11.0 STANDARDS

Table 11-1. U.S. Department of Energy Derived Concentration Guides.[a]

Radionuclide	DCG Air (pCi/m^3)	DCG Liquid (pCi/L)
^{3}H	1.0E+05	2.0E+06
^{14}C	6.0E+03	7.0E+04
^{40}K	9.0E+02	7.0E+03
^{41}Ar	1.0E+04	0.0E+00
^{51}Cr	6.0E+04	1.0E+06
^{54}Mn	2.0E+03	5.0E+04
^{59}Fe	8.0E+02	2.0E+04
^{58}Co	2.0E+03	4.0E+04
^{60}Co	8.0E+01	5.0E+03
^{65}Zn	6.0E+02	9.0E+03
^{85}Kr	3.0E+06	0.0E+00
^{89}Sr	3.0E+02	2.0E+04
^{90}Sr	9.0E+00	1.0E+03
^{95}Zr	6.0E+02	4.0E+04
^{95}Nb	3.0E+03	6.0E+04
^{99}Tc	2.0E+03	1.0E+05
^{103}Ru	2.0E+03	5.0E+04
^{106}Ru	3.0E+01	6.0E+03
^{113}Sn	1.0E+03	5.0E+04
^{124}Sb	6.0E+02	1.0E+04
^{125}Sb	1.0E+03	5.0E+04
^{129}I	7.0E+01	5.0E+02
^{131}I	4.0E+02	3.0E+03
^{134}Cs	2.0E+02	2.0E+03
^{137}Cs	4.0E+02	3.0E+03
^{141}Ce	1.0E+03	5.0E+04
^{144}Ce	3.0E+01	7.0E+03
^{147}Pm	3.0E+02	1.0E+05
^{152}Eu	5.0E+01	2.0E+04
^{154}Eu	5.0E+01	2.0E+04
^{155}Eu	3.0E+02	1.0E+05
^{208}Tl	5.0E+03	0.0E+00
^{212}Bi	6.0E+02	1.0E+05
^{214}Bi	2.0E+03	6.0E+05
^{212}Pb	8.0E+01	3.0E+03
^{214}Pb	2.0E+03	2.0E+05
^{212}Po	1.0E+00	8.0E+01
^{216}Po	1.0E+00	8.0E+01
^{220}Rn	3.0E+03	0.0E+00
^{224}Ra	4.0E+00	4.0E+02
^{226}Ra	1.0E+00	1.0E+02
^{228}Ac	4.0E+01	6.0E+04
^{232}Th	7.0E-03	5.0E+01
^{Total}U	1.0E-01	6.0E+02
^{234}U	9.0E-02	5.0E+02
^{235}U	1.0E-01	6.0E+02
^{236}U	1.0E-01	5.0E+02
^{238}U	1.0E-01	6.0E+02
^{238}Pu	3.0E-02	4.0E+01
$^{239/240}$Pu	2.0E-02	3.0E+01
^{241}Pu	1.0E+00	2.0E+03
^{241}Am	2.0E-02	3.0E+01
Total Alpha	2.0E-02	3.0E+01
Total Beta	9.0E+00	1.0E+03

a – From DOE Order 5400.5.

Table 11-2. EPA Concentration Levels for Environmental Compliance.[a]
(Radionuclide Concentrations [pCi/m^3] in Air)

Radionuclide	Concentration	Radionuclide	Concentration
^{3}H	1.5E+03	^{137}Cs	1.9E-02
^{14}C	1.0E+01	^{141}Ce	6.3E+00
^{40}K	2.7E-02	^{144}Ce	6.2E-01
^{41}Ar	1.7E+03	^{147}Pm	1.1E+01
^{51}Cr	3.1E+01	^{152}Eu	2.0E-02
^{54}Mn	2.8E-01	^{154}Eu	2.3E-02
^{59}Fe	6.7E-01	^{155}Eu	5.9E-01
^{58}Co	6.7E-01	^{212}Bi	5.6E+01
^{60}Co	1.7E-02	^{214}Bi	1.4E+02
^{65}Zn	9.1E-02	^{212}Pb	6.3E+00
^{85}Kr	1.0E+06	^{214}Pb	1.2E+02
^{89}Sr	1.8E+00	^{224}Ra	1.5E-01
^{90}Sr	1.9E-02	^{226}Ra	3.3E-03
^{95}Zr	6.7E-01	^{228}Ac	3.7E+00
^{95}Nb	2.2E+00	^{232}Th	6.2E-04
^{99}Tc	1.4E-01	^{234}U	7.7E-03
^{103}Ru	2.6E+00	^{235}U	7.1E-03
^{106}Ru	3.4E-01	^{236}U	7.7E-03
^{113}Sn	1.4E+00	^{238}U	8.3E-03
^{124}Sb	5.3E-01	^{238}Pu	2.1E-03
^{125}Sb	1.6E-01	$^{239/240}$Pu	2.0E-03
^{129}I	9.1E-03	^{241}Pu	1.0E-01
^{131}I	2.1E-01	^{241}Am	1.9E-03
^{134}Cs	2.7E-02		

a - from 40 CFR 61, Subpart I, Appendix E, Table 2

Table 11-3. Inaccessible Soil Concentrations (pCi/g).

