

ATTACHMENT 5

ANALYSIS OF THORIUM AND URANIUM

# FORM I SAMPLE RESULTS

Date: 18-Aug-04

Lab Name: **STL Richland**      SDG: **26542**      Collection Date: **7/20/2004**  
 Lot-Sample No.: **J4G230471-3**      Report No.: **26444**      Received Date: **7/29/2004 2:30:00 PM**  
 Client Sample ID: **FW07224-1**      COC No.:      Matrix: **SOLID**

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert (2 s)	MDC MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/ToUncert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 4218136    RAD-UISO BY ALPHA    Work Order: GMA851AJ    Report DB ID: 9GMA8510												
URANIUM 233/234	<b>5.32E+01</b>		6.58E+00	1.16E+01	1.58E+00	pCi/g	57%	(33.7)	8/13/04 10:00 a		0.0539	ALP1
							5.16E-01	1.00E+00			g	
URANIUM 235/236	<b>3.00E+00</b>		1.57E+00	1.66E+00	9.70E-01	pCi/g	57%	(3.1)	8/13/04 10:00 a		0.0539	ALP1
							2.11E-01	1.00E+00			g	
URANIUM 238	<b>8.85E+01</b>		8.48E+00	1.80E+01	1.39E+00	pCi/g	57%	(63.6)	8/13/04 10:00 a		0.0539	ALP1
							4.21E-01	1.00E+00			g	

**CD**

Ratio U-234/238 = 0.6

Batch: 4218137	RICHRCS011	Work Order: GMA851AH	Report DB ID: 9GMA8510
THORIUM 228	<b>2.08E+02</b>	1.15E+01	3.26E+01
			9.03E-01
			2.35E-01
			1.00E+00
			(12.7)
THORIUM 230	<b>6.26E+01</b>	6.23E+00	1.11E+01
			7.42E-01
			1.61E-01
			1.00E+00
			(11.3)
THORIUM 232	<b>2.36E+02</b>	1.21E+01	3.67E+01
			4.20E-01
			pCi/g
			102%
			(562.)
			8/13/04 01:59 p
			1.00E+00
			(12.9)

Batch: 4218138	E901.1	Work Order: GMA851AG	Report DB ID: 9GMA8510
ACTINIUM 228	<b>2.03E+02</b>	2.81E+01	2.81E+01
			1.70E+00
			pCi/g
			8.51E-01
			(119.4)
BISMUTH 212	<b>1.92E+02</b>	2.75E+01	2.75E+01
			9.85E+00
			pCi/g
			4.93E+00
			(19.5)
			(14.)
CESIUM 137	<b>-1.62E-01</b>	U	4.70E-01
			4.70E-01
			7.80E-01
			pCi/g
			2.00E-01
			-0.69
			8/9/04 04:39 p
			50.3
			g
			GER1\$1

STL Richland    MDC|MDA, Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample efficiency, yield, and volume.  
 rptSTLRechSample    J Qual - No U|k qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.  
 V4.09.2 A97    U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

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POTASSIUM 40	<b>1.52E+01</b>		6.06E+00	6.06E+00	4.80E+00	pCi/g	(3.2)	(5.)	8/9/04 04:39 p	50.3	50.3	GER1\$1
MANGANESE 54	<b>2.67E+00</b>		6.32E-01	6.32E-01	6.81E-01	pCi/g	(3.9)	(8.5)	8/9/04 04:39 p	50.3	50.3	GER1\$1
LEAD 212	<b>1.72E+02</b>		2.57E+01	2.57E+01	9.48E-01	pCi/g	(181.6)	(13.4)	8/9/04 04:39 p	50.3	50.3	GER1\$1
RADIUM 223	<b>4.66E+01</b>		7.29E+00	7.29E+00	2.90E+00	pCi/g	(16.)	(12.8)	8/9/04 04:39 p	50.3	50.3	GER1\$1
RADIUM 224	<b>1.76E+02</b>		2.63E+01	2.63E+01	9.68E-01	pCi/g	(181.6)	(13.4)	8/9/04 04:39 p	50.3	50.3	GER1\$1
RADIUM 226	<b>2.27E-01</b>	U	7.78E-01	7.78E-01	1.31E+00	pCi/g	0.17	0.58	8/9/04 04:39 p	50.3	50.3	GER1\$1
RADIUM 228	<b>2.04E+02</b>		2.83E+01	2.83E+01	1.71E+00	pCi/g	(119.4)	(14.4)	8/9/04 04:39 p	50.3	50.3	GER1\$1
THORIUM 228	<b>1.54E+02</b>		1.90E+01	1.90E+01	2.03E+00	pCi/g	(75.7)	(16.1)	8/9/04 04:39 p	50.3	50.3	GER1\$1
THORIUM 232	<b>1.93E+02</b>		2.47E+01	2.47E+01	3.79E+00	pCi/g	(50.9)	(15.6)	8/9/04 04:39 p	50.3	50.3	GER1\$1
THALLIUM 208	<b>5.41E+01</b>		6.70E+00	6.70E+00	7.14E-01	pCi/g	(75.7)	(16.1)	8/9/04 04:39 p	50.3	50.3	GER1\$1
URANIUM 238	<b>8.36E+01</b>		2.15E+01	2.15E+01	2.12E+01	pCi/g	(3.9)	(7.8)	8/9/04 04:39 p	50.3	50.3	GER1\$1

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