

**Chapter DHS 157**  
**APPENDIX I**

---

**Quantities for Use with Decommissioning under Section DHS 157.15**

NOTE: To convert  $\mu\text{Ci}$  to kBq, multiply the  $\mu\text{Ci}$  value by 37.

<b>Material</b>	<b>Microcurie</b>
Americium-241 .....	0.01
Antimony-122 .....	100
Antimony-124 .....	10
Antimony-125 .....	10
Arsenic-73 .....	100
Arsenic-74 .....	10
Arsenic-76 .....	10
Arsenic-77 .....	100
Barium-131 .....	10
Barium-133 .....	10
Barium-140 .....	10
Bismuth-210 .....	1
Bromine-82 .....	10
Cadmium-109 .....	10
Cadmium-115m .....	10
Cadmium-115 .....	100
Calcium-45 .....	10
Calcium-47 .....	10
Carbon-14 .....	100
Cerium-141 .....	100
Cerium-143 .....	100
Cerium-144 .....	1
Cesium-131 .....	1,000
Cesium-134m .....	100
Cesium-134 .....	1
Cesium-135 .....	10
Cesium-136 .....	10
Cesium-137 .....	10
Chlorine-36 .....	10
Chlorine-38 .....	10
Chromium-51 .....	1,000
<u>Cobalt-57 .....</u>	<u>100</u>
Cobalt-58m .....	10
Cobalt-58 .....	10
Cobalt-60 .....	1
Copper-64 .....	100

<b>Material</b>	<b>Microcurie</b>
Dysprosium-165.....	10
Dysprosium-166.....	100
Erbium-169.....	100
Erbium-171.....	100
Europium-152 (9.2 h).....	100
Europium-152 (13 yr).....	1
Europium-154.....	1
Europium-155.....	10
Fluorine-18.....	1,000
Gadolinium-153.....	10
Gadolinium-159.....	100
Gallium-72.....	10
<u>Germanium-68.....</u>	<u>10</u>
Germanium-71.....	0100
<u>Gold-195.....</u>	<u>10</u>
Gold-198.....	100
Gold-199.....	100
Hafnium-181.....	10
Holmium-166.....	100
Hydrogen-3.....	1,000
Indium-113m.....	100
Indium-114m.....	10
Indium-115m.....	100
Indium-115.....	10
Iodine-125.....	1
Iodine-126.....	1
Iodine-129.....	0.1
Iodine-131.....	1
Iodine-132.....	10
Iodine-133.....	1
Iodine-134.....	10
Iodine-135.....	10
Iridium-192.....	10
Iridium-194.....	100
Iron-55.....	100
Iron-59.....	10
Krypton-85.....	100
Krypton-87.....	10
Lanthanum-140.....	10
Lutetium-177.....	100
Manganese-52.....	10
Manganese-54.....	10
Manganese-56.....	10

<b>Material</b>	<b>Microcurie</b>
Mercury-197m .....	100
Mercury-197 .....	100
Mercury-203 .....	10
Molybdenum-99.....	100
Neodymium-147 .....	100
Neodymium-149 .....	100
Nickel-59 .....	100
Nickel-63 .....	10
Nickel-65 .....	100
Niobium-93m.....	10
Niobium-95.....	10
Niobium-97.....	10
Osmium-185 .....	10
Osmium-191m .....	100
Osmium-191 .....	100
Osmium-193 .....	100
Palladium-103 .....	100
Palladium-109.....	100
Phosphorus-32 .....	10
Platinum-191.....	100
Platinum-193m.....	100
Platinum-193.....	100
Platinum-197m.....	100
Platinum-197.....	100
Plutonium-239 .....	0.01
Polonium-210.....	0.1
Potassium-42.....	10
Praseodymium-142 .....	100
Praseodymium-143 .....	100
Promethium-147 .....	10
Promethium-149 .....	10
Radium-226 .....	0.01
Rhenium-186 .....	100
Rhenium-188 .....	100
Rhodium-103m .....	100
Rhodium-105 .....	100
Rubidium-86.....	10
Rubidium-87 .....	10
Ruthenium-97 .....	100
Ruthenium-103 .....	10
Ruthenium-105 .....	10

<b>Material</b>	<b>Microcurie</b>
Ruthenium-106 .....	1
Samarium-151 .....	10
Samarium-153 .....	100
Scandium-46 .....	10
Scandium-47 .....	100
Scandium-48 .....	10
Selenium-75 .....	10
Silicon-31 .....	100
Silver-105 .....	10
Silver-110m .....	1
Silver-111 .....	100
Sodium-22 .....	<u>+10</u>
Sodium-24 .....	10
Strontium-85 .....	10
Strontium-89 .....	1
Strontium-90 .....	0.1
Strontium-91 .....	10
Strontium-92 .....	10
Sulfur -35 .....	100
Tantalum-182 .....	10
Technetium-96 .....	10
Technetium-97m .....	100
Technetium-97 .....	100
Technetium-99m .....	100
Technetium-99 .....	10
Tellurium-125m .....	10
Tellurium-127m .....	10
Tellurium-127 .....	100
Tellurium-129m .....	10
Tellurium-129 .....	100
Tellurium-131m .....	10
Tellurium-132 .....	10
Terbium-160 .....	10
Thallium-200 .....	100
Thallium-201 .....	100
Thallium-202 .....	100
Thallium-204 .....	10
Thorium (natural)c/ .....	100
Thulium-170 .....	10
Thulium-171 .....	10
Tin-113 .....	10

<b>Material</b>	<b>Microcurie</b>
Tin-125.....	10
Tungsten-181 .....	10
Tungsten-185 .....	10
Tungsten-187 .....	100
Uranium (natural)d/ .....	100
Uranium-233 .....	0.01
Uranium-234.....	0.01
Uranium-235.....	0.01
Vanadium-48 .....	10
Xenon-131m .....	1,000
Xenon-133 .....	100
Xenon-135 .....	100
Ytterbium-175.....	100
Yttrium-90 .....	10
Yttrium-91 .....	10
Yttrium-92 .....	100
Yttrium-93 .....	100
Zinc-65.....	10
Zinc- 69m.....	100
Zinc-69.....	1,000
Zirconium-93 .....	10
Zirconium-95 .....	10
Zirconium-97 .....	10
Any alpha emitting radionuclide not listed above or mixtures of alpha emitters of unknown composition .....	0.01
Any radionuclide other than alpha emitting radionuclides, not listed above or mixtures of beta emitters of unknown composition.....	0.1

*c/ Based on alpha disintegration rate of Th-232, Th-230 and their daughter products.*

*d/ Based on alpha disintegration rate of U-238, U-234, and U-235*

**Note:** Where there is involved a combination of isotopes in known amounts, the limit for the combination should be derived as follows: Determine, for each isotope in the combination, the ratio between the quantity present in the combination and the limit otherwise established for the specific isotope when not in combination. The sum of the ratios for all the isotopes in the combination may not exceed “1” — that is, unity.