Radionuclide	100 BDKN	100 F, H	200 West Area	200 East Area	300 Area	400 Area
^{3}H	1.4 E+08	7.4 E+07	3.7 E+08	2.0 E+08	9.5 E+06	1.4 E+07
^{14}C	6.2 E+05	6.2 E+05	6.2 E+05	6.2 E+05	6.2 E+05	6.2 E+05
^{55}Fe	9.7 E+06	9.7 E+06	3.6 E+10	1.9 E+10	1.0 E+07	1.4 E+09
^{58}Co	9.8 E+06	9.8 E+06	8.1 E+09	4.3 E+09	1.2 E+07	3.1 E+08
^{60}Co	9.9 E+05	9.9 E+05	5.7 E+08	3.0 E+08	1.0 E+06	9.9 E+06
^{63}Ni	1.5 E+08	1.5 E+08	6.9 E+09	6.9 E+09	1.5 E+08	2.2 E+08
^{90}Sr*	8.3 E+05	8.3 E+05	2.2 E+08	1.2 E+08	8.3 E+05	8.4 E+06
^{99}Tc	1.3 E+07	1.3 E+07	1.3 E+07	1.3 E+07	1.3 E+07	1.3 E+07
^{106}Ru*	2.0 E+07	2.0 E+07	5.7 E+08	3.0 E+08	1.5 E+07	2.2 E+07
^{125}Sb*	9.1 E+06	9.1 E+06	5.7 E+09	3.0 E+09	9.2 E+06	1.1 E+08
^{129}I	2.8 E+05	2.8 E+05	2.8 E+05	2.8 E+05	2.2 E+05	2.8 E+05
^{134}Cs	1.7 E+04	1.7 E+04	2.5 E+08	1.4 E+08	2.4 E+04	9.7 E+06
^{137}Ce*	1.7 E+04	1.7 E+04	3.5 E+08	1.8 E+08	1.7 E+04	1.3 E+07
^{144}Cs*	1.4 E+06	1.4 E+06	7.4 E+08	4.0 E+08	1.9 E+06	2.8 E+07
^{147}Pm	3.4 E+07	3.4 E+07	7.4 E+09	4.0 E+09	3.5 E+07	2.8 E+08
^{152}Eu	4.5 E+06	4.5 E+06	1.2 E+09	6.2 E+08	4.6 E+06	4.5 E+07
^{154}Eu	3.3 E+06	3.3 E+06	8.8 E+08	4.7 E+08	3.3 E+06	3.4 E+07
^{155}Eu	2.3 E+07	2.3 E+07	6.9 E+09	3.7 E+09	2.4 E+07	2.6 E+08
^{226}Ra*	1.3 E+05	1.3 E+05	2.1 E+05	2.1 E+05	1.3 E+05	1.4 E+05
^{227}Ac*	2.4 E+03	2.4 E+03	5.4 E+04	2.9 E+04	1.4 E+03	2.1 E+03
^{232}Th*	2.0 E+04	2.0 E+04	2.0 E+04	2.0 E+04	4.7 E+03	7.1 E+03
^{232}U*	5.5 E+04	5.5 E+04	1.4 E+05	1.4 E+05	9.9 E+03	1.5 E+04
^{233}U	4.5 E+05	4.5 E+05	4.5 E+05	4.5 E+05	6.7 E+04	1.0 E+05
^{234}U	4.6 E+05	4.6 E+05	4.6 E+05	4.6 E+05	6.9 E+04	1.0 E+05
^{235}U*	4.9 E+05	4.9 E+05	4.9 E+05	4.9 E+05	7.3 E+04	1.1 E+05
^{236}U	4.9 E+05	4.9 E+05	4.9 E+05	4.9 E+05	7.1 E+04	1.1 E+05
^{238}U*	4.7 E+05	4.7 E+05	4.7 E+05	4.7 E+05	7.7 E+04	1.2 E+05
^{237}Np*	8.9 E+02	8.9 E+02	8.9 E+02	8.9 E+02	8.9 E+02	8.9 E+02
^{238}Pu	1.3 E+04	1.3 E+04	8.8 E+05	4.7 E+05	1.3 E+04	3.4 E+04
^{239}Pu	1.2 E+04	1.2 E+04	1.2 E+04	1.2 E+04	1.2 E+04	1.2 E+04
^{240}Pu	1.2 E+04	1.2 E+04	1.4 E+04	1.4 E+04	1.2 E+04	1.2 E+04
^{241}Pu	6.1 E+05	6.1 E+05	4.2 E+07	2.2 E+07	6.1 E+05	1.2 E+06
^{241}Am	2.5 E+04	2.5 E+04	7.4 E+05	4.0 E+05	1.9 E+04	2.8 E+04

Note: Asterisks mark nuclides with progeny that are assumed to be present in equilibrium amounts. However, ^{234}U was not included in the ^{238}U limits. For supporting references see WHC-SD-EN-TI-070.

