APPENDIX A

Table 25-1 - A_1 and A_2 values for Radionuclides

Element, Atomic No. Radionuclide	A_1		A_2		Specific Activity	
	(TBq)	(Ci)[b]	(TBq)	(Ci)[b]	(TBq/g)	(Ci/g)
Actinium (89)						
Ac-225 (a)	$8.0x10^{-1}$	$2.2x10^{1}$	$6.0x10^{-3}$	$1.6x10^{-1}$	$2.1x10^{3}$	$5.8x10^{4}$
Ac-227 (a)	$9.0x10^{-1}$	$2.4x10^{1}$	$9.0x10^{-5}$	$2.4x10^{-3}$	2.7	$7.2x10^{1}$
Ac-228	$6.0x10^{-1}$	$1.6x10^{1}$	$5.0x10^{-1}$	$1.4x10^{1}$	$8.4x10^{4}$	$2.2x10^{6}$
Silver (47)						
Ag-105	2.0	$5.4x10^{1}$	2.0	$5.4x10^{1}$	$1.1x10^{3}$	$3.0x10^{4}$
Ag-108m (a)	$7.0x10^{-1}$	$1.9x10^{1}$	$7.0x10^{-1}$	$1.9x10^{1}$	$9.7x10^{-1}$	$2.6x10^{1}$
Ag-110m (a)	$4.0x10^{-1}$	$1.1x10^{1}$	$4.0x10^{-1}$	$1.1x10^{1}$	$1.8x10^{2}$	$4.7x10^{3}$
Ag-111	2.0	$5.4x10^{1}$	$6.0x10^{-1}$	$1.6x10^{1}$	$5.8x10^{3}$	$1.6x10^{5}$
Aluminum (13)						
Al-26	$1.0x10^{-1}$	2.7	$1.0x10^{-1}$	2.7	$7.0x10^{-4}$	$1.9x10^{-2}$
Americium (95)						
Am-241	$1.0x10^{1}$	$2.7x10^{2}$	$1.0x10^{-3}$	$2.7x10^{-2}$	$1.3x10^{-1}$	3.4
Am-242m (a)	$1.0x10^{1}$	$2.7x10^{2}$	$1.0x10^{-3}$	$2.7x10^{-2}$	$3.6x10^{-1}$	$1.0x10^{1}$
Am-243 (a)	5.0	$1.4x10^{2}$	$1.0x10^{-3}$	$2.7x10^{-2}$	$7.4x10^{-3}$	$2.0x10^{-1}$
Argon (18)						
Ar-37	$4.0x10^{1}$	$1.1x10^{3}$	$4.0x10^{1}$	$1.1x10^{3}$	$3.7x10^{3}$	$9.9x10^{4}$
Ar-39	$4.0x10^{1}$	$1.1x10^{3}$	$2.0x10^{1}$	$5.4x10^{2}$	1.3	$3.4x10^{1}$
Ar-41	$3.0x10^{-1}$	8.1	$3.0x10^{-1}$	8.1	$1.5x10^{6}$	$4.2x10^{7}$
Arsenic (33)						
As-72	$3.0x10^{-1}$	8.1	$3.0x10^{-1}$	8.1	$6.2x10^{4}$	$1.7x10^{6}$
As-73	$4.0x10^{1}$	$1.1x10^{3}$	$4.0x10^{1}$	$1.1x10^{3}$	$8.2x10^{2}$	$2.2x10^{4}$
As-74	1.0	$2.7x10^{1}$	$9.0x10^{-1}$	$2.4x10^{1}$	$3.7x10^{3}$	$9.9x10^{4}$
As-76	$3.0x10^{-1}$	8.1	$3.0x10^{-1}$	8.1	$5.8x10^{4}$	$1.6x10^{6}$
As-77	$2.0x10^{1}$	$5.4x10^{2}$	$7.0x10^{-1}$	$1.9x10^{1}$	$3.9x10^{4}$	$1.0x10^{6}$
Astatine (85)						
At-211 (a)	$2.0x10^{1}$	$5.4x10^{2}$	$5.0x10^{-1}$	$1.4x10^{1}$	$7.6x10^{4}$	$2.1x10^{6}$

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Element, Atomic No. Radionuclide	A_1		A_2		Specific Activity	
	(TBq)	(Ci)[b]	(TBq)	(Ci)[b]	(TBq/g)	(Ci/g)
Gold (79)						
Au-193	7.0	$1.9x10^{2}$	2.0	$5.4x10^{1}$	$3.4x10^{4}$	$9.2x10^{5}$
Au-194	1.0	$2.7x10^{1}$	1.0	$2.7x10^{1}$	$1.5x10^{4}$	$4.1x10^{5}$
Au-195	$1.0x10^{1}$	$2.7x10^{2}$	6.0	$1.6x10^{2}$	$1.4x10^{2}$	$3.7x10^{3}$
Au-198	1.0	$2.7x10^{1}$	$6.0x10^{-1}$	$1.6x10^{1}$	$9.0x10^{3}$	$2.4x10^{5}$
Au-199	$1.0x10^{1}$	$2.7x10^{2}$	$6.0x10^{-1}$	$1.6x10^{1}$	$7.7x10^{3}$	$2.1x10^{5}$
Barium (56)						
Ba-131 (a)	2.0	$5.4x10^{1}$	2.0	$5.4x10^{1}$	$3.1x10^{3}$	$8.4x10^{4}$
Ba-133	3.0	$8.1x10^{1}$	3.0	$8.1x10^{1}$	9.4	$2.6x10^{2}$
Ba-133m	$2.0x10^{1}$	$5.4x10^{2}$	$6.0x10^{-1}$	$1.6x10^{1}$	$2.2x10^{4}$	$6.1x10^{5}$
Ba-140 (a)	$5.0x10^{-1}$	$1.4x10^{1}$	$3.0x10^{-1}$	8.1	$2.7x10^{3}$	$7.3x10^{4}$
Beryllium (4)						
Be-7	$2.0x10^{1}$	$5.4x10^{2}$	$2.0x10^{1}$	$5.4x10^{2}$	$1.3x10^{4}$	$3.5x10^{5}$
Be-10	$4.0x10^{1}$	$1.1x10^{3}$	$6.0x10^{-1}$	$1.6x10^{1}$	$8.3x10^{-4}$	$2.2x10^{-2}$
Bismuth (83)						
Bi-205	$7.0x10^{-1}$	$1.9x10^{1}$	$7.0x10^{-1}$	$1.9x10^{1}$	~~$1.5x^{10-3}$~~ $1.5x10^{3}$	$4.2x10^{4}$
Bi-206	$3.0x10^{-1}$	8.1	$3.0x10^{-1}$	8.1	$3.8x10^{3}$	$1.0x10^{5}$
Bi-207	$7.0x10^{-1}$	$1.9x10^{1}$	$7.0x10^{-1}$	$1.9x10^{1}$	1.9	$5.2x10^{1}$
Bi-210	1.0	$2.7x10^{1}$	$6.0x10^{-1}$	$1.6x10^{1}$	$4.6x10^{3}$	$1.2x10^{5}$
Bi-210m (a)	$6.0x10^{-1}$	$1.6x10^{1}$	$2.0x10^{-2}$	$5.4x10^{-1}$	$2.1x10^{-5}$	$5.7x10^{-4}$
Bi-212 (a)	$7.0x10^{-1}$	$1.9x10^{1}$	$6.0x10^{-1}$	$1.6x10^{1}$	$5.4x10^{5}$	$1.5x10^{7}$
Berkelium (97)						
Bk-247	8.0	$2.2x10^{2}$	$8.0x10^{-4}$	$2.2x10^{-2}$	$3.8x10^{-2}$	1.0
Bk-249 (a)	$4.0x10^{1}$	$1.1x10^{3}$	$3.0x10^{-1}$	8.1	$6.1x10^{1}$	$1.6x10^{3}$
Bromine (35)						
Br-76	$4.0x10^{-1}$	$1.1x10^{1}$	$4.0x10^{-1}$	$1.1x10^{1}$	$9.4x10^{4}$	$2.5x10^{6}$
Br-77	3.0	$8.1x10^{1}$	3.0	$8.1x10^{1}$	$2.6x10^{4}$	$7.1x10^{5}$
Br-82	$4.0x10^{-1}$	$1.1x10^{1}$	$4.0x10^{-1}$	$1.1x10^{1}$	$4.0x10^{4}$	$1.1x10^{6}$

