

**Table 1-4
Groundwater Standards for
Radiological Compounds**

2019 BNL Groundwater Status Report

RADIONUCLIDE	CAS #	NYS Ambient Water Quality Standards pCi/L (a)	DOE Derived Concentration Guide pCi/L (b)	DOE Groundwater Screening 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 States Environmental Protection Agency

pCi/L pico Curie per liter