STATE OF FLORIDA

BUREAU OF RADIATION CONTROL

RADIOACTIVE MATERIAL REQUIRING LABELING

May 2000

Radionuclide	Quantity (µCi)
Actinium-224	1
Actinium-225	0.01
Actinium-226	0.1
Actinium-227	0.001
Actinium-228	1
Aluminum-26	10
Americium-237	1000
Americium-238	100
Americium-239	1000
Americium-240	100
Americium-241	0.001
Americium-242	10
Americium-242m	0.001
Americium-243	0.001
Americium-244	10
Americium-244m	100
Americium-245	1000
Americium-246	1000
Americium-246m	1000
Antimony-115	1000
Antimony-116	1000
Antimony-116m	1000
Antimony-117	1000
Antimony-118m	1000
Antimony-119	1000
Antimony-120 (16m)	1000
Antimony-120 (5.76d)	100
Antimony-122	100
Antimony-124	10
Antimony-124m	1000

Radionuclide	Quantity (µCi)
Antimony-125	100
Antimony-126	100
Antimony-126m	1000
Antimony-127	100
Antimony-128 (10.4m)	1000
Antimony-128 (9.01h)	100
Antimony-129	100
Antimony-130	1000
Antimony-131	1000
Argon-41	1000
Arsenic-72	100
Arsenic-73	100
Arsenic-74	100
Arsenic-76	100
Astatine-207	100
Astatine-211	10
Barium-126	1000
Barium-128	100
Barium-131	100
Barium-131m	1000
Barium-133	100
Barium-133m	100
Barium-135m	100
Barium-139	1000
Barium-140	100
Barium-141	1000
Barium-142	1000
Berkelium-245	100
Berkelium-246	100
Berkelium-247	0.001

Radionuclide	Quantity (µCi)
Berkelium-249	0.1
Berkelium-250	10
Beryllium-10	1
Beryllium-7	1000
Bismuth-200	1000
Bismuth-201	1000
Bismuth-202	1000
Bismuth-203	100
Bismuth-205	100
Bismuth-206	100
Bismuth-207	10
Bismuth-210	1
Bismuth-210m	0.1
Bismuth-212	10
Bismuth-213	10
Bismuth-214	100
Bromine-74	1000
Bromine-74m	1000
Bromine-75	1000
Bromine-76	100
Bromine-77	1000
Bromine-80	1000
Bromine-80m	1000
Bromine-82	100
Bromine-83	1000
Bromine-84	1000
Cadmium-104	1000
Cadmium-107	1000
Cadmium-109	1
Cadmium-113	100
Cadmium-113m	0.1
Cadmium-115	100
Cadmium-115m	10

Radionuclide	Quantity (µCi)
Cadmium-117	1000
Cadmium-117m	1000
Calcium-41	100
Calcium-45	100
Calcium-47	100
Californium-244	100
Californium-246	1
Californium-248	0.01
Californium-249	0.001
Californium-250	0.001
Californium-251	0.001
Californium-252	0.001
Californium-253	0.1
Californium-254	0.001
Carbon-11	1000
Carbon-14	100
Cerium-134	100
Cerium-135	100
Cerium-137	1000
Cerium-137m	100
Cerium-139	100
Cerium-141	100
Cerium-143	100
Cerium-144	1
Cesium-125	1000
Cesium-127	1000
Cesium-129	1000
Cesium-130	1000
Cesium-131	1000
Cesium-132	100
Cesium-134	10
Cesium-134m	1000
Cesium-135	100

Radionuclide	Quantity (µCi)
Cesium-135m	1000
Cesium-136	10
Cesium-137	10
Cesium-138	1000
Chlorine-36	10
Chromium-48	1000
Chromium-49	1000
Chromium-51	1000
Cobalt-55	100
Cobalt-56	10
Cobalt-57	1000
Cobalt-60	1
Cobalt-61	1000
Cobalt-62m	1000
Copper-60	1000
Copper-61	1000
Copper-64	1000
Copper-67	1000
Curium-238	100
Curium-240	0.1
Curium-241	1
Curium-242	0.01
Curium-243	0.001
Curium-244	0.001
Curium-245	0.001
Curium-246	0.001
Curium-247	0.001
Curium-248	0.001
Curium-249	1000
Dysprosium-155	1000
Dysprosium-157	1000
Dysprosium-159	100
Dysprosium-165	1000

