

**Table 00-17. Activity Concentrations of Radionuclides Measured by Gamma Spectroscopy in Brantley Lake 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					
	January 30, 1998 (12.2 m depth)			January 30, 1998 (12.8 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>228</sup> Ac	3.48E+01	7.80E-01	1.99E+00	4.52E+01	9.06E-01	2.10E+00
<sup>241</sup> Am	<MDL		2.18E+00	<MDL		2.40E+00
<sup>7</sup> Be	<MDL		3.33E+03	<MDL		8.82E+03
<sup>212</sup> Bi	4.02E+01	2.54E+00	7.48E+00	4.18E+01	2.61E+00	7.63E+00
<sup>213</sup> Bi	<MDL		1.22E+00	<MDL		1.32E+00
<sup>214</sup> Bi	2.86E+01	5.03E-01	9.93E-01	3.88E+01	6.17E-01	1.14E+00
<sup>144</sup> Ce	<MDL		7.38E+00	<MDL		1.22E+01
<sup>249</sup> Cf	<MDL		4.58E-01	<MDL		5.73E-01
<sup>60</sup> Co	<MDL		4.71E-01	<MDL		5.57E-01
<sup>134</sup> Cs	<MDL		5.58E+00	<MDL		3.71E+00
<sup>137</sup> Cs	7.33E+00	2.18E-01	3.48E-01	8.22E+00	2.41E-01	4.09E-01
<sup>152</sup> Eu	<MDL		1.20E+00	<MDL		8.48E-01
<sup>154</sup> Eu	<MDL		1.25E+00	<MDL		1.84E+00
<sup>40</sup> K	4.72E+02	7.54E+00	5.85E+00	6.21E+02	9.55E+00	5.94E+00
<sup>233</sup> Pa	<MDL		7.83E-01	<MDL		7.41E-01
<sup>234m</sup> Pa	4.20E+01	1.16E+01	3.71E+01	<MDL		6.78E+01
<sup>212</sup> Pb	3.33E+01	5.26E-01	5.54E-01	4.30E+01	6.64E-01	7.41E-01
<sup>214</sup> Pb	2.93E+01	4.46E-01	1.04E+00	3.87E+01	5.48E-01	9.96E-01
<sup>106</sup> Rh	<MDL		9.69E+00	<MDL		1.07E+01
<sup>125</sup> Sb	<MDL		1.12E+00	<MDL		1.55E+00
<sup>208</sup> Tl	1.06E+01	2.33E-01	5.76E-01	1.38E+01	2.66E-01	6.04E-01
Isotope	February 4, 1998 (11.6 m depth)			February 4, 1998 (12.8 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>228</sup> Ac	3.21E+01	7.14E-01	1.92E+00	4.76E+01	9.06E-01	2.00E+00
<sup>241</sup> Am	<MDL		2.33E+00	<MDL		2.36E+00
<sup>7</sup> Be	<MDL		5.87E+03	<MDL		4.43E+03
<sup>212</sup> Bi	3.32E+01	2.58E+00	7.82E+00	4.97E+01	2.53E+00	7.21E+00

<sup>40</sup> K	5.15E+02	8.10E+00	5.76E+00	6.08E+02	9.23E+00	5.40E+00
<sup>233</sup> Pa	<MDL		7.54E-01	<MDL		5.59E-01
<sup>234m</sup> Pa	<MDL		4.58E+01	<MDL		3.92E+01
<sup>212</sup> Pb	3.19E+01	5.06E-01	5.65E-01	4.56E+01	6.74E-01	6.30E-01
<sup>214</sup> Pb	2.93E+01	4.46E-01	1.04E+00	4.40E+01	5.90E-01	9.41E-01
<sup>106</sup> Rh	<MDL		7.16E+00	<MDL		1.29E+01
<sup>125</sup> Sb	<MDL		1.31E+00	<MDL		1.95E+00
