

Table 00-12. Activity Concentrations of Radionuclides Measured by Alpha Spectroscopy in Surface Water Samples from Brantley Lake, Lake Carlsbad, and Red Bluff Reservoir Collected during 1998-2000

See CEMRC 2000 Report "Radiological and non-radiological constituents in surface water and sediments at selected reservoirs" for descriptions of locations and methods of data collection.

Nuclide	Lake, Collection Date and Sampling Depth					
	Brantley Lake					
	May 31, 2000 (0.5 m depth)			May 31, 2000 (13.7 m depth)		
	Activity Concentration (Bq L ⁻¹)	^a SD (Bq L ⁻¹)	^b MDC (Bq L ⁻¹)	Activity Concentration (Bq L ⁻¹)	SD (Bq L ⁻¹)	MDC (Bq L ⁻¹)
²⁴¹ Am	<MDC		7.08E-05	<MDC		6.71E-05
²³⁸ Pu	<MDC		1.63E-04	<MDC		1.15E-04
²³⁹ Pu	<MDC		1.15E-04	<MDC		1.03E-04
²²⁸ Th	<MDC		1.94E-04	2.56E-04	4.24E-05	1.22E-04
²³⁰ Th	<MDC		9.79E-05	<MDC		8.89E-05
²³² Th	<MDC		5.24E-05	<MDC		4.25E-05
²³⁴ U	1.08E-01	2.58E-03	1.53E-04	1.68E-01	3.95E-03	1.70E-04
²³⁵ U	3.54E-03	3.25E-04	1.48E-04	4.88E-03	4.18E-04	1.81E-04
²³⁸ U	5.76E-02	1.52E-03	1.26E-04	7.86E-02	2.03E-03	2.05E-04
	July 1, 1999 (0.9 m depth)			July 1, 1999 (13.4 m depth)		
²⁴¹ Am	<MDC		6.15E-05	<MDC		5.39E-05
²³⁸ Pu	<MDC		7.08E-05	<MDC		5.83E-05
²³⁹ Pu	8.30E-05	2.38E-05	4.43E-05	<MDC		4.74E-05
²²⁸ Th	4.58E-04	6.43E-05	1.42E-04	6.39E-04	8.45E-05	1.73E-04
²³⁰ Th	<MDC		1.06E-04	<MDC		1.41E-04
²³² Th	3.62E-05	1.61E-05	2.37E-05	<MDC		1.03E-04
²³⁴ U	1.06E-01	2.51E-03	8.87E-05	1.33E-01	2.49E-03	9.02E-05
²³⁵ U	2.80E-03	2.23E-04	8.48E-05	4.23E-03	2.40E-04	7.83E-05
²³⁸ U	5.32E-02	1.39E-03	7.82E-05	6.43E-02	1.34E-03	1.22E-04
	October 7, 1998 (0.9 m depth)			October 7, 1998 (13.7 m depth)		
²⁴¹ Am	<MDC		4.92E-05	<MDC		6.57E-05
²³⁸ Pu	<MDC		6.67E-05	8.72E-05	2.62E-05	5.46E-05
²³⁹ Pu	<MDC		3.77E-05	9.03E-05	2.38E-05	4.48E-05
²²⁸ Th	2.56E-03	1.26E-04	9.58E-05	1.10E-03	1.01E-04	2.14E-04
²³⁰ Th	<MDC		1.18E-04	<MDC		1.25E-04
²³² Th	<MDC		6.23E-05	<MDC		7.49E-05
²³⁴ U	7.54E-02	1.53E-03	5.59E-05	6.99E-02	1.25E-03	8.70E-05
²³⁵ U	1.83E-03	1.37E-04	7.42E-05	1.94E-03	1.35E-04	1.14E-04
²³⁸ U	3.89E-02	8.75E-04	8.03E-05	3.80E-02	7.63E-04	7.11E-05

