.93E-11	3.56E-11	7.27E-10	2.34E-23	2.34E-23	2.34E-23	2.34E-23	1.07E-19	2.83E-19	6.57E-22
Platinum (78)	Pt-193m	S	5.84E+01	1.19E-02	6.30E-10	4.58E-10	1.08E-09	1.17E-19	4.89E-20	1.04E-19	1.17E-19	9.06E-18	3.68E-16	8.04E-19
Platinum (78)	Pt-195m	S	6.29E+01	1.10E-02	8.83E-10	6.45E-10	1.29E-09	8.91E-19	3.44E-19	7.62E-19	8.90E-19	6.20E-17	2.45E-15	5.52E-18
Platinum (78)	Pt-197	S	3.05E+02	2.27E-03	5.95E-10	4.32E-10	4.31E-10	3.97E-19	1.26E-19	3.07E-19	3.90E-19	2.42E-17	9.91E-16	2.10E-18
Platinum (78)	Pt-197m	S	3.82E+03	1.82E-04	1.16E-10	8.48E-11	9.20E-11	1.63E-18	4.34E-19	1.12E-18	1.55E-18	7.27E-17	3.26E-15	7.05E-18
Platinum (78)	Pt-199	S	1.18E+04	5.86E-05	5.35E-11	3.98E-11	3.38E-11	5.80E-18	1.24E-18	3.46E-18	5.27E-18	2.46E-16	9.23E-15	1.97E-17
Platinum (78)	Pt-200	S	4.86E+02	1.43E-03	1.61E-09	1.17E-09	7.14E-10	1.08E-18	3.14E-19	7.92E-19	1.05E-18	5.40E-17	2.33E-15	5.09E-18
Platinum (78)	Pt-202	S	1.38E+02	5.02E-03	6.07E-09	4.41E-09	2.61E-09	1.02E-19	6.21E-20	8.48E-20	9.96E-20	7.79E-17	5.03E-16	6.05E-19

Dose Conversion Factors July 2023														
Radionuclides		Isotope-specific Information and Dose Conversion Factors												
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Ingestion DCF (Sv/Bq)	Adult Ingestion DCF (Sv/Bq)	Inhalation DCF (Sv/Bq)	Exposure DCF (Infinite Volume) (Sv/s per Bq/g)	External Exposure DCF (1 cm) (Sv/s per Bq/g)	External Exposure DCF (5 cm) (Sv/s per Bq/g)	External Exposure DCF (15 cm) (Sv/s per Bq/g)	External Exposure DCF (Ground Plane) (Sv/s per Bq/cm <sup>2</sup> )	External Exposure DCF (Submersion) (Sv/s per Bq/m <sup>3</sup> )	External Exposure DCF (Immersion) (Sv/s per Bq/L)
Plutonium (94)	Pu-232	S	1.08E+04	6.41E-05	1.84E-10	1.37E-10	2.59E-08	1.03E-18	3.20E-19	8.10E-19	1.03E-18	5.31E-17	2.31E-15	5.16E-18
Plutonium (94)	Pu-234	S	6.90E+02	1.00E-03	2.08E-10	1.52E-10	2.57E-08	1.12E-18	3.46E-19	8.76E-19	1.12E-18	5.77E-17	2.50E-15	5.58E-18
Plutonium (94)	Pu-235	S	1.44E+04	4.81E-05	2.95E-12	2.26E-12	1.95E-12	1.63E-18	4.77E-19	1.22E-18	1.60E-18	7.98E-17	3.46E-15	7.70E-18
Plutonium (94)	Pu-236	S	2.42E-01	2.86E+00	1.10E-07	8.89E-08	1.14E-05	9.21E-22	5.85E-22	8.15E-22	9.10E-22	6.69E-19	4.33E-18	1.00E-20
Plutonium (94)	Pu-237	S	5.60E+00	1.24E-01	1.51E-10	1.12E-10	4.36E-10	7.89E-19	2.48E-19	6.21E-19	7.88E-19	4.27E-17	1.79E-15	4.00E-18
Plutonium (94)	Pu-238	F	7.90E-03	8.77E+01	2.63E-07	2.28E-07	1.10E-04	5.95E-22	4.48E-22	5.54E-22	5.94E-22	5.99E-19	3.36E-18	7.81E-21
Plutonium (94)	Pu-239	F	2.87E-05	2.41E+04	2.88E-07	2.51E-07	1.21E-04	1.48E-21	5.17E-22	1.08E-21	1.43E-21	3.06E-19	3.77E-18	8.51E-21
Plutonium (94)	Pu-240	F	1.06E-04	6.56E+03	2.88E-07	2.51E-07	1.21E-04	6.05E-22	4.41E-22	5.56E-22	6.00E-22	5.68E-19	3.29E-18	7.66E-21
Plutonium (94)	Pu-241	F	4.83E-02	1.44E+01	5.21E-09	4.74E-09	2.30E-06	2.80E-23	8.49E-24	2.16E-23	2.79E-23	1.43E-21	6.15E-20	1.37E-22
Plutonium (94)	Pu-242	F	1.85E-06	3.75E+05	2.74E-07	2.39E-07	1.15E-04	3.02E-21	8.07E-22	1.72E-21	2.56E-21	5.56E-19	6.43E-18	1.43E-20
Plutonium (94)	Pu-243	S	1.22E+03	5.66E-04	1.17E-10	8.55E-11	9.82E-11	3.83E-19	1.26E-19	3.02E-19	3.77E-19	2.27E-17	9.65E-16	2.08E-18
Plutonium (94)	Pu-244	F	8.66E-09	8.00E+07	2.73E-07	2.38E-07	1.13E-04	6.59E-19	1.16E-19	3.34E-19	5.42E-19	1.92E-17	9.70E-16	2.09E-18
Plutonium (94)	Pu-245	S	5.78E+02	1.20E-03	9.34E-10	6.84E-10	5.06E-10	1.16E-17	2.40E-18	6.81E-18	1.04E-17	3.91E-16	1.81E-14	3.92E-17
Plutonium (94)	Pu-246	S	2.33E+01	2.97E-02	3.80E-09	2.81E-09	5.19E-09	2.80E-18	7.48E-19	1.98E-18	2.73E-18	1.25E-16	5.43E-15	1.20E-17
Radium (88)	Ra-219	-	2.19E+09	3.17E-10	0.00E+00	0.00E+00	0.00E+00	4.47E-18	1.01E-18	2.83E-18	4.19E-18	1.59E-16	7.37E-15	1.61E-17
Radium (88)	Ra-220	-	1.22E+09	5.68E-10	0.00E+00	0.00E+00	0.00E+00	1.35E-19	2.84E-20	8.08E-20	1.24E-19	4.46E-18	2.07E-16	4.51E-19
Radium (88)	Ra-221	-	7.81E+05	8.88E-07	0.00E+00	0.00E+00	0.00E+00	7.26E-19	2.01E-19	5.30E-19	7.13E-19	3.27E-17	1.47E-15	3.24E-18
Radium (88)	Ra-222	-	5.75E+05	1.20E-06	0.00E+00	0.00E+00	0.00E+00	2.52E-19	5.54E-20	1.58E-19	2.36E-19	8.65E-18	4.04E-16	8.81E-19
Radium (88)	Ra-223	S	2.21E+01	3.13E-02	2.17E-07	1.03E-07	9.39E-06	3.10E-18	7.90E-19	2.12E-18	2.97E-18	1.27E-16	5.74E-15	1.27E-17
Radium (88)	Ra-224	S	6.91E+01	1.00E-02	1.26E-07	6.46E-08	3.64E-06	2.65E-19	6.15E-20	1.74E-19	2.54E-19	9.60E-18	4.51E-16	9.87E-19
Radium (88)	Ra-225	S	1.70E+01	4.08E-02	2.38E-07	9.96E-08	8.41E-06	4.77E-20	3.46E-20	4.75E-20	4.77E-20	1.10E-17	2.47E-16	5.43E-19
Radium (88)	Ra-226	S	4.33E-04	1.60E+03	4.53E-07	2.80E-07	1.03E-05	1.70E-19	4.24E-20	1.17E-19	1.66E-19	6.68E-18	3.11E-16	6.84E-19
Radium (88)	Ra-227	S	8.63E+03	8.03E-05	1.11E-10	8.19E-11	2.42E-10	3.80E-18	8.53E-19	2.37E-18	3.53E-18	1.69E-16	6.37E-15	1.37E-17
Radium (88)	Ra-228	S	1.21E-01	5.75E+00	1.60E-06	6.96E-07	1.71E-05	3.52E-22	3.53E-22	3.52E-22	3.52E-22	7.34E-19	2.89E-18	6.78E-21
Radium (88)	Ra-230	S	3.92E+03	1.77E-04	2.41E-10	1.80E-10	1.35E-10	1.84E-18	4.48E-19	1.21E-18	1.74E-18	7.54E-17	3.33E-15	7.23E-18
Rubidium (37)	Rb-77	-	9.66E+04	7.17E-06	0.00E+00	0.00E+00	0.00E+00	4.61E-17	9.59E-18	2.68E-17	4.13E-17	1.62E-15	7.09E-14	1.53E-16
Rubidium (37)	Rb-78	S	2.06E+04	3.36E-05	9.29E-11	7.07E-11	3.55E-11	1.39E-16	2.34E-17	6.78E-17	1.12E-16	3.67E-15	2.04E-13	4.41E-16
Rubidium (37)	Rb-78m	-	6.35E+04	1.09E-05	0.00E+00	0.00E+00	0.00E+00	1.03E-16	1.93E-17	5.52E-17	8.78E-17	3.11E-15	1.52E-13	3.28E-16
Rubidium (37)	Rb-79	S	1.59E+04	4.36E-05	6.58E-11	4.98E-11	3.42E-11	4.24E-17	8.82E-18	2.50E-17	3.83E-17	1.46E-15	6.52E-14	1.41E-16
Rubidium (37)	Rb-80	-	6.54E+05	1.06E-06	0.00E+00	0.00E+00	0.00E+00	3.61E-17	7.68E-18	2.13E-17	3.27E-17	1.33E-15	5.54E-14	1.19E-16
Rubidium (37)	Rb-81	S	1.33E+03	5.22E-04	6.31E-11	4.89E-11	8.35E-11	1.48E-17	3.05E-18	8.71E-18	1.34E-17	4.90E-16	2.25E-14	4.89E-17
Rubidium (37)	Rb-81m	S	1.19E+04	5.80E-05	1.25E-11	9.45E-12	1.92E-11	6.63E-19	1.42E-19	3.92E-19	5.92E-19	2.43E-17	1.07E-15	2.33E-18
Rubidium (37)	Rb-82	-	2.86E+05	2.42E-06	0.00E+00	0.00E+00	0.00E+00	3.33E-17	6.98E-18	1.96E-17	3.01E-17	1.21E-15	5.09E-14	1.09E-16
Rubidium (37)	Rb-82m	S	9.38E+02	7.39E-04	1.63E-10	1.34E-10	1.78E-10	9.12E-17	1.75E-17	5.02E-17	7.93E-17	2.74E-15	1.34E-13	2.91E-16
Rubidium (37)	Rb-83	S	2.93E+00	2.36E-01	2.14E-09	1.77E-09	1.56E-09	1.43E-17	2.94E-18	8.39E-18	1.29E-17	4.64E-16	2.16E-14	4.69E-17
Rubidium (37)	Rb-84	S	7.72E+00	8.98E-02	3.52E-09	2.81E-09	3.24E-09	2.78E-17	5.44E-18	1.56E-17	2.45E-17	8.70E-16	4.13E-14	8.95E-17
Rubidium (37)	Rb-84m	S	1.80E+04	3.85E-05	9.16E-12	7.12E-12	1.01E-11	1.04E-17	2.29E-18	6.51E-18	9.72E-18	3.58E-16	1.68E-14	3.66E-17
Rubidium (37)	Rb-86	S	1.36E+01	5.11E-02	3.81E-09	2.82E-09	5.27E-09	3.11E-18	6.20E-19	1.69E-18	2.66E-18	1.65E-16	4.88E-15	1.01E-17
Rubidium (37)	Rb-86m	-	3.58E+05	1.93E-06	0.00E+00	0.00E+00	0.00E+00	1.62E-17	3.32E-18	9.47E-18	1.46E-17	5.23E-16	2.44E-14	5.30E-17
Rubidium (37)	Rb-87	S	1.41E-11	4.92E+10	2.05E-09	1.53E-09	1.68E-08	7.22E-22	3.07E-22	6.14E-22	7.20E-22	7.89E-20	3.57E-17	3.90E-20
Rubidium (37)	Rb-88	S	2.05E+04	3.38E-05	1.22E-10	9.07E-11	3.33E-11	2.29E-17	4.12E-18	1.14E-17	1.86E-17	7.48E-16	3.37E-14	7.12E-17
Rubidium (37)	Rb-89	S	2.40E+04	2.88E-05	5.95E-11	4.51E-11	2.64E-11	7.55E-17	1.32E-17	3.80E-17	6.20E-17	2.12E-15	1.09E-13	2.36E-16
Rubidium (37)	Rb-90	-	1.38E+05	5.01E-06	0.00E+00	0.00E+00	0.00E+00	7.38E-17	1.15E-17	3.32E-17	5.61E-17	1.84E-15	1.08E-13	2.33E-16
Rubidium (37)	Rb-90m	-	8.47E+04	8.18E-06	0.00E+00	0.00E+00	0.00E+00	1.12E-16	1.86E-17	5.40E-17	8.94E-17	2.95E-15	1.63E-13	3.51E-16
Rhenium (75)	Re-178	S	2.76E+04	2.51E-05	3.68E-11	2.79E-11	1.90E-11	5.48E-17	9.87E-18	2.83E-17	4.54E-17	1.58E-15	8.17E-14	1.77E-16
Rhenium (75)	Re-179	S	1.87E+04	3.71E-05	1.68E-11	1.31E-11	1.32E-11	3.20E-17	6.33E-18	1.80E-17	2.80E-17	9.99E-16	4.90E-14	1.07E-16
Rhenium (75)	Re-180	-	1.49E+05	4.64E-06	0.00E+00	0.00E+00	0.00E+00	3.62E-17	7.10E-18	2.01E-17	3.15E-17	1.13E-15	5.44E-14	1.18E-16



Dose Conversion Factors July 2023														
Radionuclides		Isotope-specific Information and Dose Conversion Factors												
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Ingestion DCF (Sv/Bq)	Adult Ingestion DCF (Sv/Bq)	Inhalation DCF (Sv/Bq)	Exposure DCF (Infinite Volume) (Sv/s per Bq/g)	External Exposure DCF (1 cm) (Sv/s per Bq/g)	External Exposure DCF (5 cm) (Sv/s per Bq/g)	External Exposure DCF (15 cm) (Sv/s per Bq/g)	External Exposure DCF (Ground Plane) (Sv/s per Bq/cm <sup>2</sup> )	External Exposure DCF (Submersion) (Sv/s per Bq/m <sup>3</sup> )	External Exposure DCF (Immersion) (Sv/s per Bq/L)
Rhenium (75)	Re-181	S	3.05E+02	2.27E-03	5.68E-10	4.25E-10	3.14E-10	2.23E-17	4.70E-18	1.31E-17	2.00E-17	7.50E-16	3.52E-14	7.66E-17
Rhenium (75)	Re-182	S	9.49E+01	7.31E-03	1.87E-09	1.43E-09	1.48E-09	5.24E-17	1.04E-17	2.93E-17	4.56E-17	1.65E-15	8.10E-14	1.76E-16
Rhenium (75)	Re-182m	S	4.78E+02	1.45E-03	3.76E-10	2.89E-10	2.56E-10	3.72E-17	7.05E-18	2.00E-17	3.16E-17	1.12E-15	5.59E-14	1.22E-16
Rhenium (75)	Re-183	S	3.61E+00	1.92E-01	1.31E-09	9.64E-10	3.94E-09	2.45E-18	7.78E-19	1.86E-18	2.40E-18	1.37E-16	5.53E-15	1.24E-17
Rhenium (75)	Re-184	S	6.66E+00	1.04E-01	1.29E-09	1.01E-09	2.57E-09	2.63E-17	5.25E-18	1.48E-17	2.31E-17	8.35E-16	3.99E-14	8.68E-17
Rhenium (75)	Re-184m	S	1.50E+00	4.63E-01	1.98E-09	1.48E-09	1.12E-08	1.00E-17	2.19E-18	6.02E-18	9.02E-18	3.52E-16	1.64E-14	3.58E-17
Rhenium (75)	Re-186	S	6.80E+01	1.02E-02	1.99E-09	1.43E-09	1.31E-09	3.84E-19	1.20E-19	2.91E-19	3.78E-19	4.34E-17	9.95E-16	1.99E-18
Rhenium (75)	Re-186m	S	3.47E-06	2.00E+05	3.04E-09	2.23E-09	6.43E-08	1.30E-19	6.22E-20	1.19E-19	1.30E-19	1.31E-17	4.26E-16	9.72E-19
Rhenium (75)	Re-187	S	1.68E-11	4.12E+10	6.59E-12	4.79E-12	4.26E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rhenium (75)	Re-188	S	3.57E+02	1.94E-03	1.92E-09	1.36E-09	6.68E-10	1.76E-18	4.43E-19	1.11E-18	1.62E-18	1.48E-16	3.29E-15	6.60E-18
Rhenium (75)	Re-188m	S	1.96E+04	3.54E-05	4.16E-11	2.98E-11	1.68E-11	8.05E-19	3.23E-19	6.95E-19	8.04E-19	5.94E-17	2.26E-15	5.12E-18
Rhenium (75)	Re-189	S	2.50E+02	2.77E-03	1.04E-09	7.44E-10	5.06E-10	1.39E-18	3.32E-19	9.12E-19	1.32E-18	7.14E-17	2.55E-15	5.40E-18
Rhenium (75)	Re-190	-	1.17E+05	5.90E-06	0.00E+00	0.00E+00	0.00E+00	3.93E-17	8.10E-18	2.30E-17	3.54E-17	1.34E-15	6.04E-14	1.31E-16
Rhenium (75)	Re-190m	S	1.90E+03	3.65E-04	5.04E-10	3.65E-10	2.44E-10	2.65E-17	5.56E-18	1.57E-17	2.40E-17	9.13E-16	4.13E-14	8.96E-17
Rhodium (45)	Rh-100	S	2.92E+02	2.37E-03	8.48E-10	6.78E-10	4.15E-10	9.09E-17	1.59E-17	4.61E-17	7.50E-17	2.46E-15	1.32E-13	2.85E-16
Rhodium (45)	Rh-100m	-	7.92E+04	8.75E-06	0.00E+00	0.00E+00	0.00E+00	1.26E-18	2.64E-19	7.14E-19	1.10E-18	5.15E-17	2.03E-15	4.43E-18
Rhodium (45)	Rh-101	S	2.10E-01	3.30E+00	6.90E-10	5.50E-10	5.56E-09	6.48E-18	1.60E-18	4.43E-18	6.27E-18	2.57E-16	1.17E-14	2.58E-17
Rhodium (45)	Rh-101m	S	5.83E+01	1.19E-02	2.72E-10	2.10E-10	2.38E-10	7.54E-18	1.66E-18	4.72E-18	7.07E-18	2.65E-16	1.21E-14	2.64E-17
Rhodium (45)	Rh-102	S	1.22E+00	5.67E-01	1.59E-09	1.19E-09	8.01E-09	1.48E-17	3.02E-18	8.62E-18	1.33E-17	4.94E-16	2.24E-14	4.86E-17
Rhodium (45)	Rh-102m	S	1.85E-01	3.74E+00	3.32E-09	2.76E-09	2.13E-08	6.56E-17	1.29E-17	3.69E-17	5.79E-17	2.03E-15	9.74E-14	2.11E-16
Rhodium (45)	Rh-103m	S	6.49E+03	1.07E-04	5.11E-12	3.77E-12	3.10E-12	8.46E-22	8.15E-22	8.46E-22	8.46E-22	8.26E-19	5.61E-18	1.32E-20
Rhodium (45)	Rh-104	-	5.17E+05	1.34E-06	0.00E+00	0.00E+00	0.00E+00	6.04E-19	2.11E-19	4.03E-19	5.57E-19	1.28E-16	1.40E-15	2.26E-18
Rhodium (45)	Rh-104m	-	8.39E+04	8.26E-06	0.00E+00	0.00E+00	0.00E+00	2.77E-19	1.34E-19	2.47E-19	2.74E-19	3.43E-17	9.14E-16	2.09E-18
Rhodium (45)	Rh-105	S	1.72E+02	4.04E-03	5.02E-10	3.67E-10	4.02E-10	2.12E-18	4.67E-19	1.33E-18	1.99E-18	7.38E-17	3.47E-15	7.49E-18
Rhodium (45)	Rh-106	-	7.33E+05	9.45E-07	0.00E+00	0.00E+00	0.00E+00	6.70E-18	1.50E-18	3.93E-18	6.00E-18	3.46E-16	1.07E-14	2.20E-17
Rhodium (45)	Rh-106m	S	2.78E+03	2.49E-04	2.18E-10	1.68E-10	1.32E-10	8.93E-17	1.71E-17	4.90E-17	7.75E-17	2.69E-15	1.32E-13	2.86E-16
Rhodium (45)	Rh-107	S	1.68E+04	4.13E-05	3.20E-11	2.39E-11	1.95E-11	8.70E-18	1.91E-18	5.42E-18	8.13E-18	3.38E-16	1.41E-14	3.05E-17
Rhodium (45)	Rh-108	-	1.30E+06	5.33E-07	0.00E+00	0.00E+00	0.00E+00	1.01E-17	2.30E-18	6.06E-18	9.15E-18	4.79E-16	1.61E-14	3.34E-17
Rhodium (45)	Rh-109	-	2.73E+05	2.54E-06	0.00E+00	0.00E+00	0.00E+00	8.29E-18	1.91E-18	5.25E-18	7.78E-18	3.91E-16	1.38E-14	2.95E-17
Rhodium (45)	Rh-94	-	3.10E+05	2.24E-06	0.00E+00	0.00E+00	0.00E+00	1.23E-16	2.30E-17	6.54E-17	1.04E-16	3.70E-15	1.81E-13	3.89E-16
Rhodium (45)	Rh-95	-	7.26E+04	9.55E-06	0.00E+00	0.00E+00	0.00E+00	8.23E-17	1.52E-17	4.37E-17	6.99E-17	2.45E-15	1.21E-13	2.62E-16
Rhodium (45)	Rh-95m	-	1.86E+05	3.73E-06	0.00E+00	0.00E+00	0.00E+00	2.90E-17	5.23E-18	1.51E-17	2.42E-17	8.24E-16	4.29E-14	9.31E-17
Rhodium (45)	Rh-96	-	3.68E+04	1.88E-05	0.00E+00	0.00E+00	0.00E+00	1.23E-16	2.36E-17	6.76E-17	1.07E-16	3.77E-15	1.81E-13	3.93E-16
Rhodium (45)	Rh-96m	-	2.41E+05	2.87E-06	0.00E+00	0.00E+00	0.00E+00	4.10E-17	7.65E-18	2.19E-17	3.50E-17	1.24E-15	6.03E-14	1.30E-16
Rhodium (45)	Rh-97	S	1.19E+04	5.84E-05	6.19E-11	4.72E-11	2.84E-11	4.40E-17	8.69E-18	2.48E-17	3.88E-17	1.42E-15	6.60E-14	1.43E-16
Rhodium (45)	Rh-97m	S	7.88E+03	8.79E-05	5.99E-11	4.70E-11	3.30E-11	7.31E-17	1.26E-17	3.67E-17	5.99E-17	1.97E-15	1.06E-13	2.31E-16
Rhodium (45)	Rh-98	-	4.19E+04	1.66E-05	0.00E+00	0.00E+00	0.00E+00	5.55E-17	1.11E-17	3.16E-17	4.92E-17	1.85E-15	8.34E-14	1.80E-16
Rhodium (45)	Rh-99	S	1.57E+01	4.41E-02	7.39E-10	5.66E-10	1.41E-09	1.56E-17	3.27E-18	9.26E-18	1.41E-17	5.23E-16	2.42E-14	5.28E-17
Rhodium (45)	Rh-99m	S	1.29E+03	5.37E-04	8.46E-11	6.66E-11	4.91E-11	1.90E-17	3.84E-18	1.10E-17	1.70E-17	6.08E-16	2.89E-14	6.28E-17
Radon (86)	Rn-207	-	3.94E+04	1.76E-05	0.00E+00	0.00E+00	0.00E+00	2.87E-17	5.91E-18	1.67E-17	2.58E-17	9.47E-16	4.41E-14	9.59E-17
Radon (86)	Rn-209	-	1.28E+04	5.42E-05	0.00E+00	0.00E+00	0.00E+00	3.62E-17	7.05E-18	2.01E-17	3.15E-17	1.11E-15	5.47E-14	1.19E-16
Radon (86)	Rn-210	-	2.53E+03	2.74E-04	0.00E+00	0.00E+00	0.00E+00	1.76E-18	3.61E-19	1.02E-18	1.57E-18	5.71E-17	2.71E-15	5.89E-18
Radon (86)	Rn-211	-	4.16E+02	1.67E-03	0.00E+00	0.00E+00	0.00E+00	5.82E-17	1.11E-17	3.18E-17	5.03E-17	1.74E-15	8.62E-14	1.87E-16
Radon (86)	Rn-212	-	1.52E+04	4.55E-05	0.00E+00	0.00E+00	0.00E+00	1.03E-20	2.05E-21	5.86E-21	9.15E-21	3.23E-19	1.53E-17	3.32E-20
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	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	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Dose Conversion Factors July 2023														
Radionuclides		Isotope-specific Information and Dose Conversion Factors												
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Ingestion DCF (Sv/Bq)	Adult Ingestion DCF (Sv/Bq)	Inhalation DCF (Sv/Bq)	Exposure DCF (Infinite Volume) (Sv/s per Bq/g)	External Exposure DCF (1 cm) (Sv/s per Bq/g)	External Exposure DCF (5 cm) (Sv/s per Bq/g)	External Exposure DCF (15 cm) (Sv/s per Bq/g)	External Exposure DCF (Ground Plane) (Sv/s per Bq/cm <sup>2</sup> )	External Exposure DCF (Submersion) (Sv/s per Bq/m <sup>3</sup> )	External Exposure DCF (Immersion) (Sv/s per Bq/L)
Radon (86)	Rn-218	-	6.24E+08	1.11E-09	0.00E+00	0.00E+00	0.00E+00	2.28E-20	4.59E-21	1.31E-20	2.04E-20	7.24E-19	3.40E-17	7.39E-20
Radon (86)	Rn-219	-	5.52E+06	1.26E-07	0.00E+00	0.00E+00	0.00E+00	1.59E-18	3.52E-19	9.97E-19	1.49E-18	5.50E-17	2.56E-15	5.60E-18
Radon (86)	Rn-220	-	3.93E+05	1.76E-06	0.00E+00	0.00E+00	2.21E-10	1.86E-20	3.82E-21	1.09E-20	1.68E-20	6.01E-19	2.81E-17	6.10E-20
Radon (86)	Rn-222	-	6.62E+01	1.05E-02	0.00E+00	0.00E+00	1.77E-09	1.14E-20	2.36E-21	6.73E-21	1.04E-20	3.72E-19	1.73E-17	3.76E-20
Radon (86)	Rn-223	-	1.50E+04	4.62E-05	0.00E+00	0.00E+00	0.00E+00	9.96E-18	2.06E-18	5.78E-18	8.88E-18	3.80E-16	1.56E-14	3.35E-17
Ruthenium (44)	Ru-103	S	6.44E+00	1.08E-01	9.41E-10	7.14E-10	3.15E-09	1.45E-17	3.01E-18	8.59E-18	1.32E-17	4.74E-16	2.21E-14	4.80E-17
Ruthenium (44)	Ru-105	V	1.37E+03	5.07E-04	3.76E-10	2.79E-10	2.32E-10	2.24E-17	4.52E-18	1.29E-17	2.00E-17	7.48E-16	3.39E-14	7.34E-17
Ruthenium (44)	Ru-106	S	6.77E-01	1.02E+00	9.59E-09	7.02E-09	7.23E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ruthenium (44)	Ru-107	-	9.71E+04	7.13E-06	0.00E+00	0.00E+00	0.00E+00	1.10E-17	2.22E-18	6.13E-18	9.56E-18	4.42E-16	1.69E-14	3.57E-17
Ruthenium (44)	Ru-108	-	8.01E+04	8.66E-06	0.00E+00	0.00E+00	0.00E+00	1.42E-18	3.82E-19	1.01E-18	1.39E-18	1.05E-16	2.92E-15	6.10E-18
Ruthenium (44)	Ru-92	-	9.98E+04	6.94E-06	0.00E+00	0.00E+00	0.00E+00	6.13E-17	1.23E-17	3.50E-17	5.41E-17	2.00E-15	9.44E-14	2.05E-16
Ruthenium (44)	Ru-94	V	7.03E+03	9.86E-05	1.25E-10	9.52E-11	6.93E-11	1.50E-17	3.06E-18	8.75E-18	1.35E-17	4.85E-16	2.28E-14	4.96E-17
Ruthenium (44)	Ru-95	V	3.69E+03	1.88E-04	7.75E-11	6.15E-11	5.29E-11	3.82E-17	7.35E-18	2.11E-17	3.33E-17	1.16E-15	5.68E-14	1.23E-16
Ruthenium (44)	Ru-97	V	8.72E+01	7.95E-03	1.94E-10	1.50E-10	1.38E-10	5.88E-18	1.36E-18	3.84E-18	5.61E-18	2.17E-16	9.96E-15	2.18E-17
Sulfur (16)	S-35	S	2.89E+00	2.40E-01	1.74E-10	1.31E-10	2.04E-09	6.53E-23	3.73E-23	6.07E-23	6.53E-23	1.33E-20	3.07E-18	3.40E-21
Sulphur (16)	S-37	-	7.21E+04	9.61E-06	0.00E+00	0.00E+00	0.00E+00	1.07E-16	1.59E-17	4.71E-17	8.07E-17	2.48E-15	1.54E-13	3.34E-16
Sulfur (16)	S-38	S	2.14E+03	3.24E-04	2.34E-10	3.40E-10	3.53E-10	5.94E-17	9.67E-18	2.83E-17	4.72E-17	1.52E-15	8.47E-14	1.83E-16
Antimony (51)	Sb-111	-	2.91E+05	2.38E-06	0.00E+00	0.00E+00	0.00E+00	4.39E-17	9.19E-18	2.58E-17	3.96E-17	1.55E-15	6.76E-14	1.46E-16
Antimony (51)	Sb-113	-	5.46E+04	1.27E-05	0.00E+00	0.00E+00	0.00E+00	3.75E-17	7.74E-18	2.19E-17	3.38E-17	1.29E-15	5.71E-14	1.24E-16
Antimony (51)	Sb-114	-	1.04E+05	6.64E-06	0.00E+00	0.00E+00	0.00E+00	8.62E-17	1.62E-17	4.63E-17	7.37E-17	2.61E-15	1.27E-13	2.74E-16
Antimony (51)	Sb-115	S	1.13E+04	6.11E-05	3.15E-11	2.42E-11	1.63E-11	2.59E-17	5.35E-18	1.52E-17	2.34E-17	8.72E-16	3.94E-14	8.55E-17
Antimony (51)	Sb-116	S	2.31E+04	3.01E-05	3.96E-11	3.04E-11	1.76E-11	7.38E-17	1.34E-17	3.87E-17	6.23E-17	2.15E-15	1.08E-13	2.33E-16
Antimony (51)	Sb-116m	S	6.04E+03	1.15E-04	8.13E-11	6.52E-11	5.65E-11	9.72E-17	1.83E-17	5.26E-17	8.36E-17	2.89E-15	1.43E-13	3.11E-16
Antimony (51)	Sb-117	S	2.17E+03	3.20E-04	2.37E-11	1.83E-11	2.09E-11	3.98E-18	9.88E-19	2.70E-18	3.82E-18	1.66E-16	7.23E-15	1.59E-17
Antimony (51)	Sb-118	-	1.01E+05	6.85E-06	0.00E+00	0.00E+00	0.00E+00	2.39E-17	4.99E-18	1.40E-17	2.16E-17	8.67E-16	3.65E-14	7.86E-17
Antimony (51)	Sb-118m	S	1.21E+03	5.71E-04	2.65E-10	2.14E-10	1.50E-10	8.19E-17	1.53E-17	4.40E-17	7.01E-17	2.41E-15	1.21E-13	2.61E-16
Antimony (51)	Sb-119	S	1.59E+02	4.36E-03	1.12E-10	8.18E-11	4.77E-11	2.40E-20	2.33E-20	2.41E-20	2.40E-20	1.56E-17	1.51E-16	3.55E-19
Antimony (51)	Sb-120	S	2.29E+04	3.02E-05	1.92E-11	1.45E-11	8.70E-12	1.31E-17	2.72E-18	7.68E-18	1.18E-17	4.67E-16	2.00E-14	4.32E-17
Antimony (51)	Sb-120m	S	4.39E+01	1.58E-02	1.56E-09	1.25E-09	1.27E-09	7.64E-17	1.45E-17	4.14E-17	6.56E-17	2.28E-15	1.13E-13	2.46E-16
Antimony (51)	Sb-122	S	9.29E+01	7.46E-03	2.31E-09	1.70E-09	1.32E-09	1.34E-17	2.74E-18	7.77E-18	1.20E-17	4.88E-16	2.04E-14	4.39E-17
Antimony (51)	Sb-122m	-	8.69E+04	7.97E-06	0.00E+00	0.00E+00	0.00E+00	5.50E-19	2.57E-19	4.99E-19	5.50E-19	5.88E-17	1.77E-15	4.04E-18
Antimony (51)	Sb-124	S	4.20E+00	1.65E-01	3.37E-09	2.55E-09	9.49E-09	6.05E-17	1.09E-17	3.16E-17	5.09E-17	1.73E-15	8.80E-14	1.90E-16
Antimony (51)	Sb-124m	-	2.35E+05	2.95E-06	0.00E+00	0.00E+00	0.00E+00	1.32E-17	2.67E-18	7.63E-18	1.18E-17	4.30E-16	1.98E-14	4.30E-17
Antimony (51)	Sb-124n	S	1.80E+04	3.84E-05	1.27E-11	9.70E-12	8.14E-12	8.99E-25	8.74E-25	9.01E-25	8.99E-25	5.69E-22	5.63E-21	1.32E-23
Antimony (51)	Sb-125	S	2.51E-01	2.76E+00	1.47E-09	1.15E-09	1.30E-08	1.24E-17	2.58E-18	7.31E-18	1.12E-17	4.14E-16	1.90E-14	4.12E-17
Antimony (51)	Sb-126	S	2.05E+01	3.38E-02	3.48E-09	2.68E-09	3.97E-09	8.36E-17	1.67E-17	4.77E-17	7.44E-17	2.65E-15	1.25E-13	2.71E-16
Antimony (51)	Sb-126m	S	1.90E+04	3.64E-05	5.00E-11	3.81E-11	2.39E-11	4.67E-17	9.44E-18	2.69E-17	4.17E-17	1.55E-15	7.02E-14	1.52E-16
Antimony (51)	Sb-127	S	6.57E+01	1.05E-02	2.26E-09	1.68E-09	2.13E-09	2.08E-17	4.20E-18	1.20E-17	1.86E-17	6.80E-16	3.14E-14	6.80E-17
Antimony (51)	Sb-128	S	6.74E+02	1.03E-03	1.06E-09	8.14E-10	5.27E-10	9.44E-17	1.87E-17	5.35E-17	8.36E-17	2.98E-15	1.41E-13	3.05E-16
Antimony (51)	Sb-128m	S	3.50E+04	1.98E-05	4.44E-11	3.37E-11	1.77E-11	5.81E-17	1.16E-17	3.31E-17	5.16E-17	1.92E-15	8.73E-14	1.89E-16
Antimony (51)	Sb-129	S	1.38E+03	5.02E-04	5.72E-10	4.27E-10	3.00E-10	4.66E-17	8.71E-18	2.51E-17	3.99E-17	1.39E-15	6.83E-14	1.48E-16
Antimony (51)	Sb-130	S	9.22E+03	7.52E-05	1.22E-10	9.39E-11	6.44E-11	1.01E-16	1.97E-17	5.63E-17	8.84E-17	3.15E-15	1.51E-13	3.26E-16
Antimony (51)	Sb-130m	-	5.78E+04	1.20E-05	0.00E+00	0.00E+00	0.00E+00	8.49E-17	1.63E-17	4.67E-17	7.37E-17	2.66E-15	1.26E-13	2.72E-16
Antimony (51)	Sb-131	M	1.58E+04	4.38E-05	1.47E-10	1.08E-10	5.38E-11	6.75E-17	1.23E-17	3.54E-17	5.69E-17	1.96E-15	9.85E-14	2.13E-16
Antimony (51)	Sb-133	-	1.46E+05	4.76E-06	0.00E+00	0.00E+00	0.00E+00	9.18E-17	1.60E-17	4.64E-17	7.56E-17	2.54E-15	1.33E-13	2.87E-16
Scandium (21)	Sc-42m	-	3.52E+05	1.97E-06	0.00E+00	0.00E+00	0.00E+00	1.35E-16	2.51E-17	7.22E-17	1.15E-16	4.03E-15	1.98E-13	4.28E-16
Scandium (21)	Sc-43	S	1.56E+03	4.44E-04	2.91E-10	2.18E-10	1.49E-10	2.89E-17	6.00E-18	1.71E-17	2.62E-17	9.82E-16	4.41E-14	9.55E-17

Dose Conversion Factors July 2023														
Radionuclides		Isotope-specific Information and Dose Conversion Factors												
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Ingestion DCF (Sv/Bq)	Adult Ingestion DCF (Sv/Bq)	Inhalation DCF (Sv/Bq)	Exposure DCF (Infinite Volume) (Sv/s per Bq/g)	External Exposure DCF (1 cm) (Sv/s per Bq/g)	External Exposure DCF (5 cm) (Sv/s per Bq/g)	External Exposure DCF (15 cm) (Sv/s per Bq/g)	External Exposure DCF (Ground Plane) (Sv/s per Bq/cm <sup>2</sup> )	External Exposure DCF (Submersion) (Sv/s per Bq/m <sup>3</sup> )	External Exposure DCF (Immersion) (Sv/s per Bq/L)
Scandium (21)	Sc-44	S	1.53E+03	4.53E-04	4.72E-10	3.58E-10	2.23E-10	6.66E-17	1.28E-17	3.68E-17	5.81E-17	2.08E-15	9.87E-14	2.14E-16
Scandium (21)	Sc-44m	S	1.04E+02	6.69E-03	3.26E-09	2.45E-09	1.65E-09	7.55E-18	1.65E-18	4.70E-18	7.03E-18	2.56E-16	1.22E-14	2.66E-17
Scandium (21)	Sc-46	S	3.02E+00	2.30E-01	1.88E-09	1.47E-09	7.46E-09	6.42E-17	1.20E-17	3.45E-17	5.50E-17	1.88E-15	9.37E-14	2.03E-16
Scandium (21)	Sc-47	S	7.55E+01	9.18E-03	7.46E-10	5.46E-10	8.12E-10	2.48E-18	6.35E-19	1.75E-18	2.43E-18	1.00E-16	4.70E-15	1.03E-17
Scandium (21)	Sc-48	S	1.39E+02	4.99E-03	2.14E-09	1.67E-09	1.30E-09	1.09E-16	1.99E-17	5.74E-17	9.21E-17	3.11E-15	1.58E-13	3.42E-16
Scandium (21)	Sc-49	S	6.37E+03	1.09E-04	1.10E-10	8.10E-11	4.67E-11	1.93E-19	1.00E-19	1.46E-19	1.81E-19	1.01E-16	7.13E-16	9.20E-19
Scandium (21)	Sc-50	-	2.13E+05	3.25E-06	0.00E+00	0.00E+00	0.00E+00	1.06E-16	1.91E-17	5.50E-17	8.87E-17	3.10E-15	1.54E-13	3.32E-16
Selenium (34)	Se-70	S	8.86E+03	7.82E-05	1.25E-10	9.69E-11	8.13E-11	2.02E-17	4.28E-18	1.21E-17	1.84E-17	6.96E-16	3.14E-14	6.83E-17
Selenium (34)	Se-71	-	7.68E+04	9.02E-06	0.00E+00	0.00E+00	0.00E+00	4.87E-17	9.90E-18	2.79E-17	4.33E-17	1.66E-15	7.40E-14	1.60E-16
Selenium (34)	Se-72	S	3.01E+01	2.30E-02	8.23E-09	5.16E-09	4.16E-09	1.45E-19	9.30E-20	1.43E-19	1.45E-19	2.43E-17	6.10E-16	1.41E-18
Selenium (34)	Se-73	S	8.49E+02	8.16E-04	2.78E-10	2.07E-10	2.52E-10	3.08E-17	6.57E-18	1.85E-17	2.82E-17	1.08E-15	4.81E-14	1.05E-16
Selenium (34)	Se-73m	S	9.15E+03	7.57E-05	3.67E-11	2.74E-11	2.63E-11	7.67E-18	1.60E-18	4.53E-18	6.95E-18	2.67E-16	1.18E-14	2.55E-17
Selenium (34)	Se-75	S	2.11E+00	3.28E-01	3.35E-09	2.58E-09	1.46E-09	9.68E-18	2.27E-18	6.37E-18	9.24E-18	3.56E-16	1.66E-14	3.64E-17
Selenium (34)	Se-77m	-	1.26E+06	5.50E-07	0.00E+00	0.00E+00	0.00E+00	1.97E-18	5.03E-19	1.39E-18	1.93E-18	7.88E-17	3.70E-15	8.13E-18
Selenium (34)	Se-79	S	2.35E-06	2.95E+05	4.68E-09	2.74E-09	6.78E-09	6.82E-23	3.99E-23	6.39E-23	6.83E-23	1.45E-20	3.05E-18	3.38E-21
Selenium (34)	Se-79m	-	9.29E+04	7.46E-06	0.00E+00	0.00E+00	0.00E+00	1.53E-19	4.95E-20	1.23E-19	1.53E-19	8.56E-18	3.60E-16	8.01E-19
Selenium (34)	Se-81	S	1.97E+04	3.51E-05	3.61E-11	2.68E-11	1.72E-11	3.16E-19	9.94E-20	2.08E-19	2.93E-19	8.02E-17	8.16E-16	1.33E-18
Selenium (34)	Se-81m	S	6.36E+03	1.09E-04	7.16E-11	5.29E-11	5.94E-11	2.47E-19	7.59E-20	1.93E-19	2.46E-19	1.27E-17	5.54E-16	1.23E-18
Selenium (34)	Se-83	S	1.63E+04	4.24E-05	5.87E-11	4.53E-11	3.99E-11	8.39E-17	1.55E-17	4.48E-17	7.14E-17	2.45E-15	1.24E-13	2.68E-16
Selenium (34)	Se-83m	-	3.12E+05	2.22E-06	0.00E+00	0.00E+00	0.00E+00	3.24E-17	6.01E-18	1.71E-17	2.74E-17	1.04E-15	4.78E-14	1.02E-16
Selenium (34)	Se-84	-	1.17E+05	5.90E-06	0.00E+00	0.00E+00	0.00E+00	1.20E-17	2.59E-18	7.32E-18	1.11E-17	4.63E-16	1.90E-14	4.09E-17
Silicon (14)	Si-31	S	2.32E+03	2.99E-04	2.13E-10	1.60E-10	9.30E-11	1.06E-19	5.16E-20	7.88E-20	9.90E-20	7.13E-17	4.83E-16	6.14E-19
Silicon (14)	Si-32	S	5.25E-03	1.32E+02	7.99E-10	5.79E-10	1.16E-07	1.92E-22	9.50E-23	1.72E-22	1.92E-22	2.87E-20	1.05E-17	1.14E-20
Samarium (62)	Sm-139	-	1.42E+05	4.89E-06	0.00E+00	0.00E+00	0.00E+00	4.35E-17	8.91E-18	2.52E-17	3.89E-17	1.48E-15	6.64E-14	1.44E-16
Samarium (62)	Sm-140	S	2.46E+04	2.82E-05	1.29E-10	9.66E-11	3.92E-11	1.66E-17	3.31E-18	9.34E-18	1.45E-17	5.47E-16	2.53E-14	5.49E-17
Samarium (62)	Sm-141	S	3.57E+04	1.94E-05	5.14E-11	3.89E-11	1.90E-11	4.30E-17	8.50E-18	2.42E-17	3.78E-17	1.40E-15	6.47E-14	1.40E-16
Samarium (62)	Sm-141m	S	1.61E+04	4.30E-05	8.18E-11	6.25E-11	3.89E-11	5.95E-17	1.16E-17	3.31E-17	5.19E-17	1.86E-15	8.92E-14	1.93E-16
Samarium (62)	Sm-142	S	5.02E+03	1.38E-04	2.43E-10	1.81E-10	8.87E-11	2.52E-18	5.74E-19	1.52E-18	2.28E-18	1.06E-16	4.17E-15	9.11E-18
Samarium (62)	Sm-143	-	4.16E+04	1.66E-05	0.00E+00	0.00E+00	0.00E+00	1.54E-17	3.22E-18	9.01E-18	1.39E-17	5.61E-16	2.36E-14	5.11E-17
Samarium (62)	Sm-143m	-	3.31E+05	2.09E-06	0.00E+00	0.00E+00	0.00E+00	2.10E-17	4.12E-18	1.18E-17	1.85E-17	6.60E-16	3.11E-14	6.75E-17
Samarium (62)	Sm-145	F	7.44E-01	9.32E-01	2.86E-10	2.12E-10	3.30E-09	2.85E-19	1.89E-19	2.78E-19	2.85E-19	5.46E-17	1.23E-15	2.86E-18
Samarium (62)	Sm-146	F	6.73E-09	1.03E+08	7.01E-08	5.42E-08	2.67E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Samarium (62)	Sm-147	F	6.54E-12	1.06E+11	6.40E-08	4.95E-08	2.44E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Samarium (62)	Sm-148	F	9.90E-17	7.00E+15	5.50E-08	4.26E-08	2.10E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Samarium (62)	Sm-151	F	7.70E-03	9.00E+01	1.35E-10	9.89E-11	9.84E-09	3.88E-24	3.85E-24	3.88E-24	3.88E-24	3.81E-21	2.65E-20	6.20E-23
Samarium (62)	Sm-153	S	1.31E+02	5.31E-03	1.01E-09	7.35E-10	7.90E-10	7.80E-19	2.88E-19	6.34E-19	7.76E-19	6.25E-17	2.12E-15	4.65E-18
Samarium (62)	Sm-155	S	1.63E+04	4.24E-05	3.96E-11	2.95E-11	2.10E-11	1.96E-18	5.99E-19	1.48E-18	1.92E-18	1.55E-16	4.43E-15	9.44E-18
Samarium (62)	Sm-156	S	6.46E+02	1.07E-03	3.48E-10	2.56E-10	2.78E-10	2.47E-18	6.41E-19	1.72E-18	2.40E-18	1.07E-16	4.73E-15	1.04E-17
Samarium (62)	Sm-157	-	4.54E+04	1.53E-05	0.00E+00	0.00E+00	0.00E+00	1.17E-17	2.53E-18	7.00E-18	1.06E-17	4.83E-16	1.91E-14	4.09E-17
Tin (50)	Sn-106	-	1.90E+05	3.65E-06	0.00E+00	0.00E+00	0.00E+00	3.56E-17	7.17E-18	2.04E-17	3.17E-17	1.14E-15	5.40E-14	1.17E-16
Tin (50)	Sn-108	S	3.54E+04	1.96E-05	2.85E-11	2.20E-11	1.40E-11	1.88E-17	4.01E-18	1.14E-17	1.72E-17	6.40E-16	2.96E-14	6.45E-17
Tin (50)	Sn-109	S	2.02E+04	3.42E-05	2.38E-11	1.91E-11	1.44E-11	7.27E-17	1.28E-17	3.71E-17	6.02E-17	1.99E-15	1.05E-13	2.28E-16
Tin (50)	Sn-110	S	1.48E+03	4.69E-04	4.91E-10	3.68E-10	2.04E-10	7.38E-18	1.66E-18	4.71E-18	6.98E-18	2.68E-16	1.21E-14	2.65E-17
Tin (50)	Sn-111	S	1.03E+04	6.72E-05	2.78E-11	2.12E-11	1.53E-11	1.48E-17	2.88E-18	8.23E-18	1.29E-17	4.78E-16	2.21E-14	4.79E-17
Tin (50)	Sn-113	S	2.20E+00	3.15E-01	1.01E-09	7.48E-10	4.44E-09	1.59E-19	4.90E-20	1.09E-19	1.53E-19	1.70E-17	3.45E-16	7.73E-19
Tin (50)	Sn-113m	S	1.70E+04	4.07E-05	4.39E-12	3.26E-12	5.19E-12	1.92E-20	1.56E-20	1.85E-20	1.92E-20	9.32E-18	1.02E-16	2.38E-19
Tin (50)	Sn-117m	S	1.84E+01	3.77E-02	9.70E-10	7.13E-10	3.10E-09	3.21E-18	8.36E-19	2.26E-18	3.14E-18	1.40E-16	6.13E-15	1.35E-17

Dose Conversion Factors July 2023														
Radionuclides		Isotope-specific Information and Dose Conversion Factors												
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Ingestion DCF (Sv/Bq)	Adult Ingestion DCF (Sv/Bq)	Inhalation DCF (Sv/Bq)	Exposure DCF (Infinite Volume) (Sv/s per Bq/g)	External Exposure DCF (1 cm) (Sv/s per Bq/g)	External Exposure DCF (5 cm) (Sv/s per Bq/g)	External Exposure DCF (15 cm) (Sv/s per Bq/g)	External Exposure DCF (Ground Plane) (Sv/s per Bq/cm <sup>2</sup> )	External Exposure DCF (Submersion) (Sv/s per Bq/m <sup>3</sup> )	External Exposure DCF (Immersion) (Sv/s per Bq/L)
Tin (50)	Sn-119m	S	8.63E-01	8.03E-01	4.87E-10	3.53E-10	3.79E-09	1.47E-20	1.42E-20	1.47E-20	1.47E-20	9.81E-18	9.23E-17	2.17E-19
Tin (50)	Sn-121	S	2.25E+02	3.09E-03	3.17E-10	2.30E-10	2.84E-10	9.44E-22	3.74E-22	7.80E-22	9.38E-22	9.05E-20	3.98E-17	4.36E-20
Tin (50)	Sn-121m	S	1.58E-02	4.39E+01	5.30E-10	3.86E-10	1.59E-08	7.74E-21	6.87E-21	7.71E-21	7.74E-21	3.65E-18	5.31E-17	1.12E-19
Tin (50)	Sn-123	S	1.96E+00	3.54E-01	2.92E-09	2.11E-09	1.42E-08	2.84E-19	7.87E-20	1.70E-19	2.50E-19	6.55E-17	7.01E-16	1.15E-18
Tin (50)	Sn-123m	S	9.09E+03	7.62E-05	5.18E-11	3.85E-11	3.33E-11	3.19E-18	8.32E-19	2.25E-18	3.12E-18	1.75E-16	6.21E-15	1.34E-17
Tin (50)	Sn-125	S	2.62E+01	2.64E-02	4.19E-09	3.05E-09	3.97E-09	1.10E-17	2.09E-18	5.87E-18	9.35E-18	4.01E-16	1.64E-14	3.49E-17
Tin (50)	Sn-125m	-	3.83E+04	1.81E-05	0.00E+00	0.00E+00	0.00E+00	9.85E-18	2.18E-18	6.09E-18	9.14E-18	4.23E-16	1.60E-14	3.42E-17
Tin (50)	Sn-126	S	3.01E-06	2.30E+05	6.39E-09	4.80E-09	1.66E-07	6.97E-19	2.54E-19	6.98E-19	6.82E-19	4.82E-17	1.82E-15	4.09E-18
Tin (50)	Sn-127	S	2.89E+03	2.40E-04	2.64E-10	2.00E-10	1.66E-10	6.16E-17	1.13E-17	3.25E-17	5.21E-17	1.80E-15	9.02E-14	1.95E-16
Tin (50)	Sn-127m	-	8.82E+04	7.86E-06	0.00E+00	0.00E+00	0.00E+00	1.75E-17	3.59E-18	1.00E-17	1.55E-17	6.65E-16	2.67E-14	5.72E-17
Tin (50)	Sn-128	S	6.17E+03	1.12E-04	2.04E-10	1.54E-10	1.14E-10	1.61E-17	3.43E-18	9.61E-18	1.46E-17	5.67E-16	2.52E-14	5.49E-17
Tin (50)	Sn-129	-	1.63E+05	4.24E-06	0.00E+00	0.00E+00	0.00E+00	3.20E-17	6.25E-18	1.76E-17	2.78E-17	1.08E-15	4.76E-14	1.02E-16
Tin (50)	Sn-130	-	9.79E+04	7.08E-06	0.00E+00	0.00E+00	0.00E+00	2.68E-17	5.55E-18	1.57E-17	2.41E-17	9.19E-16	4.16E-14	9.04E-17
Tin (50)	Sn-130m	-	2.14E+05	3.23E-06	0.00E+00	0.00E+00	0.00E+00	2.78E-17	5.44E-18	1.52E-17	2.40E-17	9.64E-16	4.20E-14	8.99E-17
Strontium (38)	Sr-79	-	1.62E+05	4.28E-06	0.00E+00	0.00E+00	0.00E+00	3.45E-17	7.48E-18	2.07E-17	3.15E-17	1.30E-15	5.39E-14	1.16E-16
Strontium (38)	Sr-80	S	3.43E+03	2.02E-04	5.01E-10	3.78E-10	1.91E-10	1.26E-17	2.61E-18	7.43E-18	1.14E-17	4.13E-16	1.92E-14	4.17E-17
Strontium (38)	Sr-81	S	1.63E+04	4.24E-05	8.84E-11	6.71E-11	3.88E-11	4.05E-17	8.50E-18	2.40E-17	3.67E-17	1.43E-15	6.26E-14	1.35E-16
Strontium (38)	Sr-82	S	9.97E+00	6.95E-02	8.43E-09	6.19E-09	1.22E-08	5.02E-22	5.02E-22	5.02E-22	5.02E-22	1.52E-18	4.73E-18	1.10E-20
Strontium (38)	Sr-83	S	1.87E+02	3.70E-03	6.46E-10	5.14E-10	4.27E-10	2.48E-17	4.88E-18	1.40E-17	2.19E-17	7.80E-16	3.70E-14	8.02E-17
Strontium (38)	Sr-85	S	3.90E+00	1.78E-01	7.94E-10	5.50E-10	9.22E-10	1.45E-17	2.99E-18	8.53E-18	1.31E-17	4.72E-16	2.19E-14	4.77E-17
Strontium (38)	Sr-85m	S	5.39E+03	1.29E-04	7.53E-12	6.04E-12	5.22E-12	5.51E-18	1.29E-18	3.64E-18	5.29E-18	2.00E-16	9.42E-15	2.07E-17
Strontium (38)	Sr-87m	S	2.16E+03	3.21E-04	3.86E-11	3.04E-11	2.53E-11	9.01E-18	1.93E-18	5.51E-18	8.34E-18	3.03E-16	1.41E-14	3.07E-17
Strontium (38)	Sr-89	S	5.01E+00	1.38E-01	3.61E-09	2.57E-09	8.83E-09	8.15E-20	4.84E-20	6.71E-20	7.92E-20	6.88E-17	4.39E-16	5.26E-19
Strontium (38)	Sr-90	S	2.41E-02	2.88E+01	3.60E-08	2.76E-08	1.64E-07	3.46E-21	1.26E-21	2.72E-21	3.42E-21	1.64E-18	9.83E-17	1.09E-19
Strontium (38)	Sr-91	S	6.30E+02	1.10E-03	8.47E-10	6.58E-10	4.93E-10	2.24E-17	4.30E-18	1.23E-17	1.94E-17	7.35E-16	3.32E-14	7.14E-17
Strontium (38)	Sr-92	S	2.28E+03	3.04E-04	5.44E-10	4.20E-10	2.70E-10	4.44E-17	7.83E-18	2.27E-17	3.69E-17	1.22E-15	6.41E-14	1.39E-16
Strontium (38)	Sr-93	-	4.91E+04	1.41E-05	0.00E+00	0.00E+00	0.00E+00	7.28E-17	1.34E-17	3.87E-17	6.18E-17	2.17E-15	1.07E-13	2.31E-16
Strontium (38)	Sr-94	-	2.90E+05	2.39E-06	0.00E+00	0.00E+00	0.00E+00	4.79E-17	8.43E-18	2.44E-17	3.97E-17	1.40E-15	6.92E-14	1.49E-16
Tantalum (73)	Ta-170	-	5.39E+04	1.29E-05	0.00E+00	0.00E+00	0.00E+00	3.15E-17	6.69E-18	1.85E-17	2.83E-17	1.14E-15	4.88E-14	1.05E-16
Tantalum (73)	Ta-172	S	9.90E+03	7.00E-05	7.55E-11	5.77E-11	4.30E-11	5.21E-17	1.01E-17	2.86E-17	4.50E-17	1.62E-15	7.82E-14	1.69E-16
Tantalum (73)	Ta-173	S	1.93E+03	3.58E-04	1.44E-10	1.10E-10	9.37E-11	1.63E-17	3.31E-18	9.17E-18	1.42E-17	5.42E-16	2.56E-14	5.58E-17
Tantalum (73)	Ta-174	S	5.33E+03	1.30E-04	9.51E-11	7.20E-11	5.71E-11	2.90E-17	5.73E-18	1.62E-17	2.52E-17	9.37E-16	4.46E-14	9.68E-17
Tantalum (73)	Ta-175	S	5.78E+02	1.20E-03	3.04E-10	2.39E-10	1.79E-10	3.36E-17	6.39E-18	1.81E-17	2.86E-17	1.01E-15	5.09E-14	1.11E-16
Tantalum (73)	Ta-176	S	7.50E+02	9.24E-04	4.00E-10	3.17E-10	2.41E-10	7.34E-17	1.28E-17	3.71E-17	6.03E-17	2.00E-15	1.07E-13	2.32E-16
Tantalum (73)	Ta-177	S	1.07E+02	6.46E-03	1.46E-10	1.10E-10	1.22E-10	8.48E-19	3.10E-19	6.66E-19	8.16E-19	5.89E-17	2.17E-15	4.90E-18
Tantalum (73)	Ta-178	-	3.91E+04	1.77E-05	0.00E+00	0.00E+00	0.00E+00	2.62E-18	6.25E-19	1.58E-18	2.29E-18	1.09E-16	4.72E-15	1.04E-17
Tantalum (73)	Ta-178m	S	2.57E+03	2.69E-04	1.11E-10	8.52E-11	8.96E-11	2.94E-17	6.76E-18	1.87E-17	2.76E-17	1.08E-15	4.91E-14	1.08E-16
Tantalum (73)	Ta-179	S	3.81E-01	1.82E+00	7.97E-11	6.00E-11	5.46E-10	2.02E-19	1.02E-19	1.90E-19	2.02E-19	2.12E-17	6.96E-16	1.59E-18
Tantalum (73)	Ta-180	S	7.45E+02	9.31E-04	7.56E-11	5.58E-11	5.05E-11	4.35E-19	2.05E-19	3.97E-19	4.35E-19	4.18E-17	1.42E-15	3.22E-18
Tantalum (73)	Ta-182	S	2.21E+00	3.14E-01	1.99E-09	1.52E-09	1.14E-08	4.01E-17	7.55E-18	2.15E-17	3.42E-17	1.19E-15	5.98E-14	1.30E-16
Tantalum (73)	Ta-182m	S	2.30E+04	3.01E-05	1.63E-11	1.23E-11	2.60E-11	5.31E-18	1.44E-18	3.78E-18	5.17E-18	2.37E-16	1.05E-14	2.31E-17
Tantalum (73)	Ta-183	S	4.96E+01	1.40E-02	1.84E-09	1.35E-09	2.50E-09	6.43E-18	1.64E-18	4.37E-18	6.16E-18	2.70E-16	1.20E-14	2.63E-17
Tantalum (73)	Ta-184	S	6.98E+02	9.93E-04	8.95E-10	6.72E-10	5.10E-10	4.60E-17	9.41E-18	2.68E-17	4.12E-17	1.51E-15	7.07E-14	1.54E-16
Tantalum (73)	Ta-185	S	7.37E+03	9.40E-05	9.30E-11	6.89E-11	5.80E-11	3.41E-18	9.12E-19	2.35E-18	3.27E-18	2.15E-16	6.70E-15	1.43E-17
Tantalum (73)	Ta-186	S	3.47E+04	2.00E-05	4.66E-11	3.51E-11	2.14E-11	4.14E-17	8.65E-18	2.44E-17	3.73E-17	1.45E-15	6.43E-14	1.39E-16
Terbium (65)	Tb-146	-	9.50E+05	7.29E-07	0.00E+00	0.00E+00	0.00E+00	1.20E-16	2.15E-17	6.18E-17	9.98E-17	3.42E-15	1.74E-13	3.77E-16
Terbium (65)	Tb-147	S	3.70E+03	1.87E-04	1.62E-10	1.27E-10	8.82E-11	6.89E-17	1.29E-17	3.69E-17	5.88E-17	2.05E-15	1.02E-13	2.20E-16