<sup>208</sup> Tl	1.01E+01	2.22E-01	5.62E-01	1.42E+01	2.55E-01	5.21E-01
<b>Isotope</b>	<b>October 7, 1998 (11.0 m depth)</b>			<b>October 7, 1998 (11.9 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>228</sup> Ac	3.46E+01	7.38E-01	1.77E+00	3.76E+01	8.01E-01	2.04E+00
<sup>241</sup> Am	<MDL		2.11E+00	<MDL		2.26E+00
<sup>7</sup> Be	<MDL		3.80E+02	<MDL		4.50E+02
<sup>212</sup> Bi	3.62E+01	2.22E+00	6.38E+00	3.78E+01	2.56E+00	7.56E+00
<sup>213</sup> Bi	<MDL		1.43E+00	<MDL		1.42E+00
<sup>214</sup> Bi	2.72E+01	4.81E-01	9.25E-01	2.93E+01	5.25E-01	1.11E+00
<sup>144</sup> Ce	<MDL		5.05E+00	<MDL		5.98E+00
<sup>249</sup> Cf	<MDL		4.94E-01	<MDL		5.99E-01
<sup>60</sup> Co	<MDL		3.07E-01	<MDL		4.32E-01
<sup>134</sup> Cs	<MDL		2.66E+00	<MDL		3.97E+00
<sup>137</sup> Cs	8.16E+00	2.26E-01	3.24E-01	7.34E+00	2.26E-01	4.01E-01
<sup>152</sup> Eu	<MDL		1.02E+00	<MDL		1.08E+00
<sup>154</sup> Eu	<MDL		1.35E+00	<MDL		1.65E+00
<sup>40</sup> K	4.73E+02	7.52E+00	5.46E+00	4.94E+02	7.81E+00	4.93E+00
<sup>233</sup> Pa	<MDL		5.93E-01	<MDL		6.49E-01
<sup>234m</sup> Pa	4.44E+01	1.27E+01	4.08E+01	<MDL		4.37E+01
<sup>212</sup> Pb	3.31E+01	5.29E-01	6.48E-01	3.59E+01	5.79E-01	6.85E-01
<sup>214</sup> Pb	2.82E+01	4.24E-01	8.46E-01	2.99E+01	4.72E-01	1.15E+00
<sup>106</sup> Rh	<MDL		6.06E+00	<MDL		7.96E+00
<sup>125</sup> Sb	<MDL		1.22E+00	<MDL		1.80E+00
<sup>208</sup> Tl	1.05E+01	2.17E-01	5.10E-01	1.11E+01	2.36E-01	5.54E-01
<b>Isotope</b>	<b>October 8, 1998 (14.0 m depth)</b>			<b>October 8, 1998 (13.4 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>228</sup> Ac	4.28E+01	8.76E-01	1.97E+00	3.79E+01	7.49E-01	1.62E+00
<sup>241</sup> Am	<MDL		2.50E+00	<MDL		2.06E+00

<sup>152</sup> Eu	<MDL		7.93E-01	<MDL		9.00E-01
<sup>154</sup> Eu	<MDL		9.96E-01	<MDL		8.69E-01
<sup>40</sup> K	5.76E+02	8.82E+00	6.50E+00	5.23E+02	8.04E+00	5.20E+00
<sup>233</sup> Pa	<MDL		9.83E-01	<MDL		7.10E-01
<sup>234m</sup> Pa	4.27E+01	1.27E+01	4.08E+01	<MDL		4.93E+01
<sup>212</sup> Pb	4.21E+01	6.28E-01	6.58E-01	3.84E+01	5.77E-01	5.66E-01
<sup>214</sup> Pb	3.76E+01	5.24E-01	1.09E+00	2.95E+01	4.28E-01	8.34E-01
<sup>106</sup> Rh	<MDL		7.77E+00	<MDL		6.08E+00
<sup>125</sup> Sb	<MDL		1.41E+00	<MDL		6.84E-01
<sup>208</sup> Tl	1.32E+01	2.75E-01	6.73E-01	1.16E+01	2.22E-01	4.87E-01
