

**Table RD-18. Activity Concentrations of Radionuclides Measured by Alpha Spectroscopy in Red Bluff Reservoir Sediment Samples 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.

Isotope	Collection Date and Sampling Depth					
	March 3, 1998 (15 m depth)			March 10, 1998 (14 m depth)		
	Activity Concentration (mBq g <sup>-1</sup> )	<sup>a</sup> SD (mBq g <sup>-1</sup> )	<sup>b</sup> MDC (mBq g <sup>-1</sup> )	Activity Concentration (mBq g <sup>-1</sup> )	SD (mBq g <sup>-1</sup> )	MDC (mBq g <sup>-1</sup> )
<sup>241</sup> Am	5.28E-02	9.76E-03	1.79E-02	1.81E-01	1.81E-02	1.92E-02
<sup>238</sup> Pu	<MDC		1.79E-02	2.46E-02	6.48E-03	1.73E-02
<sup>239/240</sup> Pu	1.49E-01	1.32E-02	1.98E-02	3.89E-01	2.15E-02	1.41E-02
<sup>228</sup> Th	2.45E+01	6.14E-01	2.43E-01	3.49E+01	7.86E-01	2.45E-01
<sup>230</sup> Th	2.65E+01	6.44E-01	1.95E-01	3.35E+01	7.65E-01	2.30E-01
<sup>232</sup> Th	2.18E+01	5.70E-01	1.71E-01	2.90E+01	6.96E-01	1.64E-01
<sup>234</sup> U	4.87E+01	9.43E-01	1.97E-01	1.02E+02	1.70E+00	1.70E-01
<sup>235</sup> U	2.19E+00	2.17E-01	2.00E-01	3.56E+00	3.01E-01	1.66E-01
<sup>238</sup> U	3.35E+01	7.35E-01	1.76E-01	6.09E+01	1.15E+00	1.73E-01
Isotope	March 10, 1998 (14 m depth)			March 10, 1998 (12 m depth)		
	Activity Concentration (mBq g <sup>-1</sup> )	SD (mBq g <sup>-1</sup> )	MDC (mBq g <sup>-1</sup> )	Activity Concentration (mBq g <sup>-1</sup> )	SD (mBq g <sup>-1</sup> )	MDC (mBq g <sup>-1</sup> )
	<sup>241</sup> Am	1.49E-01	1.86E-02	2.08E-02	5.86E-02	7.86E-03
<sup>238</sup> Pu	<MDC		2.31E-02	<MDC		3.30E-02
<sup>239/240</sup> Pu	3.35E-01	1.94E-02	1.36E-02	1.99E-01	1.61E-02	1.47E-02
<sup>228</sup> Th	3.55E+01	7.83E-01	2.63E-01	2.44E+01	6.14E-01	2.31E-01
<sup>230</sup> Th	3.40E+01	7.61E-01	2.16E-01	2.70E+01	6.54E-01	2.18E-01
<sup>232</sup> Th	2.75E+01	6.62E-01	1.40E-01	2.38E+01	6.01E-01	1.79E-01
<sup>234</sup> U	8.04E+01	1.88E+00	2.67E-01	4.35E+01	1.23E+00	2.51E-01
<sup>235</sup> U	2.73E+00	3.19E-01	2.78E-01	1.97E+00	2.68E-01	2.42E-01
<sup>238</sup> U	5.15E+01	1.36E+00	2.41E-01	2.99E+01	9.63E-01	2.20E-01
Isotope	October 14, 1998 (10 m depth)			October 14, 1998 (10 m depth)		
	Activity Concentration (mBq g <sup>-1</sup> )	SD (mBq g <sup>-1</sup> )	MDC (mBq g <sup>-1</sup> )	Activity Concentration (mBq g <sup>-1</sup> )	SD (mBq g <sup>-1</sup> )	MDC (mBq g <sup>-1</sup> )
	<sup>241</sup> Am	1.11E-01	1.07E-02	1.43E-02	1.43E-01	1.17E-02
<sup>238</sup> Pu	<MDC		1.30E-02	<MDC		1.30E-02