Dose Conversion Factors July 2023														
Radionuclides		Isotope-specific Information and Dose Conversion Factors												
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Ingestion DCF (Sv/Bq)	Adult Ingestion DCF (Sv/Bq)	Inhalation DCF (Sv/Bq)	Exposure DCF (Infinite Volume) (Sv/s per Bq/g)	External Exposure DCF (1 cm) (Sv/s per Bq/g)	External Exposure DCF (5 cm) (Sv/s per Bq/g)	External Exposure DCF (15 cm) (Sv/s per Bq/g)	External Exposure DCF (Ground Plane) (Sv/s per Bq/cm <sup>2</sup> )	External Exposure DCF (Submersion) (Sv/s per Bq/m <sup>3</sup> )	External Exposure DCF (Immersion) (Sv/s per Bq/L)
Terbium (65)	Tb-147m	-	1.95E+05	3.56E-06	0.00E+00	0.00E+00	0.00E+00	6.27E-17	1.11E-17	3.22E-17	5.21E-17	1.77E-15	9.11E-14	1.97E-16
Terbium (65)	Tb-148	S	6.07E+03	1.14E-04	1.63E-10	1.24E-10	7.76E-11	7.53E-17	1.40E-17	4.02E-17	6.41E-17	2.26E-15	1.11E-13	2.40E-16
Terbium (65)	Tb-148m	-	1.66E+05	4.19E-06	0.00E+00	0.00E+00	0.00E+00	9.52E-17	1.89E-17	5.39E-17	8.42E-17	3.00E-15	1.42E-13	3.09E-16
Terbium (65)	Tb-149	S	1.47E+03	4.70E-04	2.40E-10	1.85E-10	4.87E-09	4.21E-17	7.95E-18	2.28E-17	3.61E-17	1.26E-15	6.28E-14	1.36E-16
Terbium (65)	Tb-149m	-	8.76E+04	7.91E-06	0.00E+00	0.00E+00	0.00E+00	4.14E-17	8.23E-18	2.34E-17	3.66E-17	1.33E-15	6.20E-14	1.34E-16
Terbium (65)	Tb-150	S	1.74E+03	3.97E-04	2.81E-10	2.18E-10	1.29E-10	8.03E-17	1.41E-17	4.07E-17	6.61E-17	2.21E-15	1.17E-13	2.54E-16
Terbium (65)	Tb-150m	-	6.28E+04	1.10E-05	0.00E+00	0.00E+00	0.00E+00	7.45E-17	1.52E-17	4.32E-17	6.69E-17	2.41E-15	1.12E-13	2.44E-16
Terbium (65)	Tb-151	S	3.45E+02	2.01E-03	4.66E-10	3.62E-10	2.96E-10	2.78E-17	5.81E-18	1.64E-17	2.50E-17	9.31E-16	4.34E-14	9.47E-17
Terbium (65)	Tb-151m	-	8.74E+05	7.93E-07	0.00E+00	0.00E+00	0.00E+00	1.97E-18	4.35E-19	1.18E-18	1.78E-18	7.30E-17	3.20E-15	6.99E-18
Terbium (65)	Tb-152	S	3.47E+02	2.00E-03	9.18E-10	6.99E-10	3.82E-10	4.70E-17	8.72E-18	2.50E-17	3.99E-17	1.39E-15	6.98E-14	1.51E-16
Terbium (65)	Tb-152m	-	8.67E+04	7.99E-06	0.00E+00	0.00E+00	0.00E+00	2.06E-17	4.45E-18	1.25E-17	1.88E-17	7.14E-16	3.28E-14	7.16E-17
Terbium (65)	Tb-153	S	1.08E+02	6.41E-03	3.78E-10	2.89E-10	2.64E-10	8.04E-18	1.83E-18	4.97E-18	7.36E-18	3.05E-16	1.35E-14	2.97E-17
Terbium (65)	Tb-154	S	2.82E+02	2.45E-03	7.92E-10	6.28E-10	4.30E-10	7.62E-17	1.30E-17	3.77E-17	6.18E-17	2.02E-15	1.11E-13	2.40E-16
Terbium (65)	Tb-155	S	4.75E+01	1.46E-02	3.51E-10	2.66E-10	3.50E-10	2.97E-18	8.85E-19	2.17E-18	2.89E-18	1.59E-16	6.30E-15	1.40E-17
Terbium (65)	Tb-156	S	4.73E+01	1.47E-02	1.48E-09	1.17E-09	1.44E-09	5.95E-17	1.13E-17	3.24E-17	5.12E-17	1.79E-15	8.87E-14	1.93E-16
Terbium (65)	Tb-156m	S	2.49E+02	2.79E-03	2.13E-10	1.65E-10	2.33E-10	2.35E-19	1.39E-19	2.29E-19	2.35E-19	3.27E-17	9.24E-16	2.13E-18
Terbium (65)	Tb-156n	S	1.15E+03	6.05E-04	1.16E-10	8.73E-11	1.28E-10	3.00E-20	1.44E-20	2.69E-20	3.00E-20	3.21E-18	9.97E-17	2.25E-19
Terbium (65)	Tb-157	F	9.76E-03	7.10E+01	5.27E-11	3.90E-11	3.42E-09	2.28E-20	1.51E-20	2.25E-20	2.28E-20	4.04E-18	9.83E-17	2.28E-19
Terbium (65)	Tb-158	F	3.85E-03	1.80E+02	1.45E-09	1.12E-09	1.10E-07	2.40E-17	4.69E-18	1.33E-17	2.09E-17	7.53E-16	3.61E-14	7.84E-17
Terbium (65)	Tb-160	S	3.50E+00	1.98E-01	2.15E-09	1.62E-09	9.17E-09	3.50E-17	6.68E-18	1.92E-17	3.03E-17	1.06E-15	5.20E-14	1.13E-16
Terbium (65)	Tb-161	S	3.66E+01	1.89E-02	1.02E-09	7.45E-10	1.59E-09	2.53E-19	1.26E-19	2.29E-19	2.52E-19	3.03E-17	9.14E-16	2.01E-18
Terbium (65)	Tb-162	-	4.79E+04	1.45E-05	0.00E+00	0.00E+00	0.00E+00	3.31E-17	6.64E-18	1.89E-17	2.94E-17	1.09E-15	5.04E-14	1.09E-16
Terbium (65)	Tb-163	S	1.87E+04	3.71E-05	2.81E-11	2.14E-11	2.03E-11	2.25E-17	4.78E-18	1.36E-17	2.07E-17	7.74E-16	3.51E-14	7.62E-17
Terbium (65)	Tb-164	-	1.21E+05	5.71E-06	0.00E+00	0.00E+00	0.00E+00	7.66E-17	1.45E-17	4.17E-17	6.60E-17	2.35E-15	1.14E-13	2.47E-16
Terbium (65)	Tb-165	-	1.73E+05	4.01E-06	0.00E+00	0.00E+00	0.00E+00	2.75E-17	5.02E-18	1.44E-17	2.31E-17	8.64E-16	4.04E-14	8.67E-17
Technetium (43)	Tc-101	S	2.57E+04	2.70E-05	2.50E-11	1.86E-11	1.44E-11	9.35E-18	2.06E-18	5.83E-18	8.73E-18	3.66E-16	1.52E-14	3.28E-17
Technetium (43)	Tc-102	-	4.14E+06	1.67E-07	0.00E+00	0.00E+00	0.00E+00	3.38E-18	9.01E-19	2.02E-18	2.99E-18	2.59E-16	5.85E-15	1.10E-17
Technetium (43)	Tc-102m	-	8.37E+04	8.28E-06	0.00E+00	0.00E+00	0.00E+00	8.11E-17	1.46E-17	4.21E-17	6.79E-17	2.34E-15	1.18E-13	2.56E-16
Technetium (43)	Tc-104	S	1.99E+04	3.48E-05	1.09E-10	8.16E-11	3.55E-11	7.47E-17	1.33E-17	3.82E-17	6.18E-17	2.17E-15	1.10E-13	2.37E-16
Technetium (43)	Tc-105	-	4.79E+04	1.45E-05	0.00E+00	0.00E+00	0.00E+00	2.44E-17	4.90E-18	1.37E-17	2.13E-17	8.68E-16	3.77E-14	8.10E-17
Technetium (43)	Tc-91	-	1.16E+05	5.97E-06	0.00E+00	0.00E+00	0.00E+00	8.19E-17	1.48E-17	4.25E-17	6.84E-17	2.41E-15	1.20E-13	2.60E-16
Technetium (43)	Tc-91m	-	1.10E+05	6.28E-06	0.00E+00	0.00E+00	0.00E+00	4.33E-17	9.01E-18	2.52E-17	3.89E-17	1.53E-15	6.60E-14	1.42E-16
Technetium (43)	Tc-92	-	8.57E+04	8.09E-06	0.00E+00	0.00E+00	0.00E+00	1.21E-16	2.30E-17	6.58E-17	1.04E-16	3.71E-15	1.79E-13	3.88E-16
Technetium (43)	Tc-93	S	2.21E+03	3.14E-04	8.84E-11	7.08E-11	5.59E-11	5.18E-17	9.12E-18	2.65E-17	4.30E-17	1.42E-15	7.46E-14	1.62E-16
Technetium (43)	Tc-93m	S	8.37E+03	8.28E-05	4.11E-11	3.23E-11	2.52E-11	3.20E-17	5.39E-18	1.57E-17	2.58E-17	8.31E-16	4.66E-14	1.01E-16
Technetium (43)	Tc-94	S	1.24E+03	5.57E-04	2.53E-10	2.05E-10	1.56E-10	8.23E-17	1.59E-17	4.57E-17	7.21E-17	2.51E-15	1.21E-13	2.63E-16
Technetium (43)	Tc-94m	S	7.00E+03	9.89E-05	1.36E-10	1.01E-10	5.61E-11	6.15E-17	1.17E-17	3.36E-17	5.32E-17	1.91E-15	9.11E-14	1.97E-16
Technetium (43)	Tc-95	S	3.04E+02	2.28E-03	2.26E-10	1.83E-10	1.33E-10	2.43E-17	4.73E-18	1.36E-17	2.13E-17	7.48E-16	3.59E-14	7.78E-17
Technetium (43)	Tc-95m	S	4.15E+00	1.67E-01	7.19E-10	5.70E-10	1.36E-09	2.01E-17	4.07E-18	1.16E-17	1.80E-17	6.43E-16	3.06E-14	6.64E-17
Technetium (43)	Tc-96	S	5.91E+01	1.17E-02	1.38E-09	1.13E-09	8.49E-10	7.77E-17	1.50E-17	4.30E-17	6.78E-17	2.36E-15	1.14E-13	2.48E-16
Technetium (43)	Tc-96m	S	7.07E+03	9.80E-05	1.58E-11	1.25E-11	9.07E-12	1.32E-18	2.50E-19	7.15E-19	1.14E-18	4.16E-17	1.94E-15	4.21E-18
Technetium (43)	Tc-97	S	2.67E-07	2.60E+06	9.47E-11	6.81E-11	1.90E-09	2.95E-21	2.97E-21	2.95E-21	2.95E-21	4.56E-18	2.21E-17	5.20E-20
Technetium (43)	Tc-97m	S	2.81E+00	2.47E-01	7.70E-10	5.49E-10	4.56E-09	8.13E-21	4.65E-21	7.10E-21	8.13E-21	4.37E-18	3.68E-17	8.10E-20
Technetium (43)	Tc-98	S	1.65E-07	4.20E+06	2.43E-09	1.86E-09	4.47E-08	4.32E-17	8.54E-18	2.45E-17	3.83E-17	1.34E-15	6.41E-14	1.39E-16
Technetium (43)	Tc-99	S	3.28E-06	2.11E+05	9.00E-10	6.42E-10	1.42E-08	5.91E-22	2.53E-22	5.03E-22	5.89E-22	6.55E-20	2.88E-17	3.14E-20
Technetium (43)	Tc-99m	S	1.01E+03	6.87E-04	2.91E-11	2.23E-11	2.33E-11	2.70E-18	7.23E-19	1.95E-18	2.66E-18	1.14E-16	5.27E-15	1.17E-17
Tellurium (52)	Te-113	-	2.14E+05	3.23E-06	0.00E+00	0.00E+00	0.00E+00	7.10E-17	1.35E-17	3.85E-17	6.10E-17	2.22E-15	1.05E-13	2.27E-16

Dose Conversion Factors July 2023														
Radionuclides		Isotope-specific Information and Dose Conversion Factors												
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Ingestion DCF (Sv/Bq)	Adult Ingestion DCF (Sv/Bq)	Inhalation DCF (Sv/Bq)	Exposure DCF (Infinite Volume) (Sv/s per Bq/g)	External Exposure DCF (1 cm) (Sv/s per Bq/g)	External Exposure DCF (5 cm) (Sv/s per Bq/g)	External Exposure DCF (15 cm) (Sv/s per Bq/g)	External Exposure DCF (Ground Plane) (Sv/s per Bq/cm <sup>2</sup> )	External Exposure DCF (Submersion) (Sv/s per Bq/m <sup>3</sup> )	External Exposure DCF (Immersion) (Sv/s per Bq/L)
Tellurium (52)	Te-114	V	2.40E+04	2.89E-05	8.71E-11	6.64E-11	3.82E-11	4.02E-17	7.42E-18	2.13E-17	3.41E-17	1.18E-15	5.92E-14	1.28E-16
Tellurium (52)	Te-115	-	6.28E+04	1.10E-05	0.00E+00	0.00E+00	0.00E+00	7.08E-17	1.35E-17	3.85E-17	6.11E-17	2.18E-15	1.05E-13	2.26E-16
Tellurium (52)	Te-115m	-	5.44E+04	1.27E-05	0.00E+00	0.00E+00	0.00E+00	8.35E-17	1.55E-17	4.45E-17	7.11E-17	2.48E-15	1.22E-13	2.65E-16
Tellurium (52)	Te-116	S	2.44E+03	2.84E-04	2.58E-10	1.98E-10	1.50E-10	2.01E-18	5.02E-19	1.30E-18	1.86E-18	9.70E-17	3.66E-15	8.08E-18
Tellurium (52)	Te-117	V	5.87E+03	1.18E-04	6.77E-11	5.28E-11	3.37E-11	4.95E-17	9.09E-18	2.62E-17	4.20E-17	1.45E-15	7.25E-14	1.57E-16
Tellurium (52)	Te-118	S	4.22E+01	1.64E-02	4.13E-09	3.04E-09	2.95E-09	2.48E-20	2.37E-20	2.48E-20	2.48E-20	1.42E-17	1.51E-16	3.56E-19
Tellurium (52)	Te-119	S	3.78E+02	1.83E-03	2.24E-10	1.79E-10	1.32E-10	2.31E-17	4.53E-18	1.29E-17	2.03E-17	7.21E-16	3.43E-14	7.44E-17
Tellurium (52)	Te-119m	V	5.38E+01	1.29E-02	8.96E-10	7.22E-10	7.32E-10	4.71E-17	8.77E-18	2.52E-17	4.01E-17	1.38E-15	6.97E-14	1.51E-16
Tellurium (52)	Te-121	V	1.32E+01	5.25E-02	5.65E-10	4.54E-10	6.53E-10	1.66E-17	3.41E-18	9.68E-18	1.50E-17	5.47E-16	2.51E-14	5.45E-17
Tellurium (52)	Te-121m	S	1.64E+00	4.22E-01	3.03E-09	2.36E-09	6.35E-09	5.32E-18	1.22E-18	3.42E-18	5.02E-18	1.98E-16	9.02E-15	1.98E-17
Tellurium (52)	Te-123	V	1.16E-15	6.00E+14	1.49E-09	1.36E-09	3.93E-09	4.30E-23	4.11E-23	4.31E-23	4.30E-23	2.47E-20	2.63E-19	6.19E-22
Tellurium (52)	Te-123m	S	2.12E+00	3.27E-01	1.87E-09	1.37E-09	5.55E-09	3.06E-18	7.97E-19	2.16E-18	3.00E-18	1.32E-16	5.81E-15	1.28E-17
Tellurium (52)	Te-125m	S	4.41E+00	1.57E-01	1.22E-09	8.70E-10	4.51E-09	5.95E-20	5.14E-20	5.83E-20	5.95E-20	2.68E-17	3.36E-16	7.78E-19
Tellurium (52)	Te-127	S	6.49E+02	1.07E-03	2.30E-10	1.70E-10	1.66E-10	1.43E-19	3.18E-20	8.81E-20	1.32E-19	1.05E-17	3.35E-16	6.02E-19
Tellurium (52)	Te-127m	S	2.32E+00	2.99E-01	3.40E-09	2.35E-09	1.08E-08	2.20E-20	1.66E-20	2.04E-20	2.17E-20	8.54E-18	1.12E-16	2.55E-19
Tellurium (52)	Te-129	V	5.23E+03	1.32E-04	8.51E-11	6.30E-11	4.25E-11	1.76E-18	3.91E-19	1.05E-18	1.60E-18	1.16E-16	2.99E-15	6.13E-18
Tellurium (52)	Te-129m	S	7.53E+00	9.21E-02	4.25E-09	2.98E-09	8.73E-09	9.45E-19	2.07E-19	5.47E-19	8.40E-19	5.83E-17	1.57E-15	3.26E-18
Tellurium (52)	Te-131	V	1.46E+04	4.76E-05	1.21E-10	8.71E-11	8.45E-11	1.20E-17	2.56E-18	7.13E-18	1.08E-17	4.72E-16	1.92E-14	4.14E-17
Tellurium (52)	Te-131m	V	2.02E+02	3.42E-03	2.69E-09	1.93E-09	3.14E-09	4.51E-17	8.65E-18	2.48E-17	3.92E-17	1.36E-15	6.69E-14	1.45E-16
Tellurium (52)	Te-132	V	7.89E+01	8.78E-03	5.36E-09	3.78E-09	6.61E-09	5.32E-18	1.28E-18	3.54E-18	5.11E-18	2.13E-16	9.35E-15	2.05E-17
Tellurium (52)	Te-133	V	2.91E+04	2.38E-05	1.01E-10	6.97E-11	7.26E-11	3.81E-17	7.16E-18	2.06E-17	3.26E-17	1.18E-15	5.67E-14	1.23E-16
Tellurium (52)	Te-133m	V	6.57E+03	1.05E-04	3.64E-10	2.50E-10	2.81E-10	5.85E-17	1.11E-17	3.18E-17	5.04E-17	1.76E-15	8.64E-14	1.87E-16
Tellurium (52)	Te-134	V	8.71E+03	7.95E-05	1.33E-10	9.82E-11	9.70E-11	2.50E-17	5.20E-18	1.48E-17	2.26E-17	8.25E-16	3.87E-14	8.42E-17
Thorium (90)	Th-223	-	3.64E+07	1.90E-08	0.00E+00	0.00E+00	0.00E+00	1.27E-18	3.84E-19	9.72E-19	1.25E-18	6.36E-17	2.78E-15	6.18E-18
Thorium (90)	Th-224	-	2.08E+07	3.33E-08	0.00E+00	0.00E+00	0.00E+00	5.46E-19	1.33E-19	3.69E-19	5.26E-19	2.10E-17	9.75E-16	2.14E-18
Thorium (90)	Th-226	S	1.19E+04	5.82E-05	4.76E-10	3.52E-10	6.74E-08	1.61E-19	4.39E-20	1.17E-19	1.58E-19	7.21E-18	3.21E-16	7.08E-19
Thorium (90)	Th-227	S	1.35E+01	5.12E-02	1.47E-08	9.11E-09	1.12E-05	3.02E-18	7.17E-19	1.99E-18	2.88E-18	1.15E-16	5.22E-15	1.15E-17
Thorium (90)	Th-228	S	3.63E-01	1.91E+00	1.16E-07	7.20E-08	4.35E-05	3.88E-20	1.14E-20	2.90E-20	3.81E-20	2.16E-18	8.25E-17	1.84E-19
Thorium (90)	Th-229	S	9.44E-05	7.34E+03	6.09E-07	4.99E-07	7.55E-05	1.54E-18	4.59E-19	1.17E-18	1.52E-18	7.75E-17	3.32E-15	7.40E-18
Thorium (90)	Th-230	F	9.19E-06	7.54E+04	2.53E-07	2.14E-07	1.04E-04	5.92E-21	2.11E-21	4.75E-21	5.84E-21	6.41E-19	1.52E-17	3.42E-20
Thorium (90)	Th-231	S	2.38E+02	2.91E-03	4.61E-10	3.34E-10	3.78E-10	1.74E-19	6.27E-20	1.43E-19	1.74E-19	1.52E-17	4.63E-16	1.02E-18
Thorium (90)	Th-232	S	4.93E-11	1.41E+10	2.78E-07	2.31E-07	2.56E-05	2.56E-21	1.10E-21	2.22E-21	2.55E-21	4.53E-19	7.90E-18	1.80E-20
Thorium (90)	Th-233	S	1.63E+04	4.24E-05	2.93E-11	2.18E-11	2.12E-11	9.78E-19	2.25E-19	6.00E-19	8.93E-19	6.99E-17	1.79E-15	3.63E-18
Thorium (90)	Th-234	S	1.05E+01	6.60E-02	4.68E-09	3.39E-09	8.60E-09	1.24E-19	4.49E-19	1.03E-19	1.42E-19	8.19E-18	3.22E-16	7.22E-19
Thorium (90)	Th-235	-	5.13E+04	1.35E-05	0.00E+00	0.00E+00	0.00E+00	1.70E-18	3.89E-19	1.01E-18	1.53E-18	1.30E-16	2.93E-15	5.86E-18
Thorium (90)	Th-236	S	9.71E+03	7.13E-05	1.17E-10	8.73E-11	6.71E-11	8.99E-19	2.11E-19	5.68E-19	8.33E-19	5.96E-17	1.68E-15	3.44E-18
Titanium (22)	Ti-44	S	1.16E-02	6.00E+01	7.41E-09	5.80E-09	1.33E-07	1.74E-18	6.92E-19	1.52E-18	1.74E-18	1.23E-16	4.88E-15	1.10E-17
Titanium (22)	Ti-45	S	1.97E+03	3.52E-04	2.01E-10	1.51E-10	1.11E-10	2.56E-17	5.30E-18	1.51E-17	2.32E-17	8.66E-16	3.90E-14	8.45E-17
Titanium (22)	Ti-51	-	6.32E+04	1.10E-05	0.00E+00	0.00E+00	0.00E+00	1.06E-17	2.33E-18	6.51E-18	9.81E-18	4.54E-16	1.71E-14	3.66E-17
Titanium (22)	Ti-52	-	2.14E+05	3.23E-06	0.00E+00	0.00E+00	0.00E+00	2.65E-18	7.88E-19	1.99E-18	2.62E-18	2.05E-16	5.75E-15	1.22E-17
Thallium (81)	Tl-190	-	1.40E+05	4.95E-06	0.00E+00	0.00E+00	0.00E+00	3.87E-17	8.14E-18	2.27E-17	3.49E-17	1.36E-15	5.94E-14	1.28E-16
Thallium (81)	Tl-190m	-	9.84E+04	7.04E-06	0.00E+00	0.00E+00	0.00E+00	7.34E-17	1.49E-17	4.24E-17	6.56E-17	2.40E-15	1.11E-13	2.41E-16
Thallium (81)	Tl-194	S	1.10E+04	6.28E-05	6.05E-11	4.57E-11	2.30E-11	2.65E-17	5.60E-18	1.57E-17	2.40E-17	9.25E-16	4.10E-14	8.87E-17
Thallium (81)	Tl-194m	S	1.11E+04	6.24E-05	4.95E-11	3.89E-11	3.54E-11	7.45E-17	1.52E-17	4.31E-17	6.66E-17	2.41E-15	1.13E-13	2.46E-16
Thallium (81)	Tl-195	S	5.23E+03	1.32E-04	3.10E-11	2.47E-11	2.98E-11	3.88E-17	7.06E-18	2.03E-17	3.25E-17	1.11E-15	5.74E-14	1.25E-16
Thallium (81)	Tl-196	S	3.30E+03	2.10E-04	6.42E-11	5.09E-11	4.70E-11	5.96E-17	1.10E-17	3.15E-17	5.03E-17	1.72E-15	8.80E-14	1.91E-16
Thallium (81)	Tl-197	S	2.14E+03	3.24E-04	2.96E-11	2.31E-11	4.50E-11	1.27E-17	2.64E-18	7.34E-18	1.12E-17	4.22E-16	2.02E-14	4.40E-17

Dose Conversion Factors July 2023														
Radionuclides		Isotope-specific Information and Dose Conversion Factors												
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Ingestion DCF (Sv/Bq)	Adult Ingestion DCF (Sv/Bq)	Inhalation DCF (Sv/Bq)	Exposure DCF (Infinite Volume) (Sv/s per Bq/g)	External Exposure DCF (1 cm) (Sv/s per Bq/g)	External Exposure DCF (5 cm) (Sv/s per Bq/g)	External Exposure DCF (15 cm) (Sv/s per Bq/g)	External Exposure DCF (Ground Plane) (Sv/s per Bq/cm <sup>2</sup> )	External Exposure DCF (Submersion) (Sv/s per Bq/m <sup>3</sup> )	External Exposure DCF (Immersion) (Sv/s per Bq/L)
Thallium (81)	Tl-198	S	1.15E+03	6.05E-04	9.03E-11	7.41E-11	9.13E-11	6.46E-17	1.17E-17	3.37E-17	5.41E-17	1.82E-15	9.50E-14	2.06E-16
Thallium (81)	Tl-198m	S	3.25E+03	2.13E-04	7.00E-11	5.53E-11	8.09E-11	3.46E-17	7.27E-18	2.06E-17	3.14E-17	1.15E-15	5.36E-14	1.17E-16
Thallium (81)	Tl-199	S	8.18E+02	8.47E-04	3.48E-11	2.71E-11	5.81E-11	5.87E-18	1.42E-18	3.80E-18	5.46E-18	2.29E-16	1.03E-14	2.27E-17
Thallium (81)	Tl-200	S	2.33E+02	2.98E-03	2.47E-10	2.02E-10	2.14E-10	3.97E-17	7.73E-18	2.20E-17	3.46E-17	1.22E-15	5.98E-14	1.30E-16
Thallium (81)	Tl-201	S	8.33E+01	8.32E-03	1.27E-10	9.90E-11	2.20E-10	1.31E-18	4.57E-19	1.07E-18	1.30E-18	7.93E-17	3.26E-15	7.32E-18
Thallium (81)	Tl-202	S	2.07E+01	3.35E-02	5.60E-10	4.58E-10	4.59E-10	1.24E-17	2.75E-18	7.63E-18	1.14E-17	4.37E-16	1.99E-14	4.36E-17
Thallium (81)	Tl-204	S	1.83E-01	3.78E+00	1.61E-09	1.19E-09	2.05E-08	2.24E-20	9.49E-21	1.91E-20	2.23E-20	1.09E-17	1.75E-16	2.44E-19
Thallium (81)	Tl-206	-	8.67E+04	7.99E-06	0.00E+00	0.00E+00	0.00E+00	6.84E-20	4.06E-20	6.67E-20	6.12E-17	3.97E-16	4.75E-19	
Thallium (81)	Tl-206m	-	9.74E+04	7.12E-06	0.00E+00	0.00E+00	0.00E+00	7.17E-17	1.45E-17	4.14E-17	6.41E-17	2.29E-15	1.09E-13	2.37E-16
Thallium (81)	Tl-207	-	7.64E+04	9.08E-06	0.00E+00	0.00E+00	0.00E+00	1.28E-19	4.66E-20	8.56E-20	1.17E-19	5.61E-17	4.61E-16	6.50E-19
Thallium (81)	Tl-208	-	1.19E+05	5.81E-06	0.00E+00	0.00E+00	0.00E+00	1.16E-16	1.90E-17	5.55E-17	9.23E-17	2.96E-15	1.68E-13	3.64E-16
Thallium (81)	Tl-209	-	1.69E+05	4.11E-06	0.00E+00	0.00E+00	0.00E+00	6.89E-17	1.26E-17	3.62E-17	5.79E-17	2.02E-15	1.02E-13	2.20E-16
Thallium (81)	Tl-210	-	2.80E+05	2.47E-06	0.00E+00	0.00E+00	0.00E+00	8.98E-17	1.64E-17	4.71E-17	7.57E-17	2.64E-15	1.32E-13	2.85E-16
Thulium (69)	Tm-161	S	1.21E+04	5.75E-05	5.05E-11	3.92E-11	3.06E-11	3.87E-17	7.35E-18	2.07E-17	3.27E-17	1.19E-15	5.89E-14	1.28E-16
Thulium (69)	Tm-162	S	1.68E+04	4.13E-05	5.17E-11	3.95E-11	2.40E-11	6.21E-17	1.12E-17	3.20E-17	5.16E-17	1.78E-15	9.14E-14	1.98E-16
Thulium (69)	Tm-163	S	3.35E+03	2.07E-04	6.97E-11	5.44E-11	4.53E-11	4.03E-17	7.58E-18	2.15E-17	3.41E-17	1.20E-15	6.03E-14	1.31E-16
Thulium (69)	Tm-164	-	1.82E+05	3.81E-06	0.00E+00	0.00E+00	0.00E+00	2.35E-17	4.66E-18	1.31E-17	2.05E-17	7.84E-16	3.57E-14	7.70E-17
Thulium (69)	Tm-165	S	2.02E+02	3.43E-03	4.65E-10	3.58E-10	2.74E-10	1.49E-17	3.23E-18	8.92E-18	1.35E-17	5.23E-16	2.40E-14	5.23E-17
Thulium (69)	Tm-166	S	7.88E+02	8.79E-04	3.62E-10	2.87E-10	2.18E-10	6.34E-17	1.14E-17	3.29E-17	5.30E-17	1.79E-15	9.30E-14	2.02E-16
Thulium (69)	Tm-167	S	2.73E+01	2.53E-02	7.91E-10	5.83E-10	1.47E-09	2.76E-18	7.61E-19	1.92E-18	2.66E-18	1.33E-16	5.49E-15	1.21E-17
Thulium (69)	Tm-168	S	2.72E+00	2.55E-01	1.34E-09	1.04E-09	5.60E-09	3.59E-17	7.35E-18	2.07E-17	3.20E-17	1.17E-15	5.51E-14	1.20E-16
Thulium (69)	Tm-170	S	1.97E+00	3.52E-01	1.81E-09	1.31E-09	1.01E-08	6.08E-20	2.70E-20	5.22E-20	6.06E-20	2.49E-17	3.25E-16	5.14E-19
Thulium (69)	Tm-171	S	3.61E-01	1.92E+00	1.48E-10	1.06E-10	1.39E-09	4.82E-21	2.50E-21	4.55E-21	4.82E-21	5.31E-19	1.70E-17	3.89E-20
Thulium (69)	Tm-172	S	9.55E+01	7.26E-03	2.32E-09	1.70E-09	1.42E-09	1.56E-17	2.80E-18	8.02E-18	1.30E-17	4.84E-16	2.29E-14	4.92E-17
Thulium (69)	Tm-173	S	7.37E+02	9.41E-04	4.07E-10	3.01E-10	2.25E-10	1.09E-17	2.35E-18	6.66E-18	1.01E-17	3.86E-16	1.72E-14	3.74E-17
Thulium (69)	Tm-174	-	6.75E+04	1.03E-05	0.00E+00	0.00E+00	0.00E+00	5.24E-17	1.06E-17	3.02E-17	4.67E-17	1.70E-15	8.05E-14	1.75E-16
Thulium (69)	Tm-175	S	2.40E+04	2.89E-05	3.42E-11	2.59E-11	2.26E-11	3.31E-17	6.52E-18	1.86E-17	2.91E-17	1.07E-15	4.96E-14	1.07E-16
Thulium (69)	Tm-176	-	1.97E+05	3.52E-06	0.00E+00	0.00E+00	0.00E+00	6.32E-17	1.15E-17	3.31E-17	5.30E-17	1.87E-15	9.39E-14	2.03E-16
Uranium (92)	U-227	-	3.31E+05	2.09E-06	0.00E+00	0.00E+00	0.00E+00	2.64E-18	6.63E-19	1.81E-18	2.55E-18	1.06E-16	4.85E-15	1.07E-17
Uranium (92)	U-228	-	4.00E+04	1.73E-05	0.00E+00	0.00E+00	0.00E+00	7.84E-20	2.19E-20	5.71E-20	7.68E-20	3.91E-18	1.59E-16	3.53E-19
Uranium (92)	U-230	S	1.22E+01	5.70E-02	7.21E-08	5.57E-08	1.76E-05	2.12E-20	6.29E-21	1.56E-20	2.07E-20	1.52E-18	4.56E-17	1.02E-19
Uranium (92)	U-231	S	6.02E+01	1.15E-02	4.63E-10	3.38E-10	5.80E-10	1.15E-18	3.70E-19	9.12E-19	1.14E-18	6.67E-17	2.66E-15	5.96E-18
Uranium (92)	U-232	S	1.01E-02	6.89E+01	4.04E-07	3.34E-07	3.89E-05	3.87E-21	1.48E-21	3.09E-21	3.82E-21	7.30E-19	1.08E-17	2.43E-20
Uranium (92)	U-233	S	4.35E-06	1.59E+05	6.02E-08	5.12E-08	1.03E-05	4.92E-21	1.45E-21	3.51E-21	4.76E-21	4.76E-19	1.06E-17	2.35E-20
Uranium (92)	U-234	S	2.82E-06	2.46E+05	5.81E-08	4.95E-08	1.01E-05	1.85E-21	8.39E-22	1.56E-21	1.84E-21	5.80E-19	6.14E-18	1.40E-20
Uranium (92)	U-235	S	9.84E-10	7.04E+08	5.49E-08	4.67E-08	9.13E-06	3.75E-18	9.41E-19	2.60E-18	3.65E-18	1.49E-16	6.87E-15	1.51E-17
Uranium (92)	U-235m	M	1.40E+04	4.95E-05	5.82E-15	4.31E-15	9.01E-16	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Uranium (92)	U-236	S	2.96E-08	2.34E+07	5.47E-08	4.66E-08	9.36E-06	9.41E-22	5.10E-22	8.26E-22	9.39E-22	4.82E-19	3.78E-18	8.69E-21
Uranium (92)	U-237	S	3.75E+01	1.85E-02	1.06E-09	7.77E-10	2.10E-09	2.56E-18	7.28E-19	1.87E-18	2.51E-18	1.23E-16	5.28E-15	1.17E-17
Uranium (92)	U-238	S	1.55E-10	4.47E+09	5.24E-08	4.46E-08	8.68E-06	9.17E-22	4.26E-22	7.15E-22	8.66E-22	3.91E-19	3.20E-18	7.32E-21
Uranium (92)	U-239	S	1.55E+04	4.46E-05	3.73E-11	2.76E-11	2.78E-11	8.33E-19	2.73E-19	6.27E-19	7.95E-19	8.15E-17	2.10E-15	4.41E-18
Uranium (92)	U-240	S	4.31E+02	1.61E-03	1.50E-09	1.09E-09	6.61E-10	8.00E-20	2.50E-20	6.13E-20	7.92E-20	5.59E-18	2.07E-16	4.30E-19
Uranium (92)	U-242	S	2.17E+04	3.20E-05	7.07E-11	5.26E-11	3.35E-11	1.04E-18	2.51E-19	6.56E-19	9.56E-19	7.21E-17	1.96E-15	4.03E-18
Vanadium (23)	V-47	S	1.12E+04	6.20E-05	8.37E-11	6.30E-11	3.66E-11	2.94E-17	6.13E-18	1.74E-17	2.67E-17	1.05E-15	4.50E-14	9.72E-17
Vanadium (23)	V-48	S	1.58E+01	4.38E-02	2.54E-09	1.99E-09	3.09E-09	9.33E-17	1.73E-17	4.99E-17	7.97E-17	2.71E-15	1.36E-13	2.95E-16
Vanadium (23)	V-49	S	7.67E-01	9.04E-01	2.53E-11	1.84E-11	7.97E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Vanadium (23)	V-50	F	4.62E-18	1.50E+17	3.75E-09	3.41E-09	6.69E-08	4.79E-17	8.28E-18	2.41E-17	3.94E-17	1.28E-15	6.87E-14	1.49E-16

Dose Conversion Factors July 2023														
Radionuclides		Isotope-specific Information and Dose Conversion Factors												
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Ingestion DCF (Sv/Bq)	Adult Ingestion DCF (Sv/Bq)	Inhalation DCF (Sv/Bq)	Exposure DCF (Infinite Volume) (Sv/s per Bq/g)	External Exposure DCF (1 cm) (Sv/s per Bq/g)	External Exposure DCF (5 cm) (Sv/s per Bq/g)	External Exposure DCF (15 cm) (Sv/s per Bq/g)	External Exposure DCF (Ground Plane) (Sv/s per Bq/cm <sup>2</sup> )	External Exposure DCF (Submersion) (Sv/s per Bq/m <sup>3</sup> )	External Exposure DCF (Immersion) (Sv/s per Bq/L)
Vanadium (23)	V-52	-	9.73E+04	7.12E-06	0.00E+00	0.00E+00	0.00E+00	4.88E-17	8.58E-18	2.47E-17	4.03E-17	1.43E-15	7.05E-14	1.52E-16
Vanadium (23)	V-53	-	2.26E+05	3.06E-06	0.00E+00	0.00E+00	0.00E+00	3.35E-17	6.32E-18	1.80E-17	2.87E-17	1.09E-15	4.93E-14	1.06E-16
Tungsten (74)	W-177	S	2.76E+03	2.51E-04	7.19E-11	5.65E-11	5.22E-11	2.49E-17	5.30E-18	1.47E-17	2.23E-17	8.50E-16	3.99E-14	8.70E-17
Tungsten (74)	W-178	S	1.17E+01	5.92E-02	3.28E-10	2.49E-10	9.29E-10	1.29E-19	6.33E-20	1.20E-19	1.29E-19	1.28E-17	4.33E-16	9.89E-19
Tungsten (74)	W-179	S	9.83E+03	7.05E-05	4.72E-12	3.59E-12	1.62E-12	4.25E-19	2.13E-19	3.97E-19	4.25E-19	4.54E-17	1.45E-15	3.32E-18
Tungsten (74)	W-179m	-	5.69E+04	1.22E-05	0.00E+00	0.00E+00	0.00E+00	8.43E-19	2.73E-19	6.40E-19	8.22E-19	4.88E-17	1.99E-15	4.39E-18
Tungsten (74)	W-181	S	2.09E+00	3.32E-01	1.13E-10	8.64E-11	3.25E-10	3.43E-19	1.69E-19	3.20E-19	3.43E-19	3.40E-17	1.15E-15	2.63E-18
Tungsten (74)	W-185	S	3.37E+00	2.06E-01	6.06E-10	4.44E-10	4.24E-09	1.98E-21	7.27E-22	1.60E-21	1.96E-21	1.67E-19	4.96E-17	5.67E-20
Tungsten (74)	W-185m	-	2.28E+05	3.04E-06	0.00E+00	0.00E+00	0.00E+00	4.17E-19	1.27E-19	3.15E-19	4.10E-19	2.15E-17	9.33E-16	2.05E-18
Tungsten (74)	W-187	S	2.56E+02	2.71E-03	7.98E-10	5.97E-10	4.83E-10	1.29E-17	2.68E-18	7.56E-18	1.16E-17	4.41E-16	2.00E-14	4.33E-17
Tungsten (74)	W-188	S	3.62E+00	1.91E-01	2.85E-09	2.09E-09	1.72E-08	4.76E-20	1.13E-20	3.12E-20	4.53E-20	1.81E-18	1.10E-16	2.08E-19
Tungsten (74)	W-190	S	1.21E+04	5.71E-05	1.11E-10	8.37E-11	8.54E-11	2.49E-18	7.83E-19	1.90E-18	2.46E-18	1.54E-16	5.75E-15	1.26E-17
Xenon (54)	Xe-120	-	9.11E+03	7.61E-05	0.00E+00	0.00E+00	0.00E+00	1.05E-17	2.22E-18	6.19E-18	9.47E-18	3.71E-16	1.65E-14	3.60E-17
Xenon (54)	Xe-121	-	9.08E+03	7.63E-05	0.00E+00	0.00E+00	0.00E+00	4.68E-17	8.61E-18	2.47E-17	3.95E-17	1.40E-15	6.95E-14	1.50E-16
Xenon (54)	Xe-122	-	3.02E+02	2.29E-03	0.00E+00	0.00E+00	0.00E+00	1.25E-18	3.05E-19	8.01E-19	1.17E-18	6.01E-17	2.19E-15	4.81E-18
Xenon (54)	Xe-123	-	2.92E+03	2.37E-04	0.00E+00	0.00E+00	0.00E+00	1.85E-17	3.72E-18	1.05E-17	1.63E-17	6.09E-16	2.85E-14	6.20E-17
Xenon (54)	Xe-125	-	3.59E+02	1.93E-03	0.00E+00	0.00E+00	0.00E+00	6.35E-18	1.47E-18	4.07E-18	5.96E-18	2.47E-16	1.08E-14	2.37E-17
Xenon (54)	Xe-127	-	6.95E+00	9.97E-02	0.00E+00	0.00E+00	0.00E+00	6.48E-18	1.55E-18	4.28E-18	6.20E-18	2.56E-16	1.13E-14	2.48E-17
Xenon (54)	Xe-127m	-	3.16E+05	2.19E-06	0.00E+00	0.00E+00	0.00E+00	3.31E-18	9.02E-19	2.39E-18	3.25E-18	1.51E-16	6.57E-15	1.45E-17
Xenon (54)	Xe-129m	-	2.85E+01	2.43E-02	0.00E+00	0.00E+00	0.00E+00	3.06E-19	1.27E-19	2.33E-19	2.98E-19	4.17E-17	9.18E-16	2.01E-18
Xenon (54)	Xe-131m	-	2.14E+01	3.24E-02	0.00E+00	0.00E+00	0.00E+00	1.05E-19	4.69E-20	8.29E-20	1.03E-19	1.63E-17	3.57E-16	7.64E-19
Xenon (54)	Xe-133	-	4.82E+01	1.44E-02	0.00E+00	0.00E+00	0.00E+00	4.76E-19	1.91E-19	4.08E-19	4.77E-19	4.06E-17	1.37E-15	3.06E-18
Xenon (54)	Xe-133m	-	1.16E+02	6.00E-03	0.00E+00	0.00E+00	0.00E+00	6.35E-19	1.68E-19	4.27E-19	6.09E-19	3.53E-17	1.29E-15	2.75E-18
Xenon (54)	Xe-135	-	6.64E+02	1.04E-03	0.00E+00	0.00E+00	0.00E+00	6.57E-18	1.49E-18	4.22E-18	6.23E-18	2.50E-16	1.10E-14	2.39E-17
Xenon (54)	Xe-135m	-	2.38E+04	2.91E-05	0.00E+00	0.00E+00	0.00E+00	1.24E-17	2.56E-18	7.30E-18	1.13E-17	4.15E-16	1.89E-14	4.09E-17
Xenon (54)	Xe-137	-	9.54E+04	7.26E-06	0.00E+00	0.00E+00	0.00E+00	6.42E-18	1.49E-18	3.78E-18	5.73E-18	3.48E-16	1.04E-14	2.12E-17
Xenon (54)	Xe-138	-	2.59E+04	2.68E-05	0.00E+00	0.00E+00	0.00E+00	3.74E-17	6.55E-18	1.89E-17	3.08E-17	1.07E-15	5.47E-14	1.18E-16
Yttrium (39)	Y-81	-	3.10E+05	2.23E-06	0.00E+00	0.00E+00	0.00E+00	3.40E-17	7.44E-18	2.05E-17	3.10E-17	1.29E-15	5.35E-14	1.15E-16
Yttrium (39)	Y-83	-	5.14E+04	1.35E-05	0.00E+00	0.00E+00	0.00E+00	4.07E-17	8.28E-18	2.33E-17	3.62E-17	1.41E-15	6.16E-14	1.33E-16
Yttrium (39)	Y-83m	-	1.28E+05	5.42E-06	0.00E+00	0.00E+00	0.00E+00	2.43E-17	5.19E-18	1.46E-17	2.22E-17	8.80E-16	3.77E-14	8.15E-17
Yttrium (39)	Y-84m	S	9.22E+03	7.52E-05	1.79E-10	1.37E-10	7.50E-11	1.25E-16	2.40E-17	6.87E-17	1.08E-16	3.86E-15	1.84E-13	3.98E-16
Yttrium (39)	Y-85	S	2.27E+03	3.06E-04	2.43E-10	1.83E-10	1.16E-10	3.19E-17	6.58E-18	1.87E-17	2.88E-17	1.09E-15	4.85E-14	1.05E-16
Yttrium (39)	Y-85m	S	1.25E+03	5.55E-04	4.94E-10	3.70E-10	2.04E-10	4.16E-17	7.90E-18	2.27E-17	3.59E-17	1.29E-15	6.18E-14	1.34E-16
Yttrium (39)	Y-86	S	4.12E+02	1.68E-03	1.22E-09	9.56E-10	5.69E-10	1.15E-16	2.11E-17	6.10E-17	9.77E-17	3.31E-15	1.68E-13	3.64E-16
Yttrium (39)	Y-86m	S	7.59E+03	9.13E-05	7.17E-11	5.61E-11	3.42E-11	5.65E-18	1.30E-18	3.68E-18	5.37E-18	2.03E-16	9.60E-15	2.10E-17
Yttrium (39)	Y-87	S	7.61E+01	9.11E-03	7.12E-10	5.47E-10	4.64E-10	1.28E-17	2.66E-18	7.57E-18	1.16E-17	4.20E-16	1.94E-14	4.23E-17
Yttrium (39)	Y-87m	S	4.54E+02	1.53E-03	2.89E-10	2.19E-10	1.66E-10	8.62E-18	1.85E-18	5.28E-18	7.99E-18	2.91E-16	1.35E-14	2.94E-17
Yttrium (39)	Y-88	F	2.37E+00	2.92E-01	1.61E-09	1.30E-09	6.89E-09	9.06E-17	1.56E-17	4.54E-17	7.43E-17	2.41E-15	1.30E-13	2.82E-16
Yttrium (39)	Y-89m	-	1.40E+06	4.97E-07	0.00E+00	0.00E+00	0.00E+00	2.84E-17	5.40E-18	1.55E-17	2.46E-17	8.49E-16	4.16E-14	9.02E-17
Yttrium (39)	Y-90	S	9.47E+01	7.32E-03	3.70E-09	2.68E-09	1.77E-09	2.15E-19	1.26E-19	1.74E-19	2.07E-19	1.10E-16	7.91E-16	9.86E-19
Yttrium (39)	Y-90m	S	1.90E+03	3.64E-04	2.35E-10	1.74E-10	1.20E-10	1.76E-17	3.82E-18	1.09E-17	1.63E-17	6.02E-16	2.80E-14	6.10E-17
Yttrium (39)	Y-91	S	4.32E+00	1.60E-01	3.27E-09	2.37E-09	9.91E-09	1.87E-19	7.02E-20	1.24E-19	1.69E-19	7.43E-17	6.01E-16	8.61E-19
Yttrium (39)	Y-91m	S	7.33E+03	9.46E-05	1.46E-11	1.16E-11	1.33E-11	1.57E-17	3.21E-18	9.15E-18	1.42E-17	5.08E-16	2.36E-14	5.13E-17
Yttrium (39)	Y-92	S	1.71E+03	4.04E-04	6.79E-10	4.95E-10	2.15E-10	8.57E-18	1.77E-18	4.71E-18	7.38E-18	3.83E-16	1.32E-14	2.74E-17
Yttrium (39)	Y-93	S	5.96E+02	1.16E-03	1.60E-09	1.16E-09	5.20E-10	3.43E-18	7.53E-19	1.90E-18	2.93E-18	2.17E-16	5.63E-15	1.13E-17
Yttrium (39)	Y-94	S	1.95E+04	3.56E-05	1.13E-10	8.45E-11	3.29E-11	2.56E-17	4.96E-18	1.38E-17	2.19E-17	8.90E-16	3.82E-14	8.12E-17
Yttrium (39)	Y-95	S	3.54E+04	1.96E-05	5.71E-11	4.27E-11	1.81E-11	3.94E-17	6.51E-18	1.87E-17	3.11E-17	1.09E-15	5.71E-14	1.23E-16



Dose Conversion Factors July 2023														
Radionuclides		Isotope-specific Information and Dose Conversion Factors												
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Ingestion DCF (Sv/Bq)	Adult Ingestion DCF (Sv/Bq)	Inhalation DCF (Sv/Bq)	Exposure DCF (Infinite Volume) (Sv/s per Bq/g)	External Exposure DCF (1 cm) (Sv/s per Bq/g)	External Exposure DCF (5 cm) (Sv/s per Bq/g)	External Exposure DCF (15 cm) (Sv/s per Bq/g)	External Exposure DCF (Ground Plane) (Sv/s per Bq/cm <sup>2</sup> )	External Exposure DCF (Submersion) (Sv/s per Bq/m <sup>3</sup> )	External Exposure DCF (Immersion) (Sv/s per Bq/L)
Ytterbium (70)	Yb-162	S	1.93E+04	3.59E-05	4.05E-11	3.11E-11	2.09E-11	5.49E-18	1.38E-18	3.64E-18	5.17E-18	2.30E-16	1.00E-14	2.21E-17
Ytterbium (70)	Yb-163	S	3.30E+04	2.10E-05	2.07E-11	1.60E-11	1.02E-11	2.17E-17	4.28E-18	1.20E-17	1.89E-17	7.04E-16	3.29E-14	7.13E-17
Ytterbium (70)	Yb-164	S	4.81E+03	1.44E-04	1.22E-10	9.16E-11	5.31E-11	6.31E-19	2.34E-19	4.80E-19	5.99E-19	4.77E-17	1.61E-15	3.64E-18
Ytterbium (70)	Yb-165	-	3.68E+04	1.88E-05	0.00E+00	0.00E+00	0.00E+00	8.15E-18	1.83E-18	4.83E-18	7.21E-18	3.13E-16	1.37E-14	3.01E-17
Ytterbium (70)	Yb-166	S	1.07E+02	6.47E-03	1.23E-09	9.57E-10	8.90E-10	6.88E-19	3.50E-19	6.40E-19	6.88E-19	7.49E-17	2.37E-15	5.42E-18
Ytterbium (70)	Yb-167	S	2.08E+04	3.33E-05	9.01E-12	6.88E-12	8.09E-12	4.30E-18	1.34E-18	3.20E-18	4.16E-18	2.38E-16	9.55E-15	2.14E-17
Ytterbium (70)	Yb-169	S	7.90E+00	8.77E-02	1.10E-09	8.20E-10	3.76E-09	5.54E-18	1.67E-18	4.06E-18	5.39E-18	2.95E-16	1.19E-14	2.65E-17
Ytterbium (70)	Yb-175	S	6.04E+01	1.15E-02	6.03E-10	4.39E-10	8.11E-10	1.03E-18	2.32E-19	6.47E-19	9.60E-19	3.69E-17	1.73E-15	3.73E-18
Ytterbium (70)	Yb-177	S	3.18E+03	2.18E-04	1.25E-10	8.97E-11	8.45E-11	5.76E-18	1.16E-18	3.24E-18	5.01E-18	2.23E-16	9.11E-15	1.95E-17
Ytterbium (70)	Yb-178	S	4.92E+03	1.41E-04	1.58E-10	1.16E-10	8.63E-11	1.06E-18	2.31E-19	6.54E-19	9.86E-19	3.91E-17	1.76E-15	3.74E-18
Ytterbium (70)	Yb-179	-	4.55E+04	1.52E-05	0.00E+00	0.00E+00	0.00E+00	2.89E-17	5.94E-18	1.69E-17	2.60E-17	1.01E-15	4.40E-14	9.52E-17
Zinc (30)	Zn-60	-	1.53E+05	4.53E-06	0.00E+00	0.00E+00	0.00E+00	4.52E-17	9.42E-18	2.66E-17	4.09E-17	1.59E-15	6.91E-14	1.49E-16
Zinc (30)	Zn-61	-	2.45E+05	2.83E-06	0.00E+00	0.00E+00	0.00E+00	4.81E-17	9.55E-18	2.69E-17	4.21E-17	1.61E-15	7.23E-14	1.55E-16
Zinc (30)	Zn-62	S	6.61E+02	1.05E-03	1.22E-09	9.36E-10	6.58E-10	1.27E-17	2.64E-18	7.48E-18	1.15E-17	4.19E-16	1.94E-14	4.21E-17
Zinc (30)	Zn-63	S	9.47E+03	7.32E-05	1.06E-10	7.99E-11	4.43E-11	3.28E-17	6.77E-18	1.91E-17	2.95E-17	1.16E-15	4.99E-14	1.08E-16
Zinc (30)	Zn-65	F	1.04E+00	6.69E-01	4.77E-09	3.92E-09	2.56E-09	1.87E-17	3.43E-18	9.91E-18	1.59E-17	5.37E-16	2.72E-14	5.88E-17
Zinc (30)	Zn-69	S	6.46E+03	1.07E-04	4.14E-11	3.08E-11	3.22E-11	1.58E-20	8.14E-21	1.29E-20	1.55E-20	2.09E-17	2.00E-16	2.28E-19
Zinc (30)	Zn-69m	S	4.41E+02	1.57E-03	4.33E-10	3.33E-10	3.23E-10	1.20E-17	2.53E-18	7.20E-18	1.10E-17	3.98E-16	1.84E-14	4.01E-17
Zinc (30)	Zn-71	-	1.49E+05	4.66E-06	0.00E+00	0.00E+00	0.00E+00	9.80E-18	2.05E-18	5.64E-18	8.72E-18	4.19E-16	1.52E-14	3.22E-17
Zinc (30)	Zn-71m	S	1.53E+03	4.52E-04	3.10E-10	2.41E-10	1.96E-10	4.63E-17	9.48E-18	2.70E-17	4.17E-17	1.54E-15	7.04E-14	1.53E-16
Zinc (30)	Zn-72	S	1.31E+02	5.31E-03	1.82E-09	1.42E-09	1.55E-09	3.20E-18	8.46E-19	2.29E-18	3.14E-18	1.33E-16	6.18E-15	1.37E-17
Zirconium (40)	Zr-85	-	4.63E+04	1.50E-05	0.00E+00	0.00E+00	0.00E+00	4.43E-17	9.13E-18	2.57E-17	3.98E-17	1.54E-15	6.74E-14	1.45E-16
Zirconium (40)	Zr-86	S	3.68E+02	1.88E-03	1.10E-09	8.57E-10	5.26E-10	7.24E-18	1.64E-18	4.64E-18	6.85E-18	2.63E-16	1.20E-14	2.63E-17
Zirconium (40)	Zr-87	S	3.61E+03	1.92E-04	2.51E-10	1.82E-10	1.08E-10	2.77E-17	5.71E-18	1.62E-17	2.49E-17	9.81E-16	4.22E-14	9.10E-17
Zirconium (40)	Zr-88	S	3.03E+00	2.28E-01	5.37E-10	4.41E-10	3.99E-09	1.08E-17	2.32E-18	6.61E-18	1.00E-17	3.66E-16	1.69E-14	3.68E-17
Zirconium (40)	Zr-89	S	7.74E+01	8.95E-03	1.02E-09	7.91E-10	6.47E-10	3.58E-17	6.91E-18	1.98E-17	3.13E-17	1.10E-15	5.29E-14	1.15E-16
Zirconium (40)	Zr-89m	-	8.75E+04	7.92E-06	0.00E+00	0.00E+00	0.00E+00	1.93E-17	3.82E-18	1.09E-17	1.71E-17	6.04E-16	2.88E-14	6.24E-17
Zirconium (40)	Zr-93	F	4.53E-07	1.53E+06	1.00E-09	1.07E-09	2.20E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.45E-22	6.75E-25
Zirconium (40)	Zr-95	S	3.95E+00	1.75E-01	1.26E-09	9.67E-10	6.48E-09	2.25E-17	4.42E-18	1.27E-17	1.99E-17	6.96E-16	3.33E-14	7.23E-17
Zirconium (40)	Zr-97	S	3.63E+02	1.91E-03	2.80E-09	2.06E-09	1.17E-09	2.73E-17	5.36E-18	1.53E-17	2.40E-17	9.18E-16	4.07E-14	8.79E-17

Animal Transfer Factors July 2023											
Radionuclides		Isotope-specific Information and Animal Transfer Factors									
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Fish bioconcentration factor (Bq/kg per Bq/L)	Shellfish bioconcentration factor (Bq/kg per Bq/L)	Plant-to-beef transfer factor (day/kg)	Plant-to-dairy transfer factor (day/kg)	Plant-to-swine transfer factor (day/kg)	Plant-to-poultry transfer factor (day/kg)	Plant-to-egg transfer factor (day/kg)
Actinium (89)	Ac-223	-	1.73E+05	4.00E-06	1.50E+01	.	2.00E-05	2.00E-06	.	.	.
Actinium (89)	Ac-224	S	2.18E+03	3.17E-04	1.50E+01	.	2.00E-05	2.00E-06	.	.	.
Actinium (89)	Ac-225	S	2.53E+01	2.74E-02	1.50E+01	.	2.00E-05	2.00E-06	.	.	.
Actinium (89)	Ac-226	S	2.07E+02	3.35E-03	1.50E+01	.	2.00E-05	2.00E-06	.	.	.
Actinium (89)	Ac-227	S	3.18E-02	2.18E+01	1.50E+01	.	2.00E-05	2.00E-06	.	.	.
Actinium (89)	Ac-228	S	9.87E+02	7.02E-04	1.50E+01	.	2.00E-05	2.00E-06	.	.	.
Actinium (89)	Ac-230	-	1.79E+05	3.87E-06	1.50E+01	.	2.00E-05	2.00E-06	.	.	.
Actinium (89)	Ac-231	-	4.86E+04	1.43E-05	1.50E+01	.	2.00E-05	2.00E-06	.	.	.
Actinium (89)	Ac-232	-	1.84E+05	3.77E-06	1.50E+01	.	2.00E-05	2.00E-06	.	.	.
Actinium (89)	Ac-233	-	1.51E+05	4.60E-06	1.50E+01	.	2.00E-05	2.00E-06	.	.	.
Silver (47)	Ag-100m	-	1.63E+05	4.26E-06	1.10E+02	2.30E+02	1.00E-03	3.00E-02	2.00E-02	2.00E+00	.
Silver (47)	Ag-101	S	3.28E+04	2.11E-05	1.10E+02	2.30E+02	1.00E-03	3.00E-02	2.00E-02	2.00E+00	.
Silver (47)	Ag-102	S	2.82E+04	2.45E-05	1.10E+02	2.30E+02	1.00E-03	3.00E-02	2.00E-02	2.00E+00	.
Silver (47)	Ag-102m	-	4.73E+04	1.46E-05	1.10E+02	2.30E+02	1.00E-03	3.00E-02	2.00E-02	2.00E+00	.
Silver (47)	Ag-103	S	5.54E+03	1.25E-04	1.10E+02	2.30E+02	1.00E-03	3.00E-02	2.00E-02	2.00E+00	.
Silver (47)	Ag-104	S	5.26E+03	1.32E-04	1.10E+02	2.30E+02	1.00E-03	3.00E-02	2.00E-02	2.00E+00	.
Silver (47)	Ag-104m	S	1.09E+04	6.37E-05	1.10E+02	2.30E+02	1.00E-03	3.00E-02	2.00E-02	2.00E+00	.
Silver (47)	Ag-105	S	6.13E+00	1.13E-01	1.10E+02	2.30E+02	1.00E-03	3.00E-02	2.00E-02	2.00E+00	.
Silver (47)	Ag-105m	-	5.04E+04	1.38E-05	1.10E+02	2.30E+02	1.00E-03	3.00E-02	2.00E-02	2.00E+00	.
Silver (47)	Ag-106	S	1.52E+04	4.56E-05	1.10E+02	2.30E+02	1.00E-03	3.00E-02	2.00E-02	2.00E+00	.
Silver (47)	Ag-106m	S	3.05E+01	2.27E-02	1.10E+02	2.30E+02	1.00E-03	3.00E-02	2.00E-02	2.00E+00	.
Silver (47)	Ag-108	-	1.54E+05	4.51E-06	1.10E+02	2.30E+02	1.00E-03	3.00E-02	2.00E-02	2.00E+00	.
Silver (47)	Ag-108m	S	1.66E-03	4.18E+02	1.10E+02	2.30E+02	1.00E-03	3.00E-02	2.00E-02	2.00E+00	.
Silver (47)	Ag-109m	-	5.52E+05	1.26E-06	1.10E+02	2.30E+02	1.00E-03	3.00E-02	2.00E-02	2.00E+00	.
Silver (47)	Ag-110	-	8.88E+05	7.80E-07	1.10E+02	2.30E+02	1.00E-03	3.00E-02	2.00E-02	2.00E+00	.
Silver (47)	Ag-110m	S	1.01E+00	6.84E-01	1.10E+02	2.30E+02	1.00E-03	3.00E-02	2.00E-02	2.00E+00	.
Silver (47)	Ag-111	S	3.40E+01	2.04E-02	1.10E+02	2.30E+02	1.00E-03	3.00E-02	2.00E-02	2.00E+00	.
Silver (47)	Ag-111m	-	3.37E+05	2.05E-06	1.10E+02	2.30E+02	1.00E-03	3.00E-02	2.00E-02	2.00E+00	.
Silver (47)	Ag-112	S	1.94E+03	3.57E-04	1.10E+02	2.30E+02	1.00E-03	3.00E-02	2.00E-02	2.00E+00	.
Silver (47)	Ag-113	S	1.13E+03	6.13E-04	1.10E+02	2.30E+02	1.00E-03	3.00E-02	2.00E-02	2.00E+00	.
Silver (47)	Ag-113m	-	3.18E+05	2.18E-06	1.10E+02	2.30E+02	1.00E-03	3.00E-02	2.00E-02	2.00E+00	.
Silver (47)	Ag-114	-	4.75E+06	1.46E-07	1.10E+02	2.30E+02	1.00E-03	3.00E-02	2.00E-02	2.00E+00	.
Silver (47)	Ag-115	S	1.82E+04	3.81E-05	1.10E+02	2.30E+02	1.00E-03	3.00E-02	2.00E-02	2.00E+00	.
Silver (47)	Ag-116	-	1.36E+05	5.10E-06	1.10E+02	2.30E+02	1.00E-03	3.00E-02	2.00E-02	2.00E+00	.
Silver (47)	Ag-117	-	2.97E+05	2.33E-06	1.10E+02	2.30E+02	1.00E-03	3.00E-02	2.00E-02	2.00E+00	.
Silver (47)	Ag-99	-	1.76E+05	3.93E-06	1.10E+02	2.30E+02	1.00E-03	3.00E-02	2.00E-02	2.00E+00	.
Aluminum (13)	Al-26	S	9.67E-07	7.17E+05	5.10E+01	3.40E+03	5.00E-04	2.00E-04	.	.	.
Aluminum (13)	Al-28	-	1.63E+05	4.26E-06	5.10E+01	3.40E+03	5.00E-04	2.00E-04	.	.	.

Animal Transfer Factors July 2023												
Radionuclides		Isotope-specific Information and Animal Transfer Factors										
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Fish bioconcentration factor (Bq/kg per Bq/L)	Shellfish bioconcentration factor (Bq/kg per Bq/L)	Plant-to-beef transfer factor (day/kg)	Plant-to-dairy transfer factor (day/kg)	Plant-to-swine transfer factor (day/kg)	Plant-to-poultry transfer factor (day/kg)	Plant-to-egg transfer factor (day/kg)	
Aluminum (13)	Al-29	-	5.55E+04	1.25E-05	5.10E+01	3.40E+03	5.00E-04	2.00E-04	.	.	.	
Americium (95)	Am-237	S	4.99E+03	1.39E-04	2.40E+02	2.40E+03	5.00E-04	4.20E-07	1.70E-04	6.00E-03	3.00E-03	
Americium (95)	Am-238	S	3.72E+03	1.86E-04	2.40E+02	2.40E+03	5.00E-04	4.20E-07	1.70E-04	6.00E-03	3.00E-03	
Americium (95)	Am-239	S	5.10E+02	1.36E-03	2.40E+02	2.40E+03	5.00E-04	4.20E-07	1.70E-04	6.00E-03	3.00E-03	
Americium (95)	Am-240	S	1.20E+02	5.80E-03	2.40E+02	2.40E+03	5.00E-04	4.20E-07	1.70E-04	6.00E-03	3.00E-03	
Americium (95)	Am-241	F	1.60E-03	4.32E+02	2.40E+02	2.40E+03	5.00E-04	4.20E-07	1.70E-04	6.00E-03	3.00E-03	
Americium (95)	Am-242	S	3.79E+02	1.83E-03	2.40E+02	2.40E+03	5.00E-04	4.20E-07	1.70E-04	6.00E-03	3.00E-03	
Americium (95)	Am-242m	F	4.91E-03	1.41E+02	2.40E+02	2.40E+03	5.00E-04	4.20E-07	1.70E-04	6.00E-03	3.00E-03	
Americium (95)	Am-243	F	9.40E-05	7.37E+03	2.40E+02	2.40E+03	5.00E-04	4.20E-07	1.70E-04	6.00E-03	3.00E-03	
Americium (95)	Am-244	S	6.01E+02	1.15E-03	2.40E+02	2.40E+03	5.00E-04	4.20E-07	1.70E-04	6.00E-03	3.00E-03	
Americium (95)	Am-244m	S	1.40E+04	4.95E-05	2.40E+02	2.40E+03	5.00E-04	4.20E-07	1.70E-04	6.00E-03	3.00E-03	
Americium (95)	Am-245	S	2.96E+03	2.34E-04	2.40E+02	2.40E+03	5.00E-04	4.20E-07	1.70E-04	6.00E-03	3.00E-03	
Americium (95)	Am-246	S	9.34E+03	7.42E-05	2.40E+02	2.40E+03	5.00E-04	4.20E-07	1.70E-04	6.00E-03	3.00E-03	
Americium (95)	Am-246m	S	1.46E+04	4.76E-05	2.40E+02	2.40E+03	5.00E-04	4.20E-07	1.70E-04	6.00E-03	3.00E-03	
Americium (95)	Am-247	S	1.58E+04	4.38E-05	2.40E+02	2.40E+03	5.00E-04	4.20E-07	1.70E-04	6.00E-03	3.00E-03	
Argon (18)	Ar-37	-	7.22E+00	9.60E-02	0.00E+00	.	0.00E+00	0.00E+00	.	.	.	
Argon (18)	Ar-39	-	2.58E-03	2.69E+02	0.00E+00	.	0.00E+00	0.00E+00	.	.	.	
Argon (18)	Ar-41	-	3.32E+03	2.09E-04	0.00E+00	.	0.00E+00	0.00E+00	.	.	.	
Argon (18)	Ar-42	-	2.11E-02	3.29E+01	0.00E+00	.	0.00E+00	0.00E+00	.	.	.	
Argon (18)	Ar-43	-	6.78E+04	1.02E-05	0.00E+00	.	0.00E+00	0.00E+00	.	.	.	
Argon (18)	Ar-44	-	3.07E+04	2.26E-05	0.00E+00	.	0.00E+00	0.00E+00	.	.	.	
Arsenic (33)	As-68	-	1.44E+05	4.81E-06	3.30E+02	1.50E+03	2.00E-02	1.00E-04	.	.	.	
Arsenic (33)	As-69	S	2.39E+04	2.90E-05	3.30E+02	1.50E+03	2.00E-02	1.00E-04	.	.	.	
Arsenic (33)	As-70	S	6.92E+03	1.00E-04	3.30E+02	1.50E+03	2.00E-02	1.00E-04	.	.	.	
Arsenic (33)	As-71	S	9.30E+01	7.45E-03	3.30E+02	1.50E+03	2.00E-02	1.00E-04	.	.	.	
Arsenic (33)	As-72	S	2.33E+02	2.97E-03	3.30E+02	1.50E+03	2.00E-02	1.00E-04	.	.	.	
Arsenic (33)	As-73	S	3.15E+00	2.20E-01	3.30E+02	1.50E+03	2.00E-02	1.00E-04	.	.	.	
Arsenic (33)	As-74	S	1.42E+01	4.87E-02	3.30E+02	1.50E+03	2.00E-02	1.00E-04	.	.	.	
Arsenic (33)	As-76	S	2.35E+02	2.95E-03	3.30E+02	1.50E+03	2.00E-02	1.00E-04	.	.	.	
Arsenic (33)	As-77	S	1.56E+02	4.43E-03	3.30E+02	1.50E+03	2.00E-02	1.00E-04	.	.	.	
Arsenic (33)	As-78	S	4.02E+03	1.73E-04	3.30E+02	1.50E+03	2.00E-02	1.00E-04	.	.	.	
Arsenic (33)	As-79	-	4.04E+04	1.71E-05	3.30E+02	1.50E+03	2.00E-02	1.00E-04	.	.	.	
Astatine (85)	At-204	-	3.96E+04	1.75E-05	.	.	1.00E-02	1.00E-02	.	.	.	
Astatine (85)	At-205	S	1.39E+04	4.98E-05	.	.	1.00E-02	1.00E-02	.	.	.	
Astatine (85)	At-206	S	1.19E+04	5.82E-05	.	.	1.00E-02	1.00E-02	.	.	.	
Astatine (85)	At-207	S	3.37E+03	2.05E-04	.	.	1.00E-02	1.00E-02	.	.	.	
Astatine (85)	At-208	S	3.72E+03	1.86E-04	.	.	1.00E-02	1.00E-02	.	.	.	
Astatine (85)	At-209	S	1.12E+03	6.18E-04	.	.	1.00E-02	1.00E-02	.	.	.	