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Element, Atomic No. Radionuclide	A_1		A_2		Specific Activity	
	(TBq)	(Ci)[b]	(TBq)	(Ci)[b]	(TBq/g)	(Ci/g)
Carbon (6)						
C-11	1.0	$2.7x10^{1}$	$6.0x10^{-1}$	$1.6x10^{1}$	$3.1x10^{7}$	$8.4x10^{8}$
C-14	$4.0x10^{1}$	$1.1x10^{3}$	3.0	$8.1x10^{1}$	$1.6x10^{-1}$	4.5
Calcium (20)						
Ca-41	Unlimited	Unlimited	Unlimited	Unlimited	$3.1x10^{-3}$	$8.5x10^{-2}$
Ca-45	$4.0x10^{1}$	$1.1x10^{3}$	1.0	$2.7x10^{1}$	$6.6x10^{2}$	$1.8x10^{4}$
Ca-47 (a)	3.0	$8.1x10^{1}$	$3.0x10^{-1}$	8.1	$2.3x10^{4}$	$6.1x10^{5}$
Cadmium (48)						
Cd-109	$3.0x10^{1}$	$8.1x10^{2}$	2.0	$5.4x10^{1}$	$9.6x10^{1}$	$2.6x10^{3}$
Cd-113m	$4.0x10^{1}$	$1.1x10^{3}$	$5.0x10^{-1}$	$1.4x10^{1}$	8.3	$2.2x10^{2}$
Cd-115	3.0	$8.1x10^{1}$	$4.0x10^{-1}$	$1.1x10^{1}$	$1.9x10^{4}$	$5.1x10^{5}$
Cd-115m (a)	$5.0x10^{-1}$	$1.4x10^{1}$	$5.0x10^{-1}$	$1.4x10^{1}$	$9.4x10^{2}$	$2.5x10^{4}$
Cerium (58)						
Ce-139	7.0	$1.9x10^{2}$	2.0	$5.4x10^{1}$	$2.5x10^{2}$	$6.8x10^{3}$
Ce-141	$2.0x10^{1}$	$5.4x10^{2}$	$6.0x10^{-1}$	$1.6x10^{1}$	$1.1x10^{3}$	$2.8x10^{4}$
Ce-143	$9.0x10^{-1}$	$2.4x10^{1}$	$6.0x10^{-1}$	$1.6x10^{1}$	$2.5x10^{4}$	$6.6x10^{5}$
Ce-144 (a)	$2.0x10^{-1}$	5.4	$2.0x10^{-1}$	5.4	$1.2x10^{2}$	$3.2x10^{3}$
Californium (98)						
Cf-248	$4.0x10^{1}$	$1.1x10^{3}$	$6.0x10^{-3}$	$1.6x10^{-1}$	$5.8x10^{1}$	$1.6x10^{3}$
Cf-249	3.0	$8.1x10^{1}$	$8.0x10^{-4}$	$2.2x10^{-2}$	$1.5x10^{-1}$	4.1
Cf-250	$2.0x10^{1}$	$5.4x10^{2}$	$2.0x10^{-3}$	$5.4x10^{-2}$	4.0	$1.1x10^{2}$
Cf-251	7.0	$1.9x10^{2}$	$7.0x10^{-4}$	$1.9x10^{-2}$	$5.9x10^{-2}$	1.6
Cf-252 (h)	$5.0x10^{-2}$	1.4	$3.0x10^{-3}$	$8.1x10^{-2}$	$2.0x10^{1}$	$5.4x10^{2}$
Cf-253 (a)	$4.0x10^{1}$	$1.1x10^{3}$	$4.0x10^{-2}$	1.1	$1.1x10^{3}$	$2.9x10^{4}$
Cf-254	$1.0x10^{-3}$	$2.7x10^{-2}$	$1.0x10^{-3}$	$2.7x10^{-2}$	$3.1x10^{2}$	$8.5x10^{3}$
Chlorine (17)						
Cl-36	$1.0x10^{1}$	$2.7x10^{2}$	$6.0x10^{-1}$	$1.6x10^{1}$	$1.2x10^{-3}$	$3.3x10^{-2}$
Cl-38	$2.0x10^{-1}$	5.4	$2.0x10^{-1}$	5.4	$4.9x10^{6}$	$1.3x10^{8}$
Curium (96)						
Cm-240	$4.0x10^{1}$	$1.1x10^{3}$	$2.0x10^{-2}$	$5.4x10^{-1}$	$7.5x10^{2}$	$2.0x10^{4}$
Cm-241	2.0	$5.4x10^{1}$	1.0	$2.7x10^{1}$	$6.1x10^{2}$	$1.7x10^{4}$
Cm-242	$4.0x10^{1}$	$1.1x10^{3}$	$1.0x10^{-2}$	$2.7x10^{-1}$	$1.2x10^{2}$	$3.3x10^{3}$

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Element, Atomic No. Radionuclide	A_1		A_2		Specific Activity	
	(TBq)	(Ci)[b]	(TBq)	(Ci)[b]	(TBq/g)	(Ci/g)
Cm-243	9.0	$2.4x10^{2}$	$1.0x10^{-3}$	$2.7x10^{-2}$	1.9	$5.2x10^{1}$
Cm-244	$2.0x10^{1}$	$5.4x10^{2}$	$2.0x10^{-3}$	$5.4x10^{-2}$	3.0	$8.1x10^{1}$
Cm-245	9.0	$2.4x10^{2}$	$9.0x10^{-4}$	$2.4x10^{-2}$	$6.4x10^{-3}$	$1.7x10^{-1}$
Cm-246	9.0	$2.4x10^{2}$	$9.0x10^{-4}$	$2.4x10^{-2}$	$1.1x10^{-2}$	$3.1x10^{-1}$
Cm-247 (a)	3.0	$8.1x10^{1}$	$1.0x10^{-3}$	$2.7x10^{-2}$	$3.4x10^{-6}$	$9.3x10^{-5}$
Cm-248	$2.0x10^{-2}$	$5.4x10^{-1}$	$3.0x10^{-4}$	$8.1x10^{-3}$	$1.6x10^{-4}$	$4.2x10^{-3}$
Cobalt (27)						
Co-55	$5.0x10^{-1}$	$1.4x10^{1}$	$5.0x10^{-1}$	$1.4x10^{1}$	$1.1x10^{5}$	$3.1x10^{6}$
Co-56	$3.0x10^{-1}$	8.1	$3.0x10^{-1}$	8.1	$1.1x10^{3}$	$3.0x10^{4}$
Co-57	$1.0x10^{1}$	$2.7x10^{2}$	$1.0x10^{1}$	$2.7x10^{2}$	$3.1x10^{2}$	$8.4x10^{3}$
Co-58	1.0	$2.7x10^{1}$	1.0	$2.7x10^{1}$	$1.2x10^{3}$	$3.2x10^{4}$
Co-58m	$4.0x10^{1}$	$1.1x10^{3}$	$4.0x10^{1}$	$1.1x10^{3}$	$2.2x10^{3}$	$5.9x10^{6}$
Co-60	$4.0x10^{-1}$	$1.1x10^{1}$	$4.0x10^{-1}$	$1.1x10^{1}$	$4.2x10^{1}$	$1.1x10^{3}$
Chromium (24)						
Cr-51	$3.0x10^{1}$	$8.1x10^{2}$	$3.0x10^{1}$	$8.1x10^{2}$	$3.4x10^{3}$	$9.2x10^{4}$
Cesium (55)						
Cs-129	4.0	$1.1x10^{2}$	4.0	$1.1x10^{2}$	$2.8x10^{4}$	$7.6x10^{5}$
Cs-131	$3.0x10^{1}$	$8.1x10^{2}$	$3.0x10^{1}$	$8.1x10^{2}$	$3.8x10^{3}$	$1.0x10^{5}$
Cs-132	1.0	$2.7x10^{1}$	1.0	$2.7x10^{1}$	$5.7x10^{3}$	$1.5x10^{5}$
Cs-134	$7.0x10^{-1}$	$1.9x10^{1}$	$7.0x10^{-1}$	$1.9x10^{1}$	$4.8x10^{1}$	$1.3x10^{3}$
Cs-134m	$4.0x10^{1}$	$1.1x10^{3}$	$6.0x10^{-1}$	$1.6x10^{1}$	$3.0x10^{5}$	$8.0x10^{6}$
Cs-135	$4.0x10^{1}$	$1.1x10^{3}$	1.0	$2.7x10^{1}$	$4.3x10^{-5}$	$1.2x10^{-3}$
Cs-136	$5.0x10^{-1}$	$1.4x10^{1}$	$5.0x10^{-1}$	$1.4x10^{1}$	$2.7x10^{3}$	$7.3x10^{4}$
Cs-137 (a)	2.0	$5.4x10^{1}$	$6.0x10^{-1}$	$1.6x10^{1}$	3.2	$8.7x10^{1}$
Copper (29)						
Cu-64	6.0	$1.6x10^{2}$	1.0	$2.7x10^{1}$	$1.4x10^{5}$	$3.9x10^{6}$
Cu-67	$1.0x10^{1}$	$2.7x10^{2}$	$7.0x10^{-1}$	$1.9x10^{1}$	$2.8x10^{4}$	$7.6x10^{5}$
Dysprosium (66)						
Dy-159	$2.0x10^{1}$	$5.4x10^{2}$	$2.0x10^{1}$	$5.4x10^{2}$	$2.1x10^{2}$	$5.7x10^{3}$
Dy-165	$9.0x10^{-1}$	$2.4x10^{1}$	$6.0x10^{-1}$	$1.6x10^{1}$	$3.0x10^{5}$	$8.2x10^{6}$
Dy-166 (a)	$9.0x10^{-1}$	$2.4x10^{1}$	$3.0x10^{-1}$	8.1	$8.6x10^{3}$	$2.3x10^{5}$

