Table 1-4
Groundwater Standards for
Radiological Compounds

2018 BNL Groundwater Status Report

RADIONUCLIDE	CAS #	NYS Ambient Water Quality Standards pCi/L (a)	DOE Derived Concentration Guide pCi/L (b)	DOE Groundwater Sreening Level pCi/L (c)	Federal 4 mrem/yr Drinking Water Calculations pCi/L	Federal Drinking Water Standards pCi/L (d)
Americium-241	14596-10-2	-	30	1.2	--	--
Bismuth-212	14913-49-6	-	100000	4000	--	--
Bismuth-214	14733-03-0	-	600000	24000	--	--
Beryllium-7					6000	--
Cesium-134					20000	--
Cesium-137	10045-97-3	-	3000	120	200	--
Cobalt-57	13981-50-5	-	100000	4000	1000	--
Cobalt-58	13934	-	50000	2000	9000	--
Cobalt-60	10198-40-0	-	5000	200	100	--
Europium-152					60	--
Europium-155					200	--
Europium-155	14372	-	100000	4000	600	--
Lead-210	14255-04-0	-	30	1.2	--	--
Lead-212	15092-94-1	-	3000	120	--	--
Lead-214	15067-28-4	-	200000	8000	--	--
Manganese-54	13926	-	50000	2000	300	--
Neptunium-237	13972	-	30	1.2	--	--
Potassium-40	13966-00-2	-	7000	280	--	--
Protactinium-231	14244	-	10	0.4	--	--
Radium-224	13233-32-4	-	400	16	--	--
Radium-226	13982-63-3	3	100	4	--	5 (h)
Radium-228	15262-20-1	5	100	4	--	5 (h)
Sodium-22	13966-32-0	-	-	400	400	--
Strontium-89	14158-27-1	-	20000	800	20	--
Strontium-90	10098-97-2	-	1000	40	--	8
Thallium-208	7440-28-00	-	400 (f)	16	--	--
Thorium-228	14274-82-9	-	400	16	--	--
Thorium-230	14199	-	300	12	--	--
Thorium-232	7410	-	50	2	--	--
Thorium-234	15065-10-8	-	10000	400	--	--
Tritium	10028-17-8	-	-	-	--	20000
Uranium-234	13966-29-5	-	500	20	--	30 ug/L
Uranium-235	15117-96-1	-	600	24	--	30 ug/L
Uranium-238	7440-61-1	-	600	24	--	30 ug/L
Zinc-65					300	--
Gross Beta	12587-47-2	1000	-	-	--	4 millirems per year (g)
Gross Alpha	12587-46-1	15	-	-	--	15

Notes:

- No standard available

(a) NYSDEC, June 1998, Ambient Water Quality Standards and Guidance Values for Groundwater Class GA.

(b) Department of Energy (DOE) Order 5400.5, February 1990, Derived Concentration Guide (DCG) is the concentration of a radionuclide in water that would result in an effective dose equivalent of 100 mrem.

(c) DOE screening levels have been derived for a dose equivalent of 4 mrem/year by multiplying the DCG by 4 percent

(d) USEPA, February 1996, Drinking Water Regulations and Health Advisories.

(e) Beta particle and photon activity less than 4 mrem/year.

(f) Assumed to be equal to thorium-228, since thallium-208 is a decay chain product of thorium-228.

(g) The generic standard of 4 mrem is applicable to all radionuclides specifically the sum of the fractions of all radionuclides shall not exceed 4 mrem.

(h) The sum of Ra-226 and Ra-228 must be below 5 pCi/L.

NYSDEC New York State Department of Environmental Conservation

USEPA United Stated Environmental Protection Agency

pCi/L pico Curie per liter