Animal Transfer Factors July 2023											
Radionuclides		Isotope-specific Information and Animal Transfer Factors									
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Fish bioconcentration factor (Bq/kg per Bq/L)	Shellfish bioconcentration factor (Bq/kg per Bq/L)	Plant-to-beef transfer factor (day/kg)	Plant-to-dairy transfer factor (day/kg)	Plant-to-swine transfer factor (day/kg)	Plant-to-poultry transfer factor (day/kg)	Plant-to-egg transfer factor (day/kg)
Astatine (85)	At-210	S	7.49E+02	9.25E-04	.	.	1.00E-02	1.00E-02	.	.	.
Astatine (85)	At-211	S	8.42E+02	8.24E-04	.	.	1.00E-02	1.00E-02	.	.	.
Astatine (85)	At-215	-	2.19E+11	3.17E-12	.	.	1.00E-02	1.00E-02	.	.	.
Astatine (85)	At-216	-	7.28E+10	9.51E-12	.	.	1.00E-02	1.00E-02	.	.	.
Astatine (85)	At-217	-	6.77E+08	1.02E-09	.	.	1.00E-02	1.00E-02	.	.	.
Astatine (85)	At-218	-	1.46E+07	4.76E-08	.	.	1.00E-02	1.00E-02	.	.	.
Astatine (85)	At-219	-	3.90E+05	1.78E-06	.	.	1.00E-02	1.00E-02	.	.	.
Astatine (85)	At-220	-	9.82E+04	7.06E-06	.	.	1.00E-02	1.00E-02	.	.	.
Gold (79)	Au-186	S	3.40E+04	2.04E-05	2.40E+02	1.40E+03	5.00E-03	5.50E-06	.	.	.
Gold (79)	Au-187	-	4.34E+04	1.60E-05	2.40E+02	1.40E+03	5.00E-03	5.50E-06	.	.	.
Gold (79)	Au-190	S	8.51E+03	8.14E-05	2.40E+02	1.40E+03	5.00E-03	5.50E-06	.	.	.
Gold (79)	Au-191	S	1.91E+03	3.63E-04	2.40E+02	1.40E+03	5.00E-03	5.50E-06	.	.	.
Gold (79)	Au-192	S	1.23E+03	5.64E-04	2.40E+02	1.40E+03	5.00E-03	5.50E-06	.	.	.
Gold (79)	Au-193	S	3.44E+02	2.01E-03	2.40E+02	1.40E+03	5.00E-03	5.50E-06	.	.	.
Gold (79)	Au-193m	-	5.60E+06	1.24E-07	2.40E+02	1.40E+03	5.00E-03	5.50E-06	.	.	.
Gold (79)	Au-194	S	1.60E+02	4.34E-03	2.40E+02	1.40E+03	5.00E-03	5.50E-06	.	.	.
Gold (79)	Au-195	S	1.36E+00	5.10E-01	2.40E+02	1.40E+03	5.00E-03	5.50E-06	.	.	.
Gold (79)	Au-195m	-	7.17E+05	9.67E-07	2.40E+02	1.40E+03	5.00E-03	5.50E-06	.	.	.
Gold (79)	Au-196	S	4.09E+01	1.69E-02	2.40E+02	1.40E+03	5.00E-03	5.50E-06	.	.	.
Gold (79)	Au-196m	S	6.32E+02	1.10E-03	2.40E+02	1.40E+03	5.00E-03	5.50E-06	.	.	.
Gold (79)	Au-198	S	9.39E+01	7.38E-03	2.40E+02	1.40E+03	5.00E-03	5.50E-06	.	.	.
Gold (79)	Au-198m	S	1.11E+02	6.22E-03	2.40E+02	1.40E+03	5.00E-03	5.50E-06	.	.	.
Gold (79)	Au-199	S	8.06E+01	8.60E-03	2.40E+02	1.40E+03	5.00E-03	5.50E-06	.	.	.
Gold (79)	Au-200	S	7.53E+03	9.21E-05	2.40E+02	1.40E+03	5.00E-03	5.50E-06	.	.	.
Gold (79)	Au-200m	S	3.25E+02	2.13E-03	2.40E+02	1.40E+03	5.00E-03	5.50E-06	.	.	.
Gold (79)	Au-201	S	1.40E+04	4.95E-05	2.40E+02	1.40E+03	5.00E-03	5.50E-06	.	.	.
Gold (79)	Au-202	-	7.59E+05	9.13E-07	2.40E+02	1.40E+03	5.00E-03	5.50E-06	.	.	.
Barium (56)	Ba-124	S	3.31E+04	2.09E-05	1.20E+00	1.40E+02	1.40E-04	1.60E-04	.	1.90E-02	8.70E-01
Barium (56)	Ba-126	S	3.64E+03	1.90E-04	1.20E+00	1.40E+02	1.40E-04	1.60E-04	.	1.90E-02	8.70E-01
Barium (56)	Ba-127	S	2.87E+04	2.42E-05	1.20E+00	1.40E+02	1.40E-04	1.60E-04	.	1.90E-02	8.70E-01
Barium (56)	Ba-128	S	1.04E+02	6.66E-03	1.20E+00	1.40E+02	1.40E-04	1.60E-04	.	1.90E-02	8.70E-01
Barium (56)	Ba-129	S	2.72E+03	2.55E-04	1.20E+00	1.40E+02	1.40E-04	1.60E-04	.	1.90E-02	8.70E-01
Barium (56)	Ba-129m	S	2.81E+03	2.47E-04	1.20E+00	1.40E+02	1.40E-04	1.60E-04	.	1.90E-02	8.70E-01
Barium (56)	Ba-131	S	2.20E+01	3.15E-02	1.20E+00	1.40E+02	1.40E-04	1.60E-04	.	1.90E-02	8.70E-01
Barium (56)	Ba-131m	S	2.49E+04	2.78E-05	1.20E+00	1.40E+02	1.40E-04	1.60E-04	.	1.90E-02	8.70E-01
Barium (56)	Ba-133	S	6.59E-02	1.05E+01	1.20E+00	1.40E+02	1.40E-04	1.60E-04	.	1.90E-02	8.70E-01
Barium (56)	Ba-133m	S	1.56E+02	4.44E-03	1.20E+00	1.40E+02	1.40E-04	1.60E-04	.	1.90E-02	8.70E-01
Barium (56)	Ba-135m	S	2.12E+02	3.28E-03	1.20E+00	1.40E+02	1.40E-04	1.60E-04	.	1.90E-02	8.70E-01



Animal Transfer Factors July 2023											
Radionuclides		Isotope-specific Information and Animal Transfer Factors									
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Fish bioconcentration factor (Bq/kg per Bq/L)	Shellfish bioconcentration factor (Bq/kg per Bq/L)	Plant-to-beef transfer factor (day/kg)	Plant-to-dairy transfer factor (day/kg)	Plant-to-swine transfer factor (day/kg)	Plant-to-poultry transfer factor (day/kg)	Plant-to-egg transfer factor (day/kg)
Barium (56)	Ba-137m	-	1.43E+05	4.86E-06	1.20E+00	1.40E+02	1.40E-04	1.60E-04	.	1.90E-02	8.70E-01
Barium (56)	Ba-139	S	4.39E+03	1.58E-04	1.20E+00	1.40E+02	1.40E-04	1.60E-04	.	1.90E-02	8.70E-01
Barium (56)	Ba-140	S	1.98E+01	3.49E-02	1.20E+00	1.40E+02	1.40E-04	1.60E-04	.	1.90E-02	8.70E-01
Barium (56)	Ba-141	S	1.99E+04	3.48E-05	1.20E+00	1.40E+02	1.40E-04	1.60E-04	.	1.90E-02	8.70E-01
Barium (56)	Ba-142	S	3.44E+04	2.02E-05	1.20E+00	1.40E+02	1.40E-04	1.60E-04	.	1.90E-02	8.70E-01
Beryllium (4)	Be-10	S	4.59E-07	1.51E+06	1.00E+02	.	5.00E-03	8.30E-07	.	.	.
Beryllium (4)	Be-7	S	4.75E+00	1.46E-01	1.00E+02	.	5.00E-03	8.30E-07	.	.	.
Bismuth (83)	Bi-197	-	3.92E+04	1.77E-05	1.50E+01	.	2.00E-03	1.00E-03	.	.	.
Bismuth (83)	Bi-200	S	1.00E+04	6.93E-05	1.50E+01	.	2.00E-03	1.00E-03	.	.	.
Bismuth (83)	Bi-201	S	3.37E+03	2.05E-04	1.50E+01	.	2.00E-03	1.00E-03	.	.	.
Bismuth (83)	Bi-202	S	3.53E+03	1.96E-04	1.50E+01	.	2.00E-03	1.00E-03	.	.	.
Bismuth (83)	Bi-203	S	5.16E+02	1.34E-03	1.50E+01	.	2.00E-03	1.00E-03	.	.	.
Bismuth (83)	Bi-204	S	5.41E+02	1.28E-03	1.50E+01	.	2.00E-03	1.00E-03	.	.	.
Bismuth (83)	Bi-205	S	1.65E+01	4.19E-02	1.50E+01	.	2.00E-03	1.00E-03	.	.	.
Bismuth (83)	Bi-206	S	4.05E+01	1.71E-02	1.50E+01	.	2.00E-03	1.00E-03	.	.	.
Bismuth (83)	Bi-207	S	2.11E-02	3.29E+01	1.50E+01	.	2.00E-03	1.00E-03	.	.	.
Bismuth (83)	Bi-208	S	1.88E-06	3.68E+05	1.50E+01	.	2.00E-03	1.00E-03	.	.	.
Bismuth (83)	Bi-210	S	5.05E+01	1.37E-02	1.50E+01	.	2.00E-03	1.00E-03	.	.	.
Bismuth (83)	Bi-210m	S	2.28E-07	3.04E+06	1.50E+01	.	2.00E-03	1.00E-03	.	.	.
Bismuth (83)	Bi-211	-	1.70E+05	4.07E-06	1.50E+01	.	2.00E-03	1.00E-03	.	.	.
Bismuth (83)	Bi-212	S	6.02E+03	1.15E-04	1.50E+01	.	2.00E-03	1.00E-03	.	.	.
Bismuth (83)	Bi-212n	-	5.20E+04	1.33E-05	1.50E+01	.	2.00E-03	1.00E-03	.	.	.
Bismuth (83)	Bi-213	S	7.99E+03	8.67E-05	1.50E+01	.	2.00E-03	1.00E-03	.	.	.
Bismuth (83)	Bi-214	S	1.83E+04	3.79E-05	1.50E+01	.	2.00E-03	1.00E-03	.	.	.
Bismuth (83)	Bi-215	-	4.79E+04	1.45E-05	1.50E+01	.	2.00E-03	1.00E-03	.	.	.
Bismuth (83)	Bi-216	-	1.68E+05	4.13E-06	1.50E+01	.	2.00E-03	1.00E-03	.	.	.
Berkelium (97)	Bk-245	S	5.12E+01	1.35E-02	.	.	2.00E-05	2.00E-06	.	.	.
Berkelium (97)	Bk-246	S	1.41E+02	4.93E-03	.	.	2.00E-05	2.00E-06	.	.	.
Berkelium (97)	Bk-247	F	5.02E-04	1.38E+03	.	.	2.00E-05	2.00E-06	.	.	.
Berkelium (97)	Bk-248m	S	2.56E+02	2.71E-03	.	.	2.00E-05	2.00E-06	.	.	.
Berkelium (97)	Bk-249	F	7.67E-01	9.04E-01	.	.	2.00E-05	2.00E-06	.	.	.
Berkelium (97)	Bk-250	S	1.89E+03	3.67E-04	.	.	2.00E-05	2.00E-06	.	.	.
Berkelium (97)	Bk-251	S	6.55E+03	1.06E-04	.	.	2.00E-05	2.00E-06	.	.	.
Bromine (35)	Br-72	-	2.78E+05	2.49E-06	9.10E+01	1.30E+03	2.50E-02	2.00E-02	.	.	.
Bromine (35)	Br-73	-	1.07E+05	6.47E-06	9.10E+01	1.30E+03	2.50E-02	2.00E-02	.	.	.
Bromine (35)	Br-74	S	1.43E+04	4.83E-05	9.10E+01	1.30E+03	2.50E-02	2.00E-02	.	.	.
Bromine (35)	Br-74m	S	7.92E+03	8.75E-05	9.10E+01	1.30E+03	2.50E-02	2.00E-02	.	.	.
Bromine (35)	Br-75	S	3.77E+03	1.84E-04	9.10E+01	1.30E+03	2.50E-02	2.00E-02	.	.	.

Animal Transfer Factors July 2023											
Radionuclides		Isotope-specific Information and Animal Transfer Factors									
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Fish	Shellfish	Plant-to-beef transfer factor (day/kg)	Plant-to-dairy transfer factor (day/kg)	Plant-to-swine transfer factor (day/kg)	Plant-to-poultry transfer factor (day/kg)	Plant-to-egg transfer factor (day/kg)
					bioconcentration factor (Bq/kg per Bq/L)	bioconcentration factor (Bq/kg per Bq/L)					
Bromine (35)	Br-76	S	3.75E+02	1.85E-03	9.10E+01	1.30E+03	2.50E-02	2.00E-02	.	.	.
Bromine (35)	Br-76m	-	1.67E+07	4.15E-08	9.10E+01	1.30E+03	2.50E-02	2.00E-02	.	.	.
Bromine (35)	Br-77	S	1.06E+02	6.51E-03	9.10E+01	1.30E+03	2.50E-02	2.00E-02	.	.	.
Bromine (35)	Br-77m	-	8.51E+04	8.14E-06	9.10E+01	1.30E+03	2.50E-02	2.00E-02	.	.	.
Bromine (35)	Br-78	-	5.64E+04	1.23E-05	9.10E+01	1.30E+03	2.50E-02	2.00E-02	.	.	.
Bromine (35)	Br-80	S	2.06E+04	3.36E-05	9.10E+01	1.30E+03	2.50E-02	2.00E-02	.	.	.
Bromine (35)	Br-80m	S	1.37E+03	5.05E-04	9.10E+01	1.30E+03	2.50E-02	2.00E-02	.	.	.
Bromine (35)	Br-82	S	1.72E+02	4.03E-03	9.10E+01	1.30E+03	2.50E-02	2.00E-02	.	.	.
Bromine (35)	Br-82m	-	5.94E+04	1.17E-05	9.10E+01	1.30E+03	2.50E-02	2.00E-02	.	.	.
Bromine (35)	Br-83	S	2.53E+03	2.74E-04	9.10E+01	1.30E+03	2.50E-02	2.00E-02	.	.	.
Bromine (35)	Br-84	S	1.15E+04	6.05E-05	9.10E+01	1.30E+03	2.50E-02	2.00E-02	.	.	.
Bromine (35)	Br-84m	-	6.07E+04	1.14E-05	9.10E+01	1.30E+03	2.50E-02	2.00E-02	.	.	.
Bromine (35)	Br-85	-	1.26E+05	5.52E-06	9.10E+01	1.30E+03	2.50E-02	2.00E-02	.	.	.
Carbon (6)	C-10	-	1.14E+06	6.11E-07	4.00E+05	6.50E+04	3.10E-02	1.20E-02	.	.	.
Carbon (6)	C-11	S	1.79E+04	3.88E-05	4.00E+05	6.50E+04	3.10E-02	1.20E-02	.	.	.
Carbon (6)	C-14	S	1.22E-04	5.70E+03	4.00E+05	6.50E+04	3.10E-02	1.20E-02	.	.	.
Calcium (20)	Ca-41	S	6.79E-06	1.02E+05	1.20E+01	3.40E+01	1.30E-02	1.00E-02	2.00E-03	4.40E-02	4.40E-01
Calcium (20)	Ca-45	S	1.55E+00	4.46E-01	1.20E+01	3.40E+01	1.30E-02	1.00E-02	2.00E-03	4.40E-02	4.40E-01
Calcium (20)	Ca-47	S	5.58E+01	1.24E-02	1.20E+01	3.40E+01	1.30E-02	1.00E-02	2.00E-03	4.40E-02	4.40E-01
Calcium (20)	Ca-49	-	4.18E+04	1.66E-05	1.20E+01	3.40E+01	1.30E-02	1.00E-02	2.00E-03	4.40E-02	4.40E-01
Cadmium (48)	Cd-101	-	2.68E+05	2.59E-06	2.00E+02	1.00E+02	5.80E-03	1.90E-04	1.50E-02	1.70E+00	1.00E-01
Cadmium (48)	Cd-102	-	6.62E+04	1.05E-05	2.00E+02	1.00E+02	5.80E-03	1.90E-04	1.50E-02	1.70E+00	1.00E-01
Cadmium (48)	Cd-103	-	4.99E+04	1.39E-05	2.00E+02	1.00E+02	5.80E-03	1.90E-04	1.50E-02	1.70E+00	1.00E-01
Cadmium (48)	Cd-104	S	6.31E+03	1.10E-04	2.00E+02	1.00E+02	5.80E-03	1.90E-04	1.50E-02	1.70E+00	1.00E-01
Cadmium (48)	Cd-105	S	6.56E+03	1.06E-04	2.00E+02	1.00E+02	5.80E-03	1.90E-04	1.50E-02	1.70E+00	1.00E-01
Cadmium (48)	Cd-107	S	9.34E+02	7.42E-04	2.00E+02	1.00E+02	5.80E-03	1.90E-04	1.50E-02	1.70E+00	1.00E-01
Cadmium (48)	Cd-109	S	5.48E-01	1.26E+00	2.00E+02	1.00E+02	5.80E-03	1.90E-04	1.50E-02	1.70E+00	1.00E-01
Cadmium (48)	Cd-111m	S	7.51E+03	9.23E-05	2.00E+02	1.00E+02	5.80E-03	1.90E-04	1.50E-02	1.70E+00	1.00E-01
Cadmium (48)	Cd-113	F	9.00E-17	7.70E+15	2.00E+02	1.00E+02	5.80E-03	1.90E-04	1.50E-02	1.70E+00	1.00E-01
Cadmium (48)	Cd-113m	F	4.91E-02	1.41E+01	2.00E+02	1.00E+02	5.80E-03	1.90E-04	1.50E-02	1.70E+00	1.00E-01
Cadmium (48)	Cd-115	S	1.14E+02	6.10E-03	2.00E+02	1.00E+02	5.80E-03	1.90E-04	1.50E-02	1.70E+00	1.00E-01
Cadmium (48)	Cd-115m	S	5.67E+00	1.22E-01	2.00E+02	1.00E+02	5.80E-03	1.90E-04	1.50E-02	1.70E+00	1.00E-01
Cadmium (48)	Cd-117	S	2.44E+03	2.84E-04	2.00E+02	1.00E+02	5.80E-03	1.90E-04	1.50E-02	1.70E+00	1.00E-01
Cadmium (48)	Cd-117m	S	1.81E+03	3.84E-04	2.00E+02	1.00E+02	5.80E-03	1.90E-04	1.50E-02	1.70E+00	1.00E-01
Cadmium (48)	Cd-118	S	7.24E+03	9.57E-05	2.00E+02	1.00E+02	5.80E-03	1.90E-04	1.50E-02	1.70E+00	1.00E-01
Cadmium (48)	Cd-119	-	1.35E+05	5.12E-06	2.00E+02	1.00E+02	5.80E-03	1.90E-04	1.50E-02	1.70E+00	1.00E-01
Cadmium (48)	Cd-119m	-	1.66E+05	4.19E-06	2.00E+02	1.00E+02	5.80E-03	1.90E-04	1.50E-02	1.70E+00	1.00E-01
Cerium (58)	Ce-130	S	1.59E+04	4.36E-05	2.50E+01	4.30E+02	1.00E-03	2.00E-05	1.00E-04	.	3.10E-03

Animal Transfer Factors July 2023											
Radionuclides		Isotope-specific Information and Animal Transfer Factors									
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Fish bioconcentration factor (Bq/kg per Bq/L)	Shellfish bioconcentration factor (Bq/kg per Bq/L)	Plant-to-beef transfer factor (day/kg)	Plant-to-dairy transfer factor (day/kg)	Plant-to-swine transfer factor (day/kg)	Plant-to-poultry transfer factor (day/kg)	Plant-to-egg transfer factor (day/kg)
Cerium (58)	Ce-131	S	3.57E+04	1.94E-05	2.50E+01	4.30E+02	1.00E-03	2.00E-05	1.00E-04	.	3.10E-03
Cerium (58)	Ce-132	S	1.73E+03	4.01E-04	2.50E+01	4.30E+02	1.00E-03	2.00E-05	1.00E-04	.	3.10E-03
Cerium (58)	Ce-133	S	3.76E+03	1.85E-04	2.50E+01	4.30E+02	1.00E-03	2.00E-05	1.00E-04	.	3.10E-03
Cerium (58)	Ce-133m	S	1.24E+03	5.59E-04	2.50E+01	4.30E+02	1.00E-03	2.00E-05	1.00E-04	.	3.10E-03
Cerium (58)	Ce-134	S	8.00E+01	8.66E-03	2.50E+01	4.30E+02	1.00E-03	2.00E-05	1.00E-04	.	3.10E-03
Cerium (58)	Ce-135	S	3.43E+02	2.02E-03	2.50E+01	4.30E+02	1.00E-03	2.00E-05	1.00E-04	.	3.10E-03
Cerium (58)	Ce-137	S	6.75E+02	1.03E-03	2.50E+01	4.30E+02	1.00E-03	2.00E-05	1.00E-04	.	3.10E-03
Cerium (58)	Ce-137m	S	1.76E+02	3.93E-03	2.50E+01	4.30E+02	1.00E-03	2.00E-05	1.00E-04	.	3.10E-03
Cerium (58)	Ce-139	S	1.84E+00	3.77E-01	2.50E+01	4.30E+02	1.00E-03	2.00E-05	1.00E-04	.	3.10E-03
Cerium (58)	Ce-141	S	7.78E+00	8.91E-02	2.50E+01	4.30E+02	1.00E-03	2.00E-05	1.00E-04	.	3.10E-03
Cerium (58)	Ce-143	S	1.84E+02	3.77E-03	2.50E+01	4.30E+02	1.00E-03	2.00E-05	1.00E-04	.	3.10E-03
Cerium (58)	Ce-144	S	8.88E-01	7.81E-01	2.50E+01	4.30E+02	1.00E-03	2.00E-05	1.00E-04	.	3.10E-03
Cerium (58)	Ce-145	-	1.21E+05	5.73E-06	2.50E+01	4.30E+02	1.00E-03	2.00E-05	1.00E-04	.	3.10E-03
Californium (98)	Cf-244	S	1.88E+04	3.69E-05	2.50E+01	.	6.00E-05	2.00E-06	.	.	.
Californium (98)	Cf-246	S	1.70E+02	4.08E-03	2.50E+01	.	6.00E-05	2.00E-06	.	.	.
Californium (98)	Cf-247	S	1.95E+03	3.55E-04	2.50E+01	.	6.00E-05	2.00E-06	.	.	.
Californium (98)	Cf-248	S	7.57E-01	9.15E-01	2.50E+01	.	6.00E-05	2.00E-06	.	.	.
Californium (98)	Cf-249	F	1.97E-03	3.51E+02	2.50E+01	.	6.00E-05	2.00E-06	.	.	.
Californium (98)	Cf-250	S	5.30E-02	1.31E+01	2.50E+01	.	6.00E-05	2.00E-06	.	.	.
Californium (98)	Cf-251	F	7.70E-04	9.00E+02	2.50E+01	.	6.00E-05	2.00E-06	.	.	.
Californium (98)	Cf-252	S	2.62E-01	2.65E+00	2.50E+01	.	6.00E-05	2.00E-06	.	.	.
Californium (98)	Cf-253	S	1.42E+01	4.88E-02	2.50E+01	.	6.00E-05	2.00E-06	.	.	.
Californium (98)	Cf-254	S	4.18E+00	1.66E-01	2.50E+01	.	6.00E-05	2.00E-06	.	.	.
Californium (98)	Cf-255	S	4.29E+03	1.62E-04	2.50E+01	.	6.00E-05	2.00E-06	.	.	.
Chlorine (17)	Cl-34	-	1.43E+07	4.84E-08	4.70E+01	1.60E+02	1.70E-02	1.70E-02	.	.	.
Chlorine (17)	Cl-34m	S	1.14E+04	6.09E-05	4.70E+01	1.60E+02	1.70E-02	1.70E-02	.	.	.
Chlorine (17)	Cl-36	S	2.30E-06	3.01E+05	4.70E+01	1.60E+02	1.70E-02	1.70E-02	.	.	.
Chlorine (17)	Cl-38	S	9.78E+03	7.09E-05	4.70E+01	1.60E+02	1.70E-02	1.70E-02	.	.	.
Chlorine (17)	Cl-39	S	6.55E+03	1.06E-04	4.70E+01	1.60E+02	1.70E-02	1.70E-02	.	.	.
Chlorine (17)	Cl-40	-	2.70E+05	2.57E-06	4.70E+01	1.60E+02	1.70E-02	1.70E-02	.	.	.
Curium (96)	Cm-238	S	2.53E+03	2.74E-04	2.50E+01	9.50E+03	1.00E-04	1.00E-06	.	.	.
Curium (96)	Cm-239	S	2.09E+03	3.31E-04	2.50E+01	9.50E+03	1.00E-04	1.00E-06	.	.	.
Curium (96)	Cm-240	S	9.37E+00	7.40E-02	2.50E+01	9.50E+03	1.00E-04	1.00E-06	.	.	.
Curium (96)	Cm-241	S	7.71E+00	8.99E-02	2.50E+01	9.50E+03	1.00E-04	1.00E-06	.	.	.
Curium (96)	Cm-242	S	1.55E+00	4.46E-01	2.50E+01	9.50E+03	1.00E-04	1.00E-06	.	.	.
Curium (96)	Cm-243	S	2.38E-02	2.91E+01	2.50E+01	9.50E+03	1.00E-04	1.00E-06	.	.	.
Curium (96)	Cm-244	S	3.83E-02	1.81E+01	2.50E+01	9.50E+03	1.00E-04	1.00E-06	.	.	.
Curium (96)	Cm-245	F	8.15E-05	8.50E+03	2.50E+01	9.50E+03	1.00E-04	1.00E-06	.	.	.

Animal Transfer Factors July 2023												
Radionuclides		Isotope-specific Information and Animal Transfer Factors										
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Fish	Shellfish	Plant-to-beef transfer factor (day/kg)	Plant-to-dairy transfer factor (day/kg)	Plant-to-swine transfer factor (day/kg)	Plant-to-poultry transfer factor (day/kg)	Plant-to-egg transfer factor (day/kg)	
					bioconcentration factor (Bq/kg per Bq/L)	bioconcentration factor (Bq/kg per Bq/L)						
Curium (96)	Cm-246	F	1.46E-04	4.76E+03	2.50E+01	9.50E+03	1.00E-04	1.00E-06	.	.	.	
Curium (96)	Cm-247	F	4.44E-08	1.56E+07	2.50E+01	9.50E+03	1.00E-04	1.00E-06	.	.	.	
Curium (96)	Cm-248	F	1.99E-06	3.48E+05	2.50E+01	9.50E+03	1.00E-04	1.00E-06	.	.	.	
Curium (96)	Cm-249	S	5.68E+03	1.22E-04	2.50E+01	9.50E+03	1.00E-04	1.00E-06	.	.	.	
Curium (96)	Cm-250	F	8.35E-05	8.30E+03	2.50E+01	9.50E+03	1.00E-04	1.00E-06	.	.	.	
Curium (96)	Cm-251	S	2.17E+04	3.20E-05	2.50E+01	9.50E+03	1.00E-04	1.00E-06	.	.	.	
Cobalt (27)	Co-54m	-	2.46E+05	2.82E-06	7.60E+01	2.20E+01	4.30E-04	1.10E-04	2.00E-03	9.70E-01	3.30E-02	
Cobalt (27)	Co-55	S	3.46E+02	2.00E-03	7.60E+01	2.20E+01	4.30E-04	1.10E-04	2.00E-03	9.70E-01	3.30E-02	
Cobalt (27)	Co-56	S	3.28E+00	2.12E-01	7.60E+01	2.20E+01	4.30E-04	1.10E-04	2.00E-03	9.70E-01	3.30E-02	
Cobalt (27)	Co-57	S	9.31E-01	7.44E-01	7.60E+01	2.20E+01	4.30E-04	1.10E-04	2.00E-03	9.70E-01	3.30E-02	
Cobalt (27)	Co-58	S	3.57E+00	1.94E-01	7.60E+01	2.20E+01	4.30E-04	1.10E-04	2.00E-03	9.70E-01	3.30E-02	
Cobalt (27)	Co-58m	S	6.72E+02	1.03E-03	7.60E+01	2.20E+01	4.30E-04	1.10E-04	2.00E-03	9.70E-01	3.30E-02	
Cobalt (27)	Co-60	S	1.31E-01	5.27E+00	7.60E+01	2.20E+01	4.30E-04	1.10E-04	2.00E-03	9.70E-01	3.30E-02	
Cobalt (27)	Co-60m	S	3.48E+04	1.99E-05	7.60E+01	2.20E+01	4.30E-04	1.10E-04	2.00E-03	9.70E-01	3.30E-02	
Cobalt (27)	Co-61	S	3.68E+03	1.88E-04	7.60E+01	2.20E+01	4.30E-04	1.10E-04	2.00E-03	9.70E-01	3.30E-02	
Cobalt (27)	Co-62	-	2.43E+05	2.85E-06	7.60E+01	2.20E+01	4.30E-04	1.10E-04	2.00E-03	9.70E-01	3.30E-02	
Cobalt (27)	Co-62m	S	2.62E+04	2.65E-05	7.60E+01	2.20E+01	4.30E-04	1.10E-04	2.00E-03	9.70E-01	3.30E-02	
Chromium (24)	Cr-48	S	2.82E+02	2.46E-03	4.00E+01	3.00E+02	5.00E-03	4.30E-04	.	.	.	
Chromium (24)	Cr-49	S	8.61E+03	8.05E-05	4.00E+01	3.00E+02	5.00E-03	4.30E-04	.	.	.	
Chromium (24)	Cr-51	S	9.13E+00	7.59E-02	4.00E+01	3.00E+02	5.00E-03	4.30E-04	.	.	.	
Chromium (24)	Cr-55	-	1.04E+05	6.65E-06	4.00E+01	3.00E+02	5.00E-03	4.30E-04	.	.	.	
Chromium (24)	Cr-56	-	6.13E+04	1.13E-05	4.00E+01	3.00E+02	5.00E-03	4.30E-04	.	.	.	
Cesium (55)	Cs-121	-	1.41E+05	4.92E-06	2.50E+03	2.30E+01	2.20E-02	4.60E-03	2.00E-01	2.70E+00	4.00E-01	
Cesium (55)	Cs-121m	-	1.79E+05	3.87E-06	2.50E+03	2.30E+01	2.20E-02	4.60E-03	2.00E-01	2.70E+00	4.00E-01	
Cesium (55)	Cs-123	-	6.19E+04	1.12E-05	2.50E+03	2.30E+01	2.20E-02	4.60E-03	2.00E-01	2.70E+00	4.00E-01	
Cesium (55)	Cs-124	-	7.10E+05	9.77E-07	2.50E+03	2.30E+01	2.20E-02	4.60E-03	2.00E-01	2.70E+00	4.00E-01	
Cesium (55)	Cs-125	S	8.09E+03	8.56E-05	2.50E+03	2.30E+01	2.20E-02	4.60E-03	2.00E-01	2.70E+00	4.00E-01	
Cesium (55)	Cs-126	-	2.22E+05	3.12E-06	2.50E+03	2.30E+01	2.20E-02	4.60E-03	2.00E-01	2.70E+00	4.00E-01	
Cesium (55)	Cs-127	S	9.71E+02	7.13E-04	2.50E+03	2.30E+01	2.20E-02	4.60E-03	2.00E-01	2.70E+00	4.00E-01	
Cesium (55)	Cs-128	-	1.00E+05	6.93E-06	2.50E+03	2.30E+01	2.20E-02	4.60E-03	2.00E-01	2.70E+00	4.00E-01	
Cesium (55)	Cs-129	S	1.89E+02	3.66E-03	2.50E+03	2.30E+01	2.20E-02	4.60E-03	2.00E-01	2.70E+00	4.00E-01	
Cesium (55)	Cs-130	S	1.25E+04	5.56E-05	2.50E+03	2.30E+01	2.20E-02	4.60E-03	2.00E-01	2.70E+00	4.00E-01	
Cesium (55)	Cs-130m	-	1.05E+05	6.58E-06	2.50E+03	2.30E+01	2.20E-02	4.60E-03	2.00E-01	2.70E+00	4.00E-01	
Cesium (55)	Cs-131	S	2.61E+01	2.65E-02	2.50E+03	2.30E+01	2.20E-02	4.60E-03	2.00E-01	2.70E+00	4.00E-01	
Cesium (55)	Cs-132	S	3.90E+01	1.78E-02	2.50E+03	2.30E+01	2.20E-02	4.60E-03	2.00E-01	2.70E+00	4.00E-01	
Cesium (55)	Cs-134	S	3.36E-01	2.06E+00	2.50E+03	2.30E+01	2.20E-02	4.60E-03	2.00E-01	2.70E+00	4.00E-01	
Cesium (55)	Cs-134m	S	2.09E+03	3.31E-04	2.50E+03	2.30E+01	2.20E-02	4.60E-03	2.00E-01	2.70E+00	4.00E-01	
Cesium (55)	Cs-135	S	3.01E-07	2.30E+06	2.50E+03	2.30E+01	2.20E-02	4.60E-03	2.00E-01	2.70E+00	4.00E-01	



Animal Transfer Factors July 2023												
Radionuclides		Isotope-specific Information and Animal Transfer Factors										
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Fish	Shellfish	Plant-to-beef transfer factor (day/kg)	Plant-to-dairy transfer factor (day/kg)	Plant-to-swine transfer factor (day/kg)	Plant-to-poultry transfer factor (day/kg)	Plant-to-egg transfer factor (day/kg)	
					bioconcentration factor (Bq/kg per Bq/L)	bioconcentration factor (Bq/kg per Bq/L)						
Cesium (55)	Cs-135m	S	6.87E+03	1.01E-04	2.50E+03	2.30E+01	2.20E-02	4.60E-03	2.00E-01	2.70E+00	4.00E-01	
Cesium (55)	Cs-136	S	1.92E+01	3.61E-02	2.50E+03	2.30E+01	2.20E-02	4.60E-03	2.00E-01	2.70E+00	4.00E-01	
Cesium (55)	Cs-137	S	2.30E-02	3.02E+01	2.50E+03	2.30E+01	2.20E-02	4.60E-03	2.00E-01	2.70E+00	4.00E-01	
Cesium (55)	Cs-138	S	1.09E+04	6.36E-05	2.50E+03	2.30E+01	2.20E-02	4.60E-03	2.00E-01	2.70E+00	4.00E-01	
Cesium (55)	Cs-138m	-	1.25E+05	5.54E-06	2.50E+03	2.30E+01	2.20E-02	4.60E-03	2.00E-01	2.70E+00	4.00E-01	
Cesium (55)	Cs-139	-	3.93E+04	1.76E-05	2.50E+03	2.30E+01	2.20E-02	4.60E-03	2.00E-01	2.70E+00	4.00E-01	
Cesium (55)	Cs-140	-	3.43E+05	2.02E-06	2.50E+03	2.30E+01	2.20E-02	4.60E-03	2.00E-01	2.70E+00	4.00E-01	
Copper (29)	Cu-57	-	1.11E+08	6.22E-09	2.30E+02	4.20E+01	1.00E-02	2.00E-03	2.20E-02	5.00E-01	5.00E-01	
Copper (29)	Cu-59	-	2.68E+05	2.58E-06	2.30E+02	4.20E+01	1.00E-02	2.00E-03	2.20E-02	5.00E-01	5.00E-01	
Copper (29)	Cu-60	S	1.54E+04	4.51E-05	2.30E+02	4.20E+01	1.00E-02	2.00E-03	2.20E-02	5.00E-01	5.00E-01	
Copper (29)	Cu-61	S	1.82E+03	3.80E-04	2.30E+02	4.20E+01	1.00E-02	2.00E-03	2.20E-02	5.00E-01	5.00E-01	
Copper (29)	Cu-62	-	3.77E+04	1.84E-05	2.30E+02	4.20E+01	1.00E-02	2.00E-03	2.20E-02	5.00E-01	5.00E-01	
Copper (29)	Cu-64	S	4.78E+02	1.45E-03	2.30E+02	4.20E+01	1.00E-02	2.00E-03	2.20E-02	5.00E-01	5.00E-01	
Copper (29)	Cu-66	-	7.11E+04	9.74E-06	2.30E+02	4.20E+01	1.00E-02	2.00E-03	2.20E-02	5.00E-01	5.00E-01	
Copper (29)	Cu-67	S	9.82E+01	7.06E-03	2.30E+02	4.20E+01	1.00E-02	2.00E-03	2.20E-02	5.00E-01	5.00E-01	
Copper (29)	Cu-69	-	1.28E+05	5.42E-06	2.30E+02	4.20E+01	1.00E-02	2.00E-03	2.20E-02	5.00E-01	5.00E-01	
Dysprosium (66)	Dy-148	-	1.10E+05	6.28E-06	6.50E+02	.	2.00E-03	6.00E-05	.	.	.	
Dysprosium (66)	Dy-149	-	8.67E+04	7.99E-06	6.50E+02	.	2.00E-03	6.00E-05	.	.	.	
Dysprosium (66)	Dy-150	-	5.08E+04	1.36E-05	6.50E+02	.	2.00E-03	6.00E-05	.	.	.	
Dysprosium (66)	Dy-151	S	2.03E+04	3.41E-05	6.50E+02	.	2.00E-03	6.00E-05	.	.	.	
Dysprosium (66)	Dy-152	S	2.55E+03	2.72E-04	6.50E+02	.	2.00E-03	6.00E-05	.	.	.	
Dysprosium (66)	Dy-153	S	9.49E+02	7.31E-04	6.50E+02	.	2.00E-03	6.00E-05	.	.	.	
Dysprosium (66)	Dy-154	S	2.31E-07	3.00E+06	6.50E+02	.	2.00E-03	6.00E-05	.	.	.	
Dysprosium (66)	Dy-155	S	6.13E+02	1.13E-03	6.50E+02	.	2.00E-03	6.00E-05	.	.	.	
Dysprosium (66)	Dy-157	S	7.46E+02	9.29E-04	6.50E+02	.	2.00E-03	6.00E-05	.	.	.	
Dysprosium (66)	Dy-159	S	1.75E+00	3.96E-01	6.50E+02	.	2.00E-03	6.00E-05	.	.	.	
Dysprosium (66)	Dy-165	S	2.60E+03	2.66E-04	6.50E+02	.	2.00E-03	6.00E-05	.	.	.	
Dysprosium (66)	Dy-165m	-	2.90E+05	2.39E-06	6.50E+02	.	2.00E-03	6.00E-05	.	.	.	
Dysprosium (66)	Dy-166	S	7.44E+01	9.32E-03	6.50E+02	.	2.00E-03	6.00E-05	.	.	.	
Dysprosium (66)	Dy-167	-	5.87E+04	1.18E-05	6.50E+02	.	2.00E-03	6.00E-05	.	.	.	
Dysprosium (66)	Dy-168	-	4.19E+04	1.66E-05	6.50E+02	.	2.00E-03	6.00E-05	.	.	.	
Erbium (68)	Er-154	-	9.77E+04	7.10E-06	2.50E+01	.	1.00E-03	2.00E-05	.	.	.	
Erbium (68)	Er-156	S	1.87E+04	3.71E-05	2.50E+01	.	1.00E-03	2.00E-05	.	.	.	
Erbium (68)	Er-159	S	1.01E+04	6.85E-05	2.50E+01	.	1.00E-03	2.00E-05	.	.	.	
Erbium (68)	Er-161	S	1.89E+03	3.66E-04	2.50E+01	.	1.00E-03	2.00E-05	.	.	.	
Erbium (68)	Er-163	S	4.86E+03	1.43E-04	2.50E+01	.	1.00E-03	2.00E-05	.	.	.	
Erbium (68)	Er-165	S	5.86E+02	1.18E-03	2.50E+01	.	1.00E-03	2.00E-05	.	.	.	
Erbium (68)	Er-167m	-	9.63E+06	7.19E-08	2.50E+01	.	1.00E-03	2.00E-05	.	.	.	

Animal Transfer Factors July 2023											
Radionuclides		Isotope-specific Information and Animal Transfer Factors									
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Fish bioconcentration factor (Bq/kg per Bq/L)	Shellfish bioconcentration factor (Bq/kg per Bq/L)	Plant-to-beef transfer factor (day/kg)	Plant-to-dairy transfer factor (day/kg)	Plant-to-swine transfer factor (day/kg)	Plant-to-poultry transfer factor (day/kg)	Plant-to-egg transfer factor (day/kg)
Erbium (68)	Er-169	S	2.69E+01	2.58E-02	2.50E+01	.	1.00E-03	2.00E-05	.	.	.
Erbium (68)	Er-171	S	8.08E+02	8.58E-04	2.50E+01	.	1.00E-03	2.00E-05	.	.	.
Erbium (68)	Er-172	S	1.23E+02	5.63E-03	2.50E+01	.	1.00E-03	2.00E-05	.	.	.
Erbium (68)	Er-173	-	2.54E+05	2.73E-06	2.50E+01	.	1.00E-03	2.00E-05	.	.	.
Einsteinium (99)	Es-249	S	3.56E+03	1.94E-04	.	.	2.00E-05	2.00E-06	.	.	.
Einsteinium (99)	Es-250	S	7.06E+02	9.82E-04	.	.	2.00E-05	2.00E-06	.	.	.
Einsteinium (99)	Es-250m	S	2.73E+03	2.53E-04	.	.	2.00E-05	2.00E-06	.	.	.
Einsteinium (99)	Es-251	S	1.84E+02	3.77E-03	.	.	2.00E-05	2.00E-06	.	.	.
Einsteinium (99)	Es-253	S	1.24E+01	5.61E-02	.	.	2.00E-05	2.00E-06	.	.	.
Einsteinium (99)	Es-254	S	9.17E-01	7.55E-01	.	.	2.00E-05	2.00E-06	.	.	.
Einsteinium (99)	Es-254m	S	1.54E+02	4.49E-03	.	.	2.00E-05	2.00E-06	.	.	.
Einsteinium (99)	Es-255	S	6.36E+00	1.09E-01	.	.	2.00E-05	2.00E-06	.	.	.
Einsteinium (99)	Es-256	S	1.43E+04	4.83E-05	.	.	2.00E-05	2.00E-06	.	.	.
Europium (63)	Eu-142	-	9.34E+06	7.42E-08	1.30E+02	2.20E+02	5.00E-03	2.00E-05	.	.	.
Europium (63)	Eu-142m	-	2.98E+05	2.33E-06	1.30E+02	2.20E+02	5.00E-03	2.00E-05	.	.	.
Europium (63)	Eu-143	-	1.41E+05	4.93E-06	1.30E+02	2.20E+02	5.00E-03	2.00E-05	.	.	.
Europium (63)	Eu-144	-	2.14E+06	3.23E-07	1.30E+02	2.20E+02	5.00E-03	2.00E-05	.	.	.
Europium (63)	Eu-145	S	4.27E+01	1.62E-02	1.30E+02	2.20E+02	5.00E-03	2.00E-05	.	.	.
Europium (63)	Eu-146	S	5.49E+01	1.26E-02	1.30E+02	2.20E+02	5.00E-03	2.00E-05	.	.	.
Europium (63)	Eu-147	S	1.05E+01	6.60E-02	1.30E+02	2.20E+02	5.00E-03	2.00E-05	.	.	.
Europium (63)	Eu-148	F	4.64E+00	1.49E-01	1.30E+02	2.20E+02	5.00E-03	2.00E-05	.	.	.
Europium (63)	Eu-149	S	2.72E+00	2.55E-01	1.30E+02	2.20E+02	5.00E-03	2.00E-05	.	.	.
Europium (63)	Eu-150	F	1.88E-02	3.69E+01	1.30E+02	2.20E+02	5.00E-03	2.00E-05	.	.	.
Europium (63)	Eu-150m	S	4.74E+02	1.46E-03	1.30E+02	2.20E+02	5.00E-03	2.00E-05	.	.	.
Europium (63)	Eu-152	F	5.12E-02	1.35E+01	1.30E+02	2.20E+02	5.00E-03	2.00E-05	.	.	.
Europium (63)	Eu-152m	S	6.52E+02	1.06E-03	1.30E+02	2.20E+02	5.00E-03	2.00E-05	.	.	.
Europium (63)	Eu-152n	S	3.79E+03	1.83E-04	1.30E+02	2.20E+02	5.00E-03	2.00E-05	.	.	.
Europium (63)	Eu-154	F	8.06E-02	8.59E+00	1.30E+02	2.20E+02	5.00E-03	2.00E-05	.	.	.
Europium (63)	Eu-154m	S	7.92E+03	8.75E-05	1.30E+02	2.20E+02	5.00E-03	2.00E-05	.	.	.
Europium (63)	Eu-155	S	1.46E-01	4.76E+00	1.30E+02	2.20E+02	5.00E-03	2.00E-05	.	.	.
Europium (63)	Eu-156	S	1.67E+01	4.16E-02	1.30E+02	2.20E+02	5.00E-03	2.00E-05	.	.	.
Europium (63)	Eu-157	S	4.00E+02	1.73E-03	1.30E+02	2.20E+02	5.00E-03	2.00E-05	.	.	.
Europium (63)	Eu-158	S	7.94E+03	8.73E-05	1.30E+02	2.20E+02	5.00E-03	2.00E-05	.	.	.
Europium (63)	Eu-159	S	2.01E+04	3.44E-05	1.30E+02	2.20E+02	5.00E-03	2.00E-05	.	.	.
Fluorine (9)	F-17	-	3.39E+05	2.04E-06	1.00E+01	.	2.00E-02	7.00E-03	.	.	.
Fluorine (9)	F-18	S	3.32E+03	2.09E-04	1.00E+01	.	2.00E-02	7.00E-03	.	.	.
Iron (26)	Fe-52	S	7.34E+02	9.45E-04	1.70E+02	2.00E+03	1.40E-02	3.50E-05	3.00E-03	1.00E+00	1.80E+00
Iron (26)	Fe-53	-	4.28E+04	1.62E-05	1.70E+02	2.00E+03	1.40E-02	3.50E-05	3.00E-03	1.00E+00	1.80E+00

Animal Transfer Factors July 2023												
Radionuclides		Isotope-specific Information and Animal Transfer Factors										
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Fish bioconcentration factor (Bq/kg per Bq/L)	Shellfish bioconcentration factor (Bq/kg per Bq/L)	Plant-to-beef transfer factor (day/kg)	Plant-to-dairy transfer factor (day/kg)	Plant-to-swine transfer factor (day/kg)	Plant-to-poultry transfer factor (day/kg)	Plant-to-egg transfer factor (day/kg)	
Iron (26)	Fe-53m	-	1.44E+05	4.81E-06	1.70E+02	2.00E+03	1.40E-02	3.50E-05	3.00E-03	1.00E+00	1.80E+00	
Iron (26)	Fe-55	F	2.53E-01	2.74E+00	1.70E+02	2.00E+03	1.40E-02	3.50E-05	3.00E-03	1.00E+00	1.80E+00	
Iron (26)	Fe-59	S	5.68E+00	1.22E-01	1.70E+02	2.00E+03	1.40E-02	3.50E-05	3.00E-03	1.00E+00	1.80E+00	
Iron (26)	Fe-60	F	4.62E-07	1.50E+06	1.70E+02	2.00E+03	1.40E-02	3.50E-05	3.00E-03	1.00E+00	1.80E+00	
Iron (26)	Fe-61	-	6.09E+04	1.14E-05	1.70E+02	2.00E+03	1.40E-02	3.50E-05	3.00E-03	1.00E+00	1.80E+00	
Iron (26)	Fe-62	-	3.21E+05	2.16E-06	1.70E+02	2.00E+03	1.40E-02	3.50E-05	3.00E-03	1.00E+00	1.80E+00	
Fermium (100)	Fm-251	S	1.15E+03	6.05E-04	.	.	2.00E-04	8.00E-06	.	.	.	
Fermium (100)	Fm-252	S	2.39E+02	2.90E-03	.	.	2.00E-04	8.00E-06	.	.	.	
Fermium (100)	Fm-253	S	8.43E+01	8.22E-03	.	.	2.00E-04	8.00E-06	.	.	.	
Fermium (100)	Fm-254	S	1.87E+03	3.70E-04	.	.	2.00E-04	8.00E-06	.	.	.	
Fermium (100)	Fm-255	S	3.02E+02	2.29E-03	.	.	2.00E-04	8.00E-06	.	.	.	
Fermium (100)	Fm-256	S	2.31E+03	3.00E-04	.	.	2.00E-04	8.00E-06	.	.	.	
Fermium (100)	Fm-257	S	2.52E+00	2.75E-01	.	.	2.00E-04	8.00E-06	.	.	.	
Francium (87)	Fr-212	S	1.82E+04	3.81E-05	.	.	3.00E-02	8.00E-03	.	.	.	
Francium (87)	Fr-219	-	1.09E+09	6.34E-10	.	.	3.00E-02	8.00E-03	.	.	.	
Francium (87)	Fr-220	-	7.98E+05	8.69E-07	.	.	3.00E-02	8.00E-03	.	.	.	
Francium (87)	Fr-221	-	7.43E+04	9.32E-06	.	.	3.00E-02	8.00E-03	.	.	.	
Francium (87)	Fr-222	S	2.57E+04	2.70E-05	.	.	3.00E-02	8.00E-03	.	.	.	
Francium (87)	Fr-223	S	1.66E+04	4.19E-05	.	.	3.00E-02	8.00E-03	.	.	.	
Francium (87)	Fr-224	-	1.09E+05	6.34E-06	.	.	3.00E-02	8.00E-03	.	.	.	
Francium (87)	Fr-227	-	1.47E+05	4.70E-06	.	.	3.00E-02	8.00E-03	.	.	.	
Gallium (31)	Ga-64	-	1.39E+05	5.00E-06	4.00E+02	.	5.00E-04	5.00E-05	.	.	.	
Gallium (31)	Ga-65	S	2.40E+04	2.89E-05	4.00E+02	.	5.00E-04	5.00E-05	.	.	.	
Gallium (31)	Ga-66	S	6.40E+02	1.08E-03	4.00E+02	.	5.00E-04	5.00E-05	.	.	.	
Gallium (31)	Ga-67	S	7.76E+01	8.93E-03	4.00E+02	.	5.00E-04	5.00E-05	.	.	.	
Gallium (31)	Ga-68	S	5.38E+03	1.29E-04	4.00E+02	.	5.00E-04	5.00E-05	.	.	.	
Gallium (31)	Ga-70	S	1.72E+04	4.02E-05	4.00E+02	.	5.00E-04	5.00E-05	.	.	.	
Gallium (31)	Ga-72	S	4.31E+02	1.61E-03	4.00E+02	.	5.00E-04	5.00E-05	.	.	.	
Gallium (31)	Ga-73	S	1.25E+03	5.55E-04	4.00E+02	.	5.00E-04	5.00E-05	.	.	.	
Gallium (31)	Ga-74	-	4.49E+04	1.54E-05	4.00E+02	.	5.00E-04	5.00E-05	.	.	.	
Gadolinium (64)	Gd-142	-	3.11E+05	2.23E-06	2.50E+01	.	2.00E-03	6.00E-05	.	.	.	
Gadolinium (64)	Gd-143m	-	1.99E+05	3.49E-06	2.50E+01	.	2.00E-03	6.00E-05	.	.	.	
Gadolinium (64)	Gd-144	-	8.15E+04	8.50E-06	2.50E+01	.	2.00E-03	6.00E-05	.	.	.	
Gadolinium (64)	Gd-145	S	1.58E+04	4.38E-05	2.50E+01	.	2.00E-03	6.00E-05	.	.	.	
Gadolinium (64)	Gd-145m	-	2.57E+05	2.70E-06	2.50E+01	.	2.00E-03	6.00E-05	.	.	.	
Gadolinium (64)	Gd-146	S	5.24E+00	1.32E-01	2.50E+01	.	2.00E-03	6.00E-05	.	.	.	
Gadolinium (64)	Gd-147	S	1.59E+02	4.35E-03	2.50E+01	.	2.00E-03	6.00E-05	.	.	.	
Gadolinium (64)	Gd-148	S	9.29E-03	7.46E+01	2.50E+01	.	2.00E-03	6.00E-05	.	.	.	

Animal Transfer Factors July 2023											
Radionuclides		Isotope-specific Information and Animal Transfer Factors									
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Fish bioconcentration factor (Bq/kg per Bq/L)	Shellfish bioconcentration factor (Bq/kg per Bq/L)	Plant-to-beef transfer factor (day/kg)	Plant-to-dairy transfer factor (day/kg)	Plant-to-swine transfer factor (day/kg)	Plant-to-poultry transfer factor (day/kg)	Plant-to-egg transfer factor (day/kg)
Gadolinium (64)	Gd-149	S	2.73E+01	2.54E-02	2.50E+01	.	2.00E-03	6.00E-05	.	.	.
Gadolinium (64)	Gd-150	S	3.87E-07	1.79E+06	2.50E+01	.	2.00E-03	6.00E-05	.	.	.
Gadolinium (64)	Gd-151	S	2.04E+00	3.40E-01	2.50E+01	.	2.00E-03	6.00E-05	.	.	.
Gadolinium (64)	Gd-152	F	6.42E-15	1.08E+14	2.50E+01	.	2.00E-03	6.00E-05	.	.	.
Gadolinium (64)	Gd-153	S	1.05E+00	6.59E-01	2.50E+01	.	2.00E-03	6.00E-05	.	.	.
Gadolinium (64)	Gd-159	S	3.29E+02	2.11E-03	2.50E+01	.	2.00E-03	6.00E-05	.	.	.
Gadolinium (64)	Gd-162	-	4.34E+04	1.60E-05	2.50E+01	.	2.00E-03	6.00E-05	.	.	.
Germanium (32)	Ge-66	S	2.69E+03	2.58E-04	4.00E+03	.	2.00E-01	1.00E-02	.	.	.
Germanium (32)	Ge-67	S	1.93E+04	3.60E-05	4.00E+03	.	2.00E-01	1.00E-02	.	.	.
Germanium (32)	Ge-68	S	9.34E-01	7.42E-01	4.00E+03	.	2.00E-01	1.00E-02	.	.	.
Germanium (32)	Ge-69	S	1.55E+02	4.46E-03	4.00E+03	.	2.00E-01	1.00E-02	.	.	.
Germanium (32)	Ge-71	S	2.21E+01	3.13E-02	4.00E+03	.	2.00E-01	1.00E-02	.	.	.
Germanium (32)	Ge-75	S	4.40E+03	1.57E-04	4.00E+03	.	2.00E-01	1.00E-02	.	.	.
Germanium (32)	Ge-77	S	5.37E+02	1.29E-03	4.00E+03	.	2.00E-01	1.00E-02	.	.	.
Germanium (32)	Ge-78	S	4.14E+03	1.67E-04	4.00E+03	.	2.00E-01	1.00E-02	.	.	.
Hydrogen (1)	H-3	S	5.63E-02	1.23E+01	9.00E-01	.	1.20E-02	1.00E-02	.	.	.
Hafnium (72)	Hf-167	-	1.78E+05	3.90E-06	1.10E+03	1.40E+03	4.00E-04	2.00E-05	.	.	.
Hafnium (72)	Hf-169	-	1.12E+05	6.16E-06	1.10E+03	1.40E+03	4.00E-04	2.00E-05	.	.	.
Hafnium (72)	Hf-170	S	3.79E+02	1.83E-03	1.10E+03	1.40E+03	4.00E-04	2.00E-05	.	.	.
Hafnium (72)	Hf-172	S	3.71E-01	1.87E+00	1.10E+03	1.40E+03	4.00E-04	2.00E-05	.	.	.
Hafnium (72)	Hf-173	S	2.57E+02	2.69E-03	1.10E+03	1.40E+03	4.00E-04	2.00E-05	.	.	.
Hafnium (72)	Hf-174	S	3.47E-16	2.00E+15	1.10E+03	1.40E+03	4.00E-04	2.00E-05	.	.	.
Hafnium (72)	Hf-175	S	3.61E+00	1.92E-01	1.10E+03	1.40E+03	4.00E-04	2.00E-05	.	.	.
Hafnium (72)	Hf-177m	S	7.09E+03	9.78E-05	1.10E+03	1.40E+03	4.00E-04	2.00E-05	.	.	.
Hafnium (72)	Hf-178m	F	2.24E-02	3.10E+01	1.10E+03	1.40E+03	4.00E-04	2.00E-05	.	.	.
Hafnium (72)	Hf-179m	S	1.01E+01	6.86E-02	1.10E+03	1.40E+03	4.00E-04	2.00E-05	.	.	.
Hafnium (72)	Hf-180m	S	1.10E+03	6.28E-04	1.10E+03	1.40E+03	4.00E-04	2.00E-05	.	.	.
Hafnium (72)	Hf-181	S	5.97E+00	1.16E-01	1.10E+03	1.40E+03	4.00E-04	2.00E-05	.	.	.
Hafnium (72)	Hf-182	F	7.70E-08	9.00E+06	1.10E+03	1.40E+03	4.00E-04	2.00E-05	.	.	.
Hafnium (72)	Hf-182m	S	5.92E+03	1.17E-04	1.10E+03	1.40E+03	4.00E-04	2.00E-05	.	.	.
Hafnium (72)	Hf-183	S	5.69E+03	1.22E-04	1.10E+03	1.40E+03	4.00E-04	2.00E-05	.	.	.
Hafnium (72)	Hf-184	S	1.47E+03	4.70E-04	1.10E+03	1.40E+03	4.00E-04	2.00E-05	.	.	.
Mercury (80)	Hg-190	V	1.82E+04	3.81E-05	6.10E+03	7.50E+02	1.00E-02	5.00E-04	.	3.00E-02	.
Mercury (80)	Hg-191m	V	7.17E+03	9.67E-05	6.10E+03	7.50E+02	1.00E-02	5.00E-04	.	3.00E-02	.
Mercury (80)	Hg-192	V	1.25E+03	5.54E-04	6.10E+03	7.50E+02	1.00E-02	5.00E-04	.	3.00E-02	.
Mercury (80)	Hg-193	V	1.60E+03	4.34E-04	6.10E+03	7.50E+02	1.00E-02	5.00E-04	.	3.00E-02	.
Mercury (80)	Hg-193m	V	5.14E+02	1.35E-03	6.10E+03	7.50E+02	1.00E-02	5.00E-04	.	3.00E-02	.
Mercury (80)	Hg-194	S	1.58E-03	4.40E+02	6.10E+03	7.50E+02	1.00E-02	5.00E-04	.	3.00E-02	.



Animal Transfer Factors July 2023											
Radionuclides		Isotope-specific Information and Animal Transfer Factors									
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Fish bioconcentration factor (Bq/kg per Bq/L)	Shellfish bioconcentration factor (Bq/kg per Bq/L)	Plant-to-beef transfer factor (day/kg)	Plant-to-dairy transfer factor (day/kg)	Plant-to-swine transfer factor (day/kg)	Plant-to-poultry transfer factor (day/kg)	Plant-to-egg transfer factor (day/kg)
Mercury (80)	Hg-195	V	5.77E+02	1.20E-03	6.10E+03	7.50E+02	1.00E-02	5.00E-04	.	3.00E-02	.
Mercury (80)	Hg-195m	V	1.46E+02	4.75E-03	6.10E+03	7.50E+02	1.00E-02	5.00E-04	.	3.00E-02	.
Mercury (80)	Hg-197	V	9.35E+01	7.41E-03	6.10E+03	7.50E+02	1.00E-02	5.00E-04	.	3.00E-02	.
Mercury (80)	Hg-197m	V	2.55E+02	2.72E-03	6.10E+03	7.50E+02	1.00E-02	5.00E-04	.	3.00E-02	.
Mercury (80)	Hg-199m	V	8.54E+03	8.12E-05	6.10E+03	7.50E+02	1.00E-02	5.00E-04	.	3.00E-02	.
Mercury (80)	Hg-203	V	5.43E+00	1.28E-01	6.10E+03	7.50E+02	1.00E-02	5.00E-04	.	3.00E-02	.
Mercury (80)	Hg-205	-	7.00E+04	9.89E-06	6.10E+03	7.50E+02	1.00E-02	5.00E-04	.	3.00E-02	.
Mercury (80)	Hg-206	-	4.47E+04	1.55E-05	6.10E+03	7.50E+02	1.00E-02	5.00E-04	.	3.00E-02	.
Mercury (80)	Hg-207	-	1.26E+05	5.52E-06	6.10E+03	7.50E+02	1.00E-02	5.00E-04	.	3.00E-02	.
Holmium (67)	Ho-150	-	2.85E+05	2.44E-06	2.50E+01	.	2.00E-03	6.00E-05	.	.	.
Holmium (67)	Ho-153	-	1.81E+05	3.82E-06	2.50E+01	.	2.00E-03	6.00E-05	.	.	.
Holmium (67)	Ho-153m	-	3.92E+04	1.77E-05	2.50E+01	.	2.00E-03	6.00E-05	.	.	.
Holmium (67)	Ho-154	S	3.10E+04	2.24E-05	2.50E+01	.	2.00E-03	6.00E-05	.	.	.
Holmium (67)	Ho-154m	-	1.17E+05	5.90E-06	2.50E+01	.	2.00E-03	6.00E-05	.	.	.
Holmium (67)	Ho-155	S	7.59E+03	9.13E-05	2.50E+01	.	2.00E-03	6.00E-05	.	.	.
Holmium (67)	Ho-156	S	6.50E+03	1.07E-04	2.50E+01	.	2.00E-03	6.00E-05	.	.	.
Holmium (67)	Ho-157	S	2.89E+04	2.40E-05	2.50E+01	.	2.00E-03	6.00E-05	.	.	.
Holmium (67)	Ho-159	S	1.10E+04	6.29E-05	2.50E+01	.	2.00E-03	6.00E-05	.	.	.
Holmium (67)	Ho-160	S	1.42E+04	4.87E-05	2.50E+01	.	2.00E-03	6.00E-05	.	.	.
Holmium (67)	Ho-161	S	2.45E+03	2.83E-04	2.50E+01	.	2.00E-03	6.00E-05	.	.	.
Holmium (67)	Ho-162	S	2.43E+04	2.85E-05	2.50E+01	.	2.00E-03	6.00E-05	.	.	.
Holmium (67)	Ho-162m	S	5.44E+03	1.27E-04	2.50E+01	.	2.00E-03	6.00E-05	.	.	.
Holmium (67)	Ho-163	F	1.52E-04	4.57E+03	2.50E+01	.	2.00E-03	6.00E-05	.	.	.
Holmium (67)	Ho-164	S	1.26E+04	5.52E-05	2.50E+01	.	2.00E-03	6.00E-05	.	.	.
Holmium (67)	Ho-164m	S	9.59E+03	7.23E-05	2.50E+01	.	2.00E-03	6.00E-05	.	.	.
Holmium (67)	Ho-166	S	2.27E+02	3.06E-03	2.50E+01	.	2.00E-03	6.00E-05	.	.	.
Holmium (67)	Ho-166m	F	5.78E-04	1.20E+03	2.50E+01	.	2.00E-03	6.00E-05	.	.	.
Holmium (67)	Ho-167	S	1.96E+03	3.54E-04	2.50E+01	.	2.00E-03	6.00E-05	.	.	.
Holmium (67)	Ho-168	-	1.22E+05	5.69E-06	2.50E+01	.	2.00E-03	6.00E-05	.	.	.
Holmium (67)	Ho-168m	-	1.66E+05	4.19E-06	2.50E+01	.	2.00E-03	6.00E-05	.	.	.
Holmium (67)	Ho-170	-	1.32E+05	5.25E-06	2.50E+01	.	2.00E-03	6.00E-05	.	.	.
Iodine (53)	I-118	V	2.66E+04	2.61E-05	3.00E+01	1.70E+01	6.70E-03	5.40E-03	4.10E-02	8.70E-03	2.40E+00
Iodine (53)	I-118m	-	4.29E+04	1.62E-05	3.00E+01	1.70E+01	6.70E-03	5.40E-03	4.10E-02	8.70E-03	2.40E+00
Iodine (53)	I-119	V	1.91E+04	3.63E-05	3.00E+01	1.70E+01	6.70E-03	5.40E-03	4.10E-02	8.70E-03	2.40E+00
Iodine (53)	I-120	V	4.46E+03	1.55E-04	3.00E+01	1.70E+01	6.70E-03	5.40E-03	4.10E-02	8.70E-03	2.40E+00
Iodine (53)	I-120m	V	6.87E+03	1.01E-04	3.00E+01	1.70E+01	6.70E-03	5.40E-03	4.10E-02	8.70E-03	2.40E+00
Iodine (53)	I-121	V	2.86E+03	2.42E-04	3.00E+01	1.70E+01	6.70E-03	5.40E-03	4.10E-02	8.70E-03	2.40E+00
Iodine (53)	I-122	-	1.00E+05	6.91E-06	3.00E+01	1.70E+01	6.70E-03	5.40E-03	4.10E-02	8.70E-03	2.40E+00

Animal Transfer Factors July 2023												
Radionuclides		Isotope-specific Information and Animal Transfer Factors										
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Fish	Shellfish	Plant-to-beef transfer factor (day/kg)	Plant-to-dairy transfer factor (day/kg)	Plant-to-swine transfer factor (day/kg)	Plant-to-poultry transfer factor (day/kg)	Plant-to-egg transfer factor (day/kg)	
					bioconcentration factor (Bq/kg per Bq/L)	bioconcentration factor (Bq/kg per Bq/L)						
Iodine (53)	I-123	V	4.57E+02	1.51E-03	3.00E+01	1.70E+01	6.70E-03	5.40E-03	4.10E-02	8.70E-03	2.40E+00	
Iodine (53)	I-124	V	6.06E+01	1.14E-02	3.00E+01	1.70E+01	6.70E-03	5.40E-03	4.10E-02	8.70E-03	2.40E+00	
Iodine (53)	I-125	V	4.26E+00	1.63E-01	3.00E+01	1.70E+01	6.70E-03	5.40E-03	4.10E-02	8.70E-03	2.40E+00	
Iodine (53)	I-126	V	1.96E+01	3.54E-02	3.00E+01	1.70E+01	6.70E-03	5.40E-03	4.10E-02	8.70E-03	2.40E+00	
Iodine (53)	I-128	V	1.46E+04	4.75E-05	3.00E+01	1.70E+01	6.70E-03	5.40E-03	4.10E-02	8.70E-03	2.40E+00	
Iodine (53)	I-129	V	4.41E-08	1.57E+07	3.00E+01	1.70E+01	6.70E-03	5.40E-03	4.10E-02	8.70E-03	2.40E+00	
Iodine (53)	I-130	V	4.91E+02	1.41E-03	3.00E+01	1.70E+01	6.70E-03	5.40E-03	4.10E-02	8.70E-03	2.40E+00	
Iodine (53)	I-130m	-	4.12E+04	1.68E-05	3.00E+01	1.70E+01	6.70E-03	5.40E-03	4.10E-02	8.70E-03	2.40E+00	
Iodine (53)	I-131	V	3.15E+01	2.20E-02	3.00E+01	1.70E+01	6.70E-03	5.40E-03	4.10E-02	8.70E-03	2.40E+00	
Iodine (53)	I-132	V	2.65E+03	2.62E-04	3.00E+01	1.70E+01	6.70E-03	5.40E-03	4.10E-02	8.70E-03	2.40E+00	
Iodine (53)	I-132m	V	4.38E+03	1.58E-04	3.00E+01	1.70E+01	6.70E-03	5.40E-03	4.10E-02	8.70E-03	2.40E+00	
Iodine (53)	I-133	V	2.92E+02	2.37E-03	3.00E+01	1.70E+01	6.70E-03	5.40E-03	4.10E-02	8.70E-03	2.40E+00	
Iodine (53)	I-134	V	6.94E+03	9.99E-05	3.00E+01	1.70E+01	6.70E-03	5.40E-03	4.10E-02	8.70E-03	2.40E+00	
Iodine (53)	I-134m	-	1.01E+05	6.85E-06	3.00E+01	1.70E+01	6.70E-03	5.40E-03	4.10E-02	8.70E-03	2.40E+00	
Iodine (53)	I-135	V	9.24E+02	7.50E-04	3.00E+01	1.70E+01	6.70E-03	5.40E-03	4.10E-02	8.70E-03	2.40E+00	
Indium (49)	In-103	-	3.64E+05	1.90E-06	1.00E+04	.	8.00E-03	2.00E-04	.	.	.	
Indium (49)	In-105	-	7.18E+04	9.65E-06	1.00E+04	.	8.00E-03	2.00E-04	.	.	.	
Indium (49)	In-106	-	5.87E+04	1.18E-05	1.00E+04	.	8.00E-03	2.00E-04	.	.	.	
Indium (49)	In-106m	-	7.00E+04	9.89E-06	1.00E+04	.	8.00E-03	2.00E-04	.	.	.	
Indium (49)	In-107	S	1.12E+04	6.16E-05	1.00E+04	.	8.00E-03	2.00E-04	.	.	.	
Indium (49)	In-108	S	6.28E+03	1.10E-04	1.00E+04	.	8.00E-03	2.00E-04	.	.	.	
Indium (49)	In-108m	S	9.20E+03	7.53E-05	1.00E+04	.	8.00E-03	2.00E-04	.	.	.	
Indium (49)	In-109	S	1.45E+03	4.79E-04	1.00E+04	.	8.00E-03	2.00E-04	.	.	.	
Indium (49)	In-109m	-	2.72E+05	2.55E-06	1.00E+04	.	8.00E-03	2.00E-04	.	.	.	
Indium (49)	In-110	S	1.24E+03	5.59E-04	1.00E+04	.	8.00E-03	2.00E-04	.	.	.	
Indium (49)	In-110m	S	5.27E+03	1.31E-04	1.00E+04	.	8.00E-03	2.00E-04	.	.	.	
Indium (49)	In-111	S	9.02E+01	7.68E-03	1.00E+04	.	8.00E-03	2.00E-04	.	.	.	
Indium (49)	In-111m	-	4.73E+04	1.46E-05	1.00E+04	.	8.00E-03	2.00E-04	.	.	.	
Indium (49)	In-112	S	2.43E+04	2.85E-05	1.00E+04	.	8.00E-03	2.00E-04	.	.	.	
Indium (49)	In-112m	S	1.77E+04	3.91E-05	1.00E+04	.	8.00E-03	2.00E-04	.	.	.	
Indium (49)	In-113m	S	3.66E+03	1.89E-04	1.00E+04	.	8.00E-03	2.00E-04	.	.	.	
Indium (49)	In-114	-	3.04E+05	2.28E-06	1.00E+04	.	8.00E-03	2.00E-04	.	.	.	
Indium (49)	In-114m	S	5.11E+00	1.36E-01	1.00E+04	.	8.00E-03	2.00E-04	.	.	.	
Indium (49)	In-115	F	1.57E-15	4.41E+14	1.00E+04	.	8.00E-03	2.00E-04	.	.	.	
Indium (49)	In-115m	S	1.35E+03	5.12E-04	1.00E+04	.	8.00E-03	2.00E-04	.	.	.	
Indium (49)	In-116m	S	6.69E+03	1.04E-04	1.00E+04	.	8.00E-03	2.00E-04	.	.	.	
Indium (49)	In-117	S	8.43E+03	8.22E-05	1.00E+04	.	8.00E-03	2.00E-04	.	.	.	
Indium (49)	In-117m	S	3.13E+03	2.21E-04	1.00E+04	.	8.00E-03	2.00E-04	.	.	.	