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Element, Atomic No. Radionuclide	A_1		A_2		Specific Activity	
	(TBq)	(Ci)[b]	(TBq)	(Ci)[b]	(TBq/g)	(Ci/g)
Erbium (68)						
Er-169	4.0×10^{1}	1.1×10^{3}	1.0	2.7×10^{1}	3.1×10^{3}	8.3×10^{4}
Er-171	8.0×10^{-1}	2.2×10^{1}	5.0×10^{-1}	1.4×10^{1}	9.0×10^{4}	2.4×10^{6}
Europium (63)						
Eu-147	2.0	5.4×10^{1}	2.0×10^{1}	5.4×10^{1}	1.4×10^{3}	3.7×10^{4}
Eu-148	5.0×10^{-1}	1.4×10^{1}	5.0×10^{-1}	1.4×10^{1}	6.0×10^{2}	1.6×10^{4}
Eu-149	2.0×10^{1}	5.4×10^{2}	2.0×10^{1}	5.4×10^{2}	3.5×10^{2}	9.4×10^{3}
Eu-150 (short lived).	2.0	5.4×10^{1}	7.0×10^{-1}	1.9×10^{1}	6.1×10^{4}	1.6×10^{6}
Eu-150 (long lived).	7.0×10^{-1}	1.9×10^{1}	7.0×10^{-1}	1.9×10^{1}	6.1×10^{4}	1.6×10^{6}
Eu-152	1.0	2.7×10^{1}	1.0	2.7×10^{1}	6.5	1.8×10^{2}
Eu-152m	8.0×10^{-1}	2.2×10^{1}	8.0×10^{-1}	2.2×10^{1}	8.2×10^{4}	2.2×10^{6}
Eu-154	9.0×10^{-1}	2.4×10^{1}	6.0×10^{-1}	1.6×10^{1}	9.8	2.6×10^{2}
Eu-155	2.0×10^{1}	5.4×10^{2}	3.0	8.1×10^{1}	1.8×10^{1}	4.9×10^{2}
Eu-156	7.0×10^{-1}	1.9×10^{1}	7.0×10^{-1}	1.9×10^{1}	2.0×10^{3}	5.5×10^{4}
Fluorine (9)						
F-18	1.0	2.7×10^{1}	6.0×10^{-1}	1.6×10^{1}	3.5×10^{6}	9.5×10^{7}
Iron (26)						
Fe-52 (a)	3.0×10^{-1}	8.1	3.0×10^{-1}	8.1	2.7×10^{5}	7.3×10^{6}
Fe-55	4.0×10^{1}	1.1×10^{3}	4.0×10^{1}	1.1×10^{3}	8.8×10^{1}	2.4×10^{3}
Fe-59	9.0×10^{-1}	2.4×10^{1}	9.0×10^{-1}	2.4×10^{1}	1.8×10^{3}	5.0×10^{4}
Fe-60 (a)	4.0×10^{1}	1.1×10^{3}	2.0×10^{-1}	5.4	7.4×10^{-4}	2.0×10^{-2}
Gallium (31)						
Ga-67	7.0	1.9×10^{2}	3.0	8.1×10^{1}	2.2×10^{4}	6.0×10^{5}
Ga-68	5.0×10^{-1}	1.4×10^{1}	5.0×10^{-1}	1.4×10^{1}	1.5×10^{6}	4.1×10^{7}
Ga-72	4.0×10^{-1}	1.1×10^{1}	4.0×10^{-1}	1.1×10^{1}	1.1×10^{5}	3.1×10^{6}
Gadolinium (64)						
Gd-146 (a)	5.0×10^{-1}	1.4×10^{1}	5.0×10^{-1}	1.4×10^{1}	6.9×10^{2}	1.9×10^{4}
Gd-148	2.0×10^{1}	5.4×10^{2}	2.0	5.4×10^{-2}	1.2	3.2×10^{1}
Gd-153	1.0×10^{1}	2.7×10^{2}	9.0	2.4×10^{2}	1.3×10^{2}	3.5×10^{3}
Gd-159	3.0	8.1×10^{1}	6.0×10^{-1}	1.6×10^{1}	3.9×10^{4}	1.1×10^{6}

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Element, Atomic No. Radionuclide	A_1		A_2		Specific Activity	
	(TBq)	(Ci)[b]	(TBq)	(Ci)[b]	(TBq/g)	(Ci/g)
Germanium (32)						
Ge-68 (a)	$5.0x10^{-1}$	$1.4x10^{1}$	$5.0x10^{-1}$	$1.4x10^{1}$	$2.6x10^{2}$	$7.1x10^{3}$
Ge-71	$4.0x10^{1}$	$1.1x10^{3}$	$4.0x10^{1}$	$1.1x10^{3}$	$5.8x10^{3}$	$1.6x10^{5}$
Ge-77	$3.0x10^{-1}$	8.1	$3.0x10^{-1}$	8.1	$1.3x10^{5}$	$3.6x10^{6}$
Hafnium (72)						
Hf-172 (a)	$6.0x10^{-1}$	$1.6x10^{1}$	$6.0x10^{-1}$	$1.6x10^{1}$	$4.1x10^{1}$	$1.1x10^{3}$
Hf-175	3.0	$8.1x10^{1}$	3.0	$8.1x10^{1}$	$3.9x10^{2}$	$1.1x10^{4}$
Hf-181	2.0	$5.4x10^{1}$	$5.0x10^{-1}$	$1.4x10^{1}$	$6.3x10^{2}$	$1.7x10^{4}$
Hf-182	Unlimited	Unlimited	Unlimited	Unlimited	$8.1x10^{-6}$	$2.2x10^{-4}$
Mercury (80)						
Hg-194 (a)	1.0	$2.7x10^{1}$	1.0	$2.7x10^{1}$	$1.3x10^{-1}$	3.5
Hg-195m (a)	3.0	$8.1x10^{1}$	$7.0x10^{-1}$	$1.9x10^{1}$	$1.5x10^{4}$	$4.0x10^{5}$
Hg-197	$2.0x10^{1}$	$5.4x10^{2}$	$1.0x10^{1}$	$2.7x10^{2}$	$9.2x10^{3}$	$2.5x10^{5}$
Hg-197m	$1.0x10^{1}$	$2.7x10^{2}$	$4.0x10^{-1}$	$1.1x10^{1}$	$2.5x10^{4}$	$6.7x10^{5}$
Hg-203	5.0	$1.4x10^{2}$	1.0	$2.7x10^{1}$	$5.1x10^{2}$	$1.4x10^{4}$
Holmium (67)						
Ho-166	$4.0x10^{-1}$	$1.1x10^{1}$	$4.0x10^{-1}$	$1.1x10^{1}$	$2.6x10^{4}$	$7.0x10^{5}$
Ho-166m	$6.0x10^{-1}$	$1.6x10^{1}$	$5.0x10^{-1}$	$1.4x10^{1}$	$6.6x10^{-2}$	1.8
Iodine (53)						
I-123	6.0	$1.6x10^{2}$	3.0	$8.1x10^{1}$	$7.1x10^{4}$	$1.9x10^{6}$
I-124	1.0	$2.7x10^{1}$	1.0	$2.7x10^{1}$	$9.3x10^{3}$	$2.5x10^{5}$
I-125	$2.0x10^{1}$	$5.4x10^{2}$	3.0	$8.1x10^{1}$	$6.4x10^{2}$	$1.7x10^{4}$
I-126	2.0	$5.4x10^{1}$	1.0	$2.7x10^{1}$	$2.9x10^{3}$	$8.0x10^{4}$
I-129	Unlimited	Unlimited	Unlimited	Unlimited	$6.5x10^{-6}$	$1.8x10^{-4}$
I-131	3.0	$8.1x10^{1}$	$7.0x10^{-1}$	$1.9x10^{1}$	$4.6x10^{3}$	$1.2x10^{5}$
I-132	$4.0x10^{-1}$	$1.1x10^{1}$	$4.0x10^{-1}$	$1.1x10^{1}$	$3.8x10^{5}$	$1.0x10^{7}$
I-133	$7.0x10^{-1}$	$1.9x10^{1}$	$6.0x10^{-1}$	$1.6x10^{1}$	$4.2x10^{4}$	$1.1x10^{6}$
I-134	$3.0x10^{-1}$	8.1	$3.0x10^{-1}$	8.1	$9.9x10^{5}$	$2.7x10^{7}$
I-135 (a)	$6.0x10^{-1}$	$1.6x10^{1}$	$6.0x10^{-1}$	$1.6x10^{1}$	$1.3x10^{5}$	$3.5x10^{6}$
Indium (49)						
In-111	3.0	$8.1x10^{1}$	3.0	$8.1x10^{1}$	$1.5x10^{4}$	$4.2x10^{5}$
In-113m	4.0	$1.1x10^{2}$	2.0	$5.4x10^{1}$	$6.2x10^{5}$	$1.7x10^{7}$
In-114m (a)	$1.0x10^{1}$	$2.7x10^{2}$	$5.0x10^{-1}$	$1.4x10^{1}$	$8.6x10^{2}$	$2.3x10^{4}$

