Chapter DHS 157

APPENDIX B

Exempt Quantities

Radioactive Material	Microcuries
Antimony−122 (Sb 122)	100
Antimony−124 (Sb 124)	10
Antimony−125 (Sb 125)	10
Arsenic−73 (As 73)	100
Arsenic−74 (As 74)	10
Arsenic−76 (As 76)	10
Arsenic−77 (As 77)	100
Barium−131 (Ba 131)	10
Barium−133 (Ba 133)	10
Barium−140 (Ba 140)	10
Bismuth−210 (Bi 210)	1
Bromine−82 (Br 82)	10
Cadmium−109 (Cd 109)	10
Cadmium−115m (Cd 115m)	10
Cadmium−115 (Cd 115)	100
Calcium−45 (Ca 45)	10
Calcium−47 (Ca 47)	10
Carbon−14 (C 14)	100
Cerium−141 (Ce 141)	100
Cerium−143 (Ce 143)	100
Cerium−144 (Ce 144)	1
Cesium−129 (Cs 129)	100
Cesium−131 (Cs 131)	1,000
Cesium−134m (Cs 134m)	100
Cesium−134 (Cs 134)	1
Cesium−135 (Cs 135)	10
Cesium−136 (Cs 136)	10
Cesium−137 (Cs 137)	10
Chlorine−36 (Cl 36)	10
Chlorine−38 (Cl 38)	10
Chromium−51 (Cr 51)	1,000
Cobalt−57 (Co 57)	100
Cobalt−58m (Co 58m)	10
Cobalt−58 (Co 58)	10
Cobalt−60 (Co 60)	1
Copper−64 (Cu 64)	100
Dysprosium−165 (Dy 165)	10
Dysprosium−166 (Dy 166)	100
Erbium−169 (Er 169)	100
Erbium−171 (Er 171)	100
Europium−152 (Eu 152)9.2h	100
Europium−152 (Eu 152)13 yr	1
Europium−154 (Eu 154)	1
Europium−155 (Eu 155)	10
Fluorine−18 (F 18)	1,000
Gadolinium−153 (Gd 153)	10
Gadolinium−159 (Gd 159)	100

Radioactive Material	Microcuries
Gallium−67 (Ga 67)	100
Gallium−72 (Ga 72)	10
Germanium−68 (Ge 68)	10
Germanium−71 (Ge 71)	100
Gold−195 (Au 195)	10
Gold−198 (Au 198)	100
Gold−199 (Au 199)	100
Hafnium−181 (Hf 181)	10
Holmium−166 (Ho 166)	100
Hydrogen−3 (H 3)	1,000
Indium−111 (In 111)	100
Indium−113m (In 113m)	100
Indium−114m (In 114m)	10
Indium−115m (In 115m)	100
Indium−115 (In 115)	10
Iodine−123 (I 123)	100
Iodine−125 (I 125)	1
Iodine−126 (I 126)	1
Iodine−129 (I 129)	0.1
Iodine−131 (I 131)	1
Iodine−132 (I 132)	10
Iodine−133 (I 133)	1
Iodine−134 (I 134)	10
Iodine−135 (I 135)	10
Iridium−192 (Ir 192)	10
Iridium−194 (Ir 194)	100
Iron−52 (Fe 52)	10
Iron−55 (Fe 55)	100
Iron−59 (Fe 59)	10
Krypton−85 (Kr 85)	100
Krypton−87 (Kr 87)	10
Lanthanum−140 (La 140)	10
Lutetium−177 (Lu 177)	100
Manganese−52 (Mn 52)	10
Manganese−54 (Mn 54)	10
Manganese−56 (Mn 56)	10
Mercury−197m (Hg 197m)	100
Mercury−197 (Hg 197)	100
Mercury−203 (Hg 203)	10
Molybdenum−99 (Mo 99)	100
Neodymium−147 (Nd 147)	100
Neodymium−149 (Nd 149)	100
Nickel−59 (Ni 59)	100
Nickel−63 (Ni 63)	10
Nickel−65 (Ni 65)	100
Niobium−93m (Nb 93m)	10
Niobium−95 (Nb 95)	10
Niobium−97 (Nb 97)	10