Animal Transfer Factors July 2023											
Radionuclides		Isotope-specific Information and Animal Transfer Factors									
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Fish bioconcentration factor (Bq/kg per Bq/L)	Shellfish bioconcentration factor (Bq/kg per Bq/L)	Plant-to-beef transfer factor (day/kg)	Plant-to-dairy transfer factor (day/kg)	Plant-to-swine transfer factor (day/kg)	Plant-to-poultry transfer factor (day/kg)	Plant-to-egg transfer factor (day/kg)
Indium (49)	In-118	-	4.37E+06	1.59E-07	1.00E+04	.	8.00E-03	2.00E-04	.	.	.
Indium (49)	In-118m	-	8.35E+04	8.30E-06	1.00E+04	.	8.00E-03	2.00E-04	.	.	.
Indium (49)	In-119	-	1.52E+05	4.57E-06	1.00E+04	.	8.00E-03	2.00E-04	.	.	.
Indium (49)	In-119m	S	2.02E+04	3.42E-05	1.00E+04	.	8.00E-03	2.00E-04	.	.	.
Indium (49)	In-121	-	9.46E+05	7.32E-07	1.00E+04	.	8.00E-03	2.00E-04	.	.	.
Indium (49)	In-121m	-	9.39E+04	7.38E-06	1.00E+04	.	8.00E-03	2.00E-04	.	.	.
Iridium (77)	Ir-180	-	2.43E+05	2.85E-06	1.00E+01	.	2.00E-03	2.00E-06	.	.	.
Iridium (77)	Ir-182	S	2.43E+04	2.85E-05	1.00E+01	.	2.00E-03	2.00E-06	.	.	.
Iridium (77)	Ir-183	S	6.28E+03	1.10E-04	1.00E+01	.	2.00E-03	2.00E-06	.	.	.
Iridium (77)	Ir-184	S	1.96E+03	3.53E-04	1.00E+01	.	2.00E-03	2.00E-06	.	.	.
Iridium (77)	Ir-185	S	4.22E+02	1.64E-03	1.00E+01	.	2.00E-03	2.00E-06	.	.	.
Iridium (77)	Ir-186	S	3.65E+02	1.90E-03	1.00E+01	.	2.00E-03	2.00E-06	.	.	.
Iridium (77)	Ir-186m	S	3.16E+03	2.19E-04	1.00E+01	.	2.00E-03	2.00E-06	.	.	.
Iridium (77)	Ir-187	S	5.78E+02	1.20E-03	1.00E+01	.	2.00E-03	2.00E-06	.	.	.
Iridium (77)	Ir-188	S	1.46E+02	4.74E-03	1.00E+01	.	2.00E-03	2.00E-06	.	.	.
Iridium (77)	Ir-189	S	1.92E+01	3.62E-02	1.00E+01	.	2.00E-03	2.00E-06	.	.	.
Iridium (77)	Ir-190	S	2.15E+01	3.23E-02	1.00E+01	.	2.00E-03	2.00E-06	.	.	.
Iridium (77)	Ir-190m	S	5.42E+03	1.28E-04	1.00E+01	.	2.00E-03	2.00E-06	.	.	.
Iridium (77)	Ir-190n	S	1.97E+03	3.52E-04	1.00E+01	.	2.00E-03	2.00E-06	.	.	.
Iridium (77)	Ir-191m	-	4.42E+06	1.57E-07	1.00E+01	.	2.00E-03	2.00E-06	.	.	.
Iridium (77)	Ir-192	S	3.43E+00	2.02E-01	1.00E+01	.	2.00E-03	2.00E-06	.	.	.
Iridium (77)	Ir-192m	-	2.51E+05	2.76E-06	1.00E+01	.	2.00E-03	2.00E-06	.	.	.
Iridium (77)	Ir-192n	S	2.88E-03	2.41E+02	1.00E+01	.	2.00E-03	2.00E-06	.	.	.
Iridium (77)	Ir-193m	S	2.40E+01	2.88E-02	1.00E+01	.	2.00E-03	2.00E-06	.	.	.
Iridium (77)	Ir-194	S	3.15E+02	2.20E-03	1.00E+01	.	2.00E-03	2.00E-06	.	.	.
Iridium (77)	Ir-194m	S	1.48E+00	4.68E-01	1.00E+01	.	2.00E-03	2.00E-06	.	.	.
Iridium (77)	Ir-195	S	2.43E+03	2.85E-04	1.00E+01	.	2.00E-03	2.00E-06	.	.	.
Iridium (77)	Ir-195m	S	1.60E+03	4.34E-04	1.00E+01	.	2.00E-03	2.00E-06	.	.	.
Iridium (77)	Ir-196	-	4.20E+05	1.65E-06	1.00E+01	.	2.00E-03	2.00E-06	.	.	.
Iridium (77)	Ir-196m	S	4.34E+03	1.60E-04	1.00E+01	.	2.00E-03	2.00E-06	.	.	.
Potassium (19)	K-38	-	4.77E+04	1.45E-05	3.20E+03	5.90E+02	2.00E-02	7.00E-03	.	1.00E-01	1.00E+00
Potassium (19)	K-40	S	5.54E-10	1.25E+09	3.20E+03	5.90E+02	2.00E-02	7.00E-03	.	1.00E-01	1.00E+00
Potassium (19)	K-42	S	4.91E+02	1.41E-03	3.20E+03	5.90E+02	2.00E-02	7.00E-03	.	1.00E-01	1.00E+00
Potassium (19)	K-43	S	2.72E+02	2.55E-03	3.20E+03	5.90E+02	2.00E-02	7.00E-03	.	1.00E-01	1.00E+00
Potassium (19)	K-44	S	1.65E+04	4.21E-05	3.20E+03	5.90E+02	2.00E-02	7.00E-03	.	1.00E-01	1.00E+00
Potassium (19)	K-45	S	2.11E+04	3.29E-05	3.20E+03	5.90E+02	2.00E-02	7.00E-03	.	1.00E-01	1.00E+00
Potassium (19)	K-46	-	2.08E+05	3.33E-06	3.20E+03	5.90E+02	2.00E-02	7.00E-03	.	1.00E-01	1.00E+00
Krypton (36)	Kr-74	-	3.17E+04	2.19E-05	0.00E+00	.	0.00E+00	0.00E+00	.	.	.

Animal Transfer Factors July 2023											
Radionuclides		Isotope-specific Information and Animal Transfer Factors									
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Fish bioconcentration factor (Bq/kg per Bq/L)	Shellfish bioconcentration factor (Bq/kg per Bq/L)	Plant-to-beef transfer factor (day/kg)	Plant-to-dairy transfer factor (day/kg)	Plant-to-swine transfer factor (day/kg)	Plant-to-poultry transfer factor (day/kg)	Plant-to-egg transfer factor (day/kg)
Krypton (36)	Kr-75	-	8.49E+04	8.16E-06	0.00E+00	.	0.00E+00	0.00E+00	.	.	.
Krypton (36)	Kr-76	-	4.10E+02	1.69E-03	0.00E+00	.	0.00E+00	0.00E+00	.	.	.
Krypton (36)	Kr-77	-	4.90E+03	1.42E-04	0.00E+00	.	0.00E+00	0.00E+00	.	.	.
Krypton (36)	Kr-79	-	1.73E+02	4.00E-03	0.00E+00	.	0.00E+00	0.00E+00	.	.	.
Krypton (36)	Kr-81	-	3.03E-06	2.29E+05	0.00E+00	.	0.00E+00	0.00E+00	.	.	.
Krypton (36)	Kr-81m	-	1.67E+06	4.15E-07	0.00E+00	.	0.00E+00	0.00E+00	.	.	.
Krypton (36)	Kr-83m	-	3.32E+03	2.09E-04	0.00E+00	.	0.00E+00	0.00E+00	.	.	.
Krypton (36)	Kr-85	-	6.44E-02	1.08E+01	0.00E+00	.	0.00E+00	0.00E+00	.	.	.
Krypton (36)	Kr-85m	-	1.36E+03	5.11E-04	0.00E+00	.	0.00E+00	0.00E+00	.	.	.
Krypton (36)	Kr-87	-	4.77E+03	1.45E-04	0.00E+00	.	0.00E+00	0.00E+00	.	.	.
Krypton (36)	Kr-88	-	2.14E+03	3.24E-04	0.00E+00	.	0.00E+00	0.00E+00	.	.	.
Krypton (36)	Kr-89	-	1.16E+05	5.99E-06	0.00E+00	.	0.00E+00	0.00E+00	.	.	.
Lanthanum (57)	La-128	-	7.03E+04	9.86E-06	3.70E+01	3.50E+02	1.30E-04	2.00E-05	.	.	9.00E-03
Lanthanum (57)	La-129	S	3.14E+04	2.21E-05	3.70E+01	3.50E+02	1.30E-04	2.00E-05	.	.	9.00E-03
Lanthanum (57)	La-130	-	4.19E+04	1.66E-05	3.70E+01	3.50E+02	1.30E-04	2.00E-05	.	.	9.00E-03
Lanthanum (57)	La-131	S	6.17E+03	1.12E-04	3.70E+01	3.50E+02	1.30E-04	2.00E-05	.	.	9.00E-03
Lanthanum (57)	La-132	S	1.26E+03	5.48E-04	3.70E+01	3.50E+02	1.30E-04	2.00E-05	.	.	9.00E-03
Lanthanum (57)	La-132m	S	1.50E+04	4.62E-05	3.70E+01	3.50E+02	1.30E-04	2.00E-05	.	.	9.00E-03
Lanthanum (57)	La-133	S	1.55E+03	4.47E-04	3.70E+01	3.50E+02	1.30E-04	2.00E-05	.	.	9.00E-03
Lanthanum (57)	La-134	-	5.65E+04	1.23E-05	3.70E+01	3.50E+02	1.30E-04	2.00E-05	.	.	9.00E-03
Lanthanum (57)	La-135	S	3.11E+02	2.23E-03	3.70E+01	3.50E+02	1.30E-04	2.00E-05	.	.	9.00E-03
Lanthanum (57)	La-136	-	3.69E+04	1.88E-05	3.70E+01	3.50E+02	1.30E-04	2.00E-05	.	.	9.00E-03
Lanthanum (57)	La-137	F	1.16E-05	6.00E+04	3.70E+01	3.50E+02	1.30E-04	2.00E-05	.	.	9.00E-03
Lanthanum (57)	La-138	F	6.79E-12	1.02E+11	3.70E+01	3.50E+02	1.30E-04	2.00E-05	.	.	9.00E-03
Lanthanum (57)	La-140	S	1.51E+02	4.60E-03	3.70E+01	3.50E+02	1.30E-04	2.00E-05	.	.	9.00E-03
Lanthanum (57)	La-141	S	1.55E+03	4.47E-04	3.70E+01	3.50E+02	1.30E-04	2.00E-05	.	.	9.00E-03
Lanthanum (57)	La-142	S	4.00E+03	1.73E-04	3.70E+01	3.50E+02	1.30E-04	2.00E-05	.	.	9.00E-03
Lanthanum (57)	La-143	S	2.57E+04	2.70E-05	3.70E+01	3.50E+02	1.30E-04	2.00E-05	.	.	9.00E-03
Lutetium (71)	Lu-165	S	3.39E+04	2.04E-05	3.00E+01	1.10E+03	1.00E-03	2.00E-05	.	.	.
Lutetium (71)	Lu-167	S	7.07E+03	9.80E-05	3.00E+01	1.10E+03	1.00E-03	2.00E-05	.	.	.
Lutetium (71)	Lu-169	S	1.78E+02	3.89E-03	3.00E+01	1.10E+03	1.00E-03	2.00E-05	.	.	.
Lutetium (71)	Lu-169m	-	1.37E+05	5.07E-06	3.00E+01	1.10E+03	1.00E-03	2.00E-05	.	.	.
Lutetium (71)	Lu-170	S	1.26E+02	5.51E-03	3.00E+01	1.10E+03	1.00E-03	2.00E-05	.	.	.
Lutetium (71)	Lu-171	S	3.07E+01	2.26E-02	3.00E+01	1.10E+03	1.00E-03	2.00E-05	.	.	.
Lutetium (71)	Lu-171m	-	2.77E+05	2.51E-06	3.00E+01	1.10E+03	1.00E-03	2.00E-05	.	.	.
Lutetium (71)	Lu-172	S	3.78E+01	1.84E-02	3.00E+01	1.10E+03	1.00E-03	2.00E-05	.	.	.
Lutetium (71)	Lu-172m	-	9.84E+04	7.04E-06	3.00E+01	1.10E+03	1.00E-03	2.00E-05	.	.	.
Lutetium (71)	Lu-173	S	5.06E-01	1.37E+00	3.00E+01	1.10E+03	1.00E-03	2.00E-05	.	.	.



Animal Transfer Factors July 2023												
Radionuclides		Isotope-specific Information and Animal Transfer Factors										
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Fish bioconcentration factor (Bq/kg per Bq/L)	Shellfish bioconcentration factor (Bq/kg per Bq/L)	Plant-to-beef transfer factor (day/kg)	Plant-to-dairy transfer factor (day/kg)	Plant-to-swine transfer factor (day/kg)	Plant-to-poultry transfer factor (day/kg)	Plant-to-egg transfer factor (day/kg)	
Lutetium (71)	Lu-174	S	2.09E-01	3.31E+00	3.00E+01	1.10E+03	1.00E-03	2.00E-05	.	.	.	
Lutetium (71)	Lu-174m	S	1.78E+00	3.89E-01	3.00E+01	1.10E+03	1.00E-03	2.00E-05	.	.	.	
Lutetium (71)	Lu-176	F	1.80E-11	3.85E+10	3.00E+01	1.10E+03	1.00E-03	2.00E-05	.	.	.	
Lutetium (71)	Lu-176m	S	1.67E+03	4.15E-04	3.00E+01	1.10E+03	1.00E-03	2.00E-05	.	.	.	
Lutetium (71)	Lu-177	S	3.81E+01	1.82E-02	3.00E+01	1.10E+03	1.00E-03	2.00E-05	.	.	.	
Lutetium (71)	Lu-177m	S	1.58E+00	4.39E-01	3.00E+01	1.10E+03	1.00E-03	2.00E-05	.	.	.	
Lutetium (71)	Lu-178	S	1.28E+04	5.40E-05	3.00E+01	1.10E+03	1.00E-03	2.00E-05	.	.	.	
Lutetium (71)	Lu-178m	S	1.58E+04	4.39E-05	3.00E+01	1.10E+03	1.00E-03	2.00E-05	.	.	.	
Lutetium (71)	Lu-179	S	1.32E+03	5.24E-04	3.00E+01	1.10E+03	1.00E-03	2.00E-05	.	.	.	
Lutetium (71)	Lu-180	-	6.39E+04	1.08E-05	3.00E+01	1.10E+03	1.00E-03	2.00E-05	.	.	.	
Lutetium (71)	Lu-181	-	1.04E+05	6.66E-06	3.00E+01	1.10E+03	1.00E-03	2.00E-05	.	.	.	
Magnesium (12)	Mg-27	-	3.85E+04	1.80E-05	3.70E+01	3.20E+02	3.00E-03	8.00E-03	.	.	.	
Magnesium (12)	Mg-28	S	2.90E+02	2.39E-03	3.70E+01	3.20E+02	3.00E-03	8.00E-03	.	.	.	
Manganese (25)	Mn-50m	-	2.08E+05	3.33E-06	2.40E+02	2.10E+02	6.00E-04	4.10E-05	5.30E-03	1.90E-03	4.20E-02	
Manganese (25)	Mn-51	S	7.88E+03	8.79E-05	2.40E+02	2.10E+02	6.00E-04	4.10E-05	5.30E-03	1.90E-03	4.20E-02	
Manganese (25)	Mn-52	S	4.52E+01	1.53E-02	2.40E+02	2.10E+02	6.00E-04	4.10E-05	5.30E-03	1.90E-03	4.20E-02	
Manganese (25)	Mn-52m	S	1.73E+04	4.01E-05	2.40E+02	2.10E+02	6.00E-04	4.10E-05	5.30E-03	1.90E-03	4.20E-02	
Manganese (25)	Mn-53	S	1.87E-07	3.70E+06	2.40E+02	2.10E+02	6.00E-04	4.10E-05	5.30E-03	1.90E-03	4.20E-02	
Manganese (25)	Mn-54	S	8.10E-01	8.55E-01	2.40E+02	2.10E+02	6.00E-04	4.10E-05	5.30E-03	1.90E-03	4.20E-02	
Manganese (25)	Mn-56	S	2.35E+03	2.94E-04	2.40E+02	2.10E+02	6.00E-04	4.10E-05	5.30E-03	1.90E-03	4.20E-02	
Manganese (25)	Mn-57	-	2.56E+05	2.71E-06	2.40E+02	2.10E+02	6.00E-04	4.10E-05	5.30E-03	1.90E-03	4.20E-02	
Manganese (25)	Mn-58m	-	3.35E+05	2.07E-06	2.40E+02	2.10E+02	6.00E-04	4.10E-05	5.30E-03	1.90E-03	4.20E-02	
Molybdenum (42)	Mo-101	S	2.49E+04	2.78E-05	1.90E+00	4.50E-01	1.00E-03	1.10E-03	.	1.80E-01	6.40E-01	
Molybdenum (42)	Mo-102	S	3.22E+04	2.15E-05	1.90E+00	4.50E-01	1.00E-03	1.10E-03	.	1.80E-01	6.40E-01	
Molybdenum (42)	Mo-89	-	1.73E+05	4.01E-06	1.90E+00	4.50E-01	1.00E-03	1.10E-03	.	1.80E-01	6.40E-01	
Molybdenum (42)	Mo-90	S	1.09E+03	6.35E-04	1.90E+00	4.50E-01	1.00E-03	1.10E-03	.	1.80E-01	6.40E-01	
Molybdenum (42)	Mo-91	S	2.35E+04	2.95E-05	1.90E+00	4.50E-01	1.00E-03	1.10E-03	.	1.80E-01	6.40E-01	
Molybdenum (42)	Mo-91m	-	3.38E+05	2.05E-06	1.90E+00	4.50E-01	1.00E-03	1.10E-03	.	1.80E-01	6.40E-01	
Molybdenum (42)	Mo-93	S	1.73E-04	4.00E+03	1.90E+00	4.50E-01	1.00E-03	1.10E-03	.	1.80E-01	6.40E-01	
Molybdenum (42)	Mo-93m	S	8.86E+02	7.82E-04	1.90E+00	4.50E-01	1.00E-03	1.10E-03	.	1.80E-01	6.40E-01	
Molybdenum (42)	Mo-99	S	9.21E+01	7.53E-03	1.90E+00	4.50E-01	1.00E-03	1.10E-03	.	1.80E-01	6.40E-01	
Nitrogen (7)	N-13	-	3.66E+04	1.90E-05	1.50E+05	.	1.00E-02	1.00E-02	.	.	.	
Nitrogen (7)	N-16	-	3.07E+06	2.26E-07	1.50E+05	.	1.00E-02	1.00E-02	.	.	.	
Sodium (11)	Na-22	S	2.66E-01	2.60E+00	7.60E+01	3.40E+00	1.50E-02	1.30E-02	.	7.00E+00	4.00E+00	
Sodium (11)	Na-24	S	4.06E+02	1.71E-03	7.60E+01	3.40E+00	1.50E-02	1.30E-02	.	7.00E+00	4.00E+00	
Niobium (41)	Nb-87	-	9.71E+04	7.13E-06	3.00E+02	.	2.60E-07	4.10E-07	2.00E-04	3.00E-04	1.00E-03	
Niobium (41)	Nb-88	S	2.51E+04	2.76E-05	3.00E+02	.	2.60E-07	4.10E-07	2.00E-04	3.00E-04	1.00E-03	
Niobium (41)	Nb-88m	-	4.68E+04	1.48E-05	3.00E+02	.	2.60E-07	4.10E-07	2.00E-04	3.00E-04	1.00E-03	

Animal Transfer Factors July 2023											
Radionuclides		Isotope-specific Information and Animal Transfer Factors									
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Fish	Shellfish	Plant-to-beef transfer factor (day/kg)	Plant-to-dairy transfer factor (day/kg)	Plant-to-swine transfer factor (day/kg)	Plant-to-poultry transfer factor (day/kg)	Plant-to-egg transfer factor (day/kg)
					bioconcentration factor (Bq/kg per Bq/L)	bioconcentration factor (Bq/kg per Bq/L)					
Niobium (41)	Nb-89	S	2.99E+03	2.32E-04	3.00E+02	.	2.60E-07	4.10E-07	2.00E-04	3.00E-04	1.00E-03
Niobium (41)	Nb-89m	S	5.52E+03	1.26E-04	3.00E+02	.	2.60E-07	4.10E-07	2.00E-04	3.00E-04	1.00E-03
Niobium (41)	Nb-90	S	4.16E+02	1.67E-03	3.00E+02	.	2.60E-07	4.10E-07	2.00E-04	3.00E-04	1.00E-03
Niobium (41)	Nb-91	S	1.02E-03	6.80E+02	3.00E+02	.	2.60E-07	4.10E-07	2.00E-04	3.00E-04	1.00E-03
Niobium (41)	Nb-91m	S	4.16E+00	1.67E-01	3.00E+02	.	2.60E-07	4.10E-07	2.00E-04	3.00E-04	1.00E-03
Niobium (41)	Nb-92	S	2.00E-08	3.47E+07	3.00E+02	.	2.60E-07	4.10E-07	2.00E-04	3.00E-04	1.00E-03
Niobium (41)	Nb-92m	S	2.49E+01	2.78E-02	3.00E+02	.	2.60E-07	4.10E-07	2.00E-04	3.00E-04	1.00E-03
Niobium (41)	Nb-93m	S	4.30E-02	1.61E+01	3.00E+02	.	2.60E-07	4.10E-07	2.00E-04	3.00E-04	1.00E-03
Niobium (41)	Nb-94	S	3.41E-05	2.03E+04	3.00E+02	.	2.60E-07	4.10E-07	2.00E-04	3.00E-04	1.00E-03
Niobium (41)	Nb-94m	-	5.82E+04	1.19E-05	3.00E+02	.	2.60E-07	4.10E-07	2.00E-04	3.00E-04	1.00E-03
Niobium (41)	Nb-95	S	7.23E+00	9.59E-02	3.00E+02	.	2.60E-07	4.10E-07	2.00E-04	3.00E-04	1.00E-03
Niobium (41)	Nb-95m	S	7.01E+01	9.89E-03	3.00E+02	.	2.60E-07	4.10E-07	2.00E-04	3.00E-04	1.00E-03
Niobium (41)	Nb-96	S	2.60E+02	2.67E-03	3.00E+02	.	2.60E-07	4.10E-07	2.00E-04	3.00E-04	1.00E-03
Niobium (41)	Nb-97	S	5.05E+03	1.37E-04	3.00E+02	.	2.60E-07	4.10E-07	2.00E-04	3.00E-04	1.00E-03
Niobium (41)	Nb-98m	S	7.10E+03	9.76E-05	3.00E+02	.	2.60E-07	4.10E-07	2.00E-04	3.00E-04	1.00E-03
Niobium (41)	Nb-99	-	1.46E+06	4.76E-07	3.00E+02	.	2.60E-07	4.10E-07	2.00E-04	3.00E-04	1.00E-03
Niobium (41)	Nb-99m	-	1.40E+05	4.95E-06	3.00E+02	.	2.60E-07	4.10E-07	2.00E-04	3.00E-04	1.00E-03
Neodymium (60)	Nd-134	-	4.29E+04	1.62E-05	1.00E+02	.	2.00E-03	6.00E-05	.	9.00E-02	3.00E-04
Neodymium (60)	Nd-135	S	2.94E+04	2.36E-05	1.00E+02	.	2.00E-03	6.00E-05	.	9.00E-02	3.00E-04
Neodymium (60)	Nd-136	S	7.19E+03	9.64E-05	1.00E+02	.	2.00E-03	6.00E-05	.	9.00E-02	3.00E-04
Neodymium (60)	Nd-137	S	9.46E+03	7.32E-05	1.00E+02	.	2.00E-03	6.00E-05	.	9.00E-02	3.00E-04
Neodymium (60)	Nd-138	S	1.20E+03	5.75E-04	1.00E+02	.	2.00E-03	6.00E-05	.	9.00E-02	3.00E-04
Neodymium (60)	Nd-139	S	1.23E+04	5.65E-05	1.00E+02	.	2.00E-03	6.00E-05	.	9.00E-02	3.00E-04
Neodymium (60)	Nd-139m	S	1.10E+03	6.28E-04	1.00E+02	.	2.00E-03	6.00E-05	.	9.00E-02	3.00E-04
Neodymium (60)	Nd-140	S	7.51E+01	9.23E-03	1.00E+02	.	2.00E-03	6.00E-05	.	9.00E-02	3.00E-04
Neodymium (60)	Nd-141	S	2.44E+03	2.84E-04	1.00E+02	.	2.00E-03	6.00E-05	.	9.00E-02	3.00E-04
Neodymium (60)	Nd-141m	-	3.52E+05	1.97E-06	1.00E+02	.	2.00E-03	6.00E-05	.	9.00E-02	3.00E-04
Neodymium (60)	Nd-144	F	3.03E-16	2.29E+15	1.00E+02	.	2.00E-03	6.00E-05	.	9.00E-02	3.00E-04
Neodymium (60)	Nd-147	S	2.30E+01	3.01E-02	1.00E+02	.	2.00E-03	6.00E-05	.	9.00E-02	3.00E-04
Neodymium (60)	Nd-149	S	3.51E+03	1.97E-04	1.00E+02	.	2.00E-03	6.00E-05	.	9.00E-02	3.00E-04
Neodymium (60)	Nd-151	S	2.93E+04	2.37E-05	1.00E+02	.	2.00E-03	6.00E-05	.	9.00E-02	3.00E-04
Neodymium (60)	Nd-152	S	3.20E+04	2.17E-05	1.00E+02	.	2.00E-03	6.00E-05	.	9.00E-02	3.00E-04
Neon (10)	Ne-19	-	1.27E+06	5.46E-07	.	.	0.00E+00	0.00E+00	.	.	.
Neon (10)	Ne-24	-	1.08E+05	6.43E-06	.	.	0.00E+00	0.00E+00	.	.	.
Nickel (28)	Ni-56	V	4.16E+01	1.66E-02	2.10E+01	.	1.00E-03	9.50E-04	.	.	.
Nickel (28)	Ni-57	S	1.71E+02	4.06E-03	2.10E+01	.	1.00E-03	9.50E-04	.	.	.
Nickel (28)	Ni-59	V	6.86E-06	1.01E+05	2.10E+01	.	1.00E-03	9.50E-04	.	.	.
Nickel (28)	Ni-63	V	6.92E-03	1.00E+02	2.10E+01	.	1.00E-03	9.50E-04	.	.	.

Animal Transfer Factors July 2023												
Radionuclides		Isotope-specific Information and Animal Transfer Factors										
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Fish bioconcentration factor (Bq/kg per Bq/L)	Shellfish bioconcentration factor (Bq/kg per Bq/L)	Plant-to-beef transfer factor (day/kg)	Plant-to-dairy transfer factor (day/kg)	Plant-to-swine transfer factor (day/kg)	Plant-to-poultry transfer factor (day/kg)	Plant-to-egg transfer factor (day/kg)	
Nickel (28)	Ni-65	V	2.41E+03	2.87E-04	2.10E+01	.	1.00E-03	9.50E-04	.	.	.	
Nickel (28)	Ni-66	S	1.11E+02	6.23E-03	2.10E+01	.	1.00E-03	9.50E-04	.	.	.	
Neptunium (93)	Np-232	S	2.48E+04	2.80E-05	3.00E+01	9.50E+03	1.00E-04	1.00E-06	.	.	.	
Neptunium (93)	Np-233	S	1.01E+04	6.89E-05	3.00E+01	9.50E+03	1.00E-04	1.00E-06	.	.	.	
Neptunium (93)	Np-234	S	5.75E+01	1.21E-02	3.00E+01	9.50E+03	1.00E-04	1.00E-06	.	.	.	
Neptunium (93)	Np-235	S	6.39E-01	1.09E+00	3.00E+01	9.50E+03	1.00E-04	1.00E-06	.	.	.	
Neptunium (93)	Np-236	F	4.50E-06	1.54E+05	3.00E+01	9.50E+03	1.00E-04	1.00E-06	.	.	.	
Neptunium (93)	Np-236m	S	2.70E+02	2.57E-03	3.00E+01	9.50E+03	1.00E-04	1.00E-06	.	.	.	
Neptunium (93)	Np-237	S	3.23E-07	2.14E+06	3.00E+01	9.50E+03	1.00E-04	1.00E-06	.	.	.	
Neptunium (93)	Np-238	S	1.19E+02	5.80E-03	3.00E+01	9.50E+03	1.00E-04	1.00E-06	.	.	.	
Neptunium (93)	Np-239	S	1.07E+02	6.46E-03	3.00E+01	9.50E+03	1.00E-04	1.00E-06	.	.	.	
Neptunium (93)	Np-240	S	5.88E+03	1.18E-04	3.00E+01	9.50E+03	1.00E-04	1.00E-06	.	.	.	
Neptunium (93)	Np-240m	-	5.04E+04	1.37E-05	3.00E+01	9.50E+03	1.00E-04	1.00E-06	.	.	.	
Neptunium (93)	Np-241	S	2.62E+04	2.64E-05	3.00E+01	9.50E+03	1.00E-04	1.00E-06	.	.	.	
Neptunium (93)	Np-242	-	1.66E+05	4.19E-06	3.00E+01	9.50E+03	1.00E-04	1.00E-06	.	.	.	
Neptunium (93)	Np-242m	-	6.62E+04	1.05E-05	3.00E+01	9.50E+03	1.00E-04	1.00E-06	.	.	.	
Oxygen (8)	O-14	-	3.10E+05	2.24E-06	.	.	2.00E-01	2.00E-02	.	.	.	
Oxygen (8)	O-15	-	1.79E+05	3.88E-06	.	.	2.00E-01	2.00E-02	.	.	.	
Oxygen (8)	O-19	-	8.26E+05	8.39E-07	.	.	2.00E-01	2.00E-02	.	.	.	
Osmium (76)	Os-180	S	1.69E+04	4.09E-05	.	.	2.00E-03	1.00E-04	.	.	.	
Osmium (76)	Os-181	S	3.47E+03	2.00E-04	.	.	2.00E-03	1.00E-04	.	.	.	
Osmium (76)	Os-182	S	2.75E+02	2.52E-03	.	.	2.00E-03	1.00E-04	.	.	.	
Osmium (76)	Os-183	S	4.67E+02	1.48E-03	.	.	2.00E-03	1.00E-04	.	.	.	
Osmium (76)	Os-183m	S	6.13E+02	1.13E-03	.	.	2.00E-03	1.00E-04	.	.	.	
Osmium (76)	Os-185	S	2.70E+00	2.56E-01	.	.	2.00E-03	1.00E-04	.	.	.	
Osmium (76)	Os-186	S	3.47E-16	2.00E+15	.	.	2.00E-03	1.00E-04	.	.	.	
Osmium (76)	Os-189m	S	1.05E+03	6.62E-04	.	.	2.00E-03	1.00E-04	.	.	.	
Osmium (76)	Os-190m	-	3.68E+04	1.88E-05	.	.	2.00E-03	1.00E-04	.	.	.	
Osmium (76)	Os-191	S	1.64E+01	4.22E-02	.	.	2.00E-03	1.00E-04	.	.	.	
Osmium (76)	Os-191m	S	4.63E+02	1.50E-03	.	.	2.00E-03	1.00E-04	.	.	.	
Osmium (76)	Os-193	S	2.02E+02	3.44E-03	.	.	2.00E-03	1.00E-04	.	.	.	
Osmium (76)	Os-194	S	1.16E-01	6.00E+00	.	.	2.00E-03	1.00E-04	.	.	.	
Osmium (76)	Os-196	S	1.04E+04	6.64E-05	.	.	2.00E-03	1.00E-04	.	.	.	
Phosphorus (15)	P-30	-	1.46E+05	4.75E-06	1.40E+05	.	5.50E-02	2.00E-02	2.70E-02	.	6.40E-01	
Phosphorus (15)	P-32	S	1.77E+01	3.91E-02	1.40E+05	.	5.50E-02	2.00E-02	2.70E-02	.	6.40E-01	
Phosphorus (15)	P-33	S	9.98E+00	6.94E-02	1.40E+05	.	5.50E-02	2.00E-02	2.70E-02	.	6.40E-01	
Protactinium (91)	Pa-227	S	9.51E+03	7.29E-05	1.00E+01	.	5.00E-06	5.00E-06	.	.	.	
Protactinium (91)	Pa-228	S	2.76E+02	2.51E-03	1.00E+01	.	5.00E-06	5.00E-06	.	.	.	

Animal Transfer Factors July 2023											
Radionuclides		Isotope-specific Information and Animal Transfer Factors									
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Fish bioconcentration factor (Bq/kg per Bq/L)	Shellfish bioconcentration factor (Bq/kg per Bq/L)	Plant-to-beef transfer factor (day/kg)	Plant-to-dairy transfer factor (day/kg)	Plant-to-swine transfer factor (day/kg)	Plant-to-poultry transfer factor (day/kg)	Plant-to-egg transfer factor (day/kg)
Protactinium (91)	Pa-229	S	1.69E+02	4.11E-03	1.00E+01	.	5.00E-06	5.00E-06	.	.	.
Protactinium (91)	Pa-230	S	1.45E+01	4.77E-02	1.00E+01	.	5.00E-06	5.00E-06	.	.	.
Protactinium (91)	Pa-231	F	2.12E-05	3.28E+04	1.00E+01	.	5.00E-06	5.00E-06	.	.	.
Protactinium (91)	Pa-232	S	1.93E+02	3.59E-03	1.00E+01	.	5.00E-06	5.00E-06	.	.	.
Protactinium (91)	Pa-233	S	9.38E+00	7.39E-02	1.00E+01	.	5.00E-06	5.00E-06	.	.	.
Protactinium (91)	Pa-234	S	9.06E+02	7.65E-04	1.00E+01	.	5.00E-06	5.00E-06	.	.	.
Protactinium (91)	Pa-234m	-	3.11E+05	2.23E-06	1.00E+01	.	5.00E-06	5.00E-06	.	.	.
Protactinium (91)	Pa-235	S	1.49E+04	4.66E-05	1.00E+01	.	5.00E-06	5.00E-06	.	.	.
Protactinium (91)	Pa-236	-	4.00E+04	1.73E-05	1.00E+01	.	5.00E-06	5.00E-06	.	.	.
Protactinium (91)	Pa-237	-	4.19E+04	1.66E-05	1.00E+01	.	5.00E-06	5.00E-06	.	.	.
Lead (82)	Pb-194	S	3.04E+04	2.28E-05	2.50E+01	2.20E+01	7.00E-04	1.90E-04	.	.	.
Lead (82)	Pb-195m	S	2.43E+04	2.85E-05	2.50E+01	2.20E+01	7.00E-04	1.90E-04	.	.	.
Lead (82)	Pb-196	S	9.84E+03	7.04E-05	2.50E+01	2.20E+01	7.00E-04	1.90E-04	.	.	.
Lead (82)	Pb-197	-	4.55E+04	1.52E-05	2.50E+01	2.20E+01	7.00E-04	1.90E-04	.	.	.
Lead (82)	Pb-197m	S	8.47E+03	8.18E-05	2.50E+01	2.20E+01	7.00E-04	1.90E-04	.	.	.
Lead (82)	Pb-198	S	2.53E+03	2.74E-04	2.50E+01	2.20E+01	7.00E-04	1.90E-04	.	.	.
Lead (82)	Pb-199	S	4.05E+03	1.71E-04	2.50E+01	2.20E+01	7.00E-04	1.90E-04	.	.	.
Lead (82)	Pb-200	S	2.82E+02	2.45E-03	2.50E+01	2.20E+01	7.00E-04	1.90E-04	.	.	.
Lead (82)	Pb-201	S	6.51E+02	1.07E-03	2.50E+01	2.20E+01	7.00E-04	1.90E-04	.	.	.
Lead (82)	Pb-201m	-	3.58E+05	1.93E-06	2.50E+01	2.20E+01	7.00E-04	1.90E-04	.	.	.
Lead (82)	Pb-202	S	1.32E-05	5.25E+04	2.50E+01	2.20E+01	7.00E-04	1.90E-04	.	.	.
Lead (82)	Pb-202m	S	1.72E+03	4.03E-04	2.50E+01	2.20E+01	7.00E-04	1.90E-04	.	.	.
Lead (82)	Pb-203	S	1.17E+02	5.92E-03	2.50E+01	2.20E+01	7.00E-04	1.90E-04	.	.	.
Lead (82)	Pb-204m	S	5.42E+03	1.28E-04	2.50E+01	2.20E+01	7.00E-04	1.90E-04	.	.	.
Lead (82)	Pb-205	S	4.53E-08	1.53E+07	2.50E+01	2.20E+01	7.00E-04	1.90E-04	.	.	.
Lead (82)	Pb-209	S	1.87E+03	3.71E-04	2.50E+01	2.20E+01	7.00E-04	1.90E-04	.	.	.
Lead (82)	Pb-210	S	3.12E-02	2.22E+01	2.50E+01	2.20E+01	7.00E-04	1.90E-04	.	.	.
Lead (82)	Pb-211	S	1.01E+04	6.87E-05	2.50E+01	2.20E+01	7.00E-04	1.90E-04	.	.	.
Lead (82)	Pb-212	S	5.71E+02	1.21E-03	2.50E+01	2.20E+01	7.00E-04	1.90E-04	.	.	.
Lead (82)	Pb-214	S	1.36E+04	5.10E-05	2.50E+01	2.20E+01	7.00E-04	1.90E-04	.	.	.
Palladium (46)	Pd-100	S	6.97E+01	9.95E-03	1.00E+01	.	2.00E-04	1.00E-04	.	.	.
Palladium (46)	Pd-101	S	7.17E+02	9.67E-04	1.00E+01	.	2.00E-04	1.00E-04	.	.	.
Palladium (46)	Pd-103	S	1.49E+01	4.66E-02	1.00E+01	.	2.00E-04	1.00E-04	.	.	.
Palladium (46)	Pd-107	S	1.07E-07	6.50E+06	1.00E+01	.	2.00E-04	1.00E-04	.	.	.
Palladium (46)	Pd-109	S	4.43E+02	1.56E-03	1.00E+01	.	2.00E-04	1.00E-04	.	.	.
Palladium (46)	Pd-109m	-	7.77E+04	8.92E-06	1.00E+01	.	2.00E-04	1.00E-04	.	.	.
Palladium (46)	Pd-111	S	1.56E+04	4.45E-05	1.00E+01	.	2.00E-04	1.00E-04	.	.	.
Palladium (46)	Pd-112	S	2.89E+02	2.40E-03	1.00E+01	.	2.00E-04	1.00E-04	.	.	.



Animal Transfer Factors July 2023											
Radionuclides		Isotope-specific Information and Animal Transfer Factors									
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Fish bioconcentration factor (Bq/kg per Bq/L)	Shellfish bioconcentration factor (Bq/kg per Bq/L)	Plant-to-beef transfer factor (day/kg)	Plant-to-dairy transfer factor (day/kg)	Plant-to-swine transfer factor (day/kg)	Plant-to-poultry transfer factor (day/kg)	Plant-to-egg transfer factor (day/kg)
Palladium (46)	Pd-114	-	1.51E+05	4.60E-06	1.00E+01	.	2.00E-04	1.00E-04	.	.	.
Palladium (46)	Pd-96	-	1.79E+05	3.87E-06	1.00E+01	.	2.00E-04	1.00E-04	.	.	.
Palladium (46)	Pd-97	-	1.17E+05	5.90E-06	1.00E+01	.	2.00E-04	1.00E-04	.	.	.
Palladium (46)	Pd-98	S	2.06E+04	3.37E-05	1.00E+01	.	2.00E-04	1.00E-04	.	.	.
Palladium (46)	Pd-99	S	1.70E+04	4.07E-05	1.00E+01	.	2.00E-04	1.00E-04	.	.	.
Promethium (61)	Pm-136	-	2.04E+05	3.39E-06	3.00E+01	.	5.00E-03	2.00E-05	.	2.00E-03	2.00E-02
Promethium (61)	Pm-137m	-	1.52E+05	4.57E-06	3.00E+01	.	5.00E-03	2.00E-05	.	2.00E-03	2.00E-02
Promethium (61)	Pm-139	-	8.78E+04	7.90E-06	3.00E+01	.	5.00E-03	2.00E-05	.	2.00E-03	2.00E-02
Promethium (61)	Pm-140	-	2.38E+06	2.92E-07	3.00E+01	.	5.00E-03	2.00E-05	.	2.00E-03	2.00E-02
Promethium (61)	Pm-140m	-	6.12E+04	1.13E-05	3.00E+01	.	5.00E-03	2.00E-05	.	2.00E-03	2.00E-02
Promethium (61)	Pm-141	S	1.74E+04	3.98E-05	3.00E+01	.	5.00E-03	2.00E-05	.	2.00E-03	2.00E-02
Promethium (61)	Pm-142	-	5.40E+05	1.28E-06	3.00E+01	.	5.00E-03	2.00E-05	.	2.00E-03	2.00E-02
Promethium (61)	Pm-143	F	9.55E-01	7.26E-01	3.00E+01	.	5.00E-03	2.00E-05	.	2.00E-03	2.00E-02
Promethium (61)	Pm-144	F	6.97E-01	9.95E-01	3.00E+01	.	5.00E-03	2.00E-05	.	2.00E-03	2.00E-02
Promethium (61)	Pm-145	F	3.92E-02	1.77E+01	3.00E+01	.	5.00E-03	2.00E-05	.	2.00E-03	2.00E-02
Promethium (61)	Pm-146	F	1.25E-01	5.53E+00	3.00E+01	.	5.00E-03	2.00E-05	.	2.00E-03	2.00E-02
Promethium (61)	Pm-147	S	2.64E-01	2.62E+00	3.00E+01	.	5.00E-03	2.00E-05	.	2.00E-03	2.00E-02
Promethium (61)	Pm-148	S	4.71E+01	1.47E-02	3.00E+01	.	5.00E-03	2.00E-05	.	2.00E-03	2.00E-02
Promethium (61)	Pm-148m	S	6.13E+00	1.13E-01	3.00E+01	.	5.00E-03	2.00E-05	.	2.00E-03	2.00E-02
Promethium (61)	Pm-149	S	1.14E+02	6.06E-03	3.00E+01	.	5.00E-03	2.00E-05	.	2.00E-03	2.00E-02
Promethium (61)	Pm-150	S	2.27E+03	3.06E-04	3.00E+01	.	5.00E-03	2.00E-05	.	2.00E-03	2.00E-02
Promethium (61)	Pm-151	S	2.14E+02	3.24E-03	3.00E+01	.	5.00E-03	2.00E-05	.	2.00E-03	2.00E-02
Promethium (61)	Pm-152	-	8.84E+04	7.84E-06	3.00E+01	.	5.00E-03	2.00E-05	.	2.00E-03	2.00E-02
Promethium (61)	Pm-152m	-	4.84E+04	1.43E-05	3.00E+01	.	5.00E-03	2.00E-05	.	2.00E-03	2.00E-02
Promethium (61)	Pm-153	-	6.94E+04	9.99E-06	3.00E+01	.	5.00E-03	2.00E-05	.	2.00E-03	2.00E-02
Promethium (61)	Pm-154	-	2.11E+05	3.29E-06	3.00E+01	.	5.00E-03	2.00E-05	.	2.00E-03	2.00E-02
Promethium (61)	Pm-154m	-	1.36E+05	5.10E-06	3.00E+01	.	5.00E-03	2.00E-05	.	2.00E-03	2.00E-02
Polonium (84)	Po-203	S	9.92E+03	6.98E-05	3.60E+01	.	3.00E-03	2.10E-04	.	2.40E+00	3.10E+00
Polonium (84)	Po-204	S	1.72E+03	4.03E-04	3.60E+01	.	3.00E-03	2.10E-04	.	2.40E+00	3.10E+00
Polonium (84)	Po-205	S	3.66E+03	1.89E-04	3.60E+01	.	3.00E-03	2.10E-04	.	2.40E+00	3.10E+00
Polonium (84)	Po-206	S	2.87E+01	2.41E-02	3.60E+01	.	3.00E-03	2.10E-04	.	2.40E+00	3.10E+00
Polonium (84)	Po-207	S	1.05E+03	6.62E-04	3.60E+01	.	3.00E-03	2.10E-04	.	2.40E+00	3.10E+00
Polonium (84)	Po-208	S	2.39E-01	2.90E+00	3.60E+01	.	3.00E-03	2.10E-04	.	2.40E+00	3.10E+00
Polonium (84)	Po-209	S	6.79E-03	1.02E+02	3.60E+01	.	3.00E-03	2.10E-04	.	2.40E+00	3.10E+00
Polonium (84)	Po-210	S	1.83E+00	3.79E-01	3.60E+01	.	3.00E-03	2.10E-04	.	2.40E+00	3.10E+00
Polonium (84)	Po-211	-	4.24E+07	1.64E-08	3.60E+01	.	3.00E-03	2.10E-04	.	2.40E+00	3.10E+00
Polonium (84)	Po-212	-	7.31E+13	9.48E-15	3.60E+01	.	3.00E-03	2.10E-04	.	2.40E+00	3.10E+00
Polonium (84)	Po-212m	-	4.85E+05	1.43E-06	3.60E+01	.	3.00E-03	2.10E-04	.	2.40E+00	3.10E+00

Animal Transfer Factors July 2023											
Radionuclides		Isotope-specific Information and Animal Transfer Factors									
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Fish bioconcentration factor (Bq/kg per Bq/L)	Shellfish bioconcentration factor (Bq/kg per Bq/L)	Plant-to-beef transfer factor (day/kg)	Plant-to-dairy transfer factor (day/kg)	Plant-to-swine transfer factor (day/kg)	Plant-to-poultry transfer factor (day/kg)	Plant-to-egg transfer factor (day/kg)
Polonium (84)	Po-213	-	5.20E+12	1.33E-13	3.60E+01	.	3.00E-03	2.10E-04	.	2.40E+00	3.10E+00
Polonium (84)	Po-214	-	1.33E+11	5.21E-12	3.60E+01	.	3.00E-03	2.10E-04	.	2.40E+00	3.10E+00
Polonium (84)	Po-215	-	1.23E+10	5.65E-11	3.60E+01	.	3.00E-03	2.10E-04	.	2.40E+00	3.10E+00
Polonium (84)	Po-216	-	1.51E+08	4.60E-09	3.60E+01	.	3.00E-03	2.10E-04	.	2.40E+00	3.10E+00
Polonium (84)	Po-218	-	1.17E+05	5.90E-06	3.60E+01	.	3.00E-03	2.10E-04	.	2.40E+00	3.10E+00
Praseodymium (59)	Pr-134	S	3.31E+04	2.09E-05	1.00E+02	.	2.00E-03	6.00E-05	.	3.00E-02	5.00E-03
Praseodymium (59)	Pr-134m	S	2.14E+04	3.23E-05	1.00E+02	.	2.00E-03	6.00E-05	.	3.00E-02	5.00E-03
Praseodymium (59)	Pr-135	S	1.52E+04	4.57E-05	1.00E+02	.	2.00E-03	6.00E-05	.	3.00E-02	5.00E-03
Praseodymium (59)	Pr-136	S	2.78E+04	2.49E-05	1.00E+02	.	2.00E-03	6.00E-05	.	3.00E-02	5.00E-03
Praseodymium (59)	Pr-137	S	4.74E+03	1.46E-04	1.00E+02	.	2.00E-03	6.00E-05	.	3.00E-02	5.00E-03
Praseodymium (59)	Pr-138	-	2.51E+05	2.76E-06	1.00E+02	.	2.00E-03	6.00E-05	.	3.00E-02	5.00E-03
Praseodymium (59)	Pr-138m	S	2.86E+03	2.42E-04	1.00E+02	.	2.00E-03	6.00E-05	.	3.00E-02	5.00E-03
Praseodymium (59)	Pr-139	S	1.38E+03	5.03E-04	1.00E+02	.	2.00E-03	6.00E-05	.	3.00E-02	5.00E-03
Praseodymium (59)	Pr-140	-	1.07E+05	6.45E-06	1.00E+02	.	2.00E-03	6.00E-05	.	3.00E-02	5.00E-03
Praseodymium (59)	Pr-142	S	3.18E+02	2.18E-03	1.00E+02	.	2.00E-03	6.00E-05	.	3.00E-02	5.00E-03
Praseodymium (59)	Pr-142m	S	2.49E+04	2.78E-05	1.00E+02	.	2.00E-03	6.00E-05	.	3.00E-02	5.00E-03
Praseodymium (59)	Pr-143	S	1.86E+01	3.72E-02	1.00E+02	.	2.00E-03	6.00E-05	.	3.00E-02	5.00E-03
Praseodymium (59)	Pr-144	S	2.11E+04	3.29E-05	1.00E+02	.	2.00E-03	6.00E-05	.	3.00E-02	5.00E-03
Praseodymium (59)	Pr-144m	-	5.06E+04	1.37E-05	1.00E+02	.	2.00E-03	6.00E-05	.	3.00E-02	5.00E-03
Praseodymium (59)	Pr-145	S	1.01E+03	6.83E-04	1.00E+02	.	2.00E-03	6.00E-05	.	3.00E-02	5.00E-03
Praseodymium (59)	Pr-146	S	1.51E+04	4.59E-05	1.00E+02	.	2.00E-03	6.00E-05	.	3.00E-02	5.00E-03
Praseodymium (59)	Pr-147	S	2.72E+04	2.55E-05	1.00E+02	.	2.00E-03	6.00E-05	.	3.00E-02	5.00E-03
Praseodymium (59)	Pr-148	-	1.59E+05	4.36E-06	1.00E+02	.	2.00E-03	6.00E-05	.	3.00E-02	5.00E-03
Praseodymium (59)	Pr-148m	-	1.81E+05	3.82E-06	1.00E+02	.	2.00E-03	6.00E-05	.	3.00E-02	5.00E-03
Platinum (78)	Pt-184	S	2.11E+04	3.29E-05	.	.	2.00E-04	1.00E-04	.	.	.
Platinum (78)	Pt-186	S	2.92E+03	2.37E-04	.	.	2.00E-04	1.00E-04	.	.	.
Platinum (78)	Pt-187	S	2.58E+03	2.68E-04	.	.	2.00E-04	1.00E-04	.	.	.
Platinum (78)	Pt-188	S	2.48E+01	2.79E-02	.	.	2.00E-04	1.00E-04	.	.	.
Platinum (78)	Pt-189	S	5.58E+02	1.24E-03	.	.	2.00E-04	1.00E-04	.	.	.
Platinum (78)	Pt-190	S	1.07E-12	6.50E+11	.	.	2.00E-04	1.00E-04	.	.	.
Platinum (78)	Pt-191	S	9.03E+01	7.68E-03	.	.	2.00E-04	1.00E-04	.	.	.
Platinum (78)	Pt-193	S	1.39E-02	5.00E+01	.	.	2.00E-04	1.00E-04	.	.	.
Platinum (78)	Pt-193m	S	5.84E+01	1.19E-02	.	.	2.00E-04	1.00E-04	.	.	.
Platinum (78)	Pt-195m	S	6.29E+01	1.10E-02	.	.	2.00E-04	1.00E-04	.	.	.
Platinum (78)	Pt-197	S	3.05E+02	2.27E-03	.	.	2.00E-04	1.00E-04	.	.	.
Platinum (78)	Pt-197m	S	3.82E+03	1.82E-04	.	.	2.00E-04	1.00E-04	.	.	.
Platinum (78)	Pt-199	S	1.18E+04	5.86E-05	.	.	2.00E-04	1.00E-04	.	.	.
Platinum (78)	Pt-200	S	4.86E+02	1.43E-03	.	.	2.00E-04	1.00E-04	.	.	.

Animal Transfer Factors July 2023											
Radionuclides		Isotope-specific Information and Animal Transfer Factors									
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Fish	Shellfish	Plant-to-beef transfer factor (day/kg)	Plant-to-dairy transfer factor (day/kg)	Plant-to-swine transfer factor (day/kg)	Plant-to-poultry transfer factor (day/kg)	Plant-to-egg transfer factor (day/kg)
					bioconcentration factor (Bq/kg per Bq/L)	bioconcentration factor (Bq/kg per Bq/L)					
Platinum (78)	Pt-202	S	1.38E+02	5.02E-03	.	.	2.00E-04	1.00E-04	.	.	.
Plutonium (94)	Pu-232	S	1.08E+04	6.41E-05	2.10E+04	7.40E+03	1.10E-06	1.00E-05	8.00E-05	3.00E-03	1.20E-03
Plutonium (94)	Pu-234	S	6.90E+02	1.00E-03	2.10E+04	7.40E+03	1.10E-06	1.00E-05	8.00E-05	3.00E-03	1.20E-03
Plutonium (94)	Pu-235	S	1.44E+04	4.81E-05	2.10E+04	7.40E+03	1.10E-06	1.00E-05	8.00E-05	3.00E-03	1.20E-03
Plutonium (94)	Pu-236	S	2.42E-01	2.86E+00	2.10E+04	7.40E+03	1.10E-06	1.00E-05	8.00E-05	3.00E-03	1.20E-03
Plutonium (94)	Pu-237	S	5.60E+00	1.24E-01	2.10E+04	7.40E+03	1.10E-06	1.00E-05	8.00E-05	3.00E-03	1.20E-03
Plutonium (94)	Pu-238	F	7.90E-03	8.77E+01	2.10E+04	7.40E+03	1.10E-06	1.00E-05	8.00E-05	3.00E-03	1.20E-03
Plutonium (94)	Pu-239	F	2.87E-05	2.41E+04	2.10E+04	7.40E+03	1.10E-06	1.00E-05	8.00E-05	3.00E-03	1.20E-03
Plutonium (94)	Pu-240	F	1.06E-04	6.56E+03	2.10E+04	7.40E+03	1.10E-06	1.00E-05	8.00E-05	3.00E-03	1.20E-03
Plutonium (94)	Pu-241	F	4.83E-02	1.44E+01	2.10E+04	7.40E+03	1.10E-06	1.00E-05	8.00E-05	3.00E-03	1.20E-03
Plutonium (94)	Pu-242	F	1.85E-06	3.75E+05	2.10E+04	7.40E+03	1.10E-06	1.00E-05	8.00E-05	3.00E-03	1.20E-03
Plutonium (94)	Pu-243	S	1.22E+03	5.66E-04	2.10E+04	7.40E+03	1.10E-06	1.00E-05	8.00E-05	3.00E-03	1.20E-03
Plutonium (94)	Pu-244	F	8.66E-09	8.00E+07	2.10E+04	7.40E+03	1.10E-06	1.00E-05	8.00E-05	3.00E-03	1.20E-03
Plutonium (94)	Pu-245	S	5.78E+02	1.20E-03	2.10E+04	7.40E+03	1.10E-06	1.00E-05	8.00E-05	3.00E-03	1.20E-03
Plutonium (94)	Pu-246	S	2.33E+01	2.97E-02	2.10E+04	7.40E+03	1.10E-06	1.00E-05	8.00E-05	3.00E-03	1.20E-03
Radium (88)	Ra-219	-	2.19E+09	3.17E-10	4.00E+00	1.00E+02	1.70E-03	3.80E-04	.	.	.
Radium (88)	Ra-220	-	1.22E+09	5.68E-10	4.00E+00	1.00E+02	1.70E-03	3.80E-04	.	.	.
Radium (88)	Ra-221	-	7.81E+05	8.88E-07	4.00E+00	1.00E+02	1.70E-03	3.80E-04	.	.	.
Radium (88)	Ra-222	-	5.75E+05	1.20E-06	4.00E+00	1.00E+02	1.70E-03	3.80E-04	.	.	.
Radium (88)	Ra-223	S	2.21E+01	3.13E-02	4.00E+00	1.00E+02	1.70E-03	3.80E-04	.	.	.
Radium (88)	Ra-224	S	6.91E+01	1.00E-02	4.00E+00	1.00E+02	1.70E-03	3.80E-04	.	.	.
Radium (88)	Ra-225	S	1.70E+01	4.08E-02	4.00E+00	1.00E+02	1.70E-03	3.80E-04	.	.	.
Radium (88)	Ra-226	S	4.33E-04	1.60E+03	4.00E+00	1.00E+02	1.70E-03	3.80E-04	.	.	.
Radium (88)	Ra-227	S	8.63E+03	8.03E-05	4.00E+00	1.00E+02	1.70E-03	3.80E-04	.	.	.
Radium (88)	Ra-228	S	1.21E-01	5.75E+00	4.00E+00	1.00E+02	1.70E-03	3.80E-04	.	.	.
Radium (88)	Ra-230	S	3.92E+03	1.77E-04	4.00E+00	1.00E+02	1.70E-03	3.80E-04	.	.	.
Rubidium (37)	Rb-77	-	9.66E+04	7.17E-06	4.90E+03	2.00E+03	1.00E-02	1.00E-02	.	.	.
Rubidium (37)	Rb-78	S	2.06E+04	3.36E-05	4.90E+03	2.00E+03	1.00E-02	1.00E-02	.	.	.
Rubidium (37)	Rb-78m	-	6.35E+04	1.09E-05	4.90E+03	2.00E+03	1.00E-02	1.00E-02	.	.	.
Rubidium (37)	Rb-79	S	1.59E+04	4.36E-05	4.90E+03	2.00E+03	1.00E-02	1.00E-02	.	.	.
Rubidium (37)	Rb-80	-	6.54E+05	1.06E-06	4.90E+03	2.00E+03	1.00E-02	1.00E-02	.	.	.
Rubidium (37)	Rb-81	S	1.33E+03	5.22E-04	4.90E+03	2.00E+03	1.00E-02	1.00E-02	.	.	.
Rubidium (37)	Rb-81m	S	1.19E+04	5.80E-05	4.90E+03	2.00E+03	1.00E-02	1.00E-02	.	.	.
Rubidium (37)	Rb-82	-	2.86E+05	2.42E-06	4.90E+03	2.00E+03	1.00E-02	1.00E-02	.	.	.
Rubidium (37)	Rb-82m	S	9.38E+02	7.39E-04	4.90E+03	2.00E+03	1.00E-02	1.00E-02	.	.	.
Rubidium (37)	Rb-83	S	2.93E+00	2.36E-01	4.90E+03	2.00E+03	1.00E-02	1.00E-02	.	.	.
Rubidium (37)	Rb-84	S	7.72E+00	8.98E-02	4.90E+03	2.00E+03	1.00E-02	1.00E-02	.	.	.
Rubidium (37)	Rb-84m	S	1.80E+04	3.85E-05	4.90E+03	2.00E+03	1.00E-02	1.00E-02	.	.	.

Animal Transfer Factors July 2023											
Radionuclides		Isotope-specific Information and Animal Transfer Factors									
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Fish bioconcentration factor (Bq/kg per Bq/L)	Shellfish bioconcentration factor (Bq/kg per Bq/L)	Plant-to-beef transfer factor (day/kg)	Plant-to-dairy transfer factor (day/kg)	Plant-to-swine transfer factor (day/kg)	Plant-to-poultry transfer factor (day/kg)	Plant-to-egg transfer factor (day/kg)
Rubidium (37)	Rb-86	S	1.36E+01	5.11E-02	4.90E+03	2.00E+03	1.00E-02	1.00E-02	.	.	.
Rubidium (37)	Rb-86m	-	3.58E+05	1.93E-06	4.90E+03	2.00E+03	1.00E-02	1.00E-02	.	.	.
Rubidium (37)	Rb-87	S	1.41E-11	4.92E+10	4.90E+03	2.00E+03	1.00E-02	1.00E-02	.	.	.
Rubidium (37)	Rb-88	S	2.05E+04	3.38E-05	4.90E+03	2.00E+03	1.00E-02	1.00E-02	.	.	.
Rubidium (37)	Rb-89	S	2.40E+04	2.88E-05	4.90E+03	2.00E+03	1.00E-02	1.00E-02	.	.	.
Rubidium (37)	Rb-90	-	1.38E+05	5.01E-06	4.90E+03	2.00E+03	1.00E-02	1.00E-02	.	.	.
Rubidium (37)	Rb-90m	-	8.47E+04	8.18E-06	4.90E+03	2.00E+03	1.00E-02	1.00E-02	.	.	.
Rhenium (75)	Re-178	S	2.76E+04	2.51E-05	.	.	1.00E-02	2.00E-03	.	.	.
Rhenium (75)	Re-179	S	1.87E+04	3.71E-05	.	.	1.00E-02	2.00E-03	.	.	.
Rhenium (75)	Re-180	-	1.49E+05	4.64E-06	.	.	1.00E-02	2.00E-03	.	.	.
Rhenium (75)	Re-181	S	3.05E+02	2.27E-03	.	.	1.00E-02	2.00E-03	.	.	.
Rhenium (75)	Re-182	S	9.49E+01	7.31E-03	.	.	1.00E-02	2.00E-03	.	.	.
Rhenium (75)	Re-182m	S	4.78E+02	1.45E-03	.	.	1.00E-02	2.00E-03	.	.	.
Rhenium (75)	Re-183	S	3.61E+00	1.92E-01	.	.	1.00E-02	2.00E-03	.	.	.
Rhenium (75)	Re-184	S	6.66E+00	1.04E-01	.	.	1.00E-02	2.00E-03	.	.	.
Rhenium (75)	Re-184m	S	1.50E+00	4.63E-01	.	.	1.00E-02	2.00E-03	.	.	.
Rhenium (75)	Re-186	S	6.80E+01	1.02E-02	.	.	1.00E-02	2.00E-03	.	.	.
Rhenium (75)	Re-186m	S	3.47E-06	2.00E+05	.	.	1.00E-02	2.00E-03	.	.	.
Rhenium (75)	Re-187	S	1.68E-11	4.12E+10	.	.	1.00E-02	2.00E-03	.	.	.
Rhenium (75)	Re-188	S	3.57E+02	1.94E-03	.	.	1.00E-02	2.00E-03	.	.	.
Rhenium (75)	Re-188m	S	1.96E+04	3.54E-05	.	.	1.00E-02	2.00E-03	.	.	.
Rhenium (75)	Re-189	S	2.50E+02	2.77E-03	.	.	1.00E-02	2.00E-03	.	.	.
Rhenium (75)	Re-190	-	1.17E+05	5.90E-06	.	.	1.00E-02	2.00E-03	.	.	.
Rhenium (75)	Re-190m	S	1.90E+03	3.65E-04	.	.	1.00E-02	2.00E-03	.	.	.
Rhodium (45)	Rh-100	S	2.92E+02	2.37E-03	1.00E+01	.	2.00E-03	5.00E-04	.	.	.
Rhodium (45)	Rh-100m	-	7.92E+04	8.75E-06	1.00E+01	.	2.00E-03	5.00E-04	.	.	.
Rhodium (45)	Rh-101	S	2.10E-01	3.30E+00	1.00E+01	.	2.00E-03	5.00E-04	.	.	.
Rhodium (45)	Rh-101m	S	5.83E+01	1.19E-02	1.00E+01	.	2.00E-03	5.00E-04	.	.	.
Rhodium (45)	Rh-102	S	1.22E+00	5.67E-01	1.00E+01	.	2.00E-03	5.00E-04	.	.	.
Rhodium (45)	Rh-102m	S	1.85E-01	3.74E+00	1.00E+01	.	2.00E-03	5.00E-04	.	.	.
Rhodium (45)	Rh-103m	S	6.49E+03	1.07E-04	1.00E+01	.	2.00E-03	5.00E-04	.	.	.
Rhodium (45)	Rh-104	-	5.17E+05	1.34E-06	1.00E+01	.	2.00E-03	5.00E-04	.	.	.
Rhodium (45)	Rh-104m	-	8.39E+04	8.26E-06	1.00E+01	.	2.00E-03	5.00E-04	.	.	.
Rhodium (45)	Rh-105	S	1.72E+02	4.04E-03	1.00E+01	.	2.00E-03	5.00E-04	.	.	.
Rhodium (45)	Rh-106	-	7.33E+05	9.45E-07	1.00E+01	.	2.00E-03	5.00E-04	.	.	.
Rhodium (45)	Rh-106m	S	2.78E+03	2.49E-04	1.00E+01	.	2.00E-03	5.00E-04	.	.	.
Rhodium (45)	Rh-107	S	1.68E+04	4.13E-05	1.00E+01	.	2.00E-03	5.00E-04	.	.	.
Rhodium (45)	Rh-108	-	1.30E+06	5.33E-07	1.00E+01	.	2.00E-03	5.00E-04	.	.	.