Radionuclide	Quantity (µCi)
Dysprosium-166	100
Einsteinium-250	100
Einsteinium-251	100
Einsteinium-253	0.1
Einsteinium-254	0.01
Einsteinium-254m	1
Erbium-161	1000
Erbium-165	1000
Erbium-169	100
Erbium-171	100
Erbium-172	100
Europium-145	100
Europium-146	100
Europium-147	100
Europium-148	10
Europium-149	100
Europium-150 (12.62h)	100
Europium-150 (34.2y)	1
Europium-152	1
Europium-152m	100
Europium-154	1
Europium-155	10
Europium-156	100
Europium-157	100
Europium-158	1000
Fermium-252	1
Fermium-253	1
Fermium-254	10
Fermium-255	1
Fermium-257	0.01
Fluorine-18	1000
Francium-222	100

Radionuclide	Quantity (µCi)
Francium-223	100
Gadolinium-145	1000
Gadolinium-146	10
Gadolinium-147	100
Gadolinium-148	0.001
Gadolinium-149	100
Gadolinium-151	10
Gadolinium-152	100
Gadolinium-153	10
Gadolinium-159	100
Gallium-65	1000
Gallium-66	100
Gallium-67	1000
Gallium-68	1000
Gallium-70	1000
Gallium-72	100
Gallium-73	1000
Germanium-66	1000
Germanium-67	1000
Germanium-68	10
Germanium-69	1000
Germanium-71	1000
Germanium-75	1000
Germanium-77	1000
Gold-193	1000
Gold-194	100
Gold-195	10
Gold-198	100
Gold-198m	100
Gold-199	100
Gold-200	1000
Gold-200m	100
Gold-201	1000

Radionuclide	Quantity (µCi)
Hafnium-170	100
Hafnium-172	1
Hafnium-173	1000
Hafnium-175	100
Hafnium-177m	1000
Hafnium-178m	0.1
Hafnium-179m	10
Hafnium-180m	1000
Hafnium-181	10
Hafnium-182	0.1
Hafnium-182m	1000
Hafnium-183	1000
Hafnium-184	100
Holmium-155	1000
Holmium-157	1000
Holmium-159	1000
Holmium-161	1000
Holmium-162	1000
Holmium-162m	1000
Holmium-164	1000
Holmium-164m	1000
Holmium-166	100
Holmium-166m	1
Holmium-167	1000
Hydrogen-3	1000
Indium-109	1000
Indium-110m (69.1m)	1000
Indium-111	100
Indium-112	1000
Indium-113m	1000
Indium-114m	10
Indium-115	100
Indium-115m	1000

Radionuclide	Quantity (µCi)
Indium-116m	1000
Indium-117	1000
Indium-117m	1000
Indium-119m	1000
Indium-110 (4.9h)	1000
Iodine-120	100
Iodine-120m	1000
Iodine-121	1000
Iodine-123	100
Iodine-124	10
Iodine-125	1
Iodine-126	1
Iodine-128	1000
Iodine-129	1
Iodine-130	10
Iodine-131	1
Iodine-132	100
Iodine-132m	100
Iodine-133	10
Iodine-134	1000
Iodine-135	100
Iridium-182	1000
Iridium-184	1000
Iridium-185	1000
Iridium-186	100
Iridium-187	1000
Iridium-188	100
Iridium-189	100
Iridium-190	100
Iridium-190m	1000
Iridium-192 (73.8d)	1
Iridium-192m (1.4m)	10