APPENDIX A

Element, Atomic No. Radionuclide	A_1		A_2		Specific Activity	
	(TBq)	(Ci)[b]	(TBq)	(Ci)[b]	(TBq/g)	(Ci/g)
In-115m	7.0	$1.9x10^{2}$	1.0	$2.7x10^{1}$	$2.2x10^{5}$	$6.1x10^{6}$
Iridium (77)						
Ir-189 (a)	$1.0x10^{1}$	$2.7x10^{2}$	$1.0x10^{1}$	$2.7x10^{2}$	$1.9x10^{3}$	$5.2x10^{4}$
Ir-190	$7.0x10^{-1}$	$1.9x10^{1}$	$7.0x10^{-1}$	$1.9x10^{1}$	$2.3x10^{3}$	$6.2x10^{4}$
Ir-192 (c)	1.0	$2.7x10^{1}$	$6.0x10^{-1}$	$1.6x10^{1}$	$3.4x10^{2}$	$9.2x10^{3}$
Ir-194	$3.0x10^{-1}$	8.1	$3.0x10^{-1}$	8.1	$3.1x10^{4}$	$8.4x10^{5}$
Potassium (19)						
K-40	$9.0x10^{-1}$	$2.4x10^{1}$	$9.0x10^{-1}$	$2.4x10^{1}$	$2.4x10^{-7}$	$6.4x10^{-6}$
K-42	$2.0x10^{-1}$	5.4	$2.0x10^{-1}$	5.4	$2.2x10^{5}$	$6.0x10^{6}$
K-43	$7.0x10^{-1}$	$1.9x10^{1}$	$6.0x10^{-1}$	$1.6x10^{1}$	$1.2x10^{5}$	$3.3x10^{6}$
Krypton (36)						
Kr-81	$4.0x10^{1}$	$1.1x10^{3}$	$4.0x10^{1}$	$1.1x10^{3}$	$7.8x10^{-4}$	$2.1x10^{-2}$
Kr-85	$1.0x10^{1}$	$2.7x10^{2}$	$1.0x10^{1}$	$2.7x10^{2}$	$3.0x10^{5}$	$8.2x10^{6}$
Kr-85m	8.0	$2.2x10^{2}$	3.0	$8.1x10^{1}$	$1.5x10^{1}$	$3.9x10^{2}$
Kr-87	$2.0x10^{-1}$	5.4	$2.0x10^{-1}$	5.4	$1.0x10^{6}$	$2.8x10^{7}$
Lanthanum (57)						
La-137	$3.0x10^{1}$	$8.1x10^{2}$	6.0	$1.6x10^{2}$	$1.6x10^{-3}$	$4.4x10^{-2}$
La-140	$4.0x10^{-1}$	$1.1x10^{1}$	$4.0x10^{-1}$	$1.1x10^{1}$	$2.1x10^{4}$	$5.6x10^{5}$
Lutetium (71)						
Lu-172	$6.0x10^{-1}$	$1.6x10^{1}$	$6.0x10^{-1}$	$1.6x10^{1}$	$4.2x10^{3}$	$1.1x10^{5}$
Lu-173	8.0	$2.2x10^{2}$	8.0	$2.2x10^{2}$	$5.6x10^{1}$	$1.5x10^{3}$
Lu-174	9.0	$2.4x10^{2}$	9.0	$2.4x10^{2}$	$2.0x10^{2}$	$5.3x10^{3}$
Lu-174m	$2.0x10^{1}$	$5.4x10^{2}$	$1.0x10^{1}$	$2.7x10^{2}$	$2.3x10^{1}$	$6.2x10^{2}$
Lu-177	$3.0x10^{1}$	$8.1x10^{2}$	$7.0x10^{-1}$	$1.9x10^{1}$	$4.1x10^{3}$	$1.1x10^{5}$
Magnesium (12)						
Mg-28 (a)	$3.0x10^{-1}$	8.1	$3.0x10^{-1}$	8.1	$2.0x10^{5}$	$5.4x10^{6}$
Manganese (25)						
Mn-52	$3.0x10^{-1}$	8.1	$3.0x10^{-1}$	8.1	$1.6x10^{4}$	$4.4x10^{5}$
Mn-53	Unlimited	Unlimited	Unlimited	Unlimited	$6.8x10^{-5}$	$1.8x10^{-3}$
Mn-54	1.0	$2.7x10^{1}$	1.0	$2.7x10^{1}$	$2.9x10^{2}$	$7.7x10^{3}$
Mn-56	$3.0x10^{-1}$	8.1	$3.0x10^{-1}$	8.1	$8.0x10^{5}$	$2.2x10^{7}$

APPENDIX A

Element, Atomic No. Radionuclide	A_1		A_2		Specific Activity	
	(TBq)	(Ci)[b]	(TBq)	(Ci)[b]	(TBq/g)	(Ci/g)
Molybdenum (42)						
Mo-93	4.0×10^{1}	1.1×10^{3}	2.0×10^{1}	5.4×10^{2}	4.1×10^{-2}	1.1
Mo-99 (a),(i)	1.0	2.7×10^{1}	6.0×10^{-1}	1.6×10^{1}	1.8×10^{4}	4.8×10^{5}
Nitrogen (7)						
N-13	9.0×10^{-1}	2.4×10^{1}	6.0×10^{-1}	1.6×10^{1}	5.4×10^{7}	1.5×10^{9}
Sodium (11)						
Na-22	5.0×10^{-1}	1.4×10^{1}	5.0×10^{-1}	1.4×10^{1}	2.3×10^{2}	6.3×10^{3}
Na-24	2.0×10^{-1}	5.4	2.0×10^{-1}	5.4	3.2×10^{5}	8.7×10^{6}
Niobium (41)						
Nb-93m	4.0×10^{1}	1.1×10^{3}	3.0×10^{1}	8.1×10^{2}	8.8	2.4×10^{2}
Nb-94	7.0×10^{-1}	1.9×10^{1}	7.0×10^{-1}	1.9×10^{1}	6.9×10^{-3}	1.9×10^{-1}
Nb-95	1.0	2.7×10^{1}	1.0	2.7×10^{1}	1.5×10^{3}	3.9×10^{4}
Nb-97	9.0×10^{-1}	2.4×10^{1}	6.0×10^{-1}	1.6×10^{1}	9.9×10^{5}	2.7×10^{7}
Neodymium (60)						
Nd-147	6.0	1.6×10^{2}	6.0×10^{-1}	1.6×10^{1}	3.0×10^{3}	8.1×10^{4}
Nd-149	6.0×10^{-1}	1.6×10^{1}	5.0×10^{-1}	1.4×10^{1}	4.5×10^{5}	1.2×10^{7}
Nickel (28)						
Ni-59	Unlimited	Unlimited	Unlimited	Unlimited	3.0×10^{-3}	8.0×10^{-2}
Ni-63	4.0×10^{1}	1.1×10^{3}	3.0×10^{1}	8.1×10^{2}	2.1	5.7×10^{1}
Ni-65	4.0×10^{-1}	1.1×10^{1}	4.0×10^{-1}	1.1×10^{1}	7.1×10^{5}	1.9×10^{7}
Neptunium (93)						
Np-235	4.0×10^{1}	1.1×10^{3}	4.0×10^{1}	1.1×10^{3}	5.2×10^{1}	1.4×10^{3}
Np-236 (short lived).	2.0×10^{1}	5.4×10^{2}	2.0	5.4×10^{1}	4.7×10^{-4}	1.3×10^{-2}
Np-236 (long lived).	9.0×10^{0}	2.4×10^{2}	2.0×10^{-2}	5.4×10^{-1}	4.7×10^{-4}	1.3×10^{-2}
Np-237	2.0×10^{1}	5.4×10^{2}	2.0×10^{-3}	5.4×10^{-2}	2.6×10^{-5}	7.1×10^{-4}
Np-239	7.0	1.9×10^{2}	4.0×10^{-1}	1.1×10^{1}	8.6×10^{3}	2.3×10^{5}
Osmium (76)						
Os-185	1.0	2.7×10^{1}	1.0	2.7×10^{1}	2.8×10^{2}	7.5×10^{3}
Os-191	1.0×10^{1}	2.7×10^{2}	2.0	5.4×10^{1}	1.6×10^{3}	4.4×10^{4}
Os-191m	4.0×10^{1}	1.1×10^{3}	3.0×10^{1}	8.1×10^{2}	4.6×10^{4}	1.3×10^{6}
Os-193	2.0	5.4×10^{1}	6.0×10^{-1}	1.6×10^{1}	2.0×10^{4}	5.3×10^{5}