Animal Transfer Factors July 2023											
Radionuclides		Isotope-specific Information and Animal Transfer Factors									
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Fish bioconcentration factor (Bq/kg per Bq/L)	Shellfish bioconcentration factor (Bq/kg per Bq/L)	Plant-to-beef transfer factor (day/kg)	Plant-to-dairy transfer factor (day/kg)	Plant-to-swine transfer factor (day/kg)	Plant-to-poultry transfer factor (day/kg)	Plant-to-egg transfer factor (day/kg)
Rhodium (45)	Rh-109	-	2.73E+05	2.54E-06	1.00E+01	.	2.00E-03	5.00E-04	.	.	.
Rhodium (45)	Rh-94	-	3.10E+05	2.24E-06	1.00E+01	.	2.00E-03	5.00E-04	.	.	.
Rhodium (45)	Rh-95	-	7.26E+04	9.55E-06	1.00E+01	.	2.00E-03	5.00E-04	.	.	.
Rhodium (45)	Rh-95m	-	1.86E+05	3.73E-06	1.00E+01	.	2.00E-03	5.00E-04	.	.	.
Rhodium (45)	Rh-96	-	3.68E+04	1.88E-05	1.00E+01	.	2.00E-03	5.00E-04	.	.	.
Rhodium (45)	Rh-96m	-	2.41E+05	2.87E-06	1.00E+01	.	2.00E-03	5.00E-04	.	.	.
Rhodium (45)	Rh-97	S	1.19E+04	5.84E-05	1.00E+01	.	2.00E-03	5.00E-04	.	.	.
Rhodium (45)	Rh-97m	S	7.88E+03	8.79E-05	1.00E+01	.	2.00E-03	5.00E-04	.	.	.
Rhodium (45)	Rh-98	-	4.19E+04	1.66E-05	1.00E+01	.	2.00E-03	5.00E-04	.	.	.
Rhodium (45)	Rh-99	S	1.57E+01	4.41E-02	1.00E+01	.	2.00E-03	5.00E-04	.	.	.
Rhodium (45)	Rh-99m	S	1.29E+03	5.37E-04	1.00E+01	.	2.00E-03	5.00E-04	.	.	.
Radon (86)	Rn-207	-	3.94E+04	1.76E-05	0.00E+00	.	0.00E+00	0.00E+00	.	.	.
Radon (86)	Rn-209	-	1.28E+04	5.42E-05	0.00E+00	.	0.00E+00	0.00E+00	.	.	.
Radon (86)	Rn-210	-	2.53E+03	2.74E-04	0.00E+00	.	0.00E+00	0.00E+00	.	.	.
Radon (86)	Rn-211	-	4.16E+02	1.67E-03	0.00E+00	.	0.00E+00	0.00E+00	.	.	.
Radon (86)	Rn-212	-	1.52E+04	4.55E-05	0.00E+00	.	0.00E+00	0.00E+00	.	.	.
Radon (86)	Rn-215	-	9.50E+12	7.29E-14	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	.	.	.
Radon (86)	Rn-217	-	4.05E+10	1.71E-11	0.00E+00	.	0.00E+00	0.00E+00	.	.	.
Radon (86)	Rn-218	-	6.24E+08	1.11E-09	0.00E+00	.	0.00E+00	0.00E+00	.	.	.
Radon (86)	Rn-219	-	5.52E+06	1.26E-07	0.00E+00	.	0.00E+00	0.00E+00	.	.	.
Radon (86)	Rn-220	-	3.93E+05	1.76E-06	0.00E+00	.	0.00E+00	0.00E+00	.	.	.
Radon (86)	Rn-222	-	6.62E+01	1.05E-02	0.00E+00	.	0.00E+00	0.00E+00	.	.	.
Radon (86)	Rn-223	-	1.50E+04	4.62E-05	0.00E+00	.	0.00E+00	0.00E+00	.	.	.
Ruthenium (44)	Ru-103	S	6.44E+00	1.08E-01	5.50E+01	3.90E-02	3.30E-03	9.40E-06	3.00E-03	8.00E+00	4.00E-03
Ruthenium (44)	Ru-105	V	1.37E+03	5.07E-04	5.50E+01	3.90E-02	3.30E-03	9.40E-06	3.00E-03	8.00E+00	4.00E-03
Ruthenium (44)	Ru-106	S	6.77E-01	1.02E+00	5.50E+01	3.90E-02	3.30E-03	9.40E-06	3.00E-03	8.00E+00	4.00E-03
Ruthenium (44)	Ru-107	-	9.71E+04	7.13E-06	5.50E+01	3.90E-02	3.30E-03	9.40E-06	3.00E-03	8.00E+00	4.00E-03
Ruthenium (44)	Ru-108	-	8.01E+04	8.66E-06	5.50E+01	3.90E-02	3.30E-03	9.40E-06	3.00E-03	8.00E+00	4.00E-03
Ruthenium (44)	Ru-92	-	9.98E+04	6.94E-06	5.50E+01	3.90E-02	3.30E-03	9.40E-06	3.00E-03	8.00E+00	4.00E-03
Ruthenium (44)	Ru-94	V	7.03E+03	9.86E-05	5.50E+01	3.90E-02	3.30E-03	9.40E-06	3.00E-03	8.00E+00	4.00E-03
Ruthenium (44)	Ru-95	V	3.69E+03	1.88E-04	5.50E+01	3.90E-02	3.30E-03	9.40E-06	3.00E-03	8.00E+00	4.00E-03
Ruthenium (44)	Ru-97	V	8.72E+01	7.95E-03	5.50E+01	3.90E-02	3.30E-03	9.40E-06	3.00E-03	8.00E+00	4.00E-03
Sulfur (16)	S-35	S	2.89E+00	2.40E-01	2.00E+02	.	3.00E-01	7.90E-03	.	.	.
Sulphur (16)	S-37	-	7.21E+04	9.61E-06	2.00E+02	.	3.00E-01	7.90E-03	.	.	.
Sulfur (16)	S-38	S	2.14E+03	3.24E-04	2.00E+02	.	3.00E-01	7.90E-03	.	.	.
Antimony (51)	Sb-111	-	2.91E+05	2.38E-06	3.70E+01	2.10E+02	1.20E-03	3.80E-05	.	.	.
Antimony (51)	Sb-113	-	5.46E+04	1.27E-05	3.70E+01	2.10E+02	1.20E-03	3.80E-05	.	.	.

Animal Transfer Factors July 2023											
Radionuclides		Isotope-specific Information and Animal Transfer Factors									
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Fish	Shellfish	Plant-to-beef transfer factor (day/kg)	Plant-to-dairy transfer factor (day/kg)	Plant-to-swine transfer factor (day/kg)	Plant-to-poultry transfer factor (day/kg)	Plant-to-egg transfer factor (day/kg)
					bioconcentration factor (Bq/kg per Bq/L)	bioconcentration factor (Bq/kg per Bq/L)					
Antimony (51)	Sb-114	-	1.04E+05	6.64E-06	3.70E+01	2.10E+02	1.20E-03	3.80E-05	.	.	.
Antimony (51)	Sb-115	S	1.13E+04	6.11E-05	3.70E+01	2.10E+02	1.20E-03	3.80E-05	.	.	.
Antimony (51)	Sb-116	S	2.31E+04	3.01E-05	3.70E+01	2.10E+02	1.20E-03	3.80E-05	.	.	.
Antimony (51)	Sb-116m	S	6.04E+03	1.15E-04	3.70E+01	2.10E+02	1.20E-03	3.80E-05	.	.	.
Antimony (51)	Sb-117	S	2.17E+03	3.20E-04	3.70E+01	2.10E+02	1.20E-03	3.80E-05	.	.	.
Antimony (51)	Sb-118	-	1.01E+05	6.85E-06	3.70E+01	2.10E+02	1.20E-03	3.80E-05	.	.	.
Antimony (51)	Sb-118m	S	1.21E+03	5.71E-04	3.70E+01	2.10E+02	1.20E-03	3.80E-05	.	.	.
Antimony (51)	Sb-119	S	1.59E+02	4.36E-03	3.70E+01	2.10E+02	1.20E-03	3.80E-05	.	.	.
Antimony (51)	Sb-120	S	2.29E+04	3.02E-05	3.70E+01	2.10E+02	1.20E-03	3.80E-05	.	.	.
Antimony (51)	Sb-120m	S	4.39E+01	1.58E-02	3.70E+01	2.10E+02	1.20E-03	3.80E-05	.	.	.
Antimony (51)	Sb-122	S	9.29E+01	7.46E-03	3.70E+01	2.10E+02	1.20E-03	3.80E-05	.	.	.
Antimony (51)	Sb-122m	-	8.69E+04	7.97E-06	3.70E+01	2.10E+02	1.20E-03	3.80E-05	.	.	.
Antimony (51)	Sb-124	S	4.20E+00	1.65E-01	3.70E+01	2.10E+02	1.20E-03	3.80E-05	.	.	.
Antimony (51)	Sb-124m	-	2.35E+05	2.95E-06	3.70E+01	2.10E+02	1.20E-03	3.80E-05	.	.	.
Antimony (51)	Sb-124n	S	1.80E+04	3.84E-05	3.70E+01	2.10E+02	1.20E-03	3.80E-05	.	.	.
Antimony (51)	Sb-125	S	2.51E-01	2.76E+00	3.70E+01	2.10E+02	1.20E-03	3.80E-05	.	.	.
Antimony (51)	Sb-126	S	2.05E+01	3.38E-02	3.70E+01	2.10E+02	1.20E-03	3.80E-05	.	.	.
Antimony (51)	Sb-126m	S	1.90E+04	3.64E-05	3.70E+01	2.10E+02	1.20E-03	3.80E-05	.	.	.
Antimony (51)	Sb-127	S	6.57E+01	1.05E-02	3.70E+01	2.10E+02	1.20E-03	3.80E-05	.	.	.
Antimony (51)	Sb-128	S	6.74E+02	1.03E-03	3.70E+01	2.10E+02	1.20E-03	3.80E-05	.	.	.
Antimony (51)	Sb-128m	S	3.50E+04	1.98E-05	3.70E+01	2.10E+02	1.20E-03	3.80E-05	.	.	.
Antimony (51)	Sb-129	S	1.38E+03	5.02E-04	3.70E+01	2.10E+02	1.20E-03	3.80E-05	.	.	.
Antimony (51)	Sb-130	S	9.22E+03	7.52E-05	3.70E+01	2.10E+02	1.20E-03	3.80E-05	.	.	.
Antimony (51)	Sb-130m	-	5.78E+04	1.20E-05	3.70E+01	2.10E+02	1.20E-03	3.80E-05	.	.	.
Antimony (51)	Sb-131	M	1.58E+04	4.38E-05	3.70E+01	2.10E+02	1.20E-03	3.80E-05	.	.	.
Antimony (51)	Sb-133	-	1.46E+05	4.76E-06	3.70E+01	2.10E+02	1.20E-03	3.80E-05	.	.	.
Scandium (21)	Sc-42m	-	3.52E+05	1.97E-06	1.90E+02	3.50E+03	2.00E-03	6.00E-05	.	.	.
Scandium (21)	Sc-43	S	1.56E+03	4.44E-04	1.90E+02	3.50E+03	2.00E-03	6.00E-05	.	.	.
Scandium (21)	Sc-44	S	1.53E+03	4.53E-04	1.90E+02	3.50E+03	2.00E-03	6.00E-05	.	.	.
Scandium (21)	Sc-44m	S	1.04E+02	6.69E-03	1.90E+02	3.50E+03	2.00E-03	6.00E-05	.	.	.
Scandium (21)	Sc-46	S	3.02E+00	2.30E-01	1.90E+02	3.50E+03	2.00E-03	6.00E-05	.	.	.
Scandium (21)	Sc-47	S	7.55E+01	9.18E-03	1.90E+02	3.50E+03	2.00E-03	6.00E-05	.	.	.
Scandium (21)	Sc-48	S	1.39E+02	4.99E-03	1.90E+02	3.50E+03	2.00E-03	6.00E-05	.	.	.
Scandium (21)	Sc-49	S	6.37E+03	1.09E-04	1.90E+02	3.50E+03	2.00E-03	6.00E-05	.	.	.
Scandium (21)	Sc-50	-	2.13E+05	3.25E-06	1.90E+02	3.50E+03	2.00E-03	6.00E-05	.	.	.
Selenium (34)	Se-70	S	8.86E+03	7.82E-05	6.00E+03	5.70E+02	4.00E-02	4.00E-03	3.20E-01	9.70E+00	1.60E+01
Selenium (34)	Se-71	-	7.68E+04	9.02E-06	6.00E+03	5.70E+02	4.00E-02	4.00E-03	3.20E-01	9.70E+00	1.60E+01
Selenium (34)	Se-72	S	3.01E+01	2.30E-02	6.00E+03	5.70E+02	4.00E-02	4.00E-03	3.20E-01	9.70E+00	1.60E+01

Animal Transfer Factors July 2023												
Radionuclides		Isotope-specific Information and Animal Transfer Factors										
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Fish	Shellfish	Plant-to-beef transfer factor (day/kg)	Plant-to-dairy transfer factor (day/kg)	Plant-to-swine transfer factor (day/kg)	Plant-to-poultry transfer factor (day/kg)	Plant-to-egg transfer factor (day/kg)	
					bioconcentration factor (Bq/kg per Bq/L)	bioconcentration factor (Bq/kg per Bq/L)						
Selenium (34)	Se-73	S	8.49E+02	8.16E-04	6.00E+03	5.70E+02	4.00E-02	4.00E-03	3.20E-01	9.70E+00	1.60E+01	
Selenium (34)	Se-73m	S	9.15E+03	7.57E-05	6.00E+03	5.70E+02	4.00E-02	4.00E-03	3.20E-01	9.70E+00	1.60E+01	
Selenium (34)	Se-75	S	2.11E+00	3.28E-01	6.00E+03	5.70E+02	4.00E-02	4.00E-03	3.20E-01	9.70E+00	1.60E+01	
Selenium (34)	Se-77m	-	1.26E+06	5.50E-07	6.00E+03	5.70E+02	4.00E-02	4.00E-03	3.20E-01	9.70E+00	1.60E+01	
Selenium (34)	Se-79	S	2.35E-06	2.95E+05	6.00E+03	5.70E+02	4.00E-02	4.00E-03	3.20E-01	9.70E+00	1.60E+01	
Selenium (34)	Se-79m	-	9.29E+04	7.46E-06	6.00E+03	5.70E+02	4.00E-02	4.00E-03	3.20E-01	9.70E+00	1.60E+01	
Selenium (34)	Se-81	S	1.97E+04	3.51E-05	6.00E+03	5.70E+02	4.00E-02	4.00E-03	3.20E-01	9.70E+00	1.60E+01	
Selenium (34)	Se-81m	S	6.36E+03	1.09E-04	6.00E+03	5.70E+02	4.00E-02	4.00E-03	3.20E-01	9.70E+00	1.60E+01	
Selenium (34)	Se-83	S	1.63E+04	4.24E-05	6.00E+03	5.70E+02	4.00E-02	4.00E-03	3.20E-01	9.70E+00	1.60E+01	
Selenium (34)	Se-83m	-	3.12E+05	2.22E-06	6.00E+03	5.70E+02	4.00E-02	4.00E-03	3.20E-01	9.70E+00	1.60E+01	
Selenium (34)	Se-84	-	1.17E+05	5.90E-06	6.00E+03	5.70E+02	4.00E-02	4.00E-03	3.20E-01	9.70E+00	1.60E+01	
Silicon (14)	Si-31	S	2.32E+03	2.99E-04	.	.	3.00E-04	2.00E-05	.	.	.	
Silicon (14)	Si-32	S	5.25E+03	1.32E+02	.	.	3.00E-04	2.00E-05	.	.	.	
Samarium (62)	Sm-139	-	1.42E+05	4.89E-06	3.00E+01	1.60E+03	1.00E-03	2.00E-05	.	.	.	
Samarium (62)	Sm-140	S	2.46E+04	2.82E-05	3.00E+01	1.60E+03	1.00E-03	2.00E-05	.	.	.	
Samarium (62)	Sm-141	S	3.57E+04	1.94E-05	3.00E+01	1.60E+03	1.00E-03	2.00E-05	.	.	.	
Samarium (62)	Sm-141m	S	1.61E+04	4.30E-05	3.00E+01	1.60E+03	1.00E-03	2.00E-05	.	.	.	
Samarium (62)	Sm-142	S	5.02E+03	1.38E-04	3.00E+01	1.60E+03	1.00E-03	2.00E-05	.	.	.	
Samarium (62)	Sm-143	-	4.16E+04	1.66E-05	3.00E+01	1.60E+03	1.00E-03	2.00E-05	.	.	.	
Samarium (62)	Sm-143m	-	3.31E+05	2.09E-06	3.00E+01	1.60E+03	1.00E-03	2.00E-05	.	.	.	
Samarium (62)	Sm-145	F	7.44E-01	9.32E-01	3.00E+01	1.60E+03	1.00E-03	2.00E-05	.	.	.	
Samarium (62)	Sm-146	F	6.73E-09	1.03E+08	3.00E+01	1.60E+03	1.00E-03	2.00E-05	.	.	.	
Samarium (62)	Sm-147	F	6.54E-12	1.06E+11	3.00E+01	1.60E+03	1.00E-03	2.00E-05	.	.	.	
Samarium (62)	Sm-148	F	9.90E-17	7.00E+15	3.00E+01	1.60E+03	1.00E-03	2.00E-05	.	.	.	
Samarium (62)	Sm-151	F	7.70E-03	9.00E+01	3.00E+01	1.60E+03	1.00E-03	2.00E-05	.	.	.	
Samarium (62)	Sm-153	S	1.31E+02	5.31E-03	3.00E+01	1.60E+03	1.00E-03	2.00E-05	.	.	.	
Samarium (62)	Sm-155	S	1.63E+04	4.24E-05	3.00E+01	1.60E+03	1.00E-03	2.00E-05	.	.	.	
Samarium (62)	Sm-156	S	6.46E+02	1.07E-03	3.00E+01	1.60E+03	1.00E-03	2.00E-05	.	.	.	
Samarium (62)	Sm-157	-	4.54E+04	1.53E-05	3.00E+01	1.60E+03	1.00E-03	2.00E-05	.	.	.	
Tin (50)	Sn-106	-	1.90E+05	3.65E-06	3.00E+03	.	1.00E-02	1.00E-03	.	.	.	
Tin (50)	Sn-108	S	3.54E+04	1.96E-05	3.00E+03	.	1.00E-02	1.00E-03	.	.	.	
Tin (50)	Sn-109	S	2.02E+04	3.42E-05	3.00E+03	.	1.00E-02	1.00E-03	.	.	.	
Tin (50)	Sn-110	S	1.48E+03	4.69E-04	3.00E+03	.	1.00E-02	1.00E-03	.	.	.	
Tin (50)	Sn-111	S	1.03E+04	6.72E-05	3.00E+03	.	1.00E-02	1.00E-03	.	.	.	
Tin (50)	Sn-113	S	2.20E+00	3.15E-01	3.00E+03	.	1.00E-02	1.00E-03	.	.	.	
Tin (50)	Sn-113m	S	1.70E+04	4.07E-05	3.00E+03	.	1.00E-02	1.00E-03	.	.	.	
Tin (50)	Sn-117m	S	1.84E+01	3.77E-02	3.00E+03	.	1.00E-02	1.00E-03	.	.	.	
Tin (50)	Sn-119m	S	8.63E-01	8.03E-01	3.00E+03	.	1.00E-02	1.00E-03	.	.	.	

Animal Transfer Factors July 2023											
Radionuclides		Isotope-specific Information and Animal Transfer Factors									
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Fish	Shellfish	Plant-to-beef transfer factor (day/kg)	Plant-to-dairy transfer factor (day/kg)	Plant-to-swine transfer factor (day/kg)	Plant-to-poultry transfer factor (day/kg)	Plant-to-egg transfer factor (day/kg)
					bioconcentration factor (Bq/kg per Bq/L)	bioconcentration factor (Bq/kg per Bq/L)					
Tin (50)	Sn-121	S	2.25E+02	3.09E-03	3.00E+03	.	1.00E-02	1.00E-03	.	.	.
Tin (50)	Sn-121m	S	1.58E-02	4.39E+01	3.00E+03	.	1.00E-02	1.00E-03	.	.	.
Tin (50)	Sn-123	S	1.96E+00	3.54E-01	3.00E+03	.	1.00E-02	1.00E-03	.	.	.
Tin (50)	Sn-123m	S	9.09E+03	7.62E-05	3.00E+03	.	1.00E-02	1.00E-03	.	.	.
Tin (50)	Sn-125	S	2.62E+01	2.64E-02	3.00E+03	.	1.00E-02	1.00E-03	.	.	.
Tin (50)	Sn-125m	-	3.83E+04	1.81E-05	3.00E+03	.	1.00E-02	1.00E-03	.	.	.
Tin (50)	Sn-126	S	3.01E-06	2.30E+05	3.00E+03	.	1.00E-02	1.00E-03	.	.	.
Tin (50)	Sn-127	S	2.89E+03	2.40E-04	3.00E+03	.	1.00E-02	1.00E-03	.	.	.
Tin (50)	Sn-127m	-	8.82E+04	7.86E-06	3.00E+03	.	1.00E-02	1.00E-03	.	.	.
Tin (50)	Sn-128	S	6.17E+03	1.12E-04	3.00E+03	.	1.00E-02	1.00E-03	.	.	.
Tin (50)	Sn-129	-	1.63E+05	4.24E-06	3.00E+03	.	1.00E-02	1.00E-03	.	.	.
Tin (50)	Sn-130	-	9.79E+04	7.08E-06	3.00E+03	.	1.00E-02	1.00E-03	.	.	.
Tin (50)	Sn-130m	-	2.14E+05	3.23E-06	3.00E+03	.	1.00E-02	1.00E-03	.	.	.
Strontium (38)	Sr-79	-	1.62E+05	4.28E-06	2.90E+00	2.70E+02	1.30E-03	1.30E-03	2.50E-03	2.00E-02	3.50E-01
Strontium (38)	Sr-80	S	3.43E+03	2.02E-04	2.90E+00	2.70E+02	1.30E-03	1.30E-03	2.50E-03	2.00E-02	3.50E-01
Strontium (38)	Sr-81	S	1.63E+04	4.24E-05	2.90E+00	2.70E+02	1.30E-03	1.30E-03	2.50E-03	2.00E-02	3.50E-01
Strontium (38)	Sr-82	S	9.97E+00	6.95E-02	2.90E+00	2.70E+02	1.30E-03	1.30E-03	2.50E-03	2.00E-02	3.50E-01
Strontium (38)	Sr-83	S	1.87E+02	3.70E-03	2.90E+00	2.70E+02	1.30E-03	1.30E-03	2.50E-03	2.00E-02	3.50E-01
Strontium (38)	Sr-85	S	3.90E+00	1.78E-01	2.90E+00	2.70E+02	1.30E-03	1.30E-03	2.50E-03	2.00E-02	3.50E-01
Strontium (38)	Sr-85m	S	5.39E+03	1.29E-04	2.90E+00	2.70E+02	1.30E-03	1.30E-03	2.50E-03	2.00E-02	3.50E-01
Strontium (38)	Sr-87m	S	2.16E+03	3.21E-04	2.90E+00	2.70E+02	1.30E-03	1.30E-03	2.50E-03	2.00E-02	3.50E-01
Strontium (38)	Sr-89	S	5.01E+00	1.38E-01	2.90E+00	2.70E+02	1.30E-03	1.30E-03	2.50E-03	2.00E-02	3.50E-01
Strontium (38)	Sr-90	S	2.41E-02	2.88E+01	2.90E+00	2.70E+02	1.30E-03	1.30E-03	2.50E-03	2.00E-02	3.50E-01
Strontium (38)	Sr-91	S	6.30E+02	1.10E-03	2.90E+00	2.70E+02	1.30E-03	1.30E-03	2.50E-03	2.00E-02	3.50E-01
Strontium (38)	Sr-92	S	2.28E+03	3.04E-04	2.90E+00	2.70E+02	1.30E-03	1.30E-03	2.50E-03	2.00E-02	3.50E-01
Strontium (38)	Sr-93	-	4.91E+04	1.41E-05	2.90E+00	2.70E+02	1.30E-03	1.30E-03	2.50E-03	2.00E-02	3.50E-01
Strontium (38)	Sr-94	-	2.90E+05	2.39E-06	2.90E+00	2.70E+02	1.30E-03	1.30E-03	2.50E-03	2.00E-02	3.50E-01
Tantalum (73)	Ta-170	-	5.39E+04	1.29E-05	1.00E+02	.	5.00E-06	5.00E-06	.	.	.
Tantalum (73)	Ta-172	S	9.90E+03	7.00E-05	1.00E+02	.	5.00E-06	5.00E-06	.	.	.
Tantalum (73)	Ta-173	S	1.93E+03	3.58E-04	1.00E+02	.	5.00E-06	5.00E-06	.	.	.
Tantalum (73)	Ta-174	S	5.33E+03	1.30E-04	1.00E+02	.	5.00E-06	5.00E-06	.	.	.
Tantalum (73)	Ta-175	S	5.78E+02	1.20E-03	1.00E+02	.	5.00E-06	5.00E-06	.	.	.
Tantalum (73)	Ta-176	S	7.50E+02	9.24E-04	1.00E+02	.	5.00E-06	5.00E-06	.	.	.
Tantalum (73)	Ta-177	S	1.07E+02	6.46E-03	1.00E+02	.	5.00E-06	5.00E-06	.	.	.
Tantalum (73)	Ta-178	-	3.91E+04	1.77E-05	1.00E+02	.	5.00E-06	5.00E-06	.	.	.
Tantalum (73)	Ta-178m	S	2.57E+03	2.69E-04	1.00E+02	.	5.00E-06	5.00E-06	.	.	.
Tantalum (73)	Ta-179	S	3.81E-01	1.82E+00	1.00E+02	.	5.00E-06	5.00E-06	.	.	.
Tantalum (73)	Ta-180	S	7.45E+02	9.31E-04	1.00E+02	.	5.00E-06	5.00E-06	.	.	.



Animal Transfer Factors July 2023											
Radionuclides		Isotope-specific Information and Animal Transfer Factors									
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Fish	Shellfish	Plant-to-beef transfer factor (day/kg)	Plant-to-dairy transfer factor (day/kg)	Plant-to-swine transfer factor (day/kg)	Plant-to-poultry transfer factor (day/kg)	Plant-to-egg transfer factor (day/kg)
					bioconcentration factor (Bq/kg per Bq/L)	bioconcentration factor (Bq/kg per Bq/L)					
Tantalum (73)	Ta-182	S	2.21E+00	3.14E-01	1.00E+02	.	5.00E-06	5.00E-06	.	.	.
Tantalum (73)	Ta-182m	S	2.30E+04	3.01E-05	1.00E+02	.	5.00E-06	5.00E-06	.	.	.
Tantalum (73)	Ta-183	S	4.96E+01	1.40E-02	1.00E+02	.	5.00E-06	5.00E-06	.	.	.
Tantalum (73)	Ta-184	S	6.98E+02	9.93E-04	1.00E+02	.	5.00E-06	5.00E-06	.	.	.
Tantalum (73)	Ta-185	S	7.37E+03	9.40E-05	1.00E+02	.	5.00E-06	5.00E-06	.	.	.
Tantalum (73)	Ta-186	S	3.47E+04	2.00E-05	1.00E+02	.	5.00E-06	5.00E-06	.	.	.
Terbium (65)	Tb-146	-	9.50E+05	7.29E-07	4.10E+02	.	2.00E-03	6.00E-05	.	.	.
Terbium (65)	Tb-147	S	3.70E+03	1.87E-04	4.10E+02	.	2.00E-03	6.00E-05	.	.	.
Terbium (65)	Tb-147m	-	1.95E+05	3.56E-06	4.10E+02	.	2.00E-03	6.00E-05	.	.	.
Terbium (65)	Tb-148	S	6.07E+03	1.14E-04	4.10E+02	.	2.00E-03	6.00E-05	.	.	.
Terbium (65)	Tb-148m	-	1.66E+05	4.19E-06	4.10E+02	.	2.00E-03	6.00E-05	.	.	.
Terbium (65)	Tb-149	S	1.47E+03	4.70E-04	4.10E+02	.	2.00E-03	6.00E-05	.	.	.
Terbium (65)	Tb-149m	-	8.76E+04	7.91E-06	4.10E+02	.	2.00E-03	6.00E-05	.	.	.
Terbium (65)	Tb-150	S	1.74E+03	3.97E-04	4.10E+02	.	2.00E-03	6.00E-05	.	.	.
Terbium (65)	Tb-150m	-	6.28E+04	1.10E-05	4.10E+02	.	2.00E-03	6.00E-05	.	.	.
Terbium (65)	Tb-151	S	3.45E+02	2.01E-03	4.10E+02	.	2.00E-03	6.00E-05	.	.	.
Terbium (65)	Tb-151m	-	8.74E+05	7.93E-07	4.10E+02	.	2.00E-03	6.00E-05	.	.	.
Terbium (65)	Tb-152	S	3.47E+02	2.00E-03	4.10E+02	.	2.00E-03	6.00E-05	.	.	.
Terbium (65)	Tb-152m	-	8.67E+04	7.99E-06	4.10E+02	.	2.00E-03	6.00E-05	.	.	.
Terbium (65)	Tb-153	S	1.08E+02	6.41E-03	4.10E+02	.	2.00E-03	6.00E-05	.	.	.
Terbium (65)	Tb-154	S	2.82E+02	2.45E-03	4.10E+02	.	2.00E-03	6.00E-05	.	.	.
Terbium (65)	Tb-155	S	4.75E+01	1.46E-02	4.10E+02	.	2.00E-03	6.00E-05	.	.	.
Terbium (65)	Tb-156	S	4.73E+01	1.47E-02	4.10E+02	.	2.00E-03	6.00E-05	.	.	.
Terbium (65)	Tb-156m	S	2.49E+02	2.79E-03	4.10E+02	.	2.00E-03	6.00E-05	.	.	.
Terbium (65)	Tb-156n	S	1.15E+03	6.05E-04	4.10E+02	.	2.00E-03	6.00E-05	.	.	.
Terbium (65)	Tb-157	F	9.76E-03	7.10E+01	4.10E+02	.	2.00E-03	6.00E-05	.	.	.
Terbium (65)	Tb-158	F	3.85E-03	1.80E+02	4.10E+02	.	2.00E-03	6.00E-05	.	.	.
Terbium (65)	Tb-160	S	3.50E+00	1.98E-01	4.10E+02	.	2.00E-03	6.00E-05	.	.	.
Terbium (65)	Tb-161	S	3.66E+01	1.89E-02	4.10E+02	.	2.00E-03	6.00E-05	.	.	.
Terbium (65)	Tb-162	-	4.79E+04	1.45E-05	4.10E+02	.	2.00E-03	6.00E-05	.	.	.
Terbium (65)	Tb-163	S	1.87E+04	3.71E-05	4.10E+02	.	2.00E-03	6.00E-05	.	.	.
Terbium (65)	Tb-164	-	1.21E+05	5.71E-06	4.10E+02	.	2.00E-03	6.00E-05	.	.	.
Terbium (65)	Tb-165	-	1.73E+05	4.01E-06	4.10E+02	.	2.00E-03	6.00E-05	.	.	.
Technetium (43)	Tc-101	S	2.57E+04	2.70E-05	1.50E+01	2.60E+01	1.00E-02	1.00E-02	1.50E-04	3.00E-02	3.00E+00
Technetium (43)	Tc-102	-	4.14E+06	1.67E-07	1.50E+01	2.60E+01	1.00E-02	1.00E-02	1.50E-04	3.00E-02	3.00E+00
Technetium (43)	Tc-102m	-	8.37E+04	8.28E-06	1.50E+01	2.60E+01	1.00E-02	1.00E-02	1.50E-04	3.00E-02	3.00E+00
Technetium (43)	Tc-104	S	1.99E+04	3.48E-05	1.50E+01	2.60E+01	1.00E-02	1.00E-02	1.50E-04	3.00E-02	3.00E+00
Technetium (43)	Tc-105	-	4.79E+04	1.45E-05	1.50E+01	2.60E+01	1.00E-02	1.00E-02	1.50E-04	3.00E-02	3.00E+00

Animal Transfer Factors July 2023												
Radionuclides		Isotope-specific Information and Animal Transfer Factors										
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Fish bioconcentration factor (Bq/kg per Bq/L)	Shellfish bioconcentration factor (Bq/kg per Bq/L)	Plant-to-beef transfer factor (day/kg)	Plant-to-dairy transfer factor (day/kg)	Plant-to-swine transfer factor (day/kg)	Plant-to-poultry transfer factor (day/kg)	Plant-to-egg transfer factor (day/kg)	
Technetium (43)	Tc-91	-	1.16E+05	5.97E-06	1.50E+01	2.60E+01	1.00E-02	1.00E-02	1.50E-04	3.00E-02	3.00E+00	
Technetium (43)	Tc-91m	-	1.10E+05	6.28E-06	1.50E+01	2.60E+01	1.00E-02	1.00E-02	1.50E-04	3.00E-02	3.00E+00	
Technetium (43)	Tc-92	-	8.57E+04	8.09E-06	1.50E+01	2.60E+01	1.00E-02	1.00E-02	1.50E-04	3.00E-02	3.00E+00	
Technetium (43)	Tc-93	S	2.21E+03	3.14E-04	1.50E+01	2.60E+01	1.00E-02	1.00E-02	1.50E-04	3.00E-02	3.00E+00	
Technetium (43)	Tc-93m	S	8.37E+03	8.28E-05	1.50E+01	2.60E+01	1.00E-02	1.00E-02	1.50E-04	3.00E-02	3.00E+00	
Technetium (43)	Tc-94	S	1.24E+03	5.57E-04	1.50E+01	2.60E+01	1.00E-02	1.00E-02	1.50E-04	3.00E-02	3.00E+00	
Technetium (43)	Tc-94m	S	7.00E+03	9.89E-05	1.50E+01	2.60E+01	1.00E-02	1.00E-02	1.50E-04	3.00E-02	3.00E+00	
Technetium (43)	Tc-95	S	3.04E+02	2.28E-03	1.50E+01	2.60E+01	1.00E-02	1.00E-02	1.50E-04	3.00E-02	3.00E+00	
Technetium (43)	Tc-95m	S	4.15E+00	1.67E-01	1.50E+01	2.60E+01	1.00E-02	1.00E-02	1.50E-04	3.00E-02	3.00E+00	
Technetium (43)	Tc-96	S	5.91E+01	1.17E-02	1.50E+01	2.60E+01	1.00E-02	1.00E-02	1.50E-04	3.00E-02	3.00E+00	
Technetium (43)	Tc-96m	S	7.07E+03	9.80E-05	1.50E+01	2.60E+01	1.00E-02	1.00E-02	1.50E-04	3.00E-02	3.00E+00	
Technetium (43)	Tc-97	S	2.67E-07	2.60E+06	1.50E+01	2.60E+01	1.00E-02	1.00E-02	1.50E-04	3.00E-02	3.00E+00	
Technetium (43)	Tc-97m	S	2.81E+00	2.47E-01	1.50E+01	2.60E+01	1.00E-02	1.00E-02	1.50E-04	3.00E-02	3.00E+00	
Technetium (43)	Tc-98	S	1.65E-07	4.20E+06	1.50E+01	2.60E+01	1.00E-02	1.00E-02	1.50E-04	3.00E-02	3.00E+00	
Technetium (43)	Tc-99	S	3.28E-06	2.11E+05	1.50E+01	2.60E+01	1.00E-02	1.00E-02	1.50E-04	3.00E-02	3.00E+00	
Technetium (43)	Tc-99m	S	1.01E+03	6.87E-04	1.50E+01	2.60E+01	1.00E-02	1.00E-02	1.50E-04	3.00E-02	3.00E+00	
Tellurium (52)	Te-113	-	2.14E+05	3.23E-06	1.50E+02	.	7.00E-03	3.40E-04	.	6.00E-01	5.10E+00	
Tellurium (52)	Te-114	V	2.40E+04	2.89E-05	1.50E+02	.	7.00E-03	3.40E-04	.	6.00E-01	5.10E+00	
Tellurium (52)	Te-115	-	6.28E+04	1.10E-05	1.50E+02	.	7.00E-03	3.40E-04	.	6.00E-01	5.10E+00	
Tellurium (52)	Te-115m	-	5.44E+04	1.27E-05	1.50E+02	.	7.00E-03	3.40E-04	.	6.00E-01	5.10E+00	
Tellurium (52)	Te-116	S	2.44E+03	2.84E-04	1.50E+02	.	7.00E-03	3.40E-04	.	6.00E-01	5.10E+00	
Tellurium (52)	Te-117	V	5.87E+03	1.18E-04	1.50E+02	.	7.00E-03	3.40E-04	.	6.00E-01	5.10E+00	
Tellurium (52)	Te-118	S	4.22E+01	1.64E-02	1.50E+02	.	7.00E-03	3.40E-04	.	6.00E-01	5.10E+00	
Tellurium (52)	Te-119	S	3.78E+02	1.83E-03	1.50E+02	.	7.00E-03	3.40E-04	.	6.00E-01	5.10E+00	
Tellurium (52)	Te-119m	V	5.38E+01	1.29E-02	1.50E+02	.	7.00E-03	3.40E-04	.	6.00E-01	5.10E+00	
Tellurium (52)	Te-121	V	1.32E+01	5.25E-02	1.50E+02	.	7.00E-03	3.40E-04	.	6.00E-01	5.10E+00	
Tellurium (52)	Te-121m	S	1.64E+00	4.22E-01	1.50E+02	.	7.00E-03	3.40E-04	.	6.00E-01	5.10E+00	
Tellurium (52)	Te-123	V	1.16E-15	6.00E+14	1.50E+02	.	7.00E-03	3.40E-04	.	6.00E-01	5.10E+00	
Tellurium (52)	Te-123m	S	2.12E+00	3.27E-01	1.50E+02	.	7.00E-03	3.40E-04	.	6.00E-01	5.10E+00	
Tellurium (52)	Te-125m	S	4.41E+00	1.57E-01	1.50E+02	.	7.00E-03	3.40E-04	.	6.00E-01	5.10E+00	
Tellurium (52)	Te-127	S	6.49E+02	1.07E-03	1.50E+02	.	7.00E-03	3.40E-04	.	6.00E-01	5.10E+00	
Tellurium (52)	Te-127m	S	2.32E+00	2.99E-01	1.50E+02	.	7.00E-03	3.40E-04	.	6.00E-01	5.10E+00	
Tellurium (52)	Te-129	V	5.23E+03	1.32E-04	1.50E+02	.	7.00E-03	3.40E-04	.	6.00E-01	5.10E+00	
Tellurium (52)	Te-129m	S	7.53E+00	9.21E-02	1.50E+02	.	7.00E-03	3.40E-04	.	6.00E-01	5.10E+00	
Tellurium (52)	Te-131	V	1.46E+04	4.76E-05	1.50E+02	.	7.00E-03	3.40E-04	.	6.00E-01	5.10E+00	
Tellurium (52)	Te-131m	V	2.02E+02	3.42E-03	1.50E+02	.	7.00E-03	3.40E-04	.	6.00E-01	5.10E+00	
Tellurium (52)	Te-132	V	7.89E+01	8.78E-03	1.50E+02	.	7.00E-03	3.40E-04	.	6.00E-01	5.10E+00	
Tellurium (52)	Te-133	V	2.91E+04	2.38E-05	1.50E+02	.	7.00E-03	3.40E-04	.	6.00E-01	5.10E+00	

Animal Transfer Factors July 2023											
Radionuclides		Isotope-specific Information and Animal Transfer Factors									
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Fish bioconcentration factor (Bq/kg per Bq/L)	Shellfish bioconcentration factor (Bq/kg per Bq/L)	Plant-to-beef transfer factor (day/kg)	Plant-to-dairy transfer factor (day/kg)	Plant-to-swine transfer factor (day/kg)	Plant-to-poultry transfer factor (day/kg)	Plant-to-egg transfer factor (day/kg)
Tellurium (52)	Te-133m	V	6.57E+03	1.05E-04	1.50E+02	.	7.00E-03	3.40E-04	.	6.00E-01	5.10E+00
Tellurium (52)	Te-134	V	8.71E+03	7.95E-05	1.50E+02	.	7.00E-03	3.40E-04	.	6.00E-01	5.10E+00
Thorium (90)	Th-223	-	3.64E+07	1.90E-08	6.00E+00	2.90E+03	2.30E-04	5.00E-06	.	.	.
Thorium (90)	Th-224	-	2.08E+07	3.33E-08	6.00E+00	2.90E+03	2.30E-04	5.00E-06	.	.	.
Thorium (90)	Th-226	S	1.19E+04	5.82E-05	6.00E+00	2.90E+03	2.30E-04	5.00E-06	.	.	.
Thorium (90)	Th-227	S	1.35E+01	5.12E-02	6.00E+00	2.90E+03	2.30E-04	5.00E-06	.	.	.
Thorium (90)	Th-228	S	3.63E-01	1.91E+00	6.00E+00	2.90E+03	2.30E-04	5.00E-06	.	.	.
Thorium (90)	Th-229	S	9.44E-05	7.34E+03	6.00E+00	2.90E+03	2.30E-04	5.00E-06	.	.	.
Thorium (90)	Th-230	F	9.19E-06	7.54E+04	6.00E+00	2.90E+03	2.30E-04	5.00E-06	.	.	.
Thorium (90)	Th-231	S	2.38E+02	2.91E-03	6.00E+00	2.90E+03	2.30E-04	5.00E-06	.	.	.
Thorium (90)	Th-232	S	4.93E-11	1.41E+10	6.00E+00	2.90E+03	2.30E-04	5.00E-06	.	.	.
Thorium (90)	Th-233	S	1.63E+04	4.24E-05	6.00E+00	2.90E+03	2.30E-04	5.00E-06	.	.	.
Thorium (90)	Th-234	S	1.05E+01	6.60E-02	6.00E+00	2.90E+03	2.30E-04	5.00E-06	.	.	.
Thorium (90)	Th-235	-	5.13E+04	1.35E-05	6.00E+00	2.90E+03	2.30E-04	5.00E-06	.	.	.
Thorium (90)	Th-236	S	9.71E+03	7.13E-05	6.00E+00	2.90E+03	2.30E-04	5.00E-06	.	.	.
Titanium (22)	Ti-44	S	1.16E-02	6.00E+01	1.90E+02	.	2.00E-02	1.00E-02	.	.	.
Titanium (22)	Ti-45	S	1.97E+03	3.52E-04	1.90E+02	.	2.00E-02	1.00E-02	.	.	.
Titanium (22)	Ti-51	-	6.32E+04	1.10E-05	1.90E+02	.	2.00E-02	1.00E-02	.	.	.
Titanium (22)	Ti-52	-	2.14E+05	3.23E-06	1.90E+02	.	2.00E-02	1.00E-02	.	.	.
Thallium (81)	Tl-190	-	1.40E+05	4.95E-06	9.00E+02	.	4.00E-02	2.00E-03	.	.	.
Thallium (81)	Tl-190m	-	9.84E+04	7.04E-06	9.00E+02	.	4.00E-02	2.00E-03	.	.	.
Thallium (81)	Tl-194	S	1.10E+04	6.28E-05	9.00E+02	.	4.00E-02	2.00E-03	.	.	.
Thallium (81)	Tl-194m	S	1.11E+04	6.24E-05	9.00E+02	.	4.00E-02	2.00E-03	.	.	.
Thallium (81)	Tl-195	S	5.23E+03	1.32E-04	9.00E+02	.	4.00E-02	2.00E-03	.	.	.
Thallium (81)	Tl-196	S	3.30E+03	2.10E-04	9.00E+02	.	4.00E-02	2.00E-03	.	.	.
Thallium (81)	Tl-197	S	2.14E+03	3.24E-04	9.00E+02	.	4.00E-02	2.00E-03	.	.	.
Thallium (81)	Tl-198	S	1.15E+03	6.05E-04	9.00E+02	.	4.00E-02	2.00E-03	.	.	.
Thallium (81)	Tl-198m	S	3.25E+03	2.13E-04	9.00E+02	.	4.00E-02	2.00E-03	.	.	.
Thallium (81)	Tl-199	S	8.18E+02	8.47E-04	9.00E+02	.	4.00E-02	2.00E-03	.	.	.
Thallium (81)	Tl-200	S	2.33E+02	2.98E-03	9.00E+02	.	4.00E-02	2.00E-03	.	.	.
Thallium (81)	Tl-201	S	8.33E+01	8.32E-03	9.00E+02	.	4.00E-02	2.00E-03	.	.	.
Thallium (81)	Tl-202	S	2.07E+01	3.35E-02	9.00E+02	.	4.00E-02	2.00E-03	.	.	.
Thallium (81)	Tl-204	S	1.83E-01	3.78E+00	9.00E+02	.	4.00E-02	2.00E-03	.	.	.
Thallium (81)	Tl-206	-	8.67E+04	7.99E-06	9.00E+02	.	4.00E-02	2.00E-03	.	.	.
Thallium (81)	Tl-206m	-	9.74E+04	7.12E-06	9.00E+02	.	4.00E-02	2.00E-03	.	.	.
Thallium (81)	Tl-207	-	7.64E+04	9.08E-06	9.00E+02	.	4.00E-02	2.00E-03	.	.	.
Thallium (81)	Tl-208	-	1.19E+05	5.81E-06	9.00E+02	.	4.00E-02	2.00E-03	.	.	.
Thallium (81)	Tl-209	-	1.69E+05	4.11E-06	9.00E+02	.	4.00E-02	2.00E-03	.	.	.

Animal Transfer Factors July 2023											
Radionuclides		Isotope-specific Information and Animal Transfer Factors									
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Fish bioconcentration factor (Bq/kg per Bq/L)	Shellfish bioconcentration factor (Bq/kg per Bq/L)	Plant-to-beef transfer factor (day/kg)	Plant-to-dairy transfer factor (day/kg)	Plant-to-swine transfer factor (day/kg)	Plant-to-poultry transfer factor (day/kg)	Plant-to-egg transfer factor (day/kg)
Thallium (81)	Tl-210	-	2.80E+05	2.47E-06	9.00E+02	.	4.00E-02	2.00E-03	.	.	.
Thulium (69)	Tm-161	S	1.21E+04	5.75E-05	.	.	2.00E-03	6.00E-05	.	.	.
Thulium (69)	Tm-162	S	1.68E+04	4.13E-05	.	.	2.00E-03	6.00E-05	.	.	.
Thulium (69)	Tm-163	S	3.35E+03	2.07E-04	.	.	2.00E-03	6.00E-05	.	.	.
Thulium (69)	Tm-164	-	1.82E+05	3.81E-06	.	.	2.00E-03	6.00E-05	.	.	.
Thulium (69)	Tm-165	S	2.02E+02	3.43E-03	.	.	2.00E-03	6.00E-05	.	.	.
Thulium (69)	Tm-166	S	7.88E+02	8.79E-04	.	.	2.00E-03	6.00E-05	.	.	.
Thulium (69)	Tm-167	S	2.73E+01	2.53E-02	.	.	2.00E-03	6.00E-05	.	.	.
Thulium (69)	Tm-168	S	2.72E+00	2.55E-01	.	.	2.00E-03	6.00E-05	.	.	.
Thulium (69)	Tm-170	S	1.97E+00	3.52E-01	.	.	2.00E-03	6.00E-05	.	.	.
Thulium (69)	Tm-171	S	3.61E-01	1.92E+00	.	.	2.00E-03	6.00E-05	.	.	.
Thulium (69)	Tm-172	S	9.55E+01	7.26E-03	.	.	2.00E-03	6.00E-05	.	.	.
Thulium (69)	Tm-173	S	7.37E+02	9.41E-04	.	.	2.00E-03	6.00E-05	.	.	.
Thulium (69)	Tm-174	-	6.75E+04	1.03E-05	.	.	2.00E-03	6.00E-05	.	.	.
Thulium (69)	Tm-175	S	2.40E+04	2.89E-05	.	.	2.00E-03	6.00E-05	.	.	.
Thulium (69)	Tm-176	-	1.97E+05	3.52E-06	.	.	2.00E-03	6.00E-05	.	.	.
Uranium (92)	U-227	-	3.31E+05	2.09E-06	9.60E-01	1.70E+02	3.90E-04	1.80E-03	4.40E-02	7.50E-01	1.10E+00
Uranium (92)	U-228	-	4.00E+04	1.73E-05	9.60E-01	1.70E+02	3.90E-04	1.80E-03	4.40E-02	7.50E-01	1.10E+00
Uranium (92)	U-230	S	1.22E+01	5.70E-02	9.60E-01	1.70E+02	3.90E-04	1.80E-03	4.40E-02	7.50E-01	1.10E+00
Uranium (92)	U-231	S	6.02E+01	1.15E-02	9.60E-01	1.70E+02	3.90E-04	1.80E-03	4.40E-02	7.50E-01	1.10E+00
Uranium (92)	U-232	S	1.01E-02	6.89E+01	9.60E-01	1.70E+02	3.90E-04	1.80E-03	4.40E-02	7.50E-01	1.10E+00
Uranium (92)	U-233	S	4.35E-06	1.59E+05	9.60E-01	1.70E+02	3.90E-04	1.80E-03	4.40E-02	7.50E-01	1.10E+00
Uranium (92)	U-234	S	2.82E-06	2.46E+05	9.60E-01	1.70E+02	3.90E-04	1.80E-03	4.40E-02	7.50E-01	1.10E+00
Uranium (92)	U-235	S	9.84E-10	7.04E+08	9.60E-01	1.70E+02	3.90E-04	1.80E-03	4.40E-02	7.50E-01	1.10E+00
Uranium (92)	U-235m	M	1.40E+04	4.95E-05	9.60E-01	1.70E+02	3.90E-04	1.80E-03	4.40E-02	7.50E-01	1.10E+00
Uranium (92)	U-236	S	2.96E-08	2.34E+07	9.60E-01	1.70E+02	3.90E-04	1.80E-03	4.40E-02	7.50E-01	1.10E+00
Uranium (92)	U-237	S	3.75E+01	1.85E-02	9.60E-01	1.70E+02	3.90E-04	1.80E-03	4.40E-02	7.50E-01	1.10E+00
Uranium (92)	U-238	S	1.55E-10	4.47E+09	9.60E-01	1.70E+02	3.90E-04	1.80E-03	4.40E-02	7.50E-01	1.10E+00
Uranium (92)	U-239	S	1.55E+04	4.46E-05	9.60E-01	1.70E+02	3.90E-04	1.80E-03	4.40E-02	7.50E-01	1.10E+00
Uranium (92)	U-240	S	4.31E+02	1.61E-03	9.60E-01	1.70E+02	3.90E-04	1.80E-03	4.40E-02	7.50E-01	1.10E+00
Uranium (92)	U-242	S	2.17E+04	3.20E-05	9.60E-01	1.70E+02	3.90E-04	1.80E-03	4.40E-02	7.50E-01	1.10E+00
Vanadium (23)	V-47	S	1.12E+04	6.20E-05	9.70E+01	3.90E+02	1.00E-05	1.00E-05	.	.	.
Vanadium (23)	V-48	S	1.58E+01	4.38E-02	9.70E+01	3.90E+02	1.00E-05	1.00E-05	.	.	.
Vanadium (23)	V-49	S	7.67E-01	9.04E-01	9.70E+01	3.90E+02	1.00E-05	1.00E-05	.	.	.
Vanadium (23)	V-50	F	4.62E-18	1.50E+17	9.70E+01	3.90E+02	1.00E-05	1.00E-05	.	.	.
Vanadium (23)	V-52	-	9.73E+04	7.12E-06	9.70E+01	3.90E+02	1.00E-05	1.00E-05	.	.	.
Vanadium (23)	V-53	-	2.26E+05	3.06E-06	9.70E+01	3.90E+02	1.00E-05	1.00E-05	.	.	.
Tungsten (74)	W-177	S	2.76E+03	2.51E-04	1.20E+03	.	4.00E-02	1.90E-04	.	.	.



Animal Transfer Factors July 2023												
Radionuclides		Isotope-specific Information and Animal Transfer Factors										
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Fish	Shellfish	Plant-to-beef transfer factor (day/kg)	Plant-to-dairy transfer factor (day/kg)	Plant-to-swine transfer factor (day/kg)	Plant-to-poultry transfer factor (day/kg)	Plant-to-egg transfer factor (day/kg)	
					bioconcentration factor (Bq/kg per Bq/L)	bioconcentration factor (Bq/kg per Bq/L)						
Tungsten (74)	W-178	S	1.17E+01	5.92E-02	1.20E+03	.	4.00E-02	1.90E-04	.	.	.	
Tungsten (74)	W-179	S	9.83E+03	7.05E-05	1.20E+03	.	4.00E-02	1.90E-04	.	.	.	
Tungsten (74)	W-179m	-	5.69E+04	1.22E-05	1.20E+03	.	4.00E-02	1.90E-04	.	.	.	
Tungsten (74)	W-181	S	2.09E+00	3.32E-01	1.20E+03	.	4.00E-02	1.90E-04	.	.	.	
Tungsten (74)	W-185	S	3.37E+00	2.06E-01	1.20E+03	.	4.00E-02	1.90E-04	.	.	.	
Tungsten (74)	W-185m	-	2.28E+05	3.04E-06	1.20E+03	.	4.00E-02	1.90E-04	.	.	.	
Tungsten (74)	W-187	S	2.56E+02	2.71E-03	1.20E+03	.	4.00E-02	1.90E-04	.	.	.	
Tungsten (74)	W-188	S	3.62E+00	1.91E-01	1.20E+03	.	4.00E-02	1.90E-04	.	.	.	
Tungsten (74)	W-190	S	1.21E+04	5.71E-05	1.20E+03	.	4.00E-02	1.90E-04	.	.	.	
Xenon (54)	Xe-120	-	9.11E+03	7.61E-05	0.00E+00	.	0.00E+00	0.00E+00	.	.	.	
Xenon (54)	Xe-121	-	9.08E+03	7.63E-05	0.00E+00	.	0.00E+00	0.00E+00	.	.	.	
Xenon (54)	Xe-122	-	3.02E+02	2.29E-03	0.00E+00	.	0.00E+00	0.00E+00	.	.	.	
Xenon (54)	Xe-123	-	2.92E+03	2.37E-04	0.00E+00	.	0.00E+00	0.00E+00	.	.	.	
Xenon (54)	Xe-125	-	3.59E+02	1.93E-03	0.00E+00	.	0.00E+00	0.00E+00	.	.	.	
Xenon (54)	Xe-127	-	6.95E+00	9.97E-02	0.00E+00	.	0.00E+00	0.00E+00	.	.	.	
Xenon (54)	Xe-127m	-	3.16E+05	2.19E-06	0.00E+00	.	0.00E+00	0.00E+00	.	.	.	
Xenon (54)	Xe-129m	-	2.85E+01	2.43E-02	0.00E+00	.	0.00E+00	0.00E+00	.	.	.	
Xenon (54)	Xe-131m	-	2.14E+01	3.24E-02	0.00E+00	.	0.00E+00	0.00E+00	.	.	.	
Xenon (54)	Xe-133	-	4.82E+01	1.44E-02	0.00E+00	.	0.00E+00	0.00E+00	.	.	.	
Xenon (54)	Xe-133m	-	1.16E+02	6.00E-03	0.00E+00	.	0.00E+00	0.00E+00	.	.	.	
Xenon (54)	Xe-135	-	6.64E+02	1.04E-03	0.00E+00	.	0.00E+00	0.00E+00	.	.	.	
Xenon (54)	Xe-135m	-	2.38E+04	2.91E-05	0.00E+00	.	0.00E+00	0.00E+00	.	.	.	
Xenon (54)	Xe-137	-	9.54E+04	7.26E-06	0.00E+00	.	0.00E+00	0.00E+00	.	.	.	
Xenon (54)	Xe-138	-	2.59E+04	2.68E-05	0.00E+00	.	0.00E+00	0.00E+00	.	.	.	
Yttrium (39)	Y-81	-	3.10E+05	2.23E-06	4.00E+01	.	1.00E-03	2.00E-05	.	1.00E-02	2.00E-03	
Yttrium (39)	Y-83	-	5.14E+04	1.35E-05	4.00E+01	.	1.00E-03	2.00E-05	.	1.00E-02	2.00E-03	
Yttrium (39)	Y-83m	-	1.28E+05	5.42E-06	4.00E+01	.	1.00E-03	2.00E-05	.	1.00E-02	2.00E-03	
Yttrium (39)	Y-84m	S	9.22E+03	7.52E-05	4.00E+01	.	1.00E-03	2.00E-05	.	1.00E-02	2.00E-03	
Yttrium (39)	Y-85	S	2.27E+03	3.06E-04	4.00E+01	.	1.00E-03	2.00E-05	.	1.00E-02	2.00E-03	
Yttrium (39)	Y-85m	S	1.25E+03	5.55E-04	4.00E+01	.	1.00E-03	2.00E-05	.	1.00E-02	2.00E-03	
Yttrium (39)	Y-86	S	4.12E+02	1.68E-03	4.00E+01	.	1.00E-03	2.00E-05	.	1.00E-02	2.00E-03	
Yttrium (39)	Y-86m	S	7.59E+03	9.13E-05	4.00E+01	.	1.00E-03	2.00E-05	.	1.00E-02	2.00E-03	
Yttrium (39)	Y-87	S	7.61E+01	9.11E-03	4.00E+01	.	1.00E-03	2.00E-05	.	1.00E-02	2.00E-03	
Yttrium (39)	Y-87m	S	4.54E+02	1.53E-03	4.00E+01	.	1.00E-03	2.00E-05	.	1.00E-02	2.00E-03	
Yttrium (39)	Y-88	F	2.37E+00	2.92E-01	4.00E+01	.	1.00E-03	2.00E-05	.	1.00E-02	2.00E-03	
Yttrium (39)	Y-89m	-	1.40E+06	4.97E-07	4.00E+01	.	1.00E-03	2.00E-05	.	1.00E-02	2.00E-03	
Yttrium (39)	Y-90	S	9.47E+01	7.32E-03	4.00E+01	.	1.00E-03	2.00E-05	.	1.00E-02	2.00E-03	
Yttrium (39)	Y-90m	S	1.90E+03	3.64E-04	4.00E+01	.	1.00E-03	2.00E-05	.	1.00E-02	2.00E-03	

Animal Transfer Factors July 2023											
Radionuclides		Isotope-specific Information and Animal Transfer Factors									
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Fish	Shellfish	Plant-to-beef transfer factor (day/kg)	Plant-to-dairy transfer factor (day/kg)	Plant-to-swine transfer factor (day/kg)	Plant-to-poultry transfer factor (day/kg)	Plant-to-egg transfer factor (day/kg)
					bioconcentration factor (Bq/kg per Bq/L)	bioconcentration factor (Bq/kg per Bq/L)					
Yttrium (39)	Y-91	S	4.32E+00	1.60E-01	4.00E+01	.	1.00E-03	2.00E-05	.	1.00E-02	2.00E-03
Yttrium (39)	Y-91m	S	7.33E+03	9.46E-05	4.00E+01	.	1.00E-03	2.00E-05	.	1.00E-02	2.00E-03
Yttrium (39)	Y-92	S	1.71E+03	4.04E-04	4.00E+01	.	1.00E-03	2.00E-05	.	1.00E-02	2.00E-03
Yttrium (39)	Y-93	S	5.96E+02	1.16E-03	4.00E+01	.	1.00E-03	2.00E-05	.	1.00E-02	2.00E-03
Yttrium (39)	Y-94	S	1.95E+04	3.56E-05	4.00E+01	.	1.00E-03	2.00E-05	.	1.00E-02	2.00E-03
Yttrium (39)	Y-95	S	3.54E+04	1.96E-05	4.00E+01	.	1.00E-03	2.00E-05	.	1.00E-02	2.00E-03
Ytterbium (70)	Yb-162	S	1.93E+04	3.59E-05	.	.	2.00E-03	6.00E-05	.	.	.
Ytterbium (70)	Yb-163	S	3.30E+04	2.10E-05	.	.	2.00E-03	6.00E-05	.	.	.
Ytterbium (70)	Yb-164	S	4.81E+03	1.44E-04	.	.	2.00E-03	6.00E-05	.	.	.
Ytterbium (70)	Yb-165	-	3.68E+04	1.88E-05	.	.	2.00E-03	6.00E-05	.	.	.
Ytterbium (70)	Yb-166	S	1.07E+02	6.47E-03	.	.	2.00E-03	6.00E-05	.	.	.
Ytterbium (70)	Yb-167	S	2.08E+04	3.33E-05	.	.	2.00E-03	6.00E-05	.	.	.
Ytterbium (70)	Yb-169	S	7.90E+00	8.77E-02	.	.	2.00E-03	6.00E-05	.	.	.
Ytterbium (70)	Yb-175	S	6.04E+01	1.15E-02	.	.	2.00E-03	6.00E-05	.	.	.
Ytterbium (70)	Yb-177	S	3.18E+03	2.18E-04	.	.	2.00E-03	6.00E-05	.	.	.
Ytterbium (70)	Yb-178	S	4.92E+03	1.41E-04	.	.	2.00E-03	6.00E-05	.	.	.
Ytterbium (70)	Yb-179	-	4.55E+04	1.52E-05	.	.	2.00E-03	6.00E-05	.	.	.
Zinc (30)	Zn-60	-	1.53E+05	4.53E-06	3.40E+03	9.20E+01	1.60E-01	2.70E-03	1.70E-01	4.70E-01	1.40E+00
Zinc (30)	Zn-61	-	2.45E+05	2.83E-06	3.40E+03	9.20E+01	1.60E-01	2.70E-03	1.70E-01	4.70E-01	1.40E+00
Zinc (30)	Zn-62	S	6.61E+02	1.05E-03	3.40E+03	9.20E+01	1.60E-01	2.70E-03	1.70E-01	4.70E-01	1.40E+00
Zinc (30)	Zn-63	S	9.47E+03	7.32E-05	3.40E+03	9.20E+01	1.60E-01	2.70E-03	1.70E-01	4.70E-01	1.40E+00
Zinc (30)	Zn-65	F	1.04E+00	6.69E-01	3.40E+03	9.20E+01	1.60E-01	2.70E-03	1.70E-01	4.70E-01	1.40E+00
Zinc (30)	Zn-69	S	6.46E+03	1.07E-04	3.40E+03	9.20E+01	1.60E-01	2.70E-03	1.70E-01	4.70E-01	1.40E+00
Zinc (30)	Zn-69m	S	4.41E+02	1.57E-03	3.40E+03	9.20E+01	1.60E-01	2.70E-03	1.70E-01	4.70E-01	1.40E+00
Zinc (30)	Zn-71	-	1.49E+05	4.66E-06	3.40E+03	9.20E+01	1.60E-01	2.70E-03	1.70E-01	4.70E-01	1.40E+00
Zinc (30)	Zn-71m	S	1.53E+03	4.52E-04	3.40E+03	9.20E+01	1.60E-01	2.70E-03	1.70E-01	4.70E-01	1.40E+00
Zinc (30)	Zn-72	S	1.31E+02	5.31E-03	3.40E+03	9.20E+01	1.60E-01	2.70E-03	1.70E-01	4.70E-01	1.40E+00
Zirconium (40)	Zr-85	-	4.63E+04	1.50E-05	2.20E+01	.	1.20E-06	3.60E-06	.	6.00E-05	2.00E-04
Zirconium (40)	Zr-86	S	3.68E+02	1.88E-03	2.20E+01	.	1.20E-06	3.60E-06	.	6.00E-05	2.00E-04
Zirconium (40)	Zr-87	S	3.61E+03	1.92E-04	2.20E+01	.	1.20E-06	3.60E-06	.	6.00E-05	2.00E-04
Zirconium (40)	Zr-88	S	3.03E+00	2.28E-01	2.20E+01	.	1.20E-06	3.60E-06	.	6.00E-05	2.00E-04
Zirconium (40)	Zr-89	S	7.74E+01	8.95E-03	2.20E+01	.	1.20E-06	3.60E-06	.	6.00E-05	2.00E-04
Zirconium (40)	Zr-89m	-	8.75E+04	7.92E-06	2.20E+01	.	1.20E-06	3.60E-06	.	6.00E-05	2.00E-04
Zirconium (40)	Zr-93	F	4.53E-07	1.53E+06	2.20E+01	.	1.20E-06	3.60E-06	.	6.00E-05	2.00E-04
Zirconium (40)	Zr-95	S	3.95E+00	1.75E-01	2.20E+01	.	1.20E-06	3.60E-06	.	6.00E-05	2.00E-04
Zirconium (40)	Zr-97	S	3.63E+02	1.91E-03	2.20E+01	.	1.20E-06	3.60E-06	.	6.00E-05	2.00E-04