Radionuclide	Quantity (µCi)
Iridium-194	100
Iridium-194m	10
Iridium-195	1000
Iridium-195m	1000
Iron-52	100
Iron-55	100
Iron-59	10
Iron-60	1
Krypton-74	1000
Krypton-76	1000
Krypton-77	1000
Krypton-79	1000
Krypton-81	1000
Krypton-83m	1000
Krypton-85	1000
Krypton-85m	1000
Krypton-87	1000
Krypton-88	1000
Lanthanum-131	1000
Lanthanum-132	100
Lanthanum-135	1000
Lanthanum-137	10
Lanthanum-138	100
Lanthanum-140	100
Lanthanum-141	100
Lanthanum-142	1000
Lanthanum-143	1000
Lead-195m	1000
Lead-198	1000
Lead-199	1000
Lead-200	100
Lead-201	1000
Lead-202	10

Radionuclide	Quantity (µCi)
Lead-202m	1000
Lead-203	1000
Lead-205	100
Lead-209	1000
Lead-210	0.01
Lead-211	100
Lead-212	1
Lead-214	100
Lutetium-169	100
Lutetium-170	100
Lutetium-171	100
Lutetium-172	100
Lutetium-173	10
Lutetium-174	10
Lutetium-174m	10
Lutetium-176	100
Lutetium-176m	1000
Lutetium-177	100
Lutetium-177m	10
Lutetium-178	1000
Lutetium-178m	1000
Lutetium-179	1000
Magnesium-28	100
Manganese-51	1000
Manganese-52	100
Manganese-52m	1000
Manganese-53	1000
Manganese-54	100
Manganese-56	1000
Mendelevium-257	10
Mendelevium-258	0.01
Mercury-193	1000
Mercury-193m	100

Radionuclide	Quantity (µCi)
Mercury-194	1
Mercury-195	1000
Mercury-195m	100
Mercury-197	1000
Mercury-197m	100
Mercury-199m	1000
Mercury-203	100
Molybdenum-101	1000
Molybdenum-90	100
Molybdenum-93	10
Molybdenum-93m	100
Molybdenum-99	100
Neodymium-136	1000
Neodymium-138	100
Neodymium-139	1000
Neodymium-139m	1000
Neodymium-141	1000
Neodymium-147	100
Neodymium-149	1000
Neodymium-151	1000
Neptunium-232	100
Neptunium-233	1000
Neptunium-234	100
Neptunium-235	100
Neptunium-236 (1.15E+5y)	0.001
Neptunium-236 (22.5h)	1
Neptunium-237	0.001
Neptunium-238	10
Neptunium-239	100
Neptunium-240	1000
Nickel-56	100
Nickel-57	100

Radionuclide	Quantity (µCi)
Nickel-59	100
Nickel-63	100
Nickel-65	1000
Nickel-66	10
Niobium-88	1000
Niobium-89 (122m)	1000
Niobium-89m (66m)	1000
Niobium-90	100
Niobium-93m	10
Niobium-94	1
Niobium-95	100
Niobium-95m	100
Niobium-96	100
Niobium-97	1000
Niobium-98	1000
Osmium-180	1000
Osmium-181	1000
Osmium-182	100
Osmium-185	100
Osmium-189m	1000
Osmium-191	100
Osmium-191m	1000
Osmium-193	100
Osmium-194	1
Palladium-100	100
Palladium-101	1000
Palladium-103	100
Palladium-107	10
Palladium-109	100
Phosphorus-32	10
Phosphorus-33	
Platinum-186	1000

Radionuclide	Quantity (µCi)
Platinum-188	100
Platinum-189	1000
Platinum-191	100
Platinum-193	1000
Platinum-193m	100
Platinum-195m	100
Platinum-197	100
Platinum-197m	1000
Platinum-199	1000
Platinum-200	100
Plutonium-234	10
Plutonium-235	1000
Plutonium-236	0.001
Plutonium-237	100
Plutonium-238	0.001
Plutonium-239	0.001
Plutonium-240	0.001
Plutonium-241	0.01
Plutonium-242	0.001
Plutonium-243	1000
Plutonium-244	0.001
Plutonium-245	100
Polonium-203	1000
Polonium-205	1000
Polonium-207	1000
Polonium-210	0.1
Potassium-40	100
Potassium-42	1000
Potassium-43	1000
Potassium-44	1000
Potassium-45	1000
Praseodymium-136	1000
Praseodymium-137	1000