APPENDIX A

Element, Atomic No. Radionuclide	A_1		A_2		Specific Activity	
	(TBq)	(Ci)[b]	(TBq)	(Ci)[b]	(TBq/g)	(Ci/g)
Os-194 (a)	$3.0x10^{-1}$	8.1	$3.0x10^{-1}$	8.1	$1.1x10^{1}$	$3.1x10^{2}$
Phosphorus (15)	$5.0x10^{-1}$	$1.4x10^{1}$	$5.0x10^{-1}$	$1.4x10^{1}$	$1.1x10^{4}$	$2.9x10^{5}$
P-32						
P-33	$4.0x10^{1}$	$1.1x10^{3}$	1.0	$2.7x10^{1}$	$5.8x10^{3}$	$1.6x10^{5}$
Protactinium (91)						
Pa-230 (a)	2.0	$5.4x10^{1}$	$7.0x10^{-2}$	1.9	$1.2x10^{3}$	$3.3x10^{4}$
Pa-231	4.0	$1.1x10^{2}$	$4.0x10^{-4}$	$1.1x10^{-2}$	$1.7x10^{-3}$	$4.7x10^{-2}$
Pa-233	5.0	$1.4x10^{2}$	$7.0x10^{-1}$	$1.9x10^{1}$	$7.7x10^{2}$	$2.1x10^{4}$
Lead (82)						
Pb-201	1.0	$2.7x10^{1}$	1.0	$2.7x10^{1}$	$6.2x10^{4}$	$1.7x10^{6}$
Pb-202	$4.0x10^{1}$	$1.1x10^{3}$	$2.0x10^{1}$	$5.4x10^{2}$	$1.2x10^{-4}$	$3.4x10^{-3}$
Pb-203	4.0	$1.1x10^{2}$	3.0	$8.1x10^{1}$	$1.1x10^{4}$	$3.0x10^{5}$
Pb-205	Unlimited	Unlimited	Unlimited	Unlimited	$4.5x10^{-6}$	$1.2x10^{-4}$
Pb-210 (a)	1.0	$2.7x10^{1}$	$5.0x10^{-2}$	1.4	2.8	$7.6x10^{1}$
Pb-212 (a)	$7.0x10^{-1}$	$1.9x10^{1}$	$2.0x10^{-1}$	5.4	$5.1x10^{4}$	$1.4x10^{6}$
Palladium (46)						
Pd-103 (a)	$4.0x10^{1}$	$1.1x10^{3}$	$4.0x10^{1}$	$1.1x10^{3}$	$2.8x10^{3}$	$7.5x10^{4}$
Pd-107	Unlimited	Unlimited	Unlimited	Unlimited	$1.9x10^{-5}$	$5.1x10^{-4}$
Pd-109	2.0	$5.4x10^{1}$	$5.0x10^{-1}$	$1.4x10^{1}$	$7.9x10^{4}$	$2.1x10^{6}$
Promethium (61)						
Pm-143	3.0	$8.1x10^{1}$	3.0	$8.1x10^{1}$	$1.3x10^{2}$	$3.4x10^{3}$
Pm-144	$7.0x10^{-1}$	$1.9x10^{1}$	$7.0x10^{-1}$	$1.9x10^{1}$	$9.2x10^{1}$	$2.5x10^{3}$
Pm-145	$3.0x10^{1}$	$8.1x10^{2}$	$1.0x10^{1}$	$2.7x10^{2}$	5.2	$1.4x10^{2}$
Pm-147	$4.0x10^{1}$	$1.1x10^{3}$	2.0	$5.4x10^{1}$	$3.4x10^{1}$	$9.3x10^{2}$
Pm-148m (a)	$8.0x10^{-1}$	$2.2x10^{1}$	$7.0x10^{-1}$	$1.9x10^{1}$	$7.9x10^{2}$	$2.1x10^{4}$
Pm-149	2.0	$5.4x10^{1}$	$6.0x10^{-1}$	$1.6x10^{1}$	$1.5x10^{4}$	$4.0x10^{5}$
Pm-151	2.0	$5.4x10^{1}$	$6.0x10^{-1}$	$1.6x10^{1}$	$2.7x10^{4}$	$7.3x10^{5}$
Polonium (84)						
Po-210	$4.0x10^{1}$	$1.1x10^{3}$	$2.0x10^{-2}$	$5.4x10^{-1}$	$1.7x10^{2}$	$4.5x10^{3}$

APPENDIX A

Element, Atomic No. Radionuclide	A_1		A_2		Specific Activity	
	(TBq)	(Ci)[b]	(TBq)	(Ci)[b]	(TBq/g)	(Ci/g)
Praseodymium (59)						
Pr-142	4.0×10^{-1}	1.1×10^{1}	4.0×10^{-1}	1.1×10^{1}	4.3×10^{4}	1.2×10^{6}
Pr-143	3.0	8.1×10^{1}	6.0×10^{-1}	1.6×10^{1}	2.5×10^{3}	6.7×10^{4}
Platinum (78)						
Pt-188 (a)	1.0	2.7×10^{1}	8.0×10^{-1}	2.2×10^{1}	2.5×10^{3}	6.8×10^{4}
Pt-191	4.0	1.1×10^{2}	3.0	8.1×10^{1}	8.7×10^{3}	2.4×10^{5}
Pt-193	4.0×10^{1}	1.1×10^{3}	4.0×10^{1}	1.1×10^{3}	1.4	3.7×10^{1}
Pt-193m	4.0×10^{1}	1.1×10^{3}	5.0×10^{-1}	1.4×10^{1}	5.8×10^{3}	1.6×10^{5}
Pt-195m	1.0×10^{1}	2.7×10^{2}	5.0×10^{-1}	1.4×10^{1}	6.2×10^{3}	1.7×10^{5}
Pt-197	2.0×10^{1}	5.4×10^{2}	6.0×10^{-1}	1.6×10^{1}	3.2×10^{4}	8.7×10^{5}
Pt-197m	1.0×10^{1}	2.7×10^{2}	6.0×10^{-1}	1.6×10^{1}	3.7×10^{5}	1.0×10^{7}
Plutonium (94)						
Pu-236	3.0×10^{1}	8.1×10^{2}	3.0×10^{-3}	8.1×10^{-2}	2.0×10^{1}	5.3×10^{2}
Pu-237	2.0×10^{1}	5.4×10^{2}	2.0×10^{1}	5.4×10^{2}	4.5×10^{2}	1.2×10^{4}
Pu-238	1.0×10^{1}	2.7×10^{2}	1.0×10^{-3}	2.7×10^{-2}	6.3×10^{-1}	1.7×10^{1}
Pu-239	1.0×10^{1}	2.7×10^{2}	1.0×10^{-3}	2.7×10^{-2}	2.3×10^{-3}	6.2×10^{-2}
Pu-240	1.0×10^{1}	2.7×10^{2}	1.0×10^{-3}	2.7×10^{-2}	8.4×10^{-3}	2.3×10^{-1}
Pu-241 (a)	4.0×10^{1}	1.1×10^{3}	6.0×10^{-2}	1.6	3.8	1.0×10^{2}
Pu-242	1.0×10^{1}	2.7×10^{2}	1.0×10^{-3}	2.7×10^{-2}	1.5×10^{-4}	3.9×10^{-3}
Pu-244 (a)	4.0×10^{-1}	1.1×10^{1}	1.0×10^{-3}	2.7×10^{-2}	6.7×10^{-7}	1.8×10^{-5}
Radium (88)						
Ra-223 (a)	4.0×10^{-1}	1.1×10^{1}	7.0×10^{-3}	1.9×10^{-1}	1.9×10^{3}	5.1×10^{4}
Ra-224 (a)	4.0×10^{-1}	1.1×10^{1}	2.0×10^{-2}	5.4×10^{-1}	5.9×10^{3}	1.6×10^{5}
Ra-225 (a)	2.0×10^{-1}	5.4	4.0×10^{-3}	1.1×10^{-1}	1.5×10^{3}	3.9×10^{4}
Ra-226 (a)	2.0×10^{-1}	5.4	3.0×10^{-3}	8.1×10^{-2}	3.7×10^{-2}	1.0
Ra-228 (a)	6.0×10^{-1}	1.6×10^{1}	2.0×10^{-2}	5.4×10^{-1}	1.0×10^{1}	2.7×10^{2}
Rubidium (37)						
Rb-81	2.0	5.4×10^{1}	8.0×10^{-1}	2.2×10^{1}	3.1×10^{5}	8.4×10^{6}
Rb-83 (a)	2.0	5.4×10^{1}	2.0	5.4×10^{1}	6.8×10^{2}	1.8×10^{4}
Rb-84	1.0	2.7×10^{1}	1.0	2.7×10^{1}	1.8×10^{3}	4.7×10^{4}
Rb-86	5.0×10^{-1}	1.4×10^{1}	5.0×10^{-1}	1.4×10^{1}	3.0×10^{3}	8.1×10^{4}
Rb-87	Unlimited	Unlimited	Unlimited	Unlimited	3.2×10^{-9}	8.6×10^{-8}
Rb (nat)	Unlimited	Unlimited	Unlimited	Unlimited	6.7×10^{6}	1.8×10^{8}