Plant Transfer Factors July 2023													
Radionuclides		Isotope-specific Information and Plant Transfer Factors											
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Wet	Wet	Wet	Wet	Wet	Wet	Wet	Wet	Wet
					Soil-to-plant transfer factor Woody tree (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Leaf (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Root (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Shrub (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Non-leafy fruit (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Maize grain (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Legume seed (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Tuber (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Herbaceous (Bq/g-fresh plant per Bq/g-wet soil)
Actinium (89)	Ac-223	-	1.73E+05	4.00E-06	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03
Actinium (89)	Ac-224	S	2.18E+03	3.17E-04	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03
Actinium (89)	Ac-225	S	2.53E+01	2.74E-02	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03
Actinium (89)	Ac-226	S	2.07E+02	3.35E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03
Actinium (89)	Ac-227	S	3.18E-02	2.18E+01	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03
Actinium (89)	Ac-228	S	9.87E+02	7.02E-04	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03
Actinium (89)	Ac-230	-	1.79E+05	3.87E-06	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03
Actinium (89)	Ac-231	-	4.86E+04	1.43E-05	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03
Actinium (89)	Ac-232	-	1.84E+05	3.77E-06	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03
Actinium (89)	Ac-233	-	1.51E+05	4.60E-06	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03
Silver (47)	Ag-100m	-	1.63E+05	4.26E-06	2.00E-01	1.80E-04	1.30E-03	2.00E-01	6.40E-04	2.00E-01	2.00E-01	2.00E-01	2.00E-01
Silver (47)	Ag-101	S	3.28E+04	2.11E-05	2.00E-01	1.80E-04	1.30E-03	2.00E-01	6.40E-04	2.00E-01	2.00E-01	2.00E-01	2.00E-01
Silver (47)	Ag-102	S	2.82E+04	2.45E-05	2.00E-01	1.80E-04	1.30E-03	2.00E-01	6.40E-04	2.00E-01	2.00E-01	2.00E-01	2.00E-01
Silver (47)	Ag-102m	-	4.73E+04	1.46E-05	2.00E-01	1.80E-04	1.30E-03	2.00E-01	6.40E-04	2.00E-01	2.00E-01	2.00E-01	2.00E-01
Silver (47)	Ag-103	S	5.54E+03	1.25E-04	2.00E-01	1.80E-04	1.30E-03	2.00E-01	6.40E-04	2.00E-01	2.00E-01	2.00E-01	2.00E-01
Silver (47)	Ag-104	S	5.26E+03	1.32E-04	2.00E-01	1.80E-04	1.30E-03	2.00E-01	6.40E-04	2.00E-01	2.00E-01	2.00E-01	2.00E-01
Silver (47)	Ag-104m	S	1.09E+04	6.37E-05	2.00E-01	1.80E-04	1.30E-03	2.00E-01	6.40E-04	2.00E-01	2.00E-01	2.00E-01	2.00E-01
Silver (47)	Ag-105	S	6.13E+00	1.13E-01	2.00E-01	1.80E-04	1.30E-03	2.00E-01	6.40E-04	2.00E-01	2.00E-01	2.00E-01	2.00E-01
Silver (47)	Ag-105m	-	5.04E+04	1.38E-05	2.00E-01	1.80E-04	1.30E-03	2.00E-01	6.40E-04	2.00E-01	2.00E-01	2.00E-01	2.00E-01
Silver (47)	Ag-106	S	1.52E+04	4.56E-05	2.00E-01	1.80E-04	1.30E-03	2.00E-01	6.40E-04	2.00E-01	2.00E-01	2.00E-01	2.00E-01
Silver (47)	Ag-106m	S	3.05E+01	2.27E-02	2.00E-01	1.80E-04	1.30E-03	2.00E-01	6.40E-04	2.00E-01	2.00E-01	2.00E-01	2.00E-01
Silver (47)	Ag-108	-	1.54E+05	4.51E-06	2.00E-01	1.80E-04	1.30E-03	2.00E-01	6.40E-04	2.00E-01	2.00E-01	2.00E-01	2.00E-01
Silver (47)	Ag-108m	S	1.66E-03	4.18E+02	2.00E-01	1.80E-04	1.30E-03	2.00E-01	6.40E-04	2.00E-01	2.00E-01	2.00E-01	2.00E-01
Silver (47)	Ag-109m	-	5.52E+05	1.26E-06	2.00E-01	1.80E-04	1.30E-03	2.00E-01	6.40E-04	2.00E-01	2.00E-01	2.00E-01	2.00E-01
Silver (47)	Ag-110	-	8.88E+05	7.80E-07	2.00E-01	1.80E-04	1.30E-03	2.00E-01	6.40E-04	2.00E-01	2.00E-01	2.00E-01	2.00E-01
Silver (47)	Ag-110m	S	1.01E+00	6.84E-01	2.00E-01	1.80E-04	1.30E-03	2.00E-01	6.40E-04	2.00E-01	2.00E-01	2.00E-01	2.00E-01
Silver (47)	Ag-111	S	3.40E+01	2.04E-02	2.00E-01	1.80E-04	1.30E-03	2.00E-01	6.40E-04	2.00E-01	2.00E-01	2.00E-01	2.00E-01
Silver (47)	Ag-111m	-	3.37E+05	2.05E-06	2.00E-01	1.80E-04	1.30E-03	2.00E-01	6.40E-04	2.00E-01	2.00E-01	2.00E-01	2.00E-01
Silver (47)	Ag-112	S	1.94E+03	3.57E-04	2.00E-01	1.80E-04	1.30E-03	2.00E-01	6.40E-04	2.00E-01	2.00E-01	2.00E-01	2.00E-01
Silver (47)	Ag-113	S	1.13E+03	6.13E-04	2.00E-01	1.80E-04	1.30E-03	2.00E-01	6.40E-04	2.00E-01	2.00E-01	2.00E-01	2.00E-01
Silver (47)	Ag-113m	-	3.18E+05	2.18E-06	2.00E-01	1.80E-04	1.30E-03	2.00E-01	6.40E-04	2.00E-01	2.00E-01	2.00E-01	2.00E-01
Silver (47)	Ag-114	-	4.75E+06	1.46E-07	2.00E-01	1.80E-04	1.30E-03	2.00E-01	6.40E-04	2.00E-01	2.00E-01	2.00E-01	2.00E-01
Silver (47)	Ag-115	S	1.82E+04	3.81E-05	2.00E-01	1.80E-04	1.30E-03	2.00E-01	6.40E-04	2.00E-01	2.00E-01	2.00E-01	2.00E-01
Silver (47)	Ag-116	-	1.36E+05	5.10E-06	2.00E-01	1.80E-04	1.30E-03	2.00E-01	6.40E-04	2.00E-01	2.00E-01	2.00E-01	2.00E-01
Silver (47)	Ag-117	-	2.97E+05	2.33E-06	2.00E-01	1.80E-04	1.30E-03	2.00E-01	6.40E-04	2.00E-01	2.00E-01	2.00E-01	2.00E-01
Silver (47)	Ag-99	-	1.76E+05	3.93E-06	2.00E-01	1.80E-04	1.30E-03	2.00E-01	6.40E-04	2.00E-01	2.00E-01	2.00E-01	2.00E-01
Aluminum (13)	Al-26	S	9.67E-07	7.17E+05	4.00E-03	4.00E-03	4.00E-03	4.00E-03	4.00E-03	4.00E-03	4.00E-03	4.00E-03	4.00E-03
Aluminum (13)	Al-28	-	1.63E+05	4.26E-06	4.00E-03	4.00E-03	4.00E-03	4.00E-03	4.00E-03	4.00E-03	4.00E-03	4.00E-03	4.00E-03
Aluminum (13)	Al-29	-	5.55E+04	1.25E-05	4.00E-03	4.00E-03	4.00E-03	4.00E-03	4.00E-03	4.00E-03	4.00E-03	4.00E-03	4.00E-03
Americium (95)	Am-237	S	4.99E+03	1.39E-04	3.10E-05	2.70E-04	6.70E-04	8.00E-04	3.60E-04	5.00E-05	3.80E-04	2.10E-04	1.10E-04
Americium (95)	Am-238	S	3.72E+03	1.86E-04	3.10E-05	2.70E-04	6.70E-04	8.00E-04	3.60E-04	5.00E-05	3.80E-04	2.10E-04	1.10E-04
Americium (95)	Am-239	S	5.10E+02	1.36E-03	3.10E-05	2.70E-04	6.70E-04	8.00E-04	3.60E-04	5.00E-05	3.80E-04	2.10E-04	1.10E-04
Americium (95)	Am-240	S	1.20E+02	5.80E-03	3.10E-05	2.70E-04	6.70E-04	8.00E-04	3.60E-04	5.00E-05	3.80E-04	2.10E-04	1.10E-04
Americium (95)	Am-241	F	1.60E-03	4.32E+02	3.10E-05	2.70E-04	6.70E-04	8.00E-04	3.60E-04	5.00E-05	3.80E-04	2.10E-04	1.10E-04
Americium (95)	Am-242	S	3.79E+02	1.83E-03	3.10E-05	2.70E-04	6.70E-04	8.00E-04	3.60E-04	5.00E-05	3.80E-04	2.10E-04	1.10E-04
Americium (95)	Am-242m	F	4.91E-03	1.41E+02	3.10E-05	2.70E-04	6.70E-04	8.00E-04	3.60E-04	5.00E-05	3.80E-04	2.10E-04	1.10E-04
Americium (95)	Am-243	F	9.40E-05	7.37E+03	3.10E-05	2.70E-04	6.70E-04	8.00E-04	3.60E-04	5.00E-05	3.80E-04	2.10E-04	1.10E-04
Americium (95)	Am-244	S	6.01E+02	1.15E-03	3.10E-05	2.70E-04	6.70E-04	8.00E-04	3.60E-04	5.00E-05	3.80E-04	2.10E-04	1.10E-04
Americium (95)	Am-244m	S	1.40E+04	4.95E-05	3.10E-05	2.70E-04	6.70E-04	8.00E-04	3.60E-04	5.00E-05	3.80E-04	2.10E-04	1.10E-04
Americium (95)	Am-245	S	2.96E+03	2.34E-04	3.10E-05	2.70E-04	6.70E-04	8.00E-04	3.60E-04	5.00E-05	3.80E-04	2.10E-04	1.10E-04
Americium (95)	Am-246	S	9.34E+03	7.42E-05	3.10E-05	2.70E-04	6.70E-04	8.00E-04	3.60E-04	5.00E-05	3.80E-04	2.10E-04	1.10E-04

Plant Transfer Factors July 2023													
Radionuclides		Isotope-specific Information and Plant Transfer Factors											
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Wet	Wet	Wet	Wet	Wet	Wet	Wet	Wet	Wet
					Soil-to-plant transfer factor Woody tree (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Leaf (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Root (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Shrub (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Non-leafy fruit (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Maize grain (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Legume seed (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Tuber (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Herbaceous (Bq/g-fresh plant per Bq/g-wet soil)
Americium (95)	Am-246m	S	1.46E+04	4.76E-05	3.10E-05	2.70E-04	6.70E-04	8.00E-04	3.60E-04	5.00E-05	3.80E-04	2.10E-04	1.10E-04
Americium (95)	Am-247	S	1.58E+04	4.38E-05	3.10E-05	2.70E-04	6.70E-04	8.00E-04	3.60E-04	5.00E-05	3.80E-04	2.10E-04	1.10E-04
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	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Argon (18)	Ar-39	-	2.58E-03	2.69E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Argon (18)	Ar-41	-	3.32E+03	2.09E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Argon (18)	Ar-42	-	2.11E-02	3.29E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Argon (18)	Ar-43	-	6.78E+04	1.02E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Argon (18)	Ar-44	-	3.07E+04	2.26E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Arsenic (33)	As-68	-	1.44E+05	4.81E-06	8.00E-02	8.00E-02	8.00E-02	8.00E-02	8.00E-02	8.00E-02	8.00E-02	8.00E-02	8.00E-02
Arsenic (33)	As-69	S	2.39E+04	2.90E-05	8.00E-02	8.00E-02	8.00E-02	8.00E-02	8.00E-02	8.00E-02	8.00E-02	8.00E-02	8.00E-02
Arsenic (33)	As-70	S	6.92E+03	1.00E-04	8.00E-02	8.00E-02	8.00E-02	8.00E-02	8.00E-02	8.00E-02	8.00E-02	8.00E-02	8.00E-02
Arsenic (33)	As-71	S	9.30E+01	7.45E-03	8.00E-02	8.00E-02	8.00E-02	8.00E-02	8.00E-02	8.00E-02	8.00E-02	8.00E-02	8.00E-02
Arsenic (33)	As-72	S	2.33E+02	2.97E-03	8.00E-02	8.00E-02	8.00E-02	8.00E-02	8.00E-02	8.00E-02	8.00E-02	8.00E-02	8.00E-02
Arsenic (33)	As-73	S	3.15E+00	2.20E-01	8.00E-02	8.00E-02	8.00E-02	8.00E-02	8.00E-02	8.00E-02	8.00E-02	8.00E-02	8.00E-02
Arsenic (33)	As-74	S	1.42E+01	4.87E-02	8.00E-02	8.00E-02	8.00E-02	8.00E-02	8.00E-02	8.00E-02	8.00E-02	8.00E-02	8.00E-02
Arsenic (33)	As-76	S	2.35E+02	2.95E-03	8.00E-02	8.00E-02	8.00E-02	8.00E-02	8.00E-02	8.00E-02	8.00E-02	8.00E-02	8.00E-02
Arsenic (33)	As-77	S	1.56E+02	4.43E-03	8.00E-02	8.00E-02	8.00E-02	8.00E-02	8.00E-02	8.00E-02	8.00E-02	8.00E-02	8.00E-02
Arsenic (33)	As-78	S	4.02E+03	1.73E-04	8.00E-02	8.00E-02	8.00E-02	8.00E-02	8.00E-02	8.00E-02	8.00E-02	8.00E-02	8.00E-02
Arsenic (33)	As-79	-	4.04E+04	1.71E-05	8.00E-02	8.00E-02	8.00E-02	8.00E-02	8.00E-02	8.00E-02	8.00E-02	8.00E-02	8.00E-02
Astatine (85)	At-204	-	3.96E+04	1.75E-05	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01
Astatine (85)	At-205	S	1.39E+04	4.98E-05	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01
Astatine (85)	At-206	S	1.19E+04	5.82E-05	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01
Astatine (85)	At-207	S	3.37E+03	2.05E-04	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01
Astatine (85)	At-208	S	3.72E+03	1.86E-04	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01
Astatine (85)	At-209	S	1.12E+03	6.18E-04	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01
Astatine (85)	At-210	S	7.49E+02	9.25E-04	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01
Astatine (85)	At-211	S	8.42E+02	8.24E-04	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01
Astatine (85)	At-215	-	2.19E+11	3.17E-12	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01
Astatine (85)	At-216	-	7.28E+10	9.51E-12	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01
Astatine (85)	At-217	-	6.77E+08	1.02E-09	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01
Astatine (85)	At-218	-	1.46E+07	4.76E-08	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01
Astatine (85)	At-219	-	3.90E+05	1.78E-06	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01
Astatine (85)	At-220	-	9.82E+04	7.06E-06	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01
Gold (79)	Au-186	S	3.40E+04	2.04E-05	2.80E-03	2.00E-03	3.60E-03	2.80E-03	2.00E-03	2.00E-03	2.00E-03	3.60E-03	2.80E-03
Gold (79)	Au-187	-	4.34E+04	1.60E-05	2.80E-03	2.00E-03	3.60E-03	2.80E-03	2.00E-03	2.00E-03	2.00E-03	3.60E-03	2.80E-03
Gold (79)	Au-190	S	8.51E+03	8.14E-05	2.80E-03	2.00E-03	3.60E-03	2.80E-03	2.00E-03	2.00E-03	2.00E-03	3.60E-03	2.80E-03
Gold (79)	Au-191	S	1.91E+03	3.63E-04	2.80E-03	2.00E-03	3.60E-03	2.80E-03	2.00E-03	2.00E-03	2.00E-03	3.60E-03	2.80E-03
Gold (79)	Au-192	S	1.23E+03	5.64E-04	2.80E-03	2.00E-03	3.60E-03	2.80E-03	2.00E-03	2.00E-03	2.00E-03	3.60E-03	2.80E-03
Gold (79)	Au-193	S	3.44E+02	2.01E-03	2.80E-03	2.00E-03	3.60E-03	2.80E-03	2.00E-03	2.00E-03	2.00E-03	3.60E-03	2.80E-03
Gold (79)	Au-193m	-	5.60E+06	1.24E-07	2.80E-03	2.00E-03	3.60E-03	2.80E-03	2.00E-03	2.00E-03	2.00E-03	3.60E-03	2.80E-03
Gold (79)	Au-194	S	1.60E+02	4.34E-03	2.80E-03	2.00E-03	3.60E-03	2.80E-03	2.00E-03	2.00E-03	2.00E-03	3.60E-03	2.80E-03
Gold (79)	Au-195	S	1.36E+00	5.10E-01	2.80E-03	2.00E-03	3.60E-03	2.80E-03	2.00E-03	2.00E-03	2.00E-03	3.60E-03	2.80E-03
Gold (79)	Au-195m	-	7.17E+05	9.67E-07	2.80E-03	2.00E-03	3.60E-03	2.80E-03	2.00E-03	2.00E-03	2.00E-03	3.60E-03	2.80E-03
Gold (79)	Au-196	S	4.09E+01	1.69E-02	2.80E-03	2.00E-03	3.60E-03	2.80E-03	2.00E-03	2.00E-03	2.00E-03	3.60E-03	2.80E-03
Gold (79)	Au-196m	S	6.32E+02	1.10E-03	2.80E-03	2.00E-03	3.60E-03	2.80E-03	2.00E-03	2.00E-03	2.00E-03	3.60E-03	2.80E-03
Gold (79)	Au-198	S	9.39E+01	7.38E-03	2.80E-03	2.00E-03	3.60E-03	2.80E-03	2.00E-03	2.00E-03	2.00E-03	3.60E-03	2.80E-03
Gold (79)	Au-198m	S	1.11E+02	6.22E-03	2.80E-03	2.00E-03	3.60E-03	2.80E-03	2.00E-03	2.00E-03	2.00E-03	3.60E-03	2.80E-03
Gold (79)	Au-199	S	8.06E+01	8.60E-03	2.80E-03	2.00E-03	3.60E-03	2.80E-03	2.00E-03	2.00E-03	2.00E-03	3.60E-03	2.80E-03
Gold (79)	Au-200	S	7.53E+03	9.21E-05	2.80E-03	2.00E-03	3.60E-03	2.80E-03	2.00E-03	2.00E-03	2.00E-03	3.60E-03	2.80E-03
Gold (79)	Au-200m	S	3.25E+02	2.13E-03	2.80E-03	2.00E-03	3.60E-03	2.80E-03	2.00E-03	2.00E-03	2.00E-03	3.60E-03	2.80E-03
Gold (79)	Au-201	S	1.40E+04	4.95E-05	2.80E-03	2.00E-03	3.60E-03	2.80E-03	2.00E-03	2.00E-03	2.00E-03	3.60E-03	2.80E-03



Plant Transfer Factors July 2023													
Radionuclides		Isotope-specific Information and Plant Transfer Factors											
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Wet	Wet	Wet	Wet	Wet	Wet	Wet	Wet	Wet
					Soil-to-plant transfer factor Woody tree (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Leaf (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Root (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Shrub (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Non-leafy fruit (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Maize grain (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Legume seed (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Tuber (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Herbaceous (Bq/g-fresh plant per Bq/g-wet soil)
Gold (79)	Au-202	-	7.59E+05	9.13E-07	2.80E-03	2.00E-03	3.60E-03	2.80E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.80E-03
Barium (56)	Ba-124	S	3.31E+04	2.09E-05	1.00E-02	5.00E-03	5.00E-03	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	5.00E-03
Barium (56)	Ba-126	S	3.64E+03	1.90E-04	1.00E-02	5.00E-03	5.00E-03	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	5.00E-03
Barium (56)	Ba-127	S	2.87E+04	2.42E-05	1.00E-02	5.00E-03	5.00E-03	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	5.00E-03
Barium (56)	Ba-128	S	1.04E+02	6.66E-03	1.00E-02	5.00E-03	5.00E-03	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	5.00E-03
Barium (56)	Ba-129	S	2.72E+03	2.55E-04	1.00E-02	5.00E-03	5.00E-03	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	5.00E-03
Barium (56)	Ba-129m	S	2.81E+03	2.47E-04	1.00E-02	5.00E-03	5.00E-03	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	5.00E-03
Barium (56)	Ba-131	S	2.20E+01	3.15E-02	1.00E-02	5.00E-03	5.00E-03	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	5.00E-03
Barium (56)	Ba-131m	S	2.49E+04	2.78E-05	1.00E-02	5.00E-03	5.00E-03	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	5.00E-03
Barium (56)	Ba-133	S	6.59E-02	1.05E+01	1.00E-02	5.00E-03	5.00E-03	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	5.00E-03
Barium (56)	Ba-133m	S	1.56E+02	4.44E-03	1.00E-02	5.00E-03	5.00E-03	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	5.00E-03
Barium (56)	Ba-135m	S	2.12E+02	3.28E-03	1.00E-02	5.00E-03	5.00E-03	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	5.00E-03
Barium (56)	Ba-137m	-	1.43E+05	4.86E-06	1.00E-02	5.00E-03	5.00E-03	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	5.00E-03
Barium (56)	Ba-139	S	4.39E+03	1.58E-04	1.00E-02	5.00E-03	5.00E-03	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	5.00E-03
Barium (56)	Ba-140	S	1.98E+01	3.49E-02	1.00E-02	5.00E-03	5.00E-03	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	5.00E-03
Barium (56)	Ba-141	S	1.99E+04	3.48E-05	1.00E-02	5.00E-03	5.00E-03	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	5.00E-03
Barium (56)	Ba-142	S	3.44E+04	2.02E-05	1.00E-02	5.00E-03	5.00E-03	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	5.00E-03
Beryllium (4)	Be-10	S	4.59E-07	1.51E+06	4.00E-03	4.00E-03	4.00E-03	4.00E-03	4.00E-03	4.00E-03	4.00E-03	4.00E-03	4.00E-03
Beryllium (4)	Be-7	S	4.75E+00	1.46E-01	4.00E-03	4.00E-03	4.00E-03	4.00E-03	4.00E-03	4.00E-03	4.00E-03	4.00E-03	4.00E-03
Bismuth (83)	Bi-197	-	3.92E+04	1.77E-05	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Bismuth (83)	Bi-200	S	1.00E+04	6.93E-05	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Bismuth (83)	Bi-201	S	3.37E+03	2.05E-04	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Bismuth (83)	Bi-202	S	3.53E+03	1.96E-04	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Bismuth (83)	Bi-203	S	5.16E+02	1.34E-03	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Bismuth (83)	Bi-204	S	5.41E+02	1.28E-03	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Bismuth (83)	Bi-205	S	1.65E+01	4.19E-02	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Bismuth (83)	Bi-206	S	4.05E+01	1.71E-02	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Bismuth (83)	Bi-207	S	2.11E-02	3.29E+01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Bismuth (83)	Bi-208	S	1.88E-06	3.68E+05	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Bismuth (83)	Bi-210	S	5.05E+01	1.37E-02	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Bismuth (83)	Bi-210m	S	2.28E-07	3.04E+06	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Bismuth (83)	Bi-211	-	1.70E+05	4.07E-06	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Bismuth (83)	Bi-212	S	6.02E+03	1.15E-04	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Bismuth (83)	Bi-212n	-	5.20E+04	1.33E-05	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Bismuth (83)	Bi-213	S	7.99E+03	8.67E-05	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Bismuth (83)	Bi-214	S	1.83E+04	3.79E-05	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Bismuth (83)	Bi-215	-	4.79E+04	1.45E-05	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Bismuth (83)	Bi-216	-	1.68E+05	4.13E-06	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Berkelium (97)	Bk-245	S	5.12E+01	1.35E-02	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03
Berkelium (97)	Bk-246	S	1.41E+02	4.93E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03
Berkelium (97)	Bk-247	F	5.02E-04	1.38E+03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03
Berkelium (97)	Bk-248m	S	2.56E+02	2.71E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03
Berkelium (97)	Bk-249	F	7.67E-01	9.04E-01	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03
Berkelium (97)	Bk-250	S	1.89E+03	3.67E-04	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03
Berkelium (97)	Bk-251	S	6.55E+03	1.06E-04	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03
Bromine (35)	Br-72	-	2.78E+05	2.49E-06	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02
Bromine (35)	Br-73	-	1.07E+05	6.47E-06	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02
Bromine (35)	Br-74	S	1.43E+04	4.83E-05	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02
Bromine (35)	Br-74m	S	7.92E+03	8.75E-05	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02
Bromine (35)	Br-75	S	3.77E+03	1.84E-04	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02
Bromine (35)	Br-76	S	3.75E+02	1.85E-03	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02

Plant Transfer Factors July 2023													
Radionuclides		Isotope-specific Information and Plant Transfer Factors											
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Wet	Wet	Wet	Wet	Wet	Wet	Wet	Wet	Wet
					Soil-to-plant transfer factor Woody tree (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Leaf (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Root (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Shrub (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Non-leafy fruit (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Maize grain (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Legume seed (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Tuber (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Herbaceous (Bq/g-fresh plant per Bq/g-wet soil)
Bromine (35)	Br-76m	-	1.67E+07	4.15E-08	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02
Bromine (35)	Br-77	S	1.06E+02	6.51E-03	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02
Bromine (35)	Br-77m	-	8.51E+04	8.14E-06	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02
Bromine (35)	Br-78	-	5.64E+04	1.23E-05	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02
Bromine (35)	Br-80	S	2.06E+04	3.36E-05	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02
Bromine (35)	Br-80m	S	1.37E+03	5.05E-04	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02
Bromine (35)	Br-82	S	1.72E+02	4.03E-03	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02
Bromine (35)	Br-82m	-	5.94E+04	1.17E-05	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02
Bromine (35)	Br-83	S	2.53E+03	2.74E-04	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02
Bromine (35)	Br-84	S	1.15E+04	6.05E-05	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02
Bromine (35)	Br-84m	-	6.07E+04	1.14E-05	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02
Bromine (35)	Br-85	-	1.26E+05	5.52E-06	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02
Carbon (6)	C-10	-	1.14E+06	6.11E-07	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Carbon (6)	C-11	S	1.79E+04	3.88E-05	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Carbon (6)	C-14	S	1.22E-04	5.70E+03	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Calcium (20)	Ca-41	S	6.79E-06	1.02E+05	7.00E-02	7.00E-01	7.00E-02	7.00E-02	7.00E-01	7.00E-01	7.00E-01	7.00E-02	7.00E-02
Calcium (20)	Ca-45	S	1.55E+00	4.46E-01	7.00E-02	7.00E-01	7.00E-02	7.00E-02	7.00E-01	7.00E-01	7.00E-01	7.00E-02	7.00E-02
Calcium (20)	Ca-47	S	5.58E+01	1.24E-02	7.00E-02	7.00E-01	7.00E-02	7.00E-02	7.00E-01	7.00E-01	7.00E-01	7.00E-02	7.00E-02
Calcium (20)	Ca-49	-	4.18E+04	1.66E-05	7.00E-02	7.00E-01	7.00E-02	7.00E-02	7.00E-01	7.00E-01	7.00E-01	7.00E-02	7.00E-02
Cadmium (48)	Cd-101	-	2.68E+05	2.59E-06	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-02	2.70E-01	1.50E+00	5.00E-01
Cadmium (48)	Cd-102	-	6.62E+04	1.05E-05	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-02	2.70E-01	1.50E+00	5.00E-01
Cadmium (48)	Cd-103	-	4.99E+04	1.39E-05	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-02	2.70E-01	1.50E+00	5.00E-01
Cadmium (48)	Cd-104	S	6.31E+03	1.10E-04	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-02	2.70E-01	1.50E+00	5.00E-01
Cadmium (48)	Cd-105	S	6.56E+03	1.06E-04	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-02	2.70E-01	1.50E+00	5.00E-01
Cadmium (48)	Cd-107	S	9.34E+02	7.42E-04	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-02	2.70E-01	1.50E+00	5.00E-01
Cadmium (48)	Cd-109	S	5.48E-01	1.26E+00	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-02	2.70E-01	1.50E+00	5.00E-01
Cadmium (48)	Cd-111m	S	7.51E+03	9.23E-05	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-02	2.70E-01	1.50E+00	5.00E-01
Cadmium (48)	Cd-113	F	9.00E-17	7.70E+15	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-02	2.70E-01	1.50E+00	5.00E-01
Cadmium (48)	Cd-113m	F	4.91E-02	1.41E+01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-02	2.70E-01	1.50E+00	5.00E-01
Cadmium (48)	Cd-115	S	1.14E+02	6.10E-03	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-02	2.70E-01	1.50E+00	5.00E-01
Cadmium (48)	Cd-115m	S	5.67E+00	1.22E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-02	2.70E-01	1.50E+00	5.00E-01
Cadmium (48)	Cd-117	S	2.44E+03	2.84E-04	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-02	2.70E-01	1.50E+00	5.00E-01
Cadmium (48)	Cd-117m	S	1.81E+03	3.84E-04	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-02	2.70E-01	1.50E+00	5.00E-01
Cadmium (48)	Cd-118	S	7.24E+03	9.57E-05	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-02	2.70E-01	1.50E+00	5.00E-01
Cadmium (48)	Cd-119	-	1.35E+05	5.12E-06	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-02	2.70E-01	1.50E+00	5.00E-01
Cadmium (48)	Cd-119m	-	1.66E+05	4.19E-06	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-02	2.70E-01	1.50E+00	5.00E-01
Cerium (58)	Ce-130	S	1.59E+04	4.36E-05	8.00E-04	6.00E-03	6.00E-03	8.00E-04	1.00E-03	1.00E-03	1.30E-02	4.00E-03	8.00E-04
Cerium (58)	Ce-131	S	3.57E+04	1.94E-05	8.00E-04	6.00E-03	6.00E-03	8.00E-04	1.00E-03	1.00E-03	1.30E-02	4.00E-03	8.00E-04
Cerium (58)	Ce-132	S	1.73E+03	4.01E-04	8.00E-04	6.00E-03	6.00E-03	8.00E-04	1.00E-03	1.00E-03	1.30E-02	4.00E-03	8.00E-04
Cerium (58)	Ce-133	S	3.76E+03	1.85E-04	8.00E-04	6.00E-03	6.00E-03	8.00E-04	1.00E-03	1.00E-03	1.30E-02	4.00E-03	8.00E-04
Cerium (58)	Ce-133m	S	1.24E+03	5.59E-04	8.00E-04	6.00E-03	6.00E-03	8.00E-04	1.00E-03	1.00E-03	1.30E-02	4.00E-03	8.00E-04
Cerium (58)	Ce-134	S	8.00E+01	8.66E-03	8.00E-04	6.00E-03	6.00E-03	8.00E-04	1.00E-03	1.00E-03	1.30E-02	4.00E-03	8.00E-04
Cerium (58)	Ce-135	S	3.43E+02	2.02E-03	8.00E-04	6.00E-03	6.00E-03	8.00E-04	1.00E-03	1.00E-03	1.30E-02	4.00E-03	8.00E-04
Cerium (58)	Ce-137	S	6.75E+02	1.03E-03	8.00E-04	6.00E-03	6.00E-03	8.00E-04	1.00E-03	1.00E-03	1.30E-02	4.00E-03	8.00E-04
Cerium (58)	Ce-137m	S	1.76E+02	3.93E-03	8.00E-04	6.00E-03	6.00E-03	8.00E-04	1.00E-03	1.00E-03	1.30E-02	4.00E-03	8.00E-04
Cerium (58)	Ce-139	S	1.84E+00	3.77E-01	8.00E-04	6.00E-03	6.00E-03	8.00E-04	1.00E-03	1.00E-03	1.30E-02	4.00E-03	8.00E-04
Cerium (58)	Ce-141	S	7.78E+00	8.91E-02	8.00E-04	6.00E-03	6.00E-03	8.00E-04	1.00E-03	1.00E-03	1.30E-02	4.00E-03	8.00E-04
Cerium (58)	Ce-143	S	1.84E+02	3.77E-03	8.00E-04	6.00E-03	6.00E-03	8.00E-04	1.00E-03	1.00E-03	1.30E-02	4.00E-03	8.00E-04
Cerium (58)	Ce-144	S	8.88E-01	7.81E-01	8.00E-04	6.00E-03	6.00E-03	8.00E-04	1.00E-03	1.00E-03	1.30E-02	4.00E-03	8.00E-04
Cerium (58)	Ce-145	-	1.21E+05	5.73E-06	8.00E-04	6.00E-03	6.00E-03	8.00E-04	1.00E-03	1.00E-03	1.30E-02	4.00E-03	8.00E-04
Californium (98)	Cf-244	S	1.88E+04	3.69E-05	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03

Plant Transfer Factors July 2023													
Radionuclides		Isotope-specific Information and Plant Transfer Factors											
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Wet	Wet	Wet	Wet	Wet	Wet	Wet	Wet	Wet
					Soil-to-plant transfer factor Woody tree (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Leaf (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Root (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Shrub (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Non-leafy fruit (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Maize grain (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Legume seed (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Tuber (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Herbaceous (Bq/g-fresh plant per Bq/g-wet soil)
Californium (98)	Cf-246	S	1.70E+02	4.08E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03
Californium (98)	Cf-247	S	1.95E+03	3.55E-04	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03
Californium (98)	Cf-248	S	7.57E-01	9.15E-01	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03
Californium (98)	Cf-249	F	1.97E-03	3.51E+02	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03
Californium (98)	Cf-250	S	5.30E-02	1.31E+01	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03
Californium (98)	Cf-251	F	7.70E-04	9.00E+02	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03
Californium (98)	Cf-252	S	2.62E-01	2.65E+00	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03
Californium (98)	Cf-253	S	1.42E+01	4.88E-02	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03
Californium (98)	Cf-254	S	4.18E+00	1.66E-01	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03
Californium (98)	Cf-255	S	4.29E+03	1.62E-04	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03
Chlorine (17)	Cl-34	-	1.43E+07	4.84E-08	5.00E+00	2.60E+01	1.20E+01	5.00E+00	5.00E+00	5.00E+00	1.10E+01	5.00E+00	5.00E+00
Chlorine (17)	Cl-34m	S	1.14E+04	6.09E-05	5.00E+00	2.60E+01	1.20E+01	5.00E+00	5.00E+00	5.00E+00	1.10E+01	5.00E+00	5.00E+00
Chlorine (17)	Cl-36	S	2.30E-06	3.01E+05	5.00E+00	2.60E+01	1.20E+01	5.00E+00	5.00E+00	5.00E+00	1.10E+01	5.00E+00	5.00E+00
Chlorine (17)	Cl-38	S	9.78E+03	7.09E-05	5.00E+00	2.60E+01	1.20E+01	5.00E+00	5.00E+00	5.00E+00	1.10E+01	5.00E+00	5.00E+00
Chlorine (17)	Cl-39	S	6.55E+03	1.06E-04	5.00E+00	2.60E+01	1.20E+01	5.00E+00	5.00E+00	5.00E+00	1.10E+01	5.00E+00	5.00E+00
Chlorine (17)	Cl-40	-	2.70E+05	2.57E-06	5.00E+00	2.60E+01	1.20E+01	5.00E+00	5.00E+00	5.00E+00	1.10E+01	5.00E+00	5.00E+00
Curium (96)	Cm-238	S	2.53E+03	2.74E-04	8.00E-04	1.40E-03	8.50E-04	8.00E-04	3.20E-04	5.00E-05	7.50E-04	1.50E-04	8.00E-04
Curium (96)	Cm-239	S	2.09E+03	3.31E-04	8.00E-04	1.40E-03	8.50E-04	8.00E-04	3.20E-04	5.00E-05	7.50E-04	1.50E-04	8.00E-04
Curium (96)	Cm-240	S	9.37E+00	7.40E-02	8.00E-04	1.40E-03	8.50E-04	8.00E-04	3.20E-04	5.00E-05	7.50E-04	1.50E-04	8.00E-04
Curium (96)	Cm-241	S	7.71E+00	8.99E-02	8.00E-04	1.40E-03	8.50E-04	8.00E-04	3.20E-04	5.00E-05	7.50E-04	1.50E-04	8.00E-04
Curium (96)	Cm-242	S	1.55E+00	4.46E-01	8.00E-04	1.40E-03	8.50E-04	8.00E-04	3.20E-04	5.00E-05	7.50E-04	1.50E-04	8.00E-04
Curium (96)	Cm-243	S	2.38E-02	2.91E+01	8.00E-04	1.40E-03	8.50E-04	8.00E-04	3.20E-04	5.00E-05	7.50E-04	1.50E-04	8.00E-04
Curium (96)	Cm-244	S	3.83E-02	1.81E+01	8.00E-04	1.40E-03	8.50E-04	8.00E-04	3.20E-04	5.00E-05	7.50E-04	1.50E-04	8.00E-04
Curium (96)	Cm-245	F	8.15E-05	8.50E+03	8.00E-04	1.40E-03	8.50E-04	8.00E-04	3.20E-04	5.00E-05	7.50E-04	1.50E-04	8.00E-04
Curium (96)	Cm-246	F	1.46E-04	4.76E+03	8.00E-04	1.40E-03	8.50E-04	8.00E-04	3.20E-04	5.00E-05	7.50E-04	1.50E-04	8.00E-04
Curium (96)	Cm-247	F	4.44E-08	1.56E+07	8.00E-04	1.40E-03	8.50E-04	8.00E-04	3.20E-04	5.00E-05	7.50E-04	1.50E-04	8.00E-04
Curium (96)	Cm-248	F	1.99E-06	3.48E+05	8.00E-04	1.40E-03	8.50E-04	8.00E-04	3.20E-04	5.00E-05	7.50E-04	1.50E-04	8.00E-04
Curium (96)	Cm-249	S	5.68E+03	1.22E-04	8.00E-04	1.40E-03	8.50E-04	8.00E-04	3.20E-04	5.00E-05	7.50E-04	1.50E-04	8.00E-04
Curium (96)	Cm-250	F	8.35E-05	8.30E+03	8.00E-04	1.40E-03	8.50E-04	8.00E-04	3.20E-04	5.00E-05	7.50E-04	1.50E-04	8.00E-04
Curium (96)	Cm-251	S	2.17E+04	3.20E-05	8.00E-04	1.40E-03	8.50E-04	8.00E-04	3.20E-04	5.00E-05	7.50E-04	1.50E-04	8.00E-04
Cobalt (27)	Co-54m	-	2.46E+05	2.82E-06	1.00E-02	1.70E-01	1.10E-01	1.00E-02	1.40E-01	1.00E-02	3.60E-02	5.40E-02	1.00E-02
Cobalt (27)	Co-55	S	3.46E+02	2.00E-03	1.00E-02	1.70E-01	1.10E-01	1.00E-02	1.40E-01	1.00E-02	3.60E-02	5.40E-02	1.00E-02
Cobalt (27)	Co-56	S	3.28E+00	2.12E-01	1.00E-02	1.70E-01	1.10E-01	1.00E-02	1.40E-01	1.00E-02	3.60E-02	5.40E-02	1.00E-02
Cobalt (27)	Co-57	S	9.31E-01	7.44E-01	1.00E-02	1.70E-01	1.10E-01	1.00E-02	1.40E-01	1.00E-02	3.60E-02	5.40E-02	1.00E-02
Cobalt (27)	Co-58	S	3.57E+00	1.94E-01	1.00E-02	1.70E-01	1.10E-01	1.00E-02	1.40E-01	1.00E-02	3.60E-02	5.40E-02	1.00E-02
Cobalt (27)	Co-58m	S	6.72E+02	1.03E-03	1.00E-02	1.70E-01	1.10E-01	1.00E-02	1.40E-01	1.00E-02	3.60E-02	5.40E-02	1.00E-02
Cobalt (27)	Co-60	S	1.31E-01	5.27E+00	1.00E-02	1.70E-01	1.10E-01	1.00E-02	1.40E-01	1.00E-02	3.60E-02	5.40E-02	1.00E-02
Cobalt (27)	Co-60m	S	3.48E+04	1.99E-05	1.00E-02	1.70E-01	1.10E-01	1.00E-02	1.40E-01	1.00E-02	3.60E-02	5.40E-02	1.00E-02
Cobalt (27)	Co-61	S	3.68E+03	1.88E-04	1.00E-02	1.70E-01	1.10E-01	1.00E-02	1.40E-01	1.00E-02	3.60E-02	5.40E-02	1.00E-02
Cobalt (27)	Co-62	-	2.43E+05	2.85E-06	1.00E-02	1.70E-01	1.10E-01	1.00E-02	1.40E-01	1.00E-02	3.60E-02	5.40E-02	1.00E-02
Cobalt (27)	Co-62m	S	2.62E+04	2.65E-05	1.00E-02	1.70E-01	1.10E-01	1.00E-02	1.40E-01	1.00E-02	3.60E-02	5.40E-02	1.00E-02
Chromium (24)	Cr-48	S	2.82E+02	2.46E-03	3.00E-04	1.00E-03	1.00E-03	3.00E-04	1.00E-03	3.00E-04	3.00E-04	5.00E-04	3.00E-04
Chromium (24)	Cr-49	S	8.61E+03	8.05E-05	3.00E-04	1.00E-03	1.00E-03	3.00E-04	1.00E-03	3.00E-04	3.00E-04	5.00E-04	3.00E-04
Chromium (24)	Cr-51	S	9.13E+00	7.59E-02	3.00E-04	1.00E-03	1.00E-03	3.00E-04	1.00E-03	3.00E-04	3.00E-04	5.00E-04	3.00E-04
Chromium (24)	Cr-55	-	1.04E+05	6.65E-06	3.00E-04	1.00E-03	1.00E-03	3.00E-04	1.00E-03	3.00E-04	3.00E-04	5.00E-04	3.00E-04
Chromium (24)	Cr-56	-	6.13E+04	1.13E-05	3.00E-04	1.00E-03	1.00E-03	3.00E-04	1.00E-03	3.00E-04	3.00E-04	5.00E-04	3.00E-04
Cesium (55)	Cs-121	-	1.41E+05	4.92E-06	5.80E-03	6.00E-02	4.20E-02	2.10E-03	2.10E-02	3.30E-02	4.00E-02	5.60E-02	2.90E-03
Cesium (55)	Cs-121m	-	1.79E+05	3.87E-06	5.80E-03	6.00E-02	4.20E-02	2.10E-03	2.10E-02	3.30E-02	4.00E-02	5.60E-02	2.90E-03
Cesium (55)	Cs-123	-	6.19E+04	1.12E-05	5.80E-03	6.00E-02	4.20E-02	2.10E-03	2.10E-02	3.30E-02	4.00E-02	5.60E-02	2.90E-03
Cesium (55)	Cs-124	-	7.10E+05	9.77E-07	5.80E-03	6.00E-02	4.20E-02	2.10E-03	2.10E-02	3.30E-02	4.00E-02	5.60E-02	2.90E-03
Cesium (55)	Cs-125	S	8.09E+03	8.56E-05	5.80E-03	6.00E-02	4.20E-02	2.10E-03	2.10E-02	3.30E-02	4.00E-02	5.60E-02	2.90E-03

Plant Transfer Factors July 2023													
Radionuclides		Isotope-specific Information and Plant Transfer Factors											
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Wet	Wet	Wet	Wet	Wet	Wet	Wet	Wet	Wet
					Soil-to-plant transfer factor Woody tree (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Leaf (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Root (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Shrub (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Non-leafy fruit (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Maize grain (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Legume seed (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Tuber (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Herbaceous (Bq/g-fresh plant per Bq/g-wet soil)
Cesium (55)	Cs-126	-	2.22E+05	3.12E-06	5.80E-03	6.00E-02	4.20E-02	2.10E-03	2.10E-02	3.30E-02	4.00E-02	5.60E-02	2.90E-03
Cesium (55)	Cs-127	S	9.71E+02	7.13E-04	5.80E-03	6.00E-02	4.20E-02	2.10E-03	2.10E-02	3.30E-02	4.00E-02	5.60E-02	2.90E-03
Cesium (55)	Cs-128	-	1.00E+05	6.93E-06	5.80E-03	6.00E-02	4.20E-02	2.10E-03	2.10E-02	3.30E-02	4.00E-02	5.60E-02	2.90E-03
Cesium (55)	Cs-129	S	1.89E+02	3.66E-03	5.80E-03	6.00E-02	4.20E-02	2.10E-03	2.10E-02	3.30E-02	4.00E-02	5.60E-02	2.90E-03
Cesium (55)	Cs-130	S	1.25E+04	5.56E-05	5.80E-03	6.00E-02	4.20E-02	2.10E-03	2.10E-02	3.30E-02	4.00E-02	5.60E-02	2.90E-03
Cesium (55)	Cs-130m	-	1.05E+05	6.58E-06	5.80E-03	6.00E-02	4.20E-02	2.10E-03	2.10E-02	3.30E-02	4.00E-02	5.60E-02	2.90E-03
Cesium (55)	Cs-131	S	2.61E+01	2.65E-02	5.80E-03	6.00E-02	4.20E-02	2.10E-03	2.10E-02	3.30E-02	4.00E-02	5.60E-02	2.90E-03
Cesium (55)	Cs-132	S	3.90E+01	1.78E-02	5.80E-03	6.00E-02	4.20E-02	2.10E-03	2.10E-02	3.30E-02	4.00E-02	5.60E-02	2.90E-03
Cesium (55)	Cs-134	S	3.36E-01	2.06E+00	5.80E-03	6.00E-02	4.20E-02	2.10E-03	2.10E-02	3.30E-02	4.00E-02	5.60E-02	2.90E-03
Cesium (55)	Cs-134m	S	2.09E+03	3.31E-04	5.80E-03	6.00E-02	4.20E-02	2.10E-03	2.10E-02	3.30E-02	4.00E-02	5.60E-02	2.90E-03
Cesium (55)	Cs-135	S	3.01E-07	2.30E+06	5.80E-03	6.00E-02	4.20E-02	2.10E-03	2.10E-02	3.30E-02	4.00E-02	5.60E-02	2.90E-03
Cesium (55)	Cs-135m	S	6.87E+03	1.01E-04	5.80E-03	6.00E-02	4.20E-02	2.10E-03	2.10E-02	3.30E-02	4.00E-02	5.60E-02	2.90E-03
Cesium (55)	Cs-136	S	1.92E+01	3.61E-02	5.80E-03	6.00E-02	4.20E-02	2.10E-03	2.10E-02	3.30E-02	4.00E-02	5.60E-02	2.90E-03
Cesium (55)	Cs-137	S	2.30E-02	3.02E+01	5.80E-03	6.00E-02	4.20E-02	2.10E-03	2.10E-02	3.30E-02	4.00E-02	5.60E-02	2.90E-03
Cesium (55)	Cs-138	S	1.09E+04	6.36E-05	5.80E-03	6.00E-02	4.20E-02	2.10E-03	2.10E-02	3.30E-02	4.00E-02	5.60E-02	2.90E-03
Cesium (55)	Cs-138m	-	1.25E+05	5.54E-06	5.80E-03	6.00E-02	4.20E-02	2.10E-03	2.10E-02	3.30E-02	4.00E-02	5.60E-02	2.90E-03
Cesium (55)	Cs-139	-	3.93E+04	1.76E-05	5.80E-03	6.00E-02	4.20E-02	2.10E-03	2.10E-02	3.30E-02	4.00E-02	5.60E-02	2.90E-03
Cesium (55)	Cs-140	-	3.43E+05	2.02E-06	5.80E-03	6.00E-02	4.20E-02	2.10E-03	2.10E-02	3.30E-02	4.00E-02	5.60E-02	2.90E-03
Copper (29)	Cu-57	-	1.11E+08	6.22E-09	5.00E-02	5.00E-02	5.00E-02	5.00E-02	5.00E-02	5.00E-02	5.00E-02	5.00E-02	5.00E-02
Copper (29)	Cu-59	-	2.68E+05	2.58E-06	5.00E-02	5.00E-02	5.00E-02	5.00E-02	5.00E-02	5.00E-02	5.00E-02	5.00E-02	5.00E-02
Copper (29)	Cu-60	S	1.54E+04	4.51E-05	5.00E-02	5.00E-02	5.00E-02	5.00E-02	5.00E-02	5.00E-02	5.00E-02	5.00E-02	5.00E-02
Copper (29)	Cu-61	S	1.82E+03	3.80E-04	5.00E-02	5.00E-02	5.00E-02	5.00E-02	5.00E-02	5.00E-02	5.00E-02	5.00E-02	5.00E-02
Copper (29)	Cu-62	-	3.77E+04	1.84E-05	5.00E-02	5.00E-02	5.00E-02	5.00E-02	5.00E-02	5.00E-02	5.00E-02	5.00E-02	5.00E-02
Copper (29)	Cu-64	S	4.78E+02	1.45E-03	5.00E-02	5.00E-02	5.00E-02	5.00E-02	5.00E-02	5.00E-02	5.00E-02	5.00E-02	5.00E-02
Copper (29)	Cu-66	-	7.11E+04	9.74E-06	5.00E-02	5.00E-02	5.00E-02	5.00E-02	5.00E-02	5.00E-02	5.00E-02	5.00E-02	5.00E-02
Copper (29)	Cu-67	S	9.82E+01	7.06E-03	5.00E-02	5.00E-02	5.00E-02	5.00E-02	5.00E-02	5.00E-02	5.00E-02	5.00E-02	5.00E-02
Copper (29)	Cu-69	-	1.28E+05	5.42E-06	5.00E-02	5.00E-02	5.00E-02	5.00E-02	5.00E-02	5.00E-02	5.00E-02	5.00E-02	5.00E-02
Dysprosium (66)	Dy-148	-	1.10E+05	6.28E-06	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Dysprosium (66)	Dy-149	-	8.67E+04	7.99E-06	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Dysprosium (66)	Dy-150	-	5.08E+04	1.36E-05	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Dysprosium (66)	Dy-151	S	2.03E+04	3.41E-05	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Dysprosium (66)	Dy-152	S	2.55E+03	2.72E-04	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Dysprosium (66)	Dy-153	S	9.49E+02	7.31E-04	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Dysprosium (66)	Dy-154	S	2.31E-07	3.00E+06	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Dysprosium (66)	Dy-155	S	6.13E+02	1.13E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Dysprosium (66)	Dy-157	S	7.46E+02	9.29E-04	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Dysprosium (66)	Dy-159	S	1.75E+00	3.96E-01	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Dysprosium (66)	Dy-165	S	2.60E+03	2.66E-04	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Dysprosium (66)	Dy-165m	-	2.90E+05	2.39E-06	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Dysprosium (66)	Dy-166	S	7.44E+01	9.32E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Dysprosium (66)	Dy-167	-	5.87E+04	1.18E-05	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Dysprosium (66)	Dy-168	-	4.19E+04	1.66E-05	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Erbium (68)	Er-154	-	9.77E+04	7.10E-06	8.00E-04	1.00E-03	1.00E-03	8.00E-04	1.00E-03	1.00E-03	1.00E-03	1.00E-03	8.00E-04
Erbium (68)	Er-156	S	1.87E+04	3.71E-05	8.00E-04	1.00E-03	1.00E-03	8.00E-04	1.00E-03	1.00E-03	1.00E-03	1.00E-03	8.00E-04
Erbium (68)	Er-159	S	1.01E+04	6.85E-05	8.00E-04	1.00E-03	1.00E-03	8.00E-04	1.00E-03	1.00E-03	1.00E-03	1.00E-03	8.00E-04
Erbium (68)	Er-161	S	1.89E+03	3.66E-04	8.00E-04	1.00E-03	1.00E-03	8.00E-04	1.00E-03	1.00E-03	1.00E-03	1.00E-03	8.00E-04
Erbium (68)	Er-163	S	4.86E+03	1.43E-04	8.00E-04	1.00E-03	1.00E-03	8.00E-04	1.00E-03	1.00E-03	1.00E-03	1.00E-03	8.00E-04
Erbium (68)	Er-165	S	5.86E+02	1.18E-03	8.00E-04	1.00E-03	1.00E-03	8.00E-04	1.00E-03	1.00E-03	1.00E-03	1.00E-03	8.00E-04
Erbium (68)	Er-167m	-	9.63E+06	7.19E-08	8.00E-04	1.00E-03	1.00E-03	8.00E-04	1.00E-03	1.00E-03	1.00E-03	1.00E-03	8.00E-04
Erbium (68)	Er-169	S	2.69E+01	2.58E-02	8.00E-04	1.00E-03	1.00E-03	8.00E-04	1.00E-03	1.00E-03	1.00E-03	1.00E-03	8.00E-04
Erbium (68)	Er-171	S	8.08E+02	8.58E-04	8.00E-04	1.00E-03	1.00E-03	8.00E-04	1.00E-03	1.00E-03	1.00E-03	1.00E-03	8.00E-04



Plant Transfer Factors July 2023													
Radionuclides		Isotope-specific Information and Plant Transfer Factors											
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Wet	Wet	Wet	Wet	Wet	Wet	Wet	Wet	Wet
					Soil-to-plant transfer factor Woody tree (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Leaf (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Root (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Shrub (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Non-leafy fruit (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Maize grain (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Legume seed (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Tuber (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Herbaceous (Bq/g-fresh plant per Bq/g-wet soil)
Erbium (68)	Er-172	S	1.23E+02	5.63E-03	8.00E-04	1.00E-03	1.00E-03	8.00E-04	1.00E-03	1.00E-03	1.00E-03	1.00E-03	8.00E-04
Erbium (68)	Er-173	-	2.54E+05	2.73E-06	8.00E-04	1.00E-03	1.00E-03	8.00E-04	1.00E-03	1.00E-03	1.00E-03	1.00E-03	8.00E-04
Einsteinium (99)	Es-249	S	3.56E+03	1.94E-04	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03
Einsteinium (99)	Es-250	S	7.06E+02	9.82E-04	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03
Einsteinium (99)	Es-250m	S	2.73E+03	2.53E-04	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03
Einsteinium (99)	Es-251	S	1.84E+02	3.77E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03
Einsteinium (99)	Es-253	S	1.24E+01	5.61E-02	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03
Einsteinium (99)	Es-254	S	9.17E-01	7.55E-01	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03
Einsteinium (99)	Es-254m	S	1.54E+02	4.49E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03
Einsteinium (99)	Es-255	S	6.36E+00	1.09E-01	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03
Einsteinium (99)	Es-256	S	1.43E+04	4.83E-05	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03
Europium (63)	Eu-142	-	9.34E+06	7.42E-08	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03
Europium (63)	Eu-142m	-	2.98E+05	2.33E-06	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03
Europium (63)	Eu-143	-	1.41E+05	4.93E-06	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03
Europium (63)	Eu-144	-	2.14E+06	3.23E-07	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03
Europium (63)	Eu-145	S	4.27E+01	1.62E-02	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03
Europium (63)	Eu-146	S	5.49E+01	1.26E-02	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03
Europium (63)	Eu-147	S	1.05E+01	6.60E-02	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03
Europium (63)	Eu-148	F	4.64E+00	1.49E-01	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03
Europium (63)	Eu-149	S	2.72E+00	2.55E-01	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03
Europium (63)	Eu-150	F	1.88E-02	3.69E+01	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03
Europium (63)	Eu-150m	S	4.74E+02	1.46E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03
Europium (63)	Eu-152	F	5.12E-02	1.35E+01	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03
Europium (63)	Eu-152m	S	6.52E+02	1.06E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03
Europium (63)	Eu-152n	S	3.79E+03	1.83E-04	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03
Europium (63)	Eu-154	F	8.06E-02	8.59E+00	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03
Europium (63)	Eu-154m	S	7.92E+03	8.75E-05	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03
Europium (63)	Eu-155	S	1.46E-01	4.76E+00	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03
Europium (63)	Eu-156	S	1.67E+01	4.16E-02	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03
Europium (63)	Eu-157	S	4.00E+02	1.73E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03
Europium (63)	Eu-158	S	7.94E+03	8.73E-05	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03
Europium (63)	Eu-159	S	2.01E+04	3.44E-05	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03
Fluorine (9)	F-17	-	3.39E+05	2.04E-06	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02
Fluorine (9)	F-18	S	3.32E+03	2.09E-04	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02
Iron (26)	Fe-52	S	7.34E+02	9.45E-04	2.00E-04	1.00E-03	1.00E-03	2.00E-04	1.00E-03	2.00E-04	3.70E-01	5.00E-04	2.00E-04
Iron (26)	Fe-53	-	4.28E+04	1.62E-05	2.00E-04	1.00E-03	1.00E-03	2.00E-04	1.00E-03	2.00E-04	3.70E-01	5.00E-04	2.00E-04
Iron (26)	Fe-53m	-	1.44E+05	4.81E-06	2.00E-04	1.00E-03	1.00E-03	2.00E-04	1.00E-03	2.00E-04	3.70E-01	5.00E-04	2.00E-04
Iron (26)	Fe-55	F	2.53E-01	2.74E+00	2.00E-04	1.00E-03	1.00E-03	2.00E-04	1.00E-03	2.00E-04	3.70E-01	5.00E-04	2.00E-04
Iron (26)	Fe-59	S	5.68E+00	1.22E-01	2.00E-04	1.00E-03	1.00E-03	2.00E-04	1.00E-03	2.00E-04	3.70E-01	5.00E-04	2.00E-04
Iron (26)	Fe-60	F	4.62E-07	1.50E+06	2.00E-04	1.00E-03	1.00E-03	2.00E-04	1.00E-03	2.00E-04	3.70E-01	5.00E-04	2.00E-04
Iron (26)	Fe-61	-	6.09E+04	1.14E-05	2.00E-04	1.00E-03	1.00E-03	2.00E-04	1.00E-03	2.00E-04	3.70E-01	5.00E-04	2.00E-04
Iron (26)	Fe-62	-	3.21E+05	2.16E-06	2.00E-04	1.00E-03	1.00E-03	2.00E-04	1.00E-03	2.00E-04	3.70E-01	5.00E-04	2.00E-04
Fermium (100)	Fm-251	S	1.15E+03	6.05E-04	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Fermium (100)	Fm-252	S	2.39E+02	2.90E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Fermium (100)	Fm-253	S	8.43E+01	8.22E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Fermium (100)	Fm-254	S	1.87E+03	3.70E-04	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Fermium (100)	Fm-255	S	3.02E+02	2.29E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Fermium (100)	Fm-256	S	2.31E+03	3.00E-04	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Fermium (100)	Fm-257	S	2.52E+00	2.75E-01	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Francium (87)	Fr-212	S	1.82E+04	3.81E-05	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02
Francium (87)	Fr-219	-	1.09E+09	6.34E-10	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02

Plant Transfer Factors July 2023													
Radionuclides		Isotope-specific Information and Plant Transfer Factors											
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Wet	Wet	Wet	Wet	Wet	Wet	Wet	Wet	Wet
					Soil-to-plant transfer factor Woody tree (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Leaf (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Root (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Shrub (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Non-leafy fruit (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Maize grain (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Legume seed (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Tuber (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Herbaceous (Bq/g-fresh plant per Bq/g-wet soil)
Francium (87)	Fr-220	-	7.98E+05	8.69E-07	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02
Francium (87)	Fr-221	-	7.43E+04	9.32E-06	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02
Francium (87)	Fr-222	S	2.57E+04	2.70E-05	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02
Francium (87)	Fr-223	S	1.66E+04	4.19E-05	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02
Francium (87)	Fr-224	-	1.09E+05	6.34E-06	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02
Francium (87)	Fr-227	-	1.47E+05	4.70E-06	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02
Gallium (31)	Ga-64	-	1.39E+05	5.00E-06	8.00E-05	8.00E-04	8.00E-05	8.00E-05	8.00E-04	8.00E-04	8.00E-04	8.00E-05	8.00E-05
Gallium (31)	Ga-65	S	2.40E+04	2.89E-05	8.00E-05	8.00E-04	8.00E-05	8.00E-05	8.00E-04	8.00E-04	8.00E-04	8.00E-05	8.00E-05
Gallium (31)	Ga-66	S	6.40E+02	1.08E-03	8.00E-05	8.00E-04	8.00E-05	8.00E-05	8.00E-04	8.00E-04	8.00E-04	8.00E-05	8.00E-05
Gallium (31)	Ga-67	S	7.76E+01	8.93E-03	8.00E-05	8.00E-04	8.00E-05	8.00E-05	8.00E-04	8.00E-04	8.00E-04	8.00E-05	8.00E-05
Gallium (31)	Ga-68	S	5.38E+03	1.29E-04	8.00E-05	8.00E-04	8.00E-05	8.00E-05	8.00E-04	8.00E-04	8.00E-04	8.00E-05	8.00E-05
Gallium (31)	Ga-70	S	1.72E+04	4.02E-05	8.00E-05	8.00E-04	8.00E-05	8.00E-05	8.00E-04	8.00E-04	8.00E-04	8.00E-05	8.00E-05
Gallium (31)	Ga-72	S	4.31E+02	1.61E-03	8.00E-05	8.00E-04	8.00E-05	8.00E-05	8.00E-04	8.00E-04	8.00E-04	8.00E-05	8.00E-05
Gallium (31)	Ga-73	S	1.25E+03	5.55E-04	8.00E-05	8.00E-04	8.00E-05	8.00E-05	8.00E-04	8.00E-04	8.00E-04	8.00E-05	8.00E-05
Gallium (31)	Ga-74	-	4.49E+04	1.54E-05	8.00E-05	8.00E-04	8.00E-05	8.00E-05	8.00E-04	8.00E-04	8.00E-04	8.00E-05	8.00E-05
Gadolinium (64)	Gd-142	-	3.11E+05	2.23E-06	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Gadolinium (64)	Gd-143m	-	1.99E+05	3.49E-06	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Gadolinium (64)	Gd-144	-	8.15E+04	8.50E-06	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Gadolinium (64)	Gd-145	S	1.58E+04	4.38E-05	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Gadolinium (64)	Gd-145m	-	2.57E+05	2.70E-06	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Gadolinium (64)	Gd-146	S	5.24E+00	1.32E-01	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Gadolinium (64)	Gd-147	S	1.59E+02	4.35E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Gadolinium (64)	Gd-148	S	9.29E-03	7.46E+01	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Gadolinium (64)	Gd-149	S	2.73E+01	2.54E-02	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Gadolinium (64)	Gd-150	S	3.87E-07	1.79E+06	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Gadolinium (64)	Gd-151	S	2.04E+00	3.40E-01	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Gadolinium (64)	Gd-152	F	6.42E-15	1.08E+14	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Gadolinium (64)	Gd-153	S	1.05E+00	6.59E-01	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Gadolinium (64)	Gd-159	S	3.29E+02	2.11E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Gadolinium (64)	Gd-162	-	4.34E+04	1.60E-05	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Germanium (32)	Ge-66	S	2.69E+03	2.58E-04	4.00E-01	4.00E-01	4.00E-01	4.00E-01	4.00E-01	4.00E-01	4.00E-01	4.00E-01	4.00E-01
Germanium (32)	Ge-67	S	1.93E+04	3.60E-05	4.00E-01	4.00E-01	4.00E-01	4.00E-01	4.00E-01	4.00E-01	4.00E-01	4.00E-01	4.00E-01
Germanium (32)	Ge-68	S	9.34E-01	7.42E-01	4.00E-01	4.00E-01	4.00E-01	4.00E-01	4.00E-01	4.00E-01	4.00E-01	4.00E-01	4.00E-01
Germanium (32)	Ge-69	S	1.55E+02	4.46E-03	4.00E-01	4.00E-01	4.00E-01	4.00E-01	4.00E-01	4.00E-01	4.00E-01	4.00E-01	4.00E-01
Germanium (32)	Ge-71	S	2.21E+01	3.13E-02	4.00E-01	4.00E-01	4.00E-01	4.00E-01	4.00E-01	4.00E-01	4.00E-01	4.00E-01	4.00E-01
Germanium (32)	Ge-75	S	4.40E+03	1.57E-04	4.00E-01	4.00E-01	4.00E-01	4.00E-01	4.00E-01	4.00E-01	4.00E-01	4.00E-01	4.00E-01
Germanium (32)	Ge-77	S	5.37E+02	1.29E-03	4.00E-01	4.00E-01	4.00E-01	4.00E-01	4.00E-01	4.00E-01	4.00E-01	4.00E-01	4.00E-01
Germanium (32)	Ge-78	S	4.14E+03	1.67E-04	4.00E-01	4.00E-01	4.00E-01	4.00E-01	4.00E-01	4.00E-01	4.00E-01	4.00E-01	4.00E-01
Hydrogen (1)	H-3	S	5.63E-02	1.23E+01	4.80E+00	4.80E+00	4.80E+00	4.80E+00	4.80E+00	4.80E+00	4.80E+00	4.80E+00	4.80E+00
Hafnium (72)	Hf-167	-	1.78E+05	3.90E-06	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03
Hafnium (72)	Hf-169	-	1.12E+05	6.16E-06	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03
Hafnium (72)	Hf-170	S	3.79E+02	1.83E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03
Hafnium (72)	Hf-172	S	3.71E-01	1.87E+00	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03
Hafnium (72)	Hf-173	S	2.57E+02	2.69E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03
Hafnium (72)	Hf-174	S	3.47E-16	2.00E+15	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03
Hafnium (72)	Hf-175	S	3.61E+00	1.92E-01	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03
Hafnium (72)	Hf-177m	S	7.09E+03	9.78E-05	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03
Hafnium (72)	Hf-178m	F	2.24E-02	3.10E+01	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03
Hafnium (72)	Hf-179m	S	1.01E+01	6.86E-02	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03
Hafnium (72)	Hf-180m	S	1.10E+03	6.28E-04	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03
Hafnium (72)	Hf-181	S	5.97E+00	1.16E-01	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03

Plant Transfer Factors July 2023													
Radionuclides		Isotope-specific Information and Plant Transfer Factors											
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Wet	Wet	Wet	Wet	Wet	Wet	Wet	Wet	Wet
					Soil-to-plant transfer factor Woody tree (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Leaf (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Root (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Shrub (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Non-leafy fruit (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Maize grain (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Legume seed (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Tuber (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Herbaceous (Bq/g-fresh plant per Bq/g-wet soil)
Hafnium (72)	Hf-182	F	7.70E-08	9.00E+06	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03
Hafnium (72)	Hf-182m	S	5.92E+03	1.17E-04	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03
Hafnium (72)	Hf-183	S	5.69E+03	1.22E-04	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03
Hafnium (72)	Hf-184	S	1.47E+03	4.70E-04	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03
Mercury (80)	Hg-190	V	1.82E+04	3.81E-05	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01
Mercury (80)	Hg-191m	V	7.17E+03	9.67E-05	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01
Mercury (80)	Hg-192	V	1.25E+03	5.54E-04	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01
Mercury (80)	Hg-193	V	1.60E+03	4.34E-04	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01
Mercury (80)	Hg-193m	V	5.14E+02	1.35E-03	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01
Mercury (80)	Hg-194	S	1.58E-03	4.40E+02	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01
Mercury (80)	Hg-195	V	5.77E+02	1.20E-03	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01
Mercury (80)	Hg-195m	V	1.46E+02	4.75E-03	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01
Mercury (80)	Hg-197	V	9.35E+01	7.41E-03	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01
Mercury (80)	Hg-197m	V	2.55E+02	2.72E-03	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01
Mercury (80)	Hg-199m	V	8.54E+03	8.12E-05	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01
Mercury (80)	Hg-203	V	5.43E+00	1.28E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01
Mercury (80)	Hg-205	-	7.00E+04	9.89E-06	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01
Mercury (80)	Hg-206	-	4.47E+04	1.55E-05	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01
Mercury (80)	Hg-207	-	1.26E+05	5.52E-06	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01
Holmium (67)	Ho-150	-	2.85E+05	2.44E-06	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Holmium (67)	Ho-153	-	1.81E+05	3.82E-06	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Holmium (67)	Ho-153m	-	3.92E+04	1.77E-05	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Holmium (67)	Ho-154	S	3.10E+04	2.24E-05	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Holmium (67)	Ho-154m	-	1.17E+05	5.90E-06	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Holmium (67)	Ho-155	S	7.59E+03	9.13E-05	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Holmium (67)	Ho-156	S	6.50E+03	1.07E-04	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Holmium (67)	Ho-157	S	2.89E+04	2.40E-05	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Holmium (67)	Ho-159	S	1.10E+04	6.29E-05	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Holmium (67)	Ho-160	S	1.42E+04	4.87E-05	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Holmium (67)	Ho-161	S	2.45E+03	2.83E-04	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Holmium (67)	Ho-162	S	2.43E+04	2.85E-05	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Holmium (67)	Ho-162m	S	5.44E+03	1.27E-04	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Holmium (67)	Ho-163	F	1.52E-04	4.57E+03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Holmium (67)	Ho-164	S	1.26E+04	5.52E-05	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Holmium (67)	Ho-164m	S	9.59E+03	7.23E-05	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Holmium (67)	Ho-166	S	2.27E+02	3.06E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Holmium (67)	Ho-166m	F	5.78E-04	1.20E+03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Holmium (67)	Ho-167	S	1.96E+03	3.54E-04	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Holmium (67)	Ho-168	-	1.22E+05	5.69E-06	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Holmium (67)	Ho-168m	-	1.66E+05	4.19E-06	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Holmium (67)	Ho-170	-	1.32E+05	5.25E-06	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Iodine (53)	I-118	V	2.66E+04	2.61E-05	4.00E-02	6.50E-03	7.70E-03	4.00E-02	1.00E-01	2.00E-02	8.50E-03	1.00E-01	4.00E-02
Iodine (53)	I-118m	-	4.29E+04	1.62E-05	4.00E-02	6.50E-03	7.70E-03	4.00E-02	1.00E-01	2.00E-02	8.50E-03	1.00E-01	4.00E-02
Iodine (53)	I-119	V	1.91E+04	3.63E-05	4.00E-02	6.50E-03	7.70E-03	4.00E-02	1.00E-01	2.00E-02	8.50E-03	1.00E-01	4.00E-02
Iodine (53)	I-120	V	4.46E+03	1.55E-04	4.00E-02	6.50E-03	7.70E-03	4.00E-02	1.00E-01	2.00E-02	8.50E-03	1.00E-01	4.00E-02
Iodine (53)	I-120m	V	6.87E+03	1.01E-04	4.00E-02	6.50E-03	7.70E-03	4.00E-02	1.00E-01	2.00E-02	8.50E-03	1.00E-01	4.00E-02
Iodine (53)	I-121	V	2.86E+03	2.42E-04	4.00E-02	6.50E-03	7.70E-03	4.00E-02	1.00E-01	2.00E-02	8.50E-03	1.00E-01	4.00E-02
Iodine (53)	I-122	-	1.00E+05	6.91E-06	4.00E-02	6.50E-03	7.70E-03	4.00E-02	1.00E-01	2.00E-02	8.50E-03	1.00E-01	4.00E-02
Iodine (53)	I-123	V	4.57E+02	1.51E-03	4.00E-02	6.50E-03	7.70E-03	4.00E-02	1.00E-01	2.00E-02	8.50E-03	1.00E-01	4.00E-02
Iodine (53)	I-124	V	6.06E+01	1.14E-02	4.00E-02	6.50E-03	7.70E-03	4.00E-02	1.00E-01	2.00E-02	8.50E-03	1.00E-01	4.00E-02
Iodine (53)	I-125	V	4.26E+00	1.63E-01	4.00E-02	6.50E-03	7.70E-03	4.00E-02	1.00E-01	2.00E-02	8.50E-03	1.00E-01	4.00E-02