Radioactive Material	Microcuries
Osmium−185 (Os 185)	10
Osmium−191m (Os 191m)	100
Osmium−191 (Os 191)	100
Osmium−193 (Os 193)	100
Palladium−103 (Pd 103)	100
Palladium−109 (Pd 109)	100
Phosphorus−32 (P 32)	10
Platinum−191 (Pt 191)	100
Platinum−193m (Pt 193m)	100
Platinum−193 (Pt 193)	100
Platinum−197m (Pt 197m)	100
Platinum−197 (Pt 197)	100
Polonium−210 (Po 210)	0.1
Potassium−42 (K 42)	10
Potassium−43 (K 43)	10
Praseodymium−142 (Pr 142)	100
Praseodymium−143 (Pr 143)	100
Promethium−147 (Pm 147)	10
Promethium−149 (Pm 149)	10
Rhenium−186 (Re 186)	100
Rhenium−188 (Re 188)	100
Rhodium−103m (Rh 103m)	100
Rhodium−105 (Rh 105)	100
Rubidium−81 (Rb 81)	10
Rubidium−86 (Rb 86)	10
Rubidium−87 (Rb 87)	10
Ruthenium−97 (Ru 97)	100
Ruthenium−103 (Ru 103)	10
Ruthenium−105 (Ru 105)	10
Ruthenium−106 (Ru 106)	1
Samarium−151 (Sm 151)	10
Samarium−153 (Sm 153)	100
Scandium−46 (Sc 46)	10
Scandium−47 (Sc 47)	100
Scandium−48 (Sc 48)	10
Selenium−75 (Se 75)	10
Silicon−31 (Si 31)	100
Silver−105 (Ag 105)	10
Silver−110m (Ag 110m)	1
Silver−111 (Ag 111)	100
Sodium−22 (Na 22)	10
Sodium−24 (Na 24)	10
Strontium−85 (Sr 85)	10
Strontium−89 (Sr 89)	1
Strontium−90 (Sr 90)	0.1
Strontium−91 (Sr 91)	10
Strontium−92 (Sr 92)	10
Sulphur−35 (S 35)	100
Tantalum−182 (Ta 182)	10
Technetium−96 (Tc 96)	10
Technetium−97m (Tc 97m)	100
Technetium−97 (Tc 97)	100
Technetium−99m (Tc 99m)	100
Technetium−99 (Tc 99)	10
Tellurium−125m (Te 125m)	10
Tellurium−127m (Te 127m)	10
Tellurium−127 (Te 127)	100
Tellurium−129m (Te 129m)	10
Tellurium−129 (Te 129)	100
Tellurium−131m (Te 131m)	10
Tellurium−132 (Te 132)	10
Terbium−160 (Tb 160)	10
Thallium−200 (Tl 200)	100
Thallium−201 (Tl 201)	100
Thallium−202 (Tl 202)	100
Thallium−204 (Tl 204)	10
Thulium−170 (Tm 170)	10
Thulium−171 (Tm 171)	10
Tin−113 (Sn 113)	10
Tin−125 (Sn 125)	10
Tungsten−181 (W 181)	10
Tungsten−185 (W 185)	10
Tungsten−187 (W 187)	100
Vanadium−48 (V 48)	10
Xenon−131m (Xe 131m)	1,000
Xenon−133 (Xe 133)	100
Xenon−135 (Xe 135)	100
Ytterbium−175 (Yb 175)	100
Yttrium−87 (Y 87)	10
Yttrium−88 (Y 88)	10
Yttrium−90 (Y 90)	10
Yttrium−91 (Y 91)	10
Yttrium−92 (Y 92)	100
Yttrium−93 (Y 93)	100
Zinc−65 (Zn 65)	10
Zinc−69m (Zn 69m)	100
Zinc−69 (Zn 69)	1,000
Zirconium−93 (Zr 93)	10
Zirconium−95 (Zr 95)	10
Zirconium−97 (Zr 97)	10
Any radioactive material not listed above other than alpha−emitting radioactive material	0.1
Any alpha−emitting radioactive material not listed above other than transuranic radioactive material	0.01

Note 1: Where there is a combination of radionuclides, the limit for the combination should be derived as follows: Determine the amount of each radionuclide possessed and 1,000 times the amount in Appendix B for each of those radionuclides when not in combination. The sum of the ratios of those quantities may not exceed 1.

Example:

$$\frac{\text{Amt. of Radionuclide A possessed}}{\text{1000 x Appendix B quantity for Radionuclide A}} + \frac{\text{Amt. of Radionuclide B possessed}}{\text{1000 x Appendix B quantity for Radionuclide B}} \leq 1$$

Note 2: To convert microcuries (μCi) to SI units of kilobecquerels (kBq), multiply the above values by 37.

Example: Zirconium−97 (10 μCi multiplied by 37 is equivalent to 370 kBq).