<b>Isotope</b>	<b>July 1, 1999 (11.0 m depth)</b>			<b>July 1, 1999 (9.4 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>228</sup> Ac	3.35E+01	6.88E-01	1.66E+00	3.07E+01	6.69E-01	1.75E+00
<sup>241</sup> Am	<MDL		1.64E+00	<MDL		2.12E+00
<sup>7</sup> Be	<MDL		8.39E+00	1.14E+01	3.16E+00	1.02E+01
<sup>212</sup> Bi	3.91E+01	2.07E+00	5.89E+00	3.40E+01	1.97E+00	5.60E+00
<sup>213</sup> Bi	<MDL		1.07E+00	<MDL		1.48E+00
<sup>214</sup> Bi	2.63E+01	4.40E-01	8.48E-01	2.65E+01	4.64E-01	9.47E-01
<sup>144</sup> Ce	<MDL		2.48E+00	<MDL		3.53E+00
<sup>249</sup> Cf	NA			<MDL		4.37E-01
<sup>60</sup> Co	<MDL		2.62E-01	<MDL		3.04E-01
<sup>134</sup> Cs	<MDL		2.40E+00	<MDL		2.48E+00
<sup>137</sup> Cs	7.76E+00	2.03E-01	2.89E-01	9.00E+00	2.30E-01	3.30E-01
<sup>152</sup> Eu	<MDL		8.89E-01	<MDL		1.51E+00
<sup>154</sup> Eu	<MDL		8.42E-01	<MDL		1.65E+00
<sup>40</sup> K	4.91E+02	7.54E+00	4.30E+00	4.43E+02	6.94E+00	4.69E+00
<sup>233</sup> Pa	<MDL		7.54E-01	<MDL		7.39E-01
<sup>234m</sup> Pa	<MDL		4.80E+01	5.39E+01	1.44E+01	4.64E+01
<sup>212</sup> Pb	3.30E+01	5.13E-01	5.98E-01	3.20E+01	5.38E-01	6.43E-01
<sup>214</sup> Pb	2.70E+01	3.96E-01	7.91E-01	2.71E+01	4.84E-01	1.02E+00
<sup>106</sup> Rh	<MDL		3.51E+00	<MDL		4.28E+00
<sup>125</sup> Sb	<MDL		9.79E-01	<MDL		1.19E+00
<sup>208</sup> Tl	1.06E+01	2.04E-01	4.49E-01	9.60E+00	2.03E-01	4.97E-01
<b>Isotope</b>	<b>July 9, 1999 (14.3 m depth)</b>			<b>July 9, 1999 (13.1 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>134</sup> Cs	<MDL		2.09E+00	<MDL		2.36E+00
<sup>137</sup> Cs	4.80E+00	1.69E-01	3.18E-01	6.99E+00	1.91E-01	3.04E-01
<sup>152</sup> Eu	<MDL		1.18E+00	<MDL		7.90E-01
<sup>154</sup> Eu	<MDL		1.02E+00	<MDL		1.13E+00
<sup>40</sup> K	3.90E+02	6.32E+00	5.06E+00	5.41E+02	8.13E+00	4.56E+00
<sup>233</sup> Pa	<MDL		5.96E-01	<MDL		7.42E-01
<sup>234m</sup> Pa	<MDL		5.01E+01	7.62E+01	1.58E+01	5.06E+01
<sup>212</sup> Pb	2.84E+01	4.68E-01	6.31E-01	3.83E+01	5.85E-01	6.14E-01
<sup>214</sup> Pb	2.04E+01	3.38E-01	7.91E-01	2.95E+01	4.26E-01	8.04E-01
<sup>106</sup> Rh	<MDL		4.60E+00	<MDL		3.76E+00
<sup>125</sup> Sb	<MDL		1.21E+00	<MDL		1.18E+00
<sup>208</sup> Tl	8.77E+00	1.93E-01	4.83E-01	1.22E+01	2.22E-01	4.50E-01
<b>Isotope</b>	<b>June 8, 2000 (12.2 m depth)</b>			<b>May 31, 2000 (13.3 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>228</sup> Ac	3.93E+01	8.73E-01	2.23E+00	3.92E+01	8.52E-01	2.30E+00