APPENDIX A

Element, Atomic No. Radionuclide	A_1		A_2		Specific Activity	
	(TBq)	(Ci)[b]	(TBq)	(Ci)[b]	(TBq/g)	(Ci/g)
Rhenium (75)						
Re-184	1.0	$2.7x10^{1}$	1.0	$2.7x10^{1}$	$6.9x10^{2}$	$1.9x10^{4}$
Re-184m	3.0	$8.1x10^{1}$	1.0	$2.7x10^{1}$	$1.6x10^{2}$	$4.3x10^{3}$
Re-186	2.0	$5.4x10^{1}$	$6.0x10^{-1}$	$1.6x10^{1}$	$6.9x10^{3}$	$1.9x10^{5}$
Re-187	Unlimited	Unlimited	Unlimited	Unlimited	$1.4x10^{-9}$	$3.8x10^{-8}$
Re-188	$4.0x10^{-1}$	$1.1x10^{1}$	$4.0x10^{-1}$	$1.1x10^{1}$	$3.6x10^{4}$	$9.8x10^{5}$
Re-189 (a)	3.0	$8.1x10^{1}$	$6.0x10^{-1}$	$1.6x10^{1}$	$2.5x10^{4}$	$6.8x10^{5}$
Re (nat)	Unlimited	Unlimited	Unlimited	Unlimited	0.0	$2.4x10^{-8}$
Rhodium (45)						
Rh-99	2.0	$5.4x10^{1}$	2.0	$5.4x10^{1}$	$3.0x10^{3}$	$8.2x10^{4}$
Rh-101	4.0	$1.1x10^{2}$	3.0	$8.1x10^{1}$	$4.1x10^{1}$	$1.1x10^{3}$
Rh-102	$5.0x10^{-1}$	$1.4x10^{1}$	$5.0x10^{-1}$	$1.4x10^{1}$	$4.5x10^{1}$	$1.2x10^{3}$
Rh-102m	2.0	$5.4x10^{1}$	2.0	$5.4x10^{1}$	$2.3x10^{2}$	$6.2x10^{3}$
Rh-103m	$4.0x10^{1}$	$1.1x10^{3}$	$4.0x10^{1}$	$1.1x10^{3}$	$1.2x10^{6}$	$3.3x10^{7}$
Rh-105	$1.0x10^{1}$	$2.7x10^{2}$	$8.0x10^{-1}$	$2.2x10^{1}$	$3.1x10^{4}$	$8.4x10^{5}$
Radon (86)						
Rn-222 (a)	$3.0x10^{-1}$	8.1	$4.0x10^{-3}$	$1.1x10^{-1}$	$5.7x10^{3}$	$1.5x10^{5}$
Ruthenium (44)						
Ru-97	5.0	$1.4x10^{2}$	5.0	$1.4x10^{2}$	$1.7x10^{4}$	$4.6x10^{5}$
Ru-103 (a)	2.0	$5.4x10^{1}$	2.0	$5.4x10^{1}$	$1.2x10^{3}$	$3.2x10^{4}$
Ru-105	1.0	$2.7x10^{1}$	$6.0x10^{-1}$	$1.6x10^{1}$	$2.5x10^{5}$	$6.7x10^{6}$
Ru-106 (a)	$2.0x10^{-1}$	5.4	$2.0x10^{-1}$	5.4	$1.2x10^{2}$	$3.3x10^{3}$
Sulfur (16)						
S-35	$4.0x10^{1}$	$1.1x10^{3}$	3.0	$8.1x10^{1}$	$1.6x10^{3}$	$4.3x10^{4}$
Antimony (51)						
Sb-122	$4.0x10^{-1}$	$1.1x10^{1}$	$4.0x10^{-1}$	$1.1x10^{1}$	$1.5x10^{4}$	$4.0x10^{5}$
Sb-124	$6.0x10^{-1}$	$1.6x10^{1}$	$6.0x10^{-1}$	$1.6x10^{1}$	$6.5x10^{2}$	$1.7x10^{4}$
Sb-125	2.0	$5.4x10^{1}$	1.0	$2.7x10^{1}$	$3.9x10^{1}$	$1.0x10^{3}$
Sb-126	$4.0x10^{-1}$	$1.1x10^{1}$	$4.0x10^{-1}$	$1.1x10^{1}$	$3.1x10^{3}$	$8.4x10^{4}$

APPENDIX A

Element, Atomic No. Radionuclide	A_1		A_2		Specific Activity	
	(TBq)	(Ci)[b]	(TBq)	(Ci)[b]	(TBq/g)	(Ci/g)
Scandium (21)						
Sc-44	$5.0x10^{-1}$	$1.4x10^{1}$	$5.0x10^{-1}$	$1.4x10^{1}$	$6.7x10^{5}$	$1.8x10^{7}$
Sc-46	$5.0x10^{-1}$	$1.4x10^{1}$	$5.0x10^{-1}$	$1.4x10^{1}$	$1.3x10^{3}$	$3.4x10^{4}$
Sc-47	$1.0x10^{1}$	$2.7x10^{2}$	$7.0x10^{-1}$	$1.9x10^{1}$	$3.1x10^{4}$	$8.3x10^{5}$
Sc-48	$3.0x10^{-1}$	8.1	$3.0x10^{-1}$	8.1	$5.5x10^{4}$	$1.5x10^{6}$
Selenium (34)						
Se-75	3.0	$8.1x10^{1}$	3.0	$8.1x10^{1}$	$5.4x10^{2}$	$1.5x10^{4}$
Se-79	$4.0x10^{1}$	$1.1x10^{3}$	2.0	$5.4x10^{1}$	$2.6x10^{-3}$	$7.0x10^{-2}$
Silicon (14)						
Si-31	$6.0x10^{-1}$	$1.6x10^{1}$	$6.0x10^{-1}$	$1.6x10^{1}$	$1.4x10^{6}$	$3.9x10^{7}$
Si-32	$4.0x10^{1}$	$1.1x10^{3}$	$5.0x10^{-1}$	$1.4x10^{1}$	3.9	$1.1x10^{2}$
Samarium (62)						
Sm-145	$1.0x10^{1}$	$2.7x10^{2}$	$1.0x10^{1}$	$2.7x10^{2}$	$9.8x10^{1}$	$2.6x10^{3}$
Sm-147	Unlimited	Unlimited	Unlimited	Unlimited	$8.5x10^{-1}$	$2.3x10^{-8}$
Sm-151	$4.0x10^{1}$	$1.1x10^{3}$	$1.0x10^{1}$	$2.7x10^{2}$	$9.7x10^{-1}$	$2.6x10^{1}$
Sm-153	9.0	$2.4x10^{2}$	$6.0x10^{-1}$	$1.6x10^{1}$	$1.6x10^{4}$	$4.4x10^{5}$
Tin (50)						
Sn-113 (a)	4.0	$1.1x10^{2}$	2.0	$5.4x10^{1}$	$3.7x10^{2}$	$1.0x10^{4}$
Sn-117m	7.0	$1.9x10^{2}$	$4.0x10^{-1}$	$1.1x10^{1}$	$3.0x10^{3}$	$8.2x10^{4}$
Sn-119m	$4.0x10^{1}$	$1.1x10^{3}$	$3.0x10^{1}$	$8.1x10^{2}$	$1.4x10^{2}$	$3.7x10^{3}$
Sn-121m (a)	$4.0x10^{1}$	$1.1x10^{3}$	$9.0x10^{-1}$	$2.4x10^{1}$	2.0	$5.4x10^{1}$
Sn-123	$8.0x10^{-1}$	$2.2x10^{1}$	$6.0x10^{-1}$	$1.6x10^{1}$	$3.0x10^{2}$	$8.2x10^{3}$
Sn-125	$4.0x10^{-1}$	$1.1x10^{1}$	$4.0x10^{-1}$	$1.1x10^{1}$	$4.0x10^{3}$	$1.1x10^{5}$
Sn-126 (a)	$6.0x10^{-1}$	$1.6x10^{1}$	$4.0x10^{-1}$	$1.1x10^{1}$	$1.0x10^{-3}$	$2.8x10^{-2}$
Strontium (38)						
Sr-82 (a)	$2.0x10^{-1}$	5.4	$2.0x10^{-1}$	5.4	$2.3x10^{3}$	$6.2x10^{4}$
Sr-85	2.0	$5.4x10^{1}$	2.0	$5.4x10^{1}$	$8.8x10^{2}$	$2.4x10^{4}$
Sr-85m	5.0	$1.4x10^{2}$	5.0	$1.4x10^{2}$	$1.2x10^{6}$	$3.3x10^{7}$
Sr-87m	3.0	$8.1x10^{1}$	3.0	$8.1x10^{1}$	$4.8x10^{5}$	$1.3x10^{7}$
Sr-89	$6.0x10^{-1}$	$1.6x10^{1}$	$6.0x10^{-1}$	$1.6x10^{1}$	$1.1x10^{3}$	$2.9x10^{4}$
Sr-90 (a)	$3.0x10^{-1}$	8.1	$3.0x10^{-1}$	8.1	5.1	$1.4x10^{2}$
Sr-91 (a)	$3.0x10^{-1}$	8.1	$3.0x10^{-1}$	8.1	$1.3x10^{5}$	$3.6x10^{6}$
Sr-92 (a)	1.0	$2.7x10^{1}$	$3.0x10^{-1}$	8.1	$4.7x10^{5}$	$1.3x10^{7}$