Radionuclide	Quantity (µCi)
Praseodymium-138m	1000
Praseodymium-139	1000
Praseodymium-142	100
Praseodymium-142m	1000
Praseodymium-143	100
Praseodymium-144	1000
Praseodymium-145	100
Praseodymium-147	1000
Promethium-141	1000
Promethium-143	100
Promethium-144	10
Promethium-145	10
Promethium-146	1
Promethium-147	10
Promethium-148	10
Promethium-148m	10
Promethium-149	100
Promethium-150	1000
Promethium-151	100
Protactinium-227	10
Protactinium-228	1
Protactinium-230	0.1
Protactinium-231	0.001
Protactinium-232	1
Protactinium-233	100
Protactinium-234	100
Radium-223	0.1
Radium-224	0.1
Radium-225	0.1
Radium-226	0.1
Radium-227	1000
Radium-228	0.1
Radon-220	1
Radon-222	1
Rhenium-177	1000
Rhenium-178	1000
Rhenium-181	1000
Rhenium-182 (12.7)	1000
Rhenium-182 (64.0h)	100
Rhenium-184	100
Rhenium-184m	10
Rhenium-186	100
Rhenium-186m	10
Rhenium-187	1000
Rhenium-188	100
Rhenium-188m	1000
Rhenium-189	100
Rhodium-100	100
Rhodium-101	10
Rhodium-101m	1000
Rhodium-102	10
Rhodium-102m	10
Rhodium-103m	1000
Rhodium-105	100
Rhodium-106m	1000
Rhodium-107	1000
Rhodium-99	100
Rhodium-99m	1000
Rubidium-79	1000
Rubidium-81	1000
Rubidium-81m	1000
Rubidium-82m	1000
Rubidium-83	100
Rubidium-84	100
Rubidium-86	100

Radionuclide	Quantity (µCi)
Ruthenium-103	100
Ruthenium-105	1000
Ruthenium-106	1
Ruthenium-94	1000
Ruthenium-97	1000
Samarium-141	1000
Samarium-141m	1000
Samarium-142	1000
Samarium-145	100
Samarium-146	1
Samarium-147	100
Samarium-151	10
Samarium-153	100
Samarium-155	1000
Samarium-156	1000
Scandium-43	1000
Scandium-44	100
Scandium-44m	100
Scandium-46	10
Scandium-47	100
Scandium-48	100
Scandium-49	1000
Selenium-70	1000
Selenium-73	100
Selenium-73m	1000
Selenium-75	100
Selenium-79	100
Selenium-81	1000
Selenium-81m	1000
Selenium-83	1000
Silicon-31	1000
Silicon-32	1
Silver-102	1000

Radionuclide	Quantity (µCi)
Silver-103	1000
Silver-104	1000
Silver-104m	1000
Silver-105	100
Silver-106	1000
Silver-106m	100
Silver-108m	1
Silver-111	100
Silver-112	100
Silver-115	1000
Silver-11Om	10
Sodium-22	10
Sodium-24	100
Strontium-81	1000
Strontium-83	100
Strontium-85	10
Strontium-85m	1000
Strontium-90	0.1
Strontium-91	100
Strontium-92	100
Sulfur-35	100
Tantalum-172	1000
Tantalum-173	1000
Tantalum-174	1000
Tantalum-175	1000
Tantalum-176	100
Tantalum-177	1000
Tantalum-178	1000
Tantalum-179	100
Tantalum-180	100
Tantalum-180m	1000
Tantalum-182	10
Tantalum-182m	1000

Radionuclide	Quantity (µCi)
Tantalum-183	100
Tantalum-184	100
Tantalum-185	1000
Tantalum-186	1000
Technetium-101	1000
Technetium-104	1000
Technetium-93	1000
Technetium-93m	1000
Technetium-94	1000
Technetium-94m	1000
Technetium-96	100
Technetium-96m	1000
Technetium-97	1000
Technetium-97m	100
Technetium-98	10
Technetium-99	100
Technetium-99m	1000
Tellurium-116	1000
Tellurium-121	100
Tellurium-121m	10
Tellurium-123	100
Tellurium-123m	10
Tellurium-125m	10
Tellurium-127	1000
Tellurium-127m	10
Tellurium-129	1000
Tellurium-129m	10
Tellurium-131	100
Tellurium-131m	10
Tellurium-132	10
Tellurium-133	1000
Tellurium-133m	100
Tellurium-134	1000