Isotope	October 14, 1998 (10 m depth)			October 14, 1998 (10 m depth)		
	Activity Concentration (mBq g <sup>-1</sup> )	SD (mBq g <sup>-1</sup> )	MDC (mBq g <sup>-1</sup> )	Activity Concentration (mBq g <sup>-1</sup> )	SD (mBq g <sup>-1</sup> )	MDC (mBq g <sup>-1</sup> )
<sup>241</sup> Am	1.53E-01	1.43E-02	1.44E-02	1.37E-01	1.17E-02	1.17E-02
<sup>238</sup> Pu	3.98E-02	7.23E-03	1.60E-02	2.91E-02	5.88E-03	1.22E-02
<sup>239/240</sup> Pu	4.35E-01	2.17E-02	1.51E-02	4.13E-01	2.10E-02	1.62E-02
<sup>228</sup> Th	3.57E+01	9.60E-01	3.52E-01	1.01E+02	2.74E+00	3.21E-01
<sup>230</sup> Th	3.17E+01	8.92E-01	3.06E-01	6.15E+01	1.90E+00	2.92E-01
<sup>232</sup> Th	2.69E+01	8.10E-01	2.29E-01	3.30E+00	4.24E-01	3.42E-01
<sup>234</sup> U	1.02E+02	2.33E+00	3.05E-01	3.06E+01	8.88E-01	3.51E-01
<sup>235</sup> U	4.44E+00	4.38E-01	2.65E-01	2.62E+01	8.06E-01	2.31E-01
<sup>238</sup> U	5.95E+01	1.56E+00	2.79E-01	3.02E+01	8.78E-01	2.89E-01
Isotope	July 27, 1999 (10 m depth)			July 27, 1999 (13 m depth)		
	Activity Concentration (mBq g <sup>-1</sup> )	SD (mBq g <sup>-1</sup> )	MDC (mBq g <sup>-1</sup> )	Activity Concentration (mBq g <sup>-1</sup> )	SD (mBq g <sup>-1</sup> )	MDC (mBq g <sup>-1</sup> )
<sup>241</sup> Am	1.10E-01	1.46E-02	2.48E-02	1.22E-01	1.78E-02	3.21E-02
<sup>238</sup> Pu	2.14E-02	6.70E-03	1.81E-02	1.93E-02	6.23E-03	1.77E-02
<sup>239/240</sup> Pu	2.97E-01	2.04E-02	1.82E-02	4.06E-01	2.31E-02	1.25E-02
<sup>228</sup> Th	2.91E+01	8.06E-01	4.11E-01	3.39E+01	7.67E-01	2.63E-01
<sup>230</sup> Th	2.59E+01	1.03E+00	4.91E-01	3.38E+01	7.63E-01	2.32E-01
<sup>232</sup> Th	3.19E+01	1.16E+00	5.27E-01	2.88E+01	6.86E-01	1.40E-01
<sup>234</sup> U	6.38E+01	1.22E+00	2.08E-01	9.20E+01	1.56E+00	1.93E-01
<sup>235</sup> U	3.27E+00	2.93E-01	2.15E-01	3.67E+00	3.08E-01	1.79E-01
<sup>238</sup> U	4.33E+01	9.32E-01	2.53E-01	5.49E+01	1.07E+00	1.67E-01
Isotope	July 27, 1999 (14 m depth)			July 27, 1999 (13 m depth)		
	Activity Concentration (mBq g <sup>-1</sup> )	SD (mBq g <sup>-1</sup> )	MDC (mBq g <sup>-1</sup> )	Activity Concentration (mBq g <sup>-1</sup> )	SD (mBq g <sup>-1</sup> )	MDC (mBq g <sup>-1</sup> )
<sup>241</sup> Am	1.42E-01	1.79E-02	2.42E-02	1.40E-01	1.18E-02	1.53E-02
<sup>238</sup> Pu	<MDC		2.76E-02	1.70E-02	5.84E-03	1.59E-02
<sup>239/240</sup> Pu	3.75E-01	2.48E-02	2.28E-02	3.91E-01	2.34E-02	1.73E-02
<sup>228</sup> Th	3.66E+01	8.15E-01	2.41E-01	3.44E+01	8.97E-01	3.46E-01
<sup>230</sup> Th	3.39E+01	7.75E-01	2.31E-01	3.38E+01	8.85E-01	2.54E-01
<sup>232</sup> Th	2.89E+01	6.98E-01	2.10E-01	2.64E+01	7.63E-01	2.10E-01
<sup>234</sup> U	9.70E+01	1.68E+00	2.71E-01	9.55E+01	1.64E+00	1.55E-01
<sup>235</sup> U	3.21E+00	2.90E-01	2.35E-01	3.44E+00	3.00E-01	2.16E-01
<sup>238</sup> U	5.84E+01	1.15E+00	2.61E-01	5.78E+01	1.13E+00	1.85E-01

<sup>232</sup> Th	3.41E+01	9.44E-01	3.97E-01	3.65E+01	1.00E+00	4.78E-01
<sup>234</sup> U	3.41E+01	9.42E-01	3.07E-01	8.47E+01	2.38E+00	4.38E-01
<sup>235</sup> U	1.05E+02	3.01E+00	3.44E-01	3.34E+00	4.55E-01	4.05E-01
<sup>238</sup> U	4.86E+00	5.63E-01	3.73E-01	5.47E+01	1.77E+00	4.24E-01
<b>Isotope</b>	<b>May 22, 2000 (13 m depth)</b>			<b>May 22, 2000 (12 m depth)</b>		
	<b>Activity Concentration (mBq g<sup>-1</sup>)</b>	<b>SD (mBq g<sup>-1</sup>)</b>	<b>MDC (mBq g<sup>-1</sup>)</b>	<b>Activity Concentration (mBq g<sup>-1</sup>)</b>	<b>SD (mBq g<sup>-1</sup>)</b>	<b>MDC (mBq g<sup>-1</sup>)</b>
<sup>241</sup> Am	1.37E-01	1.18E-02	1.36E-02	1.54E-01	1.25E-02	1.42E-02
<sup>238</sup> Pu	2.85E-02	6.05E-03	1.39E-02	<MDC		2.09E-02
<sup>239/240</sup> Pu	3.82E-01	1.97E-02	1.22E-02	4.15E-01	2.13E-02	1.17E-02
<sup>228</sup> Th	3.19E+01	7.98E-01	2.51E-01	3.66E+01	9.05E-01	3.25E-01
<sup>230</sup> Th	2.62E+01	7.08E-01	1.74E-01	3.55E+01	8.87E-01	2.90E-01
<sup>232</sup> Th	3.33E+01	8.22E-01	3.38E-01	2.77E+01	7.62E-01	1.72E-01
<sup>234</sup> U	1.01E+02	2.90E+00	2.71E-01	1.05E+02	3.04E+00	3.60E-01
<sup>235</sup> U	3.96E+00	4.97E-01	3.73E-01	4.31E+00	5.28E-01	3.93E-01
<sup>238</sup> U	5.83E+01	1.93E+00	3.13E-01	5.93E+01	1.99E+00	3.40E-01

<sup>a</sup>SD = One standard deviation of the radioanalytical uncertainty

<sup>b</sup>MDC = Minimum Detectable Concentration