Nuclide	Lake Carlsbad					
	May 24, 2000 (0.5 m depth)			May 24, 2000 (2.1 m depth)		
	Activity Concentration (Bq L ⁻¹)	SD (Bq L ⁻¹)	MDC (Bq L ⁻¹)	Activity Concentration (Bq L ⁻¹)	SD (Bq L ⁻¹)	MDC (Bq L ⁻¹)
²⁴¹ Am	<MDC		6.81E-05	<MDC		7.25E-05
²³⁸ Pu	<MDC		2.39E-04	<MDC		1.43E-04
²³⁹ Pu	<MDC		1.68E-04	<MDC		1.16E-04
²²⁸ Th	1.84E-04	3.70E-05	1.09E-04	1.52E-04	3.64E-05	1.11E-04
²³⁰ Th	<MDC		8.79E-05	<MDC		9.25E-05
²³² Th	<MDC		5.25E-05	<MDC		6.89E-05
²³⁴ U	1.67E-01	3.76E-03	1.30E-04	1.77E-01	4.05E-03	1.27E-04
²³⁵ U	4.50E-03	3.79E-04	1.32E-04	4.72E-03	3.97E-04	1.55E-04
²³⁸ U	7.87E-02	1.94E-03	1.12E-04	8.39E-02	2.09E-03	9.80E-05
	June 30, 1999 (0.6 m depth)			June 30, 1999 (2.5 m depth)		
²⁴¹ Am	<MDC		6.13E-05	<MDC		7.16E-05
²³⁸ Pu	<MDC		1.05E-04	<MDC		6.50E-05
²³⁹ Pu	4.71E-05	1.92E-05	4.08E-05	<MDC		3.00E-05
²²⁸ Th	2.66E-04	5.00E-05	8.78E-05	2.99E-04	7.72E-05	2.08E-04
²³⁰ Th	<MDC		1.15E-04	<MDC		1.26E-04
²³² Th	<MDC		5.71E-05	<MDC		7.28E-05
²³⁴ U	1.19E-01	2.86E-03	1.04E-04	1.88E-01	4.48E-03	7.63E-05
²³⁵ U	2.65E-03	2.26E-04	8.40E-05	5.03E-03	3.24E-04	7.60E-05
²³⁸ U	5.55E-02	1.49E-03	7.12E-05	9.10E-02	2.33E-03	8.59E-05
	August 19, 1998 (0.5 m depth)			August 19, 1998 (2.1 m depth)		
²⁴¹ Am	<MDC		5.60E-05	<MDC		6.52E-05
²³⁸ Pu	<MDC		4.72E-05	<MDC		6.12E-05
²³⁹ Pu	<MDC		4.24E-05	<MDC		3.54E-05
²²⁸ Th	1.48E-03	1.16E-04	2.47E-04	1.26E-03	8.78E-05	9.15E-05
²³⁰ Th	<MDC		1.34E-04	<MDC		1.10E-04
²³² Th	<MDC		6.11E-05	<MDC		5.92E-05
²³⁴ U	1.16E-01	2.20E-03	1.41E-04	1.13E-01	2.05E-03	8.94E-05
²³⁵ U	2.74E-03	1.79E-04	9.15E-05	2.69E-03	1.61E-04	8.69E-05
²³⁸ U	5.66E-02	1.19E-03	1.37E-04	5.71E-02	1.13E-03	6.08E-05

Nuclide	Red Bluff Reservoir					
	June 6, 2000 (0.5 m depth)			June 6, 2000 (11.3 m depth)		
	Activity Concentration (Bq L ⁻¹)	SD (Bq L ⁻¹)	MDC (Bq L ⁻¹)	Activity Concentration (Bq L ⁻¹)	SD (Bq L ⁻¹)	MDC (Bq L ⁻¹)
²⁴¹ Am	<MDC		6.92E-05	<MDC		7.61E-05
²³⁸ Pu	<MDC		1.34E-04	<MDC		1.59E-04
²³⁹ Pu	<MDC		1.12E-04	<MDC		1.21E-04
²²⁸ Th	1.98E-04	5.36E-05	1.81E-04	2.49E-04	4.20E-05	1.15E-04
²³⁰ Th	<MDC		1.00E-04	<MDC		9.30E-05
²³² Th	<MDC		8.56E-05	<MDC		5.07E-05
²³⁴ U	2.01E-01	4.46E-03	1.58E-04	2.04E-01	4.64E-03	1.18E-04
²³⁵ U	6.44E-03	4.88E-04	1.63E-04	5.74E-03	4.69E-04	1.69E-04
²³⁸ U	9.85E-02	2.35E-03	1.38E-04	1.01E-01	2.46E-03	1.31E-04
	July 27, 1999 (0.3 m depth)			July 27, 1999 (13.2 m depth)		
²⁴¹ Am	<MDC		9.15E-05	NA		
²³⁸ Pu	<MDC		5.03E-05	<MDC		7.86E-05
²³⁹ Pu	<MDC		4.96E-05	<MDC		6.25E-05
²²⁸ Th	7.40E-04	7.17E-05	1.08E-04	8.72E-04	1.06E-04	1.74E-04
²³⁰ Th	<MDC		1.28E-04	<MDC		1.57E-04
²³² Th	7.62E-05	2.52E-05	5.09E-05	<MDC		8.82E-05
²³⁴ U	1.42E-01	3.04E-03	8.73E-05	1.67E-01	3.17E-03	6.02E-05
²³⁵ U	3.25E-03	2.51E-04	8.04E-05	4.71E-03	2.75E-04	7.15E-05
²³⁸ U	7.09E-02	1.68E-03	9.60E-05	8.52E-02	1.77E-03	6.65E-05
	October 13, 1998 (0.9 m depth)			October 13, 1998 (9.8 m depth)		
²⁴¹ Am	<MDC		5.48E-05	<MDC		1.05E-04
²³⁸ Pu	<MDC		1.03E-04	<MDC		1.37E-04
²³⁹ Pu	1.48E-04	2.92E-05	4.39E-05	1.94E-04	5.75E-05	1.06E-04
²²⁸ Th	1.67E-03	1.00E-04	1.22E-04	3.19E-03	2.19E-04	3.48E-04
²³⁰ Th	<MDC		1.14E-04	<MDC		1.86E-04
²³² Th	<MDC		6.03E-05	7.95E-05	3.83E-05	5.83E-05
²³⁴ U	2.14E-01	5.06E-03	1.39E-04	2.13E-01	4.30E-03	1.12E-04
²³⁵ U	5.78E-03	3.37E-04	1.78E-04	5.56E-03	2.86E-04	1.08E-04
²³⁸ U	1.06E-01	2.64E-03	1.53E-04	1.06E-01	2.27E-03	1.12E-04

^aSD = One standard deviation of the radioanalytical uncertainty

^bMDC = Minimum Detectable Concentration

^cNA = Data not available