APPENDIX A

Element, Atomic No. Radionuclide	A_1		A_2		Specific Activity	
	(TBq)	(Ci)[b]	(TBq)	(Ci)[b]	(TBq/g)	(Ci/g)
Tritium (1)						
T(H-3)	4.0×10^{1}	1.1×10^{3}	4.0×10^{1}	1.1×10^{3}	3.6×10^{2}	9.7×10^{3}
Tantalum (73)						
Ta-178 (long lived).	1.0	2.7×10^{1}	8.0×10^{-1}	2.2×10^{1}	4.2×10^{6}	1.1×10^{8}
Ta-179	3.0×10^{1}	8.1×10^{2}	3.0×10^{1}	8.1×10^{2}	4.1×10^{1}	1.1×10^{3}
Ta-182	9.0×10^{-1}	2.4×10^{1}	5.0×10^{-1}	1.4×10^{1}	2.3×10^{2}	6.2×10^{3}
Terbium (65)						
Tb-157	4.0×10^{1}	1.1×10^{3}	4.0×10^{1}	1.1×10^{3}	5.6×10^{-1}	1.5×10^{1}
Tb-158	1.0	2.7×10^{1}	1.0	2.7×10^{1}	5.6×10^{-1}	1.5×10^{1}
Tb-160	1.0	2.7×10^{1}	6.0×10^{-1}	1.6×10^{1}	4.2×10^{2}	1.1×10^{4}
Technetium (43)						
Tc-95m (a)	2.0	5.4×10^{1}	2.0	5.4×10^{1}	8.3×10^{2}	2.2×10^{4}
Tc-96	4.0×10^{-1}	1.1×10^{1}	4.0×10^{-1}	1.1×10^{1}	1.2×10^{4}	3.2×10^{5}
Tc-96m	4.0×10^{-1}	1.1×10^{1}	4.0×10^{-1}	1.1×10^{1}	1.4×10^{6}	3.8×10^{7}
Tc-97	Unlimited	Unlimited	Unlimited	Unlimited	5.2×10^{-5}	1.4×10^{-3}
Tc-97m	4.0×10^{1}	1.1×10^{3}	1.0	2.7×10^{1}	5.6×10^{2}	1.5×10^{4}
Tc-98	8.0×10^{-1}	2.2×10^{1}	7.0×10^{-1}	1.9×10^{1}	3.2×10^{-5}	8.7×10^{-4}
Tc-99	4.0×10^{1}	1.1×10^{3}	9.0×10^{-1}	2.4×10^{1}	6.3×10^{-4}	1.7×10^{-2}
Tc-99m	1.0×10^{1}	2.7×10^{2}	4.0	1.1×10^{2}	1.9×10^{5}	5.3×10^{6}
Tellurium (52)						
Te-121	2.0	5.4×10^{1}	2.0	5.4×10^{1}	2.4×10^{3}	6.4×10^{4}
Te-121m	5.0	1.4×10^{2}	3.0	8.1×10^{1}	2.6×10^{2}	7.0×10^{3}
Te-123m	8.0	2.2×10^{2}	1.0	2.7×10^{1}	3.3×10^{2}	8.9×10^{3}
Te-125m	2.0×10^{1}	5.4×10^{2}	9.0×10^{-1}	2.4×10^{1}	6.7×10^{2}	1.8×10^{4}
Te-127	2.0×10^{1}	5.4×10^{2}	7.0×10^{-1}	1.9×10^{1}	9.8×10^{4}	2.6×10^{6}
Te-127m (a)	2.0×10^{1}	5.4×10^{2}	5.0×10^{-1}	1.4×10^{1}	3.5×10^{2}	9.4×10^{3}
Te-129	7.0×10^{-1}	1.9×10^{1}	6.0×10^{-1}	1.6×10^{1}	7.7×10^{5}	2.1×10^{7}
Te-129m (a)	8.0×10^{-1}	2.2×10^{1}	4.0×10^{-1}	1.1×10^{1}	1.1×10^{3}	3.0×10^{4}
Te-131m (a)	7.0×10^{-1}	1.9×10^{1}	5.0×10^{-1}	1.4×10^{1}	3.0×10^{4}	8.0×10^{5}
Te-132 (a)	5.0×10^{-1}	1.4×10^{1}	4.0×10^{-1}	1.1×10^{1}	1.1×10^{4}	3.0×10^{5}

APPENDIX A

Element, Atomic No. Radionuclide	A_1		A_2		Specific Activity	
	(TBq)	(Ci)[b]	(TBq)	(Ci)[b]	(TBq/g)	(Ci/g)
Thorium (90)						
Th-227	$1.0x10^{1}$	$2.7x10^{2}$	$5.0x10^{-3}$	$1.4x10^{-1}$	$1.1x10^{3}$	$3.1x10^{4}$
Th-228 (a)	$5.0x10^{-1}$	$1.4x10^{1}$	$1.0x10^{-3}$	$2.7x10^{-2}$	$3.0x10^{1}$	$8.2x10^{2}$
Th-229	5.0	$1.4x10^{2}$	$5.0x10^{-4}$	$1.4x10^{-2}$	$7.9x10^{-3}$	$2.1x10^{-1}$
Th-230	$1.0x10^{1}$	$2.7x10^{2}$	$1.0x10^{-3}$	$2.7x10^{-2}$	$7.6x10^{-4}$	$2.1x10^{-2}$
Th-231	$4.0x10^{1}$	$1.1x10^{3}$	$2.0x10^{-2}$	$5.4x10^{-1}$	$2.0x10^{4}$	$5.3x10^{5}$
Th-232	Unlimited	Unlimited	Unlimited	Unlimited	$4.0x10^{-9}$	$1.1x10^{-7}$
Th-234 (a)	$3.0x10^{-1}$	8.1	$3.0x10^{-1}$	8.1	$8.6x10^{2}$	$2.3x10^{4}$
Th (nat)	Unlimited	Unlimited	Unlimited	Unlimited	$8.1x10^{-9}$	$2.2x10^{-7}$
Titanium (22)						
Ti-44 (a)	$5.0x10^{-1}$	$1.4x10^{1}$	$4.0x10^{-1}$	$1.1x10^{1}$	6.4	$1.7x10^{2}$
Thallium (81)						
Tl-200	$9.0x10^{-1}$	$2.4x10^{1}$	$9.0x10^{-1}$	$2.4x10^{1}$	$2.2x10^{4}$	$6.0x10^{5}$
Tl-201	$1.0x10^{1}$	$2.7x10^{2}$	4.0	$1.1x10^{2}$	$7.9x10^{3}$	$2.1x10^{5}$
Tl-202	2.0	$5.4x10^{1}$	2.0	$5.4x10^{1}$	$2.0x10^{3}$	$5.3x10^{4}$
Tl-204	$1.0x10^{1}$	$2.7x10^{2}$	$7.0x10^{-1}$	$1.9x10^{1}$	$1.7x10^{1}$	$4.6x10^{2}$
Thulium (69)						
Tm-167	7.0	$1.9x10^{2}$	$8.0x10^{-1}$	$2.2x10^{1}$	$3.1x10^{3}$	$8.5x10^{4}$
Tm-170	3.0	$8.1x10^{1}$	$6.0x10^{-1}$	$1.6x10^{1}$	$2.2x10^{2}$	$6.0x10^{3}$
Tm-171	$4.0x10^{1}$	$1.1x10^{3}$	$4.0x10^{1}$	$1.1x10^{3}$	$4.0x10^{1}$	$1.1x10^{3}$
Uranium (92)						
U-230 (fast lung absorption) (a)(d).	$4.0x10^{1}$	$1.1x10^{3}$	$1.0x10^{-1}$	2.7	$1.0x10^{3}$	$2.7x10^{4}$
U-230 (medium lung absorption) (a)(e).	$4.0x10^{1}$	$1.1x10^{3}$	$4.0x10^{-3}$	$1.1x10^{-1}$	$1.0x10^{3}$	$2.7x10^{4}$
U-230 (slow lung absorption) (a)(f).	$3.0x10^{1}$	$8.1x10^{2}$	$3.0x10^{-3}$	$8.1x10^{-2}$	$1.0x10^{3}$	$2.7x10^{4}$
U-232 (fast lung absorption) (d).	$4.0x10^{1}$	$1.1x10^{3}$	$1.0x10^{-2}$	$2.7x10^{-1}$	$8.3x10^{-1}$	$2.2x10^{1}$
U-232 (medium lung absorption) (e).	$4.0x10^{1}$	$1.1x10^{3}$	$7.0x10^{-3}$	$1.9x10^{-1}$	$8.3x10^{-1}$	$2.2x10^{1}$
U-232 (slow lung absorption) (f).	$1.0x10^{1}$	$2.7x10^{2}$	$1.0x10^{-3}$	$2.7x10^{-2}$	$8.3x10^{-1}$	$2.2x10^{1}$
U-233 (fast lung absorption) (d).	$4.0x10^{1}$	$1.1x10^{3}$	$9.0x10^{-2}$	2.4	$3.6x10^{-4}$	$9.7x10^{-3}$