Plant Transfer Factors July 2023													
Radionuclides		Isotope-specific Information and Plant Transfer Factors											
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Wet	Wet	Wet	Wet	Wet	Wet	Wet	Wet	Wet
					Soil-to-plant transfer factor Woody tree (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Leaf (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Root (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Shrub (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Non-leafy fruit (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Maize grain (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Legume seed (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Tuber (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Herbaceous (Bq/g-fresh plant per Bq/g-wet soil)
Iodine (53)	I-126	V	1.96E+01	3.54E-02	4.00E-02	6.50E-03	7.70E-03	4.00E-02	1.00E-01	2.00E-02	8.50E-03	1.00E-01	4.00E-02
Iodine (53)	I-128	V	1.46E+04	4.75E-05	4.00E-02	6.50E-03	7.70E-03	4.00E-02	1.00E-01	2.00E-02	8.50E-03	1.00E-01	4.00E-02
Iodine (53)	I-129	V	4.41E+08	1.57E+07	4.00E-02	6.50E-03	7.70E-03	4.00E-02	1.00E-01	2.00E-02	8.50E-03	1.00E-01	4.00E-02
Iodine (53)	I-130	V	4.91E+02	1.41E-03	4.00E-02	6.50E-03	7.70E-03	4.00E-02	1.00E-01	2.00E-02	8.50E-03	1.00E-01	4.00E-02
Iodine (53)	I-130m	-	4.12E+04	1.68E-05	4.00E-02	6.50E-03	7.70E-03	4.00E-02	1.00E-01	2.00E-02	8.50E-03	1.00E-01	4.00E-02
Iodine (53)	I-131	V	3.15E+01	2.20E-02	4.00E-02	6.50E-03	7.70E-03	4.00E-02	1.00E-01	2.00E-02	8.50E-03	1.00E-01	4.00E-02
Iodine (53)	I-132	V	2.65E+03	2.62E-04	4.00E-02	6.50E-03	7.70E-03	4.00E-02	1.00E-01	2.00E-02	8.50E-03	1.00E-01	4.00E-02
Iodine (53)	I-132m	V	4.38E+03	1.58E-04	4.00E-02	6.50E-03	7.70E-03	4.00E-02	1.00E-01	2.00E-02	8.50E-03	1.00E-01	4.00E-02
Iodine (53)	I-133	V	2.92E+02	2.37E-03	4.00E-02	6.50E-03	7.70E-03	4.00E-02	1.00E-01	2.00E-02	8.50E-03	1.00E-01	4.00E-02
Iodine (53)	I-134	V	6.94E+03	9.99E-05	4.00E-02	6.50E-03	7.70E-03	4.00E-02	1.00E-01	2.00E-02	8.50E-03	1.00E-01	4.00E-02
Iodine (53)	I-134m	-	1.01E+05	6.85E-06	4.00E-02	6.50E-03	7.70E-03	4.00E-02	1.00E-01	2.00E-02	8.50E-03	1.00E-01	4.00E-02
Iodine (53)	I-135	V	9.24E+02	7.50E-04	4.00E-02	6.50E-03	7.70E-03	4.00E-02	1.00E-01	2.00E-02	8.50E-03	1.00E-01	4.00E-02
Indium (49)	In-103	-	3.64E+05	1.90E-06	8.00E-05	8.00E-04	8.00E-05	8.00E-05	8.00E-04	8.00E-04	8.00E-04	8.00E-05	8.00E-05
Indium (49)	In-105	-	7.18E+04	9.65E-06	8.00E-05	8.00E-04	8.00E-05	8.00E-05	8.00E-04	8.00E-04	8.00E-04	8.00E-05	8.00E-05
Indium (49)	In-106	-	5.87E+04	1.18E-05	8.00E-05	8.00E-04	8.00E-05	8.00E-05	8.00E-04	8.00E-04	8.00E-04	8.00E-05	8.00E-05
Indium (49)	In-106m	-	7.00E+04	9.89E-06	8.00E-05	8.00E-04	8.00E-05	8.00E-05	8.00E-04	8.00E-04	8.00E-04	8.00E-05	8.00E-05
Indium (49)	In-107	S	1.12E+04	6.16E-05	8.00E-05	8.00E-04	8.00E-05	8.00E-05	8.00E-04	8.00E-04	8.00E-04	8.00E-05	8.00E-05
Indium (49)	In-108	S	6.28E+03	1.10E-04	8.00E-05	8.00E-04	8.00E-05	8.00E-05	8.00E-04	8.00E-04	8.00E-04	8.00E-05	8.00E-05
Indium (49)	In-108m	S	9.20E+03	7.53E-05	8.00E-05	8.00E-04	8.00E-05	8.00E-05	8.00E-04	8.00E-04	8.00E-04	8.00E-05	8.00E-05
Indium (49)	In-109	S	1.45E+03	4.79E-04	8.00E-05	8.00E-04	8.00E-05	8.00E-05	8.00E-04	8.00E-04	8.00E-04	8.00E-05	8.00E-05
Indium (49)	In-109m	-	2.72E+05	2.55E-06	8.00E-05	8.00E-04	8.00E-05	8.00E-05	8.00E-04	8.00E-04	8.00E-04	8.00E-05	8.00E-05
Indium (49)	In-110	S	1.24E+03	5.59E-04	8.00E-05	8.00E-04	8.00E-05	8.00E-05	8.00E-04	8.00E-04	8.00E-04	8.00E-05	8.00E-05
Indium (49)	In-110m	S	5.27E+03	1.31E-04	8.00E-05	8.00E-04	8.00E-05	8.00E-05	8.00E-04	8.00E-04	8.00E-04	8.00E-05	8.00E-05
Indium (49)	In-111	S	9.02E+01	7.68E-03	8.00E-05	8.00E-04	8.00E-05	8.00E-05	8.00E-04	8.00E-04	8.00E-04	8.00E-05	8.00E-05
Indium (49)	In-111m	-	4.73E+04	1.46E-05	8.00E-05	8.00E-04	8.00E-05	8.00E-05	8.00E-04	8.00E-04	8.00E-04	8.00E-05	8.00E-05
Indium (49)	In-112	S	2.43E+04	2.85E-05	8.00E-05	8.00E-04	8.00E-05	8.00E-05	8.00E-04	8.00E-04	8.00E-04	8.00E-05	8.00E-05
Indium (49)	In-112m	S	1.77E+04	3.91E-05	8.00E-05	8.00E-04	8.00E-05	8.00E-05	8.00E-04	8.00E-04	8.00E-04	8.00E-05	8.00E-05
Indium (49)	In-113m	S	3.66E+03	1.89E-04	8.00E-05	8.00E-04	8.00E-05	8.00E-05	8.00E-04	8.00E-04	8.00E-04	8.00E-05	8.00E-05
Indium (49)	In-114	-	3.04E+05	2.28E-06	8.00E-05	8.00E-04	8.00E-05	8.00E-05	8.00E-04	8.00E-04	8.00E-04	8.00E-05	8.00E-05
Indium (49)	In-114m	S	5.11E+00	1.36E-01	8.00E-05	8.00E-04	8.00E-05	8.00E-05	8.00E-04	8.00E-04	8.00E-04	8.00E-05	8.00E-05
Indium (49)	In-115	F	1.57E-15	4.41E+14	8.00E-05	8.00E-04	8.00E-05	8.00E-05	8.00E-04	8.00E-04	8.00E-04	8.00E-05	8.00E-05
Indium (49)	In-115m	S	1.35E+03	5.12E-04	8.00E-05	8.00E-04	8.00E-05	8.00E-05	8.00E-04	8.00E-04	8.00E-04	8.00E-05	8.00E-05
Indium (49)	In-116m	S	6.69E+03	1.04E-04	8.00E-05	8.00E-04	8.00E-05	8.00E-05	8.00E-04	8.00E-04	8.00E-04	8.00E-05	8.00E-05
Indium (49)	In-117	S	8.43E+03	8.22E-05	8.00E-05	8.00E-04	8.00E-05	8.00E-05	8.00E-04	8.00E-04	8.00E-04	8.00E-05	8.00E-05
Indium (49)	In-117m	S	3.13E+03	2.21E-04	8.00E-05	8.00E-04	8.00E-05	8.00E-05	8.00E-04	8.00E-04	8.00E-04	8.00E-05	8.00E-05
Indium (49)	In-118	-	4.37E+06	1.59E-07	8.00E-05	8.00E-04	8.00E-05	8.00E-05	8.00E-04	8.00E-04	8.00E-04	8.00E-05	8.00E-05
Indium (49)	In-118m	-	8.35E+04	8.30E-06	8.00E-05	8.00E-04	8.00E-05	8.00E-05	8.00E-04	8.00E-04	8.00E-04	8.00E-05	8.00E-05
Indium (49)	In-119	-	1.52E+05	4.57E-06	8.00E-05	8.00E-04	8.00E-05	8.00E-05	8.00E-04	8.00E-04	8.00E-04	8.00E-05	8.00E-05
Indium (49)	In-119m	S	2.02E+04	3.42E-05	8.00E-05	8.00E-04	8.00E-05	8.00E-05	8.00E-04	8.00E-04	8.00E-04	8.00E-05	8.00E-05
Indium (49)	In-121	-	9.46E+05	7.32E-07	8.00E-05	8.00E-04	8.00E-05	8.00E-05	8.00E-04	8.00E-04	8.00E-04	8.00E-05	8.00E-05
Indium (49)	In-121m	-	9.39E+04	7.38E-06	8.00E-05	8.00E-04	8.00E-05	8.00E-05	8.00E-04	8.00E-04	8.00E-04	8.00E-05	8.00E-05
Iridium (77)	Ir-180	-	2.43E+05	2.85E-06	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02
Iridium (77)	Ir-182	S	2.43E+04	2.85E-05	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02
Iridium (77)	Ir-183	S	6.28E+03	1.10E-04	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02
Iridium (77)	Ir-184	S	1.96E+03	3.53E-04	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02
Iridium (77)	Ir-185	S	4.22E+02	1.64E-03	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02
Iridium (77)	Ir-186	S	3.65E+02	1.90E-03	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02
Iridium (77)	Ir-186m	S	3.16E+03	2.19E-04	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02
Iridium (77)	Ir-187	S	5.78E+02	1.20E-03	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02
Iridium (77)	Ir-188	S	1.46E+02	4.74E-03	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02
Iridium (77)	Ir-189	S	1.92E+01	3.62E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02



Plant Transfer Factors July 2023													
Radionuclides		Isotope-specific Information and Plant Transfer Factors											
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Wet	Wet	Wet	Wet	Wet	Wet	Wet	Wet	Wet
					Soil-to-plant transfer factor Woody tree (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Leaf (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Root (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Shrub (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Non-leafy fruit (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Maize grain (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Legume seed (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Tuber (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Herbaceous (Bq/g-fresh plant per Bq/g-wet soil)
Iridium (77)	Ir-190	S	2.15E+01	3.23E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02
Iridium (77)	Ir-190m	S	5.42E+03	1.28E-04	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02
Iridium (77)	Ir-190n	S	1.97E+03	3.52E-04	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02
Iridium (77)	Ir-191m	-	4.42E+06	1.57E-07	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02
Iridium (77)	Ir-192	S	3.43E+00	2.02E-01	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02
Iridium (77)	Ir-192m	-	2.51E+05	2.76E-06	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02
Iridium (77)	Ir-192n	S	2.88E-03	2.41E+02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02
Iridium (77)	Ir-193m	S	2.40E+01	2.88E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02
Iridium (77)	Ir-194	S	3.15E+02	2.20E-03	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02
Iridium (77)	Ir-194m	S	1.48E+00	4.68E-01	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02
Iridium (77)	Ir-195	S	2.43E+03	2.85E-04	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02
Iridium (77)	Ir-195m	S	1.60E+03	4.34E-04	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02
Iridium (77)	Ir-196	-	4.20E+05	1.65E-06	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02
Iridium (77)	Ir-196m	S	4.34E+03	1.60E-04	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02
Potassium (19)	K-38	-	4.77E+04	1.45E-05	3.00E-01	1.30E+00	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01
Potassium (19)	K-40	S	5.54E-10	1.25E+09	3.00E-01	1.30E+00	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01
Potassium (19)	K-42	S	4.91E+02	1.41E-03	3.00E-01	1.30E+00	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01
Potassium (19)	K-43	S	2.72E+02	2.55E-03	3.00E-01	1.30E+00	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01
Potassium (19)	K-44	S	1.65E+04	4.21E-05	3.00E-01	1.30E+00	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01
Potassium (19)	K-45	S	2.11E+04	3.29E-05	3.00E-01	1.30E+00	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01
Potassium (19)	K-46	-	2.08E+05	3.33E-06	3.00E-01	1.30E+00	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01
Krypton (36)	Kr-74	-	3.17E+04	2.19E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Krypton (36)	Kr-75	-	8.49E+04	8.16E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Krypton (36)	Kr-76	-	4.10E+02	1.69E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Krypton (36)	Kr-77	-	4.90E+03	1.42E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Krypton (36)	Kr-79	-	1.73E+02	4.00E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Krypton (36)	Kr-81	-	3.03E-06	2.29E+05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Krypton (36)	Kr-81m	-	1.67E+06	4.15E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Krypton (36)	Kr-83m	-	3.32E+03	2.09E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Krypton (36)	Kr-85	-	6.44E-02	1.08E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Krypton (36)	Kr-85m	-	1.36E+03	5.11E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Krypton (36)	Kr-87	-	4.77E+03	1.45E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Krypton (36)	Kr-88	-	2.14E+03	3.24E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Krypton (36)	Kr-89	-	1.16E+05	5.99E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Lanthanum (57)	La-128	-	7.03E+04	9.86E-06	3.00E-03	5.70E-03	1.60E-03	3.00E-03	6.00E-03	3.00E-03	4.20E-04	3.90E-04	3.00E-03
Lanthanum (57)	La-129	S	3.14E+04	2.21E-05	3.00E-03	5.70E-03	1.60E-03	3.00E-03	6.00E-03	3.00E-03	4.20E-04	3.90E-04	3.00E-03
Lanthanum (57)	La-130	-	4.19E+04	1.66E-05	3.00E-03	5.70E-03	1.60E-03	3.00E-03	6.00E-03	3.00E-03	4.20E-04	3.90E-04	3.00E-03
Lanthanum (57)	La-131	S	6.17E+03	1.12E-04	3.00E-03	5.70E-03	1.60E-03	3.00E-03	6.00E-03	3.00E-03	4.20E-04	3.90E-04	3.00E-03
Lanthanum (57)	La-132	S	1.26E+03	5.48E-04	3.00E-03	5.70E-03	1.60E-03	3.00E-03	6.00E-03	3.00E-03	4.20E-04	3.90E-04	3.00E-03
Lanthanum (57)	La-132m	S	1.50E+04	4.62E-05	3.00E-03	5.70E-03	1.60E-03	3.00E-03	6.00E-03	3.00E-03	4.20E-04	3.90E-04	3.00E-03
Lanthanum (57)	La-133	S	1.55E+03	4.47E-04	3.00E-03	5.70E-03	1.60E-03	3.00E-03	6.00E-03	3.00E-03	4.20E-04	3.90E-04	3.00E-03
Lanthanum (57)	La-134	-	5.65E+04	1.23E-05	3.00E-03	5.70E-03	1.60E-03	3.00E-03	6.00E-03	3.00E-03	4.20E-04	3.90E-04	3.00E-03
Lanthanum (57)	La-135	S	3.11E+02	2.23E-03	3.00E-03	5.70E-03	1.60E-03	3.00E-03	6.00E-03	3.00E-03	4.20E-04	3.90E-04	3.00E-03
Lanthanum (57)	La-136	-	3.69E+04	1.88E-05	3.00E-03	5.70E-03	1.60E-03	3.00E-03	6.00E-03	3.00E-03	4.20E-04	3.90E-04	3.00E-03
Lanthanum (57)	La-137	F	1.16E-05	6.00E+04	3.00E-03	5.70E-03	1.60E-03	3.00E-03	6.00E-03	3.00E-03	4.20E-04	3.90E-04	3.00E-03
Lanthanum (57)	La-138	F	6.79E-12	1.02E+11	3.00E-03	5.70E-03	1.60E-03	3.00E-03	6.00E-03	3.00E-03	4.20E-04	3.90E-04	3.00E-03
Lanthanum (57)	La-140	S	1.51E+02	4.60E-03	3.00E-03	5.70E-03	1.60E-03	3.00E-03	6.00E-03	3.00E-03	4.20E-04	3.90E-04	3.00E-03
Lanthanum (57)	La-141	S	1.55E+03	4.47E-04	3.00E-03	5.70E-03	1.60E-03	3.00E-03	6.00E-03	3.00E-03	4.20E-04	3.90E-04	3.00E-03
Lanthanum (57)	La-142	S	4.00E+03	1.73E-04	3.00E-03	5.70E-03	1.60E-03	3.00E-03	6.00E-03	3.00E-03	4.20E-04	3.90E-04	3.00E-03
Lanthanum (57)	La-143	S	2.57E+04	2.70E-05	3.00E-03	5.70E-03	1.60E-03	3.00E-03	6.00E-03	3.00E-03	4.20E-04	3.90E-04	3.00E-03
Lutetium (71)	Lu-165	S	3.39E+04	2.04E-05	8.00E-04	1.00E-03	1.00E-03	8.00E-04	1.00E-03	1.00E-03	1.00E-03	1.00E-03	8.00E-04

Plant Transfer Factors July 2023													
Radionuclides		Isotope-specific Information and Plant Transfer Factors											
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Wet	Wet	Wet	Wet	Wet	Wet	Wet	Wet	Wet
					Soil-to-plant transfer factor Woody tree (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Leaf (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Root (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Shrub (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Non-leafy fruit (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Maize grain (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Legume seed (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Tuber (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Herbaceous (Bq/g-fresh plant per Bq/g-wet soil)
Lutetium (71)	Lu-167	S	7.07E+03	9.80E-05	8.00E-04	1.00E-03	1.00E-03	8.00E-04	1.00E-03	1.00E-03	1.00E-03	1.00E-03	8.00E-04
Lutetium (71)	Lu-169	S	1.78E+02	3.89E-03	8.00E-04	1.00E-03	1.00E-03	8.00E-04	1.00E-03	1.00E-03	1.00E-03	1.00E-03	8.00E-04
Lutetium (71)	Lu-169m	-	1.37E+05	5.07E-06	8.00E-04	1.00E-03	1.00E-03	8.00E-04	1.00E-03	1.00E-03	1.00E-03	1.00E-03	8.00E-04
Lutetium (71)	Lu-170	S	1.26E+02	5.51E-03	8.00E-04	1.00E-03	1.00E-03	8.00E-04	1.00E-03	1.00E-03	1.00E-03	1.00E-03	8.00E-04
Lutetium (71)	Lu-171	S	3.07E+01	2.26E-02	8.00E-04	1.00E-03	1.00E-03	8.00E-04	1.00E-03	1.00E-03	1.00E-03	1.00E-03	8.00E-04
Lutetium (71)	Lu-171m	-	2.77E+05	2.51E-06	8.00E-04	1.00E-03	1.00E-03	8.00E-04	1.00E-03	1.00E-03	1.00E-03	1.00E-03	8.00E-04
Lutetium (71)	Lu-172	S	3.78E+01	1.84E-02	8.00E-04	1.00E-03	1.00E-03	8.00E-04	1.00E-03	1.00E-03	1.00E-03	1.00E-03	8.00E-04
Lutetium (71)	Lu-172m	-	9.84E+04	7.04E-06	8.00E-04	1.00E-03	1.00E-03	8.00E-04	1.00E-03	1.00E-03	1.00E-03	1.00E-03	8.00E-04
Lutetium (71)	Lu-173	S	5.06E-01	1.37E+00	8.00E-04	1.00E-03	1.00E-03	8.00E-04	1.00E-03	1.00E-03	1.00E-03	1.00E-03	8.00E-04
Lutetium (71)	Lu-174	S	2.09E-01	3.31E+00	8.00E-04	1.00E-03	1.00E-03	8.00E-04	1.00E-03	1.00E-03	1.00E-03	1.00E-03	8.00E-04
Lutetium (71)	Lu-174m	S	1.78E+00	3.89E-01	8.00E-04	1.00E-03	1.00E-03	8.00E-04	1.00E-03	1.00E-03	1.00E-03	1.00E-03	8.00E-04
Lutetium (71)	Lu-176	F	1.80E-11	3.85E+10	8.00E-04	1.00E-03	1.00E-03	8.00E-04	1.00E-03	1.00E-03	1.00E-03	1.00E-03	8.00E-04
Lutetium (71)	Lu-176m	S	1.67E+03	4.15E-04	8.00E-04	1.00E-03	1.00E-03	8.00E-04	1.00E-03	1.00E-03	1.00E-03	1.00E-03	8.00E-04
Lutetium (71)	Lu-177	S	3.81E+01	1.82E-02	8.00E-04	1.00E-03	1.00E-03	8.00E-04	1.00E-03	1.00E-03	1.00E-03	1.00E-03	8.00E-04
Lutetium (71)	Lu-177m	S	1.58E+00	4.39E-01	8.00E-04	1.00E-03	1.00E-03	8.00E-04	1.00E-03	1.00E-03	1.00E-03	1.00E-03	8.00E-04
Lutetium (71)	Lu-178	S	1.28E+04	5.40E-05	8.00E-04	1.00E-03	1.00E-03	8.00E-04	1.00E-03	1.00E-03	1.00E-03	1.00E-03	8.00E-04
Lutetium (71)	Lu-178m	S	1.58E+04	4.39E-05	8.00E-04	1.00E-03	1.00E-03	8.00E-04	1.00E-03	1.00E-03	1.00E-03	1.00E-03	8.00E-04
Lutetium (71)	Lu-179	S	1.32E+03	5.24E-04	8.00E-04	1.00E-03	1.00E-03	8.00E-04	1.00E-03	1.00E-03	1.00E-03	1.00E-03	8.00E-04
Lutetium (71)	Lu-180	-	6.39E+04	1.08E-05	8.00E-04	1.00E-03	1.00E-03	8.00E-04	1.00E-03	1.00E-03	1.00E-03	1.00E-03	8.00E-04
Lutetium (71)	Lu-181	-	1.04E+05	6.66E-06	8.00E-04	1.00E-03	1.00E-03	8.00E-04	1.00E-03	1.00E-03	1.00E-03	1.00E-03	8.00E-04
Magnesium (12)	Mg-27	-	3.85E+04	1.80E-05	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02
Magnesium (12)	Mg-28	S	2.90E+02	2.39E-03	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02
Manganese (25)	Mn-50m	-	2.08E+05	3.33E-06	1.00E-01	4.10E-01	4.20E-01	1.00E-01	3.10E-01	7.50E-02	2.20E-01	4.70E-02	1.00E-01
Manganese (25)	Mn-51	S	7.88E+03	8.79E-05	1.00E-01	4.10E-01	4.20E-01	1.00E-01	3.10E-01	7.50E-02	2.20E-01	4.70E-02	1.00E-01
Manganese (25)	Mn-52	S	4.52E+01	1.53E-02	1.00E-01	4.10E-01	4.20E-01	1.00E-01	3.10E-01	7.50E-02	2.20E-01	4.70E-02	1.00E-01
Manganese (25)	Mn-52m	S	1.73E+04	4.01E-05	1.00E-01	4.10E-01	4.20E-01	1.00E-01	3.10E-01	7.50E-02	2.20E-01	4.70E-02	1.00E-01
Manganese (25)	Mn-53	S	1.87E-07	3.70E+06	1.00E-01	4.10E-01	4.20E-01	1.00E-01	3.10E-01	7.50E-02	2.20E-01	4.70E-02	1.00E-01
Manganese (25)	Mn-54	S	8.10E-01	8.55E-01	1.00E-01	4.10E-01	4.20E-01	1.00E-01	3.10E-01	7.50E-02	2.20E-01	4.70E-02	1.00E-01
Manganese (25)	Mn-56	S	2.35E+03	2.94E-04	1.00E-01	4.10E-01	4.20E-01	1.00E-01	3.10E-01	7.50E-02	2.20E-01	4.70E-02	1.00E-01
Manganese (25)	Mn-57	-	2.56E+05	2.71E-06	1.00E-01	4.10E-01	4.20E-01	1.00E-01	3.10E-01	7.50E-02	2.20E-01	4.70E-02	1.00E-01
Manganese (25)	Mn-58m	-	3.35E+05	2.07E-06	1.00E-01	4.10E-01	4.20E-01	1.00E-01	3.10E-01	7.50E-02	2.20E-01	4.70E-02	1.00E-01
Molybdenum (42)	Mo-101	S	2.49E+04	2.78E-05	1.00E-01	5.10E-01	3.20E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-02	1.00E-01
Molybdenum (42)	Mo-102	S	3.22E+04	2.15E-05	1.00E-01	5.10E-01	3.20E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-02	1.00E-01
Molybdenum (42)	Mo-89	-	1.73E+05	4.01E-06	1.00E-01	5.10E-01	3.20E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-02	1.00E-01
Molybdenum (42)	Mo-90	S	1.09E+03	6.35E-04	1.00E-01	5.10E-01	3.20E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-02	1.00E-01
Molybdenum (42)	Mo-91	S	2.35E+04	2.95E-05	1.00E-01	5.10E-01	3.20E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-02	1.00E-01
Molybdenum (42)	Mo-91m	-	3.38E+05	2.05E-06	1.00E-01	5.10E-01	3.20E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-02	1.00E-01
Molybdenum (42)	Mo-93	S	1.73E+04	4.00E+03	1.00E-01	5.10E-01	3.20E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-02	1.00E-01
Molybdenum (42)	Mo-93m	S	8.86E+02	7.82E-04	1.00E-01	5.10E-01	3.20E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-02	1.00E-01
Molybdenum (42)	Mo-99	S	9.21E+01	7.53E-03	1.00E-01	5.10E-01	3.20E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-02	1.00E-01
Nitrogen (7)	N-13	-	3.66E+04	1.90E-05	7.50E+00	7.50E+00	7.50E+00	7.50E+00	7.50E+00	7.50E+00	7.50E+00	7.50E+00	7.50E+00
Nitrogen (7)	N-16	-	3.07E+06	2.26E-07	7.50E+00	7.50E+00	7.50E+00	7.50E+00	7.50E+00	7.50E+00	7.50E+00	7.50E+00	7.50E+00
Sodium (11)	Na-22	S	2.66E-01	2.60E+00	6.00E-02	3.00E-02	3.00E-02	6.00E-02	3.00E-02	6.00E-02	6.00E-02	3.00E-02	6.00E-02
Sodium (11)	Na-24	S	4.06E+02	1.71E-03	6.00E-02	3.00E-02	3.00E-02	6.00E-02	3.00E-02	6.00E-02	6.00E-02	3.00E-02	6.00E-02
Niobium (41)	Nb-87	-	9.71E+04	7.13E-06	1.00E-02	1.70E-02	1.70E-02	1.00E-02	8.00E-03	1.00E-02	1.00E-02	4.00E-03	1.00E-02
Niobium (41)	Nb-88	S	2.51E+04	2.76E-05	1.00E-02	1.70E-02	1.70E-02	1.00E-02	8.00E-03	1.00E-02	1.00E-02	4.00E-03	1.00E-02
Niobium (41)	Nb-88m	-	4.68E+04	1.48E-05	1.00E-02	1.70E-02	1.70E-02	1.00E-02	8.00E-03	1.00E-02	1.00E-02	4.00E-03	1.00E-02
Niobium (41)	Nb-89	S	2.99E+03	2.32E-04	1.00E-02	1.70E-02	1.70E-02	1.00E-02	8.00E-03	1.00E-02	1.00E-02	4.00E-03	1.00E-02
Niobium (41)	Nb-89m	S	5.52E+03	1.26E-04	1.00E-02	1.70E-02	1.70E-02	1.00E-02	8.00E-03	1.00E-02	1.00E-02	4.00E-03	1.00E-02
Niobium (41)	Nb-90	S	4.16E+02	1.67E-03	1.00E-02	1.70E-02	1.70E-02	1.00E-02	8.00E-03	1.00E-02	1.00E-02	4.00E-03	1.00E-02
Niobium (41)	Nb-91	S	1.02E-03	6.80E+02	1.00E-02	1.70E-02	1.70E-02	1.00E-02	8.00E-03	1.00E-02	1.00E-02	4.00E-03	1.00E-02

Plant Transfer Factors July 2023													
Radionuclides		Isotope-specific Information and Plant Transfer Factors											
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Wet	Wet	Wet	Wet	Wet	Wet	Wet	Wet	Wet
					Soil-to-plant transfer factor Woody tree (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Leaf (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Root (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Shrub (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Non-leafy fruit (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Maize grain (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Legume seed (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Tuber (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Herbaceous (Bq/g-fresh plant per Bq/g-wet soil)
Niobium (41)	Nb-91m	S	4.16E+00	1.67E-01	1.00E-02	1.70E-02	1.70E-02	1.00E-02	8.00E-03	1.00E-02	1.00E-02	4.00E-03	1.00E-02
Niobium (41)	Nb-92	S	2.00E-08	3.47E+07	1.00E-02	1.70E-02	1.70E-02	1.00E-02	8.00E-03	1.00E-02	1.00E-02	4.00E-03	1.00E-02
Niobium (41)	Nb-92m	S	2.49E+01	2.78E-02	1.00E-02	1.70E-02	1.70E-02	1.00E-02	8.00E-03	1.00E-02	1.00E-02	4.00E-03	1.00E-02
Niobium (41)	Nb-93m	S	4.30E-02	1.61E+01	1.00E-02	1.70E-02	1.70E-02	1.00E-02	8.00E-03	1.00E-02	1.00E-02	4.00E-03	1.00E-02
Niobium (41)	Nb-94	S	3.41E-05	2.03E+04	1.00E-02	1.70E-02	1.70E-02	1.00E-02	8.00E-03	1.00E-02	1.00E-02	4.00E-03	1.00E-02
Niobium (41)	Nb-94m	-	5.82E+04	1.19E-05	1.00E-02	1.70E-02	1.70E-02	1.00E-02	8.00E-03	1.00E-02	1.00E-02	4.00E-03	1.00E-02
Niobium (41)	Nb-95	S	7.23E+00	9.59E-02	1.00E-02	1.70E-02	1.70E-02	1.00E-02	8.00E-03	1.00E-02	1.00E-02	4.00E-03	1.00E-02
Niobium (41)	Nb-95m	S	7.01E+01	9.89E-03	1.00E-02	1.70E-02	1.70E-02	1.00E-02	8.00E-03	1.00E-02	1.00E-02	4.00E-03	1.00E-02
Niobium (41)	Nb-96	S	2.60E+02	2.67E-03	1.00E-02	1.70E-02	1.70E-02	1.00E-02	8.00E-03	1.00E-02	1.00E-02	4.00E-03	1.00E-02
Niobium (41)	Nb-97	S	5.05E+03	1.37E-04	1.00E-02	1.70E-02	1.70E-02	1.00E-02	8.00E-03	1.00E-02	1.00E-02	4.00E-03	1.00E-02
Niobium (41)	Nb-98m	S	7.10E+03	9.76E-05	1.00E-02	1.70E-02	1.70E-02	1.00E-02	8.00E-03	1.00E-02	1.00E-02	4.00E-03	1.00E-02
Niobium (41)	Nb-99	-	1.46E+06	4.76E-07	1.00E-02	1.70E-02	1.70E-02	1.00E-02	8.00E-03	1.00E-02	1.00E-02	4.00E-03	1.00E-02
Niobium (41)	Nb-99m	-	1.40E+05	4.95E-06	1.00E-02	1.70E-02	1.70E-02	1.00E-02	8.00E-03	1.00E-02	1.00E-02	4.00E-03	1.00E-02
Neodymium (60)	Nd-134	-	4.29E+04	1.62E-05	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Neodymium (60)	Nd-135	S	2.94E+04	2.36E-05	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Neodymium (60)	Nd-136	S	7.19E+03	9.64E-05	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Neodymium (60)	Nd-137	S	9.46E+03	7.32E-05	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Neodymium (60)	Nd-138	S	1.20E+03	5.75E-04	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Neodymium (60)	Nd-139	S	1.23E+04	5.65E-05	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Neodymium (60)	Nd-139m	S	1.10E+03	6.28E-04	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Neodymium (60)	Nd-140	S	7.51E+01	9.23E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Neodymium (60)	Nd-141	S	2.44E+03	2.84E-04	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Neodymium (60)	Nd-141m	-	3.52E+05	1.97E-06	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Neodymium (60)	Nd-144	F	3.03E-16	2.29E+15	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Neodymium (60)	Nd-147	S	2.30E+01	3.01E-02	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Neodymium (60)	Nd-149	S	3.51E+03	1.97E-04	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Neodymium (60)	Nd-151	S	2.93E+04	2.37E-05	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Neodymium (60)	Nd-152	S	3.20E+04	2.17E-05	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Neon (10)	Ne-19	-	1.27E+06	5.46E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Neon (10)	Ne-24	-	1.08E+05	6.43E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nickel (28)	Ni-56	V	4.16E+01	1.66E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02
Nickel (28)	Ni-57	S	1.71E+02	4.06E-03	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02
Nickel (28)	Ni-59	V	6.86E-06	1.01E+05	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02
Nickel (28)	Ni-63	V	6.92E-03	1.00E+02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02
Nickel (28)	Ni-65	V	2.41E+03	2.87E-04	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02
Nickel (28)	Ni-66	S	1.11E+02	6.23E-03	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02
Neptunium (93)	Np-232	S	2.48E+04	2.80E-05	3.00E-04	2.70E-02	2.20E-02	3.00E-04	1.80E-02	4.80E-03	1.70E-02	5.70E-03	3.00E-04
Neptunium (93)	Np-233	S	1.01E+04	6.89E-05	3.00E-04	2.70E-02	2.20E-02	3.00E-04	1.80E-02	4.80E-03	1.70E-02	5.70E-03	3.00E-04
Neptunium (93)	Np-234	S	5.75E+01	1.21E-02	3.00E-04	2.70E-02	2.20E-02	3.00E-04	1.80E-02	4.80E-03	1.70E-02	5.70E-03	3.00E-04
Neptunium (93)	Np-235	S	6.39E-01	1.09E+00	3.00E-04	2.70E-02	2.20E-02	3.00E-04	1.80E-02	4.80E-03	1.70E-02	5.70E-03	3.00E-04
Neptunium (93)	Np-236	F	4.50E-06	1.54E+05	3.00E-04	2.70E-02	2.20E-02	3.00E-04	1.80E-02	4.80E-03	1.70E-02	5.70E-03	3.00E-04
Neptunium (93)	Np-236m	S	2.70E+02	2.57E-03	3.00E-04	2.70E-02	2.20E-02	3.00E-04	1.80E-02	4.80E-03	1.70E-02	5.70E-03	3.00E-04
Neptunium (93)	Np-237	S	3.23E-07	2.14E+06	3.00E-04	2.70E-02	2.20E-02	3.00E-04	1.80E-02	4.80E-03	1.70E-02	5.70E-03	3.00E-04
Neptunium (93)	Np-238	S	1.19E+02	5.80E-03	3.00E-04	2.70E-02	2.20E-02	3.00E-04	1.80E-02	4.80E-03	1.70E-02	5.70E-03	3.00E-04
Neptunium (93)	Np-239	S	1.07E+02	6.46E-03	3.00E-04	2.70E-02	2.20E-02	3.00E-04	1.80E-02	4.80E-03	1.70E-02	5.70E-03	3.00E-04
Neptunium (93)	Np-240	S	5.88E+03	1.18E-04	3.00E-04	2.70E-02	2.20E-02	3.00E-04	1.80E-02	4.80E-03	1.70E-02	5.70E-03	3.00E-04
Neptunium (93)	Np-240m	-	5.04E+04	1.37E-05	3.00E-04	2.70E-02	2.20E-02	3.00E-04	1.80E-02	4.80E-03	1.70E-02	5.70E-03	3.00E-04
Neptunium (93)	Np-241	S	2.62E+04	2.64E-05	3.00E-04	2.70E-02	2.20E-02	3.00E-04	1.80E-02	4.80E-03	1.70E-02	5.70E-03	3.00E-04
Neptunium (93)	Np-242	-	1.66E+05	4.19E-06	3.00E-04	2.70E-02	2.20E-02	3.00E-04	1.80E-02	4.80E-03	1.70E-02	5.70E-03	3.00E-04
Neptunium (93)	Np-242m	-	6.62E+04	1.05E-05	3.00E-04	2.70E-02	2.20E-02	3.00E-04	1.80E-02	4.80E-03	1.70E-02	5.70E-03	3.00E-04
Oxygen (8)	O-14	-	3.10E+05	2.24E-06	6.00E-01	6.00E-01	6.00E-01	6.00E-01	6.00E-01	6.00E-01	6.00E-01	6.00E-01	6.00E-01

Plant Transfer Factors July 2023													
Radionuclides		Isotope-specific Information and Plant Transfer Factors											
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Wet	Wet	Wet	Wet	Wet	Wet	Wet	Wet	Wet
					Soil-to-plant transfer factor Woody tree (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Leaf (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Root (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Shrub (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Non-leafy fruit (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Maize grain (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Legume seed (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Tuber (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Herbaceous (Bq/g-fresh plant per Bq/g-wet soil)
Oxygen (8)	O-15	-	1.79E+05	3.88E-06	6.00E-01	6.00E-01	6.00E-01	6.00E-01	6.00E-01	6.00E-01	6.00E-01	6.00E-01	6.00E-01
Oxygen (8)	O-19	-	8.26E+05	8.39E-07	6.00E-01	6.00E-01	6.00E-01	6.00E-01	6.00E-01	6.00E-01	6.00E-01	6.00E-01	6.00E-01
Osmium (76)	Os-180	S	1.69E+04	4.09E-05	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02
Osmium (76)	Os-181	S	3.47E+03	2.00E-04	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02
Osmium (76)	Os-182	S	2.75E+02	2.52E-03	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02
Osmium (76)	Os-183	S	4.67E+02	1.48E-03	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02
Osmium (76)	Os-183m	S	6.13E+02	1.13E-03	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02
Osmium (76)	Os-185	S	2.70E+00	2.56E-01	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02
Osmium (76)	Os-186	S	3.47E-16	2.00E+15	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02
Osmium (76)	Os-189m	S	1.05E+03	6.62E-04	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02
Osmium (76)	Os-190m	-	3.68E+04	1.88E-05	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02
Osmium (76)	Os-191	S	1.64E+01	4.22E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02
Osmium (76)	Os-191m	S	4.63E+02	1.50E-03	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02
Osmium (76)	Os-193	S	2.02E+02	3.44E-03	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02
Osmium (76)	Os-194	S	1.16E-01	6.00E+00	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02
Osmium (76)	Os-196	S	1.04E+04	6.64E-05	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02
Phosphorus (15)	P-30	-	1.46E+05	4.75E-06	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	5.00E-01	1.00E+00
Phosphorus (15)	P-32	S	1.77E+01	3.91E-02	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	5.00E-01	1.00E+00
Phosphorus (15)	P-33	S	9.98E+00	6.94E-02	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	5.00E-01	1.00E+00
Protactinium (91)	Pa-227	S	9.51E+03	7.29E-05	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02
Protactinium (91)	Pa-228	S	2.76E+02	2.51E-03	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02
Protactinium (91)	Pa-229	S	1.69E+02	4.11E-03	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02
Protactinium (91)	Pa-230	S	1.45E+01	4.77E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02
Protactinium (91)	Pa-231	F	2.12E-05	3.28E+04	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02
Protactinium (91)	Pa-232	S	1.93E+02	3.59E-03	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02
Protactinium (91)	Pa-233	S	9.38E+00	7.39E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02
Protactinium (91)	Pa-234	S	9.06E+02	7.65E-04	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02
Protactinium (91)	Pa-234m	-	3.11E+05	2.23E-06	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02
Protactinium (91)	Pa-235	S	1.49E+04	4.66E-05	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02
Protactinium (91)	Pa-236	-	4.00E+04	1.73E-05	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02
Protactinium (91)	Pa-237	-	4.19E+04	1.66E-05	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02
Lead (82)	Pb-194	S	3.04E+04	2.28E-05	1.00E-02	8.00E-02	1.50E-02	1.00E-02	1.50E-02	1.20E-03	5.30E-03	1.50E-03	1.00E-02
Lead (82)	Pb-195m	S	2.43E+04	2.85E-05	1.00E-02	8.00E-02	1.50E-02	1.00E-02	1.50E-02	1.20E-03	5.30E-03	1.50E-03	1.00E-02
Lead (82)	Pb-196	S	9.84E+03	7.04E-05	1.00E-02	8.00E-02	1.50E-02	1.00E-02	1.50E-02	1.20E-03	5.30E-03	1.50E-03	1.00E-02
Lead (82)	Pb-197	-	4.55E+04	1.52E-05	1.00E-02	8.00E-02	1.50E-02	1.00E-02	1.50E-02	1.20E-03	5.30E-03	1.50E-03	1.00E-02
Lead (82)	Pb-197m	S	8.47E+03	8.18E-05	1.00E-02	8.00E-02	1.50E-02	1.00E-02	1.50E-02	1.20E-03	5.30E-03	1.50E-03	1.00E-02
Lead (82)	Pb-198	S	2.53E+03	2.74E-04	1.00E-02	8.00E-02	1.50E-02	1.00E-02	1.50E-02	1.20E-03	5.30E-03	1.50E-03	1.00E-02
Lead (82)	Pb-199	S	4.05E+03	1.71E-04	1.00E-02	8.00E-02	1.50E-02	1.00E-02	1.50E-02	1.20E-03	5.30E-03	1.50E-03	1.00E-02
Lead (82)	Pb-200	S	2.82E+02	2.45E-03	1.00E-02	8.00E-02	1.50E-02	1.00E-02	1.50E-02	1.20E-03	5.30E-03	1.50E-03	1.00E-02
Lead (82)	Pb-201	S	6.51E+02	1.07E-03	1.00E-02	8.00E-02	1.50E-02	1.00E-02	1.50E-02	1.20E-03	5.30E-03	1.50E-03	1.00E-02
Lead (82)	Pb-201m	-	3.58E+05	1.93E-06	1.00E-02	8.00E-02	1.50E-02	1.00E-02	1.50E-02	1.20E-03	5.30E-03	1.50E-03	1.00E-02
Lead (82)	Pb-202	S	1.32E-05	5.25E+04	1.00E-02	8.00E-02	1.50E-02	1.00E-02	1.50E-02	1.20E-03	5.30E-03	1.50E-03	1.00E-02
Lead (82)	Pb-202m	S	1.72E+03	4.03E-04	1.00E-02	8.00E-02	1.50E-02	1.00E-02	1.50E-02	1.20E-03	5.30E-03	1.50E-03	1.00E-02
Lead (82)	Pb-203	S	1.17E+02	5.92E-03	1.00E-02	8.00E-02	1.50E-02	1.00E-02	1.50E-02	1.20E-03	5.30E-03	1.50E-03	1.00E-02
Lead (82)	Pb-204m	S	5.42E+03	1.28E-04	1.00E-02	8.00E-02	1.50E-02	1.00E-02	1.50E-02	1.20E-03	5.30E-03	1.50E-03	1.00E-02
Lead (82)	Pb-205	S	4.53E-08	1.53E+07	1.00E-02	8.00E-02	1.50E-02	1.00E-02	1.50E-02	1.20E-03	5.30E-03	1.50E-03	1.00E-02
Lead (82)	Pb-209	S	1.87E+03	3.71E-04	1.00E-02	8.00E-02	1.50E-02	1.00E-02	1.50E-02	1.20E-03	5.30E-03	1.50E-03	1.00E-02
Lead (82)	Pb-210	S	3.12E-02	2.22E+01	1.00E-02	8.00E-02	1.50E-02	1.00E-02	1.50E-02	1.20E-03	5.30E-03	1.50E-03	1.00E-02
Lead (82)	Pb-211	S	1.01E+04	6.87E-05	1.00E-02	8.00E-02	1.50E-02	1.00E-02	1.50E-02	1.20E-03	5.30E-03	1.50E-03	1.00E-02
Lead (82)	Pb-212	S	5.71E+02	1.21E-03	1.00E-02	8.00E-02	1.50E-02	1.00E-02	1.50E-02	1.20E-03	5.30E-03	1.50E-03	1.00E-02
Lead (82)	Pb-214	S	1.36E+04	5.10E-05	1.00E-02	8.00E-02	1.50E-02	1.00E-02	1.50E-02	1.20E-03	5.30E-03	1.50E-03	1.00E-02



Plant Transfer Factors July 2023													
Radionuclides		Isotope-specific Information and Plant Transfer Factors											
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Wet	Wet	Wet	Wet	Wet	Wet	Wet	Wet	Wet
					Soil-to-plant transfer factor Woody tree (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Leaf (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Root (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Shrub (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Non-leafy fruit (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Maize grain (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Legume seed (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Tuber (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Herbaceous (Bq/g-fresh plant per Bq/g-wet soil)
Palladium (46)	Pd-100	S	6.97E+01	9.95E-03	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Palladium (46)	Pd-101	S	7.17E+02	9.67E-04	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Palladium (46)	Pd-103	S	1.49E+01	4.66E-02	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Palladium (46)	Pd-107	S	1.07E-07	6.50E+06	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Palladium (46)	Pd-109	S	4.43E+02	1.56E-03	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Palladium (46)	Pd-109m	-	7.77E+04	8.92E-06	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Palladium (46)	Pd-111	S	1.56E+04	4.45E-05	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Palladium (46)	Pd-112	S	2.89E+02	2.40E-03	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Palladium (46)	Pd-114	-	1.51E+05	4.60E-06	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Palladium (46)	Pd-96	-	1.79E+05	3.87E-06	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Palladium (46)	Pd-97	-	1.17E+05	5.90E-06	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Palladium (46)	Pd-98	S	2.06E+04	3.37E-05	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Palladium (46)	Pd-99	S	1.70E+04	4.07E-05	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Promethium (61)	Pm-136	-	2.04E+05	3.39E-06	3.00E-03	3.00E-03	4.20E-02	3.00E-03	3.00E-03	3.00E-03	1.70E-01	1.00E-02	3.00E-03
Promethium (61)	Pm-137m	-	1.52E+05	4.57E-06	3.00E-03	3.00E-03	4.20E-02	3.00E-03	3.00E-03	3.00E-03	1.70E-01	1.00E-02	3.00E-03
Promethium (61)	Pm-139	-	8.78E+04	7.90E-06	3.00E-03	3.00E-03	4.20E-02	3.00E-03	3.00E-03	3.00E-03	1.70E-01	1.00E-02	3.00E-03
Promethium (61)	Pm-140	-	2.38E+06	2.92E-07	3.00E-03	3.00E-03	4.20E-02	3.00E-03	3.00E-03	3.00E-03	1.70E-01	1.00E-02	3.00E-03
Promethium (61)	Pm-140m	-	6.12E+04	1.13E-05	3.00E-03	3.00E-03	4.20E-02	3.00E-03	3.00E-03	3.00E-03	1.70E-01	1.00E-02	3.00E-03
Promethium (61)	Pm-141	S	1.74E+04	3.98E-05	3.00E-03	3.00E-03	4.20E-02	3.00E-03	3.00E-03	3.00E-03	1.70E-01	1.00E-02	3.00E-03
Promethium (61)	Pm-142	-	5.40E+05	1.28E-06	3.00E-03	3.00E-03	4.20E-02	3.00E-03	3.00E-03	3.00E-03	1.70E-01	1.00E-02	3.00E-03
Promethium (61)	Pm-143	F	9.55E-01	7.26E-01	3.00E-03	3.00E-03	4.20E-02	3.00E-03	3.00E-03	3.00E-03	1.70E-01	1.00E-02	3.00E-03
Promethium (61)	Pm-144	F	6.97E-01	9.95E-01	3.00E-03	3.00E-03	4.20E-02	3.00E-03	3.00E-03	3.00E-03	1.70E-01	1.00E-02	3.00E-03
Promethium (61)	Pm-145	F	3.92E-02	1.77E+01	3.00E-03	3.00E-03	4.20E-02	3.00E-03	3.00E-03	3.00E-03	1.70E-01	1.00E-02	3.00E-03
Promethium (61)	Pm-146	F	1.25E-01	5.53E+00	3.00E-03	3.00E-03	4.20E-02	3.00E-03	3.00E-03	3.00E-03	1.70E-01	1.00E-02	3.00E-03
Promethium (61)	Pm-147	S	2.64E-01	2.62E+00	3.00E-03	3.00E-03	4.20E-02	3.00E-03	3.00E-03	3.00E-03	1.70E-01	1.00E-02	3.00E-03
Promethium (61)	Pm-148	S	4.71E+01	1.47E-02	3.00E-03	3.00E-03	4.20E-02	3.00E-03	3.00E-03	3.00E-03	1.70E-01	1.00E-02	3.00E-03
Promethium (61)	Pm-148m	S	6.13E+00	1.13E-01	3.00E-03	3.00E-03	4.20E-02	3.00E-03	3.00E-03	3.00E-03	1.70E-01	1.00E-02	3.00E-03
Promethium (61)	Pm-149	S	1.14E+02	6.06E-03	3.00E-03	3.00E-03	4.20E-02	3.00E-03	3.00E-03	3.00E-03	1.70E-01	1.00E-02	3.00E-03
Promethium (61)	Pm-150	S	2.27E+03	3.06E-04	3.00E-03	3.00E-03	4.20E-02	3.00E-03	3.00E-03	3.00E-03	1.70E-01	1.00E-02	3.00E-03
Promethium (61)	Pm-151	S	2.14E+02	3.24E-03	3.00E-03	3.00E-03	4.20E-02	3.00E-03	3.00E-03	3.00E-03	1.70E-01	1.00E-02	3.00E-03
Promethium (61)	Pm-152	-	8.84E+04	7.84E-06	3.00E-03	3.00E-03	4.20E-02	3.00E-03	3.00E-03	3.00E-03	1.70E-01	1.00E-02	3.00E-03
Promethium (61)	Pm-152m	-	4.84E+04	1.43E-05	3.00E-03	3.00E-03	4.20E-02	3.00E-03	3.00E-03	3.00E-03	1.70E-01	1.00E-02	3.00E-03
Promethium (61)	Pm-153	-	6.94E+04	9.99E-06	3.00E-03	3.00E-03	4.20E-02	3.00E-03	3.00E-03	3.00E-03	1.70E-01	1.00E-02	3.00E-03
Promethium (61)	Pm-154	-	2.11E+05	3.29E-06	3.00E-03	3.00E-03	4.20E-02	3.00E-03	3.00E-03	3.00E-03	1.70E-01	1.00E-02	3.00E-03
Promethium (61)	Pm-154m	-	1.36E+05	5.10E-06	3.00E-03	3.00E-03	4.20E-02	3.00E-03	3.00E-03	3.00E-03	1.70E-01	1.00E-02	3.00E-03
Polonium (84)	Po-203	S	9.92E+03	6.98E-05	2.00E-04	7.40E-03	5.80E-03	2.00E-04	2.00E-04	2.40E-04	2.70E-04	2.70E-03	2.00E-04
Polonium (84)	Po-204	S	1.72E+03	4.03E-04	2.00E-04	7.40E-03	5.80E-03	2.00E-04	2.00E-04	2.40E-04	2.70E-04	2.70E-03	2.00E-04
Polonium (84)	Po-205	S	3.66E+03	1.89E-04	2.00E-04	7.40E-03	5.80E-03	2.00E-04	2.00E-04	2.40E-04	2.70E-04	2.70E-03	2.00E-04
Polonium (84)	Po-206	S	2.87E+01	2.41E-02	2.00E-04	7.40E-03	5.80E-03	2.00E-04	2.00E-04	2.40E-04	2.70E-04	2.70E-03	2.00E-04
Polonium (84)	Po-207	S	1.05E+03	6.62E-04	2.00E-04	7.40E-03	5.80E-03	2.00E-04	2.00E-04	2.40E-04	2.70E-04	2.70E-03	2.00E-04
Polonium (84)	Po-208	S	2.39E-01	2.90E+00	2.00E-04	7.40E-03	5.80E-03	2.00E-04	2.00E-04	2.40E-04	2.70E-04	2.70E-03	2.00E-04
Polonium (84)	Po-209	S	6.79E-03	1.02E+02	2.00E-04	7.40E-03	5.80E-03	2.00E-04	2.00E-04	2.40E-04	2.70E-04	2.70E-03	2.00E-04
Polonium (84)	Po-210	S	1.83E+00	3.79E-01	2.00E-04	7.40E-03	5.80E-03	2.00E-04	2.00E-04	2.40E-04	2.70E-04	2.70E-03	2.00E-04
Polonium (84)	Po-211	-	4.24E+07	1.64E-08	2.00E-04	7.40E-03	5.80E-03	2.00E-04	2.00E-04	2.40E-04	2.70E-04	2.70E-03	2.00E-04
Polonium (84)	Po-212	-	7.31E+13	9.48E-15	2.00E-04	7.40E-03	5.80E-03	2.00E-04	2.00E-04	2.40E-04	2.70E-04	2.70E-03	2.00E-04
Polonium (84)	Po-212m	-	4.85E+05	1.43E-06	2.00E-04	7.40E-03	5.80E-03	2.00E-04	2.00E-04	2.40E-04	2.70E-04	2.70E-03	2.00E-04
Polonium (84)	Po-213	-	5.20E+12	1.33E-13	2.00E-04	7.40E-03	5.80E-03	2.00E-04	2.00E-04	2.40E-04	2.70E-04	2.70E-03	2.00E-04
Polonium (84)	Po-214	-	1.33E+11	5.21E-12	2.00E-04	7.40E-03	5.80E-03	2.00E-04	2.00E-04	2.40E-04	2.70E-04	2.70E-03	2.00E-04
Polonium (84)	Po-215	-	1.23E+10	5.65E-11	2.00E-04	7.40E-03	5.80E-03	2.00E-04	2.00E-04	2.40E-04	2.70E-04	2.70E-03	2.00E-04
Polonium (84)	Po-216	-	1.51E+08	4.60E-09	2.00E-04	7.40E-03	5.80E-03	2.00E-04	2.00E-04	2.40E-04	2.70E-04	2.70E-03	2.00E-04
Polonium (84)	Po-218	-	1.17E+05	5.90E-06	2.00E-04	7.40E-03	5.80E-03	2.00E-04	2.00E-04	2.40E-04	2.70E-04	2.70E-03	2.00E-04

Plant Transfer Factors July 2023													
Radionuclides		Isotope-specific Information and Plant Transfer Factors											
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Wet	Wet	Wet	Wet	Wet	Wet	Wet	Wet	Wet
					Soil-to-plant transfer factor Woody tree (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Leaf (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Root (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Shrub (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Non-leafy fruit (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Maize grain (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Legume seed (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Tuber (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Herbaceous (Bq/g-fresh plant per Bq/g-wet soil)
Praseodymium (59)	Pr-134	S	3.31E+04	2.09E-05	2.00E-03	2.00E-02	2.00E-02	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Praseodymium (59)	Pr-134m	S	2.14E+04	3.23E-05	2.00E-03	2.00E-02	2.00E-02	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Praseodymium (59)	Pr-135	S	1.52E+04	4.57E-05	2.00E-03	2.00E-02	2.00E-02	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Praseodymium (59)	Pr-136	S	2.78E+04	2.49E-05	2.00E-03	2.00E-02	2.00E-02	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Praseodymium (59)	Pr-137	S	4.74E+03	1.46E-04	2.00E-03	2.00E-02	2.00E-02	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Praseodymium (59)	Pr-138	-	2.51E+05	2.76E-06	2.00E-03	2.00E-02	2.00E-02	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Praseodymium (59)	Pr-138m	S	2.86E+03	2.42E-04	2.00E-03	2.00E-02	2.00E-02	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Praseodymium (59)	Pr-139	S	1.38E+03	5.03E-04	2.00E-03	2.00E-02	2.00E-02	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Praseodymium (59)	Pr-140	-	1.07E+05	6.45E-06	2.00E-03	2.00E-02	2.00E-02	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Praseodymium (59)	Pr-142	S	3.18E+02	2.18E-03	2.00E-03	2.00E-02	2.00E-02	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Praseodymium (59)	Pr-142m	S	2.49E+04	2.78E-05	2.00E-03	2.00E-02	2.00E-02	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Praseodymium (59)	Pr-143	S	1.86E+01	3.72E-02	2.00E-03	2.00E-02	2.00E-02	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Praseodymium (59)	Pr-144	S	2.11E+04	3.29E-05	2.00E-03	2.00E-02	2.00E-02	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Praseodymium (59)	Pr-144m	-	5.06E+04	1.37E-05	2.00E-03	2.00E-02	2.00E-02	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Praseodymium (59)	Pr-145	S	1.01E+03	6.83E-04	2.00E-03	2.00E-02	2.00E-02	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Praseodymium (59)	Pr-146	S	1.51E+04	4.59E-05	2.00E-03	2.00E-02	2.00E-02	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Praseodymium (59)	Pr-147	S	2.72E+04	2.55E-05	2.00E-03	2.00E-02	2.00E-02	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Praseodymium (59)	Pr-148	-	1.59E+05	4.36E-06	2.00E-03	2.00E-02	2.00E-02	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Praseodymium (59)	Pr-148m	-	1.81E+05	3.82E-06	2.00E-03	2.00E-02	2.00E-02	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Platinum (78)	Pt-184	S	2.11E+04	3.29E-05	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Platinum (78)	Pt-186	S	2.92E+03	2.37E-04	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Platinum (78)	Pt-187	S	2.58E+03	2.68E-04	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Platinum (78)	Pt-188	S	2.48E+01	2.79E-02	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Platinum (78)	Pt-189	S	5.58E+02	1.24E-03	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Platinum (78)	Pt-190	S	1.07E-12	6.50E+11	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Platinum (78)	Pt-191	S	9.03E+01	7.68E-03	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Platinum (78)	Pt-193	S	1.39E-02	5.00E+01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Platinum (78)	Pt-193m	S	5.84E+01	1.19E-02	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Platinum (78)	Pt-195m	S	6.29E+01	1.10E-02	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Platinum (78)	Pt-197	S	3.05E+02	2.27E-03	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Platinum (78)	Pt-197m	S	3.82E+03	1.82E-04	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Platinum (78)	Pt-199	S	1.18E+04	5.86E-05	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Platinum (78)	Pt-200	S	4.86E+02	1.43E-03	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Platinum (78)	Pt-202	S	1.38E+02	5.02E-03	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Plutonium (94)	Pu-232	S	1.08E+04	6.41E-05	1.40E-04	8.30E-05	3.90E-04	3.00E-04	6.50E-05	3.00E-06	6.30E-05	1.10E-04	1.20E-04
Plutonium (94)	Pu-234	S	6.90E+02	1.00E-03	1.40E-04	8.30E-05	3.90E-04	3.00E-04	6.50E-05	3.00E-06	6.30E-05	1.10E-04	1.20E-04
Plutonium (94)	Pu-235	S	1.44E+04	4.81E-05	1.40E-04	8.30E-05	3.90E-04	3.00E-04	6.50E-05	3.00E-06	6.30E-05	1.10E-04	1.20E-04
Plutonium (94)	Pu-236	S	2.42E-01	2.86E+00	1.40E-04	8.30E-05	3.90E-04	3.00E-04	6.50E-05	3.00E-06	6.30E-05	1.10E-04	1.20E-04
Plutonium (94)	Pu-237	S	5.60E+00	1.24E-01	1.40E-04	8.30E-05	3.90E-04	3.00E-04	6.50E-05	3.00E-06	6.30E-05	1.10E-04	1.20E-04
Plutonium (94)	Pu-238	F	7.90E-03	8.77E+01	1.40E-04	8.30E-05	3.90E-04	3.00E-04	6.50E-05	3.00E-06	6.30E-05	1.10E-04	1.20E-04
Plutonium (94)	Pu-239	F	2.87E-05	2.41E+04	1.40E-04	8.30E-05	3.90E-04	3.00E-04	6.50E-05	3.00E-06	6.30E-05	1.10E-04	1.20E-04
Plutonium (94)	Pu-240	F	1.06E-04	6.56E+03	1.40E-04	8.30E-05	3.90E-04	3.00E-04	6.50E-05	3.00E-06	6.30E-05	1.10E-04	1.20E-04
Plutonium (94)	Pu-241	F	4.83E-02	1.44E+01	1.40E-04	8.30E-05	3.90E-04	3.00E-04	6.50E-05	3.00E-06	6.30E-05	1.10E-04	1.20E-04
Plutonium (94)	Pu-242	F	1.85E-06	3.75E+05	1.40E-04	8.30E-05	3.90E-04	3.00E-04	6.50E-05	3.00E-06	6.30E-05	1.10E-04	1.20E-04
Plutonium (94)	Pu-243	S	1.22E+03	5.66E-04	1.40E-04	8.30E-05	3.90E-04	3.00E-04	6.50E-05	3.00E-06	6.30E-05	1.10E-04	1.20E-04
Plutonium (94)	Pu-244	F	8.66E-09	8.00E+07	1.40E-04	8.30E-05	3.90E-04	3.00E-04	6.50E-05	3.00E-06	6.30E-05	1.10E-04	1.20E-04
Plutonium (94)	Pu-245	S	5.78E+02	1.20E-03	1.40E-04	8.30E-05	3.90E-04	3.00E-04	6.50E-05	3.00E-06	6.30E-05	1.10E-04	1.20E-04
Plutonium (94)	Pu-246	S	2.33E+01	2.97E-02	1.40E-04	8.30E-05	3.90E-04	3.00E-04	6.50E-05	3.00E-06	6.30E-05	1.10E-04	1.20E-04
Radium (88)	Ra-219	-	2.19E+09	3.17E-10	1.00E-02	9.10E-02	7.00E-02	1.00E-02	1.70E-02	2.40E-03	1.40E-02	1.10E-02	1.00E-02
Radium (88)	Ra-220	-	1.22E+09	5.68E-10	1.00E-02	9.10E-02	7.00E-02	1.00E-02	1.70E-02	2.40E-03	1.40E-02	1.10E-02	1.00E-02
Radium (88)	Ra-221	-	7.81E+05	8.88E-07	1.00E-02	9.10E-02	7.00E-02	1.00E-02	1.70E-02	2.40E-03	1.40E-02	1.10E-02	1.00E-02