<sup>241</sup> Am	<MDC		3.13E+00	<MDC		3.14E+00
<sup>7</sup> Be	<MDC		7.66E+00	<MDC		8.23E+00
<sup>212</sup> Bi	3.98E+01	2.57E+00	7.36E+00	4.04E+01	2.42E+00	6.89E+00
<sup>213</sup> Bi	<MDC		1.15E+00	<MDC		1.28E+00
<sup>214</sup> Bi	2.69E+01	5.26E-01	1.06E+00	2.56E+01	5.06E-01	1.11E+00
<sup>144</sup> Ce	<MDC		2.81E+00	<MDC		2.56E+00
<sup>249</sup> Cf	<MDC		5.62E-01	<MDC		4.01E-01
<sup>60</sup> Co	<MDC		5.25E-01	<MDC		4.67E-01
<sup>134</sup> Cs	<MDC		3.08E+00	<MDC		3.22E+00
<sup>137</sup> Cs	5.83E+00	1.54E-01	3.62E-01	5.36E+00	1.39E-01	3.51E-01
<sup>152</sup> Eu	<MDC		1.56E+00	<MDC		9.93E-01
<sup>154</sup> Eu	<MDC		1.53E+00	<MDC		2.03E+00
<sup>40</sup> K	5.19E+02	9.39E+00	5.92E+00	5.15E+02	8.96E+00	7.24E+00
<sup>233</sup> Pa	<MDC		9.64E-01	<MDC		9.73E-01
<sup>234m</sup> Pa	<MDC		6.23E+01	<MDC		6.21E+01
<sup>212</sup> Pb	3.66E+01	6.06E-01	6.46E-01	3.72E+01	5.45E-01	6.01E-01
<sup>214</sup> Pb	2.76E+01	4.55E-01	1.10E+00	2.73E+01	4.34E-01	1.00E+00
<sup>106</sup> Rh	<MDC		5.59E+00	<MDC		5.59E+00
<sup>125</sup> Sb	<MDC		9.47E-01	<MDC		1.07E+00
<sup>208</sup> Tl	1.19E+01	2.79E-01	4.96E-01	1.16E+01	2.51E-01	4.62E-01
	<b>June 8, 2000 (12.2 m depth)</b>			<b>June 8, 2000 (12.2 m depth)</b>		
	<b>Activity</b>	<b>SD</b>	<b>MDC</b>	<b>Activity</b>	<b>SD</b>	<b>MDC</b>

<sup>249</sup> Cf	<MDC		5.99E-01	<MDC		4.28E-01
<sup>60</sup> Co	<MDC		4.96E-01	<MDC		4.78E-01
<sup>134</sup> Cs	<MDC		3.96E+00	<MDC		3.32E+00
<sup>137</sup> Cs	5.74E+00	1.55E-01	3.90E-01	5.54E+00	1.41E-01	3.44E-01
<sup>152</sup> Eu	<MDC		1.20E+00	<MDC		1.00E+00
<sup>154</sup> Eu	<MDC		1.14E+00	<MDC		1.10E+00
<sup>40</sup> K	5.38E+02	9.69E+00	6.16E+00	5.52E+02	9.45E+00	6.51E+00
<sup>233</sup> Pa	<MDC		8.11E-01	<MDC		7.11E-01
<sup>234m</sup> Pa	<MDC		4.58E+01	<MDC		4.64E+01
<sup>212</sup> Pb	3.83E+01	6.22E-01	6.43E-01	3.89E+01	5.65E-01	6.30E-01
<sup>214</sup> Pb	2.79E+01	4.57E-01	1.08E+00	2.74E+01	4.38E-01	1.04E+00
<sup>106</sup> Rh	<MDC		3.87E+00	<MDC		4.20E+00
<sup>125</sup> Sb	<MDC		1.31E+00	<MDC		1.32E+00
<sup>208</sup> Tl	1.24E+01	2.97E-01	5.62E-01	1.17E+01	2.58E-01	4.96E-01

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

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