APPENDIX A

Element, Atomic No. Radionuclide	A_1		A_2		Specific Activity	
	(TBq)	(Ci)[b]	(TBq)	(Ci)[b]	(TBq/g)	(Ci/g)
U-233 (medium lung absorption) (e).	$4.0x10^{1}$	$1.1x10^{3}$	$2.0x10^{-2}$	$5.4x10^{-1}$	$3.6x10^{-4}$	$9.7x10^{-3}$
U-233 (slow lung absorption) (f).	$4.0x10^{1}$	$1.1x10^{3}$	$6.0x10^{-3}$	$1.6x10^{-1}$	$3.6x10^{-4}$	$9.7x10^{-3}$
U-234 (fast lung absorption) (d).	$4.0x10^{1}$	$1.1x10^{3}$	$9.0x10^{-2}$	2.4	$2.3x10^{-4}$	$6.2x10^{-3}$
U-234 (medium lung absorption) (e).	$4.0x10^{1}$	$1.1x10^{3}$	$2.0x10^{-2}$	$5.4x10^{-1}$	$2.3x10^{-4}$	$6.2x10^{-3}$
U-234 (slow lung absorption) (f).	$4.0x10^{1}$	$1.1x10^{3}$	$6.0x10^{-3}$	$1.6x10^{-1}$	$2.3x10^{-4}$	$6.2x10^{-3}$
U-235 (all lung absorption types) (a),(d),(e),(f).	Unlimited	Unlimited	Unlimited	Unlimited	$8.0x10^{-8}$	$2.2x10^{-6}$
U-236 (fast lung absorption) (d).	Unlimited	Unlimited	Unlimited	Unlimited	$2.4x10^{-6}$	$6.5x10^{-5}$
U-236 (medium lung absorption) (e).	$4.0x10^{1}$	$1.1x10^{3}$	$2.0x10^{-2}$	$5.4x10^{-1}$	$2.4x10^{-6}$	$6.5x10^{-5}$
U-236 (slow lung absorption) (f).	$4.0x10^{1}$	$1.1x10^{3}$	$6.0x10^{-3}$	$1.6x10^{-1}$	$2.4x10^{-6}$	$6.5x10^{-5}$
U-238 (all lung absorption types) (d),(e),(f).	Unlimited	Unlimited	Unlimited	Unlimited	$1.2x10^{-8}$	$3.4x10^{-7}$
U (nat)	Unlimited	Unlimited	Unlimited	Unlimited	$2.6x10^{-8}$	$7.1x10^{-7}$
U (enriched to 20% or less) (g).	Unlimited	Unlimited	Unlimited	Unlimited	See Table 25-4	See Table 25-4
U (dep)	Unlimited	Unlimited	Unlimited	Unlimited	See Table 25-4	See Table 25-4
Vanadium (23)						
V-48	$4.0x10^{-1}$	$1.1x10^{1}$	$4.0x10^{-1}$	$1.1x10^{1}$	$6.3x10^{3}$	$1.7x10^{5}$
V-49	$4.0x10^{1}$	$1.1x10^{3}$	$4.0x10^{1}$	$1.1x10^{3}$	$3.0x10^{2}$	$8.1x10^{3}$
Tungsten (74)						
W-178 (a)	9.0	$2.4x10^{2}$	5.0	$1.4x10^{2}$	$1.3x10^{3}$	$3.4x10^{4}$
W-181	$3.0x10^{1}$	$8.1x10^{2}$	$3.0x10^{1}$	$8.1x10^{2}$	$2.2x10^{2}$	$6.0x10^{3}$
W-185	$4.0x10^{1}$	$1.1x10^{3}$	$8.0x10^{-1}$	$2.2x10^{1}$	$3.5x10^{2}$	$9.4x10^{3}$
W-187	2.0	$5.4x10^{1}$	$6.0x10^{-1}$	$1.6x10^{1}$	$2.6x10^{4}$	$7.0x10^{5}$
W-188 (a)	$4.0x10^{-1}$	$1.1x10^{1}$	$3.0x10^{-1}$	8.1	$3.7x10^{2}$	$1.0x10^{4}$
Xenon (54)						
Xe-122 (a)	$4.0x10^{-1}$	$1.1x10^{1}$	$4.0x10^{-1}$	$1.1x10^{1}$	$4.8x10^{4}$	$1.3x10^{6}$
Xe-123	2.0	$5.4x10^{1}$	$7.0x10^{-1}$	$1.9x10^{1}$	$4.4x10^{5}$	$1.2x10^{7}$
Xe-127	4.0	$1.1x10^{2}$	2.0	$5.4x10^{1}$	$1.0x10^{3}$	$2.8x10^{4}$

□ $6.0x10^{-1}$

APPENDIX A

Element, Atomic No. Radionuclide	A_1		A_2		Specific Activity	
	(TBq)	(Ci)[b]	(TBq)	(Ci)[b]	(TBq/g)	(Ci/g)
Xe-131m	$4.0x10^{1}$	$1.1x10^{3}$	$4.0x10^{1}$	$1.1x10^{3}$	$3.1x10^{3}$	$8.4x10^{4}$
Xe-133	$2.0x10^{1}$	$5.4x10^{2}$	$1.0x10^{1}$	$2.7x10^{2}$	$6.9x10^{3}$	$1.9x10^{5}$
Xe-135	3.0	$8.1x10^{1}$	2.0	$5.4x10^{1}$	$9.5x10^{4}$	$2.6x10^{6}$
Yttrium (39)						
Y-87 (a)	1.0	$2.7x10^{1}$	1.0	$2.7x10^{1}$	$1.7x10^{4}$	$4.5x10^{5}$
Y-88	$4.0x10^{-1}$	$1.1x10^{1}$	$4.0x10^{-1}$	$1.1x10^{1}$	$5.2x10^{2}$	$1.4x10^{4}$
Y-90	$3.0x10^{-1}$	8.1	$3.0x10^{-1}$	8.1	$2.0x10^{4}$	$5.4x10^{5}$
Y-91	$6.0x10^{-1}$	$1.6x10^{1}$	$6.0x10^{-1}$	$1.6x10^{1}$	$9.1x10^{2}$	$2.5x10^{4}$
Y-91m	2.0	$5.4x10^{1}$	2.0	$5.4x10^{1}$	$1.5x10^{6}$	$4.2x10^{7}$
Y-92	$2.0x10^{-1}$	5.4	$2.0x10^{-1}$	5.4	$3.6x10^{5}$	$9.6x10^{6}$
Y-93	$3.0x10^{-1}$	8.1	$3.0x10^{-1}$	8.1	$1.2x10^{5}$	$3.3x10^{6}$
Ytterbium (70)						
Yb-169	4.0	$1.1x10^{2}$	1.0	$2.7x10^{1}$	$8.9x10^{2}$	$2.4x10^{4}$
Yb-175	$3.0x10^{1}$	$8.1x10^{2}$	$9.0x10^{-1}$	$2.4x10^{1}$	$6.6x10^{3}$	$1.8x10^{5}$
Zinc (30)						
Zn-65	2.0	$5.4x10^{1}$	2.0	$5.4x10^{1}$	$3.0x10^{2}$	$8.2x10^{3}$
Zn-69	3.0	$8.1x10^{1}$	$6.0x10^{-1}$	$1.6x10^{1}$	$1.8x10^{6}$	$4.9x10^{7}$
Zn-69m (a)	3.0	$8.1x10^{1}$	$6.0x10^{-1}$	$1.6x10^{1}$	$1.2x10^{5}$	$3.3x10^{6}$
Zirconium (40)						
Zr-88	3.0	$8.1x10^{1}$	3.0	$8.1x10^{1}$	$6.6x10^{2}$	$1.8x10^{4}$
Zr-93	Unlimited	Unlimited	Unlimited	Unlimited	$9.3x10^{-5}$	$2.5x10^{-3}$
Zr-95 (a)	2.0	$5.4x10^{1}$	$8.0x10^{-1}$	$2.2x10^{1}$	$7.9x10^{2}$	$2.1x10^{4}$
Zr-97 (a)	$4.0x10^{-1}$	$1.1x10^{1}$	$4.0x10^{-1}$	$1.1x10^{1}$	$7.1x10^{4}$	$1.9x10^{6}$

a A_1 and/or A_2 values include contributions from daughter nuclides with half-lives less than 10 days.

b ~~[Reserved]~~ The values of A_1 and A_2 in Curies (Ci) are approximate and for information only, the regulatory standard units are Terabecquerels (TBq).

c The quantity may be determined from a measurement of the rate of decay or a measurement of the radiation level at a prescribed distance from the source.

d These values apply only to compounds of uranium that take the chemical form of UF_6, UO_2F_2 and $UO_2(NO_3)_2$ in both normal and accident conditions of transport.

e These values apply only to compounds of uranium that take the chemical form of UO_3, UF_4, UCl_4 and hexavalent compounds in both normal and accident conditions of transport.

f These values apply to all compounds of uranium other than those specified in notes (d) and (e) of this table.

g These values apply to unirradiated uranium only.

h A_1 = 0.1 TBq (2.7 Ci) and A_2 = 0.001 TBq (0.027 Ci) for Cf-252 for domestic use.

i A_2 = 0.74 TBq (20 Ci) for Mo-99 for domestic use.