Radionuclide	Quantity (µCi)
Terbium-147	1000
Terbium-149	100
Terbium-150	1000
Terbium-151	100
Terbium-153	1000
Terbium-154	100
Terbium-155	1000
Terbium-156	100
Terbium-156m (24.4h)	1000
Terbium-156m (5.0h)	1000
Terbium-157	10
Terbium-158	1
Terbium-160	10
Terbium-161	100
Thallium-194	1000
Thallium-194m	1000
Thallium-195	1000
Thallium-197	1000
Thallium-198	1000
Thallium-198m	1000
Thallium-199	1000
Thallium-200	1000
Thallium-201	1000
Thallium-202	100
Thallium-204	100
Thorium-226	10
Thorium-227	0.01
Thorium-228	0.001
Thorium-229	0.001
Thorium-230	0.001
Thorium-231	100
Thorium-232	100

Radionuclide	Quantity (µCi)
Thorium-234	10
Thorium-natural	100
Thulium-162	1000
Thulium-166	100
Thulium-167	100
Thulium-170	10
Thulium-171	10
Thulium-172	100
Thulium-173	100
Thulium-175	1000
Tin-110	100
Tin-111	1000
Tin-113	100
Tin-117m	100
Tin-119m	100
Tin-121	1000
Tin-121m	100
Tin-123	10
Tin-123m	1000
Tin-125	10
Tin-126	10
Tin-127	1000
Tin-128	1000
Titanium-44	1
Titanium-45	1000
Tungsten-176	1000
Tungsten-177	1000
Tungsten-178	1000
Tungsten-179	1000
Tungsten-181	1000
Tungsten-185	100
Tungsten-187	100
Tungsten-188	10

Radionuclide	Quantity (µCi)
Uranium-230	0.01
Uranium-231	100
Uranium-232	0.001
Uranium-233	0.001
Uranium-234	0.001
Uranium-235	0.001
Uranium-236	0.001
Uranium-237	100
Uranium-238	100
Uranium-239	1000
Uranium-240	100
Uranium-natural	100
Vanadium-47	1000
Vanadium-48	100
Vanadium-49	1000
Xenon-120	1000
Xenon-121	1000
Xenon-122	1000
Xenon-123	1000
Xenon-125	1000
Xenon-127	1000
Xenon-129m	1000
Xenon-131m	1000
Xenon-133	1000
Xenon-133m	1000
Xenon-135	1000
Xenon-135m	1000
Xenon-138	1000
Ytterbium-162	1000
Ytterbium-166	100
Ytterbium-167	1000
Ytterbium-169	100
Ytterbium-175	100

Radionuclide	Quantity (µCi)
Ytterbium-177	1000
Ytterbium-178	1000
Yttrium-86	100
Yttrium-86m	1000
Yttrium-87	100
Yttrium-88	10
Yttrium-90	10
Yttrium-90m	1000
Yttrium-91	10
Yttrium-91m	1000
Yttrium-92	100
Yttrium-93	100
Yttrium-94	1000
Yttrium-95	1000
Zinc-62	100
Zinc-63	1000
Zinc-65	10
Zinc-69	1000
Zinc-69m	100
Zinc-71m	1000
Zinc-72	100
Zirconium-86	100
Zirconium-88	10
Zirconium-89	100
Zirconium-93	1
Zirconium-95	10
Zirconium-97	100
Any alpha-emitting radionuclide not listed above or mixtures of alpha emitters of unknown composition	0.001
Any radionuclide other that emitting radionuclides not listed above, or mixtures of beta emiters of unknown composition	0.01

To convert µCi to kBq, multiple µCi value by 37.