Table 11-4. Accessible Soil Concentrations (pCi/g).

Radionuclide	100 BDKN	100 F, H	200 West Area	200 East Area	300 Area	400 Area
^{3}H	1.4 E+08	7.4 E+07	3.7 E+08	2.0 E+08	9.5 E+06	1.4 E+07
^{14}C	6.2 E+05	6.2 E+05	6.2 E+05	6.2 E+05	6.2 E+05	6.2 E+05
^{55}Fe	5.3 E+05	5.3 E+05	5.3 E+05	5.3 E+05	5.3 E+05	5.3 E+05
^{58}Co	1.8 E+01	1.8 E+01	1.8 E+01	1.8 E+01	1.8 E+01	1.8 E+01
^{60}Co	7.1 E+00	7.1 E+00	7.1 E+00	7.1 E+00	7.1 E+00	7.1 E+00
^{63}Ni	2.5 E+07	2.5 E+07	2.5 E+07	2.5 E+07	2.5 E+07	2.5 E+07
^{90}Sr*	2.8 E+03	2.8 E+03	2.8 E+03	2.8 E+03	2.8 E+03	2.8 E+03
^{99}Tc	1.0 E+06	1.0 E+06	1.0 E+06	1.0 E+06	1.0 E+06	1.0 E+06
^{106}Ru*	7.7 E+01	7.7 E+01	7.7 E+01	7.7 E+01	7.7 E+01	7.7 E+01
^{125}Sb*	3.7 E+01	3.7 E+01	3.7 E+01	3.7 E+01	3.7 E+01	3.7 E+01
^{129}I	1.0 E+04	1.0 E+04	1.0 E+04	1.0 E+04	1.0 E+04	1.0 E+04
^{134}Cs	1.0 E+01	1.0 E+01	1.0 E+01	1.0 E+01	1.0 E+01	1.0 E+01
^{137}Cs*	3.0 E+01	3.0 E+01	3.0 E+01	3.0 E+01	3.0 E+01	3.0 E+01
^{144}Ce*	3.3 E+02	3.3 E+02	3.3 E+02	3.3 E+02	3.3 E+02	3.3 E+02
^{147}Pm	1.1 E+06	1.1 E+06	1.1 E+06	1.1 E+06	1.1 E+06	1.1 E+06
^{152}Eu	1.5 E+01	1.5 E+01	1.5 E+01	1.5 E+01	1.5 E+01	1.5 E+01
^{154}Eu	1.4 E+01	1.4 E+01	1.4 E+01	1.4 E+01	1.4 E+01	1.4 E+01
^{155}Eu	6.3 E+02	6.3 E+02	6.3 E+02	6.3 E+02	6.3 E+02	6.3 E+02
^{226}Ra*	1.0 E+01	1.0 E+01	1.0 E+01	1.0 E+01	1.0 E+01	1.0 E+01
^{227}Ac*	1.0 E+01	1.0 E+01	1.0 E+01	1.0 E+01	1.0 E+01	1.0 E+01
^{232}Th*	5.9 E+00	5.9 E+00	5.9 E+00	5.9 E+00	5.9 E+00	5.9 E+00
^{232}U*	1.0 E+01	1.0 E+01	1.0 E+01	1.0 E+01	1.0 E+01	1.0 E+01
^{233}U	6.3 E+02	6.3 E+02	6.3 E+02	6.3 E+02	6.3 E+02	6.3 E+02
^{234}U	6.3 E+02	6.3 E+02	6.3 E+02	6.3 E+02	6.3 E+02	6.3 E+02
^{235}U*	1.7 E+02	1.7 E+02	1.7 E+02	1.7 E+02	1.7 E+02	1.7 E+02
^{236}U	6.7 E+02	6.7 E+02	6.7 E+02	6.7 E+02	6.7 E+02	6.7 E+02
^{238}U*	3.7 E+02	3.7 E+02	3.7 E+02	3.7 E+02	3.7 E+02	3.7 E+02
^{237}Np*	4.8 E+01	4.8 E+01	4.8 E+01	4.8 E+01	4.8 E+01	4.8 E+01
^{238}Pu	2.1 E+02	2.1 E+02	2.1 E+02	2.1 E+02	2.1 E+02	2.1 E+02
^{239}Pu	1.9 E+02	1.9 E+02	1.9 E+02	1.9 E+02	1.9 E+02	1.9 E+02
^{240}Pu	1.9 E+02	1.9 E+02	1.9 E+02	1.9 E+02	1.9 E+02	1.9 E+02
^{241}Pu	1.0 E+04	1.0 E+04	1.0 E+04	1.0 E+04	1.0 E+04	1.0 E+04
^{241}Am	1.8 E+02	1.8 E+02	1.8 E+02	1.8 E+02	1.8 E+02	1.8 E+02

Note: Asterisks mark nuclides with progeny that are assumed to be present in equilibrium amounts. However, ^{234}U was not included in the ^{238}U limits. For supporting references see WHC-SD-EN-TI-070.