Plant Transfer Factors July 2023													
Radionuclides		Isotope-specific Information and Plant Transfer Factors											
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Wet	Wet	Wet	Wet	Wet	Wet	Wet	Wet	Wet
					Soil-to-plant transfer factor Woody tree (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Leaf (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Root (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Shrub (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Non-leafy fruit (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Maize grain (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Legume seed (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Tuber (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Herbaceous (Bq/g-fresh plant per Bq/g-wet soil)
Radium (88)	Ra-222	-	5.75E+05	1.20E-06	1.00E-02	9.10E-02	7.00E-02	1.00E-02	1.70E-02	2.40E-03	1.40E-02	1.10E-02	1.00E-02
Radium (88)	Ra-223	S	2.21E+01	3.13E-02	1.00E-02	9.10E-02	7.00E-02	1.00E-02	1.70E-02	2.40E-03	1.40E-02	1.10E-02	1.00E-02
Radium (88)	Ra-224	S	6.91E+01	1.00E-02	1.00E-02	9.10E-02	7.00E-02	1.00E-02	1.70E-02	2.40E-03	1.40E-02	1.10E-02	1.00E-02
Radium (88)	Ra-225	S	1.70E+01	4.08E-02	1.00E-02	9.10E-02	7.00E-02	1.00E-02	1.70E-02	2.40E-03	1.40E-02	1.10E-02	1.00E-02
Radium (88)	Ra-226	S	4.33E+04	1.60E+03	1.00E-02	9.10E-02	7.00E-02	1.00E-02	1.70E-02	2.40E-03	1.40E-02	1.10E-02	1.00E-02
Radium (88)	Ra-227	S	8.63E+03	8.03E-05	1.00E-02	9.10E-02	7.00E-02	1.00E-02	1.70E-02	2.40E-03	1.40E-02	1.10E-02	1.00E-02
Radium (88)	Ra-228	S	1.21E-01	5.75E+00	1.00E-02	9.10E-02	7.00E-02	1.00E-02	1.70E-02	2.40E-03	1.40E-02	1.10E-02	1.00E-02
Radium (88)	Ra-230	S	3.92E+03	1.77E-04	1.00E-02	9.10E-02	7.00E-02	1.00E-02	1.70E-02	2.40E-03	1.40E-02	1.10E-02	1.00E-02
Rubidium (37)	Rb-77	-	9.66E+04	7.17E-06	1.00E-01	6.20E-01	9.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Rubidium (37)	Rb-78	S	2.06E+04	3.36E-05	1.00E-01	6.20E-01	9.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Rubidium (37)	Rb-78m	-	6.35E+04	1.09E-05	1.00E-01	6.20E-01	9.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Rubidium (37)	Rb-79	S	1.59E+04	4.36E-05	1.00E-01	6.20E-01	9.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Rubidium (37)	Rb-80	-	6.54E+05	1.06E-06	1.00E-01	6.20E-01	9.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Rubidium (37)	Rb-81	S	1.33E+03	5.22E-04	1.00E-01	6.20E-01	9.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Rubidium (37)	Rb-81m	S	1.19E+04	5.80E-05	1.00E-01	6.20E-01	9.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Rubidium (37)	Rb-82	-	2.86E+05	2.42E-06	1.00E-01	6.20E-01	9.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Rubidium (37)	Rb-82m	S	9.38E+02	7.39E-04	1.00E-01	6.20E-01	9.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Rubidium (37)	Rb-83	S	2.93E+00	2.36E-01	1.00E-01	6.20E-01	9.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Rubidium (37)	Rb-84	S	7.72E+00	8.98E-02	1.00E-01	6.20E-01	9.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Rubidium (37)	Rb-84m	S	1.80E+04	3.85E-05	1.00E-01	6.20E-01	9.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Rubidium (37)	Rb-86	S	1.36E+01	5.11E-02	1.00E-01	6.20E-01	9.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Rubidium (37)	Rb-86m	-	3.58E+05	1.93E-06	1.00E-01	6.20E-01	9.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Rubidium (37)	Rb-87	S	1.41E-11	4.92E+10	1.00E-01	6.20E-01	9.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Rubidium (37)	Rb-88	S	2.05E+04	3.38E-05	1.00E-01	6.20E-01	9.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Rubidium (37)	Rb-89	S	2.40E+04	2.88E-05	1.00E-01	6.20E-01	9.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Rubidium (37)	Rb-90	-	1.38E+05	5.01E-06	1.00E-01	6.20E-01	9.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Rubidium (37)	Rb-90m	-	8.47E+04	8.18E-06	1.00E-01	6.20E-01	9.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Rhenium (75)	Re-178	S	2.76E+04	2.51E-05	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01
Rhenium (75)	Re-179	S	1.87E+04	3.71E-05	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01
Rhenium (75)	Re-180	-	1.49E+05	4.64E-06	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01
Rhenium (75)	Re-181	S	3.05E+02	2.27E-03	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01
Rhenium (75)	Re-182	S	9.49E+01	7.31E-03	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01
Rhenium (75)	Re-182m	S	4.78E+02	1.45E-03	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01
Rhenium (75)	Re-183	S	3.61E+00	1.92E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01
Rhenium (75)	Re-184	S	6.66E+00	1.04E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01
Rhenium (75)	Re-184m	S	1.50E+00	4.63E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01
Rhenium (75)	Re-186	S	6.80E+01	1.02E-02	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01
Rhenium (75)	Re-186m	S	3.47E-06	2.00E+05	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01
Rhenium (75)	Re-187	S	1.68E-11	4.12E+10	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01
Rhenium (75)	Re-188	S	3.57E+02	1.94E-03	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01
Rhenium (75)	Re-188m	S	1.96E+04	3.54E-05	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01
Rhenium (75)	Re-189	S	2.50E+02	2.77E-03	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01
Rhenium (75)	Re-190	-	1.17E+05	5.90E-06	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01
Rhenium (75)	Re-190m	S	1.90E+03	3.65E-04	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01
Rhodium (45)	Rh-100	S	2.92E+02	2.37E-03	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02
Rhodium (45)	Rh-100m	-	7.92E+04	8.75E-06	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02
Rhodium (45)	Rh-101	S	2.10E-01	3.30E+00	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02
Rhodium (45)	Rh-101m	S	5.83E+01	1.19E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02
Rhodium (45)	Rh-102	S	1.22E+00	5.67E-01	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02
Rhodium (45)	Rh-102m	S	1.85E-01	3.74E+00	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02
Rhodium (45)	Rh-103m	S	6.49E+03	1.07E-04	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02

Plant Transfer Factors July 2023													
Radionuclides		Isotope-specific Information and Plant Transfer Factors											
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Wet	Wet	Wet	Wet	Wet	Wet	Wet	Wet	Wet
					Soil-to-plant transfer factor Woody tree (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Leaf (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Root (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Shrub (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Non-leafy fruit (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Maize grain (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Legume seed (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Tuber (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Herbaceous (Bq/g-fresh plant per Bq/g-wet soil)
Rhodium (45)	Rh-104	-	5.17E+05	1.34E-06	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02
Rhodium (45)	Rh-104m	-	8.39E+04	8.26E-06	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02
Rhodium (45)	Rh-105	S	1.72E+02	4.04E-03	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02
Rhodium (45)	Rh-106	-	7.33E+05	9.45E-07	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02
Rhodium (45)	Rh-106m	S	2.78E+03	2.49E-04	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02
Rhodium (45)	Rh-107	S	1.68E+04	4.13E-05	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02
Rhodium (45)	Rh-108	-	1.30E+06	5.33E-07	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02
Rhodium (45)	Rh-109	-	2.73E+05	2.54E-06	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02
Rhodium (45)	Rh-94	-	3.10E+05	2.24E-06	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02
Rhodium (45)	Rh-95	-	7.26E+04	9.55E-06	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02
Rhodium (45)	Rh-95m	-	1.86E+05	3.73E-06	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02
Rhodium (45)	Rh-96	-	3.68E+04	1.88E-05	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02
Rhodium (45)	Rh-96m	-	2.41E+05	2.87E-06	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02
Rhodium (45)	Rh-97	S	1.19E+04	5.84E-05	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02
Rhodium (45)	Rh-97m	S	7.88E+03	8.79E-05	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02
Rhodium (45)	Rh-98	-	4.19E+04	1.66E-05	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02
Rhodium (45)	Rh-99	S	1.57E+01	4.41E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02
Rhodium (45)	Rh-99m	S	1.29E+03	5.37E-04	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02	3.00E-02
Radon (86)	Rn-207	-	3.94E+04	1.76E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Radon (86)	Rn-209	-	1.28E+04	5.42E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Radon (86)	Rn-210	-	2.53E+03	2.74E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Radon (86)	Rn-211	-	4.16E+02	1.67E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Radon (86)	Rn-212	-	1.52E+04	4.55E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
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	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	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Radon (86)	Rn-218	-	6.24E+08	1.11E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Radon (86)	Rn-219	-	5.52E+06	1.26E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Radon (86)	Rn-220	-	3.93E+05	1.76E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Radon (86)	Rn-222	-	6.62E+01	1.05E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Radon (86)	Rn-223	-	1.50E+04	4.62E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ruthenium (44)	Ru-103	S	6.44E+00	1.08E-01	2.00E-03	9.00E-02	1.00E-02	2.00E-03	2.00E-02	1.00E-02	1.50E-02	5.00E-03	2.00E-03
Ruthenium (44)	Ru-105	V	1.37E+03	5.07E-04	2.00E-03	9.00E-02	1.00E-02	2.00E-03	2.00E-02	1.00E-02	1.50E-02	5.00E-03	2.00E-03
Ruthenium (44)	Ru-106	S	6.77E-01	1.02E+00	2.00E-03	9.00E-02	1.00E-02	2.00E-03	2.00E-02	1.00E-02	1.50E-02	5.00E-03	2.00E-03
Ruthenium (44)	Ru-107	-	9.71E+04	7.13E-06	2.00E-03	9.00E-02	1.00E-02	2.00E-03	2.00E-02	1.00E-02	1.50E-02	5.00E-03	2.00E-03
Ruthenium (44)	Ru-108	-	8.01E+04	8.66E-06	2.00E-03	9.00E-02	1.00E-02	2.00E-03	2.00E-02	1.00E-02	1.50E-02	5.00E-03	2.00E-03
Ruthenium (44)	Ru-92	-	9.98E+04	6.94E-06	2.00E-03	9.00E-02	1.00E-02	2.00E-03	2.00E-02	1.00E-02	1.50E-02	5.00E-03	2.00E-03
Ruthenium (44)	Ru-94	V	7.03E+03	9.86E-05	2.00E-03	9.00E-02	1.00E-02	2.00E-03	2.00E-02	1.00E-02	1.50E-02	5.00E-03	2.00E-03
Ruthenium (44)	Ru-95	V	3.69E+03	1.88E-04	2.00E-03	9.00E-02	1.00E-02	2.00E-03	2.00E-02	1.00E-02	1.50E-02	5.00E-03	2.00E-03
Ruthenium (44)	Ru-97	V	8.72E+01	7.95E-03	2.00E-03	9.00E-02	1.00E-02	2.00E-03	2.00E-02	1.00E-02	1.50E-02	5.00E-03	2.00E-03
Sulfur (16)	S-35	S	2.89E+00	2.40E-01	6.00E-01	6.00E-01	6.00E-01	6.00E-01	6.00E-01	6.00E-01	6.00E-01	6.00E-01	6.00E-01
Sulphur (16)	S-37	-	7.21E+04	9.61E-06	6.00E-01	6.00E-01	6.00E-01	6.00E-01	6.00E-01	6.00E-01	6.00E-01	6.00E-01	6.00E-01
Sulfur (16)	S-38	S	2.14E+03	3.24E-04	6.00E-01	6.00E-01	6.00E-01	6.00E-01	6.00E-01	6.00E-01	6.00E-01	6.00E-01	6.00E-01
Antimony (51)	Sb-111	-	2.91E+05	2.38E-06	1.00E-02	9.40E-05	6.20E-04	1.00E-02	1.30E-04	1.00E-02	7.00E-03	1.00E-02	1.00E-02
Antimony (51)	Sb-113	-	5.46E+04	1.27E-05	1.00E-02	9.40E-05	6.20E-04	1.00E-02	1.30E-04	1.00E-02	7.00E-03	1.00E-02	1.00E-02
Antimony (51)	Sb-114	-	1.04E+05	6.64E-06	1.00E-02	9.40E-05	6.20E-04	1.00E-02	1.30E-04	1.00E-02	7.00E-03	1.00E-02	1.00E-02
Antimony (51)	Sb-115	S	1.13E+04	6.11E-05	1.00E-02	9.40E-05	6.20E-04	1.00E-02	1.30E-04	1.00E-02	7.00E-03	1.00E-02	1.00E-02
Antimony (51)	Sb-116	S	2.31E+04	3.01E-05	1.00E-02	9.40E-05	6.20E-04	1.00E-02	1.30E-04	1.00E-02	7.00E-03	1.00E-02	1.00E-02
Antimony (51)	Sb-116m	S	6.04E+03	1.15E-04	1.00E-02	9.40E-05	6.20E-04	1.00E-02	1.30E-04	1.00E-02	7.00E-03	1.00E-02	1.00E-02
Antimony (51)	Sb-117	S	2.17E+03	3.20E-04	1.00E-02	9.40E-05	6.20E-04	1.00E-02	1.30E-04	1.00E-02	7.00E-03	1.00E-02	1.00E-02
Antimony (51)	Sb-118	-	1.01E+05	6.85E-06	1.00E-02	9.40E-05	6.20E-04	1.00E-02	1.30E-04	1.00E-02	7.00E-03	1.00E-02	1.00E-02



Plant Transfer Factors July 2023													
Radionuclides		Isotope-specific Information and Plant Transfer Factors											
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Wet	Wet	Wet	Wet	Wet	Wet	Wet	Wet	Wet
					Soil-to-plant transfer factor Woody tree (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Leaf (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Root (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Shrub (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Non-leafy fruit (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Maize grain (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Legume seed (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Tuber (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Herbaceous (Bq/g-fresh plant per Bq/g-wet soil)
Antimony (51)	Sb-118m	S	1.21E+03	5.71E-04	1.00E-02	9.40E-05	6.20E-04	1.00E-02	1.30E-04	1.00E-02	7.00E-03	1.00E-02	1.00E-02
Antimony (51)	Sb-119	S	1.59E+02	4.36E-03	1.00E-02	9.40E-05	6.20E-04	1.00E-02	1.30E-04	1.00E-02	7.00E-03	1.00E-02	1.00E-02
Antimony (51)	Sb-120	S	2.29E+04	3.02E-05	1.00E-02	9.40E-05	6.20E-04	1.00E-02	1.30E-04	1.00E-02	7.00E-03	1.00E-02	1.00E-02
Antimony (51)	Sb-120m	S	4.39E+01	1.58E-02	1.00E-02	9.40E-05	6.20E-04	1.00E-02	1.30E-04	1.00E-02	7.00E-03	1.00E-02	1.00E-02
Antimony (51)	Sb-122	S	9.29E+01	7.46E-03	1.00E-02	9.40E-05	6.20E-04	1.00E-02	1.30E-04	1.00E-02	7.00E-03	1.00E-02	1.00E-02
Antimony (51)	Sb-122m	-	8.69E+04	7.97E-06	1.00E-02	9.40E-05	6.20E-04	1.00E-02	1.30E-04	1.00E-02	7.00E-03	1.00E-02	1.00E-02
Antimony (51)	Sb-124	S	4.20E+00	1.65E-01	1.00E-02	9.40E-05	6.20E-04	1.00E-02	1.30E-04	1.00E-02	7.00E-03	1.00E-02	1.00E-02
Antimony (51)	Sb-124m	-	2.35E+05	2.95E-06	1.00E-02	9.40E-05	6.20E-04	1.00E-02	1.30E-04	1.00E-02	7.00E-03	1.00E-02	1.00E-02
Antimony (51)	Sb-124n	S	1.80E+04	3.84E-05	1.00E-02	9.40E-05	6.20E-04	1.00E-02	1.30E-04	1.00E-02	7.00E-03	1.00E-02	1.00E-02
Antimony (51)	Sb-125	S	2.51E-01	2.76E+00	1.00E-02	9.40E-05	6.20E-04	1.00E-02	1.30E-04	1.00E-02	7.00E-03	1.00E-02	1.00E-02
Antimony (51)	Sb-126	S	2.05E+01	3.38E-02	1.00E-02	9.40E-05	6.20E-04	1.00E-02	1.30E-04	1.00E-02	7.00E-03	1.00E-02	1.00E-02
Antimony (51)	Sb-126m	S	1.90E+04	3.64E-05	1.00E-02	9.40E-05	6.20E-04	1.00E-02	1.30E-04	1.00E-02	7.00E-03	1.00E-02	1.00E-02
Antimony (51)	Sb-127	S	6.57E+01	1.05E-02	1.00E-02	9.40E-05	6.20E-04	1.00E-02	1.30E-04	1.00E-02	7.00E-03	1.00E-02	1.00E-02
Antimony (51)	Sb-128	S	6.74E+02	1.03E-03	1.00E-02	9.40E-05	6.20E-04	1.00E-02	1.30E-04	1.00E-02	7.00E-03	1.00E-02	1.00E-02
Antimony (51)	Sb-128m	S	3.50E+04	1.98E-05	1.00E-02	9.40E-05	6.20E-04	1.00E-02	1.30E-04	1.00E-02	7.00E-03	1.00E-02	1.00E-02
Antimony (51)	Sb-129	S	1.38E+03	5.02E-04	1.00E-02	9.40E-05	6.20E-04	1.00E-02	1.30E-04	1.00E-02	7.00E-03	1.00E-02	1.00E-02
Antimony (51)	Sb-130	S	9.22E+03	7.52E-05	1.00E-02	9.40E-05	6.20E-04	1.00E-02	1.30E-04	1.00E-02	7.00E-03	1.00E-02	1.00E-02
Antimony (51)	Sb-130m	-	5.78E+04	1.20E-05	1.00E-02	9.40E-05	6.20E-04	1.00E-02	1.30E-04	1.00E-02	7.00E-03	1.00E-02	1.00E-02
Antimony (51)	Sb-131	M	1.58E+04	4.38E-05	1.00E-02	9.40E-05	6.20E-04	1.00E-02	1.30E-04	1.00E-02	7.00E-03	1.00E-02	1.00E-02
Antimony (51)	Sb-133	-	1.46E+05	4.76E-06	1.00E-02	9.40E-05	6.20E-04	1.00E-02	1.30E-04	1.00E-02	7.00E-03	1.00E-02	1.00E-02
Scandium (21)	Sc-42m	-	3.52E+05	1.97E-06	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Scandium (21)	Sc-43	S	1.56E+03	4.44E-04	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Scandium (21)	Sc-44	S	1.53E+03	4.53E-04	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Scandium (21)	Sc-44m	S	1.04E+02	6.69E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Scandium (21)	Sc-46	S	3.02E+00	2.30E-01	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Scandium (21)	Sc-47	S	7.55E+01	9.18E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Scandium (21)	Sc-48	S	1.39E+02	4.99E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Scandium (21)	Sc-49	S	6.37E+03	1.09E-04	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Scandium (21)	Sc-50	-	2.13E+05	3.25E-06	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Selenium (34)	Se-70	S	8.86E+03	7.82E-05	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00
Selenium (34)	Se-71	-	7.68E+04	9.02E-06	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00
Selenium (34)	Se-72	S	3.01E+01	2.30E-02	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00
Selenium (34)	Se-73	S	8.49E+02	8.16E-04	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00
Selenium (34)	Se-73m	S	9.15E+03	7.57E-05	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00
Selenium (34)	Se-75	S	2.11E+00	3.28E-01	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00
Selenium (34)	Se-77m	-	1.26E+06	5.50E-07	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00
Selenium (34)	Se-79	S	2.35E-06	2.95E+05	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00
Selenium (34)	Se-79m	-	9.29E+04	7.46E-06	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00
Selenium (34)	Se-81	S	1.97E+04	3.51E-05	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00
Selenium (34)	Se-81m	S	6.36E+03	1.09E-04	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00
Selenium (34)	Se-83	S	1.63E+04	4.24E-05	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00
Selenium (34)	Se-83m	-	3.12E+05	2.22E-06	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00
Selenium (34)	Se-84	-	1.17E+05	5.90E-06	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.00E+00
Silicon (14)	Si-31	S	2.32E+03	2.99E-04	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02
Silicon (14)	Si-32	S	5.25E-03	1.32E+02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02
Samarium (62)	Sm-139	-	1.42E+05	4.89E-06	8.00E-04	1.00E-03	1.00E-03	8.00E-04	1.00E-03	1.00E-03	1.00E-03	1.00E-03	8.00E-04
Samarium (62)	Sm-140	S	2.46E+04	2.82E-05	8.00E-04	1.00E-03	1.00E-03	8.00E-04	1.00E-03	1.00E-03	1.00E-03	1.00E-03	8.00E-04
Samarium (62)	Sm-141	S	3.57E+04	1.94E-05	8.00E-04	1.00E-03	1.00E-03	8.00E-04	1.00E-03	1.00E-03	1.00E-03	1.00E-03	8.00E-04
Samarium (62)	Sm-141m	S	1.61E+04	4.30E-05	8.00E-04	1.00E-03	1.00E-03	8.00E-04	1.00E-03	1.00E-03	1.00E-03	1.00E-03	8.00E-04
Samarium (62)	Sm-142	S	5.02E+03	1.38E-04	8.00E-04	1.00E-03	1.00E-03	8.00E-04	1.00E-03	1.00E-03	1.00E-03	1.00E-03	8.00E-04
Samarium (62)	Sm-143	-	4.16E+04	1.66E-05	8.00E-04	1.00E-03	1.00E-03	8.00E-04	1.00E-03	1.00E-03	1.00E-03	1.00E-03	8.00E-04

Plant Transfer Factors July 2023													
Radionuclides		Isotope-specific Information and Plant Transfer Factors											
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Wet	Wet	Wet	Wet	Wet	Wet	Wet	Wet	Wet
					Soil-to-plant transfer factor Woody tree (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Leaf (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Root (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Shrub (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Non-leafy fruit (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Maize grain (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Legume seed (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Tuber (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Herbaceous (Bq/g-fresh plant per Bq/g-wet soil)
Samarium (62)	Sm-143m	-	3.31E+05	2.09E-06	8.00E-04	1.00E-03	1.00E-03	8.00E-04	1.00E-03	1.00E-03	1.00E-03	1.00E-03	8.00E-04
Samarium (62)	Sm-145	F	7.44E-01	9.32E-01	8.00E-04	1.00E-03	1.00E-03	8.00E-04	1.00E-03	1.00E-03	1.00E-03	1.00E-03	8.00E-04
Samarium (62)	Sm-146	F	6.73E-09	1.03E+08	8.00E-04	1.00E-03	1.00E-03	8.00E-04	1.00E-03	1.00E-03	1.00E-03	1.00E-03	8.00E-04
Samarium (62)	Sm-147	F	6.54E-12	1.06E+11	8.00E-04	1.00E-03	1.00E-03	8.00E-04	1.00E-03	1.00E-03	1.00E-03	1.00E-03	8.00E-04
Samarium (62)	Sm-148	F	9.90E-17	7.00E+15	8.00E-04	1.00E-03	1.00E-03	8.00E-04	1.00E-03	1.00E-03	1.00E-03	1.00E-03	8.00E-04
Samarium (62)	Sm-151	F	7.70E-03	9.00E+01	8.00E-04	1.00E-03	1.00E-03	8.00E-04	1.00E-03	1.00E-03	1.00E-03	1.00E-03	8.00E-04
Samarium (62)	Sm-153	S	1.31E+02	5.31E-03	8.00E-04	1.00E-03	1.00E-03	8.00E-04	1.00E-03	1.00E-03	1.00E-03	1.00E-03	8.00E-04
Samarium (62)	Sm-155	S	1.63E+04	4.24E-05	8.00E-04	1.00E-03	1.00E-03	8.00E-04	1.00E-03	1.00E-03	1.00E-03	1.00E-03	8.00E-04
Samarium (62)	Sm-156	S	6.46E+02	1.07E-03	8.00E-04	1.00E-03	1.00E-03	8.00E-04	1.00E-03	1.00E-03	1.00E-03	1.00E-03	8.00E-04
Samarium (62)	Sm-157	-	4.54E+04	1.53E-05	8.00E-04	1.00E-03	1.00E-03	8.00E-04	1.00E-03	1.00E-03	1.00E-03	1.00E-03	8.00E-04
Tin (50)	Sn-106	-	1.90E+05	3.65E-06	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01
Tin (50)	Sn-108	S	3.54E+04	1.96E-05	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01
Tin (50)	Sn-109	S	2.02E+04	3.42E-05	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01
Tin (50)	Sn-110	S	1.48E+03	4.69E-04	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01
Tin (50)	Sn-111	S	1.03E+04	6.72E-05	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01
Tin (50)	Sn-113	S	2.20E+00	3.15E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01
Tin (50)	Sn-113m	S	1.70E+04	4.07E-05	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01
Tin (50)	Sn-117m	S	1.84E+01	3.77E-02	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01
Tin (50)	Sn-119m	S	8.63E-01	8.03E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01
Tin (50)	Sn-121	S	2.25E+02	3.09E-03	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01
Tin (50)	Sn-121m	S	1.58E-02	4.39E+01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01
Tin (50)	Sn-123	S	1.96E+00	3.54E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01
Tin (50)	Sn-123m	S	9.09E+03	7.62E-05	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01
Tin (50)	Sn-125	S	2.62E+01	2.64E-02	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01
Tin (50)	Sn-125m	-	3.83E+04	1.81E-05	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01
Tin (50)	Sn-126	S	3.01E-06	2.30E+05	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01
Tin (50)	Sn-127	S	2.89E+03	2.40E-04	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01
Tin (50)	Sn-127m	-	8.82E+04	7.86E-06	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01
Tin (50)	Sn-128	S	6.17E+03	1.12E-04	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01
Tin (50)	Sn-129	-	1.63E+05	4.24E-06	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01
Tin (50)	Sn-130	-	9.79E+04	7.08E-06	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01
Tin (50)	Sn-130m	-	2.14E+05	3.23E-06	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01	3.00E-01
Strontium (38)	Sr-79	-	1.62E+05	4.28E-06	1.70E-02	7.60E-01	7.20E-01	4.40E-02	3.60E-01	3.20E-01	1.40E+00	1.60E-01	3.30E-02
Strontium (38)	Sr-80	S	3.43E+03	2.02E-04	1.70E-02	7.60E-01	7.20E-01	4.40E-02	3.60E-01	3.20E-01	1.40E+00	1.60E-01	3.30E-02
Strontium (38)	Sr-81	S	1.63E+04	4.24E-05	1.70E-02	7.60E-01	7.20E-01	4.40E-02	3.60E-01	3.20E-01	1.40E+00	1.60E-01	3.30E-02
Strontium (38)	Sr-82	S	9.97E+00	6.95E-02	1.70E-02	7.60E-01	7.20E-01	4.40E-02	3.60E-01	3.20E-01	1.40E+00	1.60E-01	3.30E-02
Strontium (38)	Sr-83	S	1.87E+02	3.70E-03	1.70E-02	7.60E-01	7.20E-01	4.40E-02	3.60E-01	3.20E-01	1.40E+00	1.60E-01	3.30E-02
Strontium (38)	Sr-85	S	3.90E+00	1.78E-01	1.70E-02	7.60E-01	7.20E-01	4.40E-02	3.60E-01	3.20E-01	1.40E+00	1.60E-01	3.30E-02
Strontium (38)	Sr-85m	S	5.39E+03	1.29E-04	1.70E-02	7.60E-01	7.20E-01	4.40E-02	3.60E-01	3.20E-01	1.40E+00	1.60E-01	3.30E-02
Strontium (38)	Sr-87m	S	2.16E+03	3.21E-04	1.70E-02	7.60E-01	7.20E-01	4.40E-02	3.60E-01	3.20E-01	1.40E+00	1.60E-01	3.30E-02
Strontium (38)	Sr-89	S	5.01E+00	1.38E-01	1.70E-02	7.60E-01	7.20E-01	4.40E-02	3.60E-01	3.20E-01	1.40E+00	1.60E-01	3.30E-02
Strontium (38)	Sr-90	S	2.41E-02	2.88E+01	1.70E-02	7.60E-01	7.20E-01	4.40E-02	3.60E-01	3.20E-01	1.40E+00	1.60E-01	3.30E-02
Strontium (38)	Sr-91	S	6.30E+02	1.10E-03	1.70E-02	7.60E-01	7.20E-01	4.40E-02	3.60E-01	3.20E-01	1.40E+00	1.60E-01	3.30E-02
Strontium (38)	Sr-92	S	2.28E+03	3.04E-04	1.70E-02	7.60E-01	7.20E-01	4.40E-02	3.60E-01	3.20E-01	1.40E+00	1.60E-01	3.30E-02
Strontium (38)	Sr-93	-	4.91E+04	1.41E-05	1.70E-02	7.60E-01	7.20E-01	4.40E-02	3.60E-01	3.20E-01	1.40E+00	1.60E-01	3.30E-02
Strontium (38)	Sr-94	-	2.90E+05	2.39E-06	1.70E-02	7.60E-01	7.20E-01	4.40E-02	3.60E-01	3.20E-01	1.40E+00	1.60E-01	3.30E-02
Tantalum (73)	Ta-170	-	5.39E+04	1.29E-05	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Tantalum (73)	Ta-172	S	9.90E+03	7.00E-05	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Tantalum (73)	Ta-173	S	1.93E+03	3.58E-04	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Tantalum (73)	Ta-174	S	5.33E+03	1.30E-04	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Tantalum (73)	Ta-175	S	5.78E+02	1.20E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03

Plant Transfer Factors July 2023													
Radionuclides		Isotope-specific Information and Plant Transfer Factors											
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Wet	Wet	Wet	Wet	Wet	Wet	Wet	Wet	Wet
					Soil-to-plant transfer factor Woody tree (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Leaf (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Root (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Shrub (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Non-leafy fruit (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Maize grain (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Legume seed (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Tuber (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Herbaceous (Bq/g-fresh plant per Bq/g-wet soil)
Tantalum (73)	Ta-176	S	7.50E+02	9.24E-04	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Tantalum (73)	Ta-177	S	1.07E+02	6.46E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Tantalum (73)	Ta-178	-	3.91E+04	1.77E-05	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Tantalum (73)	Ta-178m	S	2.57E+03	2.69E-04	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Tantalum (73)	Ta-179	S	3.81E-01	1.82E+00	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Tantalum (73)	Ta-180	S	7.45E+02	9.31E-04	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Tantalum (73)	Ta-182	S	2.21E+00	3.14E-01	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Tantalum (73)	Ta-182m	S	2.30E+04	3.01E-05	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Tantalum (73)	Ta-183	S	4.96E+01	1.40E-02	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Tantalum (73)	Ta-184	S	6.98E+02	9.93E-04	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Tantalum (73)	Ta-185	S	7.37E+03	9.40E-05	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Tantalum (73)	Ta-186	S	3.47E+04	2.00E-05	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Terbium (65)	Tb-146	-	9.50E+05	7.29E-07	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Terbium (65)	Tb-147	S	3.70E+03	1.87E-04	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Terbium (65)	Tb-147m	-	1.95E+05	3.56E-06	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Terbium (65)	Tb-148	S	6.07E+03	1.14E-04	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Terbium (65)	Tb-148m	-	1.66E+05	4.19E-06	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Terbium (65)	Tb-149	S	1.47E+03	4.70E-04	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Terbium (65)	Tb-149m	-	8.76E+04	7.91E-06	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Terbium (65)	Tb-150	S	1.74E+03	3.97E-04	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Terbium (65)	Tb-150m	-	6.28E+04	1.10E-05	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Terbium (65)	Tb-151	S	3.45E+02	2.01E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Terbium (65)	Tb-151m	-	8.74E+05	7.93E-07	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Terbium (65)	Tb-152	S	3.47E+02	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Terbium (65)	Tb-152m	-	8.67E+04	7.99E-06	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Terbium (65)	Tb-153	S	1.08E+02	6.41E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Terbium (65)	Tb-154	S	2.82E+02	2.45E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Terbium (65)	Tb-155	S	4.75E+01	1.46E-02	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Terbium (65)	Tb-156	S	4.73E+01	1.47E-02	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Terbium (65)	Tb-156m	S	2.49E+02	2.79E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Terbium (65)	Tb-156n	S	1.15E+03	6.05E-04	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Terbium (65)	Tb-157	F	9.76E-03	7.10E+01	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Terbium (65)	Tb-158	F	3.85E-03	1.80E+02	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Terbium (65)	Tb-160	S	3.50E+00	1.98E-01	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Terbium (65)	Tb-161	S	3.66E+01	1.89E-02	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Terbium (65)	Tb-162	-	4.79E+04	1.45E-05	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Terbium (65)	Tb-163	S	1.87E+04	3.71E-05	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Terbium (65)	Tb-164	-	1.21E+05	5.71E-06	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Terbium (65)	Tb-165	-	1.73E+05	4.01E-06	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Technetium (43)	Tc-101	S	2.57E+04	2.70E-05	5.00E+00	1.80E+02	4.60E+01	5.00E+00	5.00E+00	3.80E+00	4.30E+00	2.30E-01	5.00E+00
Technetium (43)	Tc-102	-	4.14E+06	1.67E-07	5.00E+00	1.80E+02	4.60E+01	5.00E+00	5.00E+00	3.80E+00	4.30E+00	2.30E-01	5.00E+00
Technetium (43)	Tc-102m	-	8.37E+04	8.28E-06	5.00E+00	1.80E+02	4.60E+01	5.00E+00	5.00E+00	3.80E+00	4.30E+00	2.30E-01	5.00E+00
Technetium (43)	Tc-104	S	1.99E+04	3.48E-05	5.00E+00	1.80E+02	4.60E+01	5.00E+00	5.00E+00	3.80E+00	4.30E+00	2.30E-01	5.00E+00
Technetium (43)	Tc-105	-	4.79E+04	1.45E-05	5.00E+00	1.80E+02	4.60E+01	5.00E+00	5.00E+00	3.80E+00	4.30E+00	2.30E-01	5.00E+00
Technetium (43)	Tc-91	-	1.16E+05	5.97E-06	5.00E+00	1.80E+02	4.60E+01	5.00E+00	5.00E+00	3.80E+00	4.30E+00	2.30E-01	5.00E+00
Technetium (43)	Tc-91m	-	1.10E+05	6.28E-06	5.00E+00	1.80E+02	4.60E+01	5.00E+00	5.00E+00	3.80E+00	4.30E+00	2.30E-01	5.00E+00
Technetium (43)	Tc-92	-	8.57E+04	8.09E-06	5.00E+00	1.80E+02	4.60E+01	5.00E+00	5.00E+00	3.80E+00	4.30E+00	2.30E-01	5.00E+00
Technetium (43)	Tc-93	S	2.21E+03	3.14E-04	5.00E+00	1.80E+02	4.60E+01	5.00E+00	5.00E+00	3.80E+00	4.30E+00	2.30E-01	5.00E+00
Technetium (43)	Tc-93m	S	8.37E+03	8.28E-05	5.00E+00	1.80E+02	4.60E+01	5.00E+00	5.00E+00	3.80E+00	4.30E+00	2.30E-01	5.00E+00
Technetium (43)	Tc-94	S	1.24E+03	5.57E-04	5.00E+00	1.80E+02	4.60E+01	5.00E+00	5.00E+00	3.80E+00	4.30E+00	2.30E-01	5.00E+00
Technetium (43)	Tc-94m	S	7.00E+03	9.89E-05	5.00E+00	1.80E+02	4.60E+01	5.00E+00	5.00E+00	3.80E+00	4.30E+00	2.30E-01	5.00E+00

Plant Transfer Factors July 2023														
Radionuclides		Isotope-specific Information and Plant Transfer Factors												
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Wet	Wet	Wet	Wet	Wet	Wet	Wet	Wet	Wet	
					Soil-to-plant transfer factor Woody tree (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Leaf (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Root (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Shrub (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Non-leafy fruit (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Maize grain (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Legume seed (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Tuber (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Herbaceous (Bq/g-fresh plant per Bq/g-wet soil)	
Techneium (43)	Tc-95	S	3.04E+02	2.28E-03	5.00E+00	1.80E+02	4.60E+01	5.00E+00	5.00E+00	5.00E+00	3.80E+00	4.30E+00	2.30E-01	5.00E+00
Techneium (43)	Tc-95m	S	4.15E+00	1.67E-01	5.00E+00	1.80E+02	4.60E+01	5.00E+00	5.00E+00	5.00E+00	3.80E+00	4.30E+00	2.30E-01	5.00E+00
Techneium (43)	Tc-96	S	5.91E+01	1.17E-02	5.00E+00	1.80E+02	4.60E+01	5.00E+00	5.00E+00	5.00E+00	3.80E+00	4.30E+00	2.30E-01	5.00E+00
Techneium (43)	Tc-96m	S	7.07E+03	9.80E-05	5.00E+00	1.80E+02	4.60E+01	5.00E+00	5.00E+00	5.00E+00	3.80E+00	4.30E+00	2.30E-01	5.00E+00
Techneium (43)	Tc-97	S	2.67E-07	2.60E+06	5.00E+00	1.80E+02	4.60E+01	5.00E+00	5.00E+00	5.00E+00	3.80E+00	4.30E+00	2.30E-01	5.00E+00
Techneium (43)	Tc-97m	S	2.81E+00	2.47E-01	5.00E+00	1.80E+02	4.60E+01	5.00E+00	5.00E+00	5.00E+00	3.80E+00	4.30E+00	2.30E-01	5.00E+00
Techneium (43)	Tc-98	S	1.65E-07	4.20E+06	5.00E+00	1.80E+02	4.60E+01	5.00E+00	5.00E+00	5.00E+00	3.80E+00	4.30E+00	2.30E-01	5.00E+00
Techneium (43)	Tc-99	S	3.28E-06	2.11E+05	5.00E+00	1.80E+02	4.60E+01	5.00E+00	5.00E+00	5.00E+00	3.80E+00	4.30E+00	2.30E-01	5.00E+00
Techneium (43)	Tc-99m	S	1.01E+03	6.87E-04	5.00E+00	1.80E+02	4.60E+01	5.00E+00	5.00E+00	5.00E+00	3.80E+00	4.30E+00	2.30E-01	5.00E+00
Tellurium (52)	Te-113	-	2.14E+05	3.23E-06	1.00E-01	3.00E-01	3.00E-01	1.00E-01	3.00E-01	1.00E-01	1.00E-01	1.00E-01	2.00E-01	1.00E-01
Tellurium (52)	Te-114	V	2.40E+04	2.89E-05	1.00E-01	3.00E-01	3.00E-01	1.00E-01	3.00E-01	1.00E-01	1.00E-01	1.00E-01	2.00E-01	1.00E-01
Tellurium (52)	Te-115	-	6.28E+04	1.10E-05	1.00E-01	3.00E-01	3.00E-01	1.00E-01	3.00E-01	1.00E-01	1.00E-01	1.00E-01	2.00E-01	1.00E-01
Tellurium (52)	Te-115m	-	5.44E+04	1.27E-05	1.00E-01	3.00E-01	3.00E-01	1.00E-01	3.00E-01	1.00E-01	1.00E-01	1.00E-01	2.00E-01	1.00E-01
Tellurium (52)	Te-116	S	2.44E+03	2.84E-04	1.00E-01	3.00E-01	3.00E-01	1.00E-01	3.00E-01	1.00E-01	1.00E-01	1.00E-01	2.00E-01	1.00E-01
Tellurium (52)	Te-117	V	5.87E+03	1.18E-04	1.00E-01	3.00E-01	3.00E-01	1.00E-01	3.00E-01	1.00E-01	1.00E-01	1.00E-01	2.00E-01	1.00E-01
Tellurium (52)	Te-118	S	4.22E+01	1.64E-02	1.00E-01	3.00E-01	3.00E-01	1.00E-01	3.00E-01	1.00E-01	1.00E-01	1.00E-01	2.00E-01	1.00E-01
Tellurium (52)	Te-119	S	3.78E+02	1.83E-03	1.00E-01	3.00E-01	3.00E-01	1.00E-01	3.00E-01	1.00E-01	1.00E-01	1.00E-01	2.00E-01	1.00E-01
Tellurium (52)	Te-119m	V	5.38E+01	1.29E-02	1.00E-01	3.00E-01	3.00E-01	1.00E-01	3.00E-01	1.00E-01	1.00E-01	1.00E-01	2.00E-01	1.00E-01
Tellurium (52)	Te-121	V	1.32E+01	5.25E-02	1.00E-01	3.00E-01	3.00E-01	1.00E-01	3.00E-01	1.00E-01	1.00E-01	1.00E-01	2.00E-01	1.00E-01
Tellurium (52)	Te-121m	S	1.64E+00	4.22E-01	1.00E-01	3.00E-01	3.00E-01	1.00E-01	3.00E-01	1.00E-01	1.00E-01	1.00E-01	2.00E-01	1.00E-01
Tellurium (52)	Te-123	V	1.16E-15	6.00E+14	1.00E-01	3.00E-01	3.00E-01	1.00E-01	3.00E-01	1.00E-01	1.00E-01	1.00E-01	2.00E-01	1.00E-01
Tellurium (52)	Te-123m	S	2.12E+00	3.27E-01	1.00E-01	3.00E-01	3.00E-01	1.00E-01	3.00E-01	1.00E-01	1.00E-01	1.00E-01	2.00E-01	1.00E-01
Tellurium (52)	Te-125m	S	4.41E+00	1.57E-01	1.00E-01	3.00E-01	3.00E-01	1.00E-01	3.00E-01	1.00E-01	1.00E-01	1.00E-01	2.00E-01	1.00E-01
Tellurium (52)	Te-127	S	6.49E+02	1.07E-03	1.00E-01	3.00E-01	3.00E-01	1.00E-01	3.00E-01	1.00E-01	1.00E-01	1.00E-01	2.00E-01	1.00E-01
Tellurium (52)	Te-127m	S	2.32E+00	2.99E-01	1.00E-01	3.00E-01	3.00E-01	1.00E-01	3.00E-01	1.00E-01	1.00E-01	1.00E-01	2.00E-01	1.00E-01
Tellurium (52)	Te-129	V	5.23E+03	1.32E-04	1.00E-01	3.00E-01	3.00E-01	1.00E-01	3.00E-01	1.00E-01	1.00E-01	1.00E-01	2.00E-01	1.00E-01
Tellurium (52)	Te-129m	S	7.53E+00	9.21E-02	1.00E-01	3.00E-01	3.00E-01	1.00E-01	3.00E-01	1.00E-01	1.00E-01	1.00E-01	2.00E-01	1.00E-01
Tellurium (52)	Te-131	V	1.46E+04	4.76E-05	1.00E-01	3.00E-01	3.00E-01	1.00E-01	3.00E-01	1.00E-01	1.00E-01	1.00E-01	2.00E-01	1.00E-01
Tellurium (52)	Te-131m	V	2.02E+02	3.42E-03	1.00E-01	3.00E-01	3.00E-01	1.00E-01	3.00E-01	1.00E-01	1.00E-01	1.00E-01	2.00E-01	1.00E-01
Tellurium (52)	Te-132	V	7.89E+01	8.78E-03	1.00E-01	3.00E-01	3.00E-01	1.00E-01	3.00E-01	1.00E-01	1.00E-01	1.00E-01	2.00E-01	1.00E-01
Tellurium (52)	Te-133	V	2.91E+04	2.38E-05	1.00E-01	3.00E-01	3.00E-01	1.00E-01	3.00E-01	1.00E-01	1.00E-01	1.00E-01	2.00E-01	1.00E-01
Tellurium (52)	Te-133m	V	6.57E+03	1.05E-04	1.00E-01	3.00E-01	3.00E-01	1.00E-01	3.00E-01	1.00E-01	1.00E-01	1.00E-01	2.00E-01	1.00E-01
Tellurium (52)	Te-134	V	8.71E+03	7.95E-05	1.00E-01	3.00E-01	3.00E-01	1.00E-01	3.00E-01	1.00E-01	1.00E-01	1.00E-01	2.00E-01	1.00E-01
Thorium (90)	Th-223	-	3.64E+07	1.90E-08	5.00E-04	1.20E-03	8.00E-04	5.00E-04	7.80E-04	6.40E-04	5.30E-04	2.00E-04	5.00E-04	
Thorium (90)	Th-224	-	2.08E+07	3.33E-08	5.00E-04	1.20E-03	8.00E-04	5.00E-04	7.80E-04	6.40E-04	5.30E-04	2.00E-04	5.00E-04	
Thorium (90)	Th-226	S	1.19E+04	5.82E-05	5.00E-04	1.20E-03	8.00E-04	5.00E-04	7.80E-04	6.40E-04	5.30E-04	2.00E-04	5.00E-04	
Thorium (90)	Th-227	S	1.35E+01	5.12E-02	5.00E-04	1.20E-03	8.00E-04	5.00E-04	7.80E-04	6.40E-04	5.30E-04	2.00E-04	5.00E-04	
Thorium (90)	Th-228	S	3.63E-01	1.91E+00	5.00E-04	1.20E-03	8.00E-04	5.00E-04	7.80E-04	6.40E-04	5.30E-04	2.00E-04	5.00E-04	
Thorium (90)	Th-229	S	9.44E-05	7.34E+03	5.00E-04	1.20E-03	8.00E-04	5.00E-04	7.80E-04	6.40E-04	5.30E-04	2.00E-04	5.00E-04	
Thorium (90)	Th-230	F	9.19E-06	7.54E+04	5.00E-04	1.20E-03	8.00E-04	5.00E-04	7.80E-04	6.40E-04	5.30E-04	2.00E-04	5.00E-04	
Thorium (90)	Th-231	S	2.38E+02	2.91E-03	5.00E-04	1.20E-03	8.00E-04	5.00E-04	7.80E-04	6.40E-04	5.30E-04	2.00E-04	5.00E-04	
Thorium (90)	Th-232	S	4.93E-11	1.41E+10	5.00E-04	1.20E-03	8.00E-04	5.00E-04	7.80E-04	6.40E-04	5.30E-04	2.00E-04	5.00E-04	
Thorium (90)	Th-233	S	1.63E+04	4.24E-05	5.00E-04	1.20E-03	8.00E-04	5.00E-04	7.80E-04	6.40E-04	5.30E-04	2.00E-04	5.00E-04	
Thorium (90)	Th-234	S	1.05E+01	6.60E-02	5.00E-04	1.20E-03	8.00E-04	5.00E-04	7.80E-04	6.40E-04	5.30E-04	2.00E-04	5.00E-04	
Thorium (90)	Th-235	-	5.13E+04	1.35E-05	5.00E-04	1.20E-03	8.00E-04	5.00E-04	7.80E-04	6.40E-04	5.30E-04	2.00E-04	5.00E-04	
Thorium (90)	Th-236	S	9.71E+03	7.13E-05	5.00E-04	1.20E-03	8.00E-04	5.00E-04	7.80E-04	6.40E-04	5.30E-04	2.00E-04	5.00E-04	
Titanium (22)	Ti-44	S	1.16E-02	6.00E+01	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03
Titanium (22)	Ti-45	S	1.97E+03	3.52E-04	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03
Titanium (22)	Ti-51	-	6.32E+04	1.10E-05	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03
Titanium (22)	Ti-52	-	2.14E+05	3.23E-06	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03
Thallium (81)	Tl-190	-	1.40E+05	4.95E-06	8.00E-05	8.00E-04	8.00E-05	8.00E-05	8.00E-04	8.00E-04	8.00E-04	8.00E-05	8.00E-05	8.00E-05



Plant Transfer Factors July 2023													
Radionuclides		Isotope-specific Information and Plant Transfer Factors											
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Wet	Wet	Wet	Wet	Wet	Wet	Wet	Wet	Wet
					Soil-to-plant transfer factor Woody tree (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Leaf (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Root (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Shrub (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Non-leafy fruit (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Maize grain (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Legume seed (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Tuber (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Herbaceous (Bq/g-fresh plant per Bq/g-wet soil)
Thallium (81)	Tl-190m	-	9.84E+04	7.04E-06	8.00E-05	8.00E-04	8.00E-05	8.00E-05	8.00E-05	8.00E-04	8.00E-04	8.00E-04	8.00E-05
Thallium (81)	Tl-194	S	1.10E+04	6.28E-05	8.00E-05	8.00E-04	8.00E-05	8.00E-05	8.00E-05	8.00E-04	8.00E-04	8.00E-04	8.00E-05
Thallium (81)	Tl-194m	S	1.11E+04	6.24E-05	8.00E-05	8.00E-04	8.00E-05	8.00E-05	8.00E-05	8.00E-04	8.00E-04	8.00E-04	8.00E-05
Thallium (81)	Tl-195	S	5.23E+03	1.32E-04	8.00E-05	8.00E-04	8.00E-05	8.00E-05	8.00E-05	8.00E-04	8.00E-04	8.00E-04	8.00E-05
Thallium (81)	Tl-196	S	3.30E+03	2.10E-04	8.00E-05	8.00E-04	8.00E-05	8.00E-05	8.00E-05	8.00E-04	8.00E-04	8.00E-04	8.00E-05
Thallium (81)	Tl-197	S	2.14E+03	3.24E-04	8.00E-05	8.00E-04	8.00E-05	8.00E-05	8.00E-05	8.00E-04	8.00E-04	8.00E-04	8.00E-05
Thallium (81)	Tl-198	S	1.15E+03	6.05E-04	8.00E-05	8.00E-04	8.00E-05	8.00E-05	8.00E-05	8.00E-04	8.00E-04	8.00E-04	8.00E-05
Thallium (81)	Tl-198m	S	3.25E+03	2.13E-04	8.00E-05	8.00E-04	8.00E-05	8.00E-05	8.00E-05	8.00E-04	8.00E-04	8.00E-04	8.00E-05
Thallium (81)	Tl-199	S	8.18E+02	8.47E-04	8.00E-05	8.00E-04	8.00E-05	8.00E-05	8.00E-05	8.00E-04	8.00E-04	8.00E-04	8.00E-05
Thallium (81)	Tl-200	S	2.33E+02	2.98E-03	8.00E-05	8.00E-04	8.00E-05	8.00E-05	8.00E-05	8.00E-04	8.00E-04	8.00E-04	8.00E-05
Thallium (81)	Tl-201	S	8.33E+01	8.32E-03	8.00E-05	8.00E-04	8.00E-05	8.00E-05	8.00E-05	8.00E-04	8.00E-04	8.00E-04	8.00E-05
Thallium (81)	Tl-202	S	2.07E+01	3.35E-02	8.00E-05	8.00E-04	8.00E-05	8.00E-05	8.00E-05	8.00E-04	8.00E-04	8.00E-04	8.00E-05
Thallium (81)	Tl-204	S	1.83E-01	3.78E+00	8.00E-05	8.00E-04	8.00E-05	8.00E-05	8.00E-05	8.00E-04	8.00E-04	8.00E-04	8.00E-05
Thallium (81)	Tl-206	-	8.67E+04	7.99E-06	8.00E-05	8.00E-04	8.00E-05	8.00E-05	8.00E-05	8.00E-04	8.00E-04	8.00E-04	8.00E-05
Thallium (81)	Tl-206m	-	9.74E+04	7.12E-06	8.00E-05	8.00E-04	8.00E-05	8.00E-05	8.00E-05	8.00E-04	8.00E-04	8.00E-04	8.00E-05
Thallium (81)	Tl-207	-	7.64E+04	9.08E-06	8.00E-05	8.00E-04	8.00E-05	8.00E-05	8.00E-05	8.00E-04	8.00E-04	8.00E-04	8.00E-05
Thallium (81)	Tl-208	-	1.19E+05	5.81E-06	8.00E-05	8.00E-04	8.00E-05	8.00E-05	8.00E-05	8.00E-04	8.00E-04	8.00E-04	8.00E-05
Thallium (81)	Tl-209	-	1.69E+05	4.11E-06	8.00E-05	8.00E-04	8.00E-05	8.00E-05	8.00E-05	8.00E-04	8.00E-04	8.00E-04	8.00E-05
Thallium (81)	Tl-210	-	2.80E+05	2.47E-06	8.00E-05	8.00E-04	8.00E-05	8.00E-05	8.00E-05	8.00E-04	8.00E-04	8.00E-04	8.00E-05
Thulium (69)	Tm-161	S	1.21E+04	5.75E-05	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Thulium (69)	Tm-162	S	1.68E+04	4.13E-05	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Thulium (69)	Tm-163	S	3.35E+03	2.07E-04	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Thulium (69)	Tm-164	-	1.82E+05	3.81E-06	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Thulium (69)	Tm-165	S	2.02E+02	3.43E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Thulium (69)	Tm-166	S	7.88E+02	8.79E-04	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Thulium (69)	Tm-167	S	2.73E+01	2.53E-02	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Thulium (69)	Tm-168	S	2.72E+00	2.55E-01	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Thulium (69)	Tm-170	S	1.97E+00	3.52E-01	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Thulium (69)	Tm-171	S	3.61E-01	1.92E+00	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Thulium (69)	Tm-172	S	9.55E+01	7.26E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Thulium (69)	Tm-173	S	7.37E+02	9.41E-04	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Thulium (69)	Tm-174	-	6.75E+04	1.03E-05	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Thulium (69)	Tm-175	S	2.40E+04	2.89E-05	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Thulium (69)	Tm-176	-	1.97E+05	3.52E-06	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Uranium (92)	U-227	-	3.31E+05	2.09E-06	1.00E-03	2.00E-02	8.40E-03	1.00E-03	1.50E-02	1.50E-02	2.20E-03	5.00E-03	1.00E-03
Uranium (92)	U-228	-	4.00E+04	1.73E-05	1.00E-03	2.00E-02	8.40E-03	1.00E-03	1.50E-02	1.50E-02	2.20E-03	5.00E-03	1.00E-03
Uranium (92)	U-230	S	1.22E+01	5.70E-02	1.00E-03	2.00E-02	8.40E-03	1.00E-03	1.50E-02	1.50E-02	2.20E-03	5.00E-03	1.00E-03
Uranium (92)	U-231	S	6.02E+01	1.15E-02	1.00E-03	2.00E-02	8.40E-03	1.00E-03	1.50E-02	1.50E-02	2.20E-03	5.00E-03	1.00E-03
Uranium (92)	U-232	S	1.01E-02	6.89E+01	1.00E-03	2.00E-02	8.40E-03	1.00E-03	1.50E-02	1.50E-02	2.20E-03	5.00E-03	1.00E-03
Uranium (92)	U-233	S	4.35E-06	1.59E+05	1.00E-03	2.00E-02	8.40E-03	1.00E-03	1.50E-02	1.50E-02	2.20E-03	5.00E-03	1.00E-03
Uranium (92)	U-234	S	2.82E-06	2.46E+05	1.00E-03	2.00E-02	8.40E-03	1.00E-03	1.50E-02	1.50E-02	2.20E-03	5.00E-03	1.00E-03
Uranium (92)	U-235	S	9.84E-10	7.04E+08	1.00E-03	2.00E-02	8.40E-03	1.00E-03	1.50E-02	1.50E-02	2.20E-03	5.00E-03	1.00E-03
Uranium (92)	U-235m	M	1.40E+04	4.95E-05	1.00E-03	2.00E-02	8.40E-03	1.00E-03	1.50E-02	1.50E-02	2.20E-03	5.00E-03	1.00E-03
Uranium (92)	U-236	S	2.96E-08	2.34E+07	1.00E-03	2.00E-02	8.40E-03	1.00E-03	1.50E-02	1.50E-02	2.20E-03	5.00E-03	1.00E-03
Uranium (92)	U-237	S	3.75E+01	1.85E-02	1.00E-03	2.00E-02	8.40E-03	1.00E-03	1.50E-02	1.50E-02	2.20E-03	5.00E-03	1.00E-03
Uranium (92)	U-238	S	1.55E-10	4.47E+09	1.00E-03	2.00E-02	8.40E-03	1.00E-03	1.50E-02	1.50E-02	2.20E-03	5.00E-03	1.00E-03
Uranium (92)	U-239	S	1.55E+04	4.46E-05	1.00E-03	2.00E-02	8.40E-03	1.00E-03	1.50E-02	1.50E-02	2.20E-03	5.00E-03	1.00E-03
Uranium (92)	U-240	S	4.31E+02	1.61E-03	1.00E-03	2.00E-02	8.40E-03	1.00E-03	1.50E-02	1.50E-02	2.20E-03	5.00E-03	1.00E-03
Uranium (92)	U-242	S	2.17E+04	3.20E-05	1.00E-03	2.00E-02	8.40E-03	1.00E-03	1.50E-02	1.50E-02	2.20E-03	5.00E-03	1.00E-03
Vanadium (23)	V-47	S	1.12E+04	6.20E-05	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02
Vanadium (23)	V-48	S	1.58E+01	4.38E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02

Plant Transfer Factors July 2023													
Radionuclides		Isotope-specific Information and Plant Transfer Factors											
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Wet	Wet	Wet	Wet	Wet	Wet	Wet	Wet	Wet
					Soil-to-plant transfer factor Woody tree (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Leaf (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Root (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Shrub (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Non-leafy fruit (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Maize grain (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Legume seed (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Tuber (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Herbaceous (Bq/g-fresh plant per Bq/g-wet soil)
Vanadium (23)	V-49	S	7.67E-01	9.04E-01	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02
Vanadium (23)	V-50	F	4.62E-18	1.50E+17	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02
Vanadium (23)	V-52	-	9.73E+04	7.12E-06	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02
Vanadium (23)	V-53	-	2.26E+05	3.06E-06	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02
Tungsten (74)	W-177	S	2.76E+03	2.51E-04	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01
Tungsten (74)	W-178	S	1.17E+01	5.92E-02	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01
Tungsten (74)	W-179	S	9.83E+03	7.05E-05	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01
Tungsten (74)	W-179m	-	5.69E+04	1.22E-05	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01
Tungsten (74)	W-181	S	2.09E+00	3.32E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01
Tungsten (74)	W-185	S	3.37E+00	2.06E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01
Tungsten (74)	W-185m	-	2.28E+05	3.04E-06	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01
Tungsten (74)	W-187	S	2.56E+02	2.71E-03	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01
Tungsten (74)	W-188	S	3.62E+00	1.91E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01
Tungsten (74)	W-190	S	1.21E+04	5.71E-05	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01
Xenon (54)	Xe-120	-	9.11E+03	7.61E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Xenon (54)	Xe-121	-	9.08E+03	7.63E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Xenon (54)	Xe-122	-	3.02E+02	2.29E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Xenon (54)	Xe-123	-	2.92E+03	2.37E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Xenon (54)	Xe-125	-	3.59E+02	1.93E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Xenon (54)	Xe-127	-	6.95E+00	9.97E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Xenon (54)	Xe-127m	-	3.16E+05	2.19E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Xenon (54)	Xe-129m	-	2.85E+01	2.43E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Xenon (54)	Xe-131m	-	2.14E+01	3.24E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Xenon (54)	Xe-133	-	4.82E+01	1.44E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Xenon (54)	Xe-133m	-	1.16E+02	6.00E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Xenon (54)	Xe-135	-	6.64E+02	1.04E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Xenon (54)	Xe-135m	-	2.38E+04	2.91E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Xenon (54)	Xe-137	-	9.54E+04	7.26E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Xenon (54)	Xe-138	-	2.59E+04	2.68E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Yttrium (39)	Y-81	-	3.10E+05	2.23E-06	1.00E-02	2.00E-03	2.00E-03	1.00E-02	2.00E-03	1.00E-02	1.00E-02	1.00E-03	1.00E-02
Yttrium (39)	Y-83	-	5.14E+04	1.35E-05	1.00E-02	2.00E-03	2.00E-03	1.00E-02	2.00E-03	1.00E-02	1.00E-02	1.00E-03	1.00E-02
Yttrium (39)	Y-83m	-	1.28E+05	5.42E-06	1.00E-02	2.00E-03	2.00E-03	1.00E-02	2.00E-03	1.00E-02	1.00E-02	1.00E-03	1.00E-02
Yttrium (39)	Y-84m	S	9.22E+03	7.52E-05	1.00E-02	2.00E-03	2.00E-03	1.00E-02	2.00E-03	1.00E-02	1.00E-02	1.00E-03	1.00E-02
Yttrium (39)	Y-85	S	2.27E+03	3.06E-04	1.00E-02	2.00E-03	2.00E-03	1.00E-02	2.00E-03	1.00E-02	1.00E-02	1.00E-03	1.00E-02
Yttrium (39)	Y-85m	S	1.25E+03	5.55E-04	1.00E-02	2.00E-03	2.00E-03	1.00E-02	2.00E-03	1.00E-02	1.00E-02	1.00E-03	1.00E-02
Yttrium (39)	Y-86	S	4.12E+02	1.68E-03	1.00E-02	2.00E-03	2.00E-03	1.00E-02	2.00E-03	1.00E-02	1.00E-02	1.00E-03	1.00E-02
Yttrium (39)	Y-86m	S	7.59E+03	9.13E-05	1.00E-02	2.00E-03	2.00E-03	1.00E-02	2.00E-03	1.00E-02	1.00E-02	1.00E-03	1.00E-02
Yttrium (39)	Y-87	S	7.61E+01	9.11E-03	1.00E-02	2.00E-03	2.00E-03	1.00E-02	2.00E-03	1.00E-02	1.00E-02	1.00E-03	1.00E-02
Yttrium (39)	Y-87m	S	4.54E+02	1.53E-03	1.00E-02	2.00E-03	2.00E-03	1.00E-02	2.00E-03	1.00E-02	1.00E-02	1.00E-03	1.00E-02
Yttrium (39)	Y-88	F	2.37E+00	2.92E-01	1.00E-02	2.00E-03	2.00E-03	1.00E-02	2.00E-03	1.00E-02	1.00E-02	1.00E-03	1.00E-02
Yttrium (39)	Y-89m	-	1.40E+06	4.97E-07	1.00E-02	2.00E-03	2.00E-03	1.00E-02	2.00E-03	1.00E-02	1.00E-02	1.00E-03	1.00E-02
Yttrium (39)	Y-90	S	9.47E+01	7.32E-03	1.00E-02	2.00E-03	2.00E-03	1.00E-02	2.00E-03	1.00E-02	1.00E-02	1.00E-03	1.00E-02
Yttrium (39)	Y-90m	S	1.90E+03	3.64E-04	1.00E-02	2.00E-03	2.00E-03	1.00E-02	2.00E-03	1.00E-02	1.00E-02	1.00E-03	1.00E-02
Yttrium (39)	Y-91	S	4.32E+00	1.60E-01	1.00E-02	2.00E-03	2.00E-03	1.00E-02	2.00E-03	1.00E-02	1.00E-02	1.00E-03	1.00E-02
Yttrium (39)	Y-91m	S	7.33E+03	9.46E-05	1.00E-02	2.00E-03	2.00E-03	1.00E-02	2.00E-03	1.00E-02	1.00E-02	1.00E-03	1.00E-02
Yttrium (39)	Y-92	S	1.71E+03	4.04E-04	1.00E-02	2.00E-03	2.00E-03	1.00E-02	2.00E-03	1.00E-02	1.00E-02	1.00E-03	1.00E-02
Yttrium (39)	Y-93	S	5.96E+02	1.16E-03	1.00E-02	2.00E-03	2.00E-03	1.00E-02	2.00E-03	1.00E-02	1.00E-02	1.00E-03	1.00E-02
Yttrium (39)	Y-94	S	1.95E+04	3.56E-05	1.00E-02	2.00E-03	2.00E-03	1.00E-02	2.00E-03	1.00E-02	1.00E-02	1.00E-03	1.00E-02
Yttrium (39)	Y-95	S	3.54E+04	1.96E-05	1.00E-02	2.00E-03	2.00E-03	1.00E-02	2.00E-03	1.00E-02	1.00E-02	1.00E-03	1.00E-02
Ytterbium (70)	Yb-162	S	1.93E+04	3.59E-05	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Ytterbium (70)	Yb-163	S	3.30E+04	2.10E-05	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03

Plant Transfer Factors July 2023													
Radionuclides		Isotope-specific Information and Plant Transfer Factors											
Element (Atomic Number)	Isotope	ICRP Lung Absorption Type	Lambda (1/yr)	Halflife (years)	Wet	Wet	Wet	Wet	Wet	Wet	Wet	Wet	Wet
					Soil-to-plant transfer factor Woody tree (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Leaf (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Root (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Shrub (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Non-leafy fruit (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Maize grain (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Legume seed (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Tuber (Bq/g-fresh plant per Bq/g-wet soil)	Soil-to-plant transfer factor Herbaceous (Bq/g-fresh plant per Bq/g-wet soil)
Ytterbium (70)	Yb-164	S	4.81E+03	1.44E-04	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Ytterbium (70)	Yb-165	-	3.68E+04	1.88E-05	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Ytterbium (70)	Yb-166	S	1.07E+02	6.47E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Ytterbium (70)	Yb-167	S	2.08E+04	3.33E-05	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Ytterbium (70)	Yb-169	S	7.90E+00	8.77E-02	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Ytterbium (70)	Yb-175	S	6.04E+01	1.15E-02	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Ytterbium (70)	Yb-177	S	3.18E+03	2.18E-04	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Ytterbium (70)	Yb-178	S	4.92E+03	1.41E-04	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Ytterbium (70)	Yb-179	-	4.55E+04	1.52E-05	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Zinc (30)	Zn-60	-	1.53E+05	4.53E-06	1.00E+00	2.40E+00	5.00E-01	1.00E+00	4.20E-01	5.80E-01	9.10E-01	3.00E-01	1.00E+00
Zinc (30)	Zn-61	-	2.45E+05	2.83E-06	1.00E+00	2.40E+00	5.00E-01	1.00E+00	4.20E-01	5.80E-01	9.10E-01	3.00E-01	1.00E+00
Zinc (30)	Zn-62	S	6.61E+02	1.05E-03	1.00E+00	2.40E+00	5.00E-01	1.00E+00	4.20E-01	5.80E-01	9.10E-01	3.00E-01	1.00E+00
Zinc (30)	Zn-63	S	9.47E+03	7.32E-05	1.00E+00	2.40E+00	5.00E-01	1.00E+00	4.20E-01	5.80E-01	9.10E-01	3.00E-01	1.00E+00
Zinc (30)	Zn-65	F	1.04E+00	6.69E-01	1.00E+00	2.40E+00	5.00E-01	1.00E+00	4.20E-01	5.80E-01	9.10E-01	3.00E-01	1.00E+00
Zinc (30)	Zn-69	S	6.46E+03	1.07E-04	1.00E+00	2.40E+00	5.00E-01	1.00E+00	4.20E-01	5.80E-01	9.10E-01	3.00E-01	1.00E+00
Zinc (30)	Zn-69m	S	4.41E+02	1.57E-03	1.00E+00	2.40E+00	5.00E-01	1.00E+00	4.20E-01	5.80E-01	9.10E-01	3.00E-01	1.00E+00
Zinc (30)	Zn-71	-	1.49E+05	4.66E-06	1.00E+00	2.40E+00	5.00E-01	1.00E+00	4.20E-01	5.80E-01	9.10E-01	3.00E-01	1.00E+00
Zinc (30)	Zn-71m	S	1.53E+03	4.52E-04	1.00E+00	2.40E+00	5.00E-01	1.00E+00	4.20E-01	5.80E-01	9.10E-01	3.00E-01	1.00E+00
Zinc (30)	Zn-72	S	1.31E+02	5.31E-03	1.00E+00	2.40E+00	5.00E-01	1.00E+00	4.20E-01	5.80E-01	9.10E-01	3.00E-01	1.00E+00
Zirconium (40)	Zr-85	-	4.63E+04	1.50E-05	1.00E-04	4.00E-03	4.00E-03	1.00E-04	4.00E-03	1.00E-04	1.00E-04	2.00E-03	1.00E-04
Zirconium (40)	Zr-86	S	3.68E+02	1.88E-03	1.00E-04	4.00E-03	4.00E-03	1.00E-04	4.00E-03	1.00E-04	1.00E-04	2.00E-03	1.00E-04
Zirconium (40)	Zr-87	S	3.61E+03	1.92E-04	1.00E-04	4.00E-03	4.00E-03	1.00E-04	4.00E-03	1.00E-04	1.00E-04	2.00E-03	1.00E-04
Zirconium (40)	Zr-88	S	3.03E+00	2.28E-01	1.00E-04	4.00E-03	4.00E-03	1.00E-04	4.00E-03	1.00E-04	1.00E-04	2.00E-03	1.00E-04
Zirconium (40)	Zr-89	S	7.74E+01	8.95E-03	1.00E-04	4.00E-03	4.00E-03	1.00E-04	4.00E-03	1.00E-04	1.00E-04	2.00E-03	1.00E-04
Zirconium (40)	Zr-89m	-	8.75E+04	7.92E-06	1.00E-04	4.00E-03	4.00E-03	1.00E-04	4.00E-03	1.00E-04	1.00E-04	2.00E-03	1.00E-04
Zirconium (40)	Zr-93	F	4.53E-07	1.53E+06	1.00E-04	4.00E-03	4.00E-03	1.00E-04	4.00E-03	1.00E-04	1.00E-04	2.00E-03	1.00E-04
Zirconium (40)	Zr-95	S	3.95E+00	1.75E-01	1.00E-04	4.00E-03	4.00E-03	1.00E-04	4.00E-03	1.00E-04	1.00E-04	2.00E-03	1.00E-04
Zirconium (40)	Zr-97	S	3.63E+02	1.91E-03	1.00E-04	4.00E-03	4.00E-03	1.00E-04	4.00E-03	1.00E-04	1.00E-04	2.00E